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**XII INTERNATIONAL MAY CONFERENCE ON
STRATEGIC MANAGEMENT**



**XII STUDENTS SYMPOSIUM ON STRATEGIC
MANAGEMENT**

BOOK OF PROCEEDINGS

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**XII INTERNATIONAL MAY CONFERENCE
ON STRATEGIC MANAGEMENT**

**XII STUDENTS SYMPOSIUM ON STRATEGIC
MANAGEMENT**

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Bor, May 28 – 30, 2016



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**INTERNATIONAL MAY CONFERENCE ON
STRATEGIC MANAGEMENT**

Plenary lectures:

EFFECTS OF INTERNATIONAL PROJECT EDUCATION ON ENTREPRENEURSHIP STUDENTS: A JOINT DUTCH – RUSSIAN CASE STUDY

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Abstract: This paper is about a case study and joint experience of three international business schools, measuring the results of the implementation of a joint international educational project, in order to improve university – business relationships, as well as better prepare the students for changes in the global labour market. The authors initiated a yearly recurring joint international educational project, and used it to develop a blended learning educational model, in order to systematically use both internationalization and university business relations to modernize their education in entrepreneurship and engineering management.

The idea behind this model was to increase effectiveness of entrepreneurship education in universities and creating a win-win situation for both companies (who will receive support in their international strategy) and students (in terms of improved education). This paper shows the results of this case study in terms of measuring the effects of participation on knowledge, skills and attitude about working abroad on the participants. Participating students from both The Netherlands and Russia perceive a large development in knowledge and skills in doing business abroad, as well as an increase in study satisfaction, as a result of participating in the program. The attitude towards an international career is less clearly influenced by participating in this program.

Keywords: Education, international entrepreneurship, intercultural communication

1. INTRODUCTION

Entrepreneurship education is growing in Europe and is becoming more and more part of the curricula of business education study programs, not in the least place because entrepreneurship is seen by policy makers as one of the drivers of regional economic growth (Bazen & Bijleveld, 2012; European Commission, 2013). The practice of entrepreneurship itself is chaotic, complex and uncertain, and therefore it can be argued that teaching students to be successful professionals in this sphere, requires a specific teaching approach and methodology (Fayolle, 2013; Neck & Greene, 2011), some authors even go as far as to suggest that effective entrepreneurship education is part of a totally different scientific paradigm (Sarasvathy & Venkataraman, 2011). Taking the considerations of these authors in mind, the authors decided that it was important to design a new education model for teaching

international entrepreneurship that would be as exploratory as possible to give students enough free room to explore the unknown market situation and give them room to develop their knowledge and skills, yet help them with the guidance of lecturers when needed. In this case the negative consequences of the complex, chaotic and uncertain environment can be averted.

Teaching and stimulating entrepreneurship among students can be stimulated by investing in entrepreneurship education, and supporting the students by stimulating entrepreneurial behavior, explained among others by Duma (2014) and Hammer (2012). One of the suggested routes from literature on entrepreneurship education is to put attention on entrepreneurial intention and to teach students more entrepreneurial behavior by offering them participation in real life situations in a business planning process of an existing company, to learn from there why, when and how decisions are made (Krueger, 2009). One of the characteristics of entrepreneurship is the ability of an entrepreneur to deal with uncertain situations, therefore Neck & Greene (2011) suggests that students should be brought as much as possible into these situations while teachers guide them with teaching the students not in the first place knowledge, but instead the methods to deal with this uncertainty. Their view is closely related to the work of Kolb (1984) on what he calls Experiential Learning Theory (ELT). We used ELT in our project, by giving the students both practical experience as well as reflection sessions on it, in order to create a more in-depth experience.

By combining a real life business situation, which involves a situation of uncertainty for the students and guidance of the lecturers during the reflection sessions the authors attempted to create an effective program to teach entrepreneurial competences. As Kolb & Kolb (2005) suggest, effective experiential and action learning involves teaching students both knowledge and skills and tries to influence their attitude about a certain topic. In the teaching methodology of the program that was at the core of this case study, we tried to include all three of these aspects. The focus of this article is not a detailed description of the educational program itself and the choices that were made when developing it, as the authors have written in previous work about this (Bazen & Petrova, 2013). Instead the focus is on measuring the effect of the program on the participants. However, for a better understanding of the context of the study, a short description of the educational program is provided under the next heading. Even though the program itself is only focusing on Dutch and Russian markets, the methodology and findings of this study may be interesting for others as well, as the model can be applied in different countries, as long as a number of requirements for cooperation are fulfilled.

2. INTRODUCTION AND BACKGROUND OF THE CASE STUDY: THE EDUCATIONAL MODEL

This case study is the result of the development of an educational model for international project cooperation developed by Saxion University of Applied Sciences in Enschede¹, The Netherlands and Herzen State Pedagogical University in St. Petersburg² and

¹ Saxion University of Applied Sciences: www.saxion.edu

² Herzen State Pedagogical University: www.herzen.spb.ru

Lomonosov Moscow State University³, Russian Federation. The program was created for and advertised among business students of these universities and the participating students were selected on the basis of their level of English and motivational letter written during their application. Out of these applications, mixed teams were formed that consisted of both Russian and Dutch students.

The main assignment given to the participants is to develop a plan for helping a Dutch company to become active on the Russian market or vice versa. The program consists of three stages: In the first stage, the students have to do desk research and work on collecting the necessary data / literature, and contact each other via Skype, WhatsApp or similar technologies. This first stage is followed by a second, exchange stage, which consists of two times a week to do (if still necessary) field research and to develop the ideas further into plans. This stage consists of one week in St. Petersburg/Moscow and one week in Enschede. The third and final stage is the phase in which the participants present their plans for the entrepreneur and write and deliver a written report to him/her.

Both exchange weeks, the second stage are a combination of lectures about the specifics of the Dutch and Russian markets, entrepreneurial behavior workshops and characteristics of the business culture of both countries, as well as practical field research work. Students have to look for concrete partners and business contacts for the entrepreneur, for example during an industry exhibition fair in St. Petersburg/Moscow. The educational program serves the following goals for the stakeholders, as listed below:

- For the students: Participation in the program enables them to obtain cross-cultural experience through international teamwork. The students could practice with how it is to work under pressure to finish a project within a limited time, and in different countries. And finally it helps the development of their competences in solving a complex business problem.
- For the universities: Development of a model for short term exchange programs, which are supported by virtual student mobility in the periods before and between the actual mobility periods. It opens up more ways to cooperate with businesses around the university and contributes to the implementation and realization of strategic goals set out by the government for universities.
- For the businesses: The businesses can benefit from cooperation with the university by getting a “fresh view” on solving company issues at hand. Besides this, there is also a chance for scouting young talents among the students. And finally it can help with realizing Corporate Social Responsibility ambitions and can be useful to get additional free PR attention in the media.
- For the lecturers: Participation in this program gives lecturers a chance to improve and/or update their skills and knowledge about business practice. It also gives lecturers the possibility to help apply their research work in practice.

³ Lomonosov Moscow State University, Business School: www.mgubs.ru

The main assignment of the program is organized in such a way that students from both The Netherlands and Russia would need each other to successfully complete the task. At the start of the program, Dutch students of each team visit the Dutch company (if the company they do an assignment for is Dutch) and interview the entrepreneur, in order to obtain as much information about the company as possible. Similarly, if the company is Russian, the Russian students of the team will visit and interview the entrepreneur.

Whereas in Russia only a limited number of business people speak English, the Russian students with their language knowledge and better knowledge of the market are absolutely necessary for the success of the project. Likewise, the Dutch students have more knowledge about the company and its strategy and goals, and probably more experience with practical business projects within their education. For Russian companies wanting to be active in The Netherlands, the same things apply, but in opposite direction. As organizers we assumed that the Dutch students had more experience in practical business projects (as such types of business projects are part of the curriculum), but also assumed that the Russian students would know more about the Russian market and (business) culture. In this sense the two countries complement each other and from both sides a useful contribution to the teamwork could be arranged.

The year 2013, the year of the first edition of this program, was celebrated as the Dutch – Russian bilateral year (MinBuZa, 2013), which provided a good context to get all partners around the table and develop this program. The universities decided to call the program «International Autumn Business School» and to register it as one of the official Dutch – Russian activities within the bilateral year. The authors developed the practical assignment and program for the students with several partners. The practical assignment was acquired through the World Trade Center Twente⁴ and evaluated by the business development team of the Business & Science Park Twente⁵ organization in the Netherlands and both the First City Business Incubator St. Petersburg⁶ and the Federation of University educated Women of Russia⁷ in St. Petersburg. The program has been repeated every year since.

For the first edition of the Autumn Business School program only one assignment was acquired, from an innovative production company, active in the metal sector, from the region Twente in the eastern part of The Netherlands. This company was actively looking for market opportunities in Russia. The subsequent editions involved companies going both ways.

The official registration as one of the Dutch – Russian bilateral year activities led to the involvement of the government in this experiment as well, the municipality of Enschede explained about their strategies to support businesses to operate internationally and in St. Petersburg the Dutch Consulate shared their knowledge about possible opportunities and barriers which Dutch businesses in Russia may encounter. The universities provided additional lectures on cultural differences between The Netherlands and Russia, as well as a discussion on gender differences, which would, according to the expectations of FUWR, probably have a stronger influence on Russian business than in The Netherlands. The inclusion of the Autumn Business School in the official list of activities of the Dutch – Russian bilateral year led to quite a lot of media attention, ranging from online media, newspapers, magazines, radio and television in both Russia and The Netherlands.

⁴ WTC Twente: www.wtc-twente.eu

⁵ Kennispark Twente Business Development Team: www.kennispark.nl

⁶ First city business incubator St. Petersburg: <http://en.start-business.ru/>

⁷ Federation of University educated Women in Russia: www.fuwr.ru

3. METHODOLOGY OF MEASURING THE EFFECTS OF THE EDUCATIONAL PROGRAM

The total number of participating students in the first three editions was 90, consisting of 52 students from Russia, 29 students from The Netherlands and 9 of other EU countries (they will be put under the Dutch team in the rest of the report). Of all participating students, there were 51 Males and 39 Females. Russian female/male ratio was 25 female versus 27 male, whereas Dutch female/male ratio was 14 female versus 24 male. The Dutch male/female ratio is roughly similar to the male/female ratio of the general student population of the entrepreneurship/business engineering study programs, which is rather skewed (CBS, 2016). The Russian male/female ratio was different from the general engineering management student population ratio, possibly because of a selection effect during the application process. Even though in Russia, just like in the Netherlands more males than females study business, females in general tend to be better at learning and mastering foreign languages and thus more eligible for participation. This may especially apply to Russia, where only a limited percentage of the population speaks English (contrary to the Netherlands).

All participating students were studying on either bachelor or master level. None of the Russian participants had work experience in The Netherlands and similarly none of the Dutch participants had work experience in Russia. There was a difference however with the amount of practical project experience that students reported to have before the start of the program. Russian students reported in general that they had only little to no previous experience with doing practical business assignments within the framework of their study program, whereas all Dutch students reported to have some experience in this.

The main source of information acquired by this study came from interviewing all participants of the program in all three years. Based on their individual application and motivational letter students were interviewed (pre-test) about their skills and motivation to participate in and their expectations of participation in the program. The post-test took place some weeks after the second exchange week was finished, at the time when students were finishing their written report for the company. The post-test consisted of a semi-structured interview with all participating students, to find out about the effects the program had on their knowledge, skills and attitude. Next to this, in both Russia and The Netherlands a control group of peers from the same educational program (Entrepreneurship / Engineering management) was selected to measure differences in development with the students which participated in the program. The control group was asked via a survey to report on their perceived knowledge, skills and attitude towards doing business in Russia. The control group (n=44) consisted of students that were the peers of the participants to the program, but chose not to participate. The survey was handed out to these students during a lecture. This method was chosen because of the expected low response percentage when this control group questions would have been sent out by post or email to a random sample of Entrepreneurship students.

4. OUTCOMES AND CONCLUSIONS

From the motivation letters and interviews prior to the program, it became clear that many students did not know very well what to expect of the program. In the motivation

letters, most students mentioned things like “improvement of my English skills”, “using theory in practice”, “learning about new culture/country” or “the ability to meet new people” as reasons to participate. 69% of the Dutch students mentioned “visiting Russia” as the main reason to apply for the program. 28% of the Russian students mentioned that interest in studying in The Netherlands was their most important reason to apply for the Autumn Business School program.

Almost all students reported in the post-test interviews that they were generally happy to participate in the activities of the Autumn Business School program, as it provided them with an opportunity to translate the theoretical knowledge they learned in class into practice. The Russian students generally commented on the limited possibilities of getting practical experience within the framework of their current study program. One of the Russian students remarked for example:

The program was organized quite well, of course some of the things could have been organized more smoothly, but I am not complaining at all...it is really great and I'm very happy this program is organized in the first place. For me it was a good opportunity to get some practical business experience which I miss in my educational program.

Most Dutch students mentioned that participation in the program was a good way to learn about doing business abroad. Less than the Russian students they stressed points about the Autumn Business School being a good way of getting practical experience. This was expected, since the study programs in the Netherlands are quite practical oriented to begin with. For the Dutch students the international component of the Autumn Business School was most mentioned, and the ability to get to know practical knowledge of the large Russian market, as one student commented:

You know, Russia is a huge market, it's very good to know a bit about that. Actually it is such a big country that I still don't have any idea what is going on outside St. Petersburg. It was only my first time in Russia. (...) I do have an idea now about the way it works here. I mean they [Russian students] explained a lot about how Russians do business.

Seven Dutch students mentioned specifically that they have learned and understood more about the subject of rules and regulations in Russia and got an idea of the differences with the Netherlands.

During the interviews it turned out that cultural differences and differences of the education system between Russia and The Netherlands played a larger role in the results than we previously expected when planning the Autumn Business school program. One of the Dutch students (who has a Russian mother, and is therefore a Russian speaker, however never visited Russia before) reported specifically about a cultural shock:

I speak their language, yet I barely understand their discussions: What they think and mean is totally different. Believe me, there is a large mentality difference between Dutch and Russians and I never realized it before. After a day in St. Pete, I had the feeling that seriously everything is different here. Now that I think back I can

understand it better, I just came totally unprepared and ignorant about any cultural differences and it sort of struck me like a hammer.

Most students (both Dutch and Russian) reported they did experience cultural differences, but were aware of it and therefore acted a bit “cautiously” to make sure not to make large mistakes. They reported as well that they have the feeling that they gained more understanding of either the Dutch or Russian culture. 25 Russian students specifically mentioned to have learned some practical things about business communication in the Netherlands.

During the interviews, the students were asked if they felt some barriers and problems in successfully completing the program. As expected, 36 out of 38 Dutch students responded with experiencing a language barrier since they didn’t speak Russian. The remaining two Dutch students were more or less in command of the language. One of the students experiencing a language barrier remarked:

You are listening and are sometimes hearing a sort of familiar word, but understanding the conversations, just forget it. Well...I can't even read the [Cyrillic] alphabet. The Russians students in our group translated as much as possible, but in the end, you do feel a bit like: Ok, if you say so. With translation you lose so much information, it's not easy. Haha, I guess I'm one of these people who would always like to know exactly what's going on.

17 Russian students mentioned that it was not easy for them to participate in the program because of the lack of practical experience. One of these students specifically mentioned:

It's another world for me: I'm used to the university and how to write to teachers, but to communicate with companies, that is surely something else. I felt uneasy with that, but on the other hand, for everything there needs to be a first time.

With regard to development of the attitudes of the students, the answers on the question whether participation in the program led to a different view on doing business with Russia or The Netherlands and whether this program made them realize they would like to work in Russia or The Netherlands after graduation, were very different. 16 students indicated would tend to pursue an international career, but weren’t sure if they would like to work in or with Russia. 8 Dutch students told that participation in the program made them indeed decide to go do something with Russia, as one of them said:

It's a country with a lot of opportunities, I see that now. I have already started to learn Russian.

14 students told that this program made them realize that working with Russia is not for them:

It was really nice to participate and learn to know new people. I enjoyed St. Petersburg and liked the experience of walking around at the trade fair [at LenExpo],

but no...I realized it is not for me. I feel more comfortable here in the region [Twente, NL], and there are enough opportunities. Russian culture is really different, too different for me.

21 out of the 52 Russian students mentioned that they would like to work with The Netherlands. Reasons for it varied, but most were mentioning the higher payment and better working circumstances in The Netherlands and they felt to have more possibilities to be creative and innovative in Netherlands. 16 Russian students disagreed, they mentioned that they would rather like to work in Russia or in a different European country. The remaining students mentioned to be undecided:

There are certainly a lot of nice things in The Netherlands, but I'm not sure if I could really see myself living or working there for a longer time. The way people deal with family and friends is different, I find it quite strange. But who knows: If there is a nice opportunity, I'll see then.

Three quarters of both the Dutch and Russian students thought the model of Autumn Business School to be a good method for students in general of trying out and deciding whether working abroad would be good for them. Russian students were generally more outspoken than Dutch students, both when answering positive or negative in this matter. One of the (disagreeing) Russian students mentioned for example:

How can you decide in a program of two weeks whether you would like to work abroad or with foreign companies? It is not possible to decide upon that with just one case study and a situation of only working in groups. I would need a longer internship or project to really decide on that. Besides that I don't really like the metal business.

As evaluation of the teaching methods of the Autumn Business School, we asked the students which of the teaching methods they particularly liked and felt they learned the most from. Dutch and Russian students were quite different in their remarks. 71% of the Russian students in particular considered the practical part of the program to be most useful. Of them, 22 Russian students indicated they learned the most from the company visit:

It is something I have never done before. It was great to see how things are working in practice. Suddenly you see the real business and what is important for the company.

15 Russian students indicated they learned the most from the research in the LenExpo trade fair, in which they had to look for suitable partner companies for the metal company and find out information about the market circumstances of the construction sector in Russia. The remaining Russian students indicated that they learned most from the various lectures and presentations, at the university, the First City Business Incubator, the Dutch consulate or the World Trade Center. For the Dutch students the situation was quite different: 24 of the 38 students told they learned most from the various lectures:

I think I learned the most from the lectures and presentations. Suddenly you realize what you have to look for and what to think about when talking about business offers.

It's very good to hear that, so that you can immediately use it in the research. I liked the practical approach of most lecturers.

The differences between Russian and Dutch students here could be explained by the fact that Dutch students already reported to have more experience with practical business projects before participation in this project than their Russian counterparts. Another explanation might be that the language barrier that most of the Dutch students experienced, might have caused their perception that they learned most from the presentations and lectures in the program, all of which were in English, and understandable for all.

The survey held among the students in the control group showed that only 1 student had experience with doing business in Russia (the company of the parents of this student exports flowers, among others to Russia). Students from the control group only had very limited factual knowledge about Russia, Russian business and culture. Most of the answers given on the survey indicated that knowledge of Russia was consisting of just stereotypes. On the other hand there was a clear interest among several students to participate in the next edition of the Autumn Business School, as Russia was seen as a quite exotic place to go to and not something you would easily come across in the educational curriculum. None of the Dutch students reported to have heard or remembered anything about the Russian market and its characteristics during the course of the normal study program so far. About twenty percent of the students from the control group reported the idea of Autumn Business School to be uninteresting and a waste of time, money and effort for them. This view was not shared by any of the participants to the Autumn Business School, but since it was an optional subject within the curriculum and they actively had to apply for it, it is understandable that only intrinsically motivated students have signed up for this program.

From the interviews and comparison with the control group, we drew the conclusion that all participants to this Autumn Business School have the perception for themselves that the program had significant results for their knowledge and skills in doing international and intercultural projects. In terms of development of attitude, the results are mixed. Learning about doing international business in practice doesn't automatically develop both an appreciation of the target country and its culture. A minority of the students even indicated that they decided to not pursue an international career at all, as they considered themselves not "feeling at ease" abroad in general. A substantial percentage of the students decided Russia or The Netherlands was nothing for them, but they did like to work abroad. Another outcome was the increase in student satisfaction of the students with their study program in general, as they indicated during the interview that they were happy to have been given the possibility to participate in this program as replacement of a general course. As one of the participants put it:

I felt great about participation: While other students worked on dull tasks at the university, we could work on a real assignment, helping a real company with going abroad.

Whether participation in the Autumn Business School has long term effects on the development of the career of the students after graduation is not possible to conclude from this study and further research is needed to find out whether these effects exists.

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MODELLING RISKS- LIMITATIONS ANF CHALLENGES

Y. Ayse B. Nordal

Municipal Undertaking for Educational Buildings and Property in Oslo, Norway

Abstract:

Contribution

In today's jungle of available risk assessment tools and models, the risk manager may choose a model without due consideration to its limitations. In the prevailing financial environment, the Board of Directors holds the ultimate responsibility of Enterprise Risk Management system. The Board approves the risk management policy, set the acceptance levels for risk appetite and receive periodic reports to be able to oversee the effectiveness of risk management. However, an analysis of the shortcomings of the actual model in use is seldom presented to the Board.

The purpose of this paper is to contribute to risk managers' understanding of the limitations of various tools/ models and to the challenges these limitations may represent. Academic literature and the author's own experiences as risk manager/ consultant consist the background of the paper.

Background

ISO 31000 standard provides principles and guidelines on risk management. Many public and private companies use these guidelines for the assessment and the treatment of risks. ISO 31000 does not introduce a unique risk assessment model. The standard advocates that the organization should apply risk identification tools and techniques that are suited to its objectives and capabilities, and to the risks faced. According to the standard, risk analysis can be qualitative, semi-quantitative or quantitative or a combination of these, depending on the circumstances.

ISO/IEC 31010, Risk Assessment Techniques is a supporting standard for ISO31000. The standard provides general guidelines for selection of techniques. The document introduces 31 different techniques.

COSO 2013 Internal Control- Integrated framework defines risk as the possibility that an event will occur and adversely affect the achievement of objectives. Risk assessment involves the process for identifying the likelihood and impact of risks to the achievement of objectives. The integrated framework does not define a unique tool which may be employed under the assessment process.

The risk manager has the opportunity of choosing between many alternative tools and models for risk assessment. However, he/she also faces the risk of ignoring the limitations and challenges. Information about limitations and challenges may be useful for these decisions.

Keywords: risk models, risk tools, risk matrix, loss expectancy, correlation matrix, ISO 31000, ISO/IEC 31010

1. OVERVIEW

In today's jungle of available risk assessment tools and models, a risk manager may end up with choosing a model without due consideration to its limitations. In the prevailing corporate set up, the Board of Directors holds the ultimate responsibility of Enterprise Risk Management system. The Board approves the risk management policy, sets acceptance levels for risk appetite and receives periodic reports to be able to follow up the effectiveness of risk management. However, an analysis of the shortcomings of the actual model in use is seldom presented to the Board.

The purpose of this paper is to contribute to risk managers' and Board members' understanding of the limitations of the most used model, as well as to the challenges these limitations may represent. Academic literature and the author's own experiences as risk manager/ consultant consist the background of the paper.

2. RISK MODELS: THE PURPOSE AND SCOPE

Models offer *simplified versions* of concepts and relationships that we face in the real world. A model can be verbal, physical, graphical, mathematical /symbolic. [1] The scope of the model forms the model's boundaries and applicability. The purpose of a *risk model* is to identify and understand sources of risks, to analyze their causes and to estimate the positive and negative potential consequences. For a risk model, the scope relies highly on the definition of risk itself.

Traditionally, the *risk* concept was solely associated with negative events, which may have *adverse* effects and may cause *losses*. The COSO (Committee of Sponsoring Organizations of the Treadway Commission) Internal Control- Integrated Framework defines *risk as the possibility that an event will occur and adversely affect the achievement of objectives*. The focus is on events and on their adverse effects.[2]

Risk assessments, which are built on COSO 2013 Internal Control- Integrated framework aim to identify the likelihood and impact of events to the achievement of objectives. The integrated framework does not define *a unique model* which may be employed during the risk analysis process.

ISO (International Organization for Standardization) standard 31000 defines risk as '*effect of uncertainty on objectives*'. [3] The definition embraces both negative and positive impacts of uncertainty on the objectives.

Neither ISO 31000 introduces a *unique* risk assessment model. The standard advocates that the organization should apply risk identification tools and techniques that are suited to its objectives and capabilities, and to the risks faced. According to the standard, risk analysis can be qualitative, semi-quantitative or quantitative or a combination of these, depending on the circumstances.

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The above-mentioned flexibility in choosing models has resulted in a practice, where a variety of models with different degrees of sophistication are now in use in different enterprises.

In the following, the paper will give an overview of the limitations of the most used graphical model, i.e. risk matrix. Several versions of risk matrices borrow very important theoretical concepts from the economic theory, for instance: *positive risks*, *risk aversion* and *interdependencies/correlations*. However, they incorporate these concepts without developing a sound theoretical foundation and without giving a precise explanation. This paper reminds the reader of the theoretical fundamentals of these concepts and questions how the methodology is implemented in various risk matrices.

3. RISK MATRICES

A risk matrix is a descriptive, graphical model, which aims to identify, visualize, rank and assess material risks.

Risk matrices are widely used, both by public and by private enterprises, regardless of sector and industry in question. Many risk managers use either simple EXCEL-versions, or software versions with different properties and sophistication levels.[4],[5],[6] **Figure 2** gives an overview of different risk matrices in use, as well as the supporting tools which are employed in the risk assessment process.

The starting point of the matrix is the following definition of risk.

$R = \text{Likelihood} \times \text{Consequence}$

Likelihood stands for the possibility that a given *risk event* will occur. Consequence (impact) refers to the extent to which a risk event might affect the enterprise. Likelihood may be assessed by a qualitative or quantitative evaluation of the *frequency* of an event or its *probability* within a given reference period. Consequence assessment criteria may include external aspects like financial, reputational, regulatory, environmental, customer and internal aspects like health, safety, security, employee satisfaction, and operational.

Before a risk matrix is put in use, the enterprise develops scales for the likelihood and the consequence. The following is an illustrative example of scales, which may be attached to matrix 1 in **Figure 2** below:

Likelihood scale (alternative1)	Likelihood scale (alternative 2)	Consequence scale
Improbable: once in 15 years	Improbable: probability less than 25 %	<ul style="list-style-type: none"> - financial loss > X_1 million € - 1-2 negative mentions in media - 5 % increase in employee turnover ratio - no fatal injuries - no minor injuries
Probable: once in 1-15 years	Probable: probability more than 25 % up to 75 %	<ul style="list-style-type: none"> - financial loss > X_2 million € (where $X_2 > X_1$) - 3-20 negative mentions in media - 6- 10 % increase in employee turnover ratio - 1-3 fatal injuries - 1-5 minor injuries
Possible: once in a year	Possible: probability more than 75 %	<ul style="list-style-type: none"> - financial loss > X_3 million € (where $X_3 > X_2$) - more than 20 negative mentions in media - more than 10 % increase in employee turnover ratio - more than 3 fatal injuries - more than 5 minor injuries

Figure 1 Example- Likelihood and consequence scales

The risks which are plotted on the risk matrix are identified, ranked and assessed at workshops, with the participation of senior management and the key employees. The ranking may be obtained through open discussions and consensus, secret voting or even the use of the Delphi method.[7] When the Delphi method is used, the risk manager distributes a

questionnaire to the senior management and experts in the enterprise, summarizes their anonymous responses and re-circulates the results among the experts for comments. The expectation is to achieve a consensus and obtain unbiased data. The technique may contribute that no one person will have undue influence on the outcome. This may easily be the case in open discussions, where there may be a tendency *to follow the leader*.

The results of the workshop will be the starting point for the risk treatment. The enterprise will either try to remove the risk source and /or introduce actions to reduce likelihood and consequences of the risks, which populate the red area. An alternative is to use insurance policies and share the risk with another party.

The risks plotted on the green area will be tolerated. The enterprise will usually initiate a cost -benefit analysis before introducing actions to the risks, which are on the yellow area.

4. LIMITATIONS / CHALLENGES

4.1 POSITIVE RISKS

The most common objection to the simple risk matrix is due to its ignorance of positive risks. This objection is often raised by project management circles. Consequently, several risk matrices which are available in the market have incorporated positive risks, using a *risk event approach*. Figure 2 has an example of a risk matrix with positive risks. In this matrix, potential positive *events* are ranked and plotted on the matrix in the very same way as the negative events.

However, the following crucial questions still became unanswered:

- What is the theoretical foundation of the color-scale of the risk matrix?
- Should the matrix be symmetric?
- Should the positive uncertainty be described as a continuous variation with a given distribution instead of a single digit?[8]
- What is the foundation and the theoretical framework of a positive risk? How does the matrix explain how and when a firm can take advantage of a positive risk (opportunity)?

The graphical model does not offer a holistic approach and a consistent theoretical framework for the explanation of the positive risk, i.e. its elements, drivers, explanatory variables and the estimation method. To find such theoretical foundation to positive risks (upside risks), we can turn to financial economics, inter alia the Capital Asset Pricing Model (CAPM) and to the modern portfolio theory. [9] [10] In finance, *risk refers to the likelihood that an investor receives a return on his/ her investment which is different from the expected return*.

CAPM has introduced three important metrics, which contributes to an understanding of risks. These are the R-squared, the β (beta) and the α (alpha).

Further, the model identified two casual factors for the actual return to differ from the expected return:

- asset- specific factors which only affect the asset in question or a few assets (*unsystematic risk*)
- market -factors which affect the whole market (*systematic risk*)

An asset, which gives a return that is equal to its expected return, is riskless. It is called a *risk-free* asset.

An investor can reduce the effect of *asset- specific factors* (unsystematic risk) on the actual return by diversifying his /her portfolio. When a portfolio is diversified, each asset will create only a small portion of the total effect on the total actual return. Moreover, positive and negative movements on different asset returns will eliminate each other. Thus, the investor will be left mainly with the market risk.

R-squared (R^2):

The R-squared explains the *portion of price movements of an asset/portfolio, which is explained by the market*. It can take values between 0- 100 %. An R-squared of 100 % will mean that all price movement of the portfolio can be explained by market movements, whereas an R-squared 0 % will indicate that the price movements of the portfolio are not related to the market movements at all. The market movement will be measured by a benchmark-index.

The definition is as follows:

$$R^2 = 100 * \left(\frac{Cov(RA, RM)}{\sigma_{RA} \cdot \sigma_{RM}} \right)^2 \quad (1)$$

Where:

- Cov (RA, RM) Covariance between the excess returns of the portfolio A (RA) and the market excess returns RM, represented by a benchmark index.
- Excess return (RA, RM): Return – risk free proxy return (Rf)
- σ_{RA} : Standard deviation of the excess returns of the portfolio A
- σ_{RM} : Standard deviation of the excess returns of the benchmark index

The Beta (β):

The beta (β) of an asset or a portfolio is a measure of the *systematic risk* and indicates whether this investment is more or less *volatile* than the market. Volatility is measured as the fluctuation of the price around the mean, i.e. the standard deviation (σ). In general, a beta less than 1 indicates that the investment is less volatile than the market, while a beta more than 1 indicates that the investment is more volatile than the market.

$$\beta_A = \frac{Cov_{RA, RM}}{\sigma_{RM}^2} \quad \text{i.e.} \quad \beta_A = \frac{Cov_{RA, RM}}{Var_{RM}} \quad (2)$$

An asset with a high R-squared correlates highly with the benchmark. If the β is also high, it may produce higher returns than the benchmark.

The estimation method for approximating the β is regression analysis with time series:

$$R_A \approx \alpha + \beta R_M + e \quad (3)$$

Where:

e= the error term

The alpha (α)

The α is the intercept of the equation above and it will be equal to zero in an efficient market.[11] Alpha is often explained with the added- value that a portfolio manager represents for the portfolio's return. It estimates how much a manager's forecasting ability contributes to the asset's returns.

CAPM originally did not make a distinction between upside and downside fluctuation around the expected return. Both fluctuations were defined as *risk*. However many scholars began to suggest that a positive risk (upside risk) is the *uncertain possibility of gain* and this is fundamentally different from the uncertain potential for loss (downside risk).

We owe the valuable distinction between the upside and downside risk to *asymmetric risk models* which introduced the concepts *upside β* and *downside β* respectively.[12] The former is beneficial to investor, whilst the investor should avoid or minimize and the latter.

The upside beta is defined as a conditional concept, showing how much a particular asset/portfolio can outperform the market when *the market is already rising*. The investor who wants to take the opportunity in a rising market will choose the asset with the highest upside β .

$$\beta^+ = Cov(R_A, R_M | R_M > AVG_M) / Var(R_M | R_M > AVG_M) \quad (4)$$

where :

AVG_M: Average market excess return

The distinction between positive and negative risks does not apply to finance only. Both production and service companies in other industries can benefit from the awareness that the risk evaluation and risk monitoring measures will differ considerably under market rise and fall.

4.2 RISK-AVERSION

Another objection to the standard risk matrix is its disability to take the risk appetite into account. Critiques, which belong to health and safety profession question the matrix's suitability for an adequate ranking of the risks connected with different hazards. Another objection is the matrix's inability to show that decision makers will try to avoid catastrophic events with very high consequences, even if their probabilities are negligible. [13][14]

In the market, we find risk matrices which visualize a certain acknowledgement of risk appetite. **Figure 2** includes an example. However, often the assessment team neither questions

the assumptions behind the color scale, nor receive an explanation or justification and this may represent a risk. To give an example, let us assume that the risk assessment team uses the matrix 3 in Figure 2, which visualizes risk aversion. It is easy to see that there is a high possibility that most of the risks the assessment team identifies will populate the orange and red areas since the red and orange areas consist 64 % of the total area. If the decision-making and budget allocation in the enterprise should base solely and uncritically on this ranking, it *may* end up with sub-optimal budget allocations. The graphical model does not inform about the degree of risk-aversion, does not differentiate between absolute and relative risk aversion, does not tell whether it is increasing, decreasing or constant. The explanatory variables and the estimation method of risk aversion are not available for the assessment team.

To be able to find a theoretical foundation to risk aversion, we may turn to financial theory again, where both the Expected Utility Theory and Prospect Theory have introduced logical explanations.[15][16]

4.2.1. Expected utility theory and risk aversion

Expected Utility

The expected utility hypothesis focus on people's preferences when they face choices that have uncertain outcomes (gambles). According to von Neumann-Morgenstern, under four axioms of rational behavior, i.e. *completeness, transitivity, continuity and independence*, a decision-maker faced with risky outcomes will choose the alternative with the highest expected value. He/she will behave as if he/she is maximizing the expected value of a *utility function* defined over the potential future outcomes.

Let us take an example: An individual faces the choice of paying 2,5 € to switch on a light. He can switch it on, only once. The light can turn green, yellow or red. These outcomes have equal probabilities $0,333(P_G, P_Y, P_R)$ each. However, he is also presented with a reward scheme as follows:

- If the light is green, he will receive 3,5 € (X_G)
- If the light is yellow, he will receive 5 € (X_Y)
- If the light is red, he will receive 1,2 € (X_R)

The expected value of the gamble (EV) is:

$$EV = (P_G \times X_G) + (P_Y \times X_Y) + (P_R \times X_R) \quad (5)$$

In this case:

$$EV = 1,1655 + 1,6650 + 0,3996 = 3,2301€ \quad (6)$$

A risk-neutral individual will accept the gamble since $3,2301 > 2,5$. He/ she would be indifferent if the expected value of the bet was 2,5 €.

The risk averse individual would prefer to keep his /her 2,5 € rather than taking the gamble and may risk receiving less than the entry- ticket (2,5€) if the light should turn to be

red. He would pay less than 2,5 € for this bet, and the amount he is willing to pay will vary inversely with his risk aversion.

Utility Function and the risk aversion

Risk-averse behavior is captured by a concave utility function, where the curvature indicates the degree of risk aversion.

For the sake of simplicity, let us assume that individual's utility function is $U = X^{0.5}$. His expected utility over this gamble (EUG) will be:

$$EUG = 0,333(3,5^{0.5}) + 0,333(5^{0.5}) + 0,333(1,2^{0.5}) \quad (7)$$

$$EUG = 0,6230 + 0,7446 + 0,3648 = 1,7324 \quad (8)$$

The risk averse individual will compare this figure with the utility of the expected value of the gamble (UEV) which is:

$$UEV = 3,2301^{0.5} = 1,7972 \quad (9)$$

and he will not accept the bet.

Thus, we define an individual risk averse if this person's utility of the expected value of the gamble is greater than the expected utility over the gamble itself.

In economic literature, we find both wealth (Arrow & Pratt) and income (Vickrey) as arguments for utility function. [17],[18]. Further, we find two types of risk aversion: absolute risk aversion and relative risk aversion.

With wealth (w) as argument, *the absolute risk aversion* will be measured as:

$$\text{Absolute risk aversion (ARA)} = -u''(w)/u'(w) \quad (10)$$

Where

u'' : the second derivative of the utility function and

u' : the first derivative of the utility function

ARA measures the actual amount an individual will choose to hold in risky assets, given a certain wealth level w .

The percentage of wealth held in risky assets, for a given wealth level w is measured by relative risk aversion.

$$\text{Relative risk aversion (RRA)} \text{ is } = - [w \times u''(w)]/u'(w) \quad (11)$$

4.2.2. Prospect Theory

Two psychologists Kahneman and Tversky have contributed to theory of people's choices under uncertain outcomes from a behavioral point of view. They introduced the

concept of *loss-aversion* and argued that people react differently to gains and to losses. Equal monetary gains and losses do not have symmetric impacts on our decisions. If we should loose and gain 100 € on the same day, we would not experience that as a *zero-sum game*. The loss would hurt more than the gain would satisfy. According to prospect theory, if the above mentioned example with red, yellow and green lights included a loss scenario, we would not be able to evaluate the expected value by adding multiplied probabilities and payments.

According to Kahneman and Tversky the value curve is concave for gains and convex for losses, implying that decision makers will be risk averse when choosing between gains and risk seeking when choosing between losses.

<p>1. <u>Simplest version- symmetric map for negative risks</u></p> <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Consequences</th> </tr> <tr> <th>Minor 3</th> <th>Moderate 2</th> <th>Major 1</th> </tr> </thead> <tbody> <tr> <th rowspan="3">Likelihood</th> <th>Probable A</th> <td style="background-color: yellow;"></td> <td style="background-color: red;"></td> <td style="background-color: red;"></td> </tr> <tr> <th>Possible B</th> <td style="background-color: green;"></td> <td style="background-color: yellow;"></td> <td style="background-color: red;"></td> </tr> <tr> <th>Improbable C</th> <td style="background-color: green;"></td> <td style="background-color: green;"></td> <td style="background-color: yellow;"></td> </tr> </tbody> </table> <p>Key</p> <table border="1"> <tr> <td style="background-color: green;">Green Low Risk</td> <td style="background-color: yellow;">Yellow Medium Risk</td> <td style="background-color: red;">Red High Risk</td> </tr> </table> <p>Tools</p> <ul style="list-style-type: none"> - Scales for likelihood and consequences - Risk assessment workshops - Secret & private voting of likelihood and impact 				Consequences			Minor 3	Moderate 2	Major 1	Likelihood	Probable A				Possible B				Improbable C				Green Low Risk	Yellow Medium Risk	Red High Risk	<p>Limitations</p> <ul style="list-style-type: none"> • Ignores positive risks • Gives likelihood and consequence equal weight • Ignores risk appetite • Ignores correlations among risks • Does not inform about the evolution of the risks • Plots risks as single digits, not as ranges 																																					
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<p>3. Risk matrices- with consideration to risk appetite</p> <p><u>Risk-aversion:</u></p> <p><u>Risk-seeking</u></p> <p><u>Tools</u></p> <ul style="list-style-type: none"> - Board decisions – formal risk appetite statements - Analysis of risk appetite per risk type 	<p><u>Limitations</u></p> <ul style="list-style-type: none"> • May result in clustering of risks and sub-optimal resource-allocation • May result in sub-optimal internal controls and may have unintended cultural effects • Ignores correlations among risks • Does not inform about the evolution of the risks • Plots risks as single digits, not as ranges 																																																																																																				
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Figure 2. Various risk matrices

4.3 CORRELATIONS

Another critical argument against the risk matrix is its inability to take into account correlations between various risks. This has importance not only for the risk assessment, but for also when the enterprise defines actions to monitor its identified risks. A risk treatment action will not affect only the risk in question, but also the correlated risks.

Some risk professionals tried to approach this problem by introducing risk interaction matrices. (ref. Curtis and Carey, loc. cit. page: 12). The matrix is created in the risk assessment workshop to underline the interdependencies between risks. Matrix 4 in Figure 2 is an example. However, interaction matrices created in risk assessment workshops do not always have the mathematical properties of a *valid correlation matrix*. Analytical risk management studies, actuary studies as well as suppliers of advanced risk models have defined the necessary and sufficient conditions for a square risk matrix to fulfill the requirements for a risk correlation matrix.[19][20][21]

These are the following:

- Correlations among risks R1...Rn vary between -1 (perfect negative correlation) and +1 (perfect positive correlation).
- The correlation of a risk with itself is +1.
- The correlation between R1 and R2 is the same as between R2 and R1.
- The correlation matrix should be “internally consistent”. The observant reader should already have reacted to an intentional *mistake* on the risk interaction matrix example above. The matrix is not ‘internally consistent’ and is not a valid correlation matrix, since:
 - R1, increased raw material prices is correlated with R2, reduced orders from Japan, further
 - R1 increased raw material prices is correlated with R6 exchange rate fluctuations
 - However, there is no mark showing a relationship between R2 and R6.

To explain this problem in a simple way, let us assume that there are only three risks on the matrix; A, B and C. Let us further assume that:

The correlation coefficient of A and B is CC1 and it is estimated to be 0,75

The correlation coefficient of A and C is CC2 and it is estimated to be 0,85

Statistically, the correlation coefficient (CC3) of B and C will be in the range of:

$$CC3 = (CC1 \times CC2) \pm \sqrt{(1 - CC1^2) + (1 - CC2^2)} \quad (12)$$

$$CC3 = (0,75 \times 0,85) \pm \sqrt{(1 - 0,5625) + (1 - 0,7225)} \quad (13)$$

The range is: 0,2891; 0,9859

The basic principle is: if two risks are each strongly correlated to a third risk, they must be at least weakly correlated to each other.

In general, a "valid" matrix is any matrix which is *positive definite* or *positive semi-definite*. A positive definite matrix will have positive eigenvalues and a positive semi-definite matrix will have eigenvalues greater than or equal to zero and at least one eigenvalue equal to zero. An "invalid" matrix will have at least one negative eigenvalue.

The correlation matrix of an enterprise will normally have a considerable number of variables. It is quite a challenge for the risk assessment team to ensure the internal consistency of the matrix in a workshop. Further, it is important to know how strong the interaction is. It is also a concern whether the interaction matrix includes cause and effect relationships instead of correlations.

5. CONCLUSION

In the absence of a standard model recommended by the well-known enterprise risk management frameworks, risk managers choose between a large number of available models. Risk matrices are the most used descriptive/ graphical models. They are popular since they are easy to comprehend. They are practical, because they can be used in workshop environments, involving the management team and key employees.

Risk is a complex concept. Risk matrices tried to embrace several aspects of it by creating new graphical solutions. Referring to K. Anderson, Richard Jarrett and Mark Westcott inform that (ref. Jarrett & Westcott, loc. cit. p: 72) it is found more than 800 versions of risk matrix through a search in Google. This is plausible since any search including the words "risk matrix picture" returns many million hits in Google.

Several versions of the risk matrix have borrowed concepts like *positive risks*, *risk aversion* and *risk dependence*. These concepts have long theoretical traditions and firm theoretical fundament in economics and finance. However, the model has limitations when implementing these and leaves crucial theoretical questions unanswered.

Participants of a risk assessment team and the Board of directors who have the overall responsibility to ensure a sound risk management in an enterprise are seldom informed about the limitations and weaknesses of the model.

A risk matrix would be a good starting point for a risk analysis. However, it should not be the final destination. This is often the case in many enterprises. Risks are identified and ranked. The ranking becomes the starting point for resource allocations.

Uncritical use of the risk matrix without further analysis may result in sub-optimal resource allocation and sub optimal internal controls.

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COMPETITIVENESS OR PROCESS SECURITY

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Abstract: Information security (namely confidentiality, integrity, and availability of business-related data) is an issue which companies attribute increasing importance to nowadays. This is, however, not a self-centred goal to achieve, but an (additional) means that businesses use to attain the permanent state of security in their overall operations. In addition, briefly presenting two case studies on information security practices, this paper offers a survey of terms and management practices linked with process security. Business continuity planning and risk management techniques - as outlined here in connection with information protection controls - may cover all business processes at any company.

Keywords: business continuity, risk management, information security, competitiveness, quality assurance

1. INTRODUCTION

Companies seek to maintain reliable operations, and satisfy all customer demands in adequate quantity and quality in due time. To this end, they take a survey of their corporate processes and availability of value-creating assets. Value-creating business processes cannot be performed unless all necessary resources (including information, a key asset) are ensured. Corporate and process security management is an ongoing activity consisting of planning, organization, governance, and control elements that leads to a sustainable level of security acceptable to all external and internal stakeholders of a company.

A fundamental, though non-exclusive, means of corporate competitiveness is the profitable economy. For a steady functionality, a company should also seek to attain security. Major contributors to security are business processes and the way they are translated into a workflow. In any organization, humans constitute the highest security risk. Process security cannot be attained unless through regulating the activities of employees who deliver the processes, and getting them prepared to deal with unexpected risk events.

2. THEORETICAL BACKGROUND

2.1. A PROCESS-CENTERED APPROACH

‘Process is one or more tasks that add value by transforming a set of inputs into a specific set of outputs (goods or services) for another person (customer) by a combination of people, methods, and tools’ [14].

In his book published in 2005, Steven G. Blank offers a simpler definition of process, saying that ‘process in an organization means procedures, rules, measurements and goals’ [3, p.166].

‘Process security can be defined as a state in which, with all required inputs (or resources necessary for execution of the process), the organizational units responsible to fulfil process-related tasks will produce outputs (such as products, services, or information) in adequate quantity and quality in due time, and upon any disturbance, normal operation of the process can be restored with the lowest possible use of resources within the shortest possible time’ [8].

2.2. BUSINESS CONTINUITY

Business continuity implies that all processes of the organization function smoothly and faultlessly, and that all necessary resources are available in the right place at the right time. Organizations mostly use this term to make reference to information security, and employ so-called ‘business continuity planning’ to lay down information protection measures (for confidentiality, integrity, and availability of information). A business continuity plan is designed to ensure timely and functional availability of (IT) resources to support organizational processes, and minimize damage as may be caused by unexpected events. It identifies potential threats to processes, estimating probability of their occurrence and any potential damage as may result from the loss of a process, while offering backup options for use until the process is restored and restarted.

Every process requires resources, of which information, when made available to authorized personnel in the right place at the right time, is a key element. Process security can be attained through controlled running of information systems that map corporate processes virtually. The narrow bounds of this IT approach can, however, be extended to include provision of resources for, proper implementation of, and, upon any disturbance, restoration of any other corporate process. This process-oriented approach to business continuity is applicable to issues of which information security is just one [1].

Nowadays the business continuity of any company is exposed to an ever-increasing number of threats increasingly difficult to see through. Every business process (whether financial, operational, strategic or project-oriented) and a related set of resources (such as personnel, IT machine pool, equipment, infrastructure, energy, and third-party business partners) should or rather must be subject to risk analysis and treatment [17].

In his classic value-chain model [9], Porter looks at organizational resources required for processes in three steps:

1. He identifies the activities (or process elements) which play their part in producing outputs.
2. He analyses the ways these activities contribute to value increase in the output.
3. He assesses how much of its resources an organization invests, and at what costs.

This approach may, or rather will, raise issues concerning operational security and business continuity as well as profitability.

In this model, processes are divided into two major groups. Though they are not easy to separate, primary activities are performed in favour of the consumers or customers, while support activities serve the overall operation of the business organization. Normally, business management reference books place procurement, inbound logistics, technological transformation, outbound logistics, marketing & sales, and customer service within primary

activities. Support activities contribute to the execution of primary activities (for instance; improvement of organization, managerial tasks, and strategic planning). Though a grouping of processes may help identify risk factors or threats, in evaluating them one should adopt a holistic approach preferably, taking into account interactions between processes too.

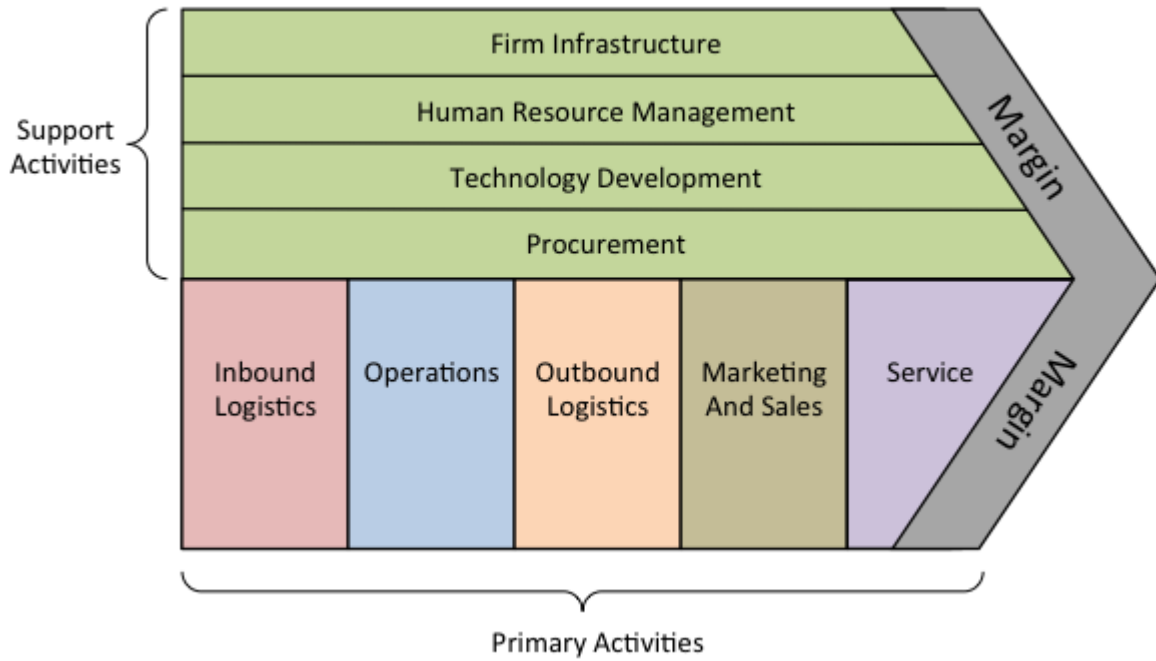


Figure 1. Porter's Value Chain Model [9]

2.3. COMPETITIVENESS AND QUALITY

A company will be competitive if, while complying with socially accepted standards, it can convert its resources into the highest possible profits, detects, and adapts itself to such external and internal changes which may affect its operations, in order to remain steadily functional [4].

A fundamental, though non-exclusive means of corporate competitiveness is a profitable economy. For steady functionality, a company should equally seek to attain enterprise security in terms of physical and human resources, corporate processes, innovation, market demand, and immediate environment of the company.

Corporate capital, demand for products and services delivered by a company, existence (or lack) of business trust, regional interests, and successful implementation of corporate development objectives (in terms of the market, products, technology, and organization) are all measures of competitiveness. If a business organization manages to maintain its competitiveness, this demonstrates, among others, its capability to achieve its strategic objectives under ever-changing economic, legal, market, and cultural conditions.

The competitiveness of a company is largely affected by the actual demand of its processes for time and the quality of outputs (products, services, information) produced. Quality and quality management required to assure quality are factors equally gaining importance. In addition to optimum inputs, the quality of an output depends on how corporate

workflows are documented, regulated, and automated. It is essential that all tasks performed in the process of producing specific outputs be documented [11]. Documentation makes it possible to track outputs all along their path of life, identify tasks performed incorrectly, calculate statistics for identification of most frequent errors, and improve and optimize workflows accordingly.

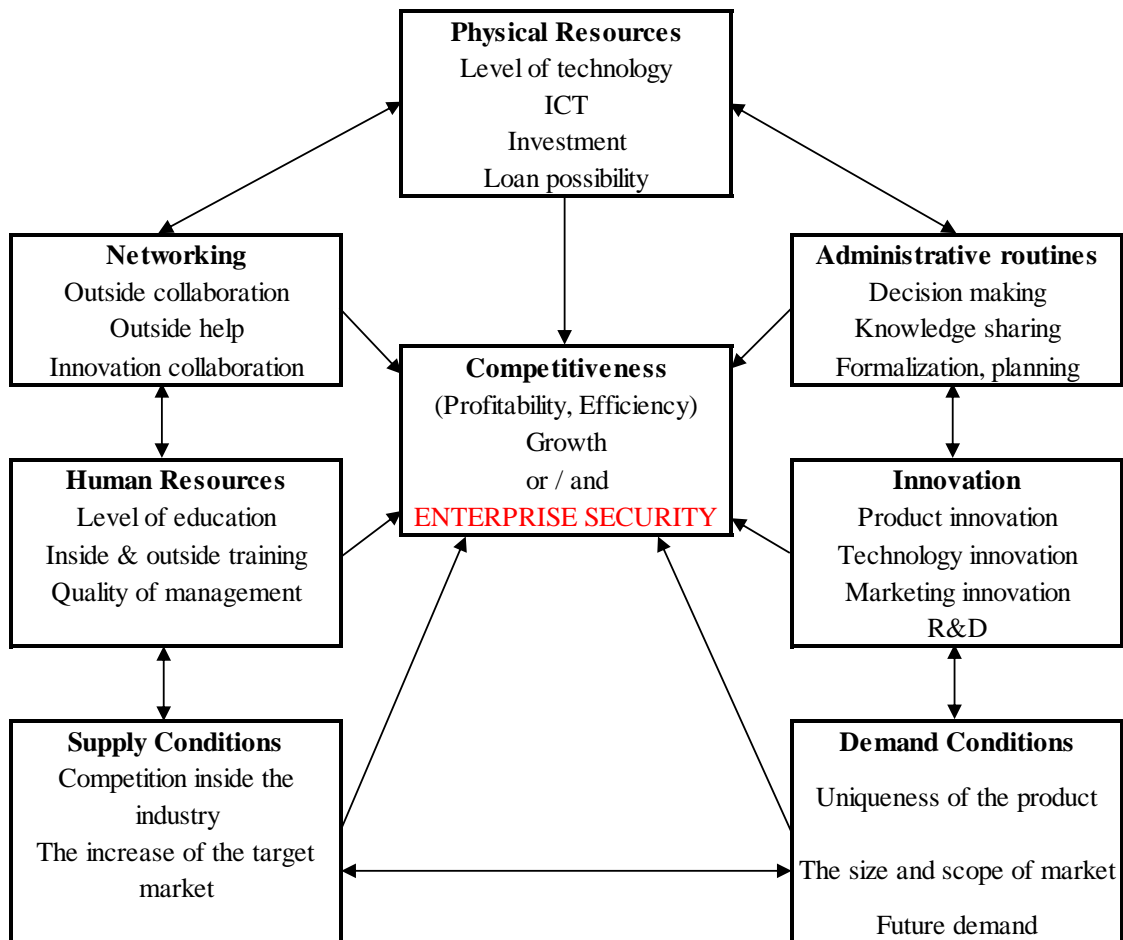


Figure 2. Conceptual Model of Competitiveness (on the basis of [13])

Doing any step within any corporate process, personnel and third-party business partners need exact data for delivery of their tasks, data which may carry confidential information. Extreme care may be needed to take in handling, storing, or passing such data. Capability of a company to keep its data confidential [15] may affect its competitiveness, and any leakage of information may endanger operations and even affect the survival of the company.

Any lack, insufficiency or inaccuracy of process data may lead to impairment in the quality of outputs produced [6], which may, in its turn, impair customer confidence in the products and services of the company. Any corporate quality assurance system in place must

be able to ensure availability, integrity and, last but not least, confidentiality of data. In short, it must back up the security of all information required for the execution of processes.

2.4. COMPETITIVENESS AND PROCESS AUTOMATION

At this accelerated pace our world dictates, the amount of worktime and expense invested in the production of outputs associated with a particular workflow is critical. To keep up competitiveness, measures like cutting back on worktime and expense invested in the production of outputs, while improving quality, seem to constitute a good corporate strategy. Human resources being the most expensive of all, automation of corporate processes offers a favourable option.

Process automation will lead to repeatability of task sequences within the process, increase in productivity, improvement and stabilization of quality, and advancement of process security. On the other hand, automation of any production, business or management process requires a dedicated automation infrastructure working under the control IT systems which, in their turn, require extremely careful setup and programming by their operators. It is essential that all information required for delivery of tasks is passed to the right recipients in due time. Use of insufficient, damaged or false data may lead to production of defective products and services, or even to a process failure, causing considerable damage to the company.

The quality of an automation infrastructure and control systems is as important as setup and programming [2]. Though solution suppliers make efforts to design automation infrastructures consisting of high-quality hardware and software components, a never-ending competition encourages them to commercialize their products as soon as possible. For this reason, they sometimes choose to release their products without any regression test, and content themselves with incomplete testing of their finished automation solutions. New hazards may arise from a rapid development of technology, an automation infrastructure tested using incomplete or inadequate test scenarios, or a lack of comprehensive testing. Some deficiencies or faults in infrastructure or control may even give rise to defective outputs or personal injury. To prevent such incidents, solution suppliers improve and test finished infrastructures on an ongoing basis and, if needed, develop software repair toolkits, and make them available to their customers for on-site servicing of infrastructures already installed.

A computer-controlled programmable automated infrastructure may as well enable its user to produce various outputs alternately. Each specific output requires a different workflow to take place. No workflow can be implemented by means of a specific automation infrastructure in lack of full knowledge about that workflow, which can be acquired either

- by analysing and describing the sequence of tasks an existing workflow consists of, or
- through careful design and documentation of a new workflow.

Practical execution of any workflow must always be preceded by a test run along with quality control of outputs produced. An automated infrastructure and infrastructure implementation will contribute to production of high-quality outputs in optimal time only if both are adequately tested.

2.5. PROCESS EXECUTION AND INFORMATION SECURITY

For execution of a process, it is essential that directions and all necessary resources are available. Here emerges a necessity that documentation of process steps, including a full list

of resources required, and detailed directions as to the performance of activities, is delivered to the personnel involved [7].

For smooth execution of a process, adequate amounts and grades of resources must be made available at designated workplaces in time [16]. Resource logistics is a key factor in uninterrupted operations, requiring reliable information and a reliable logistic system. Quite often, some of the necessary resources are information which only a designated information processing personnel may have access to.

Companies work out process support procedures and codes of their own to help process execution and information processing. A code must address the issue of information security in accordance with the confidentiality rating of the information to be processed. Where a process involves data processing, the relevant procedures must give detailed instructions as to how information security is to be ensured. Where processing of critical data is involved, each process step must be described to include access right details relating to personnel assigned to process such data. In this case, the access rights system must be centred on well-defined roles [12], with personnel in different roles granted either full or partial access to specific data. A right to read must always be separated from a right to write (that is to say, an attribute will be either read-only or write-only). For instance, where a process involves storage and processing of personal data, and data protection is a legal requirement, relevant corporate procedures will have to lay down a detailed set of processing rules, which is in compliance with the statutory data-protection objective.

Any process automation support infrastructure applied must allow for configuration of an access rights system which meets all relevant information security requirements. A process automation infrastructure that grants users a broader than necessary scope of access rights as a rule, is more exposed to platform-free attacks such as social engineering.

Preferably, there is a quality management system in place designed to perform in-process acquisition of data about production of outputs. An analysis of such data can then be used to improve the quality of outputs, and optimize execution of the process. It should be noted that process documentations and quality management information generated during a process are all confidential, meant for in-house use only. Getting hold of them, a competitor could easily gain a competitive advantage.

The process-centred approach to information security aims the attainment of information protection throughout the execution of processes. To this end, each process is assessed, designed, documented, and security requirements applicable to the management of processed data are also identified along the way. The execution of each process step is described, and roles are defined, to make sure that an adequate level of information security is attained. In the course of implementing process support systems, requirements applicable to design an information security architecture are formulated, and when ready, the overall system is tested for its ability to satisfy security requirements. Where a turn-key system is to be procured and installed, support for attainment of information security is ensured by formulating such security requirements, which are expected to be satisfied by the system.

Most recent trends in the European Union strongly insist on information security. A fact corroborated by findings from previous research and development project audits carried out by the author, deficiencies as usually seen in IT systems are attributable to a lack or inadequacy of security design. 'Privacy and Data Protection by Design', [5] a report published by ENISA (the European Union Agency for Network and Information Security) describes design patterns that can contribute to protection of data and personal information in

any IT system, with an additional treatment of data-protection design strategies and security technologies and techniques.

3. RISK ASSESSMENT AND RISK TREATMENT

ALARP (As Low as Reasonably Practicable), a principle well-known in literature, and mostly used in engineering, may serve as basis for risk analysis and risk reduction [10].

Where a risk is high beyond reduction, and seems to be unacceptable, the only option is avoidance.

Where, on the other hand, the probability that damage will occur, or the pecuniary degree of potential damage, seems to be reducible, the organization will make an attempt at mitigating the risk, that is to say, reducing it to an acceptable level. These are usually the causes of a risk that the organization tries to address. Sometimes, however, risk reduction is either impracticable, or is practicable at disproportionately high costs, or fails to bring about notable results. Possible solutions in a case like that may include the sharing of risk with other organizations (e.g. hiring a general contractor to deliver a project) and transfer of risk (e.g. by means of an insurance policy). These latter solutions require risk financing.

Risk management helps organizations to avoid unnecessary difficulties, incidents and problems [18]. Most often, the management consciously accepts the risks its organization encounters, which implies that there is an accepted and continuously controlled level of risk present.

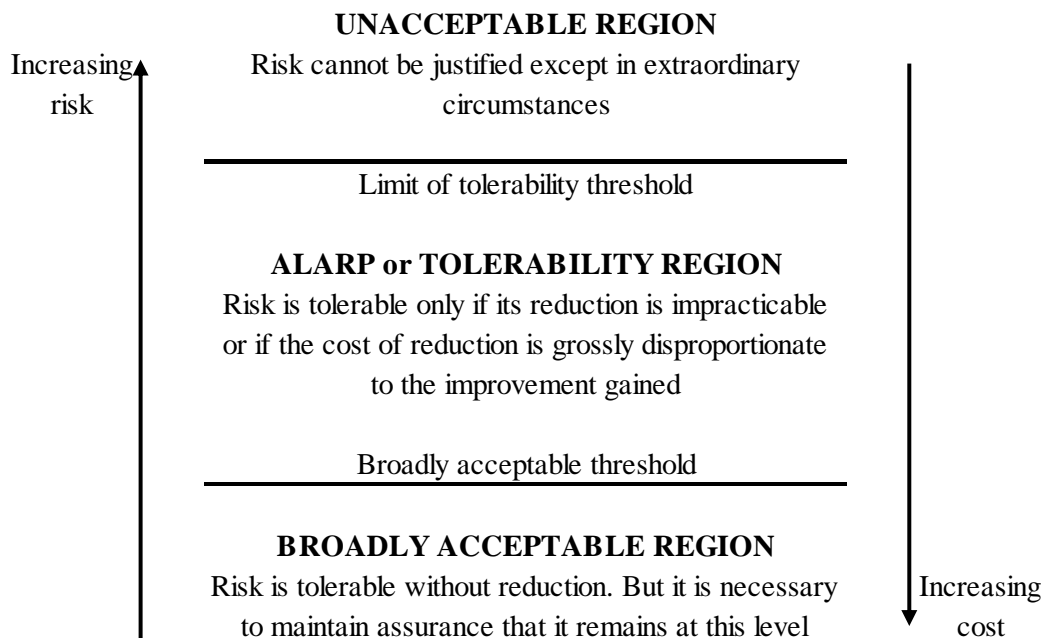


Figure 3. The ALARP Principle [10, p.6]

4. CASE STUDIES

4.1. SUCCESSFUL IT ASSET MANAGENMET SYSTEM IMPLEMENTATION FOR AN IT SERVICE PROVIDER

The goal of the project was an ITIL based implementation of an IT asset management solution in the IT service management system of an IT service provider.

The most important requirements included: tracking the movement of IT assets, keeping up to date records of IT assets, supporting individual and grouped movement of IT assets with delivery notes and other certificates attached, integration with change management process, automated update of asset records upon finishing movements, support of the annual inventory, reservation of assets during their movement, enabling correction of inaccurate asset records, bookkeeping of IT assets, book entry generation for accounting. The following security measures were required: asset managers should have reading and writing access to all asset records, storekeepers should have access to the records of assets in stock, and support engineers should have access to the records of assets available in their territory.

Circumstances: The service provider had more than 100 customers with thousands of employees. The records of IT assets were partially available in the inventory module of their ERP system, and in several cases were grouped. The service provider handled more than 30,000 assets with inventory in progress, had more than 200 support engineers, and several type of asset movements.

Completed tasks during the project: Analysis, documentation and optimization of asset management processes, definition of access rights and roles for handling sensitive data of asset records, attaching roles to the activities of asset management processes, designing the asset database and implementations of asset management workflows in the IT service management system.

Challenges: Defining user privileges to protect sensitive information of asset records as the customer did not realize the risk of full access rights assigned to the asset managers, and asked for more rights than required. Design asset management processes to support only the allowed asset movements and protect the data records accordingly.

Results: Well operating IT asset management solution which enabled efficient execution of workflows with minimized documentation needs. The implemented system protects sensitive information of IT asset records, according to the requirements. During the first year operation the quality of asset records improved a lot.

Conclusion: Despite of the challenges the proper requirements analysis and detailed design resulted in succesful implementation. The system fulfilled the documentation needs of the operation processes. The implemented automations minimized the duties of asset management personnel.

4.2. UNSUCCESSFUL IMPLEMENTATION OF ERP SYSTEM FOR A SPORT ORGANIZATION

The goal of the project was the renewal and security enhancement of the ERP system along with implementation of electronic customer service.

The most important requirements included: renewal of old system services, implementation of new secure IT software and hardware infrastructure, improvement of information system availability, implementation of secure electronic services and communication with partners.

Circumstances: There were no ERP systems fulfilling the requirements raised by the sport organization. The development of a new system based on the functionality of the old system was promising. The employees of the sport organization had heterogeneous information security awareness. They had complex, documented workflows for manual execution of processes, which were not detailed enough, did not have roles and responsibilities connected to the process activities.

Completed tasks during the project: Development of the system was started based on the old system documentation. There was no proper system architecture design, and documentation. The design of new system processes followed the structure of the old solution. The system was planned to be handed over in several phases. Testing was planned to be done by the customer. At the end when the new software was handed over in quantity, there was no thorough quality check.

Challenges: It turned out at the first handover that there were misunderstandings between the contractors. The customer wanted to start the testing of the output of the first phase, but there were no configured access rights and roles in the system. It was revealed that the system does not have proper access right system implemented. Finally the contractors agreed that they finish the project together, but there were several delays in the handing over deadlines.

Results: At the end the customer ordered a security check of the system. The security check of the system based on OWASP (Open Web Application Security Project) top 10 vulnerabilities revealed that the system is full of security holes, and cannot be implemented because it handles personal data protected by laws and needs several security enhancements.

Conclusion: The deficiencies of the developed system did not make the implementation possible, and lead to further development tasks, causing financial and prestige damages. The conclusion is that the quality of IT systems highly depends on the quality of requirements analysis and system design documentation. The accurate and complete documentation is indispensable in developing high quality and secure IT systems.

5. SUMMARY

Regardless of the type of the company processes, whether they serve customer service or operation support, information security plays an important role. In case of production processes the lack of information availability may lead to production shortfall or production line outage which may cause serious financial damages. Protecting the confidentiality of information is important in case of organizations handling personal information and is regulated by local and international legislation. Information leakage can cause disadvantage in competitiveness. Damaged or faulty information may lead to faulty products or personal injury. Finally we can say that information security is a basic requirement in the execution of company processes and has an impact on company competitiveness.

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PERCEPTION OF NEW AND OLD LUXURY BY CONTEMPORARY CHANDLERS

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Abstract: In this paper, we are studying the perception of new and old luxury by contemporary “Chandlers”. The term “Chandler” was borrowed from American classical literature, O. Henry’s famous short story “Lost on Dress Parade” (O. Henry, 1906) and was applied to marketing by Ochkovskaya M. (2016). The protagonist Chandler is a so-called “composite character”, representing a specific segment of young (22-27 y.o.) and ambitious people who strive to belong to the upper class and pretend to be someone, who they are not at the moment. They desperately want to identify themselves with the affluent people and follow their lifestyle while not having an appropriate financial and social background for it.

According to the story and the study results, the Chandlers’ motive for luxury consumption is a combination of self-pleasure and conspicuousness. One of the important descriptive characteristics of Chandlers is that they never purchase fakes. Authenticity is what Chandlers highly appreciate.

The study demonstrates that Chandlers have good knowledge about old and new luxury brands and differentiate them. Although Chandlers appreciate products of old luxury brands as Rolls Royce cars, Zegna suits, Rolex watches, Ferragamo shoes, Krug champagne, iconic perfumes (e.g. Fahrenheit Dior), they do not strive to consume pure old luxury. They perceive it as old-fashioned. Moreover, many old luxury brands hardly suit to their pocket. Knowing this, some old luxury brands longing for being contemporary (e.g. Burberry) launch fashionable and more affordable products for the young segment of luxury brands connoisseurs.

According to the study a potential luxury brands “portfolio” for the Moscow Chandlers is constituted by mix of new and old luxury. The “portfolio” includes a Ralph Lauren shirt, an Emporio Armani suit, a Burberry trench, a Louis Vuitton belt and/or purse, a Gucci bag, fashionable Italian shoes (Tod’s, Gucci) and Apple or Rolex watches. LV, Rolex, Gucci and Burberry are ingredients of old luxury going with the times.

Luxury brand consumption can be one of the motivations for young people who have not inherited wealth to pursue a good education and then find a challenging, well-paid job (Ochkovskaya M., 2016). Ambitious and hard-working Chandlers have good chances to become affluent and follow a luxury lifestyle in the future. Luxury producers must take Chandlers into account and offer them relevant products, forming their long-term loyalty. In future, they can become very valuable consumers not only for new affordable luxury but also for the old one.

Keywords: new luxury, old luxury, Chandlers, brand.

ASSESSMENT OF THE FUNCTIONING OF ISO 9001 ON DEVELOPING RELATIONS WITH SUPPLIERS

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Abstract: Strategic supply management (SSM), within the framework of ISO 9001 standard provides opportunities for development of long-term cooperation and partnerships with suppliers. In this paper a model was defined for the development of relationships with suppliers with the purpose of creating long-term partnerships, while following the requirements of ISO 9001 standard. Research has shown that, under the conditions of transition economy in Serbia, in which 2.11% companies are standardized according to the requirements of ISO 9001, there are no differences between relations with suppliers which exist between standardized companies (SC) and non-standardized companies (NSC) within the set of suppliers, as well as the between NSC and NSC within the set of companies. The defined structural model shows that the quality system (QS), certified by the national certifying body, under the transitional economic conditions in Serbia, is implemented pro forma, given that it allows the same level of connection between SC and NSC suppliers, as well as between NSC and NSC suppliers. Creating long-term partnerships between SC and NSC suppliers should not be possible, while obtained results show the opposite, which clearly indicates that the certification in the studied economy is being performed pro forma. This presents a serious problem for entering the markets which require the fulfillment of requirements of ISO 9001 and other quality standards.

Keywords: ISO 9001, supplier chain management, relations with suppliers, customers, partnership relations

Conference papers:

COMPLEXITY, CONSTRUCTS AND STRATEGIC MANAGEMENT. TOWARD MIX-METHODOLOGY RESEARCH

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Abstract: This review article focuses on research methods in strategic management studies and moves beyond quantitative and qualitative research approach concerning mix-method. Looking at the evolution of strategic management we can observe an evolution of research methods in parallel. Strategic management research uses different methodological approaches in different periods of its development. We accent that strategic management deals with environmental complexity and hence it needs a multifaceted research method. Researching complexity as well as researching strategic issues requires both quantitative and qualitative methods. Therefore we opt for mix-method approach as appropriate to study complex, usually unobservable phenomenon. We argue that integrating the qualitative and quantitative methods in strategic management research seems to be valuable in terms to learn more about complex business reality in order to combine distinct yet complementary advantages. Mix-methods from a methodological point of view, is important as it provides alternatives for the measurement of complex constructs that allow progress to be made in empirical research in the field of strategic management.

Keywords: research methods, strategic management, mix-method, complexity, development.

1. INTRODUCTION

The increasing importance of strategic management may be a result of several tendencies. Intensive competition in most industries has made it difficult for some business organizations to compete. Modern communication has led to increasing global trade and attentiveness. Technological development has led to fast-tracked changes in the global economy.

Regardless of the reasons, the past periods have seen an upwelling in interest in strategic management. Many perspectives on strategic management and the strategic management process have emerged. Strategic management can be used to determine mission, vision, values, goals, objectives, roles and responsibilities, timelines, etc. It provides the framework for understanding strategic management continually asking the question ‘Are we doing the right thing?’ The strategic management entails attention to the ‘big picture’ and the willingness to adapt to changing circumstances. It consists mainly of formulation of the organization's future in the light of changing external factors such as regulation, competition, technology, and customers’ development of a competitive strategy to achieve the mission creation of an organizational structure which will deploy resources to successfully carry out

its competitive strategy. Strategic management is adaptable and keeps an organization relevant. In these dynamic times it is more likely to succeed than the traditional approach of ‘if it ain't broke, don't fix it’.

Organizations have to cope with their environment characterized by complexity in order to survive. Complexity always plays a part in all systems, whether we are aware of it or not [8]. The complexity of organizations and its environments is a common subject in the strategic management literature. Complexity refers to the number of elements that constitute the environment of a system and to the connections between these elements. Organizational complexity and environmental complexity within which strategic management effort takes place create great challenges for both practitioners and researchers. Complexity of a system and the complexity of its environment challenge research method especially [34]. Organizations can respond to environmental complexity by creating internal complexity or what is known less creating collaborative complexity collectively [31]. Nevertheless, complexity is the central attribute in strategic management research.

Managers usually interpret the changing environments in which their organizations operate based on previous experience and using interpretation schema. The range and heterogeneity of contextual dimensions make up important aspects of complexity [24]. In accord to Miller and Lin unpredictability, dynamism and ruggedness are major environmental characteristics [25]. Hence again, the strategic implications of complex organizational environments often are associated with reasoning by analogy [25]. Gavetti et al. [14] contend that using analogical reasoning supports organizational adaptation in complex environments. The deduction has been drawn here assuming that problems that are complex require both quantitative and qualitative rigor.

Strategic management research tends to exploit qualitative approaches to operationalizing constructs via extensive literature reviews and generally accepted uses of certain variables to capture common constructs of interest. In a multi-year content analysis of strategic management scholarship, Boyd, Gove, & Hitt [3: 239] noted that strategic management ‘has been characterized as placing less emphasis on construct measurement competing to other management subfields’. Furthermore, strategic management research methods have been less rigorous and more oriented to qualitative versus quantitative approaches.

A diverse range of methods for exploring various problems relating to the strategic management have a great deal in recent years. Among them mixed methods research has moved forward [20] [36].

Henceforth, the purpose of this review paper is to investigate evolution of strategic management field in terms of research methods used and examine the main characteristics of mixed methods studies (purposes and designs) and postulates suggestions on the application of mixed methodologies in strategic management research and the relative utility of combining quantitative and qualitative approaches in strategic management research.

The paper is organized as follows. First, strategic management evolution is presented including the evolution of research methods. Subsequently, several important aspects such as definitions, applications, barriers and benefits of mixed methods research are examined. This is followed by a discussion of the potential contribution mix-method provides in the light of methodological problems strategic management encounters. The paper concludes with suggestions on the application of mixed methods research in strategic management.

2. STRATEGIC MANAGEMENT RESEARCH STRATEGIES

Strategic management in business is a relatively new and dynamic set of activities which are evolving in response to dynamic business environments. The strategic management emerged as a business 'discipline' in the early 1960s. Strategic management is young area of research, so major changes in the methodologies have been noticed. Several researchers in the field of strategic management have described the evolution of strategic management [21] [13] [16]. Guerras-Martin et al. [19] using pendulum metaphor identifies two types of tensions throughout the development of the strategic management field: one between internal and external considerations and the other between macro and micro level considerations (Fig. 1).

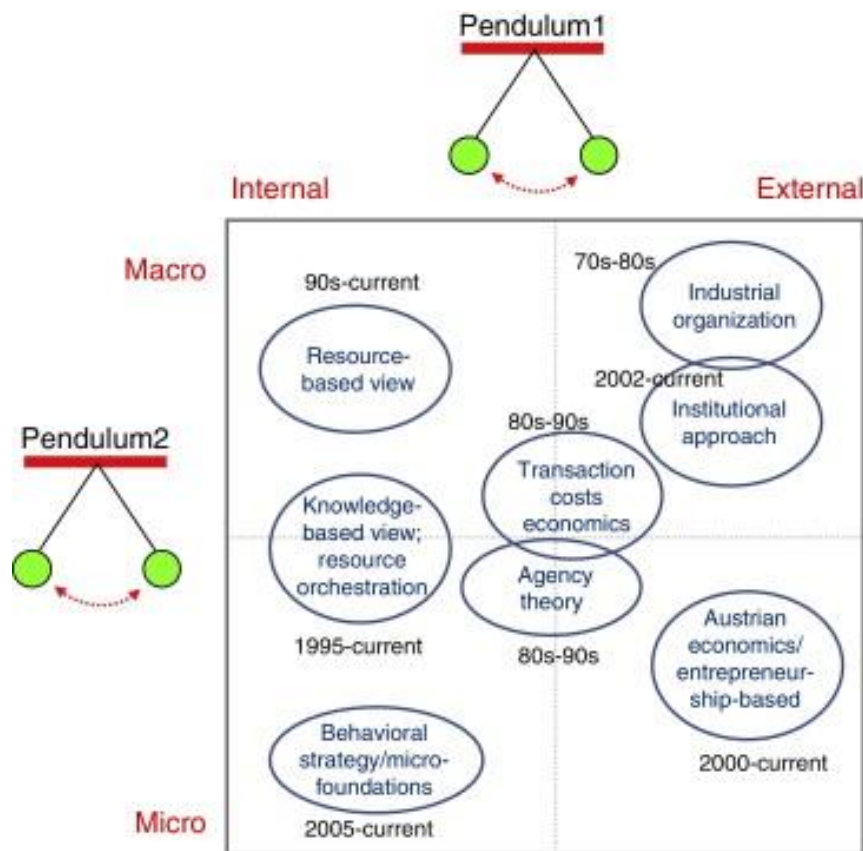


Figure 1. Tensions in strategic management [19]

Going back to evolution, the historical development of the strategic management concept can be illustrated as a series of periods. This valuable line of thinking is used to present the evolution of strategic management as well as advancement of methodological approaches. Periods have documented a dominance of one or the other aspect in the strategy research as well as dominance of research strategy in the field.

During the period of early development, a number of scholars made significant contributions to the later development of the strategic management field. The early development of strategic management thinking has been influenced, at least to a certain extent, by these early classics' detailed expositions of organizations' internal processes and focus on the important roles of managers [1]. Literatures formed a basis for strategic

management known, at that time, as business policy; research were mostly process oriented to facilitate case analysis as the main methodological tool of study at the time. Methods are inductive in character, mainly normative or prescriptive in purpose in-depth case studies of single firms or industries. Generalization is practically questioned. As a consequence the need for empirical tests of the theory to allow generalization is discerned.

During the next developmental period, strategic management research changed from inductive, case-studies largely on a single firm or industry [29], to deductive, large-scale statistical analyses seeking to validate research hypotheses. Concern with explanation and prediction moved empirical research to display relationships between variables based on reliable data. Large-scale econometric studies have appeared in the strategy literature. Furthermore it is observed the advance of research rigor in the strategic management field characterized by large sample and use of more advanced statistics.

Throughout the subsequent developmental stage strategy research moved back to the examining how the firms' internal mechanisms and qualities influence firm strategy and performance [32]. Methods are more oriented to extensive use of mathematics. However research encounters the problem of unobservable. Structural equation modeling has become common method as the one of availability of large databases, and collecting data from other archival sources and large-scale surveys.

Next stage is characterized by focus inside the firm and restores inductive, case-based methods focused on a single or a few firms into the research to complement deductive, large-sample methods. Emphasizing the idiosyncratic nature of a firm's assets [2] [17], researchers in the empirical testing have used proxies as measures of intangible constructs and in addition they used quantitative questionnaires and qualitative interviews, as well as multiple informants, to increase the validity and reliability of the measures.

Summing up, the evolution of strategic management theories and methodologies results in that strategic management is certainly a multi-paradigmatic discipline, requiring wide-ranging methodologies. Consequently it is a good departure point to analyze the utility of mix-method.

3. MIX-METHOD APPROACH AND STRATEGIC MANAGEMENT

There are three common research methodologies adopted in social research: quantitative, qualitative, and mixed methods, the relative contributions to advancing knowledge of which is different. The term 'mixed method research' has become more and more popular in research strategy in social sciences. In general terms, integrating the Qualitative and Quantitative in strategic management research seems to be valuable in terms to learn more about complex business reality. Naturally qualitative and quantitative methodologies offer distinct yet complementary advantages [7] [4] [5]. Implementing qualitative approaches can lead to ambiguous or inaccurate operationalization of constructs. On the other hand quantitative approaches offer a more rigorous testing of operationalization to support construct validity. Regardless of it the knowledge about strategic matters is still ambiguous as arguments presented earlier state. The use of mixed methods could compromises distinct advantages and enhances the knowledge in the strategic management field.

Mixed methods research has become the most popular term for mixing qualitative and quantitative data in a single study [22]. According to Creswell and Plano Clark [10] there are

several circumstances when the employment of mixed method approach is appropriate, specifically: when one data source may be insufficient; when a need exists to explain initial results; when a need exists to generalize exploratory findings; and when a study needs enhancement by a second method. They also stress the importance of timing, or sequence, in mixed method designs refers to the order in which researchers use the qualitative and quantitative data aspects (Table 1).

Table 1. Mix – method design types [10]

Design type	Variants	Timing	Weighting	Mixing	Notation
Convergent	Parallel database	Concurrent: quantitative and qualitative at the same time	Usually equal	Merging the data during the interpretation or analysis	QUAN +QUAL
Embedded	Embedded experimental Embedded correlation Embedded methodology	Concurrent or sequential	Unequal	Embed one type of data within a larger design using the other type of data	QUAN (qual) or QUAL (quan)
Explanatory	Follow-up explanations	Sequential: quantitative followed by a qualitative	Usually quantitative	Connect the data between the two phases	QUAN → qual
Exploratory	Instrument development Theory development	Sequential: qualitative followed by a quantitative	Usually qualitative	Connect the data between the two phases	QUAL → quan

Quantitative and qualitative research can be combined at different stages of the research process: formulation of research questions; sampling; data collection; and data analysis [5]. The rationales for combining quantitative and qualitative research may be sum up in two different schemes (Table 2).

Table 2. Rationale for mix-methods [5]

Greene et al. (1989) scheme	Alternative Byrman's scheme (2006)		
Triangulation	Triangulation or greater validity	Context	Illustration
Complementarity	Offset	Explanation	Utility or improving the usefulness of findings
Development	Completeness	Unexpected results	Confirm and discover
Initiation	Process Sampling	Instrument development	Diversity of views
Expansion	Different research questions	Credibility	Enhancement

In spite of rationale presented in table 2 mix methods entails more work and financial resources, and takes more time. It also requires a broader set of skills. But it may provide a better understanding of research problems and complex phenomena.

There are several studies concerning research methods used in the area of strategic management [23]. Molina-Azorin and Cameron [26] and Molina-Azorin [27] examine research design in 3 leading journals from 2003-2009 and splits all empirical papers in terms of qualitative, quantitative or mixed method approach. The electronic search did not identify any empirical mixed methods studies in Strategic Management Journal, 1 was considered in Journal of Organizational Behaviour, and two articles in Organizational Research Methods. Molina-Azorin [27] studied also articles published in the Strategic Management Journal between 1980 and 2006 to identify research methods strategy scholars have used. Results show 15.2% articles identified as mixed methods.

Uygun and Altın [33] conducted the similar study concerning articles published in Strategic Management Journal during the period 2009-2011. They found that in empirical research in Strategic Management Journal, different methods focus on different aspects of topics to understand the phenomenon of interest. In Strategic Management Journal, research typically employs quantitative methods and there are few articles associated with qualitative modes of analysis.

The use of quantitative approaches dominates the strategy research [26] [3]. Although, considering complex, multidimensional construct in strategic management research there is a need for methodological multiplicity and the solicitation of mix – methods in researching strategic management issues. There is as well a need for the integration of quantitative and qualitative research methods in order to a better understanding of research problems and complex phenomena which are typical in strategic management research.

Mix-methods from a methodological point of view, is important as it provides alternatives for the measurement of complex variables that allow progress to be made in empirical research.

Nevertheless, before choosing a research methodology for solving a research problem, researchers should clearly explain the theoretical assumptions upon which their research is based. This will help illuminate why certain research methodologies are appropriate for

conducting certain types of study [9]. The selection of assumption to adopt in research primarily affects the ways data are collected and analyzed which in turn forms the type of the knowledge formed.

In strategy research there are several problems researchers encounter regarding construct and measurement [3] [30] [35]. Furthermore, theories that have been used in strategic management contain unobservables, including among others traditional industrial organization economics and the resource-based view [15]. There is also a need for researching microfoundations of strategic management [12], as well as growing attention is concerned on relational view, integration of micro and macro aspects [28], and multilevel approach [11]. These and other problems in researching strategic concerns possibly will be solved to some extent by adopting mix-method research strategy.

4. CONCLUSIONS

In summary, there have been many methodological advances in strategic management during recent years, but much remains to be accomplished in the field. Research methods are challenged due to testing new hypotheses, in some cases with new types of data. Advancing the constructs [35], researching the interrelationships [6], and improving the measurements [3] and the modes of analysis [23] are among the methodological developments which will be sought.

This article has analyzed the rationale for the use of mixed methods research in the strategy field. The findings show that mixed methods provide an opportunity to better understanding complex phenomena and might have a greater impact to deepen strategic studies and finally offer a platform to overcome methodological obstacles using mono methodological approach.

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MODERN COMMUNICATIONS MANAGEMENT AND CREATION OF CORPORATE IMAGE

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Abstract: Modern marketing is an efficient tool for creating value for the consumers and building profitable relationships with the consumers. It all starts with understanding the needs and desires of the consumers, in order to come up with a solution for the target markets that the company can serve best and for the development of an obligatory valuable product by which the organization can acquire, maintain and develop target markets. If a company has done these things in the right way, they could later serve to make a profit and increase its success. Effective organizational communication focuses on open and direct relationships between employees and managers within the organizations, thereby resulting in improvement of their commitment, productivity and organizational performance. Organizational communication represents an enduring force that brings together all members of the organization and leads them towards achieving their goals. Only those organizations that manage to establish principles of effective communication have the privilege to play the role of a successful organization in the contemporary societal conditions of change and dynamism. With the development of science, technology and changes in organizational communication, organizations need to enhance their own ability to upgrade themselves at the same pace. That way they will be able to apply and respond positively to the new principles, channels and modes of communication that would contribute to meeting the requirements and achieve the expected results of the organizations.

Keywords: marketing strategies, modern management, communication skills, communication relations, corporate image, information and communications technologies.

1. INTRODUCTION

The society's increasing complexity along with the appearance of divergent standards and values within it, especially in transition economies such as ours, led to the distortion of certain social standards which are inevitably affecting every person. In such conditions, it is undoubtedly extremely difficult to maintain consistency in terms of quality work and performance of the organizations. On a daily basis, each and every one of us participates in some sort of organization as a consciously coordinated social unit composed of two or more people that functions on a continuous basis in order to achieve a common goal. At the center of each organization lies the inevitable phenomenon – communication, as a social force which unites people by making them work together and cooperate with each other.

Communication is a process by which information is exchanged through a common system of symbols. It is a very important process for every organization and especially for the management. Communication is an activity which takes up a lot of time during the planning process of the marketing management. Good communication contributes to the improvement of the organizational goals and image [1]. The image and the impression that the organization

makes on the public through external communication i.e. through communication with the potential or the existing clients, associates, as well as through communication with the general public, are all aspects which determine the organization's success to a great extent. In times of constant interaction and communication, maintaining the appropriate and desired image for the organization means that it should possess a certain set of skills and abilities which every organization needs to develop for the people who take part in the external communication.

2. PROCESS OF COMMUNICATION

Communication is nowadays recognized as a social science discipline and there are numerous papers published about this discipline on a global scale. This paper is based on the theoretical postulates derived from the global scientific viewpoints of famous authors whose area of interest was organizational communication per se. Additionally, this paper explores and studies the different communication activities. In the past the authors were mostly interested in the communication channels, communication climate and the subordinate communication of the managers with the employees, but in the past few years this specialization spread and now includes organizational culture, conflict resolution, leadership, decision-making, job satisfaction and interpersonal relations in the workplace, ethical communication and behavior as well as information and communications technology in organizational communication, which is why they are all included in this paper as well.

It is clear that communication takes a central position in the organizational life and that ineffective organizational leaders literally lead towards disorganization. This means that very often the development and the profit, as well as the survival of the organizations depend on effective organizational communication, used as a tool for establishing effective leadership. Thus, organizational communication is one of the fastest growing fields within the academia. They show a growing interest in this area which is increasingly imposing itself as a success factor for the organizations. **The core value** of communication within organizations stems from the sole existence of the organization. In order to establish an organization, we need a team of people who will work and run this organization. These people are in fact the organization's employees. In order to communicate with each other as well as achieve the organizational goals, they need to communicate. This is why communication is considered to be the base of the organization's values. It reflects the core value of the organizational functions. Managers have been aware of this for a long period of time. They know that success and profit will certainly follow if they establish efficient communication in their organization. Communication has its own ways of exploring, measuring and analyzing. This is why communication should be endorsed as a value within the organizations, and not merely as a necessity [2].

3. MODERN COMMUNICATIONS MANAGEMENT

In order to become successful, the organization needs to have competent and excellent communicators at its disposal. Successful organizations rely on the effective and efficient communication skills of their members. A large number of researches identify effective oral and written communication as the most sought after skill by the owners of organizations, i.e. the employers. The theoretical and the practical research enable us to conclude that

communicative competency is the most vital skill which is necessary for the workforce in order to achieve great organizational success, especially nowadays in the 21st century.

Managers have a slightly distorted image in terms of communication within their organizations, i.e. they suppose that it is on a much higher level that it really is, judging by the answers of the employees, which in this case will be considered as a more relevant factor for evaluating the communication. In this regard, there is a need to raise awareness for the importance of determining the level of communication, detecting problems in communication needs and considering the possibilities for improvement through constant training of all members of the organizations. Although the quality of communication is not a guarantee for success of an organization in achieving greater business results, it certainly contributes greatly to a better execution of the tasks. Hence, we can conclude that the better the communication, the greater the possibility to achieve better results in the operations of organizations. In fact, organizational communication is the reflection of the way in which the organization constructs and presents its organizational culture and climate – the stances, values and goals which characterize the organization and its members.

Managers spend a great part of their workday communicating. They need to attend meetings where it is compulsory to communicate. They take notes, write reports and make plans. Almost everything they do requires communication. They delegate and tell people what to do, provide the necessary information, persuade someone to do something, or explain people how to do a certain thing. The manager's activity demands working with the employees in order to attain the organizational goals. Hence, the manager needs to understand the employees' behavior in order to establish communication with them, to motivate them and lead them [3].

The sooner the company gives meaning to the organizational communications, the faster it will be able to take actions and tackle the challenges and differences which represent separate challenges and possibilities for the future, in times of enhanced globalization. In fact, globalization is considered to be the factor that affects every aspect of life, which is why the interrelation of economies from different parts of the world is reaching an unprecedented degree. Sometimes when organizations seek answers as to why they have not achieved or have achieved success, they realize that the answer lies precisely in organizational communication. The entire research of today's economy, the constant changes and globalization falls back on the employees and the managers. They need to have all the information and the data to solve ongoing issues outside and inside the organization. The employees and the managers get these data and information due to good communication. Effective communication is the backbone of the organization.

4. CORPORATE IMAGE MANAGEMENT

Each company's activity or lack of activity reflects on its image. The image is the overall impression for the company; it is represented by its identity and all the other features which are relevant for the target audience. In fact, this is the content that comprises attitudes, opinions, experiences, beliefs, prejudices and feelings about the company which are created with the consumers, i.e. the greater public (suppliers, financiers, traders, employees, shareholders).

The image establishes a psychological relation between the manufacturer, the marketing channel and the consumer. When there is a notion about a certain object or a name formed in the consciousness of a certain consumer, then they correlate it with specific elements of the image, which is a conglomerate of feelings, opinions, attitudes and assumptions. The market does not take into account merely the objective elements of the product, but above all the psychological influence, i.e. its subjective and spiritual value which is determined by the consumers and the users. The image is not a result of empirical evidence but rather something that occurs during the creation of the company, introducing new products and all the other activities performed by the company. The image can be planned and can be deliberately used to manage the methods and means of communication. In case the image is not planned and not influenced on, it will form and change spontaneously. The image of a certain brand is not a set of well-thought conditions, but rather a representation of the different values and associations [4].

Image can be used to transfer the company's values to the target group. It can be used to recognize and evaluate the entire company as well as its products. Recognizing the parameters which comprise the image and its conscious formation represent the main goal of the company's strategy. The activities needed to create an image always start with the analysis of the current image.

Contrary to the industrial economy whose main features are the physical and the financial capital, in today's economy; the capital is intangible and consists of the companies' image, the brands, the relations with the partners, the relationships with the consumers and the knowledge and competences of the employees. Building and enhancing the public image is becoming one of the main strategies of the companies, because the consumers attach greater value to those companies which have a better market position. By accepting the image as a powerful means of communication with the people, managing the image has become a very important field in the marketing strategy. With the fact that the company's image is based on the company's identity, i.e. that it is a direct impression of the entire company; we can often recognize and evaluate the entire organization, its performance and services by looking into its image.

The image of the companies in the marketing services was identified really early as one of the most significant elements in the overall evaluations of the products and services as well as the evaluation of the company itself. When it is difficult to assess the features of the products and services, then the image of the company is one of the most important elements which influences the quality that we perceive, the evaluations of the consumers in terms of satisfaction with the products and services as well as their loyalty. Using the products and services is more frequently perceived as a result of the image, rather than as a result of what is materially and physically offered, while using certain products and services is becoming a way in which the consumers determine their personal image and the image of other people. Today's working conditions are characterized by almost absolute market saturation in all segments; there are numerous competitive products and services that differ only in individual marginal or solely symbolic features. The most important criteria for the selection and use of these products and services are the expected experiences, i.e. the expected consequences associated with the different alternatives. That is why the elements chosen by the consumers are focused on the image and the symbols, instead of the products' inherent features.

5. STRATEGIC FRAMEWORK FOR EFFECTIVE ORGANIZATIONAL COMMUNICATION

Considering the aforementioned facts while having in mind the theoretical postulates for the benefit and the need for effective organizational communication, we can form a framework of directions which will enable the improvement of communication within organizations. The directions described in this paper are the following:

- Raising awareness for the need of effective communication;
- Creating an environment for effective communication;
- Building and enhancing the organizational culture and ethics;
- Encouraging the relation manager-employee;
- Overcoming failures of communication;
- Upgrading the communication skills;
- Communication analysis and control;
- Implementing changes in the organizational communication – using information and communications technology.

This framework is not final; it can be constantly upgraded, in accordance with the specific needs of the organizations and the challenges which are being tackled on a daily basis. However, it is necessary for all the directions which were mentioned to take part in the system of organizations in order to establish effective organizational communication.

Studies have proved that organizations which implement effective communication are always more successful than those companies which do not implement communication enough [5]. Effective communication influences the reduction of the current, total and all other types of costs in the company. Communication also affects the way in which the employees successfully/unsuccessfully complete the training phase, the new programs, traineeships etc.

Strategies should be based on analyses as to what the managers want to distribute and receive as information as well as enable the understanding and the acceptance of the employees. Furthermore, these studies should be directed towards the ways of acquiring the dedication and the trust of the employees and the level of participation of the established communication relationships in the relation manager-employee in this process. In this way, the managers will understand the communication's contribution to the work and performance of the employees and with it the contribution to the organizational success as well. Such implications of organizational communication have been realized on time by some organizations, hence there is already an initiative to improve the mechanisms, skills and communication relationships by establishing better communicational relations between the employees and the managers.

6. CONCLUSION

The future of organizational communication is complex and rapidly changing. As a result, there are many challenges for the organizations. Some of the challenges are the ethics and the rapid changes which occur in the organizational life. As the competition continues to rise and intensify and greater demands occur in regard to the organizations and the individuals, the competition is becoming the focal point of the researches in terms of organizational behavior and operations. Additionally, the rapid advancement of technology and globalization create greater challenges and demands for the members of the organizations.

The rising concerns of companies about their image, identity and culture are increasingly seen in terms of a number of changes affecting their role and opportunities for improvement. Nowadays, the information we get is no longer considered a rarity; in fact, a large number of information is available everywhere. This abundance generated a lot of confusion. Supply and demand for information are disoriented, and therefore more and more dependent on the guidelines and criteria to sort the information in order to reduce confusion.

More attention should be paid to communication as an element of organizational behavior due to the increased change within organizations which face new challenges, opportunities to test different organizational forms and concepts of behavior and creation of the image of organizations. By identifying a level of satisfaction in regard to communication within the organization, we can get an insight into the organizational strengths, but at the same time we can get an insight into the weak points in the area of communication within the organization. We can also use this as a base upon which we can make important business decisions within the organization.

Communication should be considered as a strategic matter which needs to be planned, developed, organized and controlled. Moreover, we proved that there is nothing mystical or vague about effective organizational communication. The main elements of communication are known and susceptible to measurement and evaluation. As a starting point for the analysis, different communication styles and skills should be taken into account as well as the types of communication that are used in different situations by all employees and managers in the organizations.

The organizations which will succeed in establishing principles for creating and maintaining effective organizational communication, will be able to achieve greater business results, while keeping in mind the turbulent conditions of today's society. Naturally, the focus should always remain on the economic health of the organization as a reliable indicator which shows that the organization is on the right track. Simply put, communication is one of the predominant activities performed in any working environment. The understanding of the social complexity which is part of the communication itself represents the first step in creating an effective organizational communication.

The organizations which develop a timely strategy to enhance and improve the communication will be able to deal with the market competition much easier as well as create a business image that will be recognized on the market. The most important thing is to maintain the economic operations of the companies because that is an indicator that the organization is moving in the right direction towards success and profit. Communication is the key activity which contributes to an easier accomplishment of practically anything that goes on in society. If communication is taken into account on time, this will mean that the company is one step ahead in overcoming all the obstacles and changes.

Under the conditions of fierce competition, globalization of the markets and the expansion of the multinational companies, the image plays a significant role in winning and retaining customers, and the result is that the product itself is not the only activity of the company which draws the attention of the consumers and the public. Nowadays they want to get information about the companies which sell the products and provide the services, and not only about the service or the product they purchased. Significant competitive advantage can be achieved through differentiation, and the only strategy which the competition cannot imitate is the difference in image.

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OLD RULES, NEW PROBLEMS

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Abstract: In history sometimes there is a paradigm shift, such as the one caused by the invention and spreading of book printing. Nowadays we have to face with a new paradigm shift, we have to become accustomed to the new challenges of the virtual world, where the old, century and millennium-long rules do not work any more. In this paper, on the basis of collected news elements, I am demonstrating some of the new problem types that cannot be regulated by formal laws and/or require ethical considerations, or the re-engineering of what we thought about security in a wide and general meaning.

Keywords: new challenges, ethics, re-engineering

THE INFLUENCE ON INVESTMENT DECISIONS OF THE SPECIFIC CHARACTERISTICS OF STOCK RETURN DISTRIBUTION LISTED ON PRIME AND STANDARD LISTING AT THE BELGRADE STOCK EXCHANGE

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Abstract: The problem of stocks illiquidity in the Serbian capital market reflects in a number of days without price signals, so-called asynchronously trading, in the absence of stable and high daily volume, as well as high price volatility and the possibility of influencing the price in the realization of the large scale transactions. Illiquidity creates uncertainty and increases the inability of investors to close their positions without greater loss of invested assets. Because of this, when making investment decisions, investors in the Serbian capital market use, as their primary criteria, stock illiquidity, since the risk of illiquidity represents the uncertainty on the secondary capital market. Besides illiquidity which is measured in this paper by using Amihud indicator, the results presented in this paper shows that time series of stock return of domestic companies have autocorrelated returns, skewness and kurtosis of the empirical distribution. By using the empirical framework in this paper we will show the characteristics of the financial time series diminishes validity of the Sharpe's ratio, as the ratio of the expected return per unit for taken risk, which ain't the most reliable criteria for evaluating the stocks performances. The empirical results presented in this paper recommend the model by which the investors cannot rely only on illiquidity, as well as the criterion of the maximum Sharpe's ratio, without the autocorrelation coefficient and the higher central moments analysis, so the primary stock selection can be done while making investing decisions, since without this procedure the unnecessarily risk would be taken.

Keywords: Liquidity, Sharpe ratio, Autocorrelation in stock returns, Skewness and kurtosis of the empirical return distribution, Belgrade Stock Exchange

Apstrakt: Na srpskom tržištu kapitala problem nelikvidnosti akcija se ogleda u velikom broju dana bez cenovnih signala, tzv. nesinhronom trgovanju, nedostatku stabilnih i visokih dnevnih prometa, visokoj volatilnosti cena i mogućnosti uticaja na cenu pri izvršenju transakcija većeg obima. Nelikvidnost kreira nesigurnost i uvećava nemogućnost da investitori zatvore svoje pozicije bez velikog gubitka uložene imovine. Investitori na srpskom tržištu kapitala kao primarni kriterijum prilikom donošenja investicionih odluka koriste likvidnost, jer rizik nelikvidnosti predstavlja neizvesnost koja nastaje na sekundarnom tržištu kapitala. Osim nelikvidnosti koja je merena korišćenjem Amihudovog pokazatelja, u radu je utvrđeno da vremenske serije prinosa akcija domaćih kompanija poseduju prisustvo autokorelacije prinosa, asimetrije i spljoštenosti empirijske raspodele. Primenom empirijskog obuhvata, u radu će se pokazati kako navedene karakteristike finansijskih vremenskih serija umanjuju pouzdanost Sharpe-ov racia, prikazanog kao odnos očekivanog prinosa po jedinici preuzetog rizika, nije najvalidniji kriterijum evaluacije performansi akcija. Rezultati sprovedenog

istraživanja preporučuju model prema kome investitori ne mogu da vrše primarnu selekciju akcija i donose investicione odluke oslanjajući se samo na kriterijum likvidnosti i kriterijum maksimalnog Sharpe-ovog racia, a bez analize koeficijenata autokorelacije i viših centralnih momenata, jer bi time izložili nepotrebnom riziku.

Ključne reči: Likvidnost, Sharpe-ov racio, Autokorelacija prinosa, Asimetrija i spljoštenost empirijske distribucije prinosa, Beogradska berza.

1. UVOD

Iako se broj studija koje za predmet analize imaju novonastajuća tržišta kapitala značajno povećao u poslednjoj deceniji, specifične karakteristike ovih tržišta i dalje predstavljaju izazov za finansijsku teoriju i praksu. Novonastajuća tržišta kapitala, u koje ubrajamo tržište Republike Srbije, karakterišu brojni rizici koji za ishod imaju visoku volatilitnost [1] [2]: tržišta kapitala u nastajanju predstavljaju plitka tržišta na kojima mali broj akcija dominira u strukturi tržišnog indeksa; na ovim tržištima uočljiv je problem nelikvidnosti [3]; efikasnost finansijskog tržišta predstavlja spornu tačku u savremenoj ekonomskoj teoriji posebno naglašenu na novonastajućim tržištima [4]; neispunjenost pretpostavke o aproksimaciji normalne distribucije empirijskih prinosa. Nelikvidnost i povećani transakcioni troškovi osnovni su simptomi neefikasnosti finansijskih tržišta [5].

Na srpskom tržištu kapitala problem nelikvidnosti akcija se ogleda u velikom broju dana bez cenovnih signala, tzv. nesinhronom trgovanju (engl. Nonsynchronous trading) koje se definiše kao beleženje cenovnih signala u jednakim vremenskim intervalima, iako su oni zapravo zabeleženi u različitim intervalima [6], nedostatku stabilnih i visokih dnevnih prometa, visokoj volatilitnosti cena (velike dnevne oscilacije cena akcija) i mogućnosti uticaja na cenu pri izvršenju transakcija većeg obima. Nelikvidnost kreira nesigurnost i uvećava nemogućnost da investitori zatvore svoje pozicije bez velikog gubitka uložene imovine. Iz tog razloga se investitorima na srpskom tržištu kapitala kao primarni kriterijum prilikom donošenja investicionih odluka nameće kriterijum likvidnosti akcije (obim trgovanja i broj dana u kojima je broj transakcija različit od nule), budući da rizik nelikvidnosti predstavlja neizvesnost nastalu na sekundarnom tržištu kapitala. Dodatni problem predstavlja i pretpostavka o normalnom rasporedu empirijskih distribucija prinosa akcija. U vremenskim serijama prinosa akcija srpskih kompanija prisutni su koeficijenti serijske korelacije prinosa prvog reda koji dovode u pitanje hipotezu o efikasnosti tržišta prema kojoj se cene akcija slučajno kreću oko stvarne intrinzične vrednosti (hipoteza slučajnog hoda) [7].

U radu će se izvršiti analiza uticaja autokorelacije prinosa, asimetrije i spljoštenosti empirijske raspodele prinosa na odluke o izboru akcija sa Prime i Standard listinga. Navedene karakteristike finansijskih vremenskih serija pokazuju da Sharpe-ov racio, kao mera očekivanog prinosa po jedinici preuzetog rizika koji finansijski instrument i/ili portfolio odbacuje [8], nije najpouzdaniji parametar evaluacije performansi akcija. Uvažavajući specifičnosti utvrđene statističko-ekonometrijskom metodom, u radu je investitorima predložena korekcija Sharpe-ovog racia, ne samo koeficijentom autokorelacije prinosa, već i višim centralnim momentima, jer bi se u suprotnom izložili nepotrebnom riziku.

1. 1. SPECIFIČNOSTI AKCIJA SA NOVONASTAJUĆIH TRŽIŠTA KAPITALA – STILIZOVANE ČINJENICE

Empirijske studije sprovedene na srpskom tržištu kapitala, pokazuju da karakteristike prinosa akcija na Beogradskoj berzi poseduju i sledeća svojstva: a) leptokurtičnost distribucije: funkcija raspodele prinosa ima teške repove (engl. Fat tails), veću verovatnoću pojave ekstremnih vrednosti u odnosu na onu koju predviđa standardna normalna Gauss-ova raspodela. Fenomen teških repova poznat je i kao prekomerna spljoštenosti (engl. Excess kurtosis); b) heteroskedastičnost finansijskih vremenskih serija: volatilitet prinosa vremenskih serija nije konstantna, čime je narušena pretpostavka klasičnog modela najmanjih kvadrata o konstantnoj varijansi slučajne greške (homoskedastičnost). U modelima u kojima varijanse slučajnih grešaka nisu jednake, i kada se očekuje rast varijabiliteta slučajne greške za različite vrednosti ili intervale vrednosti analiziranih podataka, prisutan je problem heteroskedastičnosti. Drugim rečima, volatiliteti nisu vremenski konstantne, tj. vrednosti logaritamskih prinosa bilo da su velike ili male pokazuju osobinu klasterizacije, odnosno postojanje zavisnosti u krajevima distribucije. Mandelbrot je rekao: „Velike promene u prinosu prate velike promene prinosa i male promene prinosa prate male promene prinosa“ [9]. Prisustvo heteroskedastičnosti doprinosi pojavi leptokurtozisa raspodele kratkoročnih prinosa, ali se ispravnim modelovanjem volatiliteta dobija uslovna raspodela prinosa koja previše ne odstupa od Gauss-ove raspodele; c) efekat leveridža: prinosi finansijske aktive imaju negativnu korelacionu vezu sa varijansom, što predstavlja efekat leveridža koji proizilazi iz činjenice da će pad cena akcija povećati leveridž preduzeća sve dok dug ostaje konstantan. Preko efekta leveridža moguće je objasniti povećanje varijanse koja je u vezi sa padom cena. Naime, F. Black je preko efekta leveridža objasnio tendenciju volatiliteta koja u većoj meri raste prateći cenovni pad u odnosu na cenovni rast iste apsolutne vrednosti [10]. Za prinose finansijske aktive, negativni šok ima veću uticaj na volatilitet nego pozitivan šok istog intenziteta; d) dugoročnu zavisnost u podacima: autokorelacija apsolutnih i kvadriranih vrednosti logaritamskih prinosa predstavlja serijsku zavisnost među podacima i grubo rečeno, govori koliko prinosi „ne zaboravljaju“ neposrednu prošlost [11]. Koeficijenti autokorelacije u finansijskim vremenskim serijama često su različiti od nule i na velikim pomacima što pokazuje prisustvo vremenski uslovljene zavisnosti u dugom roku. Autokorelacija vremenskih serija finansijskih podataka se meri regresijom tekućih stopa prinosa i stopa prinosa sa pomakom. Regresija između prinosa iste varijable se može opisati kao testiranje da li je moguće opisati današnji prinos kao linearnu funkciju prinosa od juče. Prisustvo autokorelacije znači da se današnji prinos ne može precizno opisati kao linearna funkcija jučerašnjeg prinosa, te postoje i drugi faktori, osim istorijskih prinosa, koji utiču na današnji prinos.

2. ANALIZA SPECIFIČNIH KARAKTERISTIKA AKCIJA SA PRIME I STANDARD LISTINGA BEOGRADSKE BERZE

2.1. ANALIZA LIKVIDNOSTI AKCIJA SA PRIME I STANDARD LISTINGA KORIŠĆENJEM AMIHUĐ-OVE MERE NELIKVIDNOSTI

Empirijska analiza akcija sa Prime i Standard listinga je izvršena korišćenjem istorijskih podataka o kretanju cena akcija tokom 2013. godine (istraživanje je sprovedeno u

periodu od 03.01.2013. do 31.12.2013. godine i koji obuhvata 251 opservaciju dnevnih cena na zatvaranju⁸, odnosno 250 opservacija prinosa).

U analizi su korišćene relativne promene cena akcija na zatvaranju, odnosno logaritamski prinosi koji su definisani na osnovu prirodnog logaritma odnosa cena:

$$r_t = \ln\left(\frac{P_t}{P_{t-1}}\right) = \ln P_t - \ln P_{t-1} = \Delta \ln P_t \quad (1)$$

Logaritamski prinosi su izračunati korišćenjem komponente kapitalne dobiti. Kako originalni modeli ne uključuju dividende, niti se tržišni indeksi Beogradske berze prilagođavaju za isplaćene dividende, izuzimanje komponente tekućeg prinosa nema značajnijeg uticaja na rezultate istraživanja. Dobijena vremenska serija od 250 prinosa analiziranih akcija se u istraživanju tretira kao uzorak usled pretpostavke o vremenski neograničenom kontinuitetu poslovanja akcionarskog društva, pa i akcije koje predstavljaju učešće u kapitalu akcionarskog društva predstavljaju permanentne hartije od vrednosti. Prema tome, osnovni skup (zaključne cene akcija) je beskonačan, te su i prikupljeni podaci (data vremenska serija) uzorak iz takvog osnovnog skupa.

Kao kvantitativna mera nelikvidnosti akcija u radu je korišćena Amihud-ova mera nelikvidnosti – ILLIQ [12]. Izračunavanjem prosečne vrednosti nelikvidnosti akcije, koja obuhvata i broj dana trgovanja akcijom u posmatranom periodu (broj dana sa cenovnim signalom, odnosno broj dana u kojima je obim trgovanja različit od nule), Amihud-ova mera nelikvidnosti predstavlja odnos procentualne promene cene u apsolutnom iznosu i prometa trgovanja, te je u radu korišćena usled višedimenzionalnog obuhvata likvidnosti.⁹ Da bi se tržište smatralo likvidnim, promena cene (engl. Spread) bi trebalo da bude što manja, a vrednost prometa (izračunata kao proizvod obima trgovanja i cene) što je moguće veća. Uticaj prometa na cenu je presudan, budući da je likvidnost veća što je uticaj prometa na cenu manji. Prilikom izračunavanja vrednosti ILLIQ pokazatelja za i-tu akciju na dan – d, u radu je korišćen sledeći obrazac [12]:

$$ILLIQ_{idt} = \frac{|r_{id}|}{Tn_{id}} \times 10^5 \quad (2)$$

pri čemu je: r_{id} – prinos na i-tu akciju dana d, Tn_{id} – promet trgovanja istog dana za i-tu akciju. Amihud-ova mera pokazuje koliko 1 dinar vrednosti prometa utiče na procentualnu promenu cene akcije zabeleženu tog dana. U obrascu se koristi 10^5 kako bi se rezultati interpretirali kao promena cene na 100.000 dinara prometa. Prosečna vrednost nelikvidnosti svake akcije u posmatranom periodu je izračunata korišćenjem obrasca (3), pri čemu je: D_i – broj dana trgovanja i-tom akcijom u posmatranom periodu.

⁸ Odlukom Beogradske berze o načinu utvrđivanja cene na zatvaranju, 01/1 br. 3052/08, od 07.10.2008, cena na zatvaranju se utvrđuje u visini prosečne ponderisane cene svih trgovanih jedinica svake hartije od vrednosti tokom celokupnog trajanja faze kontinuiranog trgovanja.

⁹ Likvidnost može da se posmatra kao sposobnost imovine da se u relativno kratkom roku pretvori u drugi oblik imovine bez gubitka vrednosti odnosno bez promene cene. Tržište se smatra likvidnim ukoliko ekonomski transaktori mogu brzo obaviti velike transakcije bez većeg uticaja na cenu.

$$AMILLIQ_{idt} = \frac{\sum ILLIQ_{idt}}{D_i} \quad (3)$$

U okviru listinga regulisanog tržišta, na dan 31.12.2012, na Prime listingu se nalazilo pet akcija, a na Standard listingu svega tri akcije.

Tabela 1. Prosečni Amihud-ovi pokazatelji nelikvidnosti i broj dana trgovanja [Mirjanić, B., Filipović, L.]

Prime listing		
Simbol	Amihud-ova mera	Broj dana trgovanja (D _i)
AERO	0,4029	250
ENHL	2,2748	243
NIIS	0,0121	250
SJPT	5,6472	207
TIGR	43,0501 ¹⁰	159
Standard listing		
Simbol	Amihud-ova mera	Broj dana trgovanja (D _i)
<u>ALFA</u>	0,9808	153
<u>KMBN</u>	5,4729	137
<u>MTLC</u>	1,3404	143

Akcija TIGR ima visoku vrednost Amihud-ovog pokazatelja, te se kao nelikvidna isključila iz dalje analize. Analizirane akcije su ostvarile različite prosečne prinose i standarde devijacije prinosa, što je prikazano u tabeli 2. Pod pretpostavkom da su prinosi identično i nezavisno raspoređeni (engl. Identically independent distribution – i.i.d.) izračunat je anuelizovan prinos – \hat{r} (engl. Annualized return) i anuelizovana volatilnost – $\hat{\sigma}$ (engl. Annualized volatility), pri čemu je anuelizovani faktor $A = h = 250$ (engl. Annualizing factor).

$$\begin{aligned} \hat{r} &= r \times A \\ \hat{\sigma} &= \sigma \times \sqrt{A} \end{aligned} \quad (4)$$

¹⁰ Dana 11.09.2013. vrednost dnevne Amihud-ove nelikvidnosti akcije TIGR je bila najviša jer su izvršene 2 transakcija po ceni od 169 dinara (rast od 4,97% u odnosu na 161 dinar koliko je iznosila cena 10.09.2014.). Promet 11.09.2013. je iznosio 338 dinara, te je Amihud-ova nelikvidnost dostigla maksimalnu vrednost od 1.470,10. Drugi po veličini Amihud-ov dnevni koeficijent je 735,29 od 03.12.2013, kada je cena iznosila 170 dinara, odnosno 6,25% više u odnosu na 160 dinara (02.12.2013) uz realizovanih 5 transakcija, ostvarena je vrednost prometa 850 dinara. Visoka prosečna ukupna Amihud-ova nelikvidnost je posledica visokih dnevnih Amihud-ovih koeficijenata i malog broja dana za cenovnim signalom (159 dana).

2.2. ANALIZA SHARPE-OVOG RACIA AKCIJA SA PRIME I STANDARD LISTINGA

U poslednjoj koloni tabele 2 su prikazane vrednosti Sharpe-ovog racia – SR, koji je izračunat kao količnik godišnjeg anuelizovanog prinosa i godišnje anuelizovane volatilnosti pod pretpostavkom i.i.d. [13]:

$$SR = \frac{r \times h}{\sigma \times \sqrt{A}} \quad (4)$$

Pretpostavka o nezavisnosti i normalitetu u raspodeli prinosa akcija ispitana je primenom Jarque-Bera (JB) statistike kojom je testirana nulta hipoteza o postojanju normalnog rasporeda distribucije prinosa [14].

Tabela 2. Prosečan prinos, standardna devijacija, anuelizovani prinos, anuelizovana volatilnost i Sharpe-ov racio [Mirjanić, B., Filipović, L.]

Simbol	Prosečan prinos (r) %	Standardna devijacija (σ) %	Anuelizovani prinos i.i.d. (\hat{r}) %	Anuelizovana volatilnost i.i.d. ($\hat{\sigma}$) %	SR
ALFA	0,3446	2,2290	86,1615	35,2468	2,4445
MTLC	0,1328	1,4444	33,1946	22,8384	1,4535
NIIS	0,0873	1,2341	21,8280	19,5125	1,1187
ENHL	0,0676	2,3397	16,9076	36,9947	0,4570
AERO	0,0389	1,3942	9,7374	22,0439	0,4417
KMBN	0,0176	2,1403	4,4048	33,8427	0,1302
SJPT	-0,0681	2,0984	-17,0151	33,1789	-0,5128

Vrednost JB statistike analiziranih akcija (Prilog 1) značajno prelazi kritičnu vrednost 9,21 te se nulta hipoteza odbacuje i zaključuje se da serije prinosa nemaju normalan raspored. Neispunjenost pretpostavke o nezavisnosti slučajnih varijabli ukazuje na problem autokorelacije, odnosno korelacije slučajnih varijabli unutar jednog stohastičkog procesa.

2.3. ANALIZA AUTOKORELACIJE PRINOSA AKCIJA SA PRIME I STANDARD LISTINGA

U analizi vremenskih serija, pod autokorelacijom ili serijskom korelacijom, podrazumeva se merenje koje pokazuje da li su logaritamski prinosi u korelaciji sami sa sobom tokom određenog vremenskog intervala. Drugim rečima, autokorelacija vremenske serije znači da vrednost varijable r_t u jednoj vremenskoj jedinici zavisi od onih koji joj vremenski prethode ili koji se javljaju kasnije. U radu je ispitana autokorelaciona veza prvog reda stopa prinosa, koja se prikazuje prostim koeficijentom korelacije tekuće vrednosti i vrednosti s kašnjenjem (engl. Lagged) tzv. autokorelacionim koeficijentom – ϕ . Pozitivna autokorelisanost znači da su pozitivne vrednosti praćene uglavnom pozitivnim vrednostima, a negativne negativnim, i tada je ϕ približno +1; kod negativne autokorelisanosti česta je

promena znaka, tj. nakon pozitivne stope, u većini slučajeva, dolazi do negativne stope i obratno, tada je $\varphi = -1$. Kada je u prinosima vremenske serije prisutna autokorelacija sa koeficijentom autokorelacije prvog reda, skalni faktor (engl. Scale factor) koji standardnu devijaciju transformiše u volatilitnost nije \sqrt{h} kao pod pretpostavkom i.i.d. (h – broj obračunskih perioda, za godišnje stope prinosa $h = 250$), već se skalni faktor $AR(1)$ u tom slučaju izračunava prema sledećem izrazu: [15]

$$AR(1)_{sf} = \left(h + 2 \frac{\varphi}{(1-\varphi)^2} \left[(h-1)(1-\varphi) - \varphi(1-\varphi^{h-1}) \right] \right) \quad (5)$$

U prvoj koloni tabele 3 prikazani su koeficijenti serijske korelacije prinosa prvog reda $-\varphi$ analiziranih akcija. U drugoj koloni iste tabele su izračunati faktori skaliranja $AR(1)_{sf}$ korišćenjem obrasca (5), neophodni za izračunavanje volatilitnosti sa autokorelisanim prinosima $-\hat{\sigma}_{AR(1)}$ kao proizvoda standardne devijacije prinosa $-\sigma$ i skalnog faktora $AR(1)_{sf}$. U poslednjoj koloni izračunat je Sharpe-ov ratio korigovan za autokorelaciju ASR_1 koji se izračunava kao količnik godišnjeg anuelizovanog prinosa i izračunate volatilitnosti korigovane autokorelacijom prinosa: [13]

$$ASR_1 = \frac{r \times h}{\sigma \times \sqrt{AR(1)_{sf}}} = \frac{\hat{r}}{\hat{\sigma}_{AR(1)}} \quad (6)$$

Tabela 3. Autokorelacioni koeficijenti, godišnja volatilitnost korigovana autokorelacijom prinosa i Sharpe-ov ratio korigovan autokorelacijom ASR_1 [Mirjanić, B., Filipović, L.]

Simbol	Autokorelacioni koeficijenti prvog reda (φ)	Faktor skaliranja ($AR(1)_{sf}$)	Anuelizovana volatilitnost korigovana utokorelacijom prinosa ($\hat{\sigma}_{AR(1)}$)	ASR_1
ALFA	-0,093	14,41	32,1255	2,6820
MTLC	-0,260	12,13	17,5241	1,8942
NIIS	0,212	19,59	24,1763	0,9030
AERO	-0,160	13,47	18,7798	0,5185
ENHL	-0,064	14,84	34,7112	0,4871
KMBN	-0,073	14,69	31,4525	0,1400
SJPT	0,067	16,91	35,4832	-0,4795

Poređenjem anuelizovane volatilitnosti iz tabele 2 i anuelizovane volatilitnosti korigovane autokorelacionim koeficijentom iz tabele 3, vidimo da negativna serijska korelacija smanjuje procenjenu volatilitnost u poređenju sa procesom i.i.d. Što je negativni autokorelacioni koeficijent veći, smanjenje anuelizovane volatilitnosti je veće (MTLC sa 22,8384 na 17,5241, ENHL sa 36,9947% na 34,7112%, ALFA sa 35,2468 na 32,1255, KMBN sa 33,8427 na 31,4525, AERO sa 22,0439 na 18,7798). Pozitivna serijska korelacija prinosa povećava procenjenu volatilitnost u poređenju sa procesom i.i.d. Što je pozitivni autokorelacioni koeficijent veći, povećanje anuelizovane volatilitnosti je značajnije (NIIS sa

19,5125 na 24,1763 i SJPT sa 33,1789 na 35,4832). Poređenjem apsolutnih vrednosti SR iz tabele 2 i apsolutnih vrednosti ASR_1 iz tabele 3, vidimo da negativni koeficijenti autokorelacije prvog reda povećavaju korigovani Sharpe-ov ratio ASR_1 , dok pozitivni koeficijenti autokorelacije prvog reda smanjuju vrednost ASR_1 u odnosu na SR. U odnosu na tabelu 2, posmatrajući vrednosti ASR_1 u tabeli 3, vidimo da se rang akcija AERO i ENHL promenio. AERO je usled većeg negativnog koeficijenta autokorelacije zauzeo bolju rang poziciju (sa 5 na 4), dok je ENHL zauzeo lošiju (sa 4 na 5).

2.4. ANALIZA VIŠIH CENTRALNIH MOMENATA EMPIRIJSKIH DISTRIBUCIJA PRINOSA AKCIJA SA PRIME I STANDARD LISTINGA

Pod pretpostavkom da su investitori neskloni ne samo prema visokoj volatilnosti, već i prema negativnoj meri asimetrije i meri spljoštenosti sa vrednostima preko 3, Sharpe-ov ratio je prilagođen za ove više momente distribucije – ASR_2 , kako bi se u potpunosti obuhvatile karakteristike empirijske raspodele prinosa domaćih akcija [13]:

$$ASR_2 = \hat{\lambda} + \left(\frac{\alpha_3}{6}\right)\hat{\lambda}^2 - \left(\frac{\alpha_4}{24}\right)\hat{\lambda}^3 \quad (7)$$

pri čemu je: $\hat{\lambda}$ – vrednost Sharpe-ovog racia korigovanog autokorelacijom (ASR_1), α_3 – mera asimetrije, a α_4 – mera spljoštenosti. Korigovani Sharpe-ov ratio ASR_2 će biti niži ukoliko je empirijski raspored realizovanog prinosa negativno asimetričan i ako je u vremenskim serijama prinosa prisutan leptokurtosis.

Tabela 4. Koeficijent asimetrije, koeficijent spoljoštenosti i ASR_1 Sharpe-ov ratio korigovan višim centralnim momentima [Mirjanić, B., Filipović, L.]

Simbol	Koeficijent asimetrije (α_3)	Koeficijent spljoštenosti (α_4)	ASR_2
AERO	-0,4750	5,8751	0,4631
ENHL	-0,1724	7,971	0,4419
NIIS	-1,0625	14,9719	0,2992
<u>KMBN</u>	-0,5762	7,5218	0,1373
SJPT	0,4669	5,4469	-0,4366
<u>MTLC</u>	-0,0689	8,3443	-0,5116
<u>ALFA</u>	1,3635	9,1694	-3,0547

Prikazani koeficijenti asimetrije i spljoštenosti u tabeli 4 pokazuju da raspodele prinosa nisu simetrične i pokazuju slabu negativnu asimetriju za akcije MTLC i ENHL, srednju negativnu asimetriju za akciju AERO i statistički značajnu negativnu asimetriju za akcije NIIS i KMBN. Srednju pozitivnu asimetriju prinosa ima akcija SJPT, dok je statistički značajnu pozitivnu asimetriju zabeležila distribucija prinosa akcije ALF.¹¹ Visoka vrednost

¹¹ Jačina asimetrije određena je na sledeći način: a) mala asimetrija: $\alpha_3 \leq 0,25$; b) srednja asimetrija: $0,25 < \alpha_3 \leq 0,50$ i c) jaka asimetrija: $\alpha_3 > 0,50$.

koeficijenta zaobljenosti dominira kod akcija: NIIS, ALFA, MTLC, ENHL, KMBN, dok akcije AERO i SJPT imaju nešto niži koeficijent spljoštenosti. Svi koeficijenti spoljoštenosti veći su od vrednosti 3, što ukazuje na prisustvo ekstremnih događaja za koje postoji mala verovatnoća nastanka pod pretpostavkom normalnog rasporeda. Korigovanjem Sharpe-ovog racia ASR_1 za koeficijent asimetrije i spoljoštenosti dobijena je vrednost ASR_2 . Iz tabele 4 vidimo da je ASR_2 niži kada je u empirijskom rasporedu prinosa prisutna negativna asimetrija i/ili ako je prisutan leptokurtosis. Sve analizirane akcije imaju najmanje jednu navedenu karakteristiku te su i sve vrednosti ASR_2 niže od ASR_1 . Na osnovu tabele 3 vidimo da se, usled negativnog autokorelacionog koeficijenta prvog reda – ϕ , Sharpe-ov indeks korigovan autokorelacijom – ASR_1 povećao u odnosu na standardni Sharpe-ov racio – SR, i to izrazitije u slučaju akcija koji imaju snažniju serijsku korelisanost. U odnosu na Sharpe-ov racio korigovan autokorelacijom – ASR_1 korekcija za koeficijent asimetrije i spoljoštenost – ASR_2 dovela je do drastičnijih promena kvalitativnih karakteristika akcija.

2.5. PERFORMANSE AKCIJA SA PRIME I STANDARD LISTINGA KAO OSNOVA INVESTICIONIH ODLUKA

U poređnom analizom rezultata prikazanih u tabelama 1, 2, 3 i 4, uočavamo kako se u zavisnosti od primenjenog kriterijuma performance individualne akcije menjaju u tabeli 5.

Prema kriterijumu likvidnosti akcije su rangirane u koloni Rang₁. Budući da investitoru kriterijum likvidnosti nije jedini prilikom izbora, akcije su u koloni Rang₂ rangirane prema kriterijumu opadajućeg Sharpe-ovog racia.

U nastavku tabele 5, izvršena je korekcija standardnog Sharpe-ovog racia za autokorelaciju prinosa, te su u koloni Rang₃ predstavljene akcije rangirane prema opadajućem iznosu korigovanog Sharpe-ovog racia za autokorelaciju. Osim što investitori preferiraju likvidne akcije, akcije sa visokom prosečnom vrednošću prinosa i niskim standardnim devijacijama, oni preferiraju i visoke pozitivne koeficijente asimetrije empirijske distribucije prinosa i niske koeficijente spljoštenosti za koje je izvršena korekcija ASR_1 (Rang₄).

Tabela 5. Performanse akcija prema različitim kriterijumima [Mirjanić, B., Filipović, L.]

Simbol	Rang ₁	k ₁ (ILLIQ)	Rang ₂	k ₂ (SR)	Rang ₃	k ₃ (ASR_1)	Rang ₄	k ₄ (ASR_2)
AERO	2	0,4029	5	0,4417	4	0,5185	1	0,4631
ENHL	5	2,2748	4	0,4570	5	0,4871	2	0,4419
NIIS	1	0,0121	3	1,1187	3	0,9030	3	0,2992
SJPT	7	5,6472	7	-0,5128	7	-0,4795	5	-0,4366
<u>ALFA</u>	3	0,9808	1	2,4445	1	2,6820	7	-3,0547
<u>KMBN</u>	6	5,4729	6	0,1302	6	0,1400	4	0,1373
<u>MTLC</u>	4	1,3404	2	1,4535	2	1,8942	6	-0,5116

Ukoliko bi investitor zanemario više centralne momente distribucije, korišćenjem kriterijuma maksimalnog SR i ASR_1 izabrao bi sledeće tri akcije: ALFA, MTLC i NIIS. Međutim, uvažavajući i korekciju ASR_1 za više centralne momente, odnosno kriterijum ASR_2 izabrao bi: AERO, ENHL i NIIS. Najdrastičniji primer je promena ranga akcija ALFA i

MTLC koje prema kriterijumu maksimalnog nivoa Sharpe-ovog racia SR i korigovanog Sharpe-ovog racia samo za autokorelaciju ASR_1 ($Rang_2$ i $Rang_3$) nakon korekcije za više centralne momente zauzimaju poslednja mesta ASR_2 ($Rang_4$). Tek nakon korigovanja standardnog Sharpe-ovog racia za autokorelaciju i mere asimetrije i spljoštenosti – ASR_2 mogu se odabrati akcije koje su prema svojim specifičnim karakteristikama najpoželjnije investicione alternative.

ZAKLJUČAK

Prisustvo autokorelacije prinosa, asimetričnih i spljoštenih empirijskih distribucija prinosa dovodi u pitanje validnost pokazatelja performansi akcija koji se oslanjaju na prva dva momenta distribucije, jer u tim uslovima aritmetička sredina nije najbolja mera centralne tendencije, a standardna devijacija nije adekvatna mera rizika. U tim uslovima, tradicionalne mere performansi korigovane za rizik postaju neadekvatna aparatura investicionog odlučivanja na tržištima kapitala u nastajanju jer mogu da zamagle sliku investitora o performansama individualnih akcija i/ili portfolia. Budući da je prema stepenu razvoja, tržište kapitala Republike Srbije i dalje slabo razvijeno, autokorelacija prinosa je posledica nesinhronog trgovanja, ali i asimetričnog cenovnog prilagođavanja. Poseban problem prilikom statističko-ekonometrijskog testiranja predstavlja i interpolacija nedostajućih cenovnih signala u prekinutim vremenskim serijama prinosa. Praksa ove vrste interpolacije na Beogradskoj berzi podrazumeva prepisivanje poslednje zabeležene trgovane cene, te je u serijama sa nesinhronim trgovanjem prisutna autokorelacija prinosa i niski koeficijenti korelacije sa prinosima drugih akcija. Predstavljeni rezultati ukazuju na potrebu korekcije standardnog Sharpe-ovog racia, ne samo za koeficijent autokorelisanosti prinosa – ASR_1 , već i za više centralne momente distribucije – ASR_2 . Navedeno prilagođavanje će smanjiti vrednost Sharpe-ovog racia u slučaju prisustva ya investitora nepoželjnih karakteristika empirijskih distribucija prinosa: negativna asimetrija i leptokurtosis. Budući da investitori imaju nesklonost ne samo prema visokoj volatilnosti, već i nesklonost prema negativnom koeficijentu asimetrije i visokom kurtosisu, prilikom selekcije akcija potrebno je uključiti i podatke o navedenim višim centralnim momentima distribucije. Tek nakon korigovanja standardnog Sharpe-ovog racia za autokorelaciju i mere asimetrije i spljoštenosti – ASR_2 mogu se odabrati akcije sa najpoželjnijim karakteristikama za investitora.

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PRILOG 1.

Vrednost Jarque-Bera testa normalnosti distribucije (JB) na uzorku akcija u periodu od 03.01.2013. do 31.12.2013.

	AERO	ENHL	NIIS	SJPT	ALFA	KMBN	MTLC
Jarque-Bera (verovatnoća)	95,5109 0,0000	258,6465 0,0000	1540,037 0,0000	71,45020 0,0000	473,9306 0,0000	226,8221 0,0000	297,7124 0,0000

Vrednost Jarque-Bera testa normalnosti distribucije je izračunata korišćenjem izraza:

$$JB = n \left[\frac{\hat{\gamma}^2}{6} + \frac{(\hat{k} - 3)^2}{24} \right]$$

pri čemu je: $\hat{\gamma}$ – mera asimetrije uzorka (α_3), \hat{k} – mera spljoštenosti uzorka (α_4). Pod hipotezom da su prosečni prinosi – r_i nezavisne opservacije iz normalne distribucije, JB ima χ^2 distribuciju.

Vrednost JB testa iz uzorka upoređuje se sa 95% kvantilom χ^2 distribucije, koji iznosi 5,99. Ako se nultom hipotezom pretpostavi da su podaci iz normalne distribucije vrednost JB testa je manja od 5,99, u suprotnom, hipoteza o normalnom rasporedu se odbacuje. Kritična vrednost χ^2 rasporeda uz nivo signifikantnosti 1 % iznosi 9,21%. S verovatnoćom 99% se može odbaciti nulta hipoteza o normalnom rasporedu stopa prinosa ako je izračunata vrednost JB statistike $> 9,21$.

THE INFLUENCE OF PERCEPTION AND MOTIVATION WHEN CHOOSING A LIFE INSURANCE

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Abstract: Life insurance occupies a central place in the insurance market and represents unique financial product that offers both insurance and savings. As a result, this research paper analyses the impact of perception and motivation on consumer behavior when choosing life insurance. The necessity for such analysis stems from the fact that many aspects of consumer behavior change over time influenced by various psychological factors such as: attitudes, perceptions, motives and lifestyles. Having into consideration this aspects, marketers have come to conclusion the following ways to motivate consumers: implementation of loyalty program, risk aversion, fostering curiosity of consumers and changing a consumer's attitude towards a product. Loyalty is an important factor for the consumers to remain loyal to the product or visit the same insurance company as opposed to those consumers who are not loyal. The failure of the life insurance companies to meet customer expectations will lead to customer dissatisfaction and reduced consumer loyalty. Perception affects motivation and is one of the basic factors when choosing a life insurance. If the consumer's perception is ignored, then the success of the marketers is limited in designing the marketing strategy. Hence, this study focus to identify and detect the impact of perception and motivation on consumer behavior when choosing a life insurance. For the purposes of this study, questionnaire was completed by 220 respondents and distributed on the territory of Republic of Macedonia through personal contact (in printed form) and through the social network Facebook. The survey results suggest that consumer motivation and perception about the necessity of life insurance can be increased by: adequate training of the marketers about the product knowledge, implementation of customer relation management in order to reach potential customers through recommendations from existing customers and on time communication with the customers on key changes in its policies and system of information.

Keywords: Life insurance, motivation, perception, consumers, polices, attitudes

1. INTRODUCTION

This research study aims to analyze "The influence of perception and motivation when choosing life insurance." Given the fact that the life insurance market in Macedonia is not developed, a survey was conducted to determine the impact of perception and motivation on buying behavior. Perception and motivation influence consumer's behavior when buying a particular product or service. Hence the relevance of this issue. Given the importance of life insurance, this research study intent to look into how consumers evaluate the product and how they can be motivated to buy the product. In this study specific measures are presented that would ensure continued growth and development of the life insurance market.

2. THEORETICAL FOUNDATIONS AND EMPIRICAL EXISTING PRACTICES

Needs in life are expressed in certain periods of life and are affected by various economic, sociological, psychological and other factors. The need for financial security is closely related to consumer's motivation. Motives are important and crucial mental phenomenon and are narrowly defined as:

„Internal forces that drive people to a certain activity, which results in readiness to perform a certain action, and the ultimate purpose of such action is to establish a balance” (3).

Scientificly, there are several ways behind how buyers make their buying decisions: implementation of loyalty program, perceived risk, free products, contests and fostering consumer's curiosity.

Loyalty programs motivate consumers to remain loyal to the product or visit the same insurance company as opposed to those consumers who are not loyal. In the Republic of Macedonia Croatia Insurance Company Inc. - motivates customers to be loyal if they save for their children with "Croatia" loyalty card which allows discount in over 200 locations throughout Macedonia when visiting restaurants, language schools, perfumeries, travel agencies etc.

Other ways to increase the level of customer satisfaction and loyalty is through customer relationship management (CRM). Customer relationship management enables organisations to provide excellent real-time customer service through the effective use of individual account and through collaboration, trust, commitment and information sharing. By applying the customer relationship management, the life insurance company will fix the source of consumer's dissatisfaction. The life insurance company should present all of the necessary informations to the consumers in a clear, comprehensive and accurate manner at the time of sale. After the sale, the communication with the consumers should be achieved in a timely manner and understandable way in order for the consumers to be provided with timely information on any key changes in its policies. This can be achieved through anniversary letter sent to all of the clients (7).

Other way consumer's motivation can be achieved is with emphasis on perceived risk. Perceived risk is considered consumer's level of uncertainty regarding the outcome of a purchase decision. Consumers make decisions under certain degree of risk in their activities when buying a particular product. Life insurance is a tool that eliminates risk and provides certainty to ensure timely assistance to a designated beneficiary upon the death of the insured or to the insured if he or she lives beyond certain age. Educating consumers about existing risks is of great importance because it can motivate consumers to make decisions that reduce risk exposure. Consumers will embrace the perceived risk, understand its significance and will be motivated to buy the product. Some consumers can rely on social security, but there are several risks associated with this type of security. Many consumers are insured by their employers. However, this coverage at work can be completed when an employee will leave their working position. (2)

Consumer's motivation can be increased by monetary rewards in order for the consumers to make a purchase. In the Republic of Macedonia, Croatia Insurance Company Inc. motivates consumers to make a purchase with payment of cash gift in the amount of 3% of the sum insured if they save for their child. One of the condition for the cash gift is excellent results achivment in all of the years of the child secondary education.

Consumers selectively choose which lottery to participate based on perceived value and their expectations for profits. (9) However, one of the problems which might result with cash prizes is that the amount of sales will increase, while the profitability will remain unchanged. As one market researcher explained: "Over time, the promotional price train consumers, especially those that are disloyal to seek deals on the open market rather than to encourage them to be loyal to a certain brand based on attributes other than the price." (2).

Perception is another lead factor in the consumer insurance decision. In the scientific theory there are numerous definitions of perception. The differences arise in defining the stages covered by this process from which we can mention the following definition:

„Perception is a predisposition to perceive things in a certain way and makes sense in line with its prior knowledge, memory, expectations, beliefs, attitudes and personality” (3)

Perception can be shaped under the influence of the external environment. Perceptual sets occur in all the different senses. In life insurance, perception is ascertained by culture, social development, education and informational background (6). For example in Ghandia, majority of policyholder life insurance policies argue that life insurance companies are good at collecting premiums and if one has an accident the life insurance policy will not cover the incurred risk. In contrast, in developed countries people are aware and educated of the importance of life insurance and own more than one life insurance policy.

Perception is a psychological process that includes recording and processing of information. In the process of perception, individuals receives information from the external environment in which they process, select or store the given information. Consumer's acceptance of the external environment has its selectivity, its own interpretation, defense mechanisms, distortion irritations and retention (3) If the consumer's perception is ignored, then the success of the marketers is limited in designing the marketing strategy. Life insurance falls into the category of intangible products and contains special features apart from the material good. Life insurance represents service where production and consumption are inseparable and consumer's are part of the manufacturing and delivery system. This means that the delivery system must reach the consumer, or the delivery system must go to the market. Consumers can evaluate a product along several levels.

Consumers first evaluate the basic characteristics and fundamental advantages of the product. Sales agents can make a significant difference in the product by including added benefits to their customers. For example when acquiring life insurance, the consumer do not acquire only the risk protection represented by the sum of money payed in case of a risk but also the feeling of support and the psychological confort that can be offered by this exchange during the purchase process. The perception by the consumer includes benefits that are not tangible, such as security and support to the client during the purchase process.

Other factors that influence the effect of perception are the emotional influences. For example, in Thailand marketars use emotion as one of the signature characteristics of Thai Life Insurance market. The marketers in Thailand are building the brand through emotional engagement. Thai commercials are more than just a commercial, the Thai Life Insurance Company sends out a lesson about family and about life, about how to love and how to live, about thinking and about behaving. The purpose of advertisements is to cause emotion and perceptual change in consumer's attitude towards the product.

Social factors also affect consumer's perception about the truthfulness of the information. Consumer's perceive their friends as a source of accurate information rather than an advertisement. People who do not own life insurance policy may decide to buy life

insurance because they believe in the truthfulness of the information of their friends and the fact that they have already gone through the process of informing and searching (5). Therefore, the marketers should introduce advertising where real users publish their life stories to present the benefits of life insurance.

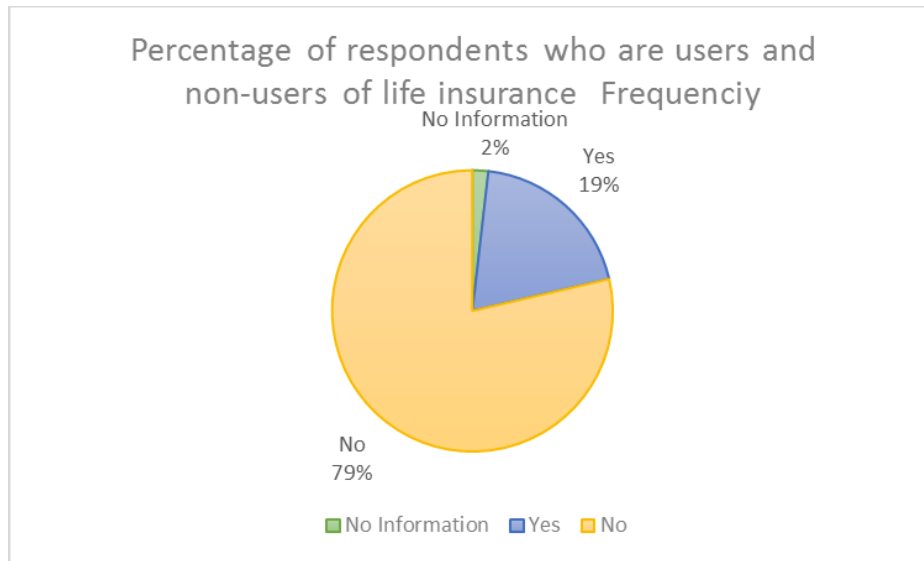
Service staff plays a particular role in forming customer perception about the truthfulness of information. The service staff is in direct contact with customers and connects the inner company with the outside world through the exchange of information (4). These intermediaries are expected to meet the demands and needs of customers with quality intermediation in order to create greater customers trust. Key parameters such as past experience, personal needs, external communication and verbal communication can significantly affect the quality of insurance services. There are three types of customer expectations: the expected service, the desired service and unsatisfactory service, representing the relationship between client and evaluation of service quality and client satisfaction (3). Client satisfaction results in increased profitability, greater market share and is an effective tool in developing a competitive position in the service sector. Client satisfaction results in reduced marketing expenses for attracting new clients, which are higher than the cost of keeping existing ones (4).

Trust is another important factor of life insurance and is best attained when both parties to the agreement fulfill their part in good faith. The life insurance agent must trust the life insurance policymakers and the reliability of the information presented to them, and in turn the policyholder should trust that the agent is providing appropriate and honest advice, untainted by conflicts of personal interest. In the absence of such trust, insurance becomes difficult because it cannot function properly. That means there are new opportunities for life insurance policymakers to attract and retain customers by strengthening customer trust (8).

Understanding these influences can assist policymakers in tailoring products and purchases to the needs of customers. This means taking into account: emotional influences, the presence of trust, education, social influence, social norms, social factors and the perceived risk. This will increase the overall value of the product, since customers greatly appreciate these added values and are aware of them.

3. RESEARCH METHODS, RESULTS AND DISCUSSION

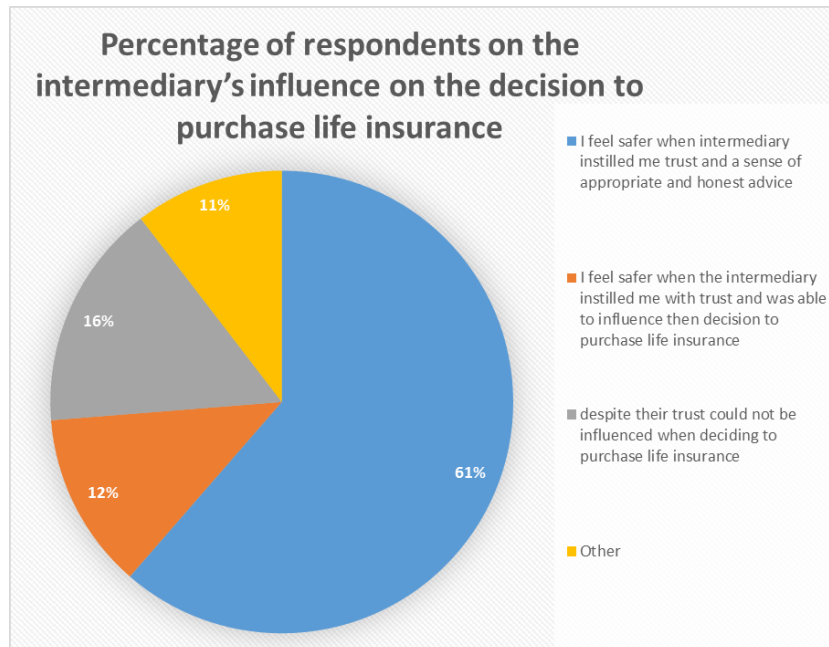
Guided by the theoretical and methodological framework of this paper concerning the impact of motivation and perception on customer behavior when choosing life insurance, based on the proven theories, the paper focuses on determining what the situation in the Republic of Macedonia is regarding this matter. To this end, I conducted research using the questionnaire survey method. The questionnaire was distributed on the territory of the Republic of Macedonia through personal contact (in printed format) and through the social network Facebook.



Source: Own research, conducted from January 2015 to March 2015

Figure 5.1 Percentage of respondents who are users and non-users of life insurance

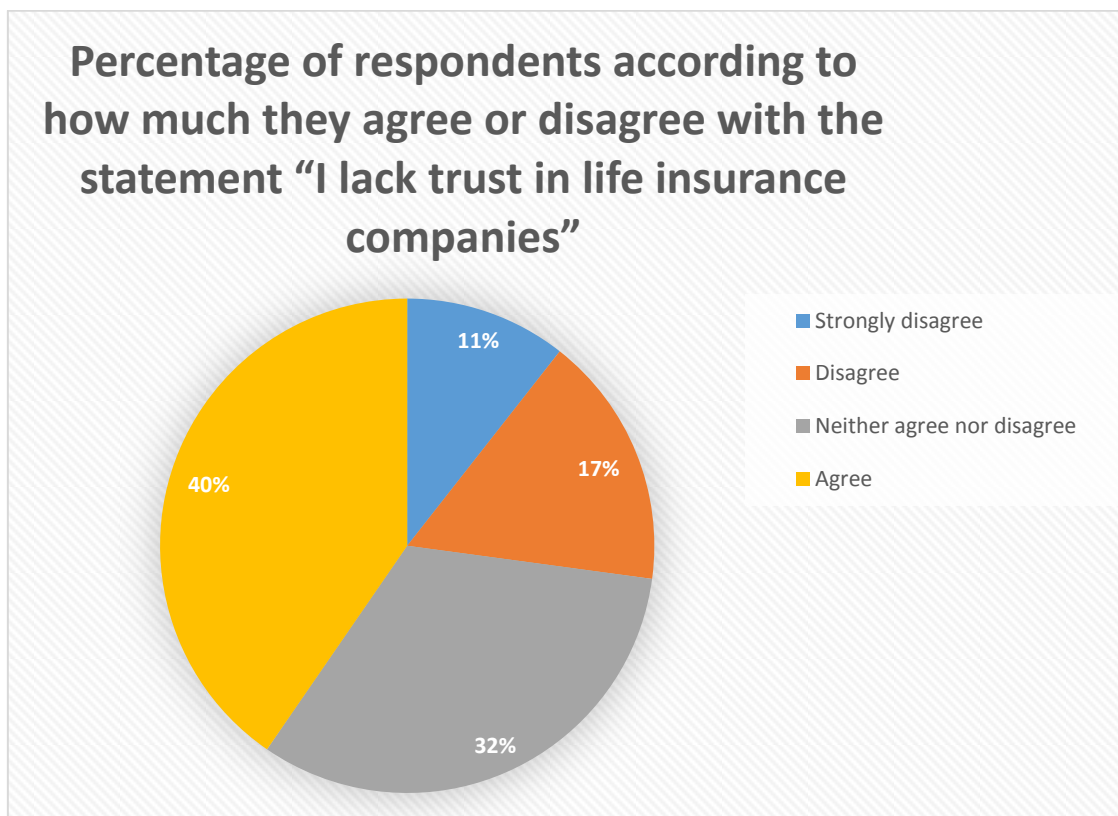
It is important to point out that of the total number of respondents, only 43 respondents (or 19%) had bought life insurance policies, while the remaining 171 respondents (79%) had not. These data indicate that Macedonian citizens have a low awareness of the benefits of using life insurance packages (Chart 5.1).



Source: Own research, conducted from January 2015 to March 2015

Figure 5.2 Percentage of respondents on the intermediary's influence on the decision to purchase life insurance

It is important to also analyze the results from the question “Did the intermediary’s attitude affect your decision to purchase life insurance?” The 61.40% who were beneficiaries of life insurance safer when the intermediary instilled them with trust and a sense of appropriate and honest advice, 12.28% felt safer when the intermediary instilled them with trust and was able to influence the decision to purchase life insurance, while 15.78%, despite their trust and certainty, could not be influenced when deciding to purchase life insurance. The findings of this survey show that trust certainty are important elements in the formation of customer perception of their trust of the truthfulness of information. In the absence of trust and certainty, insurance becomes difficult and it cannot function properly. (Figure 5.2) Various strategies to raise awareness among customers include: trust between the intermediary and the life insurance policymakers about the reliability of information presented to the intermediary, intermediaries needing to attract and retain customers by strengthening customer trust, intermediaries needing to be properly trained in product knowledge and possess the necessary communication skills to implement their knowledge, intermediaries needing to develop and advance in line with international insurance standards and possess a flexibility that offers a solution or a suitable alternative to all client requests.



Source: Own research, conducted from January 2015 to March 2015

Figure 5.3 Percentage of respondents according to how much they agree or disagree with the statement “I lack trust in insurance companies”

Trust is an important factor of life insurance and is best attained when both parties to the agreement fulfill their part in good faith. The life insurance agent must trust the life

insurance policymakers and the reliability of the information presented to them, and in turn the policyholder should trust that the agent is providing appropriate and honest advice. In this analysis, respondents who did not have life insurance were asked to rank the statement “I lack trust in insurance companies” on the following scale: 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree. Of the respondents who did not have life insurance, a higher percentage was distrustful of insurance companies, whereas 27.22% of respondents neither agreed nor disagreed (Figure 5.3).

Most of the respondents who did not have life insurance said they did not trust insurance companies. Given these results, customer trust and loyalty can be increased by: using social media through online discussions and questions clients ask, then establishing effective listening in order to understand the need and the interest of customers, communicating with policyholders who are often confused about whom to contact about services, introducing a permanent systematic program to reach potential customers through referrals from existing clients and timely communication in order to ensure customer awareness of key changes in their policies. This can be done through sending an anniversary letter to clients.

4. CONCLUSION

Understanding the impact of customer perception and motivation is important for the process of customer behavior when choosing life insurance. Loyalty is an important factor in customers remaining loyal to the product and returning to the same insurance company. Communication with policyholders through cooperation, trust, commitment and the sharing of information is important in the process of the customers’ degree of satisfaction. Since people perceive friends as a source of accurate information more than they do any salesperson or advertisement, policymakers should introduce advertising wherein real users share their life stories in order to present the benefits of insurance. Furthermore, educating customers about existing risks is of great importance because it can motivate them to make decisions that reduce risk exposure. Service staff plays a particular role in forming customer perception about the truthfulness of information. Key parameters such as past experience, personal needs, external communication and verbal communication can significantly affect the quality

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THE CHARACTERISTICS AND A DETERMINANTS OF FINANCIAL EXPENDITURES OF TRADING ENTERPRISES IN SERBIA

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Abstract: Due to the economic crisis and the risk of doing business, the issue of the efficiency of managing financial expenditure in all enterprises, including trading is raised. It especially relates to the trading enterprises in transition countries, such as Serbia. The comparative research showed that financial expenditure of trading enterprises in transition countries are incomparably higher compared to the countries with developed market economy. The aim of the research in this work is to envisage the importance of the financial expenditures in modern trade companies, with special insight into Serbia. In contrast to the countries with developed market economy, significantly higher financial expenditures in trading companies in Serbia reflected badly on their performance. Such condition is caused by following factors: high interest rate, indebtedness, high business risk, total financial instability, inadequate strategies and business politics, etc. Regarding this, it is necessary to take all relevant measures so as to increase the competitiveness and the efficiency of managing financial expenditures in trading enterprises in Serbia.

Keywords: interest, negative exchange rate difference, efficiency, cost of debt, Serbia

1. INTRODUCTION

As it is known, the total expenditures are significant determinant of the performance of all enterprises, including trading. The structure of total expenditures of trading enterprises comprises of: business expenditure (acquisition value of goods and operating costs), financial and other expenditures. By the definition, financial expenditures are total costs which provide project financing or business arrangements. The costs of financing can include the interest payment, the financing of compensation to the indirect financial institutions, as well as compensation or wages of staff which participate in financing process conduct. According to the International Accounting standard 23, borrowing cost are defined as “interest and other costs incurred by an entity in connection with the borrowing of funds” (8).

The *subject of the research* in this work is specific features of financial expenditures of trading enterprises, with special insight into Serbia. The financial expenditures of trade enterprises in Serbia are mostly interests and negative exchange rate difference.

The *aim* of this work is to thoroughly explore the specifics, importance and factors of the dynamics of size and structure of financial expenditures of trading enterprises, especially in Serbia. Based on the original empirical data for the period 2008-2013 we made detailed analysis of financial expenditures of trading enterprises in Serbia. Great number of trading

enterprises which are lawfully obliged to give annual financial reports to Business register of Serbia were analysed in each year, thus providing valid statistical sample.

As it is known, there is hardly any paper completely devoted to the specifics of the impact of financial expenditures on competition and performance of trading companies (wholesale and retail) (2). In *literature*, this problem is partially researched in the context of general research of specifics and importance of adequate financial strategies in trading companies (1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35). It is specially the case with the literature in Serbia (15, 16, 17, 18, 19, 20, 21, 22, 23, 24).

In other words, according to our knowledge, there is no complete work which is devoted to the research of the specifics of the impact of financial expenditures, as significant determinant of competition and performance of trading companies in Serbia. This gap should be filled with this work which, in its essence, timing and manner of the research, should give adequate theoretical, methodological and empirical basis for efficient managing of financial expenditures as a function of improving competition and total performance of trading companies in Serbia in the future.

2. THE IMPACT OF FINANCIAL EXPENDITURE ON THE PERFORMANCE OF TRADE IN SERBIA

As it is known the size of financial expenditures of trading enterprises is affected by interest rate and the amount of bank loans for property financing. *The trade participated in total number of approved loans* in Serbia from 13,6% up to 17,3% (Table 1). This number is also high in certain types of property (investments in turnover and capital assets) financed from credit sources.

Table 1. The percentage structure of loans per economy sectors in Serbia, 2008-2015

	2008	2009	2010	2011	20012	2013	2014	Q1 2015
Agriculture loans from total loans (%)	3,3	3,1	3,0	2,8	3,0	2,7	3,5	3,4
Industrial loans from total loans (%)	18,4	17,9	19,3	17,2	17,9	18,4	19,2	18,8
Trade loans from total loans (%)	16,9	17,3	16,6	14,7	15,0	13,5	13,9	13,6
Construction loans form total loans (%)	5,8	5,3	6,9	6,2	5,8	4,6	4,2	4,1
Other loans to enterprises from total loans (%)	8,1	9,8	9,7	10,9	12,8	11,4	11,5	12,0

Source: National Bank of Serbia

So, for example, in 2012 the percentage of financial credits in financing investments of basic funds in Serbia amounted: total economy 19,86%, agriculture, forestry and fishing 25,08%, mining 3,02%, processing industry 18,12%, electrical, gas and steam supply 11,12%, water supply and waste water management 8,89%, construction 34,92%, wholesale, retail, vehicle repair - total 16,16%, wholesale, retail, vehicle repair 22,17%, wholesale except motor vehicle trade 14,01%, retail, except motor vehicle trade 17,66%, traffic, warehousing and communication 16,65%, accommodation and food 9,02%, information and communication 22,29%, financial and insurance business 33,44% (author's calculation based on Statistical Yearbook of the Republic of Serbia 2014, The statistical Office of the Republic of Serbia) (<http://pod2.stat.gov.rs/ObjavljenePublikacije/God/SGS2014.pdf>) (accessed 20/7/2015 10:AM). Based on these data (percentage ratio) it can be concluded that financial share of credits in financing investments of basic funds of trade in Serbia is significant.

It is also high in financing of turnover assets. Beside bank credits, there is significant percentage of suppliers in stocks financing. Collection period is long, much longer than the “industry standards” in countries with high financial discipline. The substantial share of total financial credits in financing of trade in Serbia reflected, beside very high interest rate and unfavourable exchange rate, on the size of financial expenditures as one of the determinants of competitiveness and overall performance. *The capital structure* is also significant determinant of financial expenditure. Table 2. shows the capital structure of trade in Serbia for the period 2008-2013.

Table 2. Capital structure of trade in Serbia, 2008-2013

	Number of enterprises	Assets/capital	Long-term liabilities/assets, (%)	Short-term liabilities/assets, (%)	Total liabilities / Assets, (%)	Total liabilities / Shareholders capital, (%)	Long-term liabilities / Shareholders capital, (%)	Long-term liabilities / Total capital, (%)
2008	37,077	2,637	13,88	48,27	61,65	162,59	35,29	13,44
2009	34,982	2,747	13,22	49,93	63,15	174,13	36,33	13,25
2010	35,474	3,490	13,30	57,55	70,86	247,33	46,43	13,36
2011	33,451	3,237	11,59	57,05	68,64	222,24	37,53	11,64
2012	33,393	3,333	13,48	55,81	62,29	230,97	44,96	13,58
2013	33,341	3,224	11,77	56,55	68,32	220,30	37,96	11,80

Note: Author's calculation

Source: Business registers agency

The structure of capital of trade in Serbia is unfavourable. In Serbia, the financial indebtedness is high and has reflected on interest rate as a determinant of trading enterprises performance. Table 3 shows financial revenues and expenditures of trade in Serbia for 2008-2013 period.

Table 3. Financial revenues and expenditures of trade in Serbia, 2008-2013

	Financial revenues		Financial expenditures			Net financial expenditures	
	Amount (thousand dinars)	Share of financial revenues in total revenues, (%)	Amount (thousand dinars)	Share of financial expenditures in total revenues, (%)	Share of financial expenditures in total expenditures, (%)	Amount (thousand dinars)	Share of net financial expenditures in total revenues, (%)
2008	57,370,872	2,13	111,033,904	4,44	4,49	53,663,321	2,14
2009	46,191,911	1,99	102,912,314	4,35	4,38	56,720,403	2,40
2010	54,509,059	2,08	117,641,904	4,49	4,49	63,132,845	2,41
2011	59,770,004	2,11	92,750,578	3,28	3,32	32,980,074	1,16
2012	60,049,082	1,92	116,042,075	3,71	3,72	55,992,993	1,79
2013	37,450,796	1,26	65,668,167	2,20	2,23	28,217,371	0,94

Note: Author's calculation

Source: Business registers agency

Based on provided data we can make a conclusion: 1) percentage share of financial revenues in total revenues ranged from 1,26 – 2,13% in the observed period; 2) percentage share of financial expenditures in total revenues ranged between 2,20 – 4,49%; 3) percentage share of financial expenditures in total expenditures ranged from 2,23 – 4,44% in observed time period; and 4) percentage share of net financial expenditures in total revenues ranged from 0,94 – 2,41%. Therefore, net financial expenditures of trade in Serbia were the highest in 2010.

The share of financial revenues in total trade revenues in 2013 was 1,26% and lower than in total economy in the Republic of Serbia (which amounted – 2,46%). The share of financial expenditures in total expenditures of trade in Serbia in 2013 (2,23%) was also lower compared to total economy of the Republic of Serbia (2013 – 3,83%). The share of net financial expenditures in total revenues of trade in 2013 (0,94%) was lower than in total economy of the Republic of Serbia (2013 – 1,34%). (Author's calculation for total economy of the Republic of Serbia based on the data of the Business registers agency.)

Compared to net financial expenditures in trade of countries with developed market economy, they are incomparably higher in Serbia. It is due to high bank interest rate and negative fluctuation of exchange rate concerning the fact that the credits given to the economy are indexed in foreign currency (mostly in Euros). High risk of business in Serbia is also significant determinant of the size of financial expenditures (interest expenditures) of all enterprises, including trading.

In the context of the analysis of influence of financial expenditures on competition and performance of trade in Serbia it is necessary to envisage the *interest coverage ratio*. In this work interest coverage ratio is calculated as follows: interest coverage ratio = (interest + net income) / interest. Table 4 show the interest coverage ratio of trade in Serbia for the period 2008-2013.

Table 4. Interest coverage ratio of trade in Serbia, 2008-2013

	Interest coverage ratio				
2008	1,76				
2009	1,72				
2010	1,68				
2011	1,98				
2012	1,80				
2013	2,36				
Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Interest coverage ratio	6	1,68	2,36	1,8833	,25563
Valid N (listwise)	6				

Note: Author's calculation of interest coverage ratio and descriptive statistics with the application of SPSS

Source: Business registers agency

In Serbian trade in all observed years, except 2013, one dinar of interest was covered with less than one dinar of net income, 0,88 dinars on average. Dynamically observed, in analysed period the interest coverage with net income had cyclic movement, in which significant increase was recorded in 2013.

In order to thoroughly envisage the interest coverage ratio in Serbian trade it is necessary to analyse the relationship between the capital and interest (capital/interest) which, for the period 2008-2013, was as follows: 2008 – 7,17, 2009 – 7,80, 2010 – 5,06, 2011 – 7,16, 2012 – 6,08, and 2013 – 11,32 (author's calculation based on the data of Business registers agency). In all observed years one dinar of interest was (averagely) covered with seven dinars of capital, except 2013 when coverage exceeded 11 dinars. In the context of the interest coverage ratio analysis it is necessary to envisage the relationship between the ratio and net cash flow from operating activities (interest/net cash flow from operating activities). This indicator shows how much one generated dinar of net cash flow from operating activities covers interest.

The cost of debt (showed as percentage relationship between financial expenditure and total liabilities: financial expenditure/total liabilities) is significant determinant of performance of all enterprises, including trading. Table 5 show the cost of debt in Serbian trade for the period 2008-2013.

Table 5. The cost of debt in Serbian trade, 2008-2013

	The cost of debt, (%)				
2008	8,51				
2009	7,33				
2010	7,92				
2011	6,23				
2012	7,04				
2013	3,96				
Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
The cost of debt (%)	6	3,96	8,51	6,8317	1,60633
Valid N (listwise)	6				

Note: Author's calculation of the cost of debt and descriptive statistics with the application of SPSS

Source: Business registers Agency

The cost of debt of trade in Serbia ranged from 3,96% (2013) up to 8,51% (2008) in the given period. On average, they were 6,83%. Dynamically observed, they had cyclic movement, with significant decrease in 2013. All in all, the cost of debt of trade in Serbia was much higher (almost double) compared to the trade of developed market economies.

The cost of debt affects profitability of all enterprises. Considering the goals, the profitability in trading enterprises is expressed differently. In this work, in order to measure the profitability of trading enterprises in Serbia we will use the indicator – profit per employee, because there is no need to make any accounting adjustment considering the unequal application of accounting and other regulations. Besides, we can envisage the influence of intangible assets (intellectual capital, knowledge, talent and skills of employees) on the performance of trading companies. Profit per employee in Serbian trade for the period 2008-2013 is showed in Table 6.

Table 6. Profit per employee of trade in Serbia, 2008-2013

	Number of employees	Net profit (000 dinars)	Net profit per employee (000 dinars)*
2008	215,540	84,995,251	394
2009	207,325	75,376,369	363
2010	197,677	79,198,098	400
2011	200,801	91,822,735	457
2012	193,954	93,687,650	483
2013	191,653	89,440,797	466

Note: Author's calculation

Source: Business register agency

In Serbian trade, profit per employee ranged from 363,000 (2009) up to 483,000 (2012) dinars in the observed period. It is significantly lower (expressed in Euros) than in the European Union trade (see Eurostat). In further analysis of the treated problem we will research the impact of the cost of debt on profit per employee in trade in Serbia for the period 2008-2013 by using the statistical analysis (descriptive statistics and correlation analysis). Regarding the number of huge number of trading enterprises for each year, the statistical sample is valid. Table 7. shows the descriptive statistics of the cost of debt and net profit per employee in trading enterprises of Serbia, 2008-2013.

Table 7. Descriptive statistics of the cost of debt and net profit per employee in trading enterprises of Serbia, 2008-2013

	N	Minimum	Maximum	Mean	Std. Deviation
The cost of debt (%)	6	3,96	8,51	6,8317	1,60633
Net profit per employee (in 000 dinars)	6	363,00	483,00	427,1667	47,89746
Valid N (listwise)	6				

Note: Author's calculation of with the application of SPSS

According to the given results, the statistical values of the cost of debt of trade in Serbia in observed period are: minimum – 3,96%, maximum 8,51% and average 6,83%. That same values for net profit per employee are following: minimum – 363,000, maximum

483,000, and average 427,167 (dinars). Table 8 shows the correlation between the cost of debt and net profit per employee of trade in Serbia for the period 2008-2013.

Table 8. Correlation between the cost of debt and net profit per employee, 2008-2013

		The cost of debt, (%)	Net profit per employee (000 dinars)
The cost of debt, (%)	Pearson Correlation	1	-,611
	Sig. (2-tailed)		,198
	N	6	6
Net profit per employee (000 dinars)	Pearson Correlation	-,611	1
	Sig. (2-tailed)	,198	
	N	6	6

Note: Author's calculation of with the application of SPSS

In the observed period there was significant negative correlation between the cost of debt and net profit per employee in trade of Serbia. (The results of regression analysis for the period 2008-2013 also show the significant impact of the cost of the debt per employee in trade enterprises in Serbia; Adjusted R Square ,217, Std. Error of the Estimate 42,39339, F 2,383, Sig. F ,198, Durbin-Watson 1,777) (Author's calculation with the application of SPSS). It means that efficient management of capital structure, financial leverage, net financial expenditures can improve competition and overall performance of trading enterprises in Serbia in the future. Considering the fluctuation of exchange rate in Serbia, the significant determinant of financial expenditure, i. e. profitability of all sectors, including trade is negative exchange difference. The transactions in Serbia are mostly expressed in Euros. The fluctuation of average annual exchange rate (euro vs. dinar) in the period 2008 – 2013. was as follows: 2008 – 79,98, 2009 – 93,95, 2010 – 103,04, 2011 – 101,95, 2012 – 113,13, 2013 – 113,14. Table 9 shows the influence of exchange rate difference on financial expenditures and profitability (net profit per employee) in trade of Serbia for the period 2008-2013.

Table 9. Correlation (the influence of exchange rate on financial expenditures and profitability in trade of Serbia, 2008-2013)

		Exchange rate	Share of financial expenditures in total revenues, (%)	Net profit per employee (000 dinars)
Exchange rate	Pearson Correlation	1	-,657	,754
	Sig. (2-tailed)		,157	,083
	N	6	6	6
Share of financial expenditures in total revenues, (%)	Pearson Correlation	-,657	1	-,737
	Sig. (2-tailed)	,157		,095
	N	6	6	6
Net profit per employee (000 dinars)	Pearson Correlation	,754	-,737	1
	Sig. (2-tailed)	,083	,095	
	N	6	6	6

Note: Author's calculation of with the application of SPSS

The data in the given table show that the exchange rate changes had significant negative correlation impact on financial expenditures, i. e. positive correlation on profit per employee as a measure of profitability of trade in Serbia.

3. CONCLUSION

The conducted comparative research in this work brings the following conclusion: the financial expenditures of trading enterprises are lower in countries with developed market economies than those in transition, such as Serbia. In other words, the efficiency of managing financial expenditures of trading enterprises in Serbia is on very low level compared to developed countries.

Such trend was affected by numerous factors, such as: high interest rate, indebtedness, negative exchange difference, high business risk, significant financial indiscipline etc. The efficient control of this and other factors can improve the efficiency of managing financial expenditures in the trading companies in Serbia in the future. Due to this, the strategy of the business should be defined. It will positively affect the competition and overall performance.

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HUMAN CAPITAL IN FUNCTION OF THE COMPETITIVENESS OF IMPORTANCE COMPANY

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Abstract: This paper wants to stress the importance of intellectual capital, especially in the time varying business environment. Relatively little is known in the literature about the impact of intellectual capital on the competitive advantage. Author of the article believes that intellectual capital is "knowledge" and "experience", which directly contribute to the survival and sustainability of the organization, as well as its competitiveness. Intellectual capital includes knowledge and competencies that "live" with the employees in the company. Organizations use special forms of strategies to consolidate their internal capabilities. However, very few studies dealing with the assessment of the relationship between the vital capacity of the organization; intellectual capital and business strategy. In the future, knowledge will be the key factor in corporate growth and development. Companies increasingly depend on the ability to evaluate and develop their knowledge and skills and to manage them. In the modern knowledge-based economy, it is widely recognized by managers and theorists that people (human resources) are the most critical assets of an organization. This paper seeks to identify the existence of a link between the organization's operations, its strategy and management of intellectual capital. The literature argues that the difference between the market value of the organization and its "book value" depends on its intellectual capital. To be able to cope with the conditions of constant changes of the market and technologies, companies need to develop skills and competencies necessary for realignment and adaptation to their environment.

Keywords: intellectual capital, competitive advantage, knowledge-based economy, strategy.

UVOD

Konkurencija primorava mnoge kompanije da akumuliraju intelektualnu imovinu i da ih koriste efikasno kako bi pokrenule profitabilne akcije (Bismuth and Tojo, 2008). U dvadesetom vijeku pojavljuju se novi koncepti „informaciono društvo", "društvo znanja", i "ekonomija znanja", koji ističu ulogu znanja kao ključnog faktora privrednog rasta (Lavanderos, 2008.). Za razliku od ostalih primarnih resursa, znanje se korištenjem ne umanjuje, već dobija na dubini i deli sa drugima. Iz tog razloga, snažne firme se oslanjaju na upravljanje znanjem koje će obezbijediti dodatne vrednosti znanju zaposlenih, proizvodnji i interakciji.

U budućnosti, sve manje ljudi će obavljati fizičke poslove, a sve više ljudi će koristiti mozak za rad. To je intelektualni kapital. On se ne pojavljuje u bilansu stanja kompanija, ali ima veću vrednost za organizacije od fizičke imovine. Sve više i više firmi identifikuju svoje jezgro kompetentnosti kao nevidljivu aktivu nego vidljivu (Bizmuta i Tojo, 2008; Hsu i Fang,

2008). Sve je rašireniji stav da performanse bilo koje organizacije, u suštini zavise od znanja zaposlenih, primjene i integracije tog znanja u strukturama organizacije i njihovih veza odnosa (Silvi i Cuganesan, 2006.).

Ekonomsko bogatstvo sve manje zavisi od korišćenja zemljišta, prirodnih resursa, opreme i kapitala, a sve više zavisi od informacija, znanja i njegove primjene. Efikasnim upravljenjem znanjem poboljšava se intelektualni kapital organizacije.

Društvo ne može da napreduje bez jačanja i razvoja intelektualnog kapitala, posebno u periodima nepovoljne ekonomske situacije i poslovnog okruženja. U savremenoj ekonomiji znanja, ljudi (ljudski resursi) su najkritičnija sredstva koja organizacije imaju. Međutim, u praksi, ljudski resurs (HR) često postaju prvi resurs koji bude marginalizovan zbog dominacije troškova. Intelektualni kapital je "znanje" i "iskustvo" koji direktno doprinose krajnjem rezultatu kompanije i koji direktno doprinose preživljavanju i održivosti organizacije. Intelektualni kapital obuhvata znanja i kompetencije koje posjeduju zaposleni u kompaniji. On uključuje „nematerijalni" intelektualni kapital znanja koji se odnosi na zaposlene, kupce, prodavce, vlasnike, investitore, konkurente i sve druge partnerske veze koje utiču na uspješnu održivosti organizacije.

Znanje je postalo najznačajniji ekonomski resurs i zamenjuje finansijski i fizički kapital kao najvažniji kapital u novoj ekonomiji (O'Donnell et al , 2003, Demediuk, 2002.). Eksponencijalni rast informacija u novoj ekonomiji usmerava pažnju na važnost upravljanja sredstvima u organizacijama zasnovanim na znanju. Mnoga ranija istraživanja su utvrdila da prilagođavanje poslovne strategije i unutrašnjih mogućnosti organizacije vode ka superiornim performansama (Finnei , Kembel i Pael, 2004; Pits i Lei, 2003).

Interne mogućnosti organizacije obuhvataju široka korporativna znanja, veštine i aktivnosti. U novim ekonomijama sredstva su zasnovana na znanju, tako da znanja ugrađena u pojedince i organizacije čine većinu internih sposobnosti organizacije. Dakle, organizacioni uspeh i performanse zavise od toga koliko dobro organizacija upravlja svojim sredstvima zasnovanim na znanju.

Prema Stevart (2002), nova ekonomija stoji na tri stuba:

- 1) znanje postaje ono što kupujemo prodajemo i radimo.
- 2) sredstva zasnovanih na znanju postaju najvažnija za organizaciju.
- 3) u cilju razvijanja novih tehnika menadžment tehnike, novih tehnologija i novih strategija, potrebno je objasniti na znanja zasnovana sredstva.

POJAM INTELEKTUALNOG KAPITALA

Pojam intelektualnog kapitala još uvek nema jedinstvenu definiciju. Jedno od često korišćenih pojmovnih određenja intelektualnog kapitala navodi da je to sposobnost da se nevidljiva imovina poput znanja pretvara u proizvode i usluge koji imaju vrednost. Posmatrano u poslovnom kontekstu, kapital se odnosi na bilo koju imovinu koja će proizvoditi buduće novčane tokove. To su dobro poznate vrste aktive koje su „opipljive“ u praksi. Dakle, materijalni kapital se odnosi na fizička i finansijska sredstva organizacije. Vrednost te imovine može se videti u bilansu stanja finansijskih evidencija društva. Pod fizičkom imovinom podrazumeva se zemljište, mašine, inventar, biljke, kamioni, i dr., dok

finansijska sredstva označavaju vlasnički udio kapitala, zadržanu dobit, obrtni kapital, pripreme troškove, potraživanja, i dr.

U poslednjim decenijama, sve veću važnost dobijaju nematerijalna ulaganja, kao što su veštine radne snage i njena organizacija, koja postaju od ključne važnosti za određivanje budućnosti profita. Problem je kako kvantifikovati nematerijalne vrijednosti. Zato ove vrste imovine ostaju uglavnom nevidljive za spoljašnji svet. U računovodstvenom smislu ne postoje parametri kojima se meri suština ljudskog kapitala pojedinca. Termin "intelektualni kapital" (Sullivan, 2000) generalno se odnosi na sve resurse koji određuju vrednost neke organizacije, kao i konkurentnosti preduzeća. Ovaj pojam nije lako prevesti u finansijskom smislu. Iz tog razloga, često se koristi termin "nefinansijska imovina". Paolo Magrassi definiše ljudski kapital kao "znanja i kompetencija koje žive sa zaposlenima u preduzeću" i definiše organizacioni intelektualni kapital kao "kolektivno znanje, čak i izvan mogućnosti pojedinih zaposlenih, koji doprinosi organizaciji" (Magrassi, 2002).

Intelektualni kapital obuhvata znanja i kompetencije koje poseduju zaposleni u kompaniji. On obuhvata, ne samo organizaciona znanja, već je takođe i industrija znanja. Predstavlja kombinaciju kognitivnih i intuitivnih znanja i iskustava.

Znanja ugrađena u pojedinca i organizaciju, mogu se nazvati "intelektualni kapital" (Demediuk, 2002 ; Saliven , 1999 ; Stjuart , 1997). Iako ne postoji konsenzus o tome šta je intelektualni kapital, postoji široko prihvaćena njegova definicija. Intelektualni kapital se može povećati povećanjem kapaciteta svakog zaposlenog. Prema teoretičarima intelektualnog kapitala, intelektualni kapital se sastoji od tri glavne komponente:

- 1) ljudski kapital,
- 2) relacioni (trenutni) kapital, i
- 3) organizacioni kapital.

Ljudski kapital predstavlja znanje, kompetentnost zaposlenih, iskustva, intuicije i stavovi radne snage. On se odnosi na sposobnost osoblja organizacije da svoje znanje, veštine i iskustvo tokom poslovnog procesa transformišu u nove dodatne vrednosti.

Ljudski kapital je kolektivna sposobnost firme da, na osnovu poznavanja svojih ljudi, izvuče najbolja rešenja, koja su često izvor inovacija i strategija. Individualne kompetencije su važne za organizacije. To su sposobnosti ljudi da se adekvatno ponašaju u različitim situacijama. To uključuje vještine, obrazovanje, iskustvo, vrijednosti i socijalne vještine. Na taj način kompanija dobija na konkurentnosti. Ljudi su jedini pravi faktori u poslovanju. Sva sredstva i strukture, bez obzira da li su u pitanju materijalna ili nematerijalna, rezultat su ljudskog djelovanja i zavise od ljudi. Ljudi stvaraju znanje, nove ideje i nove proizvode, čime se uspostavljaju odnosi koji omogućavaju da procesi zaista rade. Za organizaciju nastaje problem kada ljudi napuštaju organizaciju. Oni sa sobom odnose svoja znanja, kao i unutrašnje, spoljašnje, formalne i neformalne odnose. Intelektualni kapital - posvećenost i kompetentnost radnika - je ugrađen u organizaciju. On postaje ključan za firmu iz više razloga (Ulrich, Dave, 1998, p. 15-26.):

· Intelektualni kapital je jedina značajna imovina jedne organizacije. Većina drugih sredstava (zgrade, postrojenja, oprema, mašine, i tako dalje) počinju da se amortizuju, počevši od dana njihovog pribavljanja. Sa druge strane, kako firma napreduje, intelektualac kapital raste. Menadžer ima zadatak da znanje učini produktivnim i da intelektualni kapital preokrene u vrijednost klijenta.

- Znanje se radom ne smanjuje, već se povećava. Kvalitet usluga obično dolazi iz odnosa zasnovanim na stručnosti i posvećenosti pojedinaca.
- Zaposleni sa najvećim intelektualnim kapitalom u suštini postaju volonteri. Oni su emotivno vezani za firmu.
- Još uvijek, mnogi menadžeri ignorišu ili umanjuju značaj intelektualnog kapitala.
- Zaposleni koji posjeduju najviše intelektualnog kapitala često su najmanje cijenjeni.
- Sadašnji ulaganja u intelektualni kapital su često pogrešno usmerena.

Obukom i obrazovanjem profesionalaca, kod njih se postiže razumevanje kako ljudi uče, dele znanje i rade zajedno. Na taj način kod njih se razvija svest kako kultura organizacije može da utiče na inicijative za učenje, koliko je teško promeniti kulturu jedne organizacije i kako se mudrim upravljanjem može iskoristiti ljudski potencijal (Bassi, Laurie, J., 1997.) Učenje će sve više biti ugrađivano u tehnologije, kako bi nam omogućavalo da radimo svoj posao. Učenje kroz rad će postati praksa, a ne izuzetak. Aktivnost nastavnika i pasivnost učenika će biti prošlost. Učenje će biti osnovna radna veština (Plott, 1996.). Učenje postaje kontinuirani proces, nikada se ne završava i uvek se menja. Ono postaje temelj i prilagodljivosti inovacija.

Relacioni (spoljni) kapital je vezan za odnose eksternim, posebno interorganizacionim okruženjem, sa kupcima, dobavljačima, distributerima i drugim povezanim licima. On se odnosi na mreže organizacija i saradnika i njihovo zadovoljstvo i lojalnost kompaniji. To uključuje poznavanje marketing kanala, sadašnjih i potencijalnih kupaca i odnosa sa dobavljačima.

Organizacioni (strukturni) kapital određuje organizacione sisteme, kulturu, praksu i procese, kao što su organizacija poslovanja, strategija, planovi, sistemi komunikacije i sl. Obuhvata intelektualno vlasništvo preduzeća u pogledu patenata, licenci, autorskih prava. Sastoji se od širokog spektra patenata, koncepata, modela, računara i administrativnih sistema. Ovaj oblik kapitala se kreira od strane zaposlenih i na taj način postaje „vlasništvo“ organizacije. Organizacioni (strukturni) kapital može biti stečen izvana. Odluke da se takva sredstva razvijaju ili investira u njih, može se doneti sa određenim stepenom poverenja, jer rad se može obavljati u kući ili naručiti izvana. Takođe, unutrašnjoj strukturi pripada neformalna organizacija, unutrašnja mreža, "kultura " ili" duh "organizacije. Unutrašnja struktura i ljudi zajedno čine ono što mi generalno zovemo „*organisation*“ (Sveiby, 1998).

Strukturni kapital obezbeđuje kompaniji organizacionu sposobnost da zadovolji zahteve tržišta. To podrazumeva rutine i strukture organizacije koje olakšavaju zaposlenima da urade zadatke koji će omogućiti postizanje optimalnog intelektualnog učinka, kao i ukupnog poslovnog učinka. Ako organizacija nema dobre sisteme i procedure, onda njen ukupan intelektualni kapital neće dostići svoj puni potencijal, bez obzir na intelektualni nivo njenih pojedinaca (Bontis, Nick 1996). Prema Van Buren, strukturni kapital se sastoji od inovacija kapitala (sposobnost organizacije da inoviraju i stvaranja nove proizvodne i usluge) i procesa kapitala (procesi organizacije, tehnike, sistemi i alati) (Van Buren, Mark E., 1999).

Strukturni kapital se sastoji od neke organizacione strategije, internih mreža, sistema, baza podataka i datoteka, kao i legalnih prava na tehnologiju, procese, pronalazke, autorska prava, pečate, poslovne tajne, brendove i licence. Ulaganjem u, nove inicijative, tehnologije i nove procese razvoja, strukturni kapital se poboljšava (Knight, Daniel J., Performans 1999). Strukturni kapital firme se sastoji od četiri elementa (Saint-Onge, Hubert, Tacit Knowledge 1996):

- *Sistemi* - način na koji se procesi organizacije (informacije, komunikacije, donošenja odluka) i izlaza (proizvoda / usluga i kapitala) provode .
- *Struktura* - raspored obaveza i odgovornosti koje definišu položaj i odnos između članova organizacije.
- *Strategija* - ciljevi organizacije i načini kojima nastoje da ih ostvare.
- *Kultura* - zbir pojedinačnih mišljenja, stavova, zajedničkih vrednosti i normi u organizaciji.

U organizaciji treba da postoji jaka veza između strategije i kulture. Kultura kompanije doprinosi efiksnijoj realizaciji poslovne strategije. Ako nema stalne veze između strategije, strukture i kulture organizacije, to može predstavljati najveću prepreku za uspeh u sprovođenju promena. Organizacija neće steći konkurentsku prednost koja potiče iz novih strategija i pratećih organizacionih promena ako to nije podržano od strane organizacione kulture.

Neke studije su pokazale da je osobina prakse ljudskih resursa da pomaže u stvaranju prilika za obezbeđenje konkurentnosti (Pehrson, 2001; Kapelli i Kroker-Hefter, 1996). Ljudski resursi se odnose na zalihe akumuliranog znanja, veština i sposobnosti koje pojedinac posjeduje (Kamoche, 1996) i upravljanje ljudskim resursima koje se koristi da se poveća vrednost ljudskog kapitala i vrednost povrata, kao što je produktivnosti (Russells sar 1993, Boudreau i Berger, 1985). U većini literature koja se bavi intelektualnim kapitalom, istraživači se slažu da ljudski kapital ili *know how* zaposlenih predstavlja deo intelektualnog kapitala (npr. Edvinsson i Malone, 1997). Bez obzira na uverenje da je ljudski kapital najvažniji resurs u novoj ekonomiji, isti argument treba da se primeni na druge dve dimenzije intelektualnog kapitala: relacioni kapital i organizacioni kapital.

UPRAVLJAČKI INTELEKTUALNI KAPITAL

Sadašnja debata o intelektualnom kapitalu je postavljena u kontekstu promene modela upravljanja i organizacione strukture. To govori da se organizacija kreće od komandovanja i kontrole prema delegiranju, osnaživanju i obuci. Na taj način, svaka organizacija ima priliku da oblikuje način na koji radi.

Menadžment ima zadatak da iskoristi i maksimizira taj potencijal (Devis, Waddington; 1999.). Jasno je da menadžeri koji žele da uvećavaju intelektualni kapital svog preduzeća treba da budu sposobni da povećavaju inteligenciju, podstiču inovacije i integritet obuke. Ovo su tri ključne kompetencije intelektualnog kapitala. Razvijanje ove tri osnovne kompetencije kapitala predstavlja izazov za menadžere. Znanje se kreira i prenosi kroz razgovor, a lideri moraju ovladati veštinom podsticanja dijaloga između članova tima.

Ako menadžeri efikasno upravljaju znanjem, njihova organizacija će poboljšati svoj intelektualni kapital. Kod intelektualnog kapitala postoje dva nivoa znanja: Eksplicitno i prećutno znanje. Eksplicitno znanje je ono znanje koje može da se kodifikuje u informacije

koje su dostupne i sistematski se šire. Prećutno znanje predstavlja iskustvo i intelektualna kreativnost i učenje koje počiva na ljudskim resursima firme.

KARAKTERISTIKE INTELEKTUALNOG KAPITALA

Iako je intelektualni kapital u svom potencijalu za generisanje budućih novčanih tokova sličan materijalnoj imovini, on je radikalno drugačiji od opipljivog kapitala u sledećim aspektima:

- Intelektualna imovina nije rivalska.
- Ljudski kapital i Relacioni kapital ne mogu biti u vlasništvu, već moraju da se dele sa zaposlenima, dobavljačima i kupcima. Respektovanje ovog kapitala zahteva negovanje.
- Strukturni kapital je nematerijalna imovina koja može biti u vlasništvu i pod kontrolom menadžera. Međutim, ne može se lako sa njim trgovati pošto za njega nema tržišta.
- Firme koje iskoriste svoj intelektualni kapital su u stanju da generišu veći profit.
- Ljudski, strukturni i relacioni kapital često deluju zajedno u razumnim kombinacijama, te iz tog razloga, nije dovoljno da se investira u ljude, sisteme i kupce odvojeno, već u kombinacijama koje proizvode krajnju vrednost .

OČUVANJE INTELEKTUALNOG KAPITALA

U velikom broju organizacija postoji problem očuvanja kapitala. Zaposleni se osipaju kroz otpuštanja, ostavke, penzionisanja i druge oblike odlaska zaposlenih iz kompanije. Menadžment organizacije treba da predviđa odlaske najuspešnijih zaposlenih iz organizacije, kako bi se ublažili ili otklonile negativne posledice tih odlazaka. Zaposleni imaju veliko znanje o svom poslu i poslovnim procesima, poseduju informacije koje su značajne za njihove poslove, znaju kako se stvari odvijaju i šta najbolje funkcioniše. Nažalost, danas u većini slučajeva njihovo većina znanja odlazi sa zaposlenima i ono nije preneto ili stavljeno na raspolaganje drugima.

U vreme ekonomske krize, usled stalnih otpuštanja, smanjenja i/ili eliminacija, smanjuje se lojalnost zaposlenih, koji traže prvu priliku da pronađu nove mogućnosti zaposlenja. Poslodavci koji ne pridaju puni značaj zaposlenih ne bi trebalo računati na njihovu lojalnost. Mnogi poslodavci ne mogu u potpunosti shvatiti šta je potrebno da se zadrže dobri radnici.

ZNAČAJ IMPLEMENTACIJE INTELEKTUALNOG KAPITALA

Danas je od velikog značaja da zaposleni posjeduju znanja o svom poslu, poslovnim procesima, informacije koje podržava njihov posao i te procese, kao i znanje o tome kako na najefikasniji način da se stvari dešavaju i uvid o tome šta funkcioniše, a šta ne. Na žalost, u većini slučajeva, zaposleni nemaju podsticaj da dele svoje znanje. Njihovo znanje nije preneto ili stavljeno na raspolaganje drugima. Ovo znanje je potencijalno izgubljeno u organizaciji. Prema tome, uspešna primena novih tehnologija zavisi od više faktora, uključujući efikasno upravljanje ljudskim resursima sistemima i procesima.

Većina autora smatra da su ljudi (ljudski resursi) najkritičnija imovina organizacije u savremenoj ekonomiji znanja. Oni su ključni za uspeh savremenih poslovnih preduzeća, bilo da se radi o malim i srednjim, ili velikim preduzećima korporacijama.

Globalne korporacije imaju još zahtevnije uslove za razumevanje intelektualnog kapitala s obzirom na razlike u jeziku, kulturi, vremenskoj zoni, kao i svim drugim oblicima komunikacijskih zahteva.

Korporativno znanje je fluidno i ono treba da odgovori na protok potrebnog znanja u celoj korporaciji. Imajući u vidu da se najveći deo intelektualnog kapitala nalazi u glavama zaposlenih, organizacija treba, u cilju preuzimanja znanja da ohrabri ljude da ga dele.

Ljudski kapital se može posmatrati kao primarni alat za organizaciju koja uči, utičući na njenu sposobnost da stekne nova znanja (Kang & Snell, 2009). Fokus je na kompetencijama, stavovima i intelektualnim sposobnostima, jer kompetencije spadaju u najznačajnije delove ljudskog kapitala. Nadležnost zaposlenog se posmatra kao nešto što je pojedinac u stanju da uradi ili deluje u okviru kompanije. Stoga obuhvata znanja i veštine. Znanje nije urođeno i ono mora da se usvoji. Veštine se odnose na praktičnu primenu znanja.

OBUKA I RAZVOJ ZAPOSLENIH

Organizacije moraju kontinuirano upravljati sa četiri ključna resursa: novac, oprema, informacije i ljudi. Investicije u savremeniju opremu podstiču bržu i efikasniju proizvodnju. Ulaganje u trening i razvoj zaposlenih može povećati njihovu produktivnost i efektivnost u poslu (Burke and Day's, 1986.). Svrha razvojnih programa obuke i upravljanja je poboljšanje sposobnosti zaposlenih, kao i organizacionih sposobnosti. Organizaciono ulaganje u znanje i veštine zaposlenih, vraća se u vidu povećanja produktivnosti i efikasnosti. U cilju efikasnog upravljanja razvojnim programima, potrebno je imati u vidu da su zaposleni odrasli učenici (Forrest & Peterson, 2006). Knowles's (1990) objavljuje teoriju učenja odraslih ili "Andragogija", baziranu na pet ideja:

- odrasli treba da znaju zašto nešto uče;
- odrasli treba da budu samo – usmereni;
- odrasli donose više iskustva u vezi sa radom u situacijama učenja;
- odrasli unose iskustva u učenje zasnovano na problemima - centriran pristup učenju; i
- odrasli su motivisani da uče (spoljašnji i unutrašnji motivatori).

Pošto je problem u centru pristupa znači da zaposleni će bolje učiti kad mogu videti kako im učenje može pomoći u obavljanju zadatka ili u nošenju sa problemima sa kojima se suočavaju u radu.

TEORIJE LJUDSKOG KAPITALA

Izraz intelektualni kapital (IK) je dobio na značaju u istraživanju, prvenstveno zbog jačanja nove "ekonomije znanja" koja se ogleda u širenju masovne proizvodnje zasnovane na ekonomiji koja se oslanja na informacije i znanja (Rastogi, 2000). William Pettyje tvrdi da razlozi za bogatstvo kompanije leže u vrednosti radnika.

Pregled literature intelektualnog kapitala pokazuje da teorija o IC kao koncept evoluirao od strane stvarne poslovne prakse, a ne na teorijski zasnovanom pristupu (Petti &

Guthrie, 2000). Oslanjanje samo na tradicionalne finansijske računovodstvene prakse sve više i više može se posmatrati kao neprikladno za procenjivanje ukupne vrednosti firme, jer nema mogućnost da istakne vrednost nematerijalnih ulaganja (Rastogi, 2003; Bontis, 2001). Osnaživanje na osnovu ekonomije znanja čini da je neophodno da se razviju metode koje ističu obe vrijednosti, materijalnu i nematerijalnu imovinu. Neki autori navode ograničenja koja imaju teorijske osnove za praktičare koncepta ljudskog i intelektualnog kapitala (Bontis, Dragonetti, Jacobsen i Roos, 1999, Grasenick i Low, 2004). Bilo je raznih pokušaja teoretičara da se pozabave suštinom ljudskog kapitala. Na primer računovodstvo ljudskih resursa (HRA) posebno je obezbedilo sveobuhvatan model mikro - ekonomske vrednosti pojedinaca u specifičnim organizacijama (Flamholtz, 1985 na osnovu pionirskog rada Hermanso, 1964). HR pokušava da meri HR u finansijskom smislu, kroz primenu računovodstvenih principa za ljude u smislu njihove vrednosti imovine. Sa druge strane, neki autori kritikuju svođenje HR na finansijsku metriku (Bueno, Salmador i Merino, 2008, Pfeffer, 1997). Kada je u pitanju stav da su ljudi (HR) u organizacijama ključni u ekonomiji znanja, može se reći da ne postoji neslaganje. Međutim provođenje retorike u praksu često postaje problematično.

8. ZNAČAJ INTELEKTUALNOG KAPITALA ZA KONKURENTSKU PREDNOST

"Oduzmite mi moje fabrike; oduzmite mi moj novac i sve, - samo mi ostavite moje ljude: i za dve ili tri godine ja ću sve nadoknaditi." (Andrew Carnegie).

Poznati američki industrijalac sa početka XX vijeka

Firma koja razvija karakteristično jezgro kompetentnosti, može obezbediti konkurentsku prednost (Hoffman et al., 2006: 140). U literaturi se navodi da se konkurentna prednost znatno lakše postiže u onim firmama koje uspu da mobilišu svoju nematerijalnu imovinu u vidu znanja, veština, tehnoloških iskustava i strateških sposobnosti u cilju stvaranja novih procesa, proizvoda ili ponuda usluga (Tovstiga i Tulugurova, 2007: 697). Iz tog razloga, uspešna mobilizacija ovih nematerijalnih sredstava može biti identifikovana kao prepoznatljivo jezgro kompetentnosti za organizaciju. Za neku kompaniju može se reći da ima konkurentsku prednost ako je njena profitabilnost veća od prosečne profitabilnosti u toj industriji u određenom vremenskom periodu. Konkurentska prednost podrazumeva mnogo više nego finansijske performanse i vrednosti za akcionare.

Globalno konkurentsko okruženje koje nas okružuje, zahteva, brze reakcije, dinamičke mogućnosti i fleksibilnost. Glavni organizacioni cilj je pomeren je sa maksimiziranja profita na maksimiziranje vrednosti. Generisanje vrednosti kompanije preko nematerijalnih ulaganja, odnosno kroz intelektualni kapital, nosi veći značaj nego finansijska dobit. Kako bi obezbedila održivu konkurentsku prednost, kompanija treba da veći da značaj pridaje unutrašnjim faktorima nego spoljnim. Ovo prvenstveno iz razloga što se spoljašnji uslovi mogu kontrolisati samo do određene tačke, a često se ne mogu uopšte kontrolisati. S druge strane, organizacija može upravljati unutrašnjim resursima, odnosno internom imovinom organizacije. Osnovni strateški pravci organizacije treba da budu usmereni na unutrašnje organizacione faktore. Razvoj tehnologija je doveo do toga da fizička sredstva i finansijski kapital više nisu primarni resursi na kojima se zasniva konkurentska prednost društva zasnovanog na znanju, jedina konkurentna prednost postaje znanje. Znanje ne podrazumeva

stvaranje ljudi sami po sebi. Znanje je rezultat interakcije ljudi i grupa koja na kraju rezultira novim organizacionim znanjem. Sve je očiglednije da na opstanak na svetskom tržištu mogu računati samo one kompanije koje budu sposobne da proizvode, upravljaju i kontinuirano uvećavaju svoj intelektualni kapital.

ZAKLJUČAK

Znanje danas predstavlja najznačajniji ekonomski resurs, koji zamjenjuje finansijski i fizički kapital kao najvažniji kapital u novoj ekonomiji. Nematerijalna ulaganja, kao što su veštine radne snage i njena organizacija dobijaju sve veću važnost. Ljudi su postali jedini pravi faktori u poslovanju organizacije. Radom se znanje ne smanjuje. Naprotiv, ono se radom povećava.

Ljudi su najkritičnija imovina organizacije. Od njih najviše zavisi uspeh organizacije. S obzirom da se najveći deo intelektualnog kapitala nalazi se u glavama zaposlenih, organizacija treba da ohrabruje zaposlene da dele svoja znanja. Zaposleni koji napuštaju organizaciju sa sobom odnose veći deo svojih znanja. Menadžment organizacije treba da preduzme mere kako bi se ublažile ili otklonile negativne posledice tih odlazaka.

Tradicionalne finansijske računovodstvene prakse nisu prikladne za procenjivanje ukupne vrednosti firme iz razloga što ne postoji mogućnost prikazivanja vrednosti nematerijalnih ulaganja, zbog čega je neophodno razvijati metode koje ističu i materijalnu i nematerijalnu imovinu.

Sve više se menja stav po pitanju visokog obrazovanja. Ranije je akcenat stavljan na bazno obrazovanje, dok se sada pažnja usmerava na nove investicije u visoko obrazovanje. Jačanjem visokog obrazovanja stvaraju se pretpostavke budućeg ekonomskog i društvenog razvoja u obliku ljudskog kapitala

Kako bi opstale na svetskom tržištu, kompanije će morati da kontinuirano uvećavaju svoj intelektualni kapital. Uspeh organizacije zavisi od sposobnosti stvaranja, otkrivanja, prihvatanja, širenja i merenja znanja. Unapređenjem organizacionog učenja, organizacija povećava svoje znanje i intelektualni kapital.

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LOGISTICS CHAIN DEVELOPMENT AND ECONOMICS EDUCATION

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Abstract: The development of the logistics chain is conditioned by the development of markets, increased levels of competition and the need to reduce consumption of resources, while increasing the quality of products and services. Logistic chains are the product of contemporary socio-economic relations, based on modern principles of organizing meta and micro logistics systems. The basis for the development, logistics chains to find the development of science and technology and increase the level of knowledge and qualifications of employees who will carry and participate in development. Development of science and technology can be observed from macro and micro, but also from the meta level. At the macro level, there's development of necessary knowledge on research and higher educational institutions. At the micro level, there is forming research teams dealing with practical issues of development of production technology, which acquires or maintains a business advantage over competitors. In addition, the meta level, forming teams and research centers, which for many business systems and logistics chains provide the necessary knowledge. With the existence of the necessary knowledge, the condition for the implementation thereof is educated and trained personnel. Because of this, education of personnel becomes an essential part to establish efficient and effective organization.

Keywords: logistics chains, organizations, education, organization knowledge, management, personnel.

Apstrakt: Razvoj logističkih lanaca uslovljen je razvojem tržišta, povećanjem nivoa konkurencije i potrebom da se smanjuje utrošak resursa, uz istovremeno povećanje kvaliteta proizvoda i usluga. Logistički lanci su proizvod savremenih društveno-ekonomskih odnosa, zasnovanih na savremenim principima organizovanja meta i mikro logističkih sistema. Osnovu za razvoj, logistički lanci pronalaze u razvoju nauke i tehnologije i u povećanju nivoa znanja i osposobljenosti zaposlenih koji su nosici i učesnici u razvoju. Razvoj nauke i tehnologije može se posmatrati sa makro i mikro, ali i na meta nivou. Na makro nivou, razvoj potrebnih znanja je na naučnoistraživačkim i visoko obrazovnim ustanovama. Na mikro nivou, formiraju se istraživački timovi koji se bave praktičnim pitanjima razvoja tehnologije proizvodnje, kojima se stiče ili održava poslovna prednost nad konkurencijom. Pored toga, na meta nivou, formiraju se timovi i istraživački centri, koji za potrebe više poslovnih sistema i logističkih lanaca obezbeđuju potrebna znanja. Uz postojanje neophodnih znanja, uslov za primenu istih je obrazovani i obučeni kadar. S obzirom na to, obrazovanje kadrova postaje bitan segment upravljanja preduzećem, obezbeđenja organizacionog znanja i uspostavljanja efikasne i efektivne organizacije.

Ključne reči: logistički lanci, organizacije, obrazovanje, organizaciono znanje, upravljanje, kadrovi.

UVOD

Od praistorije do današnjih dana razvoj društvene zajednice baziran je na razvoju i dostignućima u oblasti sredstava za rad. Pronalazak točka i alata napravljenog od kamena i kostiju ubijenih životinja omogućili su primatima koji su stekli ta znanja da lakše love, obrađuju ulov i prenose terete na veće udaljenosti. Posredno, to im je pomoglo da opstanu u uslovima nedostatka resursa kao što su hrana i voda. Dalje kroz istoriju, društvene zajednice koje su imale razvijen sistem obrazovanja i sistem inventivne delatnosti, imale su jaču ekonomiju i naprednije naoružanje, što je kao posledicu imalo dalje širenje i jačanje tih zajednica na račun susednih zajednica koje su odbacivale sve novitete i trudile se da žive život na način kako su to činili njihovi preci. Tradicija ima značajnu ulogu u razvoju jednog društva. Ukoliko društvo ima tradiciju razvoja i podsticanja obrazovanja i naučne delatnosti, ono ima prednost u odnosu na ona društva koja tradicionalno odbacuju sve novitete smatrajući ih proizvodom delovanja „nečastivog“. Tokom istorije, tradicija pojedinih naroda se menjala u zavisnosti od toga ko je upravljao narodom i državom, kao i od uticaja verskih i političkih organizacija. U staroj Grčkoj i Rimskom carstvu, nauka i obrazovanje su imali najznačajnije mesto u sistemu društvenih vrednosti. Ova društva su propala kada su prestali da istražuju i šire nova znanja, a sve odgovore su tražili u volji vladara ili svevišnjeg. U srednjem veku obrazovanje je bilo rezervisano za sveštenike i plemstvo, što im je omogućilo da vekovima vladaju nad siromašnim i neobrazovanim narodom. U tom periodu svaka naučna delatnost je proglašavana jeresom ukoliko nije bila u funkciji dokazivanja crkvene dogme. Ipak, razvoj sredstava za rad tražio je sve edukovanije radnike, što u krajnjem dovodi do propasti feudalnog i razvoja kapitalističkog društva koje počiva na obrazovanju i naučno-tehnološkom napretku. Pokušaj radničke klase da kapitalizam zameni socijalizmom i komunizmom, propali su u većini zemalja kada su, posle nekog perioda korištenja iskustava kapitalističke proizvodnje, upravljanje sistemom preuzeli neobrazovani ali poslušni kadrovi i kada su u sistemu vrednosti, obrazovanje i inventivnost zamenjeni vrednostima kao što su poslušnost, servilnost i agilnost. Obrazovna i naučna delatnost su se razvijale stihijski sve do vremena antičke grčke. Tada se prvi put nauka i obrazovanje podižu na nivo suštinske društvene delatnosti. Formiraju se škole koje su se bavile obrazovanjem, ali i razvojem naučne misli. U srednjem veku, nosioci obrazovanja su verske ustanove, koje su strogo kontrolisale i sprečavale razvoj naučne misli. Pojedinci koji su se usudili da se bave naučnim radom, često su proglašavani jereticima, ili vešcima. U savremenom društvu, obrazovanje i inventivna delatnost su sistemski uređeni, a čiji su nosioci razvoja država, neprofitne organizacije i preduzeća. Međutim, ona društva koja obrazovanje i inventivnu delatnost svrstavaju u troškove, uglavnom su siromašna i njihove ekonomije zaostaju za državama koje sredstva za tu namenu tretiraju kao investicije.

Logistika, kao nauka, razvijala se uporedo sa ostalim disciplinama i delila je njihovu sudbinu. Pojavljivanje logistike kao nauke povezano je sa industrijalizacijom i širenjem teritorija i tržišta. Posledica razvoja logistike su i logistički lanci, koji u uslovima globalizacije omogućavaju povezivanje različitih aktera na tržištu, snižavanje troškova i obezbeđivanje konkurenske prednosti. Međutim, zbog velikog broja aktera koji su uključeni u logističke lance, kao i konkurencije koja nikada ne miruje, postoji stalna potreba unapređenja procesa primenom novih tehnologija, kao i za unapređivanje znanja i veština i onih koji upravljaju logističkim lancima i onih koji realizuju aktivnosti.

EKONOMSKI KARAKTER NAUKE I OBRAZOVANJA

U današnje vreme sve je jasnije da nije moguće jasno odvojiti proizvodni od neproizvodnog rada, jer u biti ne postoji jasno razgraničenje između proizvodne i neproizvodne društvene sfere. U proizvodnoj organizaciji, ljudi koji upravljaju organizacijom, ili obavljaju pomoćne poslove, ne mogu se svrstati u proizvodnju, ali bez njih nema ni proizvodnje. Ista situacija je i sa naučnim i obrazovnim institucijama. One se direktno ne bave proizvodnjom dobara, ali posredno utiču na materijalnu proizvodnju kroz uticaj na produktivnost, razvoj tehnike, tehnologije. Nauka utiče na materijalnu proizvodnju opštim, naučnim, obrazovnim, stručnim, moralnim i drugim uticajima na čoveka i njegovu sposobnost za rad. Samim tim, ulaganje u nauku ne može se više posmatrati kao trošak, već se mora posmatrati kao posredno ulaganje u proizvodnju [6]. Nauka i obrazovanje su prvorazredni faktori savremenog ekonomskog razvoja. Nema razvoja i savremene proizvodnje bez primene naučnih dostignuća. Obrazovanje je posrednik u razumevanju i primeni naučnih dostignuća. Tehno-ekonomski ciljevi nauke i obrazovanja su razvoj materijalne osnove društva i produktivnost rada, i na tim osnovama porast društvenog dohotka. Tehnika, kao opredmećeno znanje, pretvorena je u faktor intenzifikacije materijalne proizvodnje. Sa ekonomskog stanovišta, tehnika je postala perspektivni domen za investiranje radi prirasta sredstava. Akumulirana znanja u tehnici, postala su sredstvo za rad, a znanje nastalo opredmećivanjem rada, postaje resurs za naučni rad. Nauka, se prema tome, bavi proizvodnjom, razmenom, raspodelom i potrošnjom znanja u funkciji proizvodnje, razmene, raspodele i potrošnje materijalnih dobara i usluga [8]. Nauka je realni materijalni faktor razvojnih procesa i endogena komponenta rada. Prema tome, ulaganje u nauku je više od ulaganja u naučno-obrazovnu, kadrovsku i društveno-ekonomsku infrastrukturu.

Tehničko-tehnološki progres i naučno-obrazovni progres sačinjavaju dva uzajamno povezana procesa, koji se međusobno prožimaju. Obrazovni nivo kadrovskih resursa uslovljava primenu nove tehnike, dok tehnički progres zahteva sve viši nivo znanja, stručne sposobnosti, umešnosti i adekvatnu kvalifikacionu strukturu. Obrazovanje i kadrovski kapital javljaju se kao značajni faktori privrednog i društvenog razvoja. Znanje i stručnost, kao proizvod rada i obrazovanja, postaje najbitniji element intelektualnog svojstva radne snage. Međuzavisnost obrazovanja, tehničkog progressa i zapošljavanja ključan je trougao u usmeravanju privrednog razvoja. Vrednost stvorenog dodatnog ljudskog kapitala uglavnom zavisi od dodatnog blagostanja koje ljudska bića iz njega izvlače kroz doprinos proizvodnosti, preduzetništvu, zaradama i blagostanju kao svestranom delu tekuće i buduće potrošnje. Ovako shvatanje doprinosi da se shvatanje kapitala sa materijalnog proširi i na kadrovski kapital.

RAZVOJ LOGISTIKE KAO NAUKE I KAO POSLOVNE FUNKCIJE

Logistika se prvi put pominje u antičko-rimskom periodu gde se pod pojmom *logista* podrazumevala uprava nad državnim zalihama, što je obuhvatalo finansije i raspodelu životnih namirnica. Oko 900. godine, vizantijski car Leontos VI uvodi logistiku u funkciji vojne doktrine. U pisanjima o veštini ratovanja izdvaja: strategiju, taktiku i logistiku (prostor, vreme i resursi). Nešto kasnije, oko 1670. godine, francuski kralj Luj XIV predlaže uvođenje nove strukture za rešavanje rastućih administrativnih problema – *Marechal General de Logis*, što je obuhvatalo planiranje kretanja trupa, selektovanje kampova, regulisanje transporta i

snabdevanje. Kao pojam, moderna logistika se prvi put pojavila u vojnoj terminologiji, u literaturi švajcarskog barona, kasnije francuskog i ruskog generala Anri Žominija (Henry Jomini, 1779 – 1869). Po njemu, logistika je veština računanja pomoću slova umesto cifara. U vojsci, tada, predstavlja nauku koja uči kako se proračunavaju vreme i prostor koji su potrebni da bi se izveo taktički pokret. U drugom svetskom ratu, logistikom su se nazivale aktivnosti koje su bile usmerene na obezbeđenje ratnog materijala za potrebe vojske SAD. U tom periodu se pod logistikom podrazumevao transport i skladištenje ratnog materijala do njegove upotrebe.

Razvoj moderne logistike može se podeliti u nekoliko faza [10]: do 1950. godine; od 1950. do 1970. godine; od 1970. do 1990. godine i posle 1990. godine. U prvom periodu, pojam logistike se vezuje za pojam fizičke distribucije proizvoda. U tom periodu je ustanovljen koncept marketing miksa, koji pored proizvoda, cene i promocije čine i kanali distribucije proizvoda. U početku se ova disciplina izučavala isključivo kao izlazna logistika, čije su aktivnosti obuhvatala upravljanje kretanjem gotovih proizvoda od skladišta proizvođača do krajnjeg potrošača. U drugom periodu dolazi do razvoja logistike zahvaljujući radovima koje su pisali Oscar Morgenstern (1955) i John Magee (1960) koji su dali objašnjenja teorije logistike. Logistika dobija poslovnu primenu, u vidu posebnih radnih mesta menadžera za distribuciju i skladištenje proizvoda. Širenje tržišta na okolne države ili druge kontinente, zahteva ulaganja u transport i pakovanje proizvoda što povećava cenu i otežava dopremanje robe do potrošača. U ovome, kompanije uviđaju šansu za diferencijaciju kroz stvaranje uslova za razvoj integrisane logistike. U tom periodu, teorija logistike obogaćena je razvojem analize totalnih troškova, porastom interesa za usluge korisnika i revizijom distribucionih kanala, kao i testiranjem osnovnog logističkog koncepta. U periodu od 1970. do 1990. dolazi do pomeranja prioriteta u logistici, pri čemu se akcenat stavlja na nabavku, proces snabdevanja, rukovanje i upravljanje materijalima i njihovu integraciju u logistički lanac. Naftna kriza koja je uzdrmala svetsku privredu, u navedenom periodu, naterala je sve da traže alternativne izvore energije i da pokušaju da smanje troškove transporta. U pojedinim granama industrije, troškovi nabavke su činile 60% cene proizvoda, pa je bilo prirodno da se sa procesa nabavke prešlo na menadžment snabdevanjem. Time se pokušalo uticati na smanjenje cene proizvoda i obezbeđenje konkurentske prednosti. Treći period razvoja logistike još je obeležen i razvojem ekologije, pod čijim se pritiscima razvija povratna logistika, čije su aktivnosti integrisane u sistem logistike. Njen zadatak je upravljanje tokovima proizvoda u suprotnom smeru, od potrošača do proizvođača, a u cilju smanjenja otpada i štetnih materija u prirodi. Na kraju ovog perioda potiskuje se primarni značaj fizičkog kretanja gotovih proizvoda i daje se jednak značaj kretanju materijala drugih inputa, uz naglašavanje značaja informacionih i vrednosnih tokova nad fizičkim. Na taj način, ulazna, unutrašnja i izlazna logistika postaju podsistemi integrisanog logističkog sistema, a fizički, vrednosni i informacioni tokovi obeležavaju logistička kretanja. U poslednjem razvojnom periodu, od 1990. do danas, težeći da se zadovolje zahtevi potrošača, ali i svih kompanija-partnera, akcenat sa integrisane logistike se prenosi na upravljanje logističkim lancima, odnosno na menadžment logističkim lancima. Menadžment logističkim lancima ide dalje od same nabavke i prodaje i ulazi u odnose kompanije sa dobavljačima, posrednicima i potrošačima, predviđa i projektuje buduće aranžmane, otvarajući perspektivu stratejskih odnosa sa dobavljačima i drugim karikama u lancu.

LOGISTIČKI LANCI

Logistički lanac je skup sinhronizovanih i povezanih logističkih aktivnosti i u prostornom i funkcionalnom smislu čini jedinstvenu celinu. Logistički lanac posmatran sa stanovišta teorije hijerarhijskih sistema sa više nivoa, ima performanse koordinacije, specijalizacije, integracije i kompleksnosti na širem prostoru, pri čemu povezuje niz organizacionih celina u jedinstven sistem realizacije materijalnih tokova. Logistički lanac čine međusobno povezane zaokružene organizacione celine, logistički sistemi, koji čine njegove karike. Kada se vrši logistička podrška sa više proizvoda sličnih karakteristika, u pitanju je složeni logistički lanac. Više logističkih lanaca bitno različitih po vrsti i tipu proizvoda, fuzionisanih u jedinstvenu celinu, čine složeni logistički sistem. Složenim ga čini broj logističkih aktivnosti, raznolikost proizvoda, prostorna i vremenska disperzija, kao i količina proizvoda i usluga koja se pruža. Broj aktivnosti je pokazatelj dužine logističkog lanca i složenosti u proseku realizacije distribucije proizvoda. S druge strane, vrsta i tip proizvoda utiče na raznolikost logističkih sistema u okviru logističkih lanaca i zahtevaju različite aktivnosti, kako po broju tako i po sadržaju. Pri tome potrošači ili konzumenti mogu biti locirani na velikom prostoru i da se njihovi zahtevi za proizvodom javljaju u različitim vremenskim intervalima. Razlozi za to mogu biti od godišnjih doba, pa preko trendova u društvu, pa sve do kulturoloških specifičnosti. Sve ove specifičnosti izražene su kroz logističke lance, koji čine suštinu složenih logističkih sistema. Logistički procesi i aktivnosti realizuju se tehnološkim, organizacionim, informacionim i ekonomskim rešenjima i prouzrokuju određene troškove, vremenske gubitke, tehnološke rezerve, zahteve za radnom snagom, sredstvima, prostorom i infrastrukturom. Pri sistemskoj analizi procesa u logističkom lancu neophodno je utvrditi i pratiti sve kvantitativne i kvalitativne atribute logističkih aktivnosti: mesto, troškove, vreme realizacije, nivo tehnologije, angažovanu radnu snagu, sredstva, opremu, logistički učinak, stepen iskorišćena kapaciteta i dr. Informacije o logističkim procesima i aktivnostima moraju biti pravovremene, kompletne, pouzdane podloge za planiranje i upravljanje i kontrolu logističkih procesa i sistema. Procesnom dekompozicijom logistički lanac se može razložiti na nekoliko procesa: - proces transporta; - proces poručivanja; - proces pakovanja; - proces skladištenja; - proces držanja zaliha; Uporedo sa ovim osnovnim procesima u logističkom lancu, odvijaju se procesi koji se mogu posmatrati kao deo logističkog lanca, ali i kao samostalni logistički lanci pružanja usluga, a to su: proces održavanja i proces pripreme proizvoda za upotrebu.

Učešće logističkih troškova u ukupnim troškovima proizvodnje i plasmana proizvoda na tržište varira i najčešće je u granicama između 7% i 25% u zavisnosti od vrste robe i delatnosti preduzeća. Identifikacija mesta nastanka troškova logistike i utvrđivanje vrednosti troškova po mestima i jedinici prometa robe su sastavni deo „*Logistic controlling*“ računarskih procedura savremenih preduzeća. Sistem utvrđivanja logističkih troškova podrazumeva njihovo razgraničenje i grupisanje u okviru funkcionalnog razgraničenja logistike na podsisteme: poručivanje, pakovanje, skladištenje, zalihe i transport. Pored ovih u troškove logistike spadaju i troškovi pružanja usluga održavanja i pripreme proizvoda za upotrebu. Troškovi logistike se mogu svoditi na ukupnu vrednost u jedinici vremena, na vrednost svedenu na logističku jedinicu, ili na tonu robe. Mogu se iskazati i procentualno u učešću u ceni pojedinog proizvoda ili ukupnih troškova proizvodnje i plasmana proizvoda. Različiti pokazatelji logističkih troškova su u funkciji njihove kontrole i primene u procesima operativnog i strateškog planiranja. U većini transportnih, trgovačkih i proizvodnih preduzeća

snabdevanje informacijama o logističkim troškovima predstavlja ozbiljno ograničenje za uvođenje i efikasnu primenu upravljanja logistikom. Planovi troškova, uglavnom se zasnivaju na okvirnim kontnim planovima. Sintetička konta i na njima bazirani okvirni planovi sadrže samo jedan deo logističkih troškova. Tako, na primer veoma širok spektar troškova prevoza (železničkog, drumskog, vodnog) špediterskih usluga, nediferencirano se prikazuju pod vrstom troškova „transportne usluge“. Pri tome se ne prikazuje razvoj strukture primarnih logističkih troškova. Preglednost sekundarnih troškova je još slabija, jer ne postoji jasno razgraničenje logističkih aktivnosti i mesta nastanka troškova logistike. Jedan od osnovnih problema današnje privrede sastoji se u regulaciji tokova sirovina i distribucije gotovih proizvoda. Pod pritiskom minimiziranja obima vezanog kapitala područje logistike predstavlja polje za racionalizaciju ekonomike privrede i društva. Danas, korisnici traže ponudu racionalne koncepcije koherentne logističke usluge. Ovim zahtevima najviše odgovaraju robno transportni centri (u daljem tekstu RTC) i njihova razvijena mreža. RTC obezbeđuje tehnološki svrsishodnu, operativno i ekonomski opravdanu kooperaciju između nosilaca različitih delatnosti. Razvoj mreže RTC-a pruža neophodne preduslove za realizaciju tehnološko-ekonomskih i ekoloških ciljeva makro i mikro distribucije dobara, odnosno optimizacije logističkih lanaca. Takođe RTC dozvoljava oslanjanje na multimodalne transportne operacije i, još opštije, kompleksne logističke operacije, čije su osnovne karakteristike uključivalje u globalne logističke postupke organizacije i upravljanje fizičkom cirkulacijom robe proizvedene sredstvima koja pripadaju istom logističkim lancu. Razvoj mreže RTC-a obezbeđuje sve neophodne preduslove za realizaciju tehnološko-ekonomskih i ekoloških ciljeva, makro i mikro distribucije dobara, odnosno optimizacije logističkih lanaca. Da bi logistički lanci ispunili sve ono što se od njih očekuje, potrebna su znanja iz gotovo svih naučnih oblasti, a najčešće oblasti primene znanja su menadžment, organizacija rada, tehnologija logističkih procesa i edukacija kadrova.

Znanje u oblasti menadžmenta, razvijaju specijalizovani naučni instituti i fakulteti ekonomskog smera, ali i oni koji neposredno primenjuju znanje - menadžeri. Novim dostignućima u ovim oblastima smanjuje se utrošak resursa (materijalnih, ljudskih i vremenskih), smanjuje se verovatnoća nepredviđenih događaja, a povećava se predvidivost rezultata procesa rada i konkurentska prednost. Logistički lanac kao sistem koji čini veliki broj činilaca, mora efikasnim upravljanjem i koordinacijom da obezbedi da troškovi budu manji nego kod konkurencije, a da pri tome svi učesnici u lancu ostvare dobit. Tehnike i metode strateškog i operativnog upravljanja se menjaju i prilagođavaju naučnim dostignućima, ne samo u oblasti menadžmenta, već i u oblasti informacionih tehnologija, koje svakim danom omogućavaju sve bolje ekspertske sisteme za podršku odlučivanju, pa čak i samo odlučivanje. Usko povezana sa menadžmentom je oblast organizacije rada, koja se može posmatrati i kao upravljanje radom organizacije, ali i kao uspostavljanje organizacije. Oblast organizacije rada vezana je za ljudsku delatnost i kao takva podložna je velikom broju faktora i zahteva multidisciplinarni pristup.

Logistički lanci, po svojoj prirodi, uključuju veliki broj različitih organizacionih elemenata, koji su često potpuno različiti po nameni, cilju, procesu rada, kulturi, vlasništvu, ekonomskoj snazi, itd, te se ovaj problem još više uslojava. Često je nemoguće vršiti eksperimente u oblasti organizacije rada ovako velikih i složenih sistema. Zbog toga je veoma važno da se u istraživanju u ovoj oblasti koriste savremen tehnke simulacije. U tom procesu, znanja i iskustva zaposlenih, kao i njihova sposobnost da artikulišu znanja, je od neprocenjivog značaja. Isto tako, mogućnosti da se novim načinima organizacije sistema

umanje troškovi, a povećana efikasnost su od esencijalnog značaja, kako za organizaciju koja je primenjuje, tako i za širu društvenu zajednicu. Primene novih načina organizacije su često blisko povezane sa primenom novih tehnologija, što predstavlja još jednu oblast primene znanja. Primena novih tehnologija ide u pravcu tendencija u široj društvenoj zajednici. U razvoju novih tehnologija, učestvuju, pored samih proizvodnih sistema, i državne institucije koje se bave razvojem bazičnih nauka, kao što su biologija, hemija, matematika, itd. Budući da je razvoj tehnologija veoma skupo, pojedine organizacije udružuju svoje snage. Ulaganje u razvoj novih tehnologija imperativ je za ona društva i organizacije koje sebe vide kao lidere u određenoj oblasti, dok su oni koji se opredeljuju za kupovinu tehnologije, osuđeni da skupljaju mrvicu na tržištu. U logističkim lancima, primena novih tehnologija ima značajnu ulogu u oblasti smanjenja utroška resursa, smanjenju utroška energenata, uvođenju čistih izvora energije, smanjenju troškova čuvanja i transporta po jedinici proizvoda, kao i poboljšanju kvaliteta i brzine usluga. Nova tehnologija znači i novo znanje. Znanje kao kognitivna kategorija, vezano je za kadrove, koji u procesu rada postaju humani kapital, budući da radom ne umanjuju svoju vrednost već je povećavaju. Kadrovi znanje stiču na nekoliko načina i to tokom celog svog života. Organizacija edukacije u društvu najpre je u nadležnosti države, a pored nje i u nadležnosti privatnih fondacija i preduzeća.

OBRAZOVANJE KADROVA

U razvijenim ekonomijama glavni razvojni resurs je ljudski potencijal, a njegov kvalitet bitno određuje stepen obrazovanja. On treba da doprinese održivom nacionalnom razvoju i trajnom razvoju pojedinca. Zbog toga, sve razvijene zemlje obrazovanje smatraju nacionalnim prioritetom te primenjuju one strategije razvoja koje najviše doprinose privredi, socijalnom i kulturnom razvoju društva, kao i ličnom razvoju njegovih članova. Savremene strategije obrazovnog razvoja se stoga temelje se na koncepciji permanentnog učenja i koncepciji „društva koje uči“. Te su koncepcije sedamdesetih i osamdesetih godina razvile međunarodne organizacije koje promišljaju međunarodni razvoj i ulogu obrazovanja u njemu te su ih preporučile svojim članicama kao osnovu za vođenje nacionalne prosvetne politike [3]. Koncepcija permanentnog učenja nastala je kao posledica količine novog znanja koje se svakim danom povećava, dok postojeće znanje sve brže zastareva. Da bi se išlo u korak s vremenom, nužno je učiti tokom celog života, makar se celi život ne može ići u školu. Zato se osim školovanja obrazovanje provodi i neformalnim obrazovanjem, samoobrazovanjem i informalnim učenjem. To su četiri glavna, u razvijenim zemljama već ravnopravna, oblika učenja koji se povezuju u sistem permanentnog učenja. Dodatno obrazovanje zaposlenih i nezaposlenih, u savremenom svetu, posmatra se kao uslov opstanka i bržeg razvoja društva i pojedinca, neophodno je svima i mora biti dostupno svima. Značaj obrazovanja i dodatnog usavršavanja odraslih postao je realan interes i potreba savremenog sveta i zato mu međunarodne institucije posvećuju posebnu pažnju. Iako menadžeri rade sa mnogim resursima – materijalnim, finansijskim, informacionim – ljudski resursi su jedini aktivan faktor u organizaciji koji može nadomestiti nedostatak ostalih resursa. Postojanje kvalitetnih ljudskih resursa podrazumeva i ideje i tehnologiju i kapital, a bez ljudi koji će ih koristiti, ni ideje, ni tehnologija, ni kapital neće mnogo značiti. Upravljanje ljudskim resursima obuhvata više važnih pitanja, među kojima se posebno ističu [3]:

- Utvrđivanje potreba za ljudima – gde se vrši planiranje na osnovu izraženih potreba organizacije,
- Privlačenje i selekcija kandidata za svako radno mesto,
- Razvoj ljudi – obuka, trening, periodična ocena,
- Uticanje na zaposlene – motivisanje, nagrađivanje, i
- Održavanje odnosa.

Po svojoj prirodi, obrazovna delatnost u poslovnom sistemu je integralni deo celokupnog obrazovnog sistema u državi. Ipak, u samom poslovnom sistemu, realizacija obrazovnih procesa zahteva određene specifičnosti. U zavisnosti od uslova, u sistemu mogu biti razvijeni i organizovani razni institucionalni oblici obrazovanja u kojima je, isto tako, moguće različito organizovati podelu rada i oblike i zadatke nosilaca obrazovanja [2]. Projektovanje obrazovnog sistema koji će odgovarati potrebama preduzeća, potrebama i interesima zaposlenih, kao i potrebama okruženja, zahteva, pre svega, dobro poznavanje interesa i poslovnih mogućnosti date organizacije. U većini slučajeva finansijske mogućnosti ne omogućavaju paralelan pristup u projektovanju i implementaciji modela obrazovanja, te se primenjuje serijski pristup, i to najčešće odozgo na dole (top-down). Takva realizacija je postupna i u skladu je sa kratkoročnim, srednjoročnim i dugoročnim planovima obrazovanja. Bez obzira na finansijsku situaciju, u poslovnom sistemu veoma često se uočava nesklad između obrazovnih potreba i mogućnosti. Izlaz iz takve situacije ne sme se tražiti u povećanju finansijskih sredstava za obrazovanje, već u primeni modernijih i boljih organizacijskih rešenja. Zato je zadatak obrazovnog sistema da stalno analizira troškove i koristi odgovarajuće obrazovne postupke, kao i da prati i vrednuje nivo obrazovanja. Još više, zadatak obrazovnog sistema je da pokuša da odredi prioritet pojedinih obrazovnih koraka i tako umanjiti rizike koji proizlaze iz prevelike raširenosti obrazovnih potreba. Planovi potrebnih kadrova i strateška opredeljenja kadrovskog razvoja osnovna su ishodišta za planiranja angažovanja na brojnim područjima kadrovskog delovanja. Osnovu predstavljaju planovi obrazovanja koji obuhvataju sve vrste obrazovanja [3]:

- redovno obrazovanje,
- obrazovanje uz rad i iz rada,
- funkcionalno obrazovanje,
- obrazovanje - kvalifikacija,
- obrazovanje iz oblasti zaštite na radu i protivpožarne zaštite,
- učešće na seminarima, kursevima, savetovanjima i stručnim ekskurzijama,
- radno iskustvo, kao i - motivacija mentora i instruktora.

Za svaku vrstu obrazovanja potrebno je napraviti plan u skladu sa njenom specijalnošću: smer, stepen, školska godina, vreme, troškovi. Obrazovne programe za dobijanje stručnog obrazovanja i programe specijalizacije na svim nivoima, u skladu sa svojom nadležnošću, determiniše Ministarstvo prosvete. Za zadovoljenje sopstvenih specifičnih obrazovnih potreba, organizacije same izrađuju interne obrazovne programe. Tim programima one zadovoljavaju obrazovne potrebe koje ne mogu zadovoljiti u okviru formalne programsko-institucionalne strukture obrazovnog sistema države niti neposrednom saradnjom sa pojedinim drugim izvođačima obrazovanja. Vrednovanje obrazovanja je delatnost kojom se sagledavaju efekti obrazovanja i stepen do kog su ostvareni postavljeni ciljevi. Dakle,

vrednovanje obrazovanja je kontinuirani proces validacije na svim nivoima planiranja, programiranja, organizacije i izvođenja obrazovanja. Merenje efekata obrazovanja može biti posmatrano u odnosu na procese koji se interno realizuju u poslovnom sistemu, ali i u odnosu na okruženje. U prvom slučaju radi se o unutrašnjem vrednovanju efekata koje se ogleda u povećanju efikasnosti i efektivnosti datog poslovnog procesa, a manifestuje se kroz smanjenje škarta, smanjenje potrebnog vremena za obavljanje određene radne operacije i sl. Drugi slučaj odnosi se na merenje efekata u odnosu na okruženje, ogleda se u komparativnoj prednosti u odnosu na konkurenciju, a manifestuje se kroz poboljšanje odnosa u sistemu, većoj mobilnosti i zamenljivosti kadra, povećanju produktivnosti i kvaliteta rada i sposobnosti da se u kratkom vremenu sistem prilagodi promenama na tržištu. Upravljanje znanjem predstavlja relativno novu, specijalizovanu menadžment disciplinu čiji je zadatak da sa teoretskog i praktičnog aspekta sagleda problematiku prikupljanja, sistematizovanja i korišćenja znanja u savremenim poslovnim sistemima. Cilj je da se formira i održava dovoljna količina konkretnog znanja koja će da obezbedi adekvatan nivo efikasnosti i efektivnosti poslovnim organizacijama u borbi za konkurensku poziciju na tržištu. Može se reći da se osnovna uloga upravljanja znanjem sastoji u pokušaju da utvrdi eksplicitno i tacitno (prećutno) znanje kod svih zaposlenih i učini ga dostupnim svima u organizaciji. Pri tome treba napomenuti da eksplicitno znanje predstavlja tvrdi komponentu znanja. Znanje ovog tipa se lako može iskazati, zabeležiti, kodifikovati i primeniti. Problem predstavlja tacitno znanje koje čini meku komponentu znanja.

ZAKLJUČAK

Nauka i naučna delatnost u jednom društvu čine osnov društvenog razvitka. Kao takva predstavlja osnov tehnološkog i tehničkog razvoja privredne delatnosti, dok s druge strane akumulirano znanje kroz proces rada predstavlja resurs za naučni rad i razvoj. Vezu između naučne delatnosti i proizvodnje predstavlja obrazovanje. U procesu institucionalnog obrazovanja, vrši se transfer naučnih dostignuća na kadrove, koji primenom stečenih znanja kroz proces rada, akumuliraju iskustveno znanje. Kadrovi, zajedno sa iskustvom i znanjem stečenim obrazovanjem postaju humani kapital, koji se oplođava u procesu rada. Iz tog razloga, ulaganje u nauku i obrazovanje ne može se smatrati društvenom potrošnjom, već se mora razmatrati kao investicija u društvenu proizvodnju. Logistički lanci predstavljaju jedan veoma kompleksan sistem, koji se može posmatrati i kao proizvodni sistem i kao sistem pružanja usluga. U svojoj osnovi predstavlja veoma složen lanac različitih entiteta koji su udružili svoje kapacitete kako bi smanjili troškove poslovanja i obezbedili prednost na tržištu. Složenost jednog logističkog lanca ogleda se u velikom broju elemenata, proizvoda, tehnologija, zahteva, interesa, kao i velikog broja aktivnosti različitih po nosiocima, trajanju, vremenu pojavljivanja, ciljevima i td. Takođe, značajan faktor složenosti predstavlja i prostorna disperzija elemenata jednog logističkog lanca što uslovljava geografske, kulturološke i ekonomske razlike u funkcionisanju. Kao takvi, logistički lanci su, u uslovima velike konkurencije, uslovljeni da unapređuju svoj rad i funkcionisanje u svim oblastima delovanja. Najizraženija je primena naučno-tehnoloških dostignuća iz oblasti menadžmenta, organizacije rada, tehnologiji i obrazovanju kadrova. Edukacija kadrova vrši se tokom celog života, kroz formalno obrazovanje, neformalno obrazovanje, samoobrazovanje i informalno učenje. Učenje ne prestaje tokom celog života, jer jedino tako je moguće opstati u društvu

koje se menja, bilo da se radi o radnim procesima ili o svakodnevnom životu. Ovakav pristup, obezbeđuje da društvo pored materijalne komponente kapitala uvećava i vrednost humanog kapitala.

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ROLE OF INTERACTIVE MEDIA IN MARKETING COMMUNICATIONS

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Abstract: Those companies that listen and adjust their marketing techniques to be customer-driven will excel in the new age. These companies successfully connecting with a prospect/customer by sending not only the message they want to hear, but also when and where they want to hear it. Traditional marketing has to adapt and evolve as we enter a new era where consumers determine where, when and how they will consume media — in fact some have called this new era the age of the consumer. Consumers are now in full control of their media consumption, which no longer leaves them at the mercy of unwanted marketing messages. They can now consume their media on their own terms on their own time. In this new environment, consumers take full advantage of the new media options available to them, such as video on demand, the Internet and video games, mobile phones, digital cable, DVS`s and often consume several media simultaneously, such as TV and the Internet, video games and music, and magazines and DVDs. With the evolution of the Internet and advances in home technology, consumers can now easily eliminate marketing messages by skipping or deleting them, ultimately giving them control over marketers' use of communication channels. As media options expand, consumers are gravitating toward media with content that is most relevant and interesting to them. This has begun to give traditional marketers a headache, because audiences are being scattered around the media landscape in very small niche groups. The challenge for marketers in this new era is to understand target audiences so intimately that they can incorporate marketing messages into the audiences' lifestyles without being a distraction. Once a marketer becomes a distraction, the consumer may turn them off forever. In this interactive environment, marketers have to integrate communications across multiple channels and tools at opportune times in order to reach the same critical mass that drove businesses in the past.

Keywords: market, marketing, interactive communication, interactive media, consumer, integration

Apstrakt: Danas su uspešne samo one kompanije koje su svoje marketing tehnike prilagodile novim potrebama potrošača. Nova era marketinga podrazumeva uspešno povezivanje sa postojećim i potencijalnim potrošačima slanjem ne samo onih poruka koje oni žele da čuju, već i slanjem u vreme i na mestu kada oni žele da ih čuju. Sada potrošači mogu samostalno da se uključe u proces marketing komuniciranja na interaktivan način i da vrše integrisanje svih raspoloživih informacija. Na današnjem tržištu potrošači diktiraju uslove pa im se kompanije moraju obraćati korišćenjem različitih medija na integrisan način. Svetsko tržište danas nije više tržište prodavca nego tržište kupca. Primeri uspešnih svetskih firmi ukazuju na značaj uvažavanja promenjenog položaja potrošača. Potrošač nije više osuđen na klasične izvore

informacija o proizvodima, već ima na raspolaganju i interaktivne izvore informisanja. Usled tehnološke evolucije i inovacija, potrošaču postaju dostupne nove medijske opcije. Interaktivni mediji, kao što je Internet, doveli su do situacije u kojoj odnosi između pošiljaoca i primaoca poruke postaju direktni.

Zajedno sa porastom komunikacionog obrazovanja potrošača, ovo vodi ka tržišnoj situaciji u kojoj je većina moći u rukama primaoca, tj., potrošač odlučuje čemu želi da se izloži i kako će na to reagovati. Iako potrošači najviše koriste Internet, na raspolaganju im stoje i ostali interaktivni mediji – interaktivna televizija, CD romovi, mobilni telefoni, elektronski kiosci i sl. Obzirom da se medijske opcije umnožavaju, potrošači gravitiraju ka medijima sa sadržajem koji je njima najrelevantniji i najinteresantniji. Ova pojava je tradicionalnim marketarima zadala veliki problem, obzirom da se auditorijum –rasipal u medijskom prostoru na veoma male tržišne niše. Nove tehnologije i aplikacije čine potrošače manje dostupnim i usmeravaju kompanije prema više integrisanom pristupu, ka fragmentisanim i sve više interaktivnim komunikacionim situacijama.

Ključne reči: tržište, marketing, interaktivno komuniciranje, interaktivni mediji, potrošač

UVOD

Svetsko tržište danas nije više tržište prodavca nego tržište kupca. Primeri uspešnih svetskih firmi ukazuju na značaj uvažavanja promenjenog položaja potrošača. Savremeni potrošač ima iznijansirane potrebe, jasne preferencije i posebno je osetljiv na način i kvalitet zadovoljavanja svojih potreba. Rast turizma, pokretljivosti i mobilnosti ljudi, kao i širenje informacija značajno je doprinelo relativiziranju tržišnih granica i barijera. Danas je moguće da potrošači sa malo novca dođu do računara i pristupa Internetu. Na taj način oni imaju mogućnost da kupuju proizvode i usluge širom sveta. Nisu limitirani prostorom ili vremenom da bi zadovoljili svoje želje i potrebe. Sve ovo je dramatično promenilo marketing arenu u kojoj organizacije danas posluju. Potrošač nije više osuđen na klasične izvore informacija o proizvodima, već ima na raspolaganju i interaktivne izvore informisanja. Usled tehnološke evolucije i inovacija, potrošaču postaju dostupne nove medijske opcije. Interaktivni mediji, kao što je Internet, doveli su do situacije u kojoj odnosi između pošiljaoca i primaoca poruke postaju direktni. Zajedno sa porastom komunikacionog obrazovanja potrošača, ovo vodi ka tržišnoj situaciji u kojoj je većina moći u rukama primaoca, tj., potrošač odlučuje čemu želi da se izloži i kako će na to reagovati. Nove tehnologije i aplikacije čine potrošače manje dostupnim i usmeravaju kompanije prema više integrisanom pristupu, ka fragmentisanim i sve više interaktivnim komunikacionim situacijama.

FRAGMENTACIJA MEDIJA I PROMENJENA ULOGA POTROŠAČA

Približno od sredine 80-tih godina XX veka, postalo je jasno da potrošači nisu više pasivni primaoci marketing poruka. Oni su postali mudriji i sofisticiraniji i počeli su da izražavaju težnju ka specijalizovanim proizvodima, isporučenim preko nekonvencionalnih distributivnih kanala. Istovremeno, komuniciranje je izmenilo zadovoljavanje potreba i više

nije bilo usmereno ka masovnim segmentima, već ka targetiranim segmentima, nišama i mikrotržištima. Masovna tržišta su postala manja i fragmentisana, i došlo je do ekspanzije marketinga "jedan na jedan" (one-to-one marketing). Takođe, došlo je do dramatične promene u komunikacionim sistemima. Njihov broj je značajno porastao, a rastuća konkurencija prisilila ih je da postanu više targetirani i fokusirani na specifične grupe potrošača. Pored toga, mnoge forme medija su postale interaktivne, tako da auditorijum može istovremeno da bude i primalac i pošiljalac poruka i informacija.

Sada potrošači mogu samostalno da se uključe u proces marketing komuniciranja na interaktivan način i da vrše integrisanje svih raspoloživih informacija. Oni će u procesu marketing komuniciranja sve više imati ulogu pošiljaoca poruke koji kodira svoje potrebe i želje, a preduzeća treba da svojom ponudom, kao akcijom, odgovaraju na upućeni impuls. Istraživanja pokazuju da će se fragmentacija medija i dalje ubrzavati spajanjem kompjutera, komunikacija i informacionih tehnologija. Trend na današnjem tržištu je pomeranje od masovnog ka mikrotržištima, a potrošači su postali individualizovani u korišćenju TV-a i ostalih medijskih opcija. Obzirom da se medijske opcije umnožavaju, potrošači gravitiraju ka medijima sa sadržajem koji je njima najrelevantniji i najinteresantniji. Ova pojava je tradicionalnim marketarima zadala veliki problem, obzirom se auditorijum —rasipa || u medijskom prostoru na veoma male tržišne niše. Udruživanjem kompjutera i telekomunikacione tehnologije stvaraju se interaktivni mediji koji omogućuju dvosmernu multimedijalnu komunikaciju (putem kombinacije grafičkih, tekstualnih, audio i video informacija). Sada pojedinac dobija moć da komunicira sa organizacijom, što je velika promena u odnosu na monolog koji je organizacija vodila preko mas-medija propagandnom komunikacijom. Promene koje su nastupile pod uticajem napretka u tehnologiji i razvoju vodili su dramatičnom porastu komuniciranja kroz interaktivne medije, posebno Internet. Interaktivni mediji uzimaju u obzir dvosmerni tok informacija što omogućava korisnicima da u njemu participiraju i da prilagode formu i sadržaj informacija koje primaju u realnom vremenu.

Za razliku od tradicionalnih formi marketing komuniciranja, koje su po prirodi jednosmerne, ovi novi mediji omogućavaju potrošačima obavljanje različitih funkcija kao što su primanje i modifikovanje informacija i imidža, postavljanje zahteva, traženje odgovora na pitanja i naravno, obavljanje kupovina. Iako kompanije najviše koriste Internet, na raspolaganju im stoje i ostali interaktivni mediji – interaktivna televizija, CD romovi, mobilni telefoni, elektronski kiosci i sl.

INTERNET KAO MEDIJ

Na savremenom tržištu došlo je do rapidanog rasta Interneta koji značajno menja prirodu poslovanja kompanija, kao i načine na koje komuniciraju i ostvaruju kontakte sa potrošačima. Internet pruža marketarima značajne prednosti u odnosu na tradicionalne medije. Najznačajnija prednost je mogućnost targetiranja specifičnih grupa pojedinaca sa minimalnim izdacima. Kroz personalizaciju i ostale tehnike targetiranja sajtovi se prilagođavaju potrebama i zahtevima ciljnih potrošača. Kao rezultat preciznog targetiranja, poruke se kreiraju prema specifičnim zahtevima i potrebama ciljnog auditorijuma. Interaktivne sposobnosti Interneta omogućavaju direktno obraćanje potrošačima. Zbog toga ovaj medij ima snažan potencijal za povećano učešće potrošača i skoro trenutni feedback kako za prodavce tako i za kupce. Na početku 21. veka Internet je važno sredstvo komunikacije i skoro svaka kompanija danas ima

svoj web sajt, a pojedinci, od filmskih zvezda i poznatih ličnosti do tinejdžera, imaju svoje stranice na Internetu.

Da bi se posetioци privukli i da bi ponovo posetili sajt neophodna je kombinacija kreativnosti, efektivnog marketinga i kontinuelno ažuriranje sajta. Dobro dizajnirani web sajtovi utiču na povećanje imidža kompanije, stimulišu ponovno posećivanje datog sajta i pozitivno pozicioniraju kompaniju u svesti potrošača. Jedna od najvećih prednosti Interneta je dostupnost informacijama. Korisnici Interneta mogu pronaći obilje informacija o bilo kojoj temi za koju su zainteresovani jednostavnim pretraživanjem preko nekih od svetskih pretraživača (npr. Yahoo, Google, Altavista i sl.). Internet je prvi elektronski medij koji omogućava aktivno posmatranje sadržaja poruke, uz tempo koji potrošač sam postavlja. Istovremeno, interaktivnost u komunikaciji omogućava potrošaču da sam kreira poruke. Sada potrošači imaju mogućnost da porede cene, pregovaraju i, na kraju, obave kupovinu sa bilo kog mesta i u bilo koje vreme.

Nijedan drugi medij u istoriji nije im davao toliko slobode i moći. Broj korisnika Interneta se konstantno povećava posebno zahvaljujući razvoju sistema e-mail poruka i povećanim mogućnostima transfera podataka. Sa pojavom *World Wide Web-a*, a time i multimedijalnih sadržaja na Internetu, došlo je do ogromnog porasta broja korisnika, što je uticalo da Internet raste brže od svih poznatih medija u istoriji komuniciranja. U celini posmatrano, Internet nudi niz prednosti pa će njegova upotreba kao medija, u budućnosti sigurno rasti. Pretpostavka je da će se nedostaci postepeno prevazilaziti, što će omogućiti Internetu da ostavi daleko iza sebe ostale komunikacione medije. Međutim, bez obzira na to da li će upotreba Interneta nastaviti da raste ili će imati usporeni rast, cifre koje govore o kontinuiranom povećanju ukupnih izdataka od strane korisnika ukazuju na to da će Internet ostati značajan medij koji predstavlja snažan potencijal za marketare.

NOVE MOGUĆNOSTI OGLAŠAVANJA PREKO INTERNETA

Navike potrošača predstavljaju veoma važnu informaciju za alokaciju sredstava pri izboru odgovarajućeg medija, ali i dalje je od posebne važnosti poznavanje ciljnog auditorijuma. Ukoliko se situacija posmatra površno, može se zaključiti da je jedina promena u odnosu na tradicionalne taktike zapravo korišćenje online mogućnosti. Međutim osnovna razlika između tradicionalnih i on-line taktika jeste u mogućnosti praćenja odgovora potrošača. Taktike novog doba ne samo da prate odgovore potrošača mnogo efikasnije, već mogu dati i odgovor na pitanje koliko puta je potrošač nešto video (npr. koliko puta je pogledao svoj e-mail), kliknuo na određenu stranu, koliko se dugo na njoj zadržao, šta uopšte nije ni pogledao i sl. Marketing preko pretraživača – Google, Yahoo, MSN Marketing preko pretraživača ili SEM (*Search Engine Marketing*) postao je vodeće sredstvo u interaktivnom oglašavanju. Rezultati se brzo mere, troškovno je efikasan i lako se može optimizirati u realnom vremenu. Prema rezultatima eMarketer-a, SEM je zabeležio veoma brz rast – ova industrija je 2002. godine vredela 927 miliona dolara, a već 2007 godine 3.2 milijarde dolara. Sasvim je očigledno da je ovo jedan od najbrže rastućih medija svih vremena. Takođe, po predviđanjima eMarketer-a, do kraja 2009 godine ova industrija zaradiće još više, čak 5.6 milijardi dolara. SEM je marketing Web sajta putem pretraživača (Google, Yahoo, MSN i dr.). Sada se Web sajt može naći preko pretraživača i uvrstiti u redovan listing, korisnici se mogu pretplatiti za odlazak na isti, a sajt se takođe može i sponzorirati. Npr., potrošač kome treba kancelarijska oprema može na Google-u otkucati željeni termin (npr. konferencijski sto); strana koju dobije sugerisaće mu najbolje linkove za Web sajtove kompanija koje prodaju

kancelarijski nameštaj, i to kako u redovnom listingu tako i putem sponzorisano listinga. Redovni listing je nešto što potrošač dobija na uvid pretragom i što mu se prikazuje preko Web sajta. Dovoljno je da ukuca ključne reči. Dakle, ne mora da plati niti da bude sponzor sajta. Tri taktičke komponente marketinga preko pretraživača (SEM), definisane od strane SEMPO-a (*Search Engine Marketing Professional Organization*) su:

1. Optimizacija pretraživača – Kompanije sada mogu svoje meta tagove (podsetnike) popularizovati putem veoma specifičnih ključnih reči. Npr. katalog za plažu može imati sledeće meta tagove – plaža, kostim, papuče, peškir i sl.

2. Plaćeno uključivanje – U ovom slučaju, pretraživač će izlistati web strane za koje je plaćena određena novčana nadoknada. Plaćanjem se omogućuje da iste budu uključene u index pretraživača. Plaćeno uključivanje u svakom slučaju poboljšava rezultate pretrage, što predstavlja benefit kako za potrošača tako i za oglašivača.

3. Plaćeno postavljanje – Ovo je vid oglašavanja u kome će se određeni listing pojaviti kada se ukucaju određeni ključni termini. Najviši rang pojavljivanja imaće oglašivač koji plati više u odnosu na ostale za određenu ključnu reč ili termin.

Oglašavanje preko video igara (Advergaming). Marketari su primetili da su video igre postale dobar način za predstavljanje brenda potrošačima. Oglašavanje unutar video igre omogućava im da dosegnu širok auditorijum, a posebno potrošače koji pripadaju starosnoj grupi između 18-34 godine. Po istraživanju eMarketara, kompjuterske i video igre danas igra veliki deo populacije – između 36 i 40 miliona ljudi. Očekuje se da će se ovaj broj do kraja 2009 godine povećati. Takođe, 43% od ukupnog broja konzumenata kompjuterskih i video igara, čine žene iznad 35. godine života. Prednost oglašavanja preko video igara jeste i nenapadnost. Potrošaču u svom šarenilu video igre reklama neće bosti oči i delovati napadno niti persuazivno. Sama ideja ovakvog vida oglašavanja potiče od oglašavanja na TV-u i u filmovima. Proizvod u video igri na neki način živi za sebe.

Postoje tri načina da se proizvod integriše u ovaj vid medija:

- a) može se staviti na bilbord za video igru,
- b) u samu igru, ili
- c) može se integrisati u naslov igre (*storyline*).

Primeri kompanija koji se na ovaj način oglašavaju su mnogobrojni - McDonalds u Tony Hawks podzemlju, Honda u igrici SSX3, brend Old Spice-a, Red Zone u video igri NCAA Football 2004. U svakom slučaju, brend se može dinamično oglašavati u realnom vremenu. Bihevorijski i kontekstualno oglašavanje Zadatak on-line oglašavanja jeste da pošalje pravu poruku u pravo vreme, tokom ciklusa u kome potrošač donosi odluku o kupovini proizvoda. Bihevorijski i kontekstualno targetiranje su noviji metodi on-line marketinga gde marketari imaju mogućnost da potrošaču pošalju relevantnu poruku u realnom vremenu. Kontekstualno oglašavanje daje mogućnost da se potrošač apeluje porukom čiji je sadržaj usmeren na informaciju koju oglašivač šalje a koju potrošač odmah može videti on-line. Npr. potrošač traži automobil koji će mu pružiti sigurnost i takve informacije traži na odgovarajućem Web sajtu koji sadrži sve informacije koje su mu potrebne (npr. o automobilima, motorima i sl.). Kada potrošač počne da čita članke o bezbednosti koji se nalaze na određenom sajtu, počinju da se prikazuju blokovi poruka u kojima može saznati

više o kompanijama i vozilima o kojima se u članku i piše. Npr. Mishelin Man poručuje najsigurnije gume na putu. Bihevorijsko oglašavanje je drugačije od kontekstualnog i bazira se na praćenju šablona ponašanja potrošača, odnosno onoga šta on traži (tzv. *click-stream data*). U skladu sa ustanovljenim raspoloženjem i šablonom ponašanja prikazuju se i reklame. Npr. potrošač može da provodi vreme istražujući članke o bezbednosti automobila ali će povremeno pogledati i linkove za npr. *Volvo*, pa će mu, simultano, on-line tehnologija u pozadini prikazivati oglase i za ovu marku automobila.

Shodno tome, Volvo može da organizuje on-line oglašavanje tako što će izaći u susret i potrošačima koji imaju specifične interese i šablone ponašanja (što će saznati po tome šta potrošači najviše traže na sajtu). Video oglašavanje Ova vrsta oglašavanja je sličnija onoj koja se može videti na TV-u. Iako se godinama radilo na njegovom razvoju i usavršavanju, može se reći da je glavni pokretač sve veća penetracija brzog konektovanja i Internet veza kako kod kuće tako i u poslovnim objektima. Skorija istraživanja pokazuju da više od 40% domaćinstava u SAD-u povezanost sa Internetom ostvaruje putem veoma brzih veza. Ovaj trend izdavačima i oglašivačima sada omogućava da kreiraju on-line video sadržaje. Npr. ESPN Motion postigao je veliki uspeh primenom modela koji ima sledeće karakteristike korisnici mogu skinuti određene sportske vesti ili komentare koje su u toku dana propustili. Sve što žele mogu videti na video klipovima koji traju od 15-30 sekundi.

INTERAKTIVNA TELEVIZIJA

Interaktivna televizija (I-TV) je medij koji postaje sve popularnija. Od nje se mnogo očekuje obzirom da za razliku Internet-a i on-line servisa, nije ograničena isključivo na vlasnike PC-a i ne zahteva posebna znanja za korišćenje. Radi se o mediju koji je omogućava univerzalni pristup. Zamišljena je kao "hibrid" televizije i kompjutera koji omogućava gledaocima ne samo da primaju audio vizuelne signale poslate od strane servisnog provajdera ili programiranog izvora, nego takođe i da komuniciraju sa ovim izvorima preko svojih ITV ekrana. Iako će se I-TV razvijati kao poseban proizvod njeni proponenti planiraju da opreme postojeće televizijske aparate sa određenim interaktivnim mogućnostima. Stoga I-TV postaje univerzalno dostupna pošto skoro sva domaćinstva imaju televizijski aparat. Pomoću I-TV-a, gledaoci će biti u mogućnosti da gledaju određeni događaj, npr., fudbalsku utakmicu i da prikupljaju ("skidaju") informacije o igračima, istoriji mečeva između timova i druge statistike, čak i bez napuštanja fotelje i utakmice (brojevi će se pojaviti u prozoru). Ili npr. u toku gledanja određene TV serije, ukoliko neki junak nosi nešto što je zanimljivo gledaocu, on može jednostavnim pomeranjem miša i klikom na određeni deo garderobe, u prozoru dobiti informacije u vezi boje, materijala, veličine i cene. Takođe on može da pogleda drugu odeću koju može da kombinuje i spaja sa datim delom garderobe (koju uvek može da naruči i bira uslove isporuke). Ukoliko je već ranije naručivao, informacije su uskladištene u bazi podataka; kada je u pitanju prva porudžbina od potrošača će se tražiti da lične informacije uključujući i broj kreditne kartice. On može izvršiti porudžbinu bez propuštanja minuta programa. Osim toga, gledaoci mogu pauzirati živi program, napraviti digitalni video snimak i trenutno odgovoriti. Servis takođe dozvoljava brzo premotavanje unapred, preskakanje programa i/ili traženje određene scene. Bez ulaženja u prognoze da li će interaktivna televizija biti prihvaćena i ući u široku upotrebu, sigurno je da će njen uspeh zavisiti od mogućnosti da zameni postojeće kanale komuniciranja. Najzad, tehnologija samo određuje mogućnosti, a

ponašanje auditorijuma određuje realnost. Da bi ih zamenila mora da ispuni određene informacione potrebe, kao i potrebe za zabavom i društvene potrebe njenih konzumenata.

CD ROM

CD ROM je medij komplementaran sa Internetom koji se sve više koristi kao oblik kumuniciranja sa specifičnim tržišnim segmentom potrošača. Ovaj novi medij je postao uobičajeno sredstvo za promovisanje i predstavljanje kompanija koje često prezentacioni katalog dopunjuju i svojom elektronskom ličnom kartom. Zahvaljujući njegovoj pojavi problem izbora adekvatnog propagandnog sredstva je delom rešen, bar kada je u pitanju efikasnost propagandne poruke- ciljna grupa je unapred poznata (ili bi trebalo da bude) i prema njoj se kreira sadržaj. U tome se i ogleda prednost CD ROM-a u odnosu na Internet koji postaje sve više zagušen. Velike firme koje se odluče da naprave svoj prezentacioni CD ROM preferiraju varijantu pune multimedijalnosti, dakle, objedinjavanje slike, teksta, zvuka, animacije i video zapisa uz veliki broj linkova. Neke kompanije mogu da uključe i animiranu igricu koja svojom duhovitošću može da izazove spontanu pozitivnu reakciju potencijalnog potrošača. Od nedavno se pojavljuju i CD ROM-ovi koji se dizajniraju po ugledu na Web sajtove tako da korisnik ima mogućnost da surfuje po sadržaju CD ROM-a pretražujući ga na način kako to čini na Internetu. Ovaj način olakšava pristup potrebnim informacijama onom segmentu gledalaca koji su navikli na model pretrage preko net-a. Osim velikog kapaciteta, CD ROM pruža i audio-vizuelne mogućnosti koje obezbeđuju atraktivnost prezentiranog sadržaja i višejezičkih opcija (na raspolaganju su svi svetski jezici). Istovremeno, postoji velika efikasnost u dolaženju do potrebnih informacija zahvaljujući mogućnosti momentalnog fokusiranja na temu koja korisnika interesuje. On takođe može momentalno da se vrati na početak, kraj ili na prethodnu stranu. Pored kretanja iz glavnog menija || u opcije (segmente CD ROMA-a) moguće je pregledanje jedne stavke paralelno kroz sve opcije. Na primer, asortiman proizvoda je moguće posmatrati po tržištima na koja se plasira, planovima proizvodnje, osvojenim tržištima i sl. CD ROM je komplementaran sa postojećim medijima. On može biti ekskluzivni oblik kumuniciranja ne samo zato što je dostupan samo pripadnicima definisane ciljne grupe čiji izbor određuje oglašivač, već i zbog svoje karakteristike multimedijalnosti sadržaja i pakovanja koje može biti dizajnirano na ekskluzivan naćn. Iz navedenog proistiće još jedna distinktivna karakteristika CD ROM-a, a to je da obezbeđuje visoku zainteresovanost publike. Dok se kod TV ili radio propagande poruka upućuje auditorijumu nezavisno od njihove spremnosti da je percipiraju na pravi naćn, dotle je korisnik CD ROM-a maksimalno skoncentrisan pošto je njegova uloga aktivna- sam pretražuje i dolazi do informacija koje ga interesuju i samostalno bira propagandni sadržaj koji će da percipira. Korisnik ima mogućnost ponavljanja pretrage jer mu je obezbeđena selektivnost pristupa prezentiranom materijalu u skladu sa njegovim trenutnim preferencijama i vremenom koje mu je na raspolaganju.

MOBILNI TELEFON KAO MEDIJ

U poslednje vreme promovisanje preko mobilnih telefona postalo je izuzetno popularno obzirom da ovaj medij poseduje karakteristike interaktivnosti. Primalac poruke

može da odgovori na tekstualnu poruku, čime se otvara mogućnost za dijalog. Do ranih devedestih, mobilni telefoni bili su isuviše veliki da bi stali u džep ili tašnu, pa su bili ugrađivani samo u automobile. Minimiziranjem njihovih komponenti i razvojem sofisticiranijih baterija, mobilni telefoni postali su manji i lakši. Mobilni telefon potrošaču nudi dosta sadržaja – pored slanja SMS poruka i poziva na glas (*voice call*), telefoni poseduju registar poziva, GPS navigaciju, MP3, RDS, alarme, planere, mogućnost da se pogleda video zapis, mogućnost da se snimi video zapis (video recording), različite zvuke za tonove zvonjave (ringtone), igrice, mogućnost korišćenja USB-a, Bluetooth, infrared, radio, povezanost sa Internetom i sl. Neki telefoni imaju i tzv. touch screen (ekran koji se pokreće dodiranjem prsta). Ukupna vrednost servisa koju pružaju mobilni telefoni prevazišla je vrednost servisa na Internetu. Potrošači najviše koriste servise za muziku, || skidanje || slika, video igre, kockanje, video, TV, i zabavu za odrasle.

Međutim, aplikacija koju potrošači najviše koriste je SMS, odnosno pisanje i slanje tekstualnih poruka. SMS je 2008. godine zaradio oko 100 milijardi dolara, a svaki dan samo jedna osoba pošalje u proseku oko 2.6 poruke. Kompanije kao što je npr. Monste.com počele su da pružaju usluge potrage za poslom ili davanja saveta oko karijere preko mobilnih telefona. Takođe, postoji mogućnost da potrošač uputi zahtev da mu se pošalje uputstvo kako da kreira sajt za telefon, da se informiše gde se događaju lokalne aktivnosti, kojim danima i gde su rasprodaje i sl. Potrošači preko mobilnih telefona mogu dobiti i kupone, koje će upotrebiti u narednoj kupovini i tako ostvariti popust. Mobilni telefon često nazivaju i tzv. četvrim ekranom (ukoliko se nadoveže na bioskop, TV I PC). Najnoviji sadržaji za mobilne telefone izuzetno su bogati u ponudi sadrže i mobisodes, odnosno video sadržaje kreirane specijalno za ovaj medij. Očekuje se da će upotreba ovog medija, kao sredstva za oglašavanje, biti u porastu obzirom na brzu tržišnu penetraciju, kao i mogućnost targetiranja potrošača i personalizacije sa njima.

ZAKLJUČAK

Marketing komuniciranje se značajno promenilo sa espanzijom Interneta i nove medijske tehnologije. Tradicionalni marketing izgubio je na značaju i efektivnosti kada je u pitanju apelovanje masovnog auditorijuma. Ranijih godina za marketare je bilo sasvim normalno da sve svoje resurse ulože u jedan kanal komuniciranja obzirom da je bilo sigurno da će na taj način poruka stići do masovnog auditorijuma. Novi koncept nalaže da kompanije moraju poznavati i razumeti svoj auditorijum, odnosno, moraju da znaju zbog čega potrošači preferiraju određeni vid medija. Takođe kompanije moraju jasno razumeti na koji način treba da integrišu glavnu poruku u situaciji kada postoji čitav spektar različitih kanala, kao i da pronađu najbolji način da efektivno komuniciraju određenu poruku, u vreme i na mestu koje potrošačima najviše odgovara.

U današnjem okruženju marketari moraju da integrišu komuniciranje kroz više kanala kako bi dosegli kritičnu masu potrošača koja će omogućiti nesmetani nastavak poslovanja. Razvoj Interneta je omogućio da kompanije razviju metode pomoću kojih izgrađuju odnose sa svojim auditorijumom. Web je promenio učešće kupaca u procesu marketing komuniciranja. Interaktivni mediji, posebno interaktivna TV, ipak još uvek nisu u potpunosti ispunili očekivanja. Indikacije sa tržišta govore u prilog njihovom daljem usavršavanju, naročito kada je u pitanju sadržaj. Tek tada će ovi mediji doživeti masovno prihvatanje i potpuno

uvažavanje od strane auditorijuma. Kako interaktivni mediji dalje napreduju, kompanije će morati da usvoje ove promene da bi se prilagodile —novim— potrošačima.

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STUDY OF STUDENTS' INDEPENDENCE AND CREATIVITY MOTIVES AND THEIR IMPACT ON ENTREPRENEURIAL SELF- EFFICACY

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Abstract: This study evaluates influence of students' motives toward independence and creativity on their entrepreneurial self-efficacy. The research model incorporated three factors: students' self-efficacy - confidence in her/his ability to successfully launch an entrepreneurial venture, motive of independence and motive of creativity. Firstly, factor structure of the investigated model was developed using explorative factor analysis (EFA) based on the sample of 320 Serbian students. Next, measurement model was tested using the sample of 2226 college students from following Balkan countries: Serbia, Macedonia, Croatia, Bosnia, Albania, Macedonia, Slovenia and Romania. Finally, effects of students' independence and creativity motives on their entrepreneurial self-efficacy were explored using structural equation modelling (SEM). Obtained results confirmed positive impacts of both students' independence and creativity motives on entrepreneurial self-efficacy. Also, differences in entrepreneurial self-efficacy, independence and creativity motives between students from different countries were investigated using Welch's ANOVA test.

Keywords: entrepreneurial self-efficacy, independence, creativity, SEM

MIKROFINANCE, SOCIAL AND FINANCIAL PERFORMANCE – CASE OF ALBANIA

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Abstract: Microfinance has proved to play an important role in alleviation of poverty. Defined as the provision of financial services to low-income people, the main objective of microfinance institutions is to become an efficient financial institution that offers a broad range of adequate products and services to a large numbers of households and small/medium enterprises at affordable costs.

Microfinance is confronted with a debate, in the center of which are two requirements: targeting the poorest among the poor (social performance) and enhancing the profitability of the institutions (financial performance). Most microfinance institutions (MFIs) have proved that their growth is thanks to both the performance in positively affecting people's live (social performance) and financial performance.

The aim of this study is to examine the determinants of social and financial performance of MFIs in Albania. Based on the MixMarket data and the annual reports of six MFIs in Albania over a ten-year period, this study uses a multiple regression model to relate financial and operational self-sufficiency to various explanatory variables. There is evidence that administrative expenses ratio, real portfolio yield, productivity, number of borrowers and average loan size are major determinants of performance for microfinance institutions that operate in Albania.

Keywords: microfinance, poverty, social performance, financial performance, Albania

1. INTRODUCTION

Microfinance promises to combat poverty and to develop the institutional capacity of systems, through finding ways to cost-effectively lend money to poor households (Morduch, 2000). The classical book of Armendariz and Morduch (2005) define microfinance as a set of a set of financial services including deposits, loans, payment services, and insurance products offered to the poor and low-income households and, micro-enterprises, which are run on commercial basis in contrast to other poverty alleviation programs.

But the big question is: if MFIs have their eyes to the poor (social performance) or their main objective is to achieve the profitability (financial performance)? The answer is an ongoing debate between two approaches: the welfarists' that are targeted on the poor clients and the institutionalists' with their main objective to achieve the financial performance of the institution.

On one hand, the welfarists' school targets the poorest clients, their families and their incomes that are below the poverty line (\$1 per day). A lot of studies argue that achieving social performance of MFIs through the deep of outreach lead to reduce poverty of poorest

(Morduch, 1998, 1999, 2000; Woller and al. ,1999; Dunford, 1998; Simanowitz and Walter, 2002; Hashemi and Rosenberg, 2006).

On the other hand, the institutionalists' school argue that "the best banking practices" are characterized by the absence of ceiling upon lending interest rates, good institutional and human capacity and transparency of financial activities (CGAP, 2004). The sustainability and the efficiency are most important component of the performance of MFIs (Rhyne, 1998; Christen, 2001). According to Woller and al. (1999), the best way to reach the large majority of the poor without access to financial services is to integrate microfinance in the formal system. In order to reach financial autonomy, each MFI should aim at financial sustainability by maximizing its effectiveness and its productivity. Based on win-win approach, Morduch (2000) argues that the best microfinance practices are able to fight successfully the poverty.

2. OBJECTIVE

This study explores potential factors influencing social and financial performance of MFIs in Albania and its purpose is to answer the question: which factors are related with financial and operational self-sufficiency for MFIs in Albania?. The study focuses on the activity of six MFIs in Albania over the period January 2005-December 2014.

3. THEORETICAL BACKGROUND

Microfinance promises both to combats the poverty and to develop the institutional capacity of financial systems, through finding ways to cost-effectively lend money to poor households (Morduch 2000). In 1997, the World Microcredit Summit and also in 2005, the International Year for Microcredit, microfinance institutions (MFIs) have been promoted as a relevant instrument of struggle against poverty in developing countries. Poor people are defined in monetary terms by the Word Bank based on two thresholds: 1\$ or 2\$ a day per capita (CGAP 2003). Moreover, the poorest are those who belong to the lower half of the groups of people who live beneath the 1\$ a day per capita poverty threshold. According to Navajas et al. (2000), MFIs provide loans to households that are near the poverty line, but most of them are "the richest" amongst the poor. Similarly, Morduch (2000), Conning (1999), Cull et al (2007) are sceptical of the optimistic belief that microfinance can both combats the poverty and insures profitability. Morduch (1998) defined as "microfinace schism" , the trade-off between targeting the poor and ensuring the profitibility of MFIs.

Microfinance is characterized by a debate between two approaches: welfarists and institutionalists. The first approach is focus on the very poor clients of microfinance and emphasize the fast improvement of their life. Based on this, Woller et al. (1999), consider welfarists to be a school of measurment of the poverty. The multidimensional nature of the poverty is related with the social performance of MFIs, especially the measurment of outreach. Schreiner (2002) has determined six dimensions of outreach and each one correspond to a component of social value: worth, cost, scope, length, depth, and breadth of outreach. The first corresponds to the wealth of the clients, the second to transactions costs, the third to the number of the clients served, the fourth to the time delivery for requested services, the fifth to the accuracy of targeting and the sixth to the number of services that are provided. The second approach is focused on the profitibility of microfinance institutions and

emphasize on self-sufficiency, based on financial resources generating from donors and investors.

Lets now consider some of the studies related with the field of microfinance.

Woller and Schreiner (2002) suggest that financial self-reliance and outreach can jointly be reached. Olivares-Polanco (2005) apply a multiple regression analysis using loan size, return on assets and other determinants and conclude on a trade off between social and financial performance. Moreover, Cull et al. (2006) have proven this trade off by considering models of profitability. They conclude in differences between three types of institutions, individual lenders, solidarity groups and village co-operatives.

Rosenberg (2002) suggests to measure the performance of MFIs using a few variables, like outreach (both in depth and in breath), collection performance, financial sustainability and efficiency.

Using data generating from the clients of Bancosol in Bolivia, Navajas et al. (1998) result on the trade-off between targeting the poor and profitability. Hartarska (2005) studies in a multidimensional context the determinants of the performance of MFIs in Central and Eastern Europe.

Luzzi and Weber (2006) study 45 MFIs for the period 1999-2003. In their study, they combine several variables, both social and financial, in a factor analysis, and trade-off is proven for most MFIs. Applying factor analysis and estimating a seemingly unrelated regression (SUR) model they assess the determinants of performance, which are interest rate, number of clients per loan officer, competitiveness and number of days for processing a first loan.

Cull et al (2006) use three types of models based on profitability, loan refunding and cost reduction for 129 MFIs in 49 countries. They prove the trade-off between financial and social performance by applying three models for three types of institutions: individual lenders, lenders of solidarity groups, village co-operatives and conclude that in one hand individual lenders charge the highest interest rates, ensuring a better refunding performance , but in the other hand staff cost devoted to identify borrowers worthy of higher amount loans make them less likely to serve the poorest clients.

Olivares-Polanco (2005) apply a multiple regression based on data generating from 28 Latin-American MFIs. They confirm the trade-off between financial and social performance by using different variables like: the loan size as the dependent variable and the age, the status, regulation, and competition of the institution as independent variables, but none of them are statistically significant.

4. RESEARCH QUESTIONS AND HYPOTHESES

Based on the above-mentioned discussion, this study seeks to answer the following question:

- What are the potential factors impacting social and financial performance of MFIs in Albania?

Consistent with the research questions raised, the following hypotheses are derived:

H1: There is a significant impact of efficiency on financial/operational self-sufficiency.

H2: There is a significant impact of productivity on financial/operational self-sufficiency.

H3: There is a significant impact of portfolio at risk on financial/operational self-sufficiency.

H4: There is a significant impact of outreach on financial/operational self-sufficiency.

According to Christen (2000), the two determinants that are related with financial self-sufficiency are: the rate of administrative expenses and the real portfolio yield. The rate of administrative expenses shows the value of total inputs needed for the production of the given output, measured by loans. This is the useful determinant of institutional efficiency. An increase in the rate of administrative expenses is supposed to be related with a decrease of financial self-sufficiency, and vice versa. The portfolio yield is percentage that shows the average gross returns as a proportion of the portfolio outstanding. In other words, it is the initial indicator of an institution's ability to generate revenue with which to cover its financial and operating expenses. An increase in the portfolio yield is supposed to be related with an increase of financial/operational self-sufficiency and vice versa. The following hypothesizes about the microfinance institutions in Albania are formulated based on these arguments:

H1a: There is a significant impact of administrative expenses on financial/operational self-sufficiency.

H1b: There is a significant impact of portfolio yield on financial/operational self-sufficiency.

Based on the theoretical views, different authors support thesis that the performance of MFIs depends on the quality of the determinants of productivity. In their research they conclude that microfinance can acquire a lot of profits if it raises the productivity in the long term. Some of the components of productivity are: cost per borrower, productivity of staff, productivity of loan officer and allocation of staff.

The following hypothesizes are formulated based on these arguments:

H2a: There is a significant impact of cost per borrower on financial/operational self-sufficiency.

H2b: There is a significant impact of productivity of staff on financial/operational self-sufficiency.

H2c: There is a significant impact of productivity of loan officer on financial/operational self-sufficiency.

H2d: There is a significant impact of allocation of staff on financial/operational self-sufficiency.

The portfolio at risk (PAR >30) is measured as the percentage of non-earning assets or the sum of the level of loans past due 30 days or more and is supposed to be associated with financial/operational self-sufficiency, so we can formulate the following hypothesis:

H3: There is a significant impact of portfolio at risk on financial/operational self-sufficiency.

As it is mentioned in the literature (Woller and Schreiner, 2002), the two important indicators of outreach are the number of borrowers and the average loan size. The first is the

indicator of breadth of outreach and is supposed to be positively related to the financial/operational self-sufficiency. The second is the indicator of depth of outreach and is supposed to be inversely related to the financial/operational self-sufficiency. Traditionally, the relationship between the depth of outreach and the self – sufficiency is multidimensional because of the social and financial aspects that these two indicators indicate. According to Emerson (2000), when we consider these two indicators “we are artificial”. The following hypothesizes are:

H4a: There is a significant impact of number of borrowers on financial/operational self-sufficiency.

H4b: There is a significant impact of average loan size on financial/operational self-sufficiency.

5. METHOD

Subjects & Procedure. Data were collected through MixMarket and annual reports of six microfinance institutions that operate in Albania, during the period January 2005-December 2014, including ASC Union, Besa, FAF-DC, NOA-ALB, ProCredit Bank ALB, and VisionFund Albania.

5.1. INDEPENDENT VARIABLES

Drawing on the existing literature, to select research questions, six determinants of social and financial performance were used in this study: efficiency with two determinants: administrative expenses and real portfolio yield, productivity, portfolio at risk, and outreach with two determinants: number of borrowers and the average loan size.

Efficiency. To measure efficiency, two items were included in the study: the administrative expenses and the real portfolio yield.

Productivity. To measure productivity, from four items only two items were included in the study: the staff productivity and the productivity of loan officer. A principal component analysis, using eigenvalue greater than one criterion, revealed a simple structure with factor loadings 0.977. This factor explained 75.04% of the total variance. The results of the reliability analysis indicated a Cronbach alpha of 0.797.

Portfolio at Risk. To measure portfolio at risk, only one item, the value of portfolio at risk (PAR >30), was included in the study.

Outreach. To measure outreach, two items were included in the study: the number of borrowers and the average loan size.

5.2. DEPENDENT VARIABLES

In order to measure the self-sufficiency of MFIs in Albania, two dependent variables were used in this study: financial and operational self-sufficiency.

Financial self-sufficiency is defined by the MicroBanking Bulletin, CGAP and MixMarket as the ratio of adjusted operating income to adjusted operating expense. Financial self-sufficiency requires the ability to cover at least 99.5% of expenses exclusive subsidies or grants. For each institution we have filled this indicator based on the annual data from 2005 to

2014. Financial self-sufficiency indicates whether or not enough revenue has been earned to cover both, direct costs - including financing costs, provisions for loan losses, and operating expenses - and indirect costs, including the adjusted cost of capital.

Operational self-sufficiency is a percentage (%), which indicates whether or not enough revenue has been earned to cover the MFI's total costs – operational expenses, loan loss provisions and financial costs. For each institution we have filled this indicator based on the annual data from 2005 to 2014.

6. RESULTS

To explore the *determinants of social and financial performance* of MFIs in Albania, we performed *two multiple regression analyses*, using respectively financial and operational self-sufficiency as the dependent variables. The six determinants of social and financial performance of MFIs in Albania: efficiency with two determinants, productivity, portfolio at risk, outreach with two determinants as the independent variables. Below we present only the variables that were found to be marginally significant or significant.

In the *first model*, we entered the five *determinants of social and financial performance* as the independent variables and *financial self-sufficiency* as the dependent variable. The results indicated that the model was highly significant ($p = 0.000$); however, portfolio at risk variable was not significant. Dropping the variable that was not significant and re-running the regression analysis, we found the model to be highly significant ($F(5,54) = 144.18$, $p = 0.000$); adjusted R^2 was 93%. The remaining significant variables were: administrative expenses ($p = 0.001$), real portfolio yield ($p = 0.084$), productivity ($p = 0.000$), number of borrowers ($p = 0,057$) and average loan size ($p = 0.000$).

In the *second model*, we entered the five *determinants of social and financial performance* as the independent variables and *operational self-sufficiency* as the dependent variable. The results indicated that the model was highly significant ($p = 0.000$); Dropping the variables that were not significant: portfolio at risk and number of borrowers and re-running the regression analysis, we found the model to be highly significant ($F(4,55) = 77.3$, $p = 0.000$); adjusted R^2 was 84,9%. The remaining significant variables were: administrative expenses ($p = 0.000$), real portfolio yield ($p = 0.000$), productivity ($p = 0.002$), and average loan size ($p = 0.004$).

A summary of the results is presented in Table 1.

Table 1. Summary of Results

Hypotheses	Supported or Not
H1a: There is a significant impact of administrative expenses on financial/operational self-sufficiency.	Supported
H1b: There is a significant impact of portfolio yield on financial/operational self-sufficiency.	Supported/ Supported
H2: There is a significant impact of productivity on financial/operational self-sufficiency.	Supported/ Supported
H3: There is a significant impact of portfolio at risk on financial/operational self-sufficiency.	Not Supported/ Not supported
H4a: There is a significant impact of number of borrowers on financial/operational self-sufficiency.	Supported/ Not supported
H4b: There is a significant impact of average loan size on financial/operational self-sufficiency.	Supported/ Supported

7. CONCLUSION AND FUTURE RESEARCH

This study investigated the potential factors, such as administrative expenses, portfolio yield, productivity, portfolio at risk, number of borrowers and average loan size impacting financial and operational self-sufficiency. The results of the study indicated that there are significant relationships between administrative expenses, real portfolio yield, productivity, number of borrowers, average loan size and financial self-sufficiency.

Furthermore, there are significant relationships between administrative expenses, real portfolio yield, productivity, average loan size and operational self-sufficiency. Therefore, it is important to note that the microfinance in Albania has quickly evolved from a start-up sector to a profitable and a sustainable industry. The speed at which the country achieved financial self-sufficiency is of particular importance. Most of the microfinance institutions strive to reach financial self-sufficiency to cover costs and attract investment.

One of the key limitations of the study is the small sample size taken into analysis, which is a consequence of the relatively short time of activity of microfinance institutions in Albania. Also, considering more factors as independent variables, especially macroeconomic variables suggested by many authors in this field, can be an additional limitation to this study.

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DIFFERENCES IN CONCEPTUAL MODELS OF ENTREPRENEURIAL INTENTIONS BETWEEN SLOVENIA AND AUSTRALIA

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Abstract: This paper examines factors of entrepreneurial intentions for Slovenia and Australia. Since many economic and cultural differences between the two countries exist, the objective of the study was to establish whether there are also any important differences between Slovenian and Australian model of entrepreneurial intentions. Our study is based on the Adult population survey (APS) that is taking place within the Global Entrepreneurship Monitor (GEM) research project. In the study data collected within APS in the 2014 were used. In the first phase of the study the links between human capital and demographic characteristics of individuals, their perceptions of cultural support for entrepreneurship, role models, opportunity perception, entrepreneurial experience and entrepreneurial intentions were analyzed. In the next phase it was checked whether there were any country differences in the relationships between variables in the model. As a result, it was found that actually not many differences between Slovenian and Australian model of the entrepreneurial intentions exist; the differences were determined only regarding two variables, namely age and entrepreneurial experience. The entrepreneurs in Australia who have entrepreneurial experiences are more likely to perceive entrepreneurial intentions than those in Slovenia. In the Slovenian model though, a more important effect of age on entrepreneurial intentions can be observed, when compared to that in the Australian model. Young individuals in Slovenia tend to perceive more entrepreneurial intentions, as compared to older ones, than their Australian counterparts. The study also indicates that for Slovenian adult population one of very important factors in entrepreneurial intentions creation is to know a successful entrepreneur, which then has a significant impact on their entrepreneurial intentions creation, while for their Australian counterparts, this factor remains insignificant. The interesting conclusion of the study is that despite many differences in development and those regarding cultures, entrepreneurial intentions are shaped similar in both countries.

Keywords: Entrepreneurial intentions, motivational antecedents, cultural and developmental differences.

1. INTRODUCTION

In this paper we focus on the entrepreneurial intentions, that are often considered as the first step in the process of venture creation. When following the cognitive theories literature, the model of entrepreneurial event [1] and the theory of planned behavior [2] are found as the main theoretical baselines. In this paper the theoretical background is presented along with review of empirical analyses of entrepreneurial intentions from different viewpoints. The main foundations for our research is the relationship between entrepreneurial intentions of individuals and variables describing Ajzen's antecedents to entrepreneurial

intentions [3] in the model of entrepreneurial intentions. Additionally, present study is focused on the two countries, Australia and Slovenia. Despite the fact that the countries are culturally and economically different, the purpose of the study was to determine whether there are differences in the conceptual model, which reflects the theory of entrepreneurial intentions, for two different countries.

The model we formed does not allow the identification of causal effects among antecedents of entrepreneurial intentions and entrepreneurial intentions themselves, but nevertheless our study contributes to clarifying the importance of these variables on entrepreneurial intentions of individuals in Australia and Slovenia. The important objective of the study was to find significant differences between conceptual models of entrepreneurial intentions for Slovenia and Australia.

Economic development, along with the creation of employment as well as the overall well-being, rely (among other factors) on the quantity, and, even more important, on quality of entrepreneurial activity and entrepreneurial eco-system within the economies [4,5,6,7,8] As already mentioned, this researched is aimed at the start-up process, more precisely, we analyze one step before the actual venture creation, namely the process of entrepreneurial intentions creation. While one option of fostering economic development on the basis of entrepreneurship is to stimulate established entrepreneurs to develop their companies, another one is to motivate and encourage the adult population to start their own entrepreneurial careers. In this paper, we are interested in the latter.

2. THEORETICAL REVIEW¹²

In the theory of entrepreneurial event, Shapero and Sokol [1] focused specifically on the behavior of engaging in entrepreneurial activity and argued that entrepreneurial intentions depend on an individual's perception of the relative credibility of alternative behaviors and a propensity to act. The credibility refers to perception of behavior as both desirable and feasible. Propensity to act refers to a person's ability of initiating and maintaining goal-directed behaviors.

In the theory of planned behavior [3], antecedents to entrepreneurial intentions are attitude toward the behavior, subjective norm and perceived behavioral control. The actual entrepreneurial behavior depends also on several non-motivational factors as availability of opportunities as well as required funding. Entrepreneurial intentions are shaped also by culture, as well as by the level of development of economic system.

As Ajzen pointed out [3] antecedents must be assessed in the relation to the particular behavior of interest. In the context of entrepreneurial intentions personal attitude toward start-up refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the entrepreneurship. Subjective norm refers to the perceived social approval or pressure to perform or not perform the entrepreneurial behavior, while perceived behavioral control refers to the perceived ease or difficulty of performing the entrepreneurial activity and the perception about the controllability of the behavior [9].

Krueger and Brazeal [10] combined two dominant models of behavioral intentions, Ajzen's theory of planned behavior [3] and Shapero's theory of entrepreneurial event models

¹² This theoretical review is also partly included into the paper, presented at the conference Annual South East European Doctoral Student Conference 2015, authors Tominc and Šebjan.

[1,11] into the entrepreneurial potential model. Krueger et al. [12] also compared the theory of planned behavior and theory of entrepreneurial event models in terms of their ability to predict entrepreneurial behavior. They found that results offered a strong statistical support for both models.

Theory of planned behavior considers that intentions describe a self-prediction to engage in a behavior. Many studies have supported the predictive validity of intentions on actual behavior [13]. In general, the stronger the intentions to engage in a behavior, the more likely should be its performance; however, as Ajzen [3] pointed out, the performance (actual behavior) depends also on several non-motivational factors as availability to requisite opportunities and resources. Behavioral achievement therefore depends jointly on motivation (intention) and ability (behavioral control) – this idea is extremely important in the field of entrepreneurship. Douglas and Shepard [14] stated that no actual entrepreneurship will occur without sufficient opportunities and required funding, even if there are the strongest entrepreneurial intentions.

The venture creation process includes at least three main stages: the “discovery” of opportunities, their evaluation and their exploitation [15]. Variation among people in their motivations and abilities to act has an important effect on all phases of the venture creation. As Shane, Locke and Collins [16] explain, the attributes of people making decisions about the entrepreneurial process influence the decisions they make. All human actions are the result of motivational and cognitive factors on the one hand and also the result of external factors, on the other hand. While entrepreneurial motivation includes a set of personality traits, such as a need for achievement, locus of control, desire for independence, goal-setting etc., cognitive factors include ability, intelligence and skills. External factors in their model refer to economic environmental conditions, such as the status of the economy, the availability of venture capital, government regulations etc. As past research results show the perceived approval of social environment for the decision to start up an entrepreneurial career may also be an important factor. In the past studies included this element differently [17,18] while other studies omitted it [19]. The expected support for entrepreneurship in the society and support of role model or mentor [12] is expected to have the important impact on venture creation. Other entrepreneurs can function as role models and make entrepreneurship a more attractive career option for others. In explaining variations regarding the entrepreneurship process across countries, much attention is also devoted to cultural variables [20,21] as well.

As Shane, Locke and Collins suggest [16], the transition of individuals from one stage of entrepreneurial process to another is the result of the combination or integration of motivation and cognition. Furthermore, environmental conditions and entrepreneurial opportunities matter, while the motivations and ability of particular people might lead to different types of entrepreneurial actions under the same environmental conditions.

Table 1. Aggregate country measures (in % of the adult population of age 18 – 64 years old)

Country	Media attention	Entr. skills	Role models	Entr. experiances
Australia	69.6	46.1	27.6	24.8
Slovenia	55.9	47.1	40.0	12.3

In Table 1 the aggregate country measures that are used in the present research at the individual level are presented. These aggregate measures are – percent of adult population of age from 18 to 64 years old, that: believed that in their country, they often see stories in the public media about successful new businesses (Media attention); believed to have the knowledge, skills and experiences required to start a business (Entr. skills); answered that they knew someone personally, who started a business in the previous two years (Role models); had previous entrepreneurial experience (Entr. experi.).

In the context of economic development, the early stage entrepreneurship is often studied by the total early stage entrepreneurial activity (TEA) rate—that is, as already mentioned, the prevalence rate of individuals in the working age population who are actively (as owners and managers of firms) involved in business start-ups, either in the phase in advance of the birth of the firm (nascent entrepreneurs) or in the phase of spanning over 42 months after the birth of the firm (new entrepreneurs) [22], with the birth of a firm considered as a time when the firm is paying wages for more than three months. Based on the GEM research, researchers reported that TEA rates in general decline with increasing levels of GDP per capita, up to a certain point. In the resent research, a country’s entrepreneurial intention rate is defined as prevalence of working-age individuals who intend to start a business in the next three year. The overall Global Competitive Index (GCI-overall) and GDP per capita in year 2015 for the ten most succcessfull countries and Australia and Slovenia are presented in Figure 1.

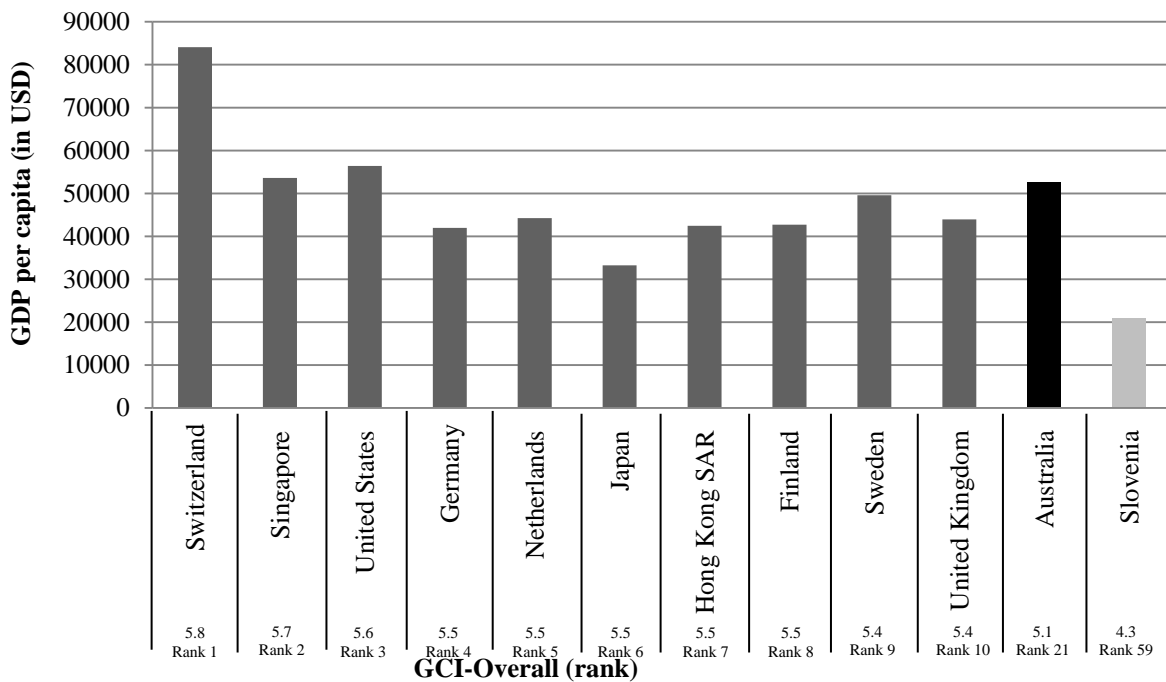


Figure 1. GDP per capita and GCI-overall (2015) [35,36]

The research of national culture and entrepreneurship can be classified into three important streams: the impact of national culture on the aggregate indicators of entrepreneurship; the relationship between national culture and individual characteristics of entrepreneurs; and corporate entrepreneurship and national culture [23]. Hofstede [24] defined national culture as the underlying value systems hat are specific to a group or society and

motivate individuals to behaving a certain way. Several studies have examined personality traits and norms, persuasive messages, motivational perceptions, barriers in the context of entrepreneurial intentions in different national cultural areas [9,25,26,27].

The differences of perceived entrepreneurial intentions cross cultural aspects can exist due to the social status and economic remuneration of entrepreneurs in comparison with those enjoyed by employees in established companies [28]. Shinnar et al. [29] have examined how culture shape entrepreneurial perceptions and intentions within Hofstede's cultural dimensions framework. They found that culture plays an important role in how gender moderates the relationship between perceived barriers and entrepreneurial intentions. Iakovleva et al. [30] also found that persons from developing countries also score higher on the theory's antecedents of entrepreneurial intentions – attitudes, subjective norms, and perceived behavioural control – than persons from developed countries. Fitzsimmons and Douglas [31] have investigated the relationship between entrepreneurial attitudes and abilities and entrepreneurial intentions across four countries, India, China, Thailand and Australia. Entrepreneurial attitudes were found to be significant in explaining entrepreneurial intentions with cross-cultural differences apparent. They found that the cross-cultural results suggest that entrepreneurial attitudes can to some extent explain differences in entrepreneurial intentions.

3. METHODOLOGY

3.1. SAMPLE

One of the largest worl-wide research projects that focuses on entrepreneurial activity (particularly on the early-stage entrepereneursrhip) is Global Entrepreneurship Monitor (GEM) research. GEM is a project carried out since 1999, and within this research large empirical data sets in each participating cuntry are used to study and understand the relationship between entrepreneurship, several factors that have impact on entrepreneurial activity of population and national economic development. GEM enables research and analyses of the characteristics, relationships and dependencies at the individual level as well as on aggregate country level. Slovenia and Australia are both participating in GEM research, almost from the beginnings, when GEM initiative started.

GEM research is based on four major data sources: adult population surveys (APS), interviews and questionnaires completed by national experts, and assembly of relevant standardized measures from existing cross-national data sets. Within APS a representative sample of 2,000 adults is interviewed in each country using a standardized questionnaire, translated into the official language of each country. Respondents in all countries are asked precise questions about their involvement in, and attitudes towards, entrepreneurship. This is very important for providing the harmonized data sources that serve as a rich basis for comparative research from several viewpoints.

The data used in the present study were collected within the 2014 Global Entrepreneurship Monitor research cycle, Representative samples of the adult population were surveyed, with respondents' weighting factors that take into account age and gender distribution of samples in order to match the standardized U.S. Census International Data Base. A detailed data collection design within GEM is reported by Reynolds et al. [32]. Sample characteristics in Slovenia and Australia are presented in Table 2.

Table 2. Characteristics of national samples

Country	Sample size	Number of males in the sample	Number of females in the sample	Average age (in years)
Australia	2,177	917	919	40.1
Slovenia	2,004	1,029	975	42.3

3.2. DATA ANALYSIS

In this research logistic regression is used to estimate the likelihood of an individual's intention to start a business in the next three years. We used the binomial logistic regression [33] that estimates the probability of an event happening, which in our case was the presence of the entrepreneurial intentions by an individual or not. The dependent variable is entrepreneurial intention, while explanatory variables were defined as follows.

Human capital and demographic variables:

- *Age* of an individual - categorical variable: 18-24 years, 25-34 years, 35-44 years, 45-55 years, 55-64 years old.
- *Gender* is binary variable: 0 for males and 1 for females.
- *Education*: education was taken into account as the binary variable, having value of 0 if an individual holds secondary degree or less and 1 otherwise.
- *Confidence in one's skill*: Respondents were asked if they believed to have the knowledge, skills and experiences required to start a business. This measure is binary variable (1 = Yes, 0 = No).
- Cultural and role models variables:
 - *Media attention for entrepreneurship*. Respondents were asked if they believed that in their country, they often see stories in the public media about successful new businesses. The measure is binary variable (1 = Yes, 0 = No).
 - *Role models or mentor*: Respondents were asked whether they knew someone personally, who started a business in the previous two years. The measure is binary variable (1 = Yes, 0 = No).
- Opportunity perception variable:
 - *Opportunity perception*: respondents were asked if they believed that, in the 6 months following the survey, good business opportunities would exist in the area where they lived. The measure is binary variable (1 = Yes, 0 = No).
- Entrepreneurial experience variable:
 - *Entrepreneurial past experience*: Respondents were classified as individuals with past entrepreneurial experience (nascent, new or established entrepreneurs or those who exited an entrepreneurial career in the past) or as non-entrepreneurs. This measure is also a binary variable: 1 = an individual with past entrepreneurial experience, 0 = non-entrepreneur.

Maximum likelihood estimations were used to estimate the coefficients of logistic regression function, which denote changes in the log odds of the independent variable. The goodness of fit of the model was assessed by the Model χ^2 , the rate of correct classifications and the Nagelkerke R^2 . In order to test whether the inclusion of predictor variables led to

statistically significant improvements of the model we used the Blok χ^2 . In order to test the significance of the regression coefficient we used the Wald test. The 0.05 (two-tailed) significance level was used.

4. RESULTS

Table 3 shows the results for the model of logistic regression for Australia, which indicate that the logistic regression model is significant at 0.000 level (model Chi-square = 510.304, $p < 0.001$), that the percentage of correct predictions is 87.4%, as well as that the Nagelkerke R^2 equals 0.098. Nevertheless, 90.2% of variance is unexplained, indicating that additional variables, not included into the model, also have the impact on intentions of individuals for starting an entrepreneurial career in the future (such a result is similar to other studies addressing similar issues (for example [34]). Results from the logistic model indicate that age ($\beta = -0.027$, $p < 0.001$), education ($\beta = -0.070$, $p < 0.001$), confidence in one's skills ($\beta = 0.494$, $p < 0.05$), opportunity perception ($\beta = 0.679$, $p < 0.001$) and entrepreneurial experience ($\beta = 0.667$, $p < 0.01$) have a significance effect on the intentions of individuals for starting an entrepreneurial career in the future.

Table 3. Logistic regression model for Australia

Variable	Model		
	Coeff. B (S.E.)	Wald	Exp(β)
Gender	0.142 ^{n.s.} (0.174)	0.665	1.153
Age	-0.027 ^{***} (0.007)	15.577	0.973
Education	-0.070 ^{***} (0.701)	0.148	0.932
Confidence in one's skills	0.494 [*] (0.198)	6.249	1.639
Media attention	-0.009 ^{n.s.} (0.196)	0.002	0.991
Role models	0.165 ^{n.s.} (0.190)	0.750	1.179
Opportunity perception	0.679 ^{***} (0.180)	14.186	1.971
Entrepreneurial experience	0.667 ^{**} (0.204)	10.647	1.949
Constant	-1.982 ^{***} (0.422)	22.014	0.138
Model χ^2 (df)	70.354 ^{***} (8)		
-2LL	931.917		
Nagelkerke R_N^2	0.098		
Cox & Snell R_{CS}^2	0.052		
% of correct predictions	87.4		

Notes: *** significant at $p < 0.001$; ** significant at $p < 0.01$; * significant at $p < 0.05$; n.s. not significant

The Table 4 shows the results of multiple logistic regressions for Slovenia. Results of both Nagelkerke R_N^2 (0.226) and 2LL (885.954) indicate a good model fit. In the table is also presenting, the level of predictive accuracy of the model, reveals that more than 87.9 percent of the cases were correctly classified. Results from the logistic model indicate that age ($\beta = -0.076$, $p < 0.001$), confidence in one's skills ($\beta = 0.883$, $p < 0.001$), role model ($\beta = 0.599$, $p <$

0.01) and opportunity perception ($\beta=0.691$, $p < 0.01$) have a significance effect on the intentions of individuals for starting an entrepreneurial career in the future.

Table 4. Logistic regression model for Slovenia

Variable	Model		
	Coeff. B (S.E.)	Wald	Exp(β)
Gender	-0.283 ^{n.s.} (0.184)	2.352	0.927
Age	-0.076 ^{***} (0.008)	87.304	0.927
Education	0.231 ^{n.s.} (0.208)	1.586	1.260
Confidence in one's skills	0.883 ^{***} (0.197)	20.122	2.417
Media attention	-0.277 ^{n.s.} (0.177)	2.436	0.758
Role models	0.599 ^{**} (0.187)	10.312	1.821
Opportunity perception	0.691 ^{**} (0.209)	10.953	1.997
Entrepreneurial experience	-0.146 ^{n.s.} (0.253)	0.331	0.864
Constant	0.431 ^{n.s.} (0.434)	0.987	1.539
Model χ^2 (df)	175.667 ^{***} (8)		
-2LL	855.954		
Nagelkerke R_N^2	0.226		
Cox & Snell R_{CS}^2	0.117		
% of correct predictions	87.9		

Notes: *** significant at $p < 0.001$; ** significant at $p < 0.01$; n.s. not significant

In the Table 5 results regarding differences in strength and relative importance of individual relationships among variables for Slovenian's and Australian's entrepreneurs are presented. The significant difference is found regarding the relationship between the age and the intentions of individuals for starting an entrepreneurial career in the future ($p < 0.001$), and the relationship between the entrepreneurial experience and the intentions of individuals for starting an entrepreneurial career in the future ($p < 0.01$), since the relationship is significant for Slovenian's and Australian's entrepreneurs.

Table 5. Results of t-test for two logistic regression models

Variable	Australia		Slovenia		Aus-Slo	t-value
	Coeff. B	S.E.	Coeff. B	S.E.	Coeff. B	
Gender	0.142	0.174	-0.283	0.184	0.425 ^{n.s.}	1.680
Age	-0.027	0.007	-0.076	0.008	0.049 ^{***}	4.628
Education	-0.070	0.701	0.231	0.208	-0.301 ^{n.s.}	-0.398
Confidence in one's skills	0.494	0.198	0.883	0.197	-0.389 ^{n.s.}	-1.390
Media attention	-0.009	0.196	-0.277	0.177	0.268 ^{n.s.}	1.001
Role models	0.165	0.190	0.599	0.187	-0.434 ^{n.s.}	-1.625
Opportunity perception	0.679	0.180	0.691	0.209	-0.012 ^{n.s.}	-0.044
Entrepreneurial experience	0.667	0.204	-0.146	0.253	0.813 ^{**}	2.250

Notes: *** significant at $p < 0.001$; ** significant at $p < 0.01$; ^{n.s.} not significant

5. CONCLUSION

In this paper, we studied two conceptual components of entrepreneurial intentions for Slovenia and Australia. In both conceptual models the same variables were included. Despite the many cultural and economic differences between the two countries, the aim in our paper was to ascertain the existence of differences between the conceptual model of entrepreneurial intentions. Differences in the conceptual models were found regarding two variables. The Australian model showed that entrepreneurial intentions are significantly related to the education and entrepreneurial experience. In the Slovenian model these two variables were not significant. It was also found that in the Slovenian model of entrepreneurial intentions the significant variable was role models - mentors, which was not significant in the Australian model. If we compare both conceptual models we can see that for Australian adults the perceived opportunities and experiences were significant when perceiving entrepreneurial intentions, whereas for Slovenian adults the perceived entrepreneurial skills, perceived opportunities and rolemodels – mentors were significantly important. If we compare the results of the links between the variables of both conceptual models, we can conclude that not large volume of differences were found. This indicates the the theory of entrepreneurial intentions, regardless of the geographic or economic environment of entrepreneurship, can be confirmed. However, we did find that there are two differences regarding the relationship between variables. Differences were detected regarding the relationship between the entrepreneurial experience and entrepreneurial intentions, and the relationship between age and entrepreneurial intentions. The relationship between entrepreneurial experience and entrepreneurial intention in the Australian model was significantly stronger as compared to the Slovenian model, while in the Slovenian model the relationship between age and entrepreneurial intentions was negative and significantly stronger as compared to the Australian model.

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UPRAVLJANJE PRIVATNIM SREDNJIM ŠKOLAMA – STRATEGIJSKA INTENCIJA DRŽAVE

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Apstrakt: U ovom radu se razmatraju osnovni rezultati u oblasti upravljanja razvojem privatnih srednjih škola na međunarodnom planu i Srbiji. Shodno tome u radu se ukazuje na razloge koji su uzrokovali potrebu za drugačijim sagledavanjem upravljanja i razvoja u situaciji kada je obrazovna ustanova usmerena ka tržištu obrazovanja i kada razvoj zavisi od kompetentnosti upravnog organa. Status privatnog školstva u EU i zemljama u tranziciji, sudeći po njihovim iskustvima, ne može se tretirati kao jasan i određen, to jest ne može se prihvatiti kao jedinstveni uzor ili model koji bi se mogao primeniti univerzalno. U traženju oblika i načina funkcionisanja privatnog obrazovanja zemlje Evropske unije su išle specifičnim međusobno različitim putevima. Ipak zajedničko je shvatanje privatnog obrazovanja kao alternativnog i dopunskog državnog sektoru u većini zemalja. Opšti zaključak koji se iz navedenog može izvesti da je stanje u oblasti upravljanja privatnim srednjim školama u Evropi i Srbiji heterogeno i u osnovi loše, a ovim radom se teži unapređivanju tog stanja.

Ključne reči: Upravljanje, obrazovanje, tržište, razvoj.

1. UVODNE NAPOMENE

Po svojim univerzalnim implikacijama, uvođenje i tretiranje tržišne ekonomije obuhvatilo je i oblast svih nivoa i vrsta obrazovanja. To se naročito ogleda u strukturama upravljača obrazovnih ustanova i u plaćanjima troškova obrazovanja. Kada je reč o strukturi upravljača, treba istaći da danas u najvećem broju zemalja školama upravljaju njihovi osnivači u koje spadaju: država (za državne škole) i pravna i fizička lica (za privatne škole). S druge strane, kada je u pitanju plaćanje troškova obrazovanja treba istaći da se državne škole danas prvenstveno finansiraju kombinacijama budžetskih sredstava i plaćanjima od strane učesnika u obrazovanju, dok u privatnim školama troškove obrazovanja isključivo snose obuhvaćeni učesnici (učenici i studenti).

Ovome još treba dodati da danas u većini zemalja, gledano po brojnosti, postoji značajno veći broj državnih u odnosu na privatne obrazovne ustanove, pri čemu se taj odnos najčešće kreće oko 4:1. Međutim, s razvojem tržišne ekonomije, vidljiv je ubrzani trend rasta broja privatnih obrazovnih ustanova, prvenstveno zato što one teže kvalitetnom obrazovanju i što se u njima u punoj meri moraju uvažavati ekonomske zakonitosti čime one stiču prednost u odnosu na državne obrazovne ustanove.

U svim tim situacijama obrazovna ustanova je usmerena ka tržištu obrazovanja, gde je ona izložena konkurenciji drugih istorodnih ustanova. Takva situacija, po logici tržišne ekonomije, dovodi do toga da rad i razvoj svake obrazovne ustanove prvenstveno zavisi od kompetentnosti njenog upravnog organa. S tim u vezi valja istaći da su upravni organi

državnih obrazovnih ustanova u principu dosta inertni, jer se tu radi o gazdovanju ne njihovim već državnim kapitalom. Nasuprot tome upravni organi privatnih obrazovnih ustanova, koji su ujedno vlasnici uloženog kapitala, ulažu značajne napore u unapređenje rada i razvoja konkretne obrazovne ustanove kako bi time što bolje štitili svoje poslovne interese. Polazeći od toga, brojni odnos državnih i privatnih obrazovnih ustanova u Srbiji sada iznosi oko 9:1, što znači da se kod nas iz poznatih razloga (nepovoljnog nasleđa i tranzicije) ozbiljno kasni sa privatizacijom celine obrazovanja. Ovo se naročito odnosi na privatne srednje škole u Srbiji kojih sada ima 45 i koje u ukupnom broju svih srednjih škola učestvuju sa oko 8%. Razlozi takvog stanja su višestruki, a u najznačajnije svakako spada slaba zakonska uređenost upravljanja privatnim školama i posledično niska kompetentnost upravnih organa tih škola – što predstavlja ključnu barijeru za potencijalne osnivače posmatranih škola.

Status privatnog školstva u EU i zemljama u tranziciji, sudeći po njihovim iskustvima, ne može se tretirati kao jasan i određen, to jest ne može se prihvatiti kao jedinstveni uzor ili model koji bi se mogao primeniti univerzalno. U traženju oblika i načina funkcionisanja privatnog obrazovanja zemlje Evropske unije su išle specifičnim međusobno različitim putevima. Ipak zajedničko je shvatanje privatnog obrazovanja kao alternativnog i dopunskog državnom sektoru u većini zemalja.

Takođe prihvatljiva zajednička karakteristika obrazovnih sistema EU je pravna zasnovanost nedržavnog obrazovanja. Zakoni su pružili mogućnost pojedincima, institucijama, crkvama, asocijacijama da otvaraju škole i to na svim nivoima obrazovanja. Rad škola zasnovan je na utvrđenim standardima koje najčešće odobrava ili priznaje ministarstvo prosvete. Najveće razlike su po pitanju finansiranja škola. Praktično je u većini zemalja država ta koja učestvuje jednim delom u finansiranju i to, naročito, direktnih učesnika u obrazovanju. Što se tiče nosilaca upravljanja privatnim školama njihov status u zemljama EU je različito tretiran.¹³

Naročito je bitno istaći da praksa vezana za osnivače i direktore nije usaglašena u smislu njihovih nadležnosti, pa često dolazi do preplitanja njihovih poslova. Osnivači su po pravilu zainteresovani da ulaganjem kapitala podrede svoj lični interes opštem dobru. S obzirom da je obrazovna delatnost od izuzetnog značaja, osnivač, osim kapitala koji ulaže i obaveza da učestvuje u njegovom plasiranju, mora imati adekvatne menadžerske obrazovne kompetencije. Što se tiče evropskih iskustava u vezi sa radom direktora, kao organa koji rukovodi školom, praksa je različita, ali se svodi na sve veću potrebu razvijanja menadžmentskih funkcija.¹⁴

Dakle, posmatranu praksu upravljanja privatnim srednjim školama u inostranstvu dominantno karakterišu sledeći faktori:

- zakonska uređenost obrazovnog sistema u celini;
- postojanje bazičnih standarda u funkcionisanju privatnih škola;
- neujednačenost u oblasti upravljanja školom;
- neodređenost kompetencija organa upravljanja.

Upravo iz tih razloga, za predmet ovog rada odabrano je upravljanje privatnim srednjim

¹³ www.vetserbia.edu.rs

¹⁴ www.vetserbia.edu.rs

školama, ceneći da će se sa takvim radom, omogućiti da se unapredi zakonska regulativa iz oblasti upravljanja privatnim srednjim školama i istovremeno podigne nivo kompetentnosti upravljača tih škola. U vezi toga je prvo sačinjen interni projekat istraživanja, a zatim je na osnovu toga izvršeno teorijsko istraživanje na osnovu koga je sačinjen ovaj rad.

2. PRAKSA UPRAVLJANJA PRIVATNIM SREDNJIM ŠKOLAMA

Osnivači, kao vlasnici uloženog kapitala predstavljaju vrhovni upravni organ koji donosi krupne, strategijske upravne odluke (statusne, preduzetničke i druge). Nasuprot tome, direktor vodi organizaciju i kroz to svoje delovanje donosi operativne upravljačke odluke (o procesu rada, investiranju do određenog iznosa, zaradama zapošljavanju i dr. pitanjima bitnim za funkcionisanje škole). Pored ovih organa, osnivači često formiraju svoje izvršne organe (upravne odbore) kojima, radi veće efikasnosti upravljanja i rukovođenja, poveravaju svoje određene nadležnosti. Zato upravne organe savremenih organizacija čini jedinstvo delovanja osnivača i direktora, koji se zajedno najčešće nazivaju upravom. Unutar toga, kada je reč o školskim odborima, oni čine specifičan izvršni organ osnivača škole i njihove nadležnosti su najpre vezane za odlučivanje o ostvarivanju obrazovne delatnosti škole.

Zato se danas u svetu, suštinski gledano, kontinuirano razvija proces svodjenja školskih odbora na specifične upravno-stručne organe koji se sve više bave ne izvorno upravnim, već stručnim poslovima u školi. Iz tih razloga može se konstatovati da danas u svetu izvorne upravne organe škole čine osnivač i direktor (uprava) sa međusobno determinisanim pravima i obavezama – što naročito odlikuje privatne škole.

Ovaj opšti uticaj savremenih kretanja na srednju školu može se ilustrovati odgovornostima uprave škole u zemljama Evropske unije kojima se obuhvataju :

- administrativne odgovornosti koje se odnose na rešavanje internih pitanja (osoblje, procesi obuke, finansije, prostorije, pravna pitanja i dr.); i
- razvojne odgovornosti kojima se takođe rešavaju interna pitanja (motivacija, inovacije, razvoj ljudskih resursa, razvoj uslova rada, strategija razvoja, projekti, marketing i dr.).

Glavne uloge direktora u posmatranim zemljama odnose se na podelu 50/50 rada na eksternim i internim pitanjima, što takođe podrazumeva održavanje pažnje u istom odnosu između administrativnih i razvojnih pitanja. Očekuje se da ovaj profil bude najbliži oblastima odgovornosti budućeg direktora srednjih škola u Srbiji.

Slično tome, upravljački izazovi, kako je to prezentovano u obuci za rukovodstvo škola, u zemljama Evropske unije su fokusirani na sposobnost direktora da planira i pokreće razvoj kao i da analizira i ocenjuje rezultate, da predvodi svaki korak u kontinuiranom procesu razvoja i prilagođavanja aktivnosti. Posledično bi direktor škole trebalo da se fokusira na razvoj rukovođenja školom i, ako je potrebno u slučaju da su ljudski resursi preopterećeni, zahteva da se imenuje administrativna uprava kako bi se održala sposobnost u obavljanju razvoja rukovođenja.¹⁵

¹⁵ www.etf.europa.eu

Zbog toga će budući direktor škole morati da bude voljan i sposoban da delegira, ne samo odgovornosti, već i kompetencije i pravo odlučivanja. Važan zadatak direktora će biti: da napravi pametan izbor šta i kome treba delegirati i da osigura da će oni koji će obavljati delegirane upravljačke zadatke imati punomoćje, kompetencije, sredstva i motivaciju da to rade. Da bi bio uspešan u delu delegiranja u upravi škole, direktor škole će morati da poseduje lične upravljačke sposobnosti kao što su veštine komunikacije, motivacije i sposobnost logičkog i konciznog planiranja upravljačkih zadataka kako bi osobe kojima su poverene te dužnosti, razumele ne samo dobijene zadatke, već i kakva je njihova funkcija u celokupnoj strategiji škole. Uspešno delegiranje podrazumeva logičan plan aktivnosti, jasnost i dobru komunikaciju u procesu upravljanja školom. Dodatno, od suštinske važnosti je da direktor škole uvidja i vrednuje svoje delegacione izbore. U tradicionalnoj kulturi upravljanja automatski način delegiranja bi bio direktno zaduživanje podređenih koji bi istim redom delili zaduženja drugima.

U modernom nacrtu škole u zemljama Evropske unije, direktor bi trebalo da razmotri u širem okviru mogućnosti podele aktivnosti. Pitanja delegiranja koje treba razmotriti su:

- da li bi zadatak direktora trebalo da bude obavljen od strane nekog pojedinca koji bi delovao u njegovo ime;
- da li bi zadatak direktora trebalo da bude obavljen od strane nekog školskog odeljenja (ili aktiva), koji bi zadatak realizovao na sebi svojstven način umesto da to uradi direktor;
- da li bi bila bolja ideja okupiti pojedince iz organizacije i uspostaviti stručni tim za obavljanje zadatka upravljanja;
- da li bi zadatak direktora bio efikasnije rešen ako bi uključili nekog stručnjaka izvan školske organizacije ili od strane nekog partnera škole (tj. eksterno obavljanje zadatka).

Tipični upravljački zadaci koji se delegiraju u školama zemalja EU¹⁶ uključuju:

- razvoj i upravljanje projektima koji nemaju direktne veze sa osnovnim aktivnostima škole (tj. eksperimentalni projekti, međunarodna saradnja itd.);
- planiranje, praćenje i procena nastavnog procesa u školi;
- praćenje potreba/želja osoblja za obukom i planiranje aktivnosti obuke za osoblje;
- predstavljanje škole i delegiranje nekih drugih pitanja.

Međutim, zadaci uprave škole, koji nikada ne bi trebalo da budu delegirani su:

- glavne odluke koje se odnose na raspodelu budžeta između različitih aktivnosti ili odeljenja;
- zakonsko predstavljanje škole;
- odgovornost za razvoj celokupne strategije i poslovnog plana škole;
- praćenje strategije i poslovnog plana i njihova realizacija kroz konkretne aktivnosti.

U komparaciji sa Evropskom unijom, upravljanje privatnim srednjim školama u Srbiji je takođe bremenito raznim problemima. Ovde je prvenstveno reč o nedovršenom i nejasnom zakonskom regulisanju strukture i nadležnosti organa upravljanja tim školama. Upravo zbog

¹⁶ www.vetserbia.edu.rs

toga praksa upravljanja posmatranim školama je pretežno konfuzna, pa zato u tome ima mnogo lutanja koje posledično umanjuje njihovu ukupnu efikasnost. Jedan od važnih aspekata savremenog upravljanja je svest o različitim načinima rukovođenja i sposobnost korišćenja ovih načina, kao i jasno razumevanje uticaja i signala koje ima svaki stil u upravljanju organizacijom, školom itd. To znači da je od suštinske važnosti da direktor sve vreme bude svestan koji način rukovođenja primenjuje u datom trenutku, kao i kako na to gleda osoblje¹⁷. Stilovi rukovođenja moraju biti posmatrani kao sredstvo direktora škole i izbor pravog "sredstva" za svaku priliku trebalo bi da zavisi od ishoda/rezultata koji direktor želi da postigne. Što se tiče tipa ličnosti svakog direktora to znači da mu neki načini/stilovi rukovođenja odgovaraju više od drugih, ali on/ona mora biti sposoban (i stalno razvijati tu sposobnost) da primenjuje sve navedene načine, kako bi što efikasnije vodio školu. Istraživanja u Nemačkoj i Danskoj pokazuju da poverenje osoblja u način rukovođenja direktora ne zavisi od toga koji način oni povezuju sa njihovim direktorom, da li je direktor taj koji je koristio "pravi" stil u pravoj situaciji. Svaki način rukovođenja je "karta" u rukama direktora. Svaka "karta" ima svoju vrednost i treba je igrati u pravo vreme. Uspešan direktor mora biti sposoban da "igra na sve karte" ubedljivo i da zna kada je svaka potrebna. Sve ovo upućuje na opštu ocenu po kojoj savremena kretanja direktno utiču na upravljanje razvojem svake, pa time i privatne srednje škole. Pri tome se zapaža izvesno ujednačavanje delovanja uprava u privrednim subjektima i srednjim školama. No, sve to zajedno ukazuje na još uvek prisutna velika lutanja u Evropskoj uniji, pa time i u Srbiji, kada je u pitanju upravljanje privatnom srednjom školom.¹⁸

3. RAZVOJ UPRAVLJANJA PRIVATNIM SREDNJIM ŠKOLAMA

U vezi toga u traženju modela za efikasnije upravljanje privatnom srednjom školom, treba poći od pouke zakonitosti upravljanja svakom organizacijom u uslovima tržišne ekonomije. Tu je naročito bitno imati u vidu osnovne zakonitosti svakog tržišno usmerenog biznisa. Naime, obrazovni i svaki drugi biznis karakterišu ograničeno vreme trajanja i determinisane faze kroz koje on prolazi tokom svog postojanja. Upravo ove dve zakonitosti predstavljaju osnovu koju menadžment tržišno usmerene obrazovne i druge organizacije stalno mora imati u vidu.

Kada je reč o trajanju (životnom veku biznisa) treba istaći da je ova zakonitost izraz stalnih promena na tržištu prodaje koje su posledica razvoja nauke i tehnologije, s jedne, i menjanja potreba kupaca, sa druge strane. To u suštini znači da svaki konkretan biznis ima svoj duži ili kraći životni vek, s tim što njegova dužina zavisi od mnoštva uticajnih faktora. U principu, životni vek svakog biznisa karakterišu tri vremenska perioda, i to: rast, stagnacija i pad tržišne tražnje. Unutar toga, procesi rasta i pada tražnje prolaze kroz tzv. prelomnu tačku, odnosno prag rentabilnosti, kojim se poslovanje deli na pozitivno i negativno. Naravno, u rastu tražnje za tretiranim biznisom, firma mora na početku da računa sa negativnim poslovanjem do dostizanja praga rentabilnosti, dok pri padu tražnje preduzetnik treba da izvrši adekvatne izmene u svom biznisu ne čekajući da poslovni rezultat postane negativan (ispod

¹⁷ Karavidić, Slavko, *Menadžment obrazovanja*, Institut za pedagogiju i andragogiju, Beograd, 2006, str. 46-48.

¹⁸ www.vetserbia.edu.rs

nivoa praga rentabilnosti). Zato je ključni interes preduzetnika da njegov biznis u što dužem vremenskom periodu omogućuju ostvarivanje pozitivnog poslovnog rezultata. U vezi toga preduzetnik naročito mora da obrati pažnju na vremenski trenutak kada kriva prihoda počinje da stagnira, što za njega treba da bude znak primicanja negativnog poslovanja, odnosno završetka životnog veka tretiranog biznisa. U tom momentu preduzetnik bi morao da intenzivira napore oko identifikacije poslovne ideje čijom implementacijom treba da unapredi tretirani biznis, ili da ga zameni tržišno izglednijim proizvodom/uslugom – čime se praktično završava životni vek tretiranog i započinje životni vek drugog biznisa. Zato ovakva analiza treba da predstavlja osnovu za valorizaciju ostvarenih ekonomskih rezultata u malom i svakom drugom biznisu. U funkciji toga naročito je potrebno češće vršiti takve analize (najmanje dva puta godišnje), s tim što je njima najbolje posebno analizirati svaki proizvod/uslugu kako bi se dobila informacija o stanju životnog veka svakog od njih, odnosno o potrebi menjanja onih proizvoda/usluga sa započetim padom tražnje.

S druge strane, kada su u pitanju faze ostvarivanja biznisa tokom njegovog životnog veka, savremena menadžerska teorija ih logički svrstava u četiri sledeće: planiranje, organizovanje, realizaciju i valorizaciju tretiranog biznisa.

Ove faze, kao praktično nezaobilazne, predstavljaju osnovu vođenja obrazovnog i svakog drugog biznisa, s obzirom na sledeće¹⁹:

– planiranje biznisa (projektovanje menjanja postojećeg ili uspostavljanja novog biznisa) nesporno predstavlja prvu fazu koja se različitim pristupima realizuje. U tome se najčešće koriste memorijski i projektni pristup. Memorijski pristup se svodi na preduzetnikovu uprošćenu misaonu konstrukciju planiranja biznisa i on se, kao izrazito nesiguran, ne preporučuje. Projektni pristup podrazumeva izbor tržišno najizglednije poslovne ideje i njeno elaboriranje kroz adekvatni model biznis plana. Na taj način se najjeftinije i najefikasnije proverava celishodnost odabrane poslovne ideje u smislu praktične izvodljivosti i tržišne opravdanosti nameravanog biznisa. Otuda, savremena teorija menadžmenta preporučuje da se svaki izmenjeni i novi biznis prvo adekvatno planira. Planiranje biznisa najčešće zahteva kraće vreme koje se pretežno svodi na najviše dva meseca. Pri tome se, s obzirom na vodeću ulogu preduzetnika, podrazumeva da on, pored raspolaganja adekvatnim sposobnostima, bar u osnovi poznaje suštinu i tehnologiju izrade biznis plana kao osnove za prilagođavanje svog biznisa tržišnim promenama;

– organizovanje biznisa podrazumeva preduzetnikovu akciju u okviru koje on, shodno usvojenom biznis planu, priprema materijalne i kadrovske resurse sa ciljem praktičnog otpočinjanja sa planiranim biznisom (proizvodnim, uslužnim, ili kombinovanim). Ova aktivnost najpre obuhvata obezbeđenje nedostajućih finansijskih sredstava (uzimanje kredita, pozajmica i sl. – ako je to predviđeno biznis planom), zatim nabavku nedostajućih osnovnih sredstava i potrošnih materijala, kao i zapošljavanje potrebnih radnika sa njihovim poslovnim uhdavanjem. Vremensko trajanje ove faze dosta je rastegljivo, s tim što se posmatrana aktivnost najčešće završava za dva – tri meseca. Naravno, poslove u sklopu ove aktivnosti preduzetnik treba da poznaje i da ih ume realizovati, jer od efikasnosti njihovog završavanja dobrim delom zavise praktični rezultati planiranog biznisa;

¹⁹ Radovanović, T, Marković, N, *Menadžment malog biznisa*, Cekom books, Novi Sad, 2005, str. 65-69.

– realizovanje biznisa predstavlja treću fazu u sklopu koje se planirani biznis konkretno ostvaruje shodno organizaciji i tehnologiji koju uspostavi samostalni preduzetnik. Pri tome je bitno da samostalni preduzetnik tako prati i usmerava rad zaposlenih da se na osnovu toga uspešno ostvaruju i interne i eksterne funkcije poslovanja. Interne funkcije se odnose na reprodukciju planiranih proizvoda/usluga u smislu njihovog kvaliteta i kvantiteta. Eksternim funkcijama se obuhvataju aktivnosti na marketinškoj ponudi proizvoda/usluga odabranom tržištu i na praćenju efekata njihovog plasmana. Ova faza, vremenski gledano, neodređeno traje, odnosno do momenta kada samostalni preduzetnik uoči stagnaciju tražnje za njegovim proizvodima uslugama – što predstavlja pouzdani znak da se približava kraj životnog veka tretiranih proizvoda/usluga i da urgentno treba tražiti novu poslovnu ideju za menjanje zastupljenog biznisa. Razume se da preduzetnik mora imati određene sposobnosti i poznavati sve poslovne funkcije realizacije svog biznisa, kako bi na osnovu toga mogao uspešno da ih prati i usmerava;

– valorizacija biznisa, kao četvrta faza, odnosi se na preduzetnikovo ocenjivanje ostvarenih poslovnih rezultata u koje najpre spadaju ekonomski i opšti rezultati. Valorizacija ekonomskih rezultata praktično se svodi na analiziranje postignuća u smislu komparacije odnosa između ostvarenih prihoda i rashoda (bilans uspeha), s jedne, i komparaciju odnosa između strukture poslovne aktive i pasive (bilans stanja), s druge strane. Valorizacija opštih rezultata najpre se odnosi na proučavanje dostignutog poslovnog rejtinga biznisa u užem i širem društvenom okruženju. Obe ove vrste valorizacije samostalni preduzetnik treba da obavlja što češće, kako bi na vreme zapazio primicanje pada tržišne tražnje za njegovim proizvodima/uslugama. Upravo u trenutku kada samostalni preduzetnik uoči primicanje kraja životnog veka svog biznisa, u tom momentu on mora urgentno prići sistematskom napuštanju tog biznisa i planiranju novog biznisa. Trajanje ove faze se praktično poklapa sa trajanjem realizacije biznisa unutar životnog veka zastupljenih proizvoda/usluga. Povodom toga valja istaći da uspešan preduzetnik svakako mora raspolagati potrebnim sposobnostima i znanjima iz valorizacije biznisa.

Kao što se vidi, upravno i rukovodeće delovanje preduzetnika i menadžera u suštini se svodi na vođenje navedene četiri faze svakog biznisa koje se obnavljaju sa promenama biznisa. Unutar toga upravni organ firme obavlja i mnoge druge logističke poslove koji su u osnovi vezani za realizovanje navedenih faza svakog životnog veka zastupljenog biznisa – kao što su: marketinški poslovi (u okviru realizacije biznisa), kadrovski poslovi (u sklopu svih faza biznisa), informatički poslovi (unutar svih faza biznisa), administrativni poslovi (takođe unutar svih faza biznisa) i dr. S tim u vezi može se konstatovati da poslovna uspešnost preduzetnika i menadžera prvenstveno zavisi od kvaliteta kojim oni obavljaju navedene faze tretiranog biznisa. Taj kvalitet je izraz njihove menadžmentske kompetentnosti, ali i izvršne kompetentnosti zaposlenih u njihovim firmama. Ove zakonitosti u načelu podjednako važe za savremeni razvoj ne samo privrednih organizacija, već i obrazovnih ustanova, budući da su i jedne i druge usmerene prema zadovoljavanju tržišnih potreba. Ove zakonitosti podjednako važe za savremeni razvoj kako privrednih subjekata, tako i obrazovnih ustanova. Poslove u savremenim organizacijama (privrednim, državnim, obrazovnim i svim drugim) obavljaju radno angažovana lica, koja se u svim varijantama dele na upravljače i izvršioce. Upravljače u organizacijama čine lica koja vode organizaciju i koja se već uobičajeno nazivaju nosiocima menadžmenta, odnosno pojedincima koji upravljaju i rukovode konkretnom organizacijom.

Po logici nastanka organizacija i tekuće tržišne ekonomije, njihove upravljače čine osnivači kao vlasnici uloženog kapitala koji prate rad organizacije i donose po nju krupne upravljačke odluke (o: preduzetničkim poduhvatima, usvajanju završnih računa, postavljanju i menjanju menadžera, pripajanju drugih organizacija, stečaju i likvidaciji i dr.).

U praksi, broj osnivača organizacije može biti različit i kretati se od pojedinca (samostalnog osnivača) do neodređene grupe (grupnih osnivača). Svi oni čine osnivačko telo čije se ingerencije zakonski i interno definišu (nadležnosti skupštine osnivača, kao i nadležnosti njihovog upravnog odbora koji nije obavezan). Osnivači se još nazivaju i preduzetnicima, s obzirom da oni donose preduzetničke (razvojne) odluke koje su za samu organizaciju izrazito važne. Saglasno tome, organizacijom rukovodi njen menadžer (direktor, upravnik i sl.), koga imenuje i menja osnivačka (vlasnička) struktura organizacije. Njegove ingerencije se regulišu zakonom i statutom i on, u odnosu na zaposlene, obavlja funkciju poslodavca. S druge strane, izvršna lica u organizaciji čini struktura zaposlenih koju vodi menadžer i brine se o njenom usmeravanju, menjanju i napredovanju. U tom kontekstu, prava i obaveze izvršnih lica takođe se regulišu adekvatnim zakonom o radu i statutom. Svako izvršno lice obavlja poslove u okviru svog radnog mesta pod nadzorom menadžera organizacije. Ovome treba dodati da su strukture zaposlenih po svim obeležjima veoma heterogene i da one zavise od veličine i karaktera svake konkretne organizacije.

U savremenim uslovima, pod dejstvom razvoja nauke i ubrzanog menjanja svakog tržišta, uspešnost konkretne organizacije u osnovi zavisi od poslovne kompetentnosti angažovanih lica kao subjekata koji čine svestan faktor konkretno zastupljenog rada. U tome postoje veoma naglašene razlike između poslovne kompetentnosti nosilaca menadžmenta i izvršnih lica (zaposlenih). Nosioци menadžmenta (osnivači i profesionalni menadžeri) treba da raspolazu adekvatnom menadžmentskom kompetentnošću (adekvatnim upravljačkim sposobnostima i znanjima), dok zaposleni treba da imaju određenu izvršenu kompetentnost (konkretne sposobnosti i znanja shodno zahtevima svojih radnih mesta). Zato se danas s razlogom smatra da nivo menadžmentske kompetentnosti osnivača i menadžera u suštini određuje nivo poslovne uspešnosti svake organizacije²⁰.

Povodom toga treba naglasiti da sve ovo važi i za savremenu privatnu srednju školu i svaku drugu obrazovnu organizaciju. Naime, i u njima se angažovani dele na menadžmentsku i izvršnu strukturu, pri čemu radna i razvojna efikasnost svake škole odlučujuće zavisi od nivoa menadžmentske kompetentnosti njenih osnivača, školskog odbora i menadžera (direktora). Kvalitetno upravljanje je direktno povezana sa nivom upravljačke kompetentnosti i internim istraživanjem je to i potvrđeno.

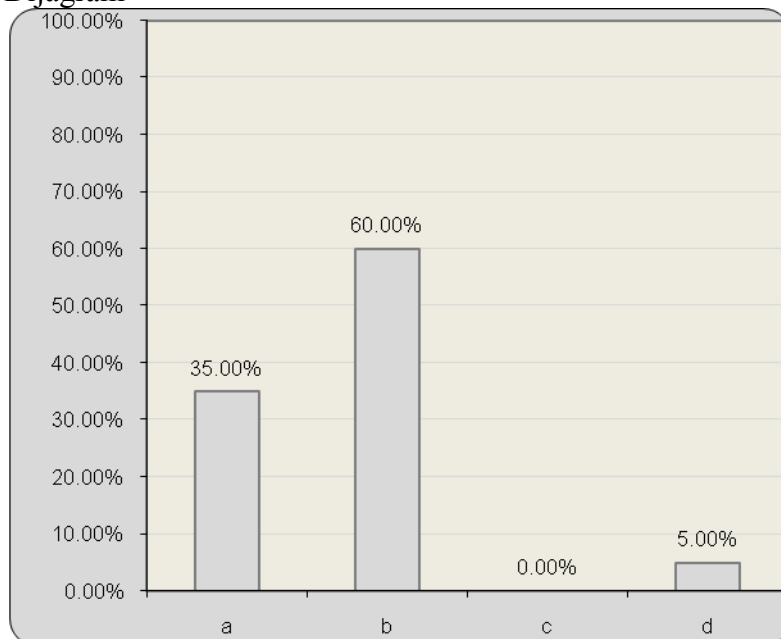
Prema očekivanjima, istraživanjem je uočeno da većina ispitanika (60%), ocenjuje da upravni organi privatnih škola imaju srednji nivo upravljačke kompetentnosti. (Tabela, Dijagram). Izvor: Upitnik – pitanje: Kojim prosečnim nivoom upravljačke kompetentnosti raspolazu upravni organi naših privatnih srednjih škola?

• ²⁰ Modrinić, Zoran, *Menadžerska kompetentnost*, BMD – MEGA, Beograd, 2006., str. 72-81

Tabela

Ispitanici	Ponuđeni odgovori	Broj odgovora	% odgovora
A. Osnivači škola	a) pretežno visokim nivoom	15	50
	b) pretežno srednim nivoom	15	50
	c) pretežno niskim nivoom		
	d) nije mi poznato		
	Σ	30	100
B. Direktori škola	a) pretežno visokim nivoom	6	20
	b) pretežno srednim nivoom	21	70
	c) pretežno niskim nivoom		
	d) nije mi poznato	3	10
	Σ	30	100
C. Ukupno	a) pretežno visokim nivoom	21	35
	b) pretežno srednim nivoom	36	60
	c) pretežno niskim nivoom		
	d) nije mi poznato	3	5
	Σ	60	100

Dijagram



Polazeći od univerzalnog dejstva izloženih svetskih kretanja u privredi i društvu, moderna srednja škola je u obavezi da svoj rad i razvoj prilagodi zahtevima svog konkretnog okruženja u smislu realizacije odredjenog obrazovanja saglasno potrebama konkretnog obrazovnog tržišta. Ona pri tom mora uvažavati konkretne obrazovne standarde svoje zemlje i istovremeno se uklapati u adekvatne međunarodne obrazovne trendove. Glavna implikacija savremenih kretanja na zakonsko regulisanje poslovanja srednje škole svodi se na njeno principijelno izjednačavanje sa drugim privrednim subjektima, s tim što se u tome uvažava

specifičnost osnovne delatnosti škole, kao aktivnosti od posebnog društvenog interesa. Međutim, kada je u pitanju upravljanje srednjom školom, ono je u načelu identično upravljanju svakim drugim privrednim subjektom. Reč je, naime, o tome što svima njima upravljaju nadležni međžmentski organi u koje spadaju osnivač i direktor.

4. MODEL UPRAVLJANJA PRIVATNOM SREDNJOM ŠKOLOM

Prethodna razmatranja pokazuju da upravljanje privatnom srednjom školom još nije celovitije istaživano, pa se zato u toj oblasti pojavljuju mnogi praktični problemi. U takvoj situaciji upravljanje privatnim srednjim školama se nužno ostvaruje na analogan (očito identičan) način kao u državnim srednjim školama – gde u okviru školskih odbora, školom upravljaju određeni predstavnici osnivača, zaposlenih i učeničkih roditelja. Međutim, takav model upravljanja privatnim srednjim školama je neprihvatljiv budući da to veoma ograničava prava osnivača škole, kao subjekta koji su uložili kapital u školu i koji po toj logici brinu o razvoju škole i podmiruju eventualne gubitke u poslovanju škole. U takvoj situaciji u zakonskoj regulativi oblast upravljanja privatnim srednjim školama uopšte nije obrađena, već se po inerciji rešenja upravljanja državnim školama podrazumeva da to rešenje važi i za privatne škole.

Iz tih razloga se sasvim pouzdano može konstatovati da upravljanje privatnim školama zakonski nije rešeno, iako se ono veoma razikuje od upravljanja državnim srednjim školama. Po logici stvari, takvo stanje veoma nepovoljno utiče na rad i razvoj privatnih srednjih škola. Ovome još treba dodati da se u tome nije daleko otišlo ni u razvijenim zemljama Evropske unije, budući da se u njima vrše prvi pokušaji da se konstituišu prikladni upravljački modeli za ove vrste škola.

Upravo zbog toga, prevazilaženje ovog krupnog pitanja zahteva da se prvo prikaže naučno fundirani model upravljanja organizacijama u uslovima tržišne ekonomije, pa da se zatim na osnovu toga izvede model upravljanja privatnim srednjim školama kao specifičnim tržišnim subjektima koji deluju u uslovima tržišne ekonomije. U tom kontekstu, prema ranije izloženom naučno fundiranom modelu upravljanja organizacijama u tržišnom privređivanju, koji je izveden iz teorije sistema u upravljanju organizacijama u uslovima tržišnog privređivanja, postoje tri komplementarna faktora upravljanja (elementa sistema), i to: a) upravni organi koji se izvode iz teorije savremenog menadžmenta, b) nadležnosti upravnih organa koje se svode na donošenje upravnih odluka vezanih za faze razvoja škole i c) kompetentnost upravnih organa kao njihove moći za donošenje i ostvarivanje upravnih odluka.²¹

a) Kada je reč o upravnim organima privatne škole, prema naučnom modelu upravljanja organizacijama u uslovima tržišnog privređivanja, determinisana su tri osnovna upravna organa, koja se definišu adekvatnim privrednim zakonima, i to:

– skupština osnivača, koju čine svi osnivači organizacije kao ulagači kapitala. Ovaj organ zato ima karakter vodećeg upravnog organa, jer on brine o startnim i daljim kapitalnim

²¹ Ristić, Bojan, *Upravljanje razvojem privatne srednje škole*, Univerzitet u Novom Pazaru, Novi Pazar, 2009.

ulaganjima, pokrivanju poslovnih gubitaka i dr. Zato njegove nadležnosti čini donošenje ključnih odluka o razvoju i statusnim promenama organizacije, S tim u vezi, svedeno na privatnu srednju školu, kao specifičnu organizaciju usmerenu ka tržištu obrazovanja, njen najviši upravni organ logično treba da bude skupština osnivača (osnivački savet i sl.) škole (sa onoliko članova koliko ima osnivača), koja je nadležna za donošenje najkrupnijih upravljačkih odluka) – što treba adekvatno zakonski definisati;

– upravni odbor, koga skupština osnivača bira radi realizacije njenih odluka i brige o zakonitosti rada organizacije. S tim u vezi, u odnosu na skupštinu osnivača, upravni odbor ima izvršnu upravnu ulogu, uz dodatak drugih ingerencija koju mu omogućuju da samostalno obavlja poslove iz svoje nadležnosti. Analogno tome, kada je u pitanju privatna srednja škola, njen školski odbor zapravo predstavlja specifičan upravni odbor škole koji treba da bude zadužen za ostvarivanje odluka skupštine osnivača škole i za obavljanje drugih poslova iz svoje nadležnosti – što, takođe, treba adekvatno zakonski definisati; i

– direktor organizacije, koga bira i razrešava upravni odbor i koji brine o realizaciji odluka skupštine osnivača i upravnog odbora uz vođenje celokupnog poslovanja organizacije. U sklopu toga, direktor donosi određene operativne upravne odluke i istovremeno rukovodi radom organizacije. Shodno tome, sve ovo važi i za direktora privatne srednje škole – što, isto tako, zahteva da bude zakonski definisano.

b) Što se tiče nadležnosti upravnih organa, one po svojoj suštini treba da uvažavaju zakonitosti cikličnog menjanja tretiranih proizvoda/usluga organizacije i izvođenja tih promena preko određenih nezaobilaznih faza (planiranja, organizovanja, realizacije i valorizacije) – o čemu je bilo reči ranijim izlaganjima u ovom radu. Sve ovo, naravno, važi i za privatnu srednju školu, budući da i ona svoje obrazovne usluge mora prilagođavati promenama na obuhvaćenom tržištu obrazovanja. Sa tim u vezi, moguće je determinisati nadležnosti upravnih organa privatne srednje škole koje treba zakonski definisati prema sledećem modelu:

– nadležnosti skupštine osnivača škole se svode na donošenje odluka o: usvajanju planova razvoja škole, statutarnim promenama škole, menjanju makroorganizacije škole, menjanju direktora škole, oceni završnih računa škole, raspoređivanju dobiti i pokrivanju gubitaka i nastavljanju i menjanju tretirane vrste obrazovanja;

– nadležnosti školskog odbora škole odnose se na donošenje odluka o: donošenju godišnjeg programa rada škole, realizaciji rada i rešavanju žalbi učenika i ocenjivanju obrazovnih rezultata škole; i

– nadležnosti direktora škole u koje naročito spada donošenje odluka o: realizaciji planiranih investicija, menjanju mikroorganizacije škole, obezbeđivanju potrebnih zaposlenih, realizaciji radnih odnosa i razvoju zaposlenih, unapređivanju rada škole i udovoljavanju zahtevima državnih organa;

3) Kada je u pitanju kompetentnost upravnih organa privatne srednje škole, shodno ranijim razmatranjima treba ukazati da oni, treba da imaju sledeće vrste kompetentnosti:

– članovi skupštine osnivača privatne srednje škole, u osnovi, treba da raspolažu preduzetničko-obrazovnom kompetentnošću, što praktično podrazumeva da imaju određene preduzetničke sposobnosti i da raspolažu bar osnovnim znanjima iz primenjenog obrazovnog sistema;

– članovi školskog odbora privatne srednje škole u suštini treba da imaju razvojno-obrazovnu kompetentnost, koja podrazumeva raspolaganje adekvatnim razvojno-obrazovnim sposobnostima i znanjima;

– direktor privatne srednje škole u biti treba da raspolaže menadžersko-obrazovnom kompetentnošću, što znači da on treba da ima određene menadžerske sposobnosti i da uz to raspolaže rukovodećim i stručnim znanjima u oblasti obrazovanja.

Po logici stvari, izvršeno modelovanje faktora upravljanja privatnim srednjim školama trebalo bi da predstavlja osnovu za njegovo zakonsko i interno regulisanje – za šta se predlaže sledeći model.

Naravno, podrazumeva se da zakonskim regulisanjem treba uopšteno determinisati sve faktore upravljanja privatnom srednjom školom (vrste, nadležnosti i kompetentnosti organa upravljanja). Na osnovu toga bi same škole, s obzirom na svoje specifičnosti, detaljnije razradile svoje upravljanje (prvenstveno preko njihovih struktura).

5. OSNOVNI ZAKLJUČCI

Izložena razmatranja upravljanja privatnom srednjom školom omogućuju izvođenje sledećih bitnih zaključaka:

- status privatnog školstva u EU i zemljama u tranziciji ne može se tretirati kao jasan i određen, to jest ne može se prihvatiti kao jedinstveni uzor ili model koji bi se mogao univerzalno primeniti;
- savremena kretanja direktno utiču na upravljanje razvojem svake, pa time i privatne srednje škole, pri tome se zapaža izvesno ujednačavanje delovanja uprava u privrednim subjektima i srednjim školama;
- moderna srednja škola je u obavezi da svoj rad i razvoj prilagodi zahtevima svog konkretnog okruženja u smislu realizacije određenog obrazovanja saglasno potrebama konkretnog obrazovnog tržišta. Ona pri tom mora uvažavati konkretne obrazovne standarde svoje zemlje i istovremeno se uklapati u adekvatne međunarodne obrazovne trendove.

Dakle, rešenje utvrđenog problema u ovom radu se svodi na neophodnost zakonskog i internog regulisanja upravljanja privatnim srednjim školama analogno regulativi upravljanja svim tržišno usmerenim organizacijama. Pri tome se moraju respektovati specifičnosti privatnih srednjih škola koje, kao obrazovne ustanove, imaju karakter organizacija od posebnog društvenog interesa. Zato svi njeni faktori upravljanja (upravni organi, nadležnosti upravnih organa i kompetentnost upravnih organa) implicitno moraju biti vezani za suštinu i

značaj obrazovne delatnosti. Pored toga, ovo rešenje podrazumeva potrebu normiranja i realizacije permanentnog usavršavanja nosilaca upravnih funkcija (naročito: direktora, predsednika školskog odbora i predsednika skupštine osnivača škole), budući da se time veoma utiče na podizanje njihove upravne kompetentosti – što posledično doprinosi uspešnosti rada i razvoja privatnih (a i državnih srednjih škola).

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INFLUENCE OF SUPPLY AND DEMAND FACTORS ON THE DEVELOPMENT STRATEGY OF HOUSING AND UTILITIES IN THE RUSSIAN FEDERATION

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Abstract: Empirical marketing regional research on supply and demand factors of housing-and-utilities services revealed determinants of customer loyalty and satisfaction with the service level and factors influencing on willingness to purchase additional services. The causes that lead and hamper development of socially oriented services in different regions of the Russian Federation have been identified.

Keywords: service-dominant logic, housing-and-utilities services, market potential, range of services, development strategy.

1. INTRODUCTION

Service-dominant logic is the basis for developing a strategy of housing and utilities in the Russian Federation. Its key theoretical principles are outlined in [Mails, 2011] and in the works of other authors working on the theory and methodology of service activities. The scientific community has paid great attention to the development of methods for management of service activities, mutually oriented service systems, both in the commercial sphere and in public services [Sliniakov 2013, Tretyak 2006].

The current industry position of the housing and utilities is determined by the existence of multiple-structures and the formation of market mechanisms while maintaining a high level of control by the State to monitor the social and economic consequences of the reforms. Over twenty years of the industry reforms, conditions for competitive relations were formed and the emergence of commercial mechanisms has caused the development of demand and the formation of supply on the market of public services.

2. RESEARCH

The hypothesis of the study is based on the assumption, that the demand for additional services not included to the mandatory list, is defined by such marketing indicators as the satisfaction and loyalty. The proposal of additional services is determined by the existence of the unmet demand, staff capacity and resource potential of housing and communal services providers.

Hypothesis testing as been carried out within the two-stage empirical research on marketing aspects of the activity of managing organizations (MO) that are population services

providing additional services, and it has started in 2011 at the Faculty of Real Estate Economics, The Russian Presidential Academy of National Economy and Public Administration (RANEPA). The first phase was aimed at the determination of indicators of satisfaction and loyalty reflecting the quality of MO service and evaluation of market potential of additional services, i.e. study of the factors of demand on the market of utilities. Measuring satisfaction and loyalty of the residents of apartment buildings of 10 MO in different regions of Russia was conducted by questionnaire. Assessment of demand indicators was assessed by an indicator of willingness to purchase additional services provided by MO, not covered by mandatory payment.

The results make it possible to carry out a comparative evaluation of satisfaction and loyalty values for each MO, to assess the effectiveness of various management decisions to improve the quality of services for citizens, to study the dynamics of demand on extra services which allows us to recommend the proposed methodology for management decisions to enhance satisfaction of the users of housing utilities. Assessment of the relationship between different measures of satisfaction was also carried out by correlation analysis (Table 1).

Table 1. Correlation Matrix for Marketing Indicators of MO Activity

	Satisfaction	NPS (%)	Willingness
Satisfaction	1		
NPS (%)	0.806	1	
Willingness	0.88	0.93	1

The results shown in Table 1 confirmed the existence of a significant relationship between indicators of satisfaction, loyalty, and willingness to purchase additional services—the value of the correlation coefficient is greater than 0.8. Therefore, the demand for additional services is directly dependent on customer satisfaction, and satisfaction, in turn, generates residents' loyalty to MO resolve.

Construction of regression models by the authors for the 10 researched companies allows partly resolving the dispute. Comparing the values of R^2 criterion, it can be argued that customer loyalty affects the willingness to purchase additional—by 87% ($R^2 = 0.87$), which is greater than the impact of satisfaction—79% ($R^2 = 0.79$), while the formation of loyalty depends on satisfaction only by 65% ($R^2 = 0.65$). This makes it possible to confirm the existence of a causal link between satisfaction and loyalty [Urubkov, Safronova, 2012].

Results

In addition, the analysis indicates the implementation of a customer-oriented strategy in the industry. The second stage, which took place in 2014 — 2015, was devoted to the study of MO executives' opinion from different regions of the country to provide additional social-oriented services. Over three hundred of the respondents—MO leaders from twenty-one regions of the Russian Federation participated in the survey. It was found that there are proposals on the emerging market of additional services, and the rating of the most popular services is defined. The data on the structure of representative sample is shown in Figures 1 to 3.



Figure 1. the distribution of respondents by position held

The majority of the samples are the first persons in companies (directors, chairmen of HOA and HBC, municipal service managers). This is the most informed and interested in the development of industry audience, which has credible information.



Figure 2. The Distribution of Respondents by Type of Organization

First, the commercial sector companies are interested in the development of market-based mechanisms in the industry, thus they prevail in the representative sample.

The gender composition of the respondents is shown in Figure 3.

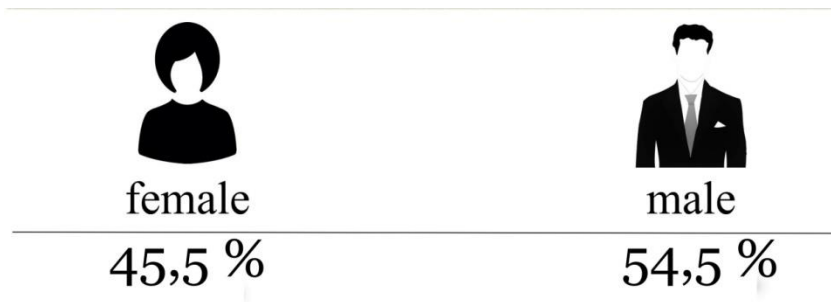


Figure 3. The Distribution of Respondents by Gender

It is noted a slight predominance of males (54%), that, given the prevalence in the sample MO executives (73%), is quite natural.

The sample included MO from twenty-one regions, the largest number of representatives from the Moscow Region (18.2%) and Moscow (13.6%) and the Republic of Sakha (16.7%), the Altai Territory (9.1%) and St. Petersburg (7.6%). Other regions are represented by 5% or less of respondents. Broad regional coverage of MO industry implemented in the study allows using the data to produce the development strategy of housing and utilities in the whole country.

3. CONCLUSION

The distribution of answers can be concluded that 89.5% of respondents positively evaluate the development of additional services. Only 10.5% believe this activity is not promising. These data are consistent with the fact that all respondents indicated the presence of additional services in MO portfolio, noted a list of possible services, i.e. confirmed the existence of additional services market and appropriateness of its development. Analysis of the causes that reduce the effectiveness of management decisions on the development of additional services showed that the bureaucratic barriers hinder the growth of volumes of additional services (according to 30% of respondents), despite the fact that only 16% of MO need more resources for their production.

Most of the companies that produce housing and utility services believe there are demand for services, conditions and resources, but the low level of effective demand, personnel and bureaucratic barriers constrain growth of the additional services, which, in turn, prevents the development of servicization processes in the industry.

The results of the research on MO activities in organizing the additional services prove necessity of application marketing indicators in the management of housing and utilities sphere to create favorable conditions for citizens living, increase in the quality of life, and further development of the servicization process in the industry.

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IMPROVEMENT OF THE EFFECTIVENESS OF RESIDENTIAL REAL ESTATE MANAGEMENT USING ENERGY-EFFICIENT TECHNOLOGIES

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Abstract: The annual increase in the cost of rates for energy resources contributes to the development of commercial relations for the implementation of energy efficient technologies. At the same time, organizational complexities of an integrated approach to improve the energy efficiency of buildings become major problems of the industry. Activities related to energy conservation and energy efficiency improvements promote to increase a satisfaction on behalf of citizens with housing-and-utilities services, which, in turn, is one of the quality indicators of the socioeconomic aspects of the industry.

Keywords: energy efficiency, energy conservation, small forms of energy efficiency.

1. INTRODUCTION

In the existing housing stock of Russia costs of heat consumption on 1 sq. m 2.0-4.0 times higher than in such countries as Finland and Sweden, where the climate and the average annual temperature is close to the conditions in the central and western parts of Russia. It should be noted that a positive trend also is observed: the level of specific energy consumption of buildings for heating and ventilation during the heating period in the study range from 1990 to 2016 decreased by more than twice.

Thus, the statutory cost of electricity and heating are several times lower than the actual due to construction technology used in the Soviet Union and subsequent exploitation undertaken in post-Soviet period.

The relevance of this study is also caused by the annual increase in utility tariffs in Housing and Communal Services and the partial fall of the level of effective demand associated with the current economic situation.

A special role in maintaining the solvency of the sector and minimizing costs for utilities takes energy service that allows not only achieve greater energy efficiency, but also to create a competitive advantage for the managing organization.

In order to identify private ways to improve the energy efficiency of apartment buildings and reduce energy consumption, the research of activities on energy efficiency was conducted in one of the managing companies in the city of Krasnogorsk of Moscow Region. The owners of premises in an apartment building and special experts from the managing organization of Krasnogorsk participated in the study.

The object of the study was a nine-story four-entrance house with 144 apartments. According to statements by specialists of Krasnogorsk managing organization, energy

consumption in an apartment building in the daytime does not fall to zero, that contributes to the development energy conservation by using solar panels.

To reduce the costs associated with a progressive tariff at exceeding consumption over the generation level, installation of solar panels has been held in the company. These solar panels are connected to the power generation network. The ratio of power generation and energy consumption is shown in Figure 1.

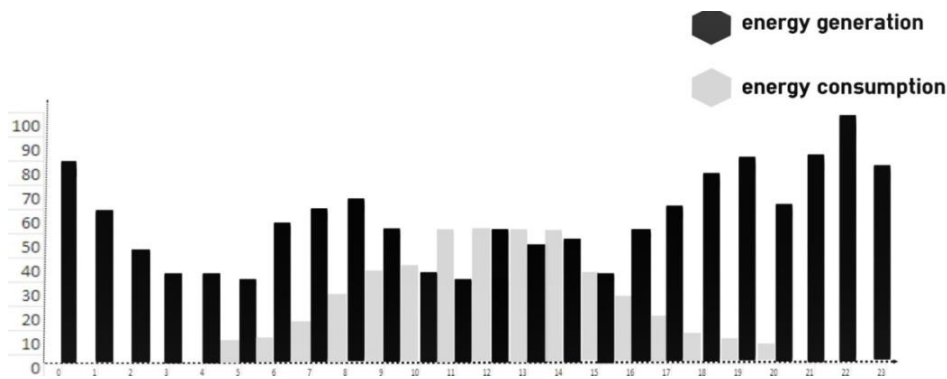


Figure 1. Schedule of consumption and generation of electricity

In accordance with the data shown in Figure 1, one average apartment in the middle from 10 a.m. to 02 p.m. uses:

$$W_{\text{apt}} = E_1 + E_2 + E_3 + E_4 + E_5 = 0.48 + 0.60 + 0.62 + 0.51 + 0.62 = 2.83 \text{ kWh, where } E_1, E_2, E_3, E_4, E_5 \text{—the levels of energy consumption / hour.}$$

During the period from 10:00 a.m. to 02:00 p.m. (the period of maximum solar activity) total E_{in} in this building is:

$$E_{\text{total}} = E_{\text{apt}} \cdot 144 = 407.52 \text{ kWh.}$$

If we accept that the service life of solar panels is 15 years, the total energy economy will make 1,467.072 kWh, which at current rates of the town of Krasnogorsk is equivalent to savings of 4,665,288.96 RUB.

Simultaneously with the installation of solar cell, experts of the Krasnogorsk company was made the installation of automatic control assemblies, thermostats, and balancing valves with a preliminary review of each of the owners about the expected results of the savings for each energy conservation measure during the year.

Controlling the feed of thermal energy, depending on the weather conditions and its generating, an average helps to reduce its consumption by 20%.

It was indicated that while the simultaneous installation of balancing valves and thermostats on heating devices, each event brings about 10-15% savings.

Taking into account the existing experience of Krasnogorsk managing organization, the application of listed equipment, as well as the assessments of leading specialists, by the

expert way, the average value of thermal energy economy at the expense of each measure in percentage terms has been received:

- 20% - Installation of automated control assemblies;
- 5% - Installation of balancing valves;
- 15% - Installation of thermostats;
- 42% - The total savings from the implementation of the above activities.

On the basis of expert evaluation of potential savings from the energy efficient equipment installation, assessment of the estimate of the heat energy savings in natural units has been performed (Table 1).

Table 1. Calculation of Energy Saving Indicators

Indicator	Area of building (sq. m)				Average index on sq. m
	800	4100	5500	8500	
Calculated level of consumption of thermal energy before the implementation of energy efficiency measures, Gcal	218.5	695.4	959.1	1507.4	0.179
The savings from the introduction of the automated control assemblies, Gcal	44.7	137.1	191.9	301.9	0.036
The savings from the introduction of balancing valves, Gcal	0.1	34.4	48.6	75.4	0.025
The savings from the introduction of thermostats, Gcal	34.8	103.8	145.9	224.6	0.027
The total savings from the implementation of the above activities, Gcal	81.2	284.5	401.4	601.2	0.072

Thus, the total reduction of energy consumption on average per year is 42%, which is equivalent to 0.072 Gcal per 1 sq. m / year. Monetary terms of energy savings at current rates is shown in Table 2.

Table 2. Monetary Terms of Energy Conservation

Indicator	Area of building (sq. m)				Average index on sq. m
	800	4100	5500	8500	
The savings from the introduction of the automated control assemblies, RUB, thousand	82.53	253.11	354.29	557.37	0.066
The savings from the introduction of balancing valves, RUB, thousand	0.18	63.51	89.73	139.20	0.015
The savings from the introduction of thermostats, RUB, thousand	64.25	191.64	269.36	414.66	0.050
The total savings from the implementation of the above activities, RUB, thousand	149.91	525.24	741.06	1,109.94	0.134

The cost of implementing the above energy-saving measures in current prices is shown in Table 3.

Table3. The Cost of Implementing the Energy Conservation Measures

Indicator	Unit of measurement	Area of building (sq. m)			
		800	4100	5500	8500
The cost of installation of automated control assemblies	RUB	188.30	343.70	443.50	593.50
	RUB/ sq. m	235.38	83.83	80.64	69.82
The cost of balancing valves	RUB	0.0	285.60	217.50	370.20
	RUB/ sq. m	0.00	69.66	39.55	43.55
The cost of thermostats	RUB	88.90	504.36	650.10	904.20
	RUB/ sq. m	111.13	123.01	118.20	106.38
The total cost of integrated automation	RUB	278.90	1,136.54	1,652.35	1,786.59
	RUB/ sq. m	348.63	277.21	300.43	210.19

Comparing the indicators of the cost of installing energy-saving equipment and annual savings, payback of each activity has been calculated (Table 4).

Table 4. The Payback Period of Energy Conservation Measures

Measure	Indicator	Unit of measurement	Area of building (sq. m)				Average index on sq. m
			800	4100	5500	8500	
Savings by installing ACS, RUB, thousand	Cost	RUB, thousand	188.3	343.7	443.5	593.5	0.08
	Annual savings	RUB, thousand	82.53	253.11	354.29	557.37	0.07
	Payback period	years	2.28	1.36	1.25	1.06	1.49
Savings by installing balancing valves, RUB, thousand	Cost	RUB, thousand	0	285.6	217.5	370.2	0.05
	Annual savings	RUB, thousand	0.18	63.51	89.73	139.2	0.02
	Payback period	years	0	4.5	2.42	2.66	2.40
Savings by installing thermostats, RUB, thousand	Cost	RUB, thousand	88.9	504.36	650.1	904.2	0.11
	Annual savings	RUB, thousand	64.25	191.64	269.36	414.66	0.05
	Payback period	years	1.38	2.63	2.41	2.18	2.15
The total savings due to integrated automation, RUB, thousand	Cost	RUB, thousand	278.9	1,136.54	1,652.35	1,786.59	0.26
	Annual savings	RUB, thousand	149.91	525.24	741.06	1,109.94	0.13
	Payback period	years	1.86	2.16	2.23	1.61	1.97

Speaking of improving the efficiency of residential real estate management by using energy-efficient technologies, it should be noted that since April 1, 2016 the payment of the general house needs will be included in the service 'maintenance and repair' of residential

premises'. In this regard, the managing companies have a number of obligations that directly affect their socioeconomic efficiency:

- The duty of the managing organization to pay for the benefit of organizations, which provide resources, the cost of utilities in the general house needs, regardless of collectability of funds from the owners of premises in an apartment building;
- The insurance of high risks of reducing income and, as a result, the bankruptcy of the managing company;
- Control over the payment discipline of utility services consumers.

The above-mentioned energy conservation measures are not interdependent, that allows the managing company to make the introduction of each of them in the process of assessing results that is impossible with a comprehensive approach to improving energy efficiency.

At a joint phased implementation of energy conservation measures, managing companies do not need a one-time major investment, and owners of premises in apartment buildings have the opportunity to evaluate the specific energy efficiency of each action and their transparency. The proposed approach, along with the savings of resources for maintenance, can increase the level of owners' confidence and the competitiveness of a company.

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EXAMPLES OF GOOD PRACTICE IMPLEMENTATION OF BALANCED SCORECARD - BSC MODEL

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Abstract: The most important contribution of this work will be that it will be on examples of good practice design and implementation of the BSC model - to get knowledge about the new way of strategic managed, reporting and performance measurements. At the same time will create the conditions best way of application BSC model in enterprises. Tim will acquire the conditions for a comparison of the earlier model of strategic performance management with new models such as the BSC model. The ultimate contribution of this work will be reflected in the certificate that the BSC model better than conventional models. The usefulness of BSC model will not only be seen through a system of indicators, but a management system that shapes the whole process of planning, management and control. In this context, the BSC is considered central and organizational framework for a holistic management process.

Keywords: strategic management, reporting, performance measurement, BSC model.

1. INTRODUCTION

In modern business conditions, the use of traditional performance measurement system based on accounting - financial indicators is not able to respond to business needs. As a result of these needs in contemporary conditions have a number of systems to measure performance. One of the modern system of the Balanced Scorecard. This paper is a Balanced Scorecard that complements conventional financial reporting standards and financial performance standards of the future.

Relevance BSC model is emphasized through the existing literature (Kaplan and Norton 2001, Niven, 2007), in the real business world to announce the real challenge. For companies it is important to understanding that implementation of BSC model does not represent a program of measuring performance, but it is the implementation of a new way of functioning (Kaplan and Norton, 2001).

Emphasis was placed on the implementation of that methodology in countries whose companies to successfully apply, and how to apply. General accepted position that is easier to formulate than to implement the strategy, given the importance of the methodology, as verified by examples of good practice. Only the model of implementation will show that the BSC methodology of framework that vision and strategy of transfers part of the strategic objectives and the strategy to all downloads organizational levels.

2. FINLAND

In the world in recent years among companies developed an interest in the application of BSC model. Review of research applications BSC model in Finnish companies aims to

gain insight into research on how companies in Finland use the BSC model. Research conducted through interviews confirm that a large number of companies in Finland adopted the BSC model. Of all respondents, 31% said they are already using the BSC in their business, while 30% intend to adopt the same.²² As the concept of BSC method progressed in just a few years ago, we tried to assess whether the BSC used as an improved performance measurement system or as a system of strategic management.

The study included 17 companies from the telecommunications, banking, retail, metal industry, engineering and FIG. At least the company had 360 employees and the largest approximately 25.000 employees. In every company we tried to determine the person who is best addressed in the development and use of BSC. Most of the interviewed companies (15 of 17) had four perspectives in the BSC method, as recommended by Kaplan and Norton. Two companies were added a fifth perspective, otherwise administered in Swedish companies. Number of measures in the BSC is varied, there were at least four and a maximum of twenty-five. Implementation of the BSC method was to adopt new measures that have not been used before by the majority of enterprises.

Only two companies failed to adopt new measures. Nine respondents gave the answer that serve to both purposes. These respondents were mainly from large and medium and mature and fast-growing companies. Six respondents from business planning and control functions overlook the BSC as a tool for the implementation of the strategy, while two respondents from business planning BSC seen as an information system. As a conclusion can be drawn that the use of BSC is not associated with the kind of company with no organizational structure. Also, the profession of respondents is not too affected the perception of the same BSC, a majority of respondents had a positive opinion of the BSC model.

3. ERICSSON NIKOLA TESLA

Business processes and environments are changing rapidly. The process of corporate governance in Ericsson Nikola Tesla is a unique framework designed to enhance flexibility and control in highly variable conditions. Reviewing the work of all units within Ericsson Nikola Tesla, it has been noticed that some of them do not go the way they should go. Therefore, the management of Ericsson Nikola Tesla in 1998 decided to create a business process management, direct the work of all its units to the same goal, the vision of the company, monitor achievement in order to know whether the company is going the right way, and constantly improve.²³ 1998 Balanced Scorecard was introduced as part of the steering mechanism in Ericsson Nikola Tesla

Business Management in Ericsson Nikola Tesla is a process in which management through employee company implements the strategy. How would management of the company was sure were set realistic basis for the development of enterprises throughout the process, continuous communication is required higher and lower layers of management. The starting point is a business management consultation, planning and defining strategies, while thoroughly analyzing the market, defined vision and mission, and strategy. It is critical to

²² Malmi, T.: Balanced Scorecards in Finnish companies: A research note, *Management Accounting Research* 12, 2001. god., str. 207.

²³ Primjena koncepta Balanced Scorecard u Ericssonu Nikoli Tesli, str. 2-5.

define long-term goals, which are then tested by SMART method. One of the fundamental determinants of Ericsson Nikola Tesla is emphasizing the common goals formulated within five perspectives, namely financial, customer, internal efficiency, innovation, and employees.²⁴ To the company Ericsson Nikola Tesla was known whether the goals achieved, they need to be and measure. Measurement and reporting are carried out through key performance indicators within each perspective. The indicators measure various key processes in the business. As demonstrated by the experience, after defining the indicators of the same need to explain to them and make the specification. At the enterprise level, there are 23 indicators, of which almost half is of strategic importance for future prosperity. Performance indicators are classified into three groups:

- 1) generic - can be used anywhere in the company (customer satisfaction, satisfaction of employees, etc.).
- 2) Strategy - used to monitor specific strategic purpose (market position, the quality of products, etc.).
- 3) business - used to specific tasks (delivery).

Within Ericsson Nikola Tesla inspired by the principles that are not only financial factors that create value, there are people, relationships with customers and suppliers, internal processes, innovation and so on. Therefore, measurement and monitoring geared mainly towards the intangible, or hidden factors. They are best seen in the structure of intellectual capital. The elements that make up this structure are recognized as a model BSC perspective.²⁵ Given that Ericsson Nikola Tesla aware that all proceeds from the employees, imagined them as the root of the business. Their wish was to create a system understood by all, not just management, and thus allow free communication between all levels of the company. In order to know whether they are on the right track, check their guesses were. Through employee satisfaction survey (the same is filled once a year), to the questions received answers that were more than satisfactory. This allowed the company to improve its financial results.

4. NETHERLANDS

In the Netherlands, BSC model has become widespread and has introduced many changes in different companies. According to a study conducted in 1999 of 120 CEOs of large manufacturing enterprises (answer only about 6%), 19% of respondents said their company benefits BSC model, 29% intend to start using the BSC model, 21% of respondents believe that the current systems are adequate, while 31% of respondents did not aware of the existence BSC model. Furthermore, the survey results did not reach expectations, and 50% to 70% of all users are not satisfied or are not completely satisfied with BSC model. When asked about the reasons for the use of BSC model, 90% of respondents mentioned measure

²⁴ Ibidem

²⁵ Ibidem str. 6.

performance, and 80% of control. Less than 40% said gray model used by BSC to clarify and update the strategy of the company.²⁶ Empirical evidence suggests that the actual use of the BSC model moderate. Studies have shown that between 30% and 50% of Dutch companies intend to spend BSC model in the future. However, expectations of Dutch intellectuals interviewed regarding BSC model diverge. Some expect that the BSC model to become an important foundation for the strategic management and control, if implemented well. No, for this purpose the concept and its basic principles are yet to be developed. On the other hand, some leading intellectuals were skeptical of the above-mentioned method. They, in fact, expect the BSC model is a transit concept that will be replaced by another concept. This will be a concept which will be better adapted to the needs of enterprises, to unify the fundamental principles of the BSC model. So, intellectuals expect basic principles remain, but that differ in certain expectations.²⁷

5. SLOVENIA

Many countries have conducted research on the implementation of the BSC model, and its significance, which led to the following conclusions. The study, which included 264 Slovenian companies (33% small, 23% medium and 44% large enterprises), showed that only 6.5% of them apply Balanced Scorecard (38.5% did not familiarity model, while 5.7% has the intention to introduce this model into practice).²⁸ Slovenian organizations are aware of the need to introduce BSC as a sophisticated ways of managing costs in order to improve its position in the domestic and foreign markets.

6. GERMAN-SPEAKING

Study was conducted on the use of BSC method companies in Germany, all ATX and Midcap companies in Austria and the 50 largest companies listed on the stock exchange in Switzerland. The final sample was 201 company, with 100 German, 51 Austrian and 50 Swiss companies. Being selected a clearly defined segment of the 200 most important companies and obtained a very large percentage of responses rather than expert respondents (174 responses to the survey of 201 questionnaires sent), considered to be the most objective research on the application of the BSC method in German-speaking countries. Most of the company's first contact with the BSC method was between 1996 and 1999 (of which 10 enterprises in 1996, 16 companies in 1997, 34 companies in 1998 and 18 companies in 1999). Only seven companies are familiar with using the BSC method earlier, in 1992 one company, and in 1993 and 1995 by three companies.²⁹

²⁶ Braam, G., Heusinkveld, S., Benders, J., Aubel, A.: The reception pattern of the balanced scorecard: Accounting for interpretative viability, str. 10-11.

²⁷ Ibidem.

²⁸ Tekavčič, M., Šink, D.: The use of cost management tools for global competition – the case of Slovenian Companies, University of Ljubljana, str.9.

²⁹ Speckbacher, G., Bischof, J., Pfeiffer, T.: A descriptive analysis on the implementation of Balanced Scorecards in German-speaking countries, Management Accounting Research 14, 2003., str. 368.-370.

One quarter of companies have not yet come into contact with BSC model; 18% of companies know about the same, but it is still not a little more detailed study, while 17% of companies a little more detail examined the matter but did not take any concrete steps. This would mean that 60% of companies have not gone beyond the first stages of considering this model. Six percent of the company made the first step in implementing the BSC, while also 6% of the company began with the first project. Ultimately, 17% of companies implemented BSC method on the individual level, while 9% is carried out for the entire company, which would mean that only 45 companies, or one-quarter of all respondents actually has experience with using the BSC model.³⁰

7. BOSNIA AND HERZEGOVINA³¹

In order to accelerate economic development of Bosnia-Herzegovina, each institution should, as a result of its own balanced scorecard, generate a few key indicators. Those key indicators would be collected by the National Balanced Scorecard Team which would track the institution's work and their success. The results of our research show the existence of positive correlation between the following perspectives: educational perspective, technological perspective, legal perspective and economic perspective.

Bosnia-Herzegovina can also accelerate its economic growth by successful planning its crucial indicators within each perspective. The increase in GDP, as well as living standards can occur only if key indicators within each sector are determined, as well institutions responsible for overseeing those indicators. Thus, every institution (regardless of its level) would send its key indicators to the National Balanced Scorecard Team, and therefore establish better coordination between the organizational units in Bosnia-Herzegovina (ministries). If we know what indicators to measure within the educational perspective and if we are successful with it, then we would be aware of our core competences within that perspective.

8. CONCLUSION

Balanced Scorecard model is a system of measurement and performance management company, which is based on four interrelated and equally important perspective and financial perspective, the customer perspective, internal business process perspective and the perspective of learning and development. It is because of these four perspectives BSC method helps and gives specific and clear guidance to companies in which fields of business mistakes and how to correct them.

Due to the rapid changing business conditions is very important to rapidly adapt and follow trends, acquire new knowledge and to cope with the challenges to come. The only way

³⁰Ibidem.

¹⁰ Čizmić, E, Veselinović Lj., (2008), National "Balanced Scorecard" Concept as an Accelerant of Bosnia-Herzegovina's Economic Development, Conference: International Conference of the School of Economics and Business Sarajevo, At Sarajevo.,

the company will be ready to achieve your goals and be successful. BSC method facilitates setting, facilitates managers to maintain or change the strategy and to report on progress in achieving the objectives. The key problem in the current models for measuring and managing performance is a tendency of business management based only on financial indicators, reporting on past events. Such a model for measuring and managing performance is insufficient for the successful implementation of the company strategy and the projection of future events. "A good balanced scorecard should tell the whole story about your business strategy" - in this sentence is contained the whole bit about the BSC model.

Companies must develop strategies that will achieve production guidance and improve relationships with customers, and that will differentiate you from the competition. No, it is not only necessary to develop an appropriate strategy, it is necessary to implement effective execution. BSC model is not only a system of indicators, but a management system that shapes the whole process of planning, management and control. It should also be noted that there is a harmonization of the objectives of individual departments and employees with the organizational strategy. In this context, the BSC is considered central and organizational framework.

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USING THE FOURTH GENERATION BALANCED SCORECARD IN THE PROCESS OF STRATEGIC PLANNING IN THE PUBLIC SECTOR ORGANIZATIONS

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Abstract: The problem of achieving effective and efficient public sector has long been studied in the Republic of Macedonia. The dream of every political leadership is to create a public sector where, with minimal costs, a maximum result will be offered. Therefore, one of the main goals of each government should be building an efficient, modern and transparent public sector, which will provide high quality services and will be a real service for the citizens.

Creating visions for change, establishing clearly defined strategic goals and their implementation, improvement of technologies, computerization of processes and performance control, should be key components of public sector reforms and should quickly become their permanent practice.

Nowadays, more prominent is the need for application of the Balanced Scorecard as a tool for strategic planning and monitoring of results in the public sector, which guides the organization not only towards the financial perspective, but above all, towards answering the question of how to meet the needs of the citizens in our community and of the regulatory bodies that established the organization. All this implies the need for learning and organization development, i.e. strengthening its internal capacity and improving the processes, which as an essential value can lead the organization to the achievement of its vision.

It is in this context that the paper is going to make a reference to the application of the fourth generation of Balanced Scorecard and creation of strategic map as important segments of the strategic plan, as well as a solid basis for monitoring the level of strategy implementation.

Keywords: strategy, Balanced Scorecard, strategy map, public sector.

INTRODUCTION

The profound knowledge of the management theory and practice, can provide a solid contribution to the development of organizations in this highly organized world where virtually everything is managed. Starting from the long-term strategic goal of the Republic of Macedonia to join the EU and in light of the transition process through which the country passes, the need to create a quality public sector, within the family of the European public sector, emerges as more than necessary.

The reform of the public sector in the Republic of Macedonia should be in conformity, i.e. should be considered a complementary part of the activities for European integration. Although the EU has no direct powers over government and public administration in the member-countries, however, the membership and accession assume certain qualities and

abilities of the national administration (Davitkovski, 2003). The European criteria for the Republic of Macedonia should be in line with the overall social reforms that are the subject of ongoing implementation, especially in the area of creating an effective public system, while in accordance with the principles of the European system.

Recent decades have been a period of intense activity to implement a series of reform activities in the public sector even in the most developed countries in the world, which, of course, stems from the growing needs to improve the overall organizational performance, greater effectiveness and efficiency of organizations as well as developing a mechanism for greater transparency and accountability of public sector organizations. In fact, the overall objective of these reforms is the affirmation of greater responsibility of the public sector, which is in the context of rational use of public resources. The measures taken in the developed countries have contributed to the development of the so-called new public management or new way of management in the public sector, which is characterized by adopting certain styles and management concepts in the private sector, as well as the application of explicit standards, i. e. performance measurement.

Different countries apply different approaches, mainly to keep up with the modern challenges to the public sector, especially in the domain of balance between accountability and flexibility of these organizations, which until recently was at a very low level. Some countries, due to increasing levels of responsibility and rational use of public resources, take up various innovative forms. Such moves do not remain unnoticed and result in attention and comments from the world public, which contributes to continuous improvement and putting pressure on other countries in direction of reviewing their positions and identifying the necessary actions in order to reach the rest of the developed world (Besley& Ghatak). The research of the Commonwealth Association for Public Administration and Management shows that, despite the differences between countries, there is a single model that "emphasizes the role of public managers in providing high quality services valued by citizens" (SARAM, 1997).

New challenges in the public sector impose strengthening of the management autonomy, particularly through reduced control by the central agencies, assessment and reward of organizational and individual performance, stressing the importance of human and technological resources necessary to achieve the organizational goals, openness to competition and discussion about which public services should be provided by the public, and which by the private sector, i.e. which non-government organizations (Džunić, 2004).

Such a milestone is necessary if the objective of the public sector is its adjustment to monitor and adapt to changes that occur in the dynamic global environment as a key determinant of development both of the public and the private sector. Although the private sector is exposed to relentless competition on the world market, and its survival depends directly on the degree of efficiency and focus on meeting the needs of consumers, still, the competitive advantage owned by these organizations is directly related to measures that a particular government takes to help achieve the organizational goals (Džunić, 2004). In return, the positive results from the private sector reduce the pressure on the state budget and meet the basic needs of the citizens. Practically, the benefit from an effective government goes to all citizens, especially to the users of public services and goods.

THEORETICAL PART: DILEMMAS CONCERNING THE NON-PROFIT PERFORMANCE MEASUREMENT

Generally, public organizations, as non-profit organizations, have the primary purpose to ensure services rather than produce products. But the service is intangible and often difficult to measure (Newman, et al., 1978). Therefore, the results in some cases, may be impossible to discover (Drucker, 1968).

But the intangibility of services measurement in public sector organizations is complemented by the weak impact that service users have on their operations, compared with customers of profit organizations. Because the incomes in these organizations are only partially dependent (if at all dependent) from service charges, the market performance measurement oriented around the customer is immediately rejected or plays a non-dominant role (McKevitt, Lawton, 2010). Although it is often claimed that the performance of public sector organizations should be in the function of the citizen as a consumer and in the function of his satisfaction, still, many of these organizations face less competition, and the market is virtually unlimited. In this small competition, the recipients, i.e. citizens, do not usually tend to react and give feedback (Selby, 1978). For example, when the non-profit and profit organizations begin to compete with each other, as it happens with health organizations in specific communities, then it can be expected that both types of organizations will integrate in their performance measurement.

Another problem are the conflicts in setting objectives, limiting the rational planning. Namely, because there is heavy reliance on financial aspects in which organizations of this kind do not have a clear view and are in a position to wait, often contributes not to define targets that are necessary for the development of the organization, but to define targets that meet the prescribed financial framework. When the vague market analysis is added to all this, where the impact of customers (citizens) is reduced because they are not the main source of income for the organization, then it is clear that in the process of planning the managers face uncertainties in the purpose and diversity of the values which need to be pursued. The condition when the feedback from the environment is relatively confusing can be added to all this, and the signals that initiate unacceptable goals are less effective and need more time to be accepted "(Thompson, McEwen, 1958)

Furthermore, as an important factor that can be added is the focus that this kind of organizations usually have. Namely, because they provide services that are hard to measure, a new end result is rarely set, while the planning starts to concentrate on raising finance and resource inputs, instead on improving the quality of services (McKevitt, Lawton, 2010). As a result of all this the next characteristic of having vague operational tasks is developed, which creates opportunities for loose connection of the official mission and operational objectives. Since the objectives are unclearly stated and the planning focuses on providing resources, the managers within organizations gain greater freedom to act as they choose, opening the possibility of maneuvers or ignoring the needs of the citizens, and at the same time trying to meet the demands of the founders i.e. a small group of citizens, all this through reports that are perfect on paper, but little in touch with reality.

APPLICATION OF BALANCED SCORECARD

Balanced Scorecard is a concept for measuring organizational activities regarding the vision and strategy in order to enable managers to have a comprehensive view of business efficacy. A key element here is to focus not only on financial performance and prospects, but also on human resources that contribute to achieving these results. Thus the organizations would be directed towards the future, acting on their best long-term interests. Following the high number of positive opinions from different experts this concept is accepted as a global standard implemented by a series of leading global organizations, both from the public and private sector.

In fact, research shows that most organizations believe that the emphasis on the financial component greatly affects the organization's ability to create values. In this context, the Balanced Scorecard is one of the newer methods used in the process of strategic planning and the entire management of the organization in general, in order to fulfill the set vision by improving the internal capacity and coordinating the organizational performance in line with the strategic objectives. The basic idea of this method is to engage both financial and non-financial factors in a way that the management would get a better image of organizational performance (Krunić, 2012).

Of particular importance for public sector organizations is the perspective aimed at internal processes. Namely, this perspective involves measuring the cost, productivity and quality of key operational processes, as well as a degree of applicability of the processes in order to meet the needs of a specific target group. On the other hand, in order to strengthen the internal capacities, the prospect of learning and development is important. Namely, this perspective is aimed at acquiring knowledge and skills needed to meet the strategic goals. But learning and development, implemented through a variety of mechanisms, do not have to be inherent only to line management, the supervision should also acquire certain skills which strengthen the functionality and operation of the organization (adapted according to Hartnett, Matan, 2011).

The mission of public sector organizations is primarily based on the responsibility the organizations have towards the society as well as the reasons for their existence and the continued support they receive from regulators. However, the measurement of the improvement and the impact it has on the social environment can take years until it is observed, which leads to the conclusion that feedback which ensures control and responsibility can not be provided in a short period.

Based on properly conducted diagnosis of the current state of the organization, the vision is defined, i.e. the desired state of the organization in the coming period, whose timescale depends on many factors that intertwine in today's dynamic environment. The defined vision is the key basis for further defining of objectives, activities and organizational strategy, all this by using the concept of BSC. The clear definition of objectives and their division on the four perspectives guide the organization towards comprehensive development and present a solid basis for formulating operational plans needed for current operations of the organization. In this way gradual "landing" of the strategy to concrete actions is carried out, thus providing a transfer of the mission into specific desired results: satisfied citizens, effective processes, motivated employees, satisfied founders.

Kaplan and Norton also believe that in the era of information technology and knowledge when solely the financial performance is not enough, the organizational

performance should be measured from the perspective of citizens, internal processes as well as learning and development. In fact, organizations have to answer a series of questions relating to (adapted according to Kaplan & Norton, 1992):

- How the citizens see us (Customer perspective)?
- What should be done exceptionally (Perspective of internal processes)?
- The possibility to continually improve and create organizational values (Learning and Development).
- How we are seen by the regulatory bodies (Financial perspective)?

In fact, the overall coherence of these four perspectives can be seen in the picture below.

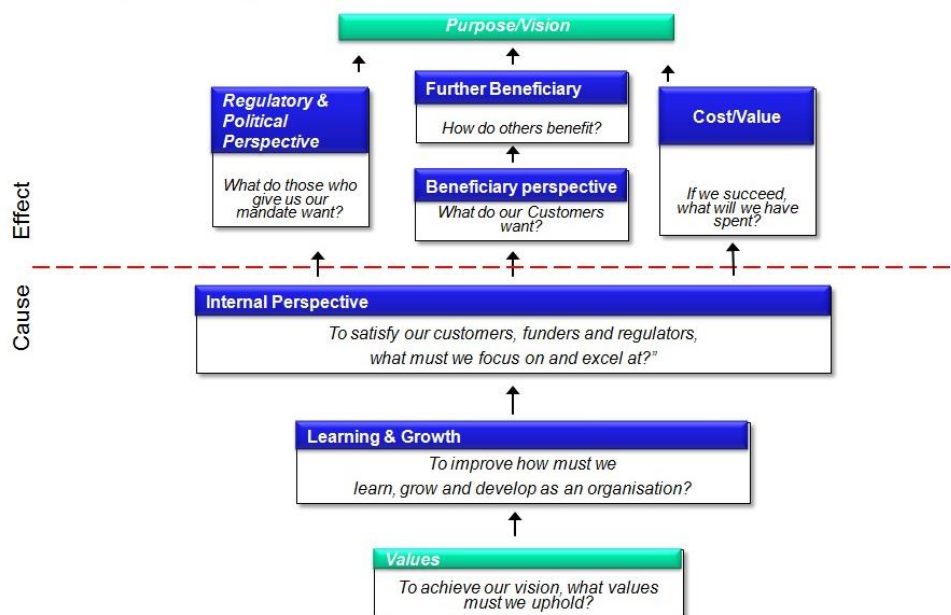


Figure 1. Frame of cause and effect. Use of BSC in the public sector

Source: Jones P., 2011, The Public Sector Strategy Map: Addressing both strategy and service delivery models, PMA Newsletter, Performance Management Association, pp.5

As seen from the figure above it can be concluded that the effects of learning and development as well as improving the internal processes, can be felt by the direct and indirect beneficiaries, as well as the many stakeholders who, for many reasons, are interested in the good work of the organization. Ultimately, the organization also strengthens its overall competencies and creates values that ensure the efficient operation for a long period of time.

The ultimate effect of the planning process and segmentation of purposes in all four perspectives is the strategic map, which by its structure is quite logical and comprehensive and describes the strategy of an organization. It actually aims to present the key elements of the strategy and their interconnection, thus creating a whole that would be understandable for both top management and every employee in the organization.

Given that the strategy of the public sector organizations should be an integral part of the national strategies in some segments i.e. it should be created in relevant ministries or agencies, then it is clear that the creation of the strategy in the public sector takes place through a series of cascade set segments, as presented:

- Strategic priorities of the public sector in general and the activity that belongs to the relevant ministry;
- General and specific objectives;
- Organizational strategy;
- Internal plans, programs and projects;
- Development of employee performance and evaluation;

One of the first steps of "ownership" of the objectives by each public organization is to ensure that its stakeholders share as much as possible a common belief about the correctness of the procedures undertaken by the organization separately, in direction of creating values needed to help the realization of the strategy for the public sector in general and the industry in which the organization belongs. This will help the organization create its common goals, and help others understand: what it wants to achieve, why its work is valuable and how it will achieve its goals.

Although the use of the concept of BSC in the Republic of Macedonia is still low, the worldwide results improve. Namely, in the research conducted by IIBFS on behalf of CIMA, the received result has been a significant insight into the use of the Balanced Scorecard specifically in the UK. During this research project, IIBFS directly contacted 591 private sector organizations and 51 public sector organizations. The survey results are shown in the table below (Macaky, 2005).

Table 1. Use of Balanced Scorecard

Private Sector Organizations

Number of Companies Contacted	591
Number of Companies Using the Balanced Scorecard	91 (15.4%)
Number of Companies Not Using the Balanced Scorecard	258 (43.7%)
Total Number of Companies with a Performance Measurement System with Similar Characteristics to the Balanced Scorecard	62 (10.5%)
Total Number of Companies Unwilling or Unable to Take Part in the survey	

Public Sector Organizations

	180 (30.4%)
Number of Public Sector Bodies Contacted	51
Number of Public Sector Bodies Using or Intending the Balanced Scorecard	
Methodology	16 (31.4%)
Number of Public Sector Bodies not Using or Intending the Balanced Scorecard	33 (64.7%)
Number of Public Sector Bodies Unwilling to take part in the survey	2 (3.9%)

Source: Mackay A., 2005, Research Report: A Practitioner's Guide to the Balanced Scorecard, CIMA (The Chartered Institute of Management Accountants), pp. 47;

The analysis of the survey results shows that out of 591 researched organizations in the UK private sector, about 15% actively use the concept of Balanced Scorecard. As for public sector organizations, 31% use or intend to use the concept of Balanced Scorecard.

Also according to Bain & Company, the leading international consulting company for the business and strategic planning:

- about 70% of the organizations implemented some parts of the Balanced Scorecard
- 50% of the organizations from the list of Fortune 1000 use Balanced Scorecard
- 70% of the organizations from the list of Fortune 500 use Balanced Scorecard.

In addition of this it is important to analyze the data that Kaplan and Norton mention, which is that only 5% of employees understand the adopted organizational strategy, only 25% of managers have initiatives linked to the strategy, only 60% of organizations do not link budget to strategy, and 85% of the top management spends less than one hour per month discussing the strategy.

In this context from the research conducted in public sector organizations in the Republic Macedonia it can be concluded that a large percentage of employees are informed about vision, mission and goals of the organization.

- 118 employees or 58.13% are informed about the vision mission and objectives;
- 77 of them or 37.93% are partially informed;
- 8 of them or 3.94% are not familiar with.

The research was conducted among 203 employees of various public sector organizations (source: Stefanovska, 2011). But it is questionable how many of them understand these important strategic directions for the organization and agrees with them, considering the fact that most of these strategic documents were prepared at central level or in the relevant ministries without greater involvement of the units territorially distributed in the R. Macedonia.

It has also been found that organizations often do not have formal systems to link strategies with operational activities. Such data reinforces the serious need for raising awareness among top management for properly practicing the overall strategic management process, as well as serious implementation of the concept of BSC in the planning and control process, which will provide a comprehensive development and establishment of values which will have use value for the long run.

CONCLUSION

Today, it is known that many public sector organizations have successfully applied the concept of BSC. Kaplan and Norton include: The United Way of Southeastern New England, The May Institute, New Profit, Inc., University of California at San Diego, Duke Childrens' Hospital, Montefiore Hospital and others. However, it is considered that the specificity of public sector organizations and the mission they fulfill impose the need for modification of the architecture of the BSC. According to the authors Kaplan and Norton, in the public sector organizations clearer and more differentiated identification of objectives is needed (general

and specific), whose realization leads to the organization's mission. It is the only way for the organization to create organizational values with minimum cost and with ongoing support by the founders of the organization.

The prospect of internal processes highlights the importance of operational efficiency, resulting in a reduction of direct organizational and societal costs. In doing so they create value from which the main and direct beneficiaries are the citizens as direct or indirect users of the organization's services. The financial perspective relies on the support by the legitimate founders of the organization, who derive the financial assets from the end-users of services- i.e. the citizens, taxpayers and so on. It is clear that in such non-profit organizations the providers of the financial support, are not direct users of the services, but another group of citizens appear as users, on whose satisfaction and efficient execution of the needs benefits the society as a whole. Therefore, these organizations need to place at the top of the BSC pyramid the prospect aimed at meeting the demands of the founders, stakeholders and citizens, or to find answers to the difficult question, which puts in the foreground the relationship that needs to be developed towards these groups, in order to achieve the mission and vision of the organization (adapted according to Kaplan and Norton, 2001).

In the Republic of Macedonia the Strategy for Public Administration Reform (PAR) was adopted (www.mioa.gov.mk) whose main objective reads: "In order to achieve the vision, the purpose of the PAR Strategy is to improve and further regulate the legal and administrative framework, to apply the concepts and standards of the EU and to improve general administrative capacity as well as the administrative capacity in the different sectors. This will achieve the objectives of the so-called "good governance" and the public administration will be transformed from a regulatory-oriented administration into service-oriented administration that will be fully incorporated into the "European Administrative Space"

However, in order to achieve the above-mentioned goal and to create a public sector compatible with the European a larger commitment to the process of strategic planning is required implementation and control. Also, a range of activities and training are needed in order to draw near the BSC concept to the public sector organizations in order to avail its benefits and create common good not only for citizens, but also for the society as a whole.

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THE ROLE OF THE BARRIERS IN TRAFFIC NOISE PROTECTION

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Abstract: In the process of making preparations for joining the EU, as well as the construction of new and reconstruction of existing transport infrastructures, the Republic of Serbia arises the following question: how to protect ourselves from side effects which will inevitably appear as a consequence of transport intensity increasing. One of them is noise. How to protect the environment from its influence? One of the solutions is to construct barriers on critical positions.

Keywords: Traffic, barriers, noise

Apstrakt: Pripreme Republike Srbije za ulazak u Evropsku Uniju, kao i izgradnja novih i rekonstrukcija postojećih saobraćajnih infrastruktura, nameće pitanje kako da se zaštitimo od propratnih efekata, koji će se neminovno javiti, kao posledica povećanja intenziteta saobraćaja. Buka je jedna od njih. Kako životnu sredinu zaštititi od njenih uticaja? Jedno od rešenja je postavljanje odgovarajućih barijera na kritična mesta.

Ključne reči: Saobraćaj, barijere, buka

1. UVOD

Ubrzana izgradnja novih i revitalizacija postojećih saobraćajnica u Republici Srbiji, omogućava da se neki propusti, iz dalje i bliže prošlosti, reše na zadovoljavajući način po stanovništvo koje živi u neposrednoj blizini opterećenih putnih pravaca. Nepostojanje obilaznica oko naseljenih mesta u mnogome otežavaju situaciju kada je reč o saobraćajnoj buci. Poznati su primeri velikih problema koje stanovništvo ima sa intenzivnim saobraćajem, kao što je gradić Irig na obroncima Fruške gore. Tamo gde nije moguće izmestiti saobraćaj van naselja, potrebno je da se primene metode i principi zaštite od buke postavljanjem odgovarajućih zaštitnih barijera i pojaseva koji će smanjiti nivo saobraćajne buke i svesti ga na prihvatljiv nivo za okolne stanovnike. Takođe je prisutan i trend da se ljudi pre odlučuju da svoje domove grade u blizini većih saobraćajnica, radi lakšeg kretanja, a na uštrb mirnijeg života.

2. BARIJERE ZA ZAŠTITU OD BUKE

Sve barijere za zaštitu od buke, u odnosu na materijale od kojih su napravljene, mogu se podeliti na barijere od prirodnih materijala, barijere od veštačkih materijala, a koristi se i kombinovana upotreba prirodnih i veštačkih barijera. Koje će biti u upotrebi zavisi od mnogih

faktora. Gde god je to moguće, potrebno je koristiti prirodne materijale, koji su mnogo prijatniji za oko vozača i stanovnika.

PRIRODNE BARIJERE

Objekti za zaštitu od buke isključivo od biljnog materijala podrazumevaju sadnju biljaka u zaštitnim pojasevima dovoljne širine, na ravnom terenu, u usecima i nasipima.

Objekti koji se sastoje od "živog" i "neživog" materijala mogu biti [1]:

- ozelenjeni zemljani nasipi (zemljani nasip sa blagim kosinama koje su ozelenjene),
- ozelenjeni strmi nasipi (potporne konstrukcije sa velikim nagibom kosina nasipa ispunjene zemljom i ozelenjene),
- ozelenjeni zidovi za zaštitu od buke (konstrukcije u vidu zida od metala, drveta, stakla, betona, veštačkih materijala i kombinacija ovih materijala, koje sadrže biljke na jednoj strani ili na obe).

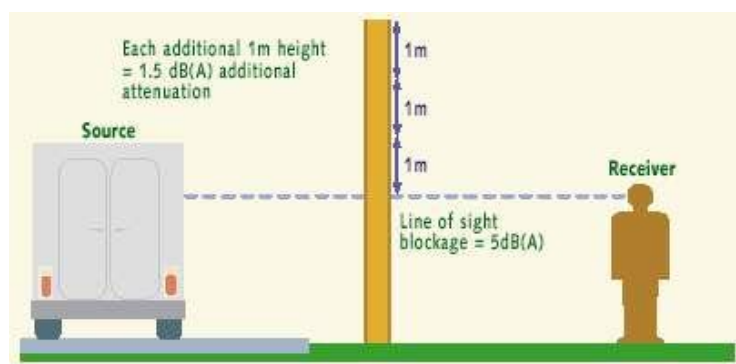
Kako su ove konstrukcije postavljene neposredno uz saobraćajnice, treba uzeti u obzir sva štetna dejstva saobraćajnice na biljke, kao što su: prašina, udar vetra od vozila, gasovi, povišena temperatura, isušivanje. Biraju se otporne vrste biljaka koje mogu da izdrže vremenske prilike i klimu datog podneblja.

Specifičnost vrsta u odnosu na efekte umanjenja buke istražio je Beck 1965. i 1968. godine. On je izvršio kategorizaciju biljaka u šest grupa. Prva grupa je najmanje pogodna, šesta grupa je najpovoljnija, a naročito su pogodne vrste treće i četvrte grupe:

- Grupa III obuhvata: *Betula pendula*, *Alnus incana*, *Cornus sanguinea*, *Cornus alba*, *Pterocarya fraxinifolia*, *Forsythia intermedia*, *Sambucus nigra*, *Lonicera maackii*, *Cratageus prunifolium*, *Lonicera ladebourii*, *Populus canadensis*, *Corylus avellana*, *Tilia cordata*.
- Grupa IV obuhvata: *Philadelphus pubescens*, *Carpinus betulus*, *Syringa vulgaris*, *Fagus silvatica*, *Ilex aquifolium*, *Ribes divaricatum*, *Quercus robur*, *Rhododendron spec.*
- Grupa V obuhvata: *Populus berolinensis*, *Viburnum lantana*, *Viburnum rhytidophyllum*, *Tilia platphyllos*.
- Grupa VI obuhvata: *Acer pseudoplatanus*.

BARIJERE OD VEŠTAČKIH MATERIJALA

Barijera za zaštitu od saobraćajne buke smanjuje zvuk koji dolazi do naselja od strane autoputa apsorbujući zvuk, transmitujući ga, odbijajući ga nazad preko autoputa ili prinuđujući ga da putuje dužim putem preko i oko barijera. Barijera mora biti dovoljno visoka i dovoljno dugačka kako bi blokirala pogled na autoput. Nakon što spreči vidljivost, sa svakim dodatnim metrom svoje visine, barijera postiže oko 1,5 dB dodatnog smanjenja buke.



Slika 1. Smanjenje nivoa buke sa povećanjem visine barijere [3]

Barijere se mogu projektovati u obliku vertikalnih i konzolnih barijera [2]. Primena konzolnih barijera povećava efikasnost barijere na taj način što se iza barijere povećava zona senke.

Primarna funkcija barijere je da smanji nivo buke koji se direktnim putem prenosi od mesta izvora do mesta prijema. Barijere se projektuju tako da zadovolje dve grupe zahteva [1]:

- Akustičke zahteve:
 - smanjenje nivoa buke na mestu prijemnika;
 - ublažavanje povećanja nivoa buke na strani izvora.

- Neakustičke zahteve:
 - izgled barijere- izgled barijere ne treba da naruši arhitekturu okoline, tako da se one projektuju da se estetski uklape u postojeću arhitekturu;
 - bezbednost- postavljanjem barijera ne sme da se naruši bezbednost vozača u smislu smanjenja vidljivosti; pri projektovanju i postavljanju treba takođe voditi računa i o bezbednosti ptica koje mogu npr. da udaraju u transparentne barijere i da se pritom povređuju ili uginu;
 - održavanje- oblik barijere mora da omogućava njeno lako održavanje.

Za potrebe izgradnje barijera najčešće su u upotrebi materijali kao što su drvo, beton, aluminijum, opeka, staklo, plastika i mnogi drugi. Razlikuju se po mnogim svojstvima i kao takvi nalaze primenu u zavisnosti od zahteva koji se postavljaju pred projektante.

Tabela 1. Izolaciona moć materijala za izradu barijera [1]

Materijal	d [mm]	M [Error! Bookmark not defined.kg/m ² Error! Bookmark not defined.]	R [dB]
Iverica	13	8,3	20
Drvo	25	18	21
Čelik	0,95	7,3	22
Aluminijum	1,59	4,4	23
Laki betonski zid	100	161	36
Zid od opeke	150	288	40

2.ODNOS STANOVNIŠTVA PREMA BARIJERAMA

Javnost ima pozitivan stav u odnosu na barijere pored puteva. Stanovništvu koje živi pored ovakvih objekata je u mnogome olakšan život: lakša govorna komunikacija, mogućnost držanja otvorenih prozora, duži boravak na dvorištu, lepši i kvalitetniji san. I indirektni pozitivni efekti, kao što su: povećana privatnost, čistiji vazduh, lepši vidik, zdravije zelenilo, su sve izraženiji. [4]

Pored pozitivnih navedenih efekata javljaju se i negativni koji se najpre odnose na osećaj skučenosti i zatvorenosti, slabijeg vidika, lošije cirkulacije vazduha, smanjenje cirkulacije vazduha, gubitak sunčeve svetlosti i osvetljenja. Kod dela stanovništva koji već duže vreme živi pored barijera javlja se i problem njihovog lošijeg održavanja. Vozači se u pojedinim slučajevima žale na monotonost u vožnji, ograničenost vidika i preglednosti u vožnji. Javlja se osećaj putovanja kroz tunel.

Prilikom projektovanja barijera veliku pažnju treba posvetiti estetskom prilagođavanju i uklapanju u okolinu. Visoka barijera blizu jednospratnih porodičnih kuća u izdvojenom stambenom naselju može imati negativan vizuelan efekat. Poželjno je da se barijere postave na udaljenosti od naselja jednakoj veličini od oko četiri njihove visine i da se obezbedi uređeno zelenilo blizu barijere kako bi se izbegla vizuelna dominacija. Uvek je poželjno da se sačuvaju u najvećoj mogućoj meri lepi vidici i pejzaži.

Barijere koje se koriste u naseljenim mestima bi trebalo da se razlikuju u odnosu na one koje se koriste na otvorenim područjima. Razlog je u razbijanju monotonosti koje doživljavaju vozači i u što efikasnijem uklapanju u okolinu. Da bi se sve to postiglo potrebno je koristiti što raznovrsnije materijale u kombinaciji veštačkih i prirodnih barijera.

3.ZAKLJUČAK

Zaštita od buke ima sve značajnije mesto u zaštiti zdravlja stanovništva, zaštiti životne sredine i poboljšanju kvaliteta života. Većina stanovnika naselja blizu puteva oseća da su barijere za zaštitu od saobraćajne buke ispunile svoju svhu postojanja tj. da su efikasno smanjile nivo saobraćajne buke i svele je na prihvatljiv nivo, i da su dobre strane barijera daleko nadmašile njihove nedostatke.

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RANKING OF CITY LOGISTICS SCENARIOS USING COMBINED AHP AND COPRAS METHOD

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Abstract: All cities of today are faced with the same or similar problems that have a negative impact on the environment. The most common problems of urban areas are: the emission of harmful gases and particles, noise, vibration, street network congestion, damage to infrastructure, etc. In order to minimize this negative impact and solve or at least reduce this problem intensifies on city logistics conceptual solutions. However, the use of only one conceptual design is not enough, however, access to the formation of city logistics scenario consisting of combination conceptual solutions. The aim is forming and ranking city logistics scenarios on the basis of the research in Doboj. For the ranking of the most common scenarios are used multi-criteria analysis methods, as is the case in this paper, which based on AHP (Analytical Hierarchy Process) obtained values of criteria based on which the method is performed by applying COPRAS ranking established scenarios. By selecting certain scenarios it is possible to increase the efficiency of the entire system of city logistics, and thus affect the increase in the quality of life of residents in the urban area.

Keywords: City logistics, scenario, AHP, COPRAS, multicriteria analysis.

Apstrakt: Svi gradovi današnjice se susreću sa istim ili sličnim problemima koji imaju negativan uticaj na životnu sredinu. Najčešći problemi urbanih sredina su: emisija štetnih gasova i čestica, buka, vibracije, zakrčenje ulične mreže, oštećenje infrastrukture itd. Kako bi se smanjio taj negativan uticaj i rešili navedeni problemi potencira se na konceptijskim rešenjima city logistike. Međutim primena samo jednog konceptijskog rešenja nije dovoljna, pa se pristupa formiranju scenarija city logistike koji se sastoje od kombinacije konceptijskih rešenja. Cilj rada je formiranje i rangiranje scenarija city logistike na osnovu izvršenog istraživanja u gradu Doboj. Za rangiranje scenarija koriste se najčešće metode višekriterijumske analize, što je slučaj i u ovom radu, gde se na osnovu AHP (Analitičko Hijerarhijski Proces) dobijaju vrednosti kriterijuma na osnovu kojih se primenom COPRAS metode vrši rangiranje formiranih scenarija. Izborom određenog scenarija moguće je povećati efikasnost kompletnog sistema city logistike, te na taj način uticati i na povećanje kvaliteta života stanovnika u urbanom području.

Ključne reči: City logistika, scenario, AHP, COPRAS, višekriterijumska analiza.

1. UVOD

Jedan od vodećih problema današnjice je odnos prema prirodi i način kako zaštititi životnu sredinu. Gradovi danas predstavljaju mesta koja uveliko zagađuju okruženje oko nas,

te se kroz određene strategije i regulative taj negativni uticaj nastoji smanjiti. Kada je u pitanju lanac snabdevanja potrebno je isti optimizirati sa aspekta troškova, vremena i kvaliteta i upravo na takav način koji neće ugroziti održivi razvoj. Kako bi se rešili ili pak smanjili problemi koji se javljaju u urbanim sredinama koriste se koncepcijska rešenja. U većini slučajeva izbor određenog koncepcijskog rešenja city logistike ne predstavlja i rešenje problema koji se stvaraju, stoga je potrebno izvršiti kombinaciju nekih koncepcijskih rešenja odnosno formirati scenario city logistike. U zavisnosti od konkretne situacije odnosno pojedine urbane sredine i veličine problema koji se javljaju, formiraju se određena scenarija city logistike od kojih se bira optimalno. Svaki grad inicira različite probleme, različite funkcije, ima različit geografski položaj u odnosu na druge, stoga ako je jedan scenario optimalan za jedan grad to ne znači da će biti optimalan i za neki drugi. Prilikom formiranja scenarija city logistike potrebno je: izvršiti opis svakog od njih, navesti njegove prednosti, mane, formirati kriterijume i izvršiti vrednovanje.

2. OPIS KONCEPCIJSKIH REŠENJA CITY LOGISTIKE

Gradovi su prema [13] glavna mjesta za vršenje poslovnih aktivnosti, stoga igraju važnu ulogu u ekonomskom razvoju. Pritom javljaju se i određeni negativni uticaji u urbanim sredinama kao: emisija štetnih gasova i čestica, buka, vibracije, zakrčenje ulične mreže što je u gradu Doboju jako izražen problem što potvrđuje [12], oštećenje infrastrukture i sl., koji utiču na smanjenje ekonomske konkurentnosti grada i umanjuju kvalitet života u njemu. Nezaobilazno pitanje koje se postavlja poslednjih godina je na koji način rešiti ovako. Prema [13] gradska logistika je novi i inovativan koncept čiji je cilj rešavanje ovog kompleksnog programa. Da bi se na adekvatan način rešili navedeni problemi u urbanim sredinama koriste se koncepcije city logistike. Postoji veliki broj koncepcijskih rešenja, ali ovde će biti dat prikaz i opis samo onih koji se odnose na konkretan problem tj. koncepcije čije kombinacije će činiti scenarija city logistike Doboja, a to su kooperativni logistički sistemi, logistički centri, koncept koncentracije informacionih tokova, koncept orijentacije na ekološka vozila, regulativni koncept gradskih uprava i koncept city bicikli.

2.1. KONCEPT KOOPERATIVNIH LOGISTIČKIH SISTEMA

Koncept kooperativnih logističkih sistema bazira se na konsolidaciji robnih tokova kooperacijom transportnih kompanija, pošiljalaca ili primalaca robe, koji pored transporta pružaju i niz drugih pratećih usluga kao su usluge skladištenja, sortiranja, pakovanja i sl. Mnogobrojna istraživanja kooperativnih transportnih sistema pokazala su da se broj vožnji za sakupljanje ili isporuku iste količine robe smanjuje, a time i troškovi transporta i negativni uticaj na okolinu. Kooperativni sistemi isporuke teorijski su veoma atraktivni, ali njihova primena nije bila naročito uspešna. Snimanje i praćenje svih troškova i koristi od ovih sistema i njihovo poređenje sa sistemom pojedinačnih, nezavisnih isporuka je veoma teško zbog njihovih različitih struktura. Prevoznici sa malim količinama tereta mogu imati velike koristi od kooperativnog sistema, ali to nije slučaj i sa velikim prevoznicima, pa ih oni i ne iniciraju. Mnogobrojni su razlozi ovoga: konkurentnost preduzeća, strah od gubitka direktne kontrole i sl. [19].

2.2. LOGISTIČKI CENTRI

Logistički centri se osnivaju na saobraćajno povoljnim lokacijama na obodu gradova ili u samom gradskom području i povezuju ulazno izlazne tokove, koordiniraju protok robe pri snabdevanju i odvoženju iz gradskog područja. Veliki gradovi imaju posebne postavke logističkih terminala za domen city logistike, tako da logistički centri postaju centralni element sistema za snabdevanje robom i izvlačenja otpadnih materijala. Radi ekonomske efikasnosti koncepta logističkih centara potrebno je smanjiti troškove pretovara i dekonsolidacije tereta. Ovi troškovi čine 1/3 ukupnih troškova isporuke robe. Robno transportni centri su ekonomski prihvatljivi samo u regionu sa intenzivnim robnim tokovima.

2.3. KONCEPT KONCENTRACIJE INFORMACIONIH TOKOVA

Koncept koncentracije informacionih tokova podrazumeva izgradnju jedinstvenog integrisanog informacionog logističkog sistema na koji su povezani svi korisnici i davaoci logističkih usluga u cilju maksimalnog iskorišćenja kapaciteta logističkih sistema. Telematski sistemi omogućavaju kompanijama da analiziraju podatke i promene svoje rute i redove vožnje čime se značajno povećava efikasnost njihovog voznog parka. Telematski sistemi imaju tri osnovne funkcije u logističkom sistemu grada: obezbeđenje komunikacije između vozača teretnih vozila i kontrolnog centra, obezbeđenje informacija u realnom vremenu (real time information) o saobraćajnim uslovima i prikupljanje i obrada detaljnih podataka o operacijama sakupljanja/dostave (vremena polaska/dolaska u depo ili kod korisnika, vremena čekanja, brzine putovanja i rute).

2.4. KONCEPT ORIJENTACIJE NA EKOLOŠKA VOZILA

Koncept orijentacije na ekološka vozila, primena: vozila na elektro pogon, hibridnih vozila, železnice i vodnog transporta ili cargo tramvaja. Elektro vozila za kretanje koriste energiju baterija, spoljne izvore snage ili gorive ćelije. Pogodna su za kraća rastojanja i nemaju mogućnost razvoja veće brzine. Hibridna vozila kombinuju prednosti električnih (manja emisija gasova) i motora sa unutrašnjim sagorevanjem (performanse). Železnički transport za distribuciju robe po gradu je prihvatljiv ili u varijanti kompozicije od pet ili šest vagona ili kao kombinacija putničkog i teretnog voza.

2.5. REGULATIVNI KONCEPT

Postojeće regulative mogu se grupisati na: regulative koje se odnose na tip transportnog sredstva, na vreme pristupa određenoj zoni, regulative koje se odnose na rute, na utovarne - istovarne zone, regulative bazirane na dozvolama. Regulative koje se odnose na tip transportnog sredstva - propisuju se dimenzije, nosivost i emisija gasova. Regulative koje se odnose na vreme pristupa određenoj zoni - određivanje vremenskih perioda tokom dana tzv. vremenski prozori, kada je dozvoljena isporuka. Regulative koje se odnose na rute – definišu

se rute koje su dostupne teretnim vozilima. Detaljnije o konceptijskim rešenjima city logistike u [20].

2.6. KONCEPT CITY BIKIKLI

Zbog sve većeg uticaja motornih vozila na kvalitet života i negativnih posledica po životnu sredinu danas se u mnogim gradovima sveta kao alternativno rešenje koriste city bicikli za dostavu robe na određenim relacijama. U odnosu na ostala dostavna vozila koja se koriste za dostavu robe u urbanim sredinama city bicikl ima niz prednosti i pogodnosti kao npr.: lako i jednostavno pronalaženje parking mesta, ne stvara zakrčenje ulične mreže, ne troši energiju, ne emituje štetne gasove i čestice, otvaranje novih radnih mesta, svako može vršiti dostavu na ovaj način, radnici su zdraviji itd. Jedno od najvećih ograničenja upotrebe city bicikla za dostavu robe jeste to da se može upotrebljavati samo na kratkim rastojanjima tj. do nekoliko kilometara.



Slika 1. Primeri modela city bicikla [21]

3. FORMIRANJE SCENARIJA CITY LOGISTIKE

Formirani scenariji u skladu sa mogućnostima i razvojem urbane sredine Doboja su sledeći: scenario 1 - logistički centri, koncept kooperativnih logističkih sistema, regulativni koncept; scenario 2 - logistički centri, koncept orijentacije na ekološka vozila, koncept koncentracije informacionih tokova; scenario 3 - logistički centri, koncept orijentacije na ekološka vozila, city bicikli; scenario 4 - logistički centri, koncept koncentracije informacionih tokova, regulativni koncept.

3.1. SCENARIO 1

Podrazumeva kombinaciju sledećih konceptijskih rešenja city logistike: logističkog centra, kooperativnih logističkih sistema i regulativni koncept gradskih uprava. Ovaj scenario se odnosi na kooperaciju određenih transportnih kompanija i konsolidaciju robnih tokova posredstvom logističkog provajdera koji je u ovom slučaju logistički centar uz određene regulative koje se mogu primeniti u datom području kao npr. zabrana ulaska određenim dostavnim vozilima, zabrana ulaska dostavnih vozila u određene zone u određenom vremenskom intervalu. Formiranjem ovog scenarija teži se smanjenju broja vozilo kilometara, broja dostavnih vozila i zabrani ulaska dostavnih vozila u određene zone grada. Na taj način

teži se takođe zadovoljenju i socijalnog kriterijuma (kvalitet života) i većoj održivosti urbanog transporta.

Prednosti:

- smanjenje negativnog uticaja na okruženje u određenim zonama grada,
- smanjenje broja teretnih vozila u određenim vremenskim intervalima,
- najviši oblik konsolidacije robe.

Nedostaci:

- međusobno nepoverenje određenih transportnih kompanija,
- ekološka zagađenost i dalje prisutna.

3.2. SCENARIO 2

Predstavlja kombinaciju logističkog centra sa konceptom orijentacije na ekološka vozila uz koncept koncentracije informacionih tokova. Ovaj scenario predstavlja baziranje isporuke robe u samo gradsko područje na ekološkim vozilima uz koncept informacionih tokova. Scenario podrazumeva orijentaciju vozila na električni pogon ili vozila na hibridni pogon (kombinacija elektro pogona i motora SUS) jer je njihova primena sa aspekta geografskog položaja grada i saobraćajne povezanosti opravdana i ovaj kriterijum ima zadovoljavajuće osnove sa aspekta ekološkog kriterijuma. Ovaj scenario može podrazumevati i primene inteligentnih transportnih sistema koji omogućavaju olakšano kretanje dostavnih vozila.

Prednosti:

- pogodnost poznavanja kretanja tereta u svakom momentu zahvaljujući informaciji u pravo vreme,
- smanjenje negativnog uticaja na urbanu sredinu,
- redukovan broj teretnih vozila u centru grada.

Nedostaci:

- ogromna investiciona ulaganja (skupa eko vozila + skupa imlementacija IS),
- dug vremenski period implementacije kompletnog IS.

3.3. SCENARIO 3

Ovaj scenario je dosta sličan kao i prethodni, jedina je razlika u trećem koncepcijskom rešenju koji se ovog puta odnosi na koncept city bicikli. Nakon izvršene konsolidacije robe u logističkom centru ista se dalje otprema ekološkim vozilima npr. za urbanu sredinu. Dobra mogućnost mogu se koristiti hibridna vozila a u pošto se radi o relativno maloj urbanoj sredini veliki broj generatora se može opslužiti i city biciklima kada su naravno u pitanju isporuke manje veličine. Ovaj scenario najbolje se ogleda kroz ekološki kriterijum odnosno negativni uticaj na životnu okolinu je sveden na minimum, a dobre pokazatelje ima i sa aspekta jednostavnog prilaza generatorima prvenstveno zbog upotrebe city bicikla.

Prednosti:

- poboljšani uslovi života,
- smanjenje zakrčenja ulične mreže,

- smanjenje utroška energije,
- lako i jednostavno parkiranje,
- eliminisanje klasičnih dostavnih vozila.

Nedostaci:

- potrebno je veliko investiciono ulaganje,
- nemogućnost konsolidovanja svih roba tako da dio isporuke mora ići na klasičan način.

3.4. SCENARIO 4

Ovaj poslednji scenario podrazumeva kombinaciju logističkog centra uz koncept koncentracije informacionih tokova sa određenim regulativama koji se primenjuju za određene delove grada. Zahvaljujući konceptu informacionih tokova olakšano je rutiranje vozila prilikom isporuke robe upravo zahvaljujući pravoj informaciji u pravo vreme.

Prednosti:

- pogodnost poznavanja kretanja tereta u svakom momentu zahvaljujući informaciji u pravo vreme,
- smanjenje negativnog uticaja na okruženje u određenim zonama grada,
- smanjenje broja teretnih vozila u određenim vremenskim intervalima,

Nedostaci:

- velika investiciona ulaganja,
- i dalje ulazak dostavnih vozila u grad koji negativno utiču na životno okruženje.

4. AHP METODA

Tvorac analitičko hijerarhijskog procesa je Tomas Saaty [5] i prema istom autoru [10] AHP je teorija merenja kroz poređenje parova i oslanja se na mišljenje stručnjaka za izvođenje prioriternih skala. Sa AHP prema [7] je moguće izvršiti identifikaciju relevantnih činjenica i povezanosti koje postoje među njima. Ova metoda se sastoji iz dekompozicije problema, gde se cilj nalazi na vrhu, zatim kriterijumi i podkriterijumi i na kraju hijerarhije su potencijalna rešenja, detaljnije u [8]. U [6] definisani su aksiomi na kojima se AHP zasniva: Aksiom reciprocnosti, aksiom homogenosti, aksiom zavisnosti, aksiom očekivanja. Svaka promena u strukturi hijerarhije zahteva ponovno računanje prioriteta u novoj hijerarhiji. Više detalja o analitičko hijerarhijskom procesu u knjizi [11].

Neki ključni i osnovni koraci u metodologiji AHP dati su u [15]. AHP na određen način rešava problem subjektivnog uticaja donosioca odluke tako što meri stepen konzistentnosti (CR). Ukoliko je stepen konzistentnosti u opsegu do 0,10 rezultati se smatraju se validnim. U zavisnosti od veličine matrice preporučuje se vrednost koeficijenta, pa se u [1, 4] može naći da je maksimalni dozvoljeni CR za matrice 3x3 0,05, za matrice 4x4 0,08, a za veće 0,1. Ukoliko CR nije zadovoljavajuće vrednosti prema [9] potrebno je ponovo izvršiti poređenje.

5. COPRAS METODA

COPRAS (COmplex PROportional ASsessment) metod su stvorili [18]. Opis ove metode i mogućnosti njene primene su publikovani u velikom broju radova [17, 16, 3]. Rangiranje alternativa primenom COPRAS metode pretpostavlja direktnu i proporcionalnu zavisnost od značaja i prioriteta ispitanih alternativa na sistemu kriterijuma [14]. Proračun značaja i prioriteta alternativa, može se precizno izraziti preko sledećih koraka:

Korak 1. Formiranje početne matrice X .

$$X = [x_{ij}] = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ x_{31} & x_{32} & \dots & x_{3n} \\ \dots & \dots & \dots & \dots \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \quad (1)$$

gde je x_{ij} procenjena vrednost i -te u odnosu na j -ti kriterijum, m je broj alternativa i n je broj kriterijuma.

Korak 2: Normalizacija početne matrice odlučivanja primenom procedure linearne normalizacije. U višekriterijumskoj analizi kriterijumi obično imaju različite težinske vrednosti. Pregled nekih najbitnijih metoda višekriterijumske analize i njihove normalizacije dati su u [2].

Za normalizaciju u COPRAS metodi koristi se sledeća formula:

$$R = [r_{ij}] = \frac{x_{ij}}{\sum_{i=1}^m x_{ij}} \quad (2)$$

Korak 3. Formiranje otežane normalizovane matrice koristeći sledeću formulu:

$$D = [x_{ij}] = r_{ij} \cdot w_j, \quad i = 1, \dots, m, \quad j = 1, \dots, n \quad (3)$$

gde r_{ij} normalizovana vrednost i -te alternative u odnosu na j -ti kriterijum i w_j je težina ili značaj j -tog kriterijuma.

Suma otežanih normalizovanih vrednosti za svaki kriterijum je uvek jednaka vrednosti tog kriterijuma:

$$\sum_{i=1}^m y_{ij} = w_j \quad (4)$$

Korak 4: U ovom koraku potrebno je proračunati sumu otežanih normalizovanih vrednosti za obe vrste kriterijuma, za korisne kriterijume i za troškovne koristeći sledeće formule:

$$S_{+i} = \sum_{j=1}^n y_{+ij} \quad (5)$$

$$S_{-i} = \sum_{j=1}^n y_{-ij} \quad (6)$$

gde y_{+ij} i y_{-ij} su otežane normalizovane vrednosti za korisne i troškovne kriterijume, respektivno.

Korak 5: Određivanje relativnog značaja za svaku alternativu. Relativna težina Q_i za i -tu alternativu se računa primenom sledeće formule:

$$Q_i = S_{+i} + \frac{\min_i S_{-i} \sum_{i=1}^m S_{-i}}{S_{-i} \sum_{i=1}^m \frac{\min_i S_{-i}}{S_{-i}}} \quad (7)$$

Formula (7) može se napisati u jednostavnijem obliku kao:

$$Q_i = S_{+i} + \frac{\sum_{i=1}^m S_{-i}}{S_{-i} \sum_{i=1}^m \frac{1}{S_{-i}}} \quad (8)$$

Korak 6: Određivanje prioriteta alternativa. Prioritet pri poređenju alternativa se određuje na bazi njihove relativne težine, gde se alternativni sa većom vrednošću relativne težine daje veći prioritet ili rang i alternativa sa takvom najvećom vrednošću predstavlja najprihvatljiviju alternativu.

$$A^* = \left\{ A_i \left| \max_i Q_i \right. \right\}. \quad (9)$$

6. VREDNOVANJE SCENARIJA CITY LOGISTIKE

Na osnovu pregleda datih prednosti i nedostataka određenih scenarija formiraju se kriterijumi za njihovo vrednovanje, što je dato u nastavku.

Kriterijum 1 - Ekološki i energetski aspekt (stepen negativnih uticaja i potrošnje energije. Potrebno ga minimizirati). Kada je u pitanju ovaj kriterijum u svetu se u poslednjih dve decenije, a izrazito u poslednjih nekoliko godina sve više vodi računa o zaštiti životne sredine i potrošnji energije. Stoga ovaj kriterijum se pojavljuje kao neizbežan prilikom izvršenja određenih istraživanja. Posebno je pogodan sa aspekta city logistike, jer isporuke robnih tokova prouzrokuju velika zagađenja okoline i veliku potrošnju energije. Postoje i određeni standardi kada je u pitanju maksimalna emisija štetnih gasova u urbanim sredinama, zatim prouzrokovanje buke, vibracija i sl. i prilikom istraživanja city logistike predstavlja važan segment.

Kriterijum 2 - Investiciona ulaganja u razvoj i izgradnju potrebnih sistema (takođe potrebno ga je minimizirati). Jedan od najvažnijih kriterijuma prilikom istraživanja i analize su investiciona ulaganja i nezamislivo je istraživanja a da se ne uzme u obzir ovaj kriterijum. Troškovi čine sastavni deo poslovanja bilo kog sistema. Kada se u city logistici vrši vrednovanje određenih scenarija ogromnu ulogu ima ovaj kriterijum, jer od ukupnih investicionih ulaganja i zavisi dalje funkcionisanje logističkog sistema pa tako i konceptijskih rešenja city logistike.

Kriterijum 3 - Mogućnost jednostavnog prilaza generatorima (potrebno je maksimizirati). Ovaj kriterijum podrazumeva lakoću manevrisanja dostavnim vozilom neposredno ispred generatora kojem treba roba da se isporuči. Maksimizacija ovog kriterijuma podrazumeva minimizaciju dostavnih vozila odnosno što je dostavno vozilo manje to je jednostavniji prilaz generatorima.

Kriterijum 4 - Socijalni kriterijum (maksimizirati). Odnosi se pre svega na kvalitet života stanovništva, a to se postiže smanjenjem zakrčenja ulične mreže, broja nezgoda itd.

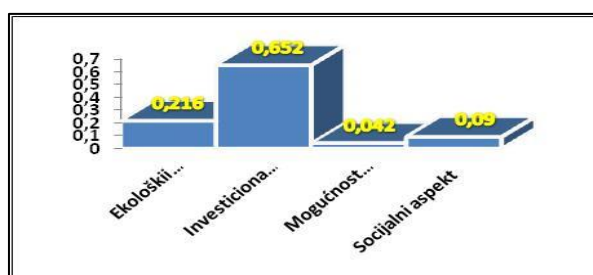
6.1. ODREĐIVANJE TEŽINSKOG ZNAČAJA KRITERIJUMA PRIMENOM AHP METODE

Nakon postavke hijerarhije AHP metode, pristupa se poređenju kriterijuma međusobno na osnovu Satijeve skale, tabela 1.

Tabela 1. Poređenje kriterijuma

	K₁	K₂	K₃	K₄
K₁	1	5	7	3
K₂	1/5	1	9	7
K₃	1/7	1/9	1	3
K₄	1/3	1/7	1/3	1

Težinski kriterijumi imaju veliki uticaj na donošenje konačne odluke o rangiranju alternativa. U tabeli 2 prikazano je poređenje kriterijuma međusobno na osnovu kojeg se kao krajnji rezultat dobijaju značajni kriterijuma koji su prikazani na sledećoj slici.



Slika 2. Normalizovane težinske vrednosti kriterijuma

Sa prethodne slike se jasno vidi da se prilikom poređenja kriterijuma međusobno najveći značaj daje drugom tj. investicionim ulaganjima što i logički predstavlja dobro rešenje, s obzirom na sve kriterijume koji su uzeti prilikom poređenja. Softver daje određene vrednosti na osnovu kojih se neki kriterijum izdvaja od drugih, tako da u ovom slučaju K₂ ima mnogo veći značaj u odnosu na druge sa vrednošću 0,652, dok je sledeći po važnosti ekološki i energetska aspekt čija vrednost iznosi 0,216 itd.

6.2. RANGIRANJE SCENARIJA CITY LOGISTIKE PRIMENOM COPRAS METODE

Početna matrica koja je opisana u prvom koraku ove metode data je u nastavku:

$$D = \begin{matrix} A1 \\ A2 \\ A3 \\ A4 \end{matrix} \begin{bmatrix} 5 & 1 & 2 & 4 \\ 3 & 7 & 4 & 5 \\ 1 & 5.5 & 7 & 7 \\ 4 & 4 & 2 & 4 \end{bmatrix}$$

Nakon izvršene linearne normalizacije objašnjene u koraku 2 ove metode - formula (2) i otežavanja normalizovane matrice – formula (3) dobija se sledeća matrica:

$$D = \begin{matrix} A1 \\ A2 \\ A3 \\ A4 \end{matrix} \begin{bmatrix} 0.083 & 0.037 & 0.006 & 0.018 \\ 0.050 & 0.261 & 0.011 & 0.023 \\ 0.017 & 0.205 & 0.020 & 0.032 \\ 0.066 & 0.149 & 0.006 & 0.018 \end{bmatrix}$$

Prva dva kriterijuma je potrebno minimizirati tj. pripadaju troškovnim kriterijumima, dok prestala dva pripadaju korisnim i potrebno ih je maksimizirati. Primenjujući formule (4) i

(5) dobijaju se sledeće matrice koje označavaju izračunatu sumu korisnih i troškovnih kriterijuma respektivno.

$$S_{+i} = \begin{bmatrix} 0.024 \\ 0.034 \\ 0.052 \\ 0.024 \end{bmatrix} \quad S_{-i} = \begin{bmatrix} 0.120 \\ 0.311 \\ 0.222 \\ 0.215 \end{bmatrix}$$

Primenjujući formulu (8) dobija se matrica sa sledećim vrednostima, na osnovu kojih se vrši rangiranje alternativa.

$$Q_i = \begin{bmatrix} 0.373 \\ 0.169 \\ 0.241 \\ 0.219 \end{bmatrix} \begin{matrix} 1 \\ 4 \\ 2 \\ 3 \end{matrix}$$

7. ZAKLJUČAK

Scenario koji podrazumeva kombinaciju logističkog centra, kooperativnih logističkih sistema i regulativni koncept gradskih uprava predstavlja najbolje rešenje prema izvršenom vrednovanju. Na osnovu primene izabranog scenarija moguće je ostvariti određene koristi koje se ogledaju kroz smanjenje broja dostavnih vozila, pogotovu u ulicama u kojima dolazi do saobraćajnih gužvi, povećavanje kvaliteta života u urbanim sredinama kroz smanjenje buke, vibracija, emisije štetnih gasova itd. Kombinacija scenarija city logistike i primena metoda višekriterijumske analize za njihovo vrednovanje predstavlja područje koje u svakodnevnom istraživanju dobija sve više na značaju.

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MANAGEMENT OF MEDICAL LOGISTICS - THE SITUATION IN BOSNIA AND HERZEGOVINA

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Abstract: Medical logistics is an insufficiently researched area of service delivery. With system access, however, it is possible to make some rationalizations- both in terms of the procurement of all resources necessary for the smooth functioning of this system, as well as the disposal of waste that can easily endanger the environment. In order to ensure the efficiency of distribution flows and proper management of medical waste, it is necessary to manage the complete supply chain of medicine. A very important subsystem in logistics, in general, and thus also in medicine is reverse logistics- where more and more attention is given to materials on the ground. The adequate management of this subsystem can increase the value of the entire supply chain, as well as reduce the negative impact it makes on the environment. This paper gives an overview of the state of medical logistics in Bosnia and Herzegovina, with a special focus on the situation in the town of Doboj. It shows the manufacturing process, as well as the infectious and potentially infectious hazardous waste management in the city hospital in Doboj- a hospital that processes its own waste, as well as the waste of 22 other health institutions in Bosnia and Herzegovina. Generally speaking, there are major concerns with the management of these wastes, which are often disposed of together with municipal waste. One of the most important limitations of the current situation is the fact that there are only three companies authorized for the management of medical waste in Bosnia and Herzegovina.

Keywords: Medical logistics, reverse logistics, hazardous waste, medicines supply chain, medical waste.

Apstrakt: Medicinska logistika predstavlja nedovoljno istraženu oblast u kojoj je sistemskim pristupom moguće izvršiti određene racionalizacije, kako sa aspekta sistema nabavke svih sredstava neophodnih za nesmetano funkcionisanje ovog sistema, tako i sa aspekta zbrinjavanja nastalog otpada koji može veoma lako ugroziti životnu sredinu. Potrebno je upravljati kompletnim lancem snabdijevanja u medicini kako bi se obezbijedila efikasnost distributivnih tokova i adekvatno upravljanje medicinskim otpadom. U radu je dat pregled stanja medicinske logistike u Bosni i Hercegovini sa posebnim osvrtom na stanje u gradu Doboj. Veoma bitan podsistem u logistici uopšte, a samim tim i u medicini je reverzna logistika kojoj se sve više posvjećuje pažnje iz razloga, jer se adekvatnim upravljenjem ovog podsistema može povećati vrijednost kompletnog lanca snabdijevanja, s jedne strane i smanjiti negativan uticaj na životno okruženje s druge strane. U radu je takođe prikazan način upravljanja opasnim otpadom kao i postupak prerade koji se obavlja preko postrojenja za preradu infektivnog i potencijalno infektivnog medicinskog otpada u gradskoj bolnici u Doboju. Pored prerade sopstvenog otpada u navedenoj ustanovi se vrši prerada i za 22

zdravstvene ustanove u Bosni i Hercegovini. Generalno govoreći, postoje veliki problemi sa upravljanjem medicinskog otpada koji se neretko odlaže zajedno sa komunalnim. Jedan od najvažnijih parametara ovakvog stanja je i činjenica da u Bosni i Hercegovini postoje samo tri kompanije koje su ovlašćene za upravljanje medicinskim otpadom.

Ključne riječi: Medicinska logistika, povratna logistika, opasan otpad, lanac snabdijevanja lijekova, medicinski otpad.

1. UVOD

Medicinska logistika nije čest pojam na ovim prostorima, ali je svakako ključna oblast koja održava naše medicinske ustanove i apoteke spremne da pružaju usluge svojim korisnicima – pacijentima. U oblasti medicine, logistika može da igra ulogu u spašavanju ljudskih života kao i čuvanja naše životne sredine. Kroz ovaj rad će biti razrađene obje smjernice, medicinska logistika i povratna medicinska logistika na teritoriji Bosne i Hercegovine. Medicinska logistika je veoma zanimljiva, ali i kompleksna primjena logistike koja mora da obezbjedi sva potrebna sredstva, lijekove i uslove da medicinski radnici i farmaceuti mogu uspješno obavljati svoj posao. Povratna medicinska logistika predstavlja naš odnos prema životnoj sredini i zdravlju stanovništva. Medicinska logistika je prema [1] logistika lijekova, medicinskog i hirurškog materijala, medicinskih uređaja i opreme, i drugih proizvoda potrebnih za podršku doktorima, medicinskim sestrama i drugim medicinskim i stomatološkim stručnjacima. Iz razloga što su njeni krajni korisnici odgovorni za živote i zdravlje svojih pacijenata, medicinska logistika je jedinstvena po tome što pokušava optimizirati efektivnost prije nego efikasnost. Funkcije medicinske logistike su važan dio zdravstvenog sistema, nakon troškova osoblja, medicinski materijal je jednostavno najskuplji dio troškova zdravstvene zaštite.

2. LANAC SNABDIJEVANJA U MEDICINSKOJ LOGISTICI BIH

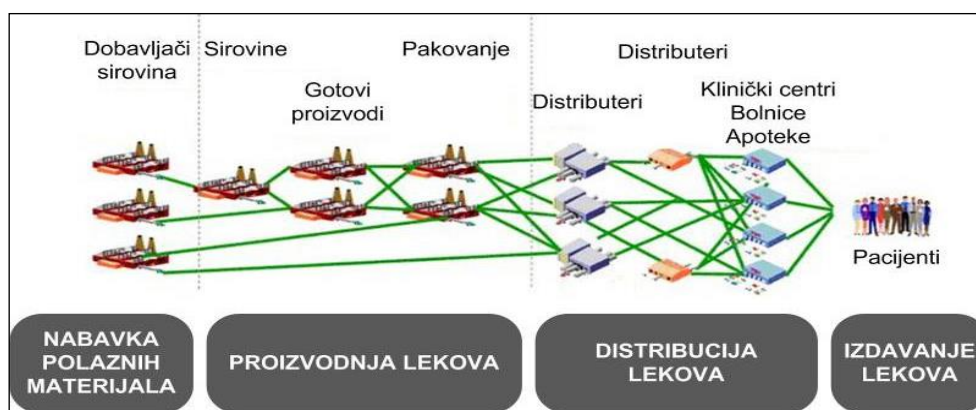
Upravljanje snabdjevanjem lijekova prema [2] predstavlja proces strateškog planiranja, selekcije, nabavke, skladištenja, transporta i isporuke lijekova u cilju obezbjeđenja potreba zdravstvenih ustanova i pacijenata. Pacijent mora da dobije kvalitetan, bezbjedan i efikasan lijek u pravo vrijeme i na pravom mjestu. Ukoliko medicinske ustanove ili apoteke žele da pružaju kvalitetne usluge korisnicima ne smije se desiti ni u jednom trenutku da nekih lijekova ili potrebnih radnih sredstava nema u zalihama. To znači da u skladištima roba uvijek mora postojati potrebna količina roba.

Menadžment medicinskog lanca snabdjevanja (Supply chain management) prema [4] predstavlja proces planiranja, organizovanja i kontrolisanja protoka lijekova i usluga od dobavljača do pacijenta, tj. korisnika usluga. Menadžment medicinskog lanca snabdjevanja predstavlja set usklađenih pristupa integraciji dobavljača, proizvođača, skladišta i apoteka na taj način što se poručuje i doprema prava količina lijeka i medicinskih sredstava, na prave lokacije, u pravo vrijeme, uz minimalne troškove u sistemu snabdjevanja i uz određeni nivo pružanja usluga, odnosno satisfakciju potrošačkih zahtjeva. Menadžment medicinskog lanca snabdjevanja predstavlja u stvari rukovođenje svim procesima nabavke, uključujući dostavljanje porudžbenica dobavljačima, kontrolu transporta, skladištenje lijekova i

medicinskih sredstava, kontrolu i planiranje zaliha, kao i sve ostale operativne radnje relevantne za proces manipulacije robom.

Ključni subjekti u lancu snabdjevanja lijekova prema [2] su:

- **Farmaceutska industrija** (inovativna i generička)
 - istraživački centri, proizvodne lokacije, predstavništva
 - najprofitabilnija karika u lancu
- **Distributeri i logistički centri** (veledrogerije, dileri)
 - indirektni veleprodajni model
 - redukovani veleprodajni modeli - proizvođač plasira svoje proizvode preko manjeg broja veledrogerija
 - direktna distribucija u apoteku (direct-to-pharmacy – DTP) posredstvom veledrogerije kao 3PL (third party logistics) provajdera
- **Zdravstvene ustanove** (apoteke, bolnice, klinike)



Slika 1. Medicinski lanac snabdjevanja [4]

U bivšoj Jugoslaviji se prema [5] pokrivalo 80% potreba za lijekovima vlastitom proizvodnjom u šesnaest specijalizovanih preduzeća od kojih su četiri nalaze u Bosni i Hercegovini. Problemi s kojima se čitava bosanska industrija bori nakon rata odnose se i na farmaceutsku industriju. Rukovodstva firmi su se morala boriti s pitanjem vlasništva, koje je uslovljeno djelimičnom privatizacijom.

Prometom lijekova i medicinskih sredstava (ne podrazumjeva samo klasične kupoprodajne aktivnosti nego kompletnu logističku uslugu u cilju zadovoljenja krajnjeg korisnika ovih proizvoda, a to su građani i pacijenti) prema [2] mogu se baviti:

- **pravna lica** koja imaju dozvolu za promet na veliko za lijekove i medicinska sredstva koja je izdata od strane nadležnog saveznog ministarstva
- **proizvođači lijekova i medicinskih sredstava** za lijekove koje proizvode i za koje imaju dozvolu za lijek.

Dozvolu za promet izdaje Ministarstvo zdravlja, nakon izvršene inspekcije.

Broj privatnih preduzeća prema [5] na farmaceutskom tržištu se povećava. Njihov koncept striktno tržišno ekonomske orijentacije pokazuje već prve uspjehe. Premda u relativno manjim brojkama sva preduzeća su u zoni dobitka. Radi se o firmama s manjim

kapacitetima i manjim brojem zaposlenih. One imaju fleksibilnije programe proizvodnje i mogu se lakše prilagoditi tržišnoj situaciji. Trend u području usluga pokazuje povećanje broja privatnih apoteka i veletrgovine medikamentima.

Najveći farmaceutski proizvođači prema [11] u danas su:

▪ **domaći:**

- Bosnalijek, Pharmamed, Farmavita, Zada Pharmaceuticals, Hemofarm, Saniteks,

▪ **iz regije i šire:**

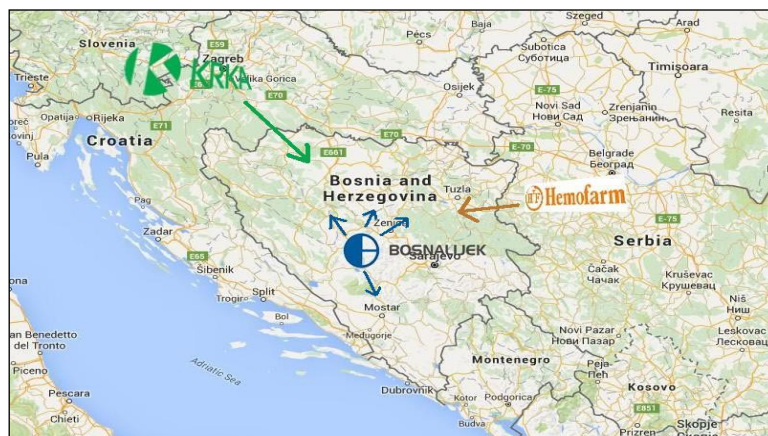
- Pliva, Krka, Lek, Belupo, Jadran Galenski Laboratorij, Bayer, Boehringer, Bilim, Nobel, Nycomed, Alkaloid, Berlin-Chemie, Alcon, Medis...

Agencija za lijekove i medicinska sredstva BiH objavila je izvještaj o prometu lijekova u toku 2013. godine u BiH, koji se zasniva na podacima o realizovanom uvozu lijekova inostranih proizvođača u Bosni i Hercegovini i prometu lijekova domaćih proizvođača. Odnos domaćih i inostranih proizvođača lijekova u ukupnom prometu lijekova koji imaju dozvolu za promet u 2013. godini u Bosni i Hercegovini je neuporediv.

Promet domaćih proizvođača 2013. godine u Bosni i Hercegovini iznosio je: 88. 216. 244,88 KM, dok je realizovani uvoz lijekova inostranih proizvođača iznosio: 438.557.453,47 KM.

Podatke o lijekovima prema [8] proizvedenim u Bosni i Hercegovini i puštenim u promet u 2013. godini dostavilo je 6 proizvođača lijekova. Najveći promet od domaćih proizvođača lijekova imao je Bosnalijek Sarajevo u iznosu od 36.425.716 KM. Najveći realizovani uvoz lijekova inostranih proizvođača koji imaju dozvolu za promet u BiH 2013. godine imala slovenačka KRKA i to u iznosu 44.722.820 KM.

S druge strane, od ukupno 59 registrovanih veleprometnika lijekova u Bosni i Hercegovini, 39 je dostavilo podatke o realizovanom uvozu lijekova koji imaju dozvolu za promet u 2013. god, a 20 veleprometnika nije uvozilo lijekove. Agencija navodi da je od toga najveći finansijski udio veleprometnika u ukupnom uvozu lijekova imao Phoenix Pharma iz Bijeljine sa 73.258.365,73 KM.



Slika 2. Najveći proizvođači lijekova u regionu

Skladištenje i transport prema [2] predstavljaju ključne elemente distribucije polaznih materijala, poluprouzvađača i finalnih proizvoda. Kvalitet lijeka treba da ostane identičan i u distributivnom lancu, do krajnjeg korisnika, u skladu sa svojom dozvolom za lijek. Lijekovi se najčešće skladište po abecednom redu i po pravilu čuvaju na suvom, prozračnom mjestu, na temperaturi do 25 stepeni, zaštićeni od svjetla i u originalnom pakovanju. Transport prema [4] obuhvata jednu trećinu logističkih troškova i značajno utiče na performanse logističkog sistema. Transportovanje se zahtijeva u cjelokupnom procesu medicinske logistike, od izrade proizvoda do dostave krajnjem korisniku medicinskih ili farmaceutskih usluga i do eventualnog povrata proizvoda. Jedino dobra koordinacija između svih komponenti procesa proizvodnje, transporta, skladištenja i upravljanja zalihama donosi maksimalne koristi. Određeni lijekovi zahtijevaju čuvanje i transportovanje na niskim temperaturama, 2°C - 8°C. Taj lanac se naziva Hladni lanac snabdjevanja i on podrazumjeva proizvodnju, skladištenje i transport proizvoda na temperaturi nižoj od ambijentalne.

Prilikom izrade rute transporta lijekova prema [4] uzimaju se u obzir:

- temperaturni profili metode transporta i klimatske zone kroz koju se transportuje,
- vrijeme trajanja transporta i moguće izmene u vremenu,
- efekat vibracija na materijal koji se transportuje,
- vazdusni pritisak i njegov uticaj na pakovanja i ventilaciju,
- fizički stres, kao što su lupanje, ispadanje, curenje, orijentacija pakovanja,
- obezbjeđenje, odnosno inspekcija, pregledanja pakovanja.

3. POVRATNA LOGISTIKA U MEDICINI

Povratna medicinska logistika prema [9] se odnosi na logističke aktivnosti i menadžerske vještine smanjenja, upravljanja i povlačenja medicinskog otpada nastalog u bolnicama, ambulancama, apotekama kao i u domaćinstvima. Lijekovi kojima je istekao rok trajanja, kao i korištena medicinska oprema mogu postati nedjelotvorni te opasni po zdravlje ljudi, te se stoga moraju odlagati u posebne spremnike i zbrinjavati trećičkom obradom – spaljivanjem u posebnim spalionicama kako njihov sadržaj ne bi dospio u okolinu.

Sav otpad nastao u zdravstvenim ustanovama, a vezan za obavljanje medicinskih procedura dijagnostike, lečenja ili istraživačkog rada se prema [6] definiše kao medicinski ili biohazardni otpad. Medicinski otpad obuhvata sve vrste otpada (u čvrstom i tečnom stanju) iz bolnica, klinika, istraživačkih ustanova i laboratorija koje rade u okviru zdravstvenog sistema.

Otpad koji nastaje u zdravstvenim ustanovama može se podjeliti na :

- **Opasni medicinski otpad - 10% do 30%**

Može se podjeliti na sledeće vrste opasnog otpada:

- Oštri otpad
- Patološki otpad
- Infektivni otpad
- Farmaceutski otpad
- Genotoksični otpad

- Posude pod pritiskom
- Otpadni amalgam
- Opasni hemijski otpad
- Ostali hemijski otpad
- **Komunalni otpad** - 70% do 90%
 - Otpad koji nastaje u zdravstvenim ustanovama i koji ne sadrži opasni otpad. Zbrinjava se kao komunalni otpad jer nije nastao pri pružanju zdravstvene zaštite i ne predstavlja rizik za zdravlje i okolinu.



Slika 3. Ambalaža za medicinski otpad [7]

Opasni otpad koji veliki sistemi ali i neodgovorni građani odlažu, pale ili zakopavaju predstavlja sve veći problem u Bosni i Hercegovini. Boje, lakovi, kiseline, trafo ulje, hemikalije, baterije kao i medicinski otpad svakodnevno trajno zagađuju životnu sredinu.

U Bosni i Hercegovini (BiH) su rađene preliminarne procjene količina medicinskog otpada koji nastaje u zdravstvenim ustanovama, a prema standardima Svjetske zdravstvene organizacije. Prema tim preliminarnim procjenama u BiH godišnje nastaje između 10 000 – 15 000 tona medicinskog otpada (bez starih zaliha). Procjenjuje se da 10% te količine otpada čini potencijalno infektivni otpad. Količine medicinskog otpada koji se proizvodi u Bosni i Hercegovini nisu velike u odnosu na države iz regije i šire, ali problem predstavlja nekontrolisano zbrinjavanje ovog otpada i nepoštovanje zakona koji regulišu ovu oblast. U tabeli 1. može se vidjeti koliko ustanova u sjeveroistočnoj Bosni i Hercegovini odvaja medicinski otpad od komunalnog otpada.

Tabela 1. Broj ustanova u sjeveroistočnoj BiH koje stvaraju i koje razdvajaju određenu vrstu medicinskog otpada [4]

Vrsta otpada	Broj ustanova koje ih stvaraju	Broj ustanova koje razdvajaju određenu vrstu medicinskog otpada
Infektivni	7	5
Oštri predmeti	7	4
Hemijski	5	3
Patološki	6	4
Farmaceutski	5	4
Radioaktivni	1	1

Centar za ekologiju i energiju Tuzla je januara 2011. godine, uz finansijsku podršku EU i u partnerstvu sa Centrom za menadžment, razvoj i planiranje Doboj, realizovao dvogodišnji projekat “**Odgovorno upravljanje medicinskim otpadom**” koji obuhvata region sjeveroistočne BiH (SI BiH). Na kraju projekta traženi su prijedlozi za poboljšanje upravljanja medicinskim otpadom. Prijedlozi za poboljšanje upravljanja opasnim medicinskim otpadom prema [4] koje su dali predstavnici opštinskih službi, javnozdravstvenih kliničkih i bolničkih ustanova, komunalnih preduzeća i deponija mogu se grupisati:

- Osmišljavanje projekta/ projekata za pravilno zbrinjavanje medicinskim otpadom,
- U zdravstvenim ustanovama postaviti odvojene odvozne posude koje bi preuzimala specijalizovana firma i odvajati medicinski otpad na odgovarajući način,
- Primijeniti zakonske propise i pojačati inspekcijisku kontrolu,
- Pribaviti finansijska sredstva,
- Edukovati uposlenike zdravstvenih ustanova, uposlenike iz komunalnih preduzeća, ali i građane,
- Formirati adekvatne deponije, spalionice i adekvatno finansirati upravljanje MO.

4. UPRAVLJANJE MEDICINSKOM LOGISTIKOM U DOBOJU

Apoteka u sklopu bolnice „Sveti Apostol Luka“ Doboj je zatvorenog karaktera, isključivo nabavlja lijekove i medicinska sredstva za potrebe bolnice. Osnovni dio posla apoteke, sastoji se u adekvatnoj nabavci i snabdijevanju lijekovima, medicinskim sredstvima, dijagnostičkim sredstvima, hemikalijama i dezinfekcionim sredstvima medicinskih službi ove ustanove.

Djelatnosti u oblasti logistike:

- planiranje potreba za lijekovima i drugim medicinskim proizvodima
- snabdijevanje uz intenzivnu komunikaciju sa dobavljačima i/ili proizvođačima bezbjednog kvaliteta
- prijem i skladištenje robe u skladu sa principima DPS (dobra praksa u skladištenju)
- finansijska administracija
- informacioni poslovi: analiza potrošnje, izvještavanja po zahtjevima unutar i izvan ustanove i čitav niz aktivnosti upravljanja informacijama o lijekovima

Apoteka posluje sa dobavljačima koji imaju potpisan ugovor sa Fondom zdravstvenog osiguranja Republike Srpske. Potpisivanjem ugovora kreira se bolnička lista lijekova. Bolničkom listom lijekova prema [12] obuhvaćeni su obavezni lijekovi koje mora da ima svaka bolnica. Organizovano je centralizovano snabdjevanje bolnica ovim lijekovima, a proceduru javne nabavke provodi Fond zdravstvenog osiguranja.

Apoteka redovno vrši komisioniranje, provjeru zaliha i stanja lijekova i medicinskih sredstava, u posebnim slučajevima, moguće je izvršiti i **hitnu nabavku** lijekova ili medicinskih sredstava. Najveći dobavljači ove ustanove su veledrogerije: Phoenix, Bijeljina Interpromet, Novi Grad Co.medprom, Banja Luka

Bolnica Doboj posjeduje postrojenje za preradu infektivnog i potencijalno infektivnog medicinskog otpada (Slika 4), a zbrinjavanje svih ostalih vrsta opasnog medicinskog otpada za ovu bolnicu vrši preduzeće Kemis iz Šamca. Postrojenje je francuske marke „ECODAS“ prerađivačkog kapaciteta oko 200 tona otpada godišnje. Vrijednost opreme iznosi 250.000 Eura. Približno se koristi 58% kapaciteta. Bolnica Doboj vrši zbrinjavanje medicinskog otpada za 22 zdravstvene ustanove sa područja BiH: 18 iz RS i 4 iz FBiH. Pored postrojenja „ECODAS“ Bolnica Doboj posjeduje i specijalno vozilo za transport medicinskog otpada kao i standardne namjenske kontejnere. [10]

Bolnica Doboj ugovara preradu medicinskog otpada sa zainteresovanim medicinskim ustanovama po cijeni od 3,20 KM/kg i ambulantom po cijeni od 3,60 KM/kg.

U okviru usluge prikupljanja i prerade infektivnog otpada bolnica obezbijuje i: [10]

- Namjensku ambalažu – kontejnere za prikupljanje infektivnog otpada propisane utvrđenim standardima,
- Odvoz prikupljenog infektivnog medicinskog otpada od korisnika usluge,
- Propisanu dokumentaciju za transport prikupljenog infektivnog otpada,
- Tretman (sterilizaciju) i odlaganje preuzetog infektivnog i potencijalno infektivnog otpada.



Slika 4. Postrojenje za preradu infektivnog medicinskog otpada Bolnice Doboj

U skladu sa politikom kvaliteta standardizacije i sertifikacije, Bolnica Doboj je usvojila i proceduru prikupljanja, razvrstavanja i konačnog zbrinjavanja medicinskog otpada. Kroz usvojenu proceduru primjenjuju se sljedeći principi:

- Prikupljanje, razvrstavanje i tretman medicinskog otpada su radne obaveze svih radnika bolnice,
- Prikupljanje, razvrstavanje i tretman medicinskog otpada vrši se prema strogoj proceduri,
- Primjenjuju se stroge mjere zaštite na radu,
- Primjenjuju se stroge mjere kontrole primjene procedure,
- Vršiti se redovna edukacija zaposlenih o utvrđenim procedurama,
- Vršiti se redovno izvještavanje državnih organa o načinu tretiranja medicinskog otpada

Namjera Bolnice Doboj prema [10] je da razvija ovu djelatnost i to: kroz ugovaranje i iskorištenost svih instaliranih kapaciteta, kroz nabavku specijalnog vozila većeg kapaciteta, kroz nabavku većeg broja kontejnera za privremeno skladištenje i transport otpada.

5. ZAKLJUČAK

Kada je u pitanju lanac snabdijevanja lijekova izuzevši ne tako česte nestašice lijekova, može se zaključiti da su zdravstvene ustanove i apoteke u Bosni i Hercegovini veoma dobro snabdjevene lijekovima i opremljene medicinskim sredstvima i opremom. Medicinski otpad predstavlja veliki problem u našoj državi, ali i u okruženju. Ipak se uz određene napore i novčana sredstva može adekvatno kontrolisati upravljanje ovim otpadom kao i vršenje reciklaže medicinskog otpada. Nakon temeljne sterilizacije on postaje neopasan otpad koji se dalje reciklira kao i svaki drugi otpad u zavisnosti od kategorije u koju spada (plastika, papir, metal, staklo...). Opasni medicinski otpad se najčešće privremeno skladišti na teritoriji Bosne i Hercegovine, a zatim se transportuje u zemlje Evropske Unije gdje se spaljuje i uništava. S obzirom da medicinski otpad ne nastaje samo u zdravstvenim ustanovama nego i u domaćinstvima, podizanjem svijesti stanovništva o medicinskom otpadu, svaki pojedinac može da doprinese očuvanju životne sredine i bezbjednosti stanovništva tako što će na adekvatan način odlagati kućni medicinski otpad.

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ASPECTS OF SUBJECT FEATURES, RELATIONS AND CONNECTIONS IN MANAGEMENT AND STRATEGIC MANAGEMENT

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Abstract: Management is a science, action, skill, and by certain properties, it is an art of realities managing. It researches, develops and applies knowledges and cognitions of managing as phenomenon in the domain of its genesis, existence and development. It develops, applies, ground and build constituents as the basis of their complex comprises of objectivity. Management stands out as a subject home field in the area of strategic management. Therefore, the paper is dedicated to aspects of features, relations and connections of management and strategic management. The more so, the action of management is evolving due to unrestrained changes of physiognomy of the organization's environment (institutions, systems, ventures, actions, etc.), the great achievements of technics, technology, the decisive influence of information and information technologies and systems as well as more popular practice of activities-business, as actions and processes, as means of effects of different purposes, meaning, value, levels and significance.

Keywords: management, strategic management, subject, features, relations, connections

Apstrakt: Menadžment je nauka, delatnost, veština, a po određenim svojstvima i umetnost upravljanja realitetima. Istražuje, razvija i primenjuje znanja i saznanja o upravljanju kao pojavi u domenu njene geneze, egzistencije i razvoja. Razvija, primenjuje, temelji i izgrađuje konstituanse kao osnove obuhvata svoje kompleksne predmetnosti. Menadžment se izdvaja kao predmetno matično polje oblasti strategijskog menadžmenta. Zato je rad posvećen aspektima odlika, odnosa i veza menadžmenta i strategijskog menadžmenta. Tim pre što delatnost upravljanja evoluira usled nezadrživih promena fizionomije okruženja organizacije (institucija, sistema, poduhvata, akcija i dr.), velikih dostignuća tehnike, tehnologije, odlučujućeg uticaja informacija i informacionih tehnologija i sistema kao i sve razgranatijeg praktikovanja delatnosti-poslovanja, kao akcija i procesa, kao sredstva efekata različite svrhe, smisla, vrednosti, nivoa i značaja.

Ključne reči: menadžment, strategijski menadžment, predmet, odlike, odnosi, veze

1. UVOD

Danas je menadžment razvijena nauka, tradicionalna delatnost i iskustvena veština. To agumentuje razvijenost njegovih konstituanasa: predmeta, teorije, metoda, jezika i drugih. Po konstituansima i njihovim odlikama, svojstvima, odnosima i vezama menadžment je matična nauka svojim disciplinama [11] u polju upravljačke delatnosti. Menadžment odlikuje pokretna i razvojna naučno-delatna oblast. Njegova matičnost se potvrđuje, ispoljava, razvija i

utemeljuje kroz brojne menadžment discipline kao što su: strateški menadžment, inovativni menadžment, investicioni menadžment, projektni menadžment i dr [11]. Primena menadžmenta u svim oblastima ljudske i društvene delatnosti je sve izraženija i značajnija. U odnosu na navedena svojstva, veze i odnose menadžmenta sadržaj je posvećen analizi odnosa između strateškog menadžmenta, kao discipline koja proučava i praktikuje odlučujuće odlike, svojstva i aktivnosti svoje matice-menadžmenta.

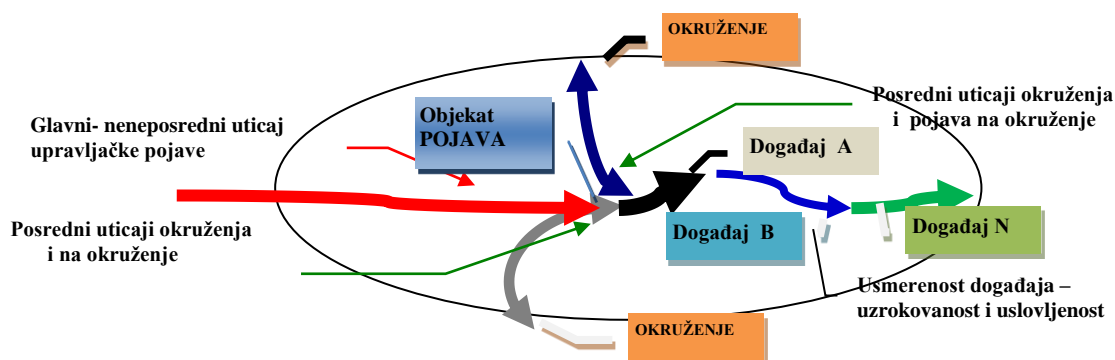
Razrada sadržaja je izvedena po naučnim osnovama njihove predmetnosti pristupom matrica – disciplina, odnosno predmet - objekat. Na kraju je izveden zaključak i prikazan izvod iz korišćene obimne literature.

2. PREDMETNO POLJE MENADŽMENTA I OBLAST STRATEGIJSKOG MENADŽMENTA

Menadžment se u savremenim uslovima smatra kompleksnom³² [17] naukom³³, delatnošću³⁴, veštinom[20], a pojedini autori mu pripisuju i svojstvo umetnosti [19]. Zašto je to tako?

Više je odgovora na to pitanje.

Prvo, predmet menadžmenta je upravljanje: uticaj upravljačkih na upravljane pojave u sveopštoj povezanosti pojava i okruženja (slika 1.).



Slika 1. Oblikovanje organizacionih pojava (tvorevina-procesa-događaja) kao posledica upravljanja i interakcije sa okruženjem

Upravljanje je predmet-pojava koja utiče na objekat-pojave, kao realitet, koji tvore i odlikuju tri oblika [21]: tvorevine, procesi i događaji (tabela 1.). Kao **tvorevinu** odlikuju ga relativno trajni sadržaji i konstantni odnosi i veze. **Proces** je odlika predmetne promenljivosti. **Događaj** je kompleks ispoljavanja tvorevine u čvornoj tački procesa.

32) Danas se pod **kompleksom** podrazumeva predmet kao **pojava** koja se ispoljava kao *tvorevina - proces-događaj*. **Tvorevina** je odlika relativno trajnog materijalnog sadržaja i konstantnih odnosa i veza predmeta. **Proces** je odlika predmetne promenljivosti. **Događaj** je prostorno - vremenski splet više procesa [21, p.34.-38].

33) **Nauka**: je sistem utvrđenih, teorijski obrađenih i iskustveno proverenih saznanja o određenom predmetu [18, p.5.-6].

34) **Delatnost** je aktivno uzajamno delovanje svih procesa, sa vodećom ulogom ciljnog delovanja u svim njegovim pojavama. Delatnosti su svesne i ka određenom cilju usmerene aktivnosti. Smatraju se i kao proizvođenje jedne pojave od strane druge [20, p. 61-69].

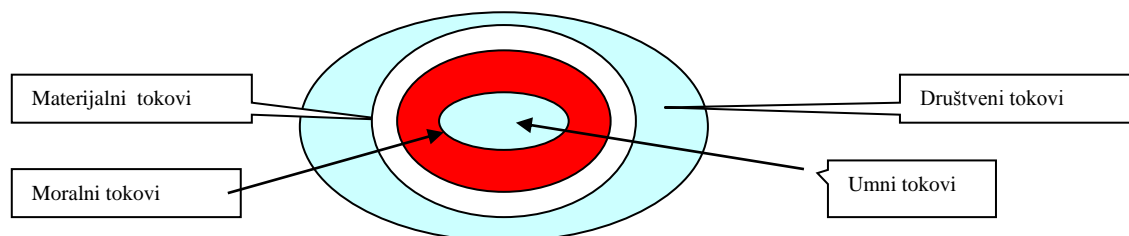
Tabela 1. Matrični odnosi svojstava i odlika upravljanja .

Svojstva	Konstantnost	Promenljivost	Kompleks
UPRAVLJANJE			
odlike			
sadržaj	egzistencije	ispoljavanja	uticaja
odnosi -veze	uticaja	usmeravanja	delovanja
PREDMET	tvorevina	proces	dogadaj

Drugo, upravljanje po svojoj prirodi može biti neposredno i posredno, pomoćni i glavni oblik uticaja upravljačkog na upravljani objekat, koji - delujući, ostvaruje ulogu činioca procesa dešavanja i događaja.

Treće, upravljanje je usmeravajuća delatnost pojava u svim njenim oblicima kao tvorevine, procesa, događaja (slika 2.).

Četvrto, upravljanje je ciljani proces organizacionog³⁵ oblikovanja pojava radi zadovoljavanja društvenih potreba i interesa.



Slika 2. Struktura najopštijih sadržaja tokova menadžmenta u procesu delatnosti

Dakle, predmet menadžmenta je kompleks pojava koju je moguće i potrebno proučavati višestranu i višestruko. Strategijski menadžment je disciplina, praksa i veština kojom menadžment pristupa svom predmetu interakcijski sa aspekta odlučujućih odredbi egzistencije i ispoljavanja kao tvorevini-procesu-događaju [7].

Danas je *menadžment zaokružena delatnost zadovoljavanja društvenih i organizacionih potreba i interesa u domenu upravljanja, koja je dostigla status oblikovane nauke, veštine, tradicije.*

Istražujući svoj predmet, menadžment razvija nivoovski sistemski pristup i kriterijume organizacije o upravljanju objekat-pojavama, entitetima, organizacijama-sistemima-poduhvatima. Ispoljava se kao delatnost upravljanja³⁶[15] aktivnostima ljudi i organizacija radi ostvarivanja-dostizanja ciljeva na efektivan i efikasan način (slika 3.).

35) **Organizacioni sistemi** su najviša kategorija sistema, koji obuhvataju sve umne, moralne i materijalne tekovine ljudskog roda. To je red elemenata ili grupe elemenata u određenom redu određenih funkcionalnih svojstava u odnosu na cilj." [14].

36) **Upravljanje** je dejstvo na objekat koje poboljšava funkcionisanje ili razvoj datog objekta, a koje je izabrano iz mnoštva mogućih dejstava na osnovu za to raspoložive informacije. [15. p.5.-27.] [10, p.3.-7].

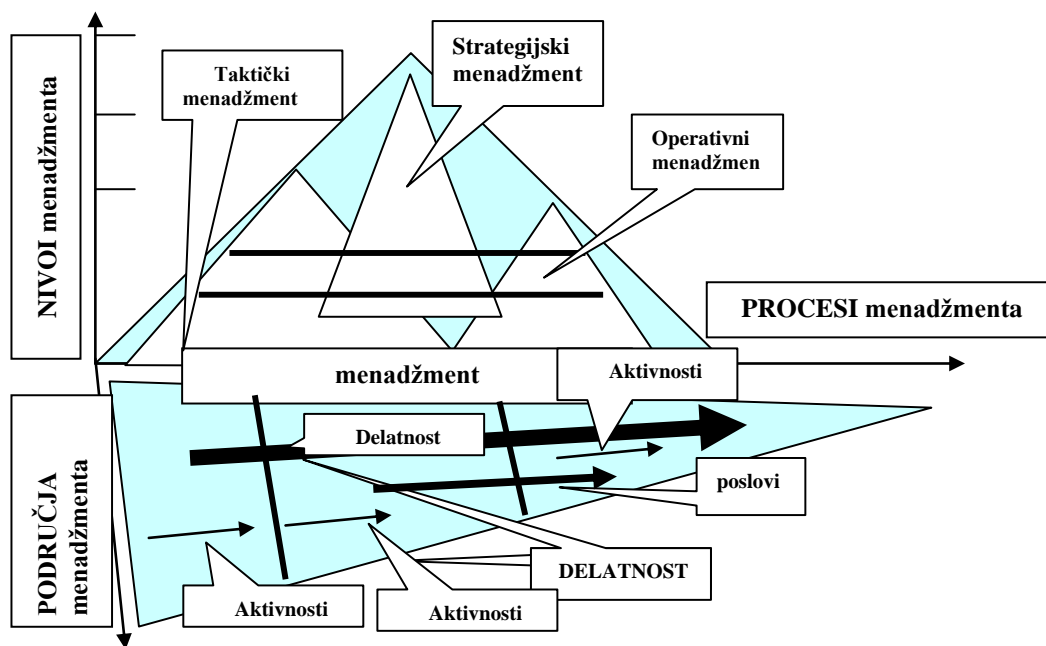
Strategijski menadžment je upravljačka disciplina i po prirodi je objekat³⁷ [21,18] menadžmenta, tj. predmetna oblast polja menadžmenta koja obuhvata, proučavajući, razvijajući i praktikujući:

prvo: glavne i odlučujuće oblike uticaja-delovanja-dejstva upravljačkih na upravljane pojave - objekte;

drugo: glavne i rešavajuće uticaje upravljačkih na upravljane objekte;

treće: usmerava pojave ka budućnosti kao i

četvrto: ciljno oblikujući pojave ka budućnosti.



Slika 3. Upravljanje po nivoima, područjima, procesima

2.1. ZAJEDNIČKA PREDMETNA SVOJSTVA, ODNOSI I VEZE MENADŽMENTA I STRATEGIJSKOG MENADŽMENTA

Poznato je, odlike menadžmenta su oblik ispoljavanja njegovog predmeta. Zajedničke odlike predmeta menadžmenta su: veze - odnosi njegovih činilaca i predmetni odnosi "opšte – deo" [21] Predmet se ispoljava kao odredba: suštinom i celinom [21] posredstvom svojstava.

37) Predmet je jedinstvo stvari (tvorevina) sa njenim pojavama, osobinama i odnosima. Tvorevina je relativno konstantan materijalni sadržaj određene forme, relativno konstantne strukture i relativno samostalnog postojanja. Menadžment istražuje zakonitosti pojava-procesa upravljanja delatnostima, poslovima, organizacijom, sistemima,... To su, upravo i objekti istraživanja i praktikovanja upravljanja: domeni-tvorevine u predmetnoj stvarnosti menadžmenta. (nap. autora)Detaljnije:[21, p.34.-38];[18, p. 4.-23].

Objekat je relativno konstantan materijalni sadržaj određene forme (tvorevina, proces, događaj) relativno konstantne strukture i relativno samostalnog postojanja. Zajedničke odlike predmeta-objekta su: "opšte – deo" i veze i odnosi. [21, p.34.-38] i [17, p.31.-38].

2.1.1. Svojstva predmeta menadžmentu

Kao i sve pojave, predmet menadžmenta se ispoljava svojstvima. **Svojstva** su spoljašnja manifestacija kvaliteta upravljanja. Sveukupnost svojstava čini kvalitet upravljanja.

a/. Opšta svojstva upravljanja su: **s.1.** sadržaji, **s.2.** oblici, **s.3.** kvaliteti, **s.4.** mere, **s.5.** strukture, **s.6.** funkcije, **s.7.** nastanak, razvoj i promene upravljanja i **s.8.** ponašanje sistema [12]

b/. Svojstva upravljanja organizacijom - sistemom

s.1. Sadržaj. Čini celokupnost unutrašnjih elemenata i procesa upravljanja organizacijom. *Primer:* organizacija je određena grupa ljudi, koja raspolaže određenim sredstvima u određenom prostoru i vremenu i funkcioniše po određenim principima i programima upravljanja radi ostvarenja određenog cilja [8].

s.2. Oblik /Forma/. Čini sistem odredaba sadržaja upravljanja kao pojava u kojoj se taj sadržaj javlja i realno postoji [21]. Po tome, strategijski menadžment je oblik menadžmenta.

Primer: preduzeće je oblik organizacije kojom se upravlja strategijski, taktički, operativno.

s.3. Kvalitet. Čini unutrašnju suštinsku određenost upravljanja koja stvara granicu i deli je kao pojavu od drugih pojava. Zasnovan je na bitnim i nužnim unutrašnjim vezama. *Primer:* vođe su nadležne za određivanje posla koji se obavlja, a menadžeri su nadležni za način obavljanja određenog posla. Strategijski menadžment je poseban kvalitet.

s.4. Mera. To je odnos kvaliteta i kvantiteta upravljanja. *Primer:* nadležnosti i odgovornosti menadžera su mera nivoa top-menadžmenta, srednjeg i osnovnog menadžmenta.

s.5. Struktura. Predstavlja celovit sistem odnosa elemenata i delova upravljanja, kao složenog predmeta, pojave ili procesa. *Primer:* organizacionu strukturu organizacije čine [2*]: upravljački deo, izvršni deo i obezbeđujući deo. Funkcionalnu strukturu čine: planiranje, organizovanje, koordinacija, naređivanje, kontrola. Poslovnu strukturu čine: proizvodni-uslužni deo, istraživački deo, kadrovski deo, finansijski deo poslovne organizacije. Struktura je i stepen složenosti [21]. Struktura predmeta obuhvata: građu, delove, odnose upravljanja [12]. *Primer:* Menadžment je matična nauka svojim disciplinama, pa i strategijskom menadžmentu. Njegov predmet predstavlja predmetnu oblast polja. Njihovi međusobni odnosi i veze su tipa "opšte – deo" i "suština-celina-deo".

s.6. Funkcije. Čine odnose i uticaje ili dejstva koje činioци i delovi sistema upravljanja ostvaruju na celinu sistema određene strukture. Funkcija je dejstvo dela sistema na celinu sistema [16]. Strategijski menadžment je funkcija menadžmenta.

s.7. Proces. Predstavlja razlaganje i istovremenu izgradnju strukturnih delova upravljanja. Strategijski menadžment je objekat – proces i segment-proces procesa menadžmenta.

s.8. Ponašanje upravljanja. *Primer:* ponašanje upravljanja uslovljava situacija [16]. Strategijski menadžment je situacioni činilac menadžmenta.

2.1.2. Predmetni odnosi i veze menadžmenta

Odredba je suština posebnog u kompleksu "opšte – deo" i predstavlja saznanje i otkrivanje veza i odnosa činilaca, strana i odlika u jedinstvenoj celini pojave upravljanja.

Sušтина je bitna struktura, uslovi i oblik ispoljavanja funkcija, veza i odnosa upravljanja kao pojave.

Jedinstvo celine pojave upravljanja čine odnosi i veze činilaca i delova: *kompleks –tvorevina - process* [17].

Veze su osnova *odlika - odnosa*: kvalitativne, kvantitativne, prostorne, vremenske.

a./ Predmetni odnosi upravljanja

Predmetnim poljem upravljanja ispoljavaju se sledeći odnosi:

- o.1.** Prostorno-vremenski odnosi, tj. rasprostiranje upravljanja,
- o.2.** kvalitativno-kvantitativni odnosi, tj. odnosi svojstava i promena,
- o.3.** strukturni odnosi, tj. građa, delovi, odnosi celovitosti,
- o.4.** funkcionalni odnosi, tj. uticaji – delovanje – dejstva na celinu i
- o.5.** akcioni odnosi, tj. odnosi nivoa i stepena prilagođavanja celine.

Odnosi činilaca (elemenata i segmenata) su u međusobnoj interakciji. Promenljivi su po nivou i stepenu razvoja. Moguće je prikazati ih matricno (tabela 2,).

b./ Predmetne veze upravljanja

To su veze povezanosti, uslovenosti i vrednosti.

1. Povezanosti:

- v.1. Prostorno-vremenske veze, tj. rasprostiranje i trajanje;
- v.2. kvalitativno-kvantitativni veze, tj. svojstva, oblika i količine;
- v.3. strukturne veze, tj. celovitost sistema odnosa;
- v.4. funkcionalne veze, tj. uticaji i
- v.5. akcione veze, tj. nivo i stepen prilagođenosti akcije.

Tabela 2. Matrični odnosi elementarnih činilaca upravljanja

Odnosi činilaca upravljanja	prostor	vreme	kvantitet	kvalitet	struktura	funkcije	aktivnost
prostor	rasprostiranje	Prostorno trajanje	Prostorni oblik	Prostorna svojstva	Prostorna celovitost	Prostorni uticaji	Prostornost akcije
vreme	Trajanje prostornosti	trajanje	Trajanje oblika	Trajanje svojstava	Trajanje celovitosti	Trajanje uticaja	Trajanje akcije
kvantitet	Oblik prostora	Oblik trajanja	Oblik Količina	Odredenost predmeta	Oblik celovitosti	Oblik uticaja	Oblik akcije
kvalitet	Svojstva prostora	Svojstva trajanja	svojstva oblika	Svojstva	Svojstva celovitosti	Svojstva uticaja	Svojstva akcije
struktura	Celovitost prostora	Celovitost trajanja	Celovitost oblika	Celovitost svojstava	Celovitost	Celovitost uticaja	Celovitost akcije
funkcije	Uticaji prostora	Uticaji trajanja	Uticaji oblika	Uticaji svojstava	Uticaji celovitosti	uticaji	Uticaji akcije
aktivnost	Nivo i stepen prostorne prilagodnosti	Nivo i stepen prilagod. trajanja	Nivo i stepen prilagod. oblika	Nivo i stepen prilagod. svojstava	Nivo i stepen prilagod. celovitosti	Nivo i stepen prilagod. uticaja	Nivo i stepen prilagodnosti AKCIJE

2. **Uslovljenosti**³⁸. To su veze delovanja i dejstva pojava jedne na druge (npr. hijerarhije menadžmenta u organizaciji, preduzeću itd.)

3. **Vrednosti uslovljenosti**, koje mogu biti:

- u.1. glavna uslovljenost,
- u.2. sporedna uslovljenost,
- u.3. neposredna uslovljenost i
- u.4. posredna uslovljenost.

Analizirana i prikazana svojstva, veze i odnosi odlikuju predmet menadžmenta i predmetno polje strategijskog menadžmenta, odnosno njihovu celinu, jedinstvo i suštinu.

2.2. PREDMETNI ČINIOCI MENADŽMENTA

Predmet³⁹ **menadžmenta** je upravljanje realitetom (organizacijom – sistemom – poduhvatom) radi poboljšanja njihove efikasnosti.

Upravljanje je zasnovani realitet koji se ispoljava kao tvorevina, proces, događaj koje karakterišu: svojstva, kvaliteti, kvantiteti, odnosi i veze u procesima, struktra i ponašanje.

Priroda upravljanja je delovanje na organizaciono polje usmeravanjem drugih ljudi u radu, delatnostima, aktivnostima, poslovanju radi ostvarenja cilja.

Kao pristup, upravljanje je procesnog karaktera što podrazumeva upravljanje kao realitet geneze, promena i situacionog ponašanja. Po tom osnovu, menadžment je upravljački pristup rešavanju problema radi efikasnijeg delovanja, funkcionisanja i razvoja organizacije. Činioci predmeta menadžmenta su: elementarni, segmentni i predmetne celine.

2.2.1. Elementarni predmetni činioci

To su: cilj, ljudski činilac, sredstva, prostor, vreme, informacija u konkretnoj situaciji.

a. Cilj. Svaka organizacija je u svrhu određenog cilja, kao vrednosti koju treba steći, ostvariti ili sačuvati. Osnova je za objedinjavanje aktivnosti i usmeravanje akcije ka željenom stanju. Akcija se usmerava podelom opšteg cilja na posebne i konkretne. Po osnovi cilja, potrebno je strategijsko tj. organizaciono, funkcionalno i akcono upravljane organizacijom [2, 5].

b. Ljudski činilac. Ljudi su nosioci rada uz upotrebu određenih sredstava. Funkcionisanje organizacije zasniva se na delovanju ljudi radnim sredstvima, tehnikom i opremom, određenim postupkom u konkretnoj sredini konkretnim oblicima aktivnosti. Oblici aktivnosti organizacija su: upravljačke, izvršne i obezbeđujuće. Funkcionisanje sistema zasniva se na ponašanju i delovanju ljudi u kompleksu akcije kao moralno, vrednosno i društveno orgnizovan i usmeren događaj [13, p.60.].

c. Sredstva. U užem smislu predstavljaju materijalno-tehnički činilac, koji je moguće analizirati sa aspekta namene na radna sredstva (tehniku, opremu i potrošna sredstva).

38) **Uslovi** – sve one pojave od čijeg postojanja ona zavisi, bilo u celini bilo ma kojim svojim delom. **Činioci** su delatni uslovi. tj. svi objekti (tvorevine, procesi, svojstva) koji svojim delovanjem učestvuju u proizvođenju date pojave, bez obzira da li su nužni ili dovoljni [17].

39) **Pojava** je zasnovani realitet nastao dejstvom uzroka i delovanjem uslova. Detaljnije[21. p.34.-38];[17].

U širem smislu namene obuhvataju akcione alate, instrumente, procedure, tehniku – tehnologiju. U najširem smislu obuhvataju organizacije kao upravljačku moć, snagu i konkretnu akciju-sredstvo cilja.

U savremenim teorijama, pristupima i konceptima sredstva su sinonim resursa, u koje spadaju: sirovine, materijali, komponente, delovi i sklopovi, oprema, tehnologija proizvodnje, finansijska i informacijska sredstva. Pod resursima se podrazumeva i ljudski potencijal, koji obuhvata i znanja i sposobnosti.

d. Prostorno-vremenski činilac. Ispoljava se na svim nivoima upravljanja: oblicima delatnosti, brzinom procesa njihovog događanja i rezultatima aktivnosti, delovanja i akcija.

đ. Informacija. Ljudi i sredstva u organizaciji čine jedinstvenu snagu. Čovek je činilac upravljanja koji deluje primenom određenih sredstava. Njegovo delovanje pokreću intelektualna, moralna, voljna, i fizička energija, objedinjena i usmerena zadatkom i ciljem organizacije. Stabilnost delovanja ljudi je integral njihovog pojedinačnog i organizacionog organizovanja, motivisanosti, morala i drugih vrednosti. Informacija je odlučujući činilac upravljanja organizacijom. U akcijama odluka je odlučujuća informacija po njen proces, tok i ishod.

Praktično, informacija je osnov upravljanja kao osnova komunikacija, logike, smisla, vrednosti, odnosa i veza egzistencije i funkcionisanja organizacije u raznim oblicima, formama raznim sredstvima.⁴⁰

2.2.2. Segmentni činiloci upravljanja

Čine ih procesi upravljanja i objekti predmeta menadžmenta.

2.2.2.1. *Procesi upravljanja*

Čine ih podprocesi : *planiranja, organizovanja, vođenja, kadrovanja, kontrole.*

a/ Planiranje. To je funkcija definisanja "šta" neka organizacija želi postići i način na koji želi to ostvariti, a koji započinje trenutnim stanjem organizacije.

Delokrug planiranja. Planovi - dokumenta o ciljevima i načinu njihovog ostvarenja.

Uloga. Osnova je za ostale funkcije menadžmenta.

Namena: 'prisiljava' organizaciju da predviđa.

b/ Organizovanje. Proces: **1.** povezivanja ljudi i sredstava radi ostvaruju ciljeva; **2.** integrisanja zadataka i poslova. **3.** racionalnog korišćenja aktivnosti određenog broja ljudi koji vode zajedničkoj svrsi ili cilju podelom rada i funkcija kao i hijerarhije autoriteta i odgovornosti.

c/ Vođenje. Uticaj na druge koji realizuju neki zadatak. Skup procesa usmerenih na pridobijanje članova organizacije da rade zajedno na ostvarivanju interesa organizacije. Uticanje na ljude kako bi oni pridoneli organizacijskim i grupnim ciljevima. Vođenje je ključ za upravljanje organizacijom u razdoblju promena i kriza.

d/ Kadrovanje. Ostvarivanje adekvatnog broja i strukture zaposlenih, njihovih znanja, veština, interesa, motivacije te oblika ponašanja potrebnih za ostvarivanje aktuelnih, razvojnih i stratejskih ciljeva organizacije.

⁴⁰⁾ To podrazumeva da je stabilnost uslovljena i praćenjem savremenih tokova tehnike i tehnologije. Primera radi, nezamisliva je danas komunikacija bez mobilne telefonije i drugih medijskih sredstava i izvora. (napomena autora).

e/ Kontrola. Sistemski proces kojim menadžeri regulišu aktivnosti unutar organizacije kako bi one bile u skladu s planiranim kroz organizacijsku misiju, ciljeve, planove i standard izvršenja.

2.2.2.2. *Objekti menadžmenta*

Prema predmetnim svojstvima, odnosima i vezama izvršena je podjela menadžmenta na:

- I. Strategijski menadžment**
- II. Srednji (taktički) menadžment i**
- III. Operativni menadžment**

2.3. STRATEGIJSKI MENADŽMENT – OBJEKAT MENADŽMENTA

U odnosu na svoju maticu, strategijski menadžment odlikuju, pored ostalih konstituansnih, predmetne karakteristike, odnosi i veze.

2.3.1. Predmetni objekat menadžmenta

Aspekti karakteristika strategijskog menadžmenta: 1. način mišljenja, 2. pristup, 3. ciljno sredstvo menadžmenta i 4. proces.

2.3.1.1. *Način mišljenja*

1. Predstavlja sintezu intuicije i kreativnosti menadžmenta,
2. čini konstrukt združenih informacija kao rezultat analiza i zaključivanja,
3. integrisan, celovit pogled na organizaciju,
4. težište je utvrđivanje odnosa povezanosti celine,
5. procesno tretira okolinu u odnosu unutrašnje i spoljne interakcije,
6. utvrđuje probleme uslovljene okolinom, organizacijom i istražuje rešenja,
7. predstavlja sistematizovanu strukturu odlučujućih odnosa i veza predmeta menadžmenta, tj. upravljanja kao i
8. praktično je znanje i iskustvena struka.

2.3.1.2. *Pristup*

Pristup je strategijski. Odgovara na temeljna pitanja organizacijskog opstanka, razvoja i definiše uslove uspeha.

Uslovi uspeha su:

1. Prilagođavanje organizacije koja deluje na okolinu i trpi uticaje okoline;
2. resursi organizacije su ograničeni u odnosu na potrebe i cilj organizacije i
3. upravljanje procesom dostizanja cilja posredstvom zadataka [5].

2.3.1.3. Ciljno sredstvo menadžmenta

Namena: Koncept savremenog sveta u izboru vizije, misije, strategije i cilja delovanja organizacije [4,9].

Uloga: iznalaženje mera i akcija prilagođavanja razvoja organizacije.

Svrha: obezbeđenjnje opstanka i razvoja organizacije.

2.3.1.4. Proces

U opštem smislu proces je transformacija ulaza u izlaz upravljanja koje strategijski menadžment proučava: na sistemski način, kao jedinstvo odnosa i veza činilaca upravljanja i na konceptualni način ('kuda'-'gde'-'kako'-'aktivnosti') [10,19].

Strategijski menadžment proučava uslove i način stvaranja i obezbeđenja upravljanja organizacijom kao sistem, obuhvatajući celinu pojava.

Jedinstvo se ostvaruje i razvija u određenim uslovima usmeravanjem i integracijom odnosa "opšte-deo" tj. predmet menadžmenta – oblast strategijskog menadžmenta i veza njihovih činilaca.

Koncept je strategijski pri čemu je strategija način vođenja organizacije u budućnost.

2.3.2. Predmet strategijskog menadžmentu

2.3.2.1. Predmet: upravljanje prilagođavanjem realiteta radi njegovog opstanka i razvoja.

2.3.2.2. Oblast: upravljanje usmeravanjem-delovanjem-dejstvom na funkcionisanje i način dostizanja položaja i ciljeva organizacije u budućnosti.

2.3.2.3. Problematika: uticaj na egzistenciju, prilagođavanje i razvoj organizacije.

2.3.2.4. Sadžina strategijskog menadžmenta: Upravljanje sadašnjim i budućim funkcionisanjem organizacije kao:

- I. **Procesa** strategijskog prilagođavanja organizacije promenljivoj okolini,
- II. **Strategijske analize** organizacije i okruženja [3],
- III. **Definisanje i izbor** relevantnih strategija [1,4],
- IV. **Planiranje** realizacije određene strategije [11a] i
- V. **Realizacija** strategije [9].

Prema tome, *predmetna oblast strategijskog menadžmenta obuhvata i proučava relevantne činioce odnosa i veza upravljanja od odlučujućeg značaja za razvoj realiteta kao organizacije, sistema, poduhvata.*

3. ZAKLJUČAK

Tokom razvoja menadžment je, kao kompleks-pojava, evoluirao višestranu, višestruku, višedimenzionalno, višeslojnu. Savremeni status menadžmenta jača u svim

oblastima ljudske delatnosti kao nauka, delatnost, veština usled odlučujuće uloge upravljanja, kao predmeta menadžmenta.

Kao nauka, menadžment je konstituansno oblikovan sistem saznanja, jer: teži suštini svog predmeta kao tvorevine, procesa, događaja; razvija teoriju kao konzistentno, provereno i sistemativno razvojno znanje o činionicima celine i jedinstva predmeta otkrivajući njegove bitne odlike, veze i odnose; istražuje predmet primenom jedinstvenih metoda, postupaka i procedura, razvija originalni jezik na temeljima utvrđenih kategorija i izvedenih iskaza u raznim oblicima hipoteza, stavova i dr.

Kao delatnost, menadžment je odlučujući činilac egzistencije i razvoja svake organizacije, pa i društva u celini, jer je upravljanje dejstvo upravljačkog na upravljani objekat radi obezbeđenja njegove egzistencije i poboljšavanja funkcionisanja.

Po odlikama, nameni, ulozi i svrsi, menadžment je matična nauka brojnim naučnim disciplinama među kojima se izdvaja strategijski menadžment.

Predmetna oblast strategijskog menadžmenta obuhvata i proučava relevantne činioce odnosa i veza upravljanja od odlučujućeg značaja za razvoj organizacije kao sistema-poduhvata.

Stoga je strategijski menadžment odlučujuća disciplina menadžmenta i teorijski je utemeljen i oblikovan kao znanje, pristup, proces, metoda, veština.

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THE ANALYSIS OF CONCENTRATION TREND IN SERBIAN BANKING INDUSTRY

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Abstract: The analysis of concentration trend is one of the basic elements used in the process of identification concentration level and structure in banking industry. Due to interdependency between financial and real economy, measurement of concentration level in banking industry has an extraordinary significance for functioning of whole economy in each state. Paper analyses the level of concentration in Serbian banking industry through implementation of basis measures of concentration: concentration ratio of 5 the largest banks according to total assets and Herfindahl-Hirschman index of concentration. The analysis of Serbian banking industry in terms of total assets, credit activity and deposit potential measured by HHI index in a period from 2010 to 2015, clearly pinpoint on absence of concentration with obvious existence of oligopolistic market structure.

Keywords: concentration, banking industry, Herfindahl-Hirschman index, Serbia.

Apstrakt: Analiza koncentracije predstavlja jedan od osnovnih elemenata koji se koriste prilikom utvrđivanja stepena konkurencije i strukture u bankarskom sektoru. Usled međuzavisnosti između finansijskog i realnog sektora privrede, merenje stepena koncentracije bankarskog sektora je od izvanrednog značaja za funkcionisanje celokupne ekonomije svake države. U radu se analizira stepen koncentracije u bankarskom sektoru Srbije, putem primene osnovnih mera koncentracije: racio koncentracije 5 najvećih banaka prema bilansnoj sumi i Herfindahl-Hirschman indeks koncentracije. Analiza koncentracije bankarskog sektora Srbije u pogledu bilansne sume, kreditne aktivnosti i depozitnog potencijala merena HHI indeksom u periodu 2010. – 2015. godina jasno ukazuje na odsustvo koncentracije uz evidentno prisustvo oligopolističke tržišne strukture.

Ključne reči: koncentracija, bankarski sektor, Herfindahl-Hirschman indeks, Srbija.

1. UVOD

Konkurentnost ključnih sektora srpske privrede, poput finansijskog sektora i sektora telekomunikacija, je obezbeđena zahvaljujući značajnim stranim direktnim investicijama u prethodnom periodu. Kao rezultat porasta stranih direktnih investicija, u strukturi banaka dominantno učestvuju banke sa većinskim stranim kapitalom (tzv. strane banke) sa 77%. Sama činjenica da od ukupno 30 poslovnih banaka (podatak na 30.12.2015.) u Srbiji, 23 banke su tzv. strane banke dovoljno je indikativan da bi se mogao doneti nedvosmislen zaključak o podizanju kredibiliteta srpskog bankarskog sistema. Na primer, u 2002. godini, u Srbiji je poslovalo samo 6 stranih banaka od ukupno 49 banaka, što je činilo tek nešto više od 12% učešća na bankarskom tržištu Srbije, što predstavlja značajnu razliku u odnosu na aktuelnih 77% udela stranih banaka u ukupnom broju banaka na srpskom tržištu. Porast

učešća stranih banaka u strukturi bankarskog sektora se dužuje greenfield i brownfield direktnim investicijama, kao i podsticajnim merama Narodne banke Srbije u kontekstu regulatornih propisa i usklađivanjem sa međunarodnom regulativom u oblasti bankarstva pre svega sa Bazelskim standardima.

Strane direktne investicije u Srbiju od početka XXI veka su u velikoj meri doprinele razvoju bankarskog sektora. Od 20 najvećih stranih direktnih investicija u Srbiju, 5 stranih direktnih investicija se odnosi na bankarski sektor (videti Tabelu 1). Tako se u najznačajnije investicije u bankarskom sektoru Srbije ubrajaju sledeće investicije [5]:

- ✓ kupovina Delta banke od strane italijanske Banca Intesa – u iznosu od 508 miliona EUR;
- ✓ preuzimanje Nacionalne Štedionice od strane grčke Eurobank EFG u iznosu od 500 miliona EUR;
- ✓ ulazak austrijske Raiffeisen banke – investicija vredna 500 miliona EUR;
- ✓ merdžer između Vojvođanske banke i Nacionalne Banke Grčke (NBG) u iznosu od 425 milion EUR;
- ✓ kupovina Meridijan banke od strane francuske Credit Agricole – u iznosu od 264 miliona EUR.

Tabela 1. Dvadeset najvećih stranih investicija u Srbiji 2001. – 2011. godina

Rang	Kompanija	Zemlja porekla	Privredna grana	Vrednost ulaganja (u milionima EUR)
1	Telenor	Norveška	Telekomunikacije	1.602
2	NIS	Rusija	Energetika	947
3	FIAT	Italija	Auto industrija	940
4	Delhaize	Belgija	Maloprodaja	933
5	Phillip Morris	SAD	Duvanska industrija	733
6	Stada	Nemačka	Farmaceutska industrija	650
7	Vip mobile	Austrija	Telekomunikacije	633
8	Agrokor	Hrvatska	Prehrambena industrija	614
9	Banca Intesa	Italija	Bankarstvo	508
10	Salford	V.Britanija	Prehrambena industrija	500
11	Eurobank EFG	Grčka	Bankarstvo	500
12	Raiffeisen bank	Austrija	Bankarstvo	500
13	Merkator	Slovenija	Maloprodaja	500
14	Star Bev	Češka	Prehrambena industrija	487
15	CEE/BIG shopping centers	Izrael	Nekretnine	470
16	National bank of Greece	Grčka	Bankarstvo	425
17	Credit Agricole Srbija	Francuska	Bankarstvo	264
18	Fondiarria SAI	Italija	Osiguranje	220
19	Lukoil	Rusija	Energetika	210
20	British American Tobacco SEE	V.Britanija	Duvanska industrija	200

Izvor: SIEPA [8]

Analizom strukture banaka u bankarskom sektoru Srbije pokreće se bitno pitanje koje se odnosi na stepen koncentracije. Centralno mesto rada predstavlja analiza prisustva (odsustva) koncentracije u bankarskom sektoru Srbije sa naglaskom na merenje stepena koncentracije primena 2 najvažnija pokazatelja: pokazatelja (racija) koncentracije i Herfindahl-Hirschman indeks koncentracije.

2. MERENJE STEPENA KONCENTRACIJE U BANKAMA

Koncentracija bankarskog sektora predstavlja pojam koji se najčešće povezuje i posmatra kroz prizmu konkurencije između banaka. U tom smislu se često smatra da se visoko koncentrisana tržišta odlikuju relativno nižim stepenom konkurencije uz argumentaciju da pojedini „veliki igrači“ imaju dominantnu ulogu, koja ih destimuliše na razvijanje konkurentne borbe.

Međutim, Claessens i Laeven [2] u svom istraživanju nisu pronašli negativnu korelaciju između konkurentnosti i koncentracije bankarskog sektora. Utvrdili su da ukoliko postoji izrazito visok stepen koncentracije, onda se povećava i stepen konkurentnosti u bankarskom sistemu. Istovremeno su zaključili da ulazne barijere na tržištu mogu značajno da umanje stepen konkurentnosti te je upravo otklanjanje ulaznih barijera na određeno tržište presudno u procesu postizanja višeg nivoa konkurentnosti. U svojoj narednoj studiji, Claessens i Laeven [3] su zaključili da stepen koncentracije (tržišna struktura) u bankarskom sektoru ne predstavlja značajnu pomoć prilikom predviđanja stope rasta industrijskog sektora.

Beck, Demirgüç-Kunt i Levine [1] su analizirali aspekt uticaj koncentracije u bankarskom sistemu na stabilnost, odnosno, na mogućnosti izbijanja finansijskih kriza. Zaključili su da ne treba praviti konekciju između koncentracije i konkurencije u bankarskom sistemu uz jasno definisanje pravila: veća koncentracija bankarskog sektora znači manju verovatnoću da će se odigrati neočekivani tržišni događaji u vidu bankarskih kriza, kao i da regulatorne politike koje podstiču konkurentne odnose među bankama, imaju pozitivan uticaj na stabilnost bankarskog sistema.

Dugoročna analiza konkurentnosti na relevantnim tržištima je značajna ne samo iz aspekta utvrđivanja stepena koncentracije, već i iz ugla sagledavanja trenda razvoja određenog tržišta, odnosno, promena pojedinačnih pokazatelja i indeksa. Indeksi su najčešće zasnovani na tržišnom učešću, koje se definiše kao udeo (proporcija) prodaje određene kompanije u ukupnoj prodaji sektora ili određenog tržišta a tokom definisanog vremenskog perioda. Ukoliko sa n označimo broj entiteta koji posluju na datom tržištu ili u određenom sektoru, a sa q_i obim prodaje i -tog entiteta pri čemu i uzima vrednosti od jedan do n , onda se tržišno učešće i -tog entiteta koje posluje na određenom tržištu ili u određenom sektoru može izraziti preko formule:

$$S_i = \frac{q_i}{\sum_{i=1}^n q_i} \quad i = 1, 2, \dots, n \quad (1)$$

Pokazatelj (racio) koncentracije – CR_m predstavlja tržišno učešće nekoliko najvećih, m -banaka, pri čemu se najčešće uzima 5 najvećih banaka u finansijskom sektoru kao osnov za utvrđivanje stepena koncentracije. U ovom radu će biti korišćen primer na bazi uzorka od 5, odnosno, 10 najvećih srpskih banaka prema tržišnom učešću određenom na bazi bilansne aktive. Obzirom na definisani kriterijum da se polazi od 5 (odnosno 10) najvećih banaka na tržištu, jasno je da se kao nedostatak ovog pokazatelja često navodi zanemarivanje uticaja ostalih, manjih banaka na posmatranom tržištu. Pokazatelj uzima vrednosti od 0 do 1,

pri čemu je potrebno naglasiti da je vrednost pokazatelja blizu nule u situaciji kada se na tržištu nalazi beskonačan broj jednakih tržišnih učesnika (tj. banaka), dok je vrednost pokazatelja jednaka 1 kada zbir m broja banaka predstavlja celokupni bankarski sektor. U cilju jednostavnije interpretacije, pokazatelj koncentracije se množi sa 100 kako bi se izrazio procentualni udeo na određenom tržištu.

Drugi, često korišćeni pokazatelj koncentracije, koji će takođe biti primenjen na primeru bankarskog sektora Srbije jeste **Herfindahl-Hirschman indeks koncentracije**. Herfindahl-Hirschman indeks (u daljem tekstu: HHI indeks) je najpoznatiji indeks koncentracije, koji se koristi i kao polazna osnovu za obračun drugih pokazatelja koncentracije. U najvećoj meri je kao pokazatelj primenjivan u SAD, od strane Federalne Komisije za trgovanje (skraćeno: FTC), koja koristi HHI indeks u cilju procene da li je postoji monopol na bankarskom tržištu SAD.

Prevažodna namena indeksa je za svrhu procene uticaja predloženih procesa spajanja i pripajanja na nivo tržišne konkurencije. U tom smislu, ukoliko je procenjeno da će spajanje i pripajanje (zasnovano na vrednostima HHI indeksa) rezultirati u značajnom pomeranju tržišta u smeru ka uslovima monopola kao preovlađujućim, tada postoji visok stepen verovatnoće da će spajanje i pripajanje dovesti do kršenja antimonopolskog zakonodavstva što će uticati da FTC odbije realizaciju takvog plana spajanja i pripajanja na tržištu. Procena predloženih merdžera na osnovu vrednosti HHI indeksa od strane FTC se primenjuje od 1982. godine, a smernicama o horizontalnim merdžerima iz 2010. godine ocena tržišne koncentracije se vrši na sledeći način:

1. ako je vrednost HHI indeksa manja od 1.500 – tržište je nekoncentrisano i visoko konkurentno; u takvim situacijama FTC uglavnom nema primedbe na predložene procese pripajanja i spajanja;
2. ako je vrednost HHI indeksa veća od 1.500 a manja od 2.500 – tržište je umereno koncentrisano i konkurentno. Tada FTC sprovodi detaljnije ispitivanje o uticaju predloženog merdžera da nivo konkurentnosti tržišta uzimajući u obzir i neke dodatne faktore, uključujući i stepen promene vrednosti HHI indeksa. Smatra se da svako pomeranje vrednosti HHI indeksa za više od 200 indeksnih poena predstavlja neprihvatljivo povećanje tržišne moći u korist jednog učesnika koja će na kraju rezultirati u kršenju antimonopolskog zakonodavstva; i
3. ako je vrednost HHI indeksa veća od 2.500 – tržište se smatra visoko koncentrisanim i manje konkurentnim tržištem. FTC predložene merdžere razmatra sa visokom pažnjom i usmereni više ka odbijanju takvih predloga nego prihvatanju, jer u slučaju prihvatanju vrlo je moguće da će posmatrano tržište imati sve karakteristike monopolističkog tržišta. [4]

HHI indeks se izračunava kao zbir kvadrata tržišnih učešća banaka. Svrha kvadriranja tržišnih učešća se ogleda u dobijanju većih pondera tržišnog učešća najvećih banaka, jer su učešća pomenutih banaka relevantnija (značajnija) za utvrđivanje nivoa konkurentnosti na tržištu. Vrednost HHI indeksa se može kretati od gotovo nulte vrednosti u uslovima postojanja savršene konkurencije do 10.000 što predstavlja slučaj klasičnog monopola. Matematički, vrednost HHI indeksa se obračunava preko sledeće formule:

$$HHI = \sum_{i=1}^n S_i^2 \quad (2)$$

pri čemu: S predstavlja udeo (učešće) i -te banke na tržištu, a n predstavlja ukupan broj banaka. Generalno, HHI indeks je pouzdaniji pokazatelj koncentracije od samog pokazatelja (racija) koncentracije, jer stavlja akcenat na najveće banke (pošto se tržišna učešća kvadriraju) i kreće se u rasponu od $(1/n)$ do n , tako da je najniža vrednost jednaka recipročnoj vrednosti ukupnog broja banaka na posmatranom tržištu i ostvaruje se kada su sve banke na tržištu podjednake veličine. Indeks se može prikazati i drugačije tako što će maksimalna vrednost biti 100 ili 10.000 u zavisnosti da li se iskazivanje vrši u procentima ili u indeksnim poenima.

3. KONCENTRACIJA U BANKARSKOM SEKTORU SRBIJE

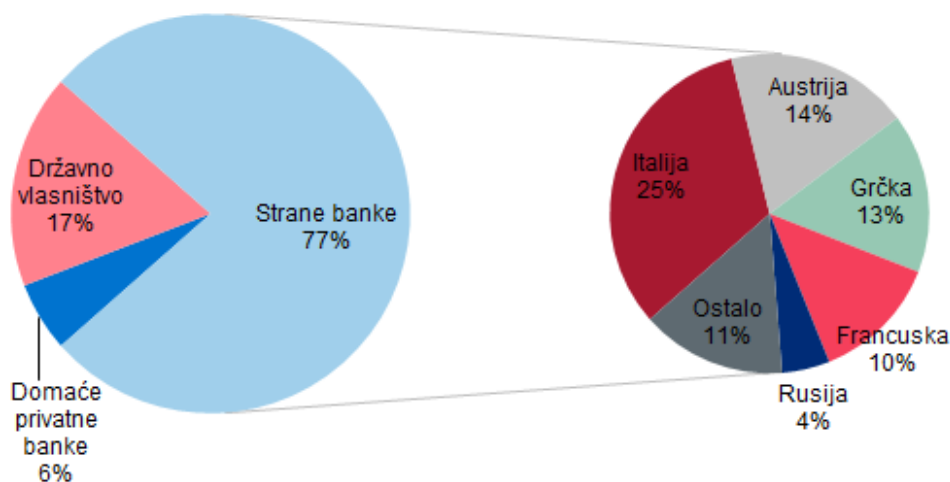
Bankarski sektor Srbije na kraju 2015. godine čini 30 banaka, što predstavlja povećane u odnosu na kraj 2014. godine za jednu banku, Naime, u decembru 2014. godine Narodna banka Srbije je izdala dozvolu za rad „Mirabank“ a.d. Beograd, s tim što je „Mirabank“ sa operativnim radom otpočela u aprilu 2015. godinu. Ukupna bilansna suma bankarskog sektora na kraju 2015. godine je iznosila 25,1 mlrd EUR, što je povećanje na godišnjem nivou od 2,5%.

Tabela 2. Ukupna bilansna suma banaka u Srbiji na 31.12.2015.

Naziv banke	Bilansna suma u 000 RSD	Učešće u ukupnoj bilansnoj sumi
Banca Intesa	487.799.169	16,00%
Komercijalna banka	391.856.849	12,86%
Unicredit Bank	308.283.811	10,11%
Raiffeisen banka	234.426.451	7,69%
Société Générale banka	230.537.473	7,56%
AIK banka	179.078.758	5,88%
Eurobank	140.582.600	4,61%
Banka Poštanska štedionica	129.865.797	4,26%
Vojvodanska banka	120.328.157	3,95%
Erste Bank	117.487.765	3,85%
Sberbank	106.835.530	3,51%
Hypo Alpe-Adria-Bank	101.513.200	3,33%
ProCredit Bank	82.080.131	2,69%
Alpha Bank	81.175.267	2,66%
Crédit Agricole banka	71.548.880	2,35%
Piraeus Bank	52.546.969	1,72%
OTP banka	45.144.291	1,48%
Halkbank	31.934.812	1,05%
NLB banka	28.705.134	0,94%
Marfin Bank	22.432.206	0,74%
Findomestic banka	13.895.005	0,46%
Opportunity banka	11.744.477	0,39%
VTB banka	11.216.121	0,37%
JUBMES banka	10.416.109	0,34%
Srpska banka	8.897.173	0,29%
KBM Banka	8.893.341	0,29%
Telenor banka	7.876.172	0,26%
mts banka	7.132.723	0,23%
MIRABANK	2.248.727	0,07%
Jugobanka Jugbanka	1.341.378	0,04%
Bankarski sektor	3.047.824.476	100%

Izvor: autor na bazi podataka sa: www.nbs.rs [6]

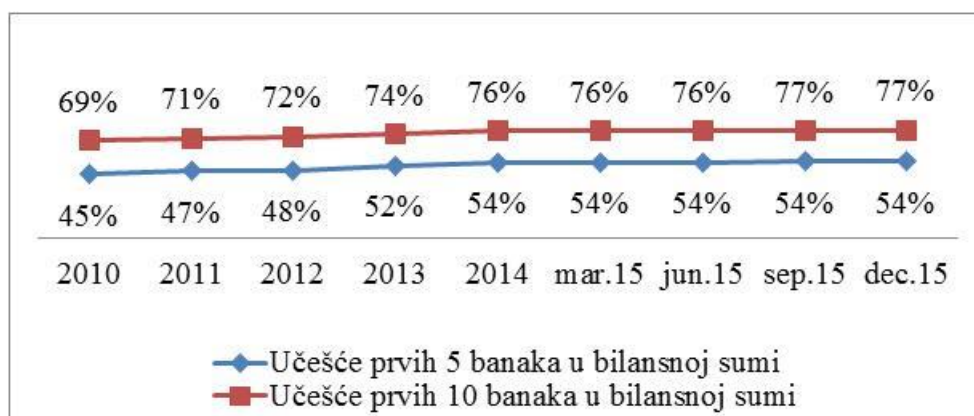
Dominantno učešće u bankarskom sektoru Srbije, posmatrano po bilansnoj aktivi, imaju tzv. „strane“ banke, odnosno, banke u pretežnom vlasništvu stranih pravnih lica, sa 77%. U okviru kategorije „stranih“ banaka najviše su zastupljene banke poreklom iz Italije, Austrije i Grčke (ukupno 9 banaka) sa učešćem od 52%. Banke u većinskom ili značajnom vlasništvu Republike Srbije imaju tržišni udeo od 17%, dok 6% ukupnog broja banaka čine privatne banke u vlasništvu domaćih lica (Slika 1).



Slika 1. Struktura srpskih banaka prema vlasništvu i zemljama porekla – 31.12.2015
 Izvor: Narodna banka Srbije [7]

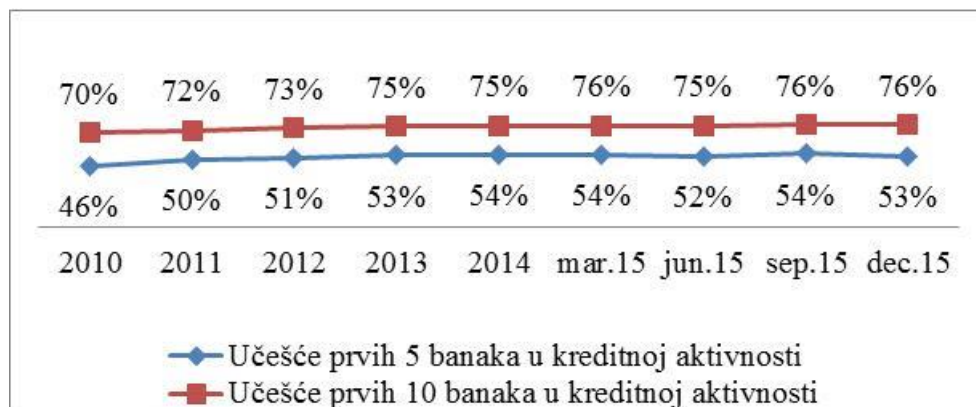
3.1 POKAZATELJ (RACIO) KONCENTRACIJE

Postoji izražena polarizacija u pogledu banaka koji najviše doprinose ukupnoj bilansnoj sumi (ukupnoj aktivi) celokupnog bankarskog sektora, te je stoga očigledno da prvih pet banaka čini 54%; dok prvih 10 banaka čini 77% bilansne sume svih banaka u bankarskom sektoru Srbije (Slika 2).

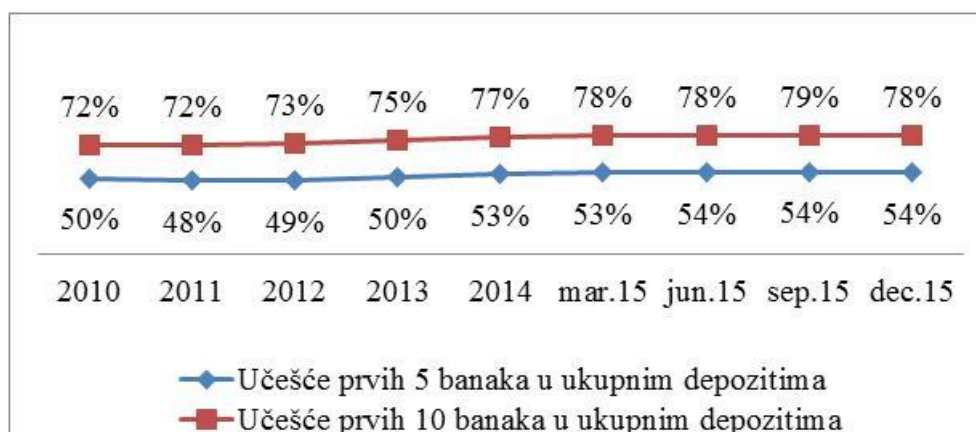


Slika 2. Pokazatelj (racio) koncentracije srpskih banaka prema bilansnoj sumi
 Izvor: Narodna banka Srbije [7]

Veoma slično učešće prvih 5, odnosno, prvih 10 banaka je evidentirano na 31.12.2015. godine i kada su u pitanju kriterijumi kreditne aktivnosti i ukupnih depozita, što je predstavljeno na slikama 3 i 4.



Slika 3. Pokazatelj (racio) koncentracije srpskih banaka prema kreditnoj aktivnosti
Izvor: Narodna banka Srbije [7]



Slika 4. Pokazatelj (racio) koncentracije srpskih banaka prema ukupnim depozitima
Izvor: Narodna banka Srbije [7]

3.2 HERFINDAHL-HIRSCHMAN INDEKS KONCENTRACIJE (HHI INDEKS)

Analogno prethodno opisanom postupku kalkulacije HHI indeksa koncentracije, istovetan pristup se primenjuje i u bankarskom sektoru Srbije za potreba sagledavanja stepena koncentracije i konkurencije. Konkretno, obračunava se suma kvadrata učešća pojedinačnih banaka u ukupnoj vrednosti posmatrane kategorije (tj. aktive, kredita, depozita i sl.). Ono po čemu se razlikuje metodologija Narodne banka Srbije od metodologije koju primenjuje FTC jeste raspon dobijenih vrednosti HHI indeksa na bazi kojeg se može konstatovati postojanje ili odsustvo koncentracije. Prema metodologiji Narodne banke Srbije, važeći su sledeći rasponi:

- vrednost HHI indeksa do 1.000 – ukazuje na odsustvo koncentracije;
- vrednost HHI indeksa između 1.000 i 1.800 – ukazuje na postojanje umerenog nivoa koncentracije; i

- vrednost HHI indeksa veća od 1.800 – ukazuje na postojeane izražene koncentracije. [7]

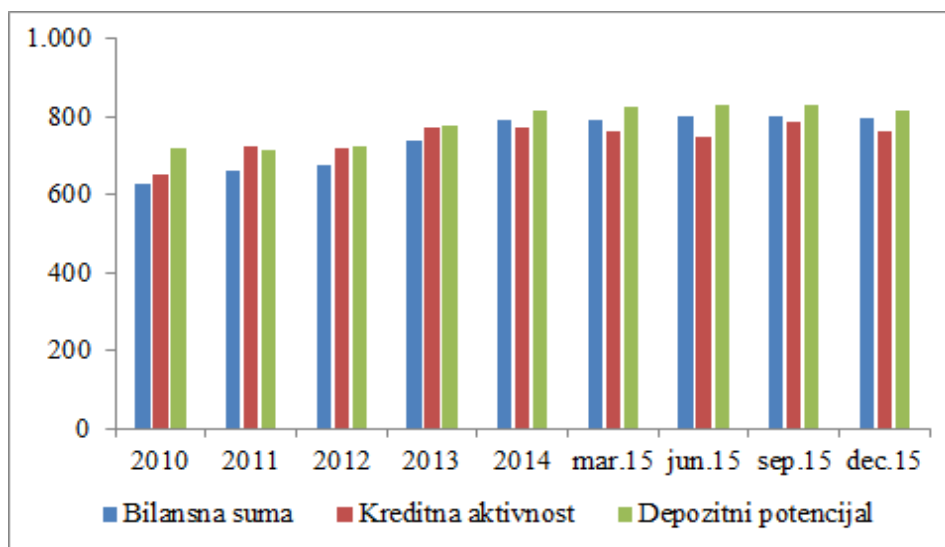
Bankarski sektor Srbije se odlikuje prisutnom konkurentnošću u svim posmatranim kategorijama (bilansna suma, kreditna aktivnost i depozitni potencijal), odnosno, odsustvom koncentracije aktivnosti pošto je HHI indeks u sve tri posmatrane kategorije ispod donje granične vrednosti od 1.000.

Tabela 3. HHI indeks prema ključnim kategorijama

<i>Period</i>	<i>Bilansna suma</i>	<i>Kreditna aktivnost</i>	<i>Depozitni potencijal</i>
2010	629	652	720
2011	664	722	714
2012	678	721	726
2013	741	774	777
2014	794	771	818
mar.15	790	762	825
jun.15	799	747	830
sep.15	800	788	830
dec.15	796	764	816

Izvor: Narodna banka Srbije [7]

Primetno je da je najviši stepen koncentracije prisutan kod kategorije ukupnih depozita i da je to nepromenjen trend u periodu 2010. – 2015. godina, sa malim izuzetkom na kraju 2011. godine, kada su vrednosti HHI indeksa u kategorijama kreditne aktivnosti i depozitnog potencijala bile neznatno u korist kreditne aktivnosti.



Slika 5. HHI indeks koncentracije srpskih banaka u periodu 2010. - 2015. Godina
 Izvor: Narodna banka Srbije [7]

4. ZAKLJUČAK

Pokazatelj koncentracije prvih (najvećih) m banaka i HHI indeks predstavljaju dva najšire rasprostranjena i najčešće korišćena indikatora prisustva (odsustva) koncentracije aktivnosti u bankarskom sektoru. Istovremeno se kroz proces analize stepena koncentracije, mogu izvesti zaključci o stepenu konkurencije između samih banaka na posmatranom tržištu. Naravno, treba imati u vidu da iako imaju određene nedostatke, dva prethodno navedena pokazatelja koncentracije predstavljaju, u globalnom smislu, optimalne mere koje primenjuje najveći broj zemalja u cilju sagledavanja koncentracije. Srbija takođe nije izuzetak od tog pravila, pri čemu je najviše naglasak na primeni HHI indeksa, koji zahvaljujući definisanim ponderima akcenat stavlja na najveće banke u bankarskom sektoru, čime se mogu nedvosmisleno izvesti uopšteni zaključci koji se odnose na celokupni bankarski sistem.

Ukoliko se posmatraju tri ključne kategorije (bilansna suma, krediti i depoziti), evidentno je da od 2010. do 2015. godine, u bankarskom sektoru Srbije postoji odsustvo koncentracije aktivnosti, odnosno, bankarsko tržište karakteriše oligopolistička struktura. Postojanje 30 banaka, uz najavljene procese konsolidacije u bliskom budućem periodu, imaće uticaj i na strukturu bankarskog sistema, s tim što realna opasnost od približavanja monopolističkoj strukturi ne postoji. Razlog tome je što su najavljena ukupnjavanja uglavnom kod banaka koje nisu po bilansnoj aktivni i tržišnom učešću među deset najvećih banaka, te ne postoji objektivna „opasnost“ od izrazite dominacije i formiranja monopola od strane jedne banke ili bankarske grupacije na srpskom bankarskom tržištu. Svakako da je stepen koncentracije rezultat ulaska i izlaska poslovnih subjekata na tržište i konsolidacije, odnosno, restrukturiranja u okviru postojećih poslovnih subjekata, pa buduća struktura bankarskog tržišta u velikoj meri zavisi od realizacije postupka privatizacije i konsolidacije domaćih državnih banaka i procesa spajanja i pripajanja između određenih banaka sa pretežno stranim kapitalom kod kojih je takvo pripajanje i spajanje logično i od obostrane koristi. Za donošenje potpunijih zaključaka o koncentraciji u bankarskom sektoru Srbije, optimalno je sprovođenje komparativne analize rezultata bankarskog sektora Srbije sa prisutnim trendovima koncentraciji u bankarskim sektorima zemalja u regionu, što će biti predmet analize u budućim radovima autora.

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MULTI-CRITERIA ANALYSIS OF ADVANTAGES OF IMPLEMENTATION OF PROJECT PORTFOLIO MANAGEMENT

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Abstract: Project Portfolio Management (PPM) is a reality in a highly developed market environments in the western world. In our country, this concept has not been satisfactory applied. Those companies that have introduced and applied this concept had realized many internal and external benefits, compared to other companies that do not operate on this principle. Accordingly, this paper analyzes the most important benefits and advantages of PPM concept and defines the appropriate criteria for their ranking. Electra method is used for ranking of the advantages of the PPM concept. The obtained result identifies the most important advantages of PPM concept in companies, all with the aim to make PPM concept widely accepted in our country.

Keywords: Project Portfolio Management, Electre, Advantages

Apstract: Portfolio Projekt Menadžment (PPM) je realnost u visoko razvijenim tržišnim okruženjima na zapadu. U našoj zemlji ovaj koncept još nije primenjen u potrebnom obimu. One kompanije koje su uvele i koje primenjuju ovaj koncept ostvaruju mnoge interne i eksterne pogodnosti u odnosu na druge kompanije, koje ne rade po ovom principu. Polazeći od toga, u ovom radu su analizirane najvažnije prednosti koje ostvaruju kompanije koje primenjuju ovaj koncept i definisani su odgovarajući kriterijumi za njihovo rangiranje. Za rangiranje prednosti primene koncepta PPM-a je korišćena Electre metoda. Dobijeni rezultat identifikuje najvažnije prednosti koje ostvaruju multiprojektne kompanije, a sve u cilju da koncept portfolio projekt menadžmenta bude što šire prihvaćen u našoj zemlji.

Ključne reči: Portfolio Projekt Menadžment, Electre, Prednosti Uvođenja PPM

1. UVOD

Portfolio Projekt Menadžment (PPM) predstavlja koncept koji obuhvata veći broj procesa i aktivnosti, od određivanja prioriteta, analize i upravljanja izabranim projektima i dr., čime se omogućuje ostvarenje strateških ciljeva kompanija. Shodno tome, glavni cilj koncepta PPM-a je realizacija strateških ciljeva kompanije pomoću portfolia projekata koje ona realizuje. Koncept PPM-a ne obuhvata samo proces upravljanja i realizacije većeg broja projekata, već on podrazumeva i proces odgovarajuće selekcije projekata, formiranje optimalnog portfolia, praćenje i kontrola, itd.

Zadatak PPM koncepta je da najpre promeni kompaniju. Pri tome, prvo treba poći od promene organizacione kulture i prihvatanja PPM kulture [1]. Nakon toga, treba nastaviti sa promenama u oblasti komunikacija i načina odlučivanja.

Kada je to završeno, kompanija može da krene sa implementacijom PPM koncepta. Glavni zadaci koje rešava PPM koncept su: izbor najboljih projekata portfolia na bazi seta kriterijuma za njihovo vrednovanje [2], prioritizacija projekata na osnovu različitih kriterijuma, monitoring aktivnih projekata u smislu ostvarenja ciljeva i ispunjavanja kriterijuma i podešavanje portfolia u cilju maksimiranja sveukupnog efekta.

U suštini, uvođenje i primena PPM koncepta je vrlo kompleksan proces koji zahteva dosta napora, truda, ali i znanja. Međutim, kompanije koje rade i funkcionišu po principu PPM koncepta ostvaruju mnoge benefite i prednosti u odnosu na druge kompanije koje rade i funkcionišu po klasičnom principu. Iz tog razloga, u ovom radu se najveća pažnja posvećuje prednostima koje multiprojektne kompanije ostvaruju u odnosu na ove druge kompanije. Cilj rada je da se identifikuju najvažnije prednosti primene PPM koncepta i da se izvrši njihovo rangiranje u odnosu na definisane kriterijume. Ovo je posebno važno za naše domaće kompanije koje će pre ili kasnije morati da primene PPM koncept u cilju poboljšanja njihovog rada, kako bi bile sposobne da opstanu na tržištu.

2. PREDNOSTI UVOĐENJA PPM KONCEPTA

Kao što je rečeno, uvođenje i primena PPM koncepta donosi mnoge prednosti kompanijama. Ove prednosti PPM koncepta su dobro razmatrane, kako u teoriji, tako i u praksi. Naime, mnogi autori i institucije su vršili razna istraživanja na tu temu u teoriji i praksi.

Primenom PPM koncepta, kompanije prolaze kroz metamorfoze da bi zadržale pozicije u promenljivom i složenom okruženju. Širina koja se može postići upravljanjem preko projekata čini da kompanije budu konkurentnije.

Prednosti uvođenja PPM koncepta ogledaju se pre svega u odgovorima na ključna pitanja koja se postavljaju pred svaku projektno orijentisanu i od projekata zavisnu organizaciju [3].

Najvažnije prednosti primene PPM koncepta su sledeće:

- **Povećana fleksibilnost (alternativa A1)** – organizacija koja uspešno uvede i sprovodi PPM koncept postaje fleksibilnija u smislu uspeha i opstanka u turbulentnom okruženju,
- **Okrenutost ka ciljevima (alternativa A2)** – fokus je na ostvarenju ciljeva organizacije, kako strateških, tako i kratkoročnih,
- **Sposobnost odgovora na promene (alternativa A3)** – organizacija ima odgovor na sve promene i na njih gleda kao na šanse a ne kao pretnje,
- **Jasni i određeni zadaci (alternativa A4)** – zadaci su dobro definisani, nema ponavljanja pojedinih zadataka i dupliranja poslova,
- **Smanjenje hijerarhijskih nivoa (alternativa A5)** – organizacija smanjuje broj hijerarhijskih nivoa jer uvodi novi i bolji organizacioni model shodno potrebama,
- **Bolja komunikacija (alternativa A6)** – komunikacija je brža, komunikacioni putevi su kraći i organizacija definiše odgovarajući sistem komuniciranja,
- **Jačanje kompetencija zaposlenih (alternativa A7)** – kroz rad na projektima, uz neophodnu obuku, zaposleni stalno uče i stiču nova znanja, veštine i iskustva.

3. DEFINISANJE KRITERIJUMA ZA RANGIRANJE PREDNOSTI

Kriterijumi sadrže najvažnije parametre za rangiranje prednosti uvođenja PPM koncepta u našim kompanijama, a to su:

Očekivani rezultati i budući tržišni potencijal organizacije (kriterijum C1) je jako bitan faktor koji ima veliki uticaj pri rangiranju prednosti uvođenja PPM koncepta. Ovaj kriterijum predstavlja vrlo važan razlog zašto se organizacija odlučuje da primeni PPM koncept. Zbog toga, ovom kriterijumu se dodeljuje težinski koeficijent od 0,30.

Ostvarenje strateških ciljeva organizacije (kriterijum C2) je takođe, veoma važan faktor koji značajno utiče na rangiranje prednosti uvođenja PPM koncepta. Ostvarenje strateških ciljeva predstavlja suštinu opstanka i razvoja organizacije. Zbog velikog značaja, ovom kriterijumu je dodeljen težinski koeficijent od 0,30.

Bolje funkcionisanje organizacije (kriterijum C3) je kriterijum koji uzima u obzir način funkcionisanja organizacije. Naime, uvođenje PPM koncepta zahteva organizaciono prestrukturiranje organizacije, što znači prihvatanje novog i fleksibilnijeg organizacionog modela koji omogućava njen efikasan rad u novim uslovima. Težinski koeficijent ovog kriterijuma iznosi 0,20.

Niži troškovi poslovanja organizacije (kriterijum C4) je kriterijum koji uzima u obzir da li primena PPM koncepta dovodi do smanjenja ukupnih troškova organizacije. Naime, ekonomija poslovanja projektno orijentisanih organizacija je veoma važna i ona mora biti pozitivna da bi PPM koncept imao smisla. Iz tog razloga, ovom kriterijumu je dodeljen težinski koeficijent od 0,20.

4. ELECTRE METOD

ELECTRE metod je metoda višekriterijumskog odlučivanja koja se zasniva na upoređenju akcija u parovima. Kod ove metode se najpre određuje stepen saglasnosti između težina preferencija i uparenih veza dominacije, a potom stepen nesaglasnosti po kome se ocena težina pojedinih akcija međusobno razlikuje [4]. Nakon određivanja alternativa, kriterijuma i težinskih koeficijenata kriterijuma, metoda ELECTRE polazi od matrice odlučivanja i težina kriterijuma i u devet koraka dolazi do rešenja problem, odnosno do određivanja najbolje alternative. Koraci u rešavanju su:

1. Računanje normalizovane matrice odlučivanja
2. Računanje ponderisane normalizovane matrice odlučivanja
3. Određivanje skupova saglasnosti i nesaglasnosti
4. Računanje matrice saglasnosti
5. Računanje matrice nesaglasnosti
6. Računanje matrice dominacije po saglasnosti
7. Računanje matrice dominacije po nesaglasnosti
8. Računanje agregatne matrice dominacije
9. Eliminisanje najslabijih alternativa

Kod postupka eliminisanja vrednosti manje poželjnih akcija potrebno je ispitati stanje dominacije za sve moguće kombinacije parova akcija. Akcija sa većim brojem elemenata ($m_{ad}=1$), dominira nad ostalim, a u situaciji kada je broj takvih elemenata isti nije moguće ustanoviti stanja dominacije. Isti zaključak o nepostojanju dominacije između pojedinih akcija se može izvesti i u slučaju akcija gde su svi elementi $m_{ad}=0$. Kako su situacije nemogućnosti definisanja stanja dominacije primenom metode ELECTRE česte, sama metoda zbog toga spada u grupu metoda za određivanje redosleda parcijalnih preferencija.

5. REZULTATI RANGIRANJA PROBLEMA

Na osnovu definisanih kriterijuma vrši se ocena svih predloženih alternativa i formira se matrica evaluacije. U ovom procesu svi kriterijumi imaju kvalitativnu ili neizvesnu strukturu koja se ne može precizno odrediti i izmeriti. Shodno tome, formira se kvalitativna skala koja ima pet nivoa. U tabeli 1. data je navedena kvalitativna skala, kao i odgovarajuće numeričke vrednosti za svaku kvalitativnu ocenu.

Koristeći kvalitativnu skalu u rasponu od 1 do 5, dobija se kvantifikovana matrica odlučivanja (tabela 2.).

Tabela 1. Kvalitativna skala

Kvalitativne vrednosti	Vrlo slabo	Slabo	Srednje	Visoko	Vrlo visoko
Numeričke vrednosti	1	2	3	4	5

Tabela 2. Kvantifikovana matrica odlučivanja

Alternative/Kriterijumi	C1	C2	C3	C4
A1	5	4	5	3
A2	5	5	3	3
A3	4	4	4	3
A4	4	5	3	3
A5	3	3	5	4
A6	3	2	4	2
A7	3	3	4	4

Na osnovu kvantifikovane matrice odlučivanja vrši se proračun ELECTRE metodom. Pri tome je korišćen softver ELECTRE. Koraci u proračunu su sledeći:

I korak: Izračunavanje normalizovane matrice odlučivanja. Formula za izračunavanje je sledeća:

$$n_{ij} = \frac{c_{ij}}{\text{Norma}_j} = \frac{c_{ij}}{\sqrt{\sum_{i=1}^m c_{ij}^2}} \quad (1)$$

Na osnovu podataka za ovaj primer, dobija se sledeća normalizovana matrica odlučivanja (tabela 3.):

Tabela 3. Normalizovana matrica odlučivanja

Alternative/Kriterijumi	C1	C2	C3	C4
A1	0.47891	0.39223	0.46424	0.35355
A2	0.47891	0.49029	0.27854	0.35355
A3	0.38313	0.39223	0.37139	0.35355
A4	0.38313	0.49029	0.27854	0.35355
A5	0.28735	0.29417	0.46424	0.47140
A6	0.28735	0.19612	0.37139	0.23570
A7	0.28735	0.29417	0.37139	0.47140

II korak: Računanje težinske normalizovane matrice odlučivanja.

U ovom koraku donosilac odluke mora da pokaže svoje preferencije prema atributima na osnovu kojih bira jednu od četiri mogućih metoda sanacija. Zatim se računa težinska normalizovana matrica odlučivanja. Matrica izabranih težinskih koeficijenata glasi:

$$TN = N \cdot T \quad (2)$$

gde je

$$T = \begin{bmatrix} t_1 & \dots & \dots & 0 \\ \dots & t_2 & \dots & \dots \\ \dots & \dots & \dots & \dots \\ 0 & \dots & \dots & t_n \end{bmatrix} \quad (3)$$

a N je normalizovana matrica odlučivanja. Zbir elemenata dijagonalne matrice dodeljenih težina pojedinim atributima (T) mora biti jednak jedinici, odnosno

$$\sum_{j=1}^m t_j = 1 \quad (4)$$

Množenjem normalizovane matrice i matrice izabranih težinskih koeficijenata dobija se težinska normalizovana matrica odlučivanja (tabela 4.):

Tabela 4. Težinska normalizvana matrica odlučivanja

Alternative/Kriterijumi	C1	C2	C3	C4
A1	0.14367	0.11767	0.09285	0.07071
A2	0.14367	0.14709	0.05571	0.07071
A3	0.11494	0.11767	0.07428	0.07071
A4	0.11494	0.14709	0.05571	0.07071
A5	0.08620	0.08825	0.09285	0.09428
A6	0.08620	0.05884	0.07428	0.04714
A7	0.08620	0.08825	0.07428	0.09428

III korak: Određivanje skupova saglasnosti (S) i nesaglasnosti (NS).

U ovom koraku upoređuju se parovi akcija. Akcije koje se upoređuju obeležavaju se sa p i r ($p, r = 1, 2, \dots, m$ i $p \neq r$). Prvo se formira skup saglasnosti (S_{pr}) za akcije a_p i a_r koji se sastoji od svih kriterijuma ($J = \{j \mid j = 1, 2, \dots, n\}$), za koje je akcija a_p poželjnija od akcije a_r , tj.

$$S_{pr} = \{j \mid x_{pj} \geq x_{rj}\} \quad (5)$$

Ukoliko postoji kriterijum tipa minimum, znak nejednakosti je suprotan (\leq). Zatim, formira se komplementarni skup nesaglasnosti, za koji važi:

$$NS_{pr} = \{j \mid x_{pj} < x_{rj}\} = J - S_{pr} \quad (6)$$

Ako se ima kriterijum tipa minimum, znak nejednakosti je suprotan ($>$).

IV korak: Određivanje matrice saglasnosti (MS)

Matrica saglasnosti se računa na osnovu skupova saglasnosti, izračunatih u prethodnom koraku. Elemente ove matrice čine indeksi saglasnosti. Njihova vrednost se računa kao suma preferencija (težinskih koeficijenata), koje odgovaraju pripadajućim elementima skupova saglasnosti. Indeks saglasnosti S_{pr} za akcije a_p i a_r se računa kao:

$$MS_{pr} = \sum_{j \in S_{pr}} t_j \quad (7)$$

Tabela 5. Matrica saglasnosti

A1	0	0.70000	1.00000	0.70000	0.80000	1.00000	0.80000
A2	0.80000	0	0.80000	1.00000	0.60000	0.80000	0.60000
A3	0.50000	0.40000	0	0.70000	0.60000	1.00000	0.80000
	0.50000	0.70000	0.80000	0	0.60000	0.80000	0.60000
	0.40000	0.40000	0.40000	0.40000	0	1.00000	1.00000
	0.00000	0.20000	0.20000	0.20000	0.30000	0	0.50000
	0.20000	0.40000	0.40000	0.40000	0.80000	1.00000	0

Vrednost S_{pr} se kreće u intervalu od 0 do 1. Što je vrednost ovog indeksa bliža jedinici to je akcija a_p poželjnija od akcije a_r (prema kriterijumu saglasnosti). Indeksi saglasnosti formiraju matricu saglasnosti, koja na glavnoj dijagonali ima elemente jednake nuli, jer se ne vrši poređenje alternative sa samom sobom. Matrica saglasnosti za ovaj primer glasi (tabela 5.):

V korak: Određivanje matrice nesaglasnosti (MNS).

Elemente matrice nesaglasnosti čine indeksi nesaglasnosti, koji se računaju na sledeći način, koristeći matricu TN (težinsku normalizovanu matricu):

$$MNS_{pr} = \frac{\max_{j \in NS_{pr}} |t_{pj} - t_{rj}|}{\max_{j \in J} |t_{pj} - t_{rj}|} \quad (8)$$

Indeks nesaglasnosti se kreće u intervalu od 0 do 1 i pokazuje za koliko je alternativa a_p manje poželjna od alternative a_r . Što je indeks nesaglasnosti veći (bliži jedinici) to je, po kriterijumu nesaglasnosti, alternativa a_p manje poželjna od alternative a_r . Indekse nesaglasnosti se računaju na osnovu težinske normalizovane matrice odlučivanja (TN) i skupa nesaglasnosti za posmatrane alternative (NS_{pr}).

Matrica nesaglasnosti je prikazana u tabeli 6.

Tabela 6. Matrica nesaglasnosti

A1	0	0.79214	0.00000	0.79214	0.41013	0.00000	0.41013
A2	1.00000	0	0.63120	0.00000	0.63120	0.21042	0.40058
A3	1.00000	1.00000	0	1.00000	0.80116	1.00000	0.80116
	1.00000	1.00000	0.63120	0	0.63120	0.21042	0.40058
	1.00000	1.00000	1.00000	1.00000	0	0.00000	0.00000
	1.00000	1.00000	1.00000	1.00000	1.00000	0	1.00000
	1.00000	1.00000	1.00000	1.00000	1.00000	0.00000	0

VI korak: Određivanje matrice saglasne dominacije (MSD).

Elemente ove matrice se računaju na osnovu vrednosti praga indeksa saglasnosti. Prag indeksa saglasnosti se definiše kao prosečni indeks saglasnosti, koji se računa po sledećoj formuli:

$$PIS = \sum_{\substack{p=1 \\ p \neq r}}^m \sum_{\substack{r=1 \\ p \neq r}}^m \frac{MS_{pr}}{m(m-1)} \quad (9)$$

Na osnovu dobijene vrednosti prosečnog indeksa saglasnosti može se reći da akcija a_p ima šanse da bude poželjnija od akcije a_r , samo ako njen odgovarajući indeks saglasnosti MS_{pr} prevazilazi vrednost prosečnog indeksa saglasnosti. Matrica saglasne dominacije se formira na osnovu sledećeg kriterijuma:

$$\begin{aligned}
 MSD_{pr} &= 1 \quad \text{for} \quad MS_{pr} \geq PIS \\
 MSD_{pr} &= 0 \quad \text{for} \quad MS_{pr} < PIS
 \end{aligned}
 \tag{10}$$

Matrica saglasne dominacije je data u tabeli 7.

Tabela 7. Matrica saglasne dominacije

A1	0	1	1	1	1	1	1
A2	1	0	1	1	0	1	0
A3	0	0	0	1	0	1	1
	0	1	1	0	0	1	0
	0	0	0	0	0	1	1
	0	0	0	0	0	0	0
	0	0	0	0	1	1	0

VII korak: Određivanje matrice nesaglasne dominacije.

Slično kao i u prethodnom koraku, matricu nesaglasne dominacije se računa tako što se prvo izračuna prosečni indeks nesaglasnosti preko relacije (tabela 8):

$$PINS = \sum_{\substack{p=1 \\ p \neq r}}^m \sum_{\substack{r=1 \\ p \neq r}}^m \frac{MNS_{pr}}{m(m-1)}
 \tag{11}$$

Tabela 8. Matrica nesaglasne dominacije

A1	0	0	1	0	1	1	1
A2	0	0	1	1	1	1	1
A3	0	0	0	0	0	1	0
	0	0	1	0	1	1	1
	0	0	0	0	0	1	1
	0	0	0	0	0	0	0
	0	0	0	0	0	1	0

VIII korak: Određivanje matrice agregatne dominacije (MAD).

Ova matrica se dobija kao proizvod pozicija elemenata matrice saglasne i matrice nesaglasne dominacije (ne radi se o klasičnom matricnom računu) na sledeći način (tabela 9):

$$MAD_{pr} = MSD_{pr} \cdot MNSD_{pr}
 \tag{12}$$

Tabela 9. Matrica agregatne dominacije

A1	0	1	0	1	1	1
0	A2	1	1	0	1	0
0	0	A3	0	0	1	0
0	0	1	A4	0	1	0
0	0	0	0	A5	1	1
0	0	0	0	0	A6	0
0	0	0	0	0	1	A7

IX korak: Eliminisanje manje poželjnih akcija.

Ukoliko je vrednost $MAD_{pr} = 1$, tada akcija a_p dominira nad akcijom a_r , po oba kriterijuma (saglasnosti i nesaglasnosti). Ali to ne znači da ne postoji neka druga alternativa koja ne dominira nad a_p . Zbog toga je potrebno da bude zadovoljen još jedan uslov:

$MAD_{pr} = 1$ za bar jedno r , $r = 1, 2, \dots, m$ i $p \neq r$

$MAD_{pr} = 0$ za sve i , $i = 1, 2, \dots, m$ i $p \neq r$ i $i \neq r$

Dobijeni rezultati izvršene višekriterijumske analize ukazuju na sledeće:

- A1 dominira nad: A3, A5, A6 i A7
- A2 dominira nad: A3, A4 i A6
- A3 dominira nad: A6
- A4 dominira nad: A3 i A6
- A5 dominira nad: A6 i A7
- A6 ne dominira ni nad jednom akcijom
- A7 dominira nad: A6

Spisak najboljih akcija: A1

Rezultati pokazuju da je najbolja alternativa A1 (povećana fleksibilnost organizacije), zatim slede alternative A2 (okrenutost ka ciljevima), zatim A4 (jasni i određeni zadaci), A5 (smanjenje hijerarhijskih nivoa), A3 (sposobnost odgovora na promene), A7 (jačanje kompetencija zaposlenih), a na poslednjem mestu je alternativa A6 (bolja komunikacija).

6. ANALIZA DOBIJENIH REZULTATA

Kod analize konačnog ranga alternativa (prednosti uvođenja i primene PPM koncepta) polazi se od najveće prednosti. To je alternativa A1 (povećana fleksibilnost organizacije). Razlog je u tome što ova prednost ukazuje upravo na ono što je najvažnije za organizaciju, a to je velika prilagodljivost promenljivom i dinamičnom tržištu. Na taj način, organizacija koja radi po PPM konceptu ostaje mlada i sposobna da opstane na tržištu.

Na drugom mestu po rangiranju se nalazi alternativa A2 (okrenutost ka ciljevima). Naime, primenom PPM koncepta organizacija mnogo efektivnije i efikasnije realizuje svoje ciljeve, polazeći od strateških, pa sve do operativnih ciljeva.

Treće i četvrto mesto dele alternative A4 (jasni i određeni zadaci) i A5 (smanjenje hijerarhijskih nivoa). PPM koncept definiše precizno zadatke koji se mogu realizovati prilikom realizacije portfolio projekata. Takođe, primena PPM koncepta zahteva promenu organizacionog modela. Novi organizacioni model omogućava smanjenje hijerarhijskih nivoa i bolje funkcionisanje organizacije.

Peto i šesto mesto dele alternative A3 (sposobnost odgovora na promene), A7 (jačanje kompetencija zaposlenih). Organizacija koja radi po PPM principu je mnogo sposobnija da odgovori na sve promene, bez obzira na njihov izvor, odnosno da li one dolaze iz okruženja ili iz same organizacije. Pri tome, na svaku promenu se gleda kao na novu šansu ili mogućnost, a ne kao pretnju po organizaciju i zaposlene. Što se tiče jačanja kompetencija zaposlenih, rad na različitim projektima omogućava i zahteva učenje zaposlenih, ali i organizacije preko njih. Na taj način, zaposleni kontinualno stiču nova znanja koja se zasniva kako na iskustvu, tako i na raznim programima obuke koje se organizuju u organizaciji.

I na kraju, poslednje rangirana alternativa je A6 (bolja komunikacija). Komunikacija u organizaciji koja radi po PPM principu je važna, ali se ovde ona našla na poslednjem mestu jer ona prati ostale funkcije rada, odnosno ostale prednosti koje su napred navedene. Međutim, kvalitetna komunikacija je neophodna kod organizacije koja primenjuje PPM koncept, upravo zbog velikog broja informacija i podataka koji se skupljaju i analiziraju, a koji su osnova za kvalitetno donošenje odluka, njihovu realizaciju, praćenje i kontrolu.

7. ZAKLJUČAK

U ovom radu je primenjena višekriterijumska metoda za rangiranje prednosti uvođenja i primene PPM koncepta. Prednosti koje se ostvaruju značajno utiču na rad organizacije, njeno funkcionisanje i uspešnost na tržištu. Analizirano je sedam prednosti uvođenja i primene PPM koncepta – povećana fleksibilnost organizacije (alternativa A1), okrenutost ka ciljevima (alternativa A2), sposobnost odgovora na promene (alternativa A3), jasni i određeni zadaci (alternativa A4), smanjenje hijerarhijskih nivoa (alternativa A5), bolja komunikacija (alternativa A6) i jačanje kompetencija zaposlenih (alternativa A7). Takođe, razmatrana su četiri kriterijuma za rangiranje – očekivani rezultati i budući tržišni potencijal organizacije (kriterijum C1), ostvarenje strateških ciljeva organizacije (kriterijum C2), bolje funkcionisanje organizacije (kriterijum C3) i niži troškovi poslovanja organizacije (kriterijum C4).

Rangiranje prednosti uvođenja i primene PPM koncepta je izvršeno pomoću Electre metode za višekriterijumsko odlučivanje.

Na osnovu dobijenih rezultata Electre metodom, određena je najznačajnija prednost uvođenja i primene PPM koncepta u našoj zemlji, a to je alternativa A1 (povećana fleksibilnost organizacije). Najuticajni kriterijumi za kompletno rangiranje problema uvođenja i primene PPM koncepta su kriterijumi C1 (očekivani rezultati i budući tržišni potencijal organizacije) i C2 (ostvarenje strateških ciljeva organizacije).

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A ROADMAP TOWARDS IMPROVING PORTFOLIO OF LOGISTICS SERVICE PROVIDERS WITH THE AIM OF CREATING SUSTAINABLE SHORT FOOD SUPPLY CHAINS

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Abstract: The growth of the world population, from 7 billion now to 9 billion in 2050 involves the many challenges. One of them is creating a sustainable, equitable and healthy food provisioning systems capable of feeding 9 billion people in 2050. However, in the most country, the largest part of food sales is done by just several large food supply chain companies. The consequences of this are food waste, unfair distribution of profits between retail chains and producers, consumers often get to pay much higher than necessary prices, etc. Hence, some mechanism for building reengineered food systems is needed. The solution is found in short food supply chains (SFSCs) which could be able to eliminate negative consequences of the conventional food system. The SFSCs represents the link between those people who want to produce and those who want to consume the (local) product. The key question is how do we get those people to know each other in order to get their food in the right place at the right time at the right quantity and price? The main paper idea is to propose appropriate roadmap towards developing logistics approaches and services which foster shortening the food supply chains to the ultimate level-creating the direct links. This logistics service will be based on digitalization of traditional small-scale farmer's market through developing web and android based application.

Keywords: short food supply chains, logistics service providers, sustainability

1. INTRODUCTION

World population is increasing rapidly (from today's 7 billion it will grow to 9 billion in 2050) and the need for food shall probably double already in oncoming decades. Food supply chains, as supply chains in general, represent a concept of integrated planning, functioning, management and control of logistic processes with the aim of strengthening strategic competition in food retail market. Need for food is universal and appears every day in every part of the world. However, production and distribution of food are mostly centralized (in Germany in 2011 over 85% of food sales was realized through 4 the biggest food chains [3]). This is the basic reason why it is necessary to provide for efficient realization of logistic processes in supply chains in order that food can reach every beneficiary in due time, quantity and of appropriate quality. Logistics efficiency in food supply chains is significantly complicated by the fact that food products are often easily spoiled and with very short expiry date. According to available data about 33% of produced food becomes waste since it passes through very long supply chains. Beside great losses caused by food throwing away, globalized chains of food supply are characterized by "unfair" distribution of profit among retail chains and producers [2].

Food supply chains are essentially very fragile systems, firstly in the context that individual (local) interruptions in the chain can cause great market disturbances. This is first of all the consequence of centralized food source, great geographical distance between some members of the chain as well as political, climatic and financial uncertainty. One of the solutions is strengthening “local” food sources, that is “local” food supply chains or, as frequently mentioned in the literature, short food supply chains (SFSC). SFSC can be identified by their two basic characteristics [4]: (1) food production, processing, sales and consumption are carried out in a relatively small geographic area (territory); and (2) number of mediators in the chain (between producers and end users) is minimal (in ideal circumstances it is zero). Basic causes of increase of attraction of food supply produced by local producers in relation to big supply chains are: security, correctness and safety of food. However, often the issue of SFSC is to fulfill appropriate criteria of economic viability and environmental sustainability. On the other hand, it is proved that SFSC have a positive impact on biodiversity, employment, rural development, preserving local communities and social justice. Therefore, SFSC represent a link between people producing food and people that consume (local) food. Key issue is how to connect these two types of people (and their motives) so that right food reaches the right place in the right time, of proper (right) quality, quantity and price? This article just offers the answer to the question, through proposing appropriate roadmap towards developing logistics approaches and services which foster shortening the food supply chains to the ultimate level-creating the direct links.

2. THEORETICAL BACKGROUND

2.1. SHORT FOOD SUPPLY CHAIN

A food supply chain (FSC) is a network of food-related business enterprises through which products move from production through consumption, including pre-production and post-production activities. For example, a FSC featuring pork products might include feed suppliers or veterinarians, a cooperative of farmers, meat packing and fabrication plants, food distributors, markets, supermarkets and consumers [7]. Food supply chains (Figure 1) have an important role in providing market accessibility of food producers, because in high competitive environment, companies build their success based on how fast they moved products to customers, how good their costs efficiency are and how they respect principles of sustainability (economic, environmental and social). There are two basic types of FSC: (1) FSC of fresh agricultural products (fruits, vegetables, flowers, etc); and (2) FSC of processed food products (processed meat products, juices, milk products, etc) where fresh products are used as a sources for further food processing and creating final food products. Several trends affect the supply, processing and demand for food products [1]:

- Consumer: in the past decades demand shifts have been observed, leading for parts to more meat based diets (e.g. China) or to a more health-conscious consumption.
- Food standards: internal (company-made) and external (government-made) standards seem to be on the rise to provide a high degree of food safety.

- Technology: advances especially in IT technology and electronics have made it possible to provide uninterrupted tracking within the foods supply chain to improve safety and responsibility further.

Conventional FSC may cause several sustainability problems including food security and ethical issues or environmental damages due to long-distance transport and logistics. Emergence of alternative and short food supply chains (SFSCs) that may be able to eliminate or diminish negative impacts of the conventional food system has been observed since the nineties, especially in developed countries. As it has already been stated, SFSCs can be identified usually by two main characteristics: food production, processing, trade and consumption occur within a particular narrowly defined geographical area; and the number of intermediaries (retailers) is minimised (ideally to zero) [4].

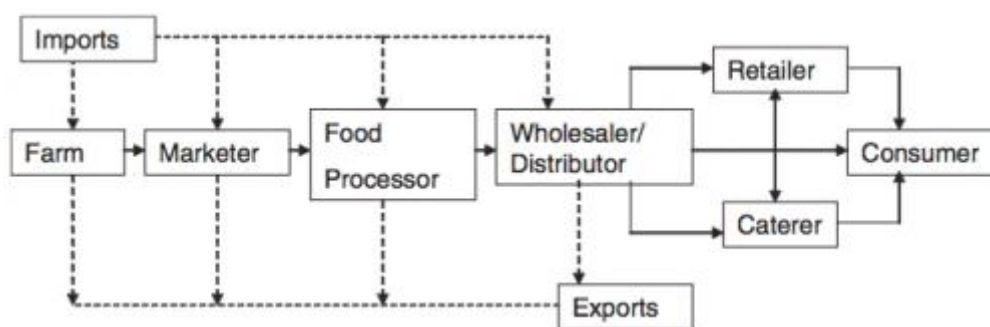


Figure 1. Food Supply Chains Schematic [1]

Three types of SFSC, identified in [5], are:

- Face-to-face, where producers sell their products directly to the consumers on a face-to-face basis. Here the focus appears to be on local foods rather than on locality foods.
- Spatial proximity, where local food products are sold through local market channels including farm retail markets, food service outlets and local food retailers and supermarkets.
- Spatially extended, where products are sold not only to consumers in the locality but also to consumers in other regions including online food retailing.

SFSC represent a link between people producing food and people that consume (local) food. In order to increase customer orientation and to understand better the customer's needs, the more active cooperation between the customers and suppliers in the chain is needed. Also, closer cooperation between different local food producers is needed especially in logistics in order to eliminate non-value added costs, to utilize the resources better and to improve the reliability and cost-efficiency of the deliveries [6].

2.2. LOGISTICS SERVICE PROVIDERS

Logistics services and outsourcing them to third party logistics service providers have received quite a lot attention during the last two decades [6]. The literature review can show

us existence of three stages, or waves, of logistics service providers (LSPs) development, as it was stated in [8]. The first wave, covering the period from mid-70s to mid-80s, records the increased usage of external logistics sources and service, mostly transport and warehouses. The second waver that follows immediately after, lasts approximately until the mid-90s, and is related to the rapidly increasing logistics outsourcing popularity, as well as increasing service diversification and complexity. The third, and current, wave is the period of an increased interest in integrated outsourcing logistics functions. Field of LSPs is associated with many new terms which are used in theory and practice. One of them is third party logistics (3PL) which denotes activity of outsourcing activities related to logistics and distribution. A third party LSP can be categorized to one of four types according to its general problem solving ability and customer adaptation: service developer, customer developer, standard 3PL provider, customer adapter [6]. For a LSP, changing the service offering rises three obvious questions: firstly, are the customers willing to pay for the value added services, secondly, what kind of service offering should be crafted for the customers, and thirdly, how to convert the value added service into cash flow and profits [6]?

3. PROBLEM STATEMENT

3.1. OBJECTIVES

World food producers are mostly farmers too who have small scope of production and quite concentrated market. Development of small and medium farms is a highly sensitive topic especially regarding transport-logistics strategies, since small producers are not integrated enough into consolidated FSC. Challenges regarding distribution of food of local producers are related to the issue of cost related justification of the realization of logistics and distributive activities in one's own organization, while on the other hand access to large distributive systems is limited to a great extent. Even though demand for "locally" produced food products is growing over years, in traditional FSC local producers still represent only supplements in food supply. Small production capacities, inadequate resources, relatively high prices, challenges in production and placement of required food as well as issues related to sustainability of business models and reliability of deliveries are basic issues which prevent small food producers to reach end users. Therefore, SFSCs require corresponding innovative information and logistics solutions which can be offered by specialized LSPs.

Basic issue that imposes itself is feasibility and viability of such special logistics services in the context of required information and technical-technological resources and selection of appropriate business models. The solution can be found in appropriate logistics system of the following characteristics: existence of appropriate distribution network where nodes are connected into one unique system by information and transportation; adjustability to the implementation of required applicative informative communicative (IC) solutions and software; recognizability by the market as reliable and safe provider of logistics services with expressed responsibility for whole social development and preservation of the environment. By SFSC concept, with appropriate LSP as an "integrator" a range of economic savings and reduction of emission of harmful gases would be provided for through: reduction in number of transportation means for distribution of local food products; increase in degree of usage of bearing capacity of transportation means, reduction of transportation distances, reduction in transportation time and optimization of transportation routes.

3.2. CONCEPTUAL FRAMEWORK

Basic objective of this paper is to establish a concept for solving issues regarding improvement of efficiency, competitiveness and sustainability (social and environmental) of small and medium enterprises in the sphere of agro-food industry in the way that promotes innovations based, first of all, on modern digital technologies. Generally, permanent need for innovations represents one of the most important challenges every economy branch has to face and the same goes for agro-food industry. Innovations and new IC technologies have become a key determinant of competitiveness. Innovations in the field of agro-food industry require better cooperation not only in the form of public-private partnership but among all participants in the supply chain such as producers, distributors, retail and LSPs. Therefore, usage of contemporary ICT and development of appropriate innovative business models can help in achieving goals related to efficiency and competitiveness of SFSC.

Proposed concept includes development of SFSCs which shall be based on new business models and logistics services in the context of market digitalization of agro-food products (Figure 2).

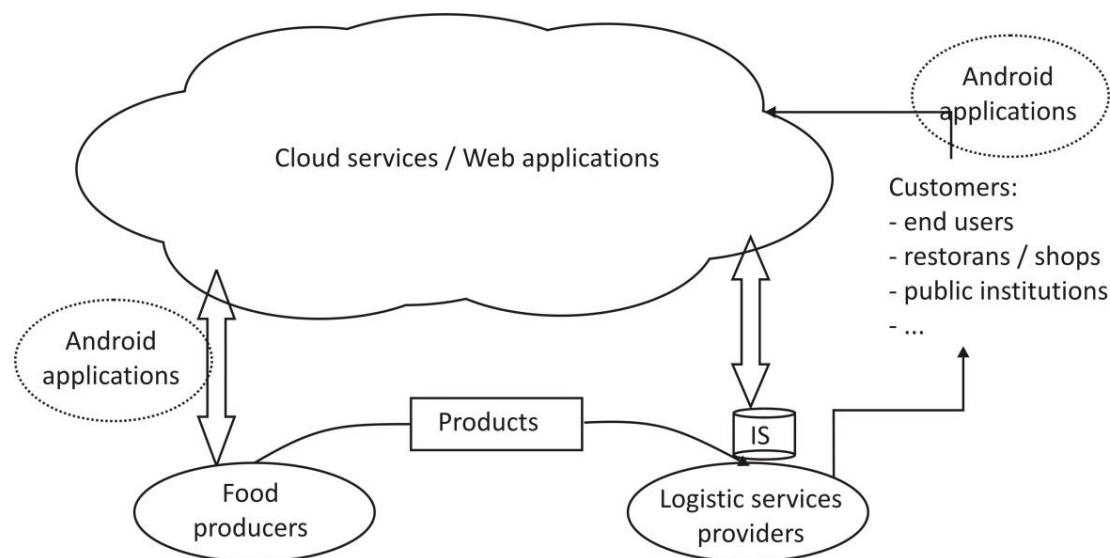


Figure 2. Proposed concept of SFSCs development

Concrete innovation of proposed concept is reflected in a unique approach to reengineering of local product distribution based on application of web and android applications and development of appropriate business models by which links among participants in a chain are defined. Proposed reengineering includes engagement of corresponding logistics service providers who shall deal with information, physical and business resources required for the realization of proposed idea. In such way proposed concept shall connect fruitfully needs of small and medium agro-food producers for sale of their products with small number of mediators on the one hand, and on the other needs of logistics service providers for broadening portfolio of their services with the aim of improving overall market competitiveness.

4. A PROPOSED ROADMAP

4.1. STRUCTURE AND IMPLEMENTATION

As it has already been stated, the basic objective of this paper is to develop an appropriate roadmap for broadening portfolio of services of logistics providers in the context of improvement of efficiency, competitiveness and sustainability of small and medium enterprises in sphere of agro-food industry. From this basic objective several particular objectives follow, which shall be realized by appropriate research activities, placed in several phases (Figure 3).

The first phase shall include realization of research activities with the aim of analysis of small and medium agro-food producers, analysis of market potentials and “local” products and then analysis of existing experience in the field of development, realization and promotion of SFSC. Analysis of the sector of small and medium food producers shall be carried out first of all in the context of product distribution, while analysis of market potential of local products shall be based on the research of readiness of buyers to get local products through specialized logistics service providers as distributors. Both types of analyses would include formation and realization of appropriate questionnaire. In the second phase analysis of market of existing business solutions based on internet technologies would be carried out first which have found their application in SFSC and FSC. On the basis of the analysis systematization of existing solutions would be carried out from the aspect of their characteristics and applicability to SFSC. Second part of activity of this phase is directed to the development of methodology and technical-technological framework for SFSC digitalization. In this phase basic premises and elements of the model of efficient interchange of information among participants in the chain would be defined through development of appropriate versions of web and android applications.

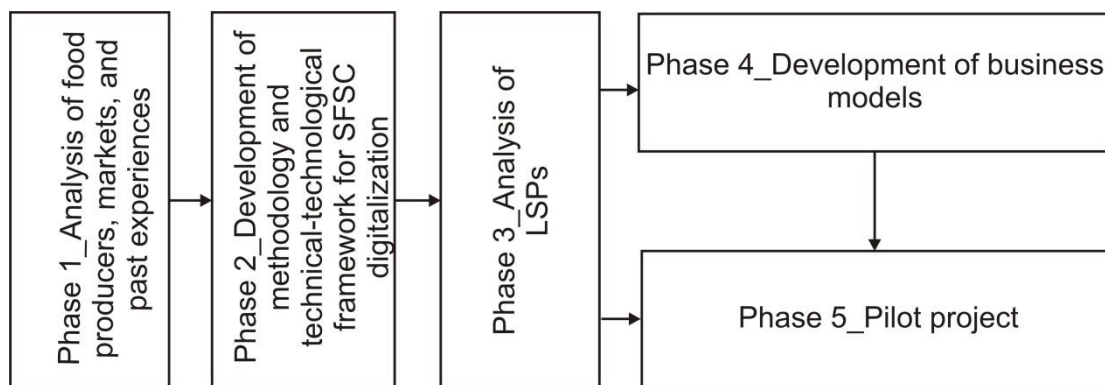


Figure 3. Proposed roadmap

The third phase would analyze in detail logistics providers from the aspect of products and services which can be offered to participants in SFSC. Systematization of their mutual comparative and competition advances would be carried out and additional values which they can offer would be defined with the aim of increasing business success of participants in SFSC. In the fourth phase business models will be defined which would connect key participants in SFSC: producers, logistics providers and ICT providers. Business model

should ensure profitability to all participants in the chain in such a way that it would connect participants in the SFSC optimally as well as provide for realization of key activities and key resources (logistics and ICT resources). The final structure of business models would be obtained through SWOT analysis and implementation of pilot studies. The last phase would include pilot project which would be realized in cooperation with potential participants. Through organization, realization and evaluation of pilot project feasibility and viability of developed digital applications and business models would be demonstrated. Also, in this phase conditions for mass application of obtained results would also be defined.

4.2. CONTRIBUTION

From the aspect of science, mission of this paper and proposed concept is initiation of a wider research engagement on topic of food supply chains through development of multidisciplinary research framework and integration of interested scientific disciplines first of all: agriculture, food technology, logistics, environmental protection, information technologies and economics. Therefore, long term scientific contribution would be generating a new, multidisciplinary research area where, through interchange of data, information, scientific methods and knowledge, networking and clusterization of all interested subjects from the field of production and distribution of food produced by, first of all, small and medium producers would be made possible. Proposed concept assumes integration and coordination of parts of scientific community which did not cooperate closely earlier. In such way a research infrastructure would be formed with characteristics required for understanding complexity of systems such as FSCs and planning and designing of innovative approaches with the aim of their efficient functioning and environmental and social-economic sustainability.

From the technologic aspect the most important innovation brought by this concept is “logistics transformation” in the context of digitalization of basic logistics processes. The final result (product) of logistics system is a logistics service. In traditional logistics systems, basic parameters according to which logistics service is selected (from the aspect of end users) are time and price (costs). However, due to all present globalization, increased competition pressure in the context of environmental protection and energetic efficiency and exponential development of modern ICT, the end user does not pay attention any more to time and cost only but also to sustainability of a logistics service (from environmental, economic and social aspect). Therefore, transformation of logistics includes changing of context of a “product” of logistics industry from the aspect of end users. Change of “product” context has impact on changes of the way of realization of logistics processes which are most frequently based on application of contemporary ICT (business digitalization).

More concretely, technological impact is reflected in the proposal for development and application of appropriate solutions based on Internet platforms which would ensure efficient connection of small and medium food producers with end users through development of a “unique digital market” and physical distribution of product would be realized through appropriate logistics service provider. In such way participants in FSC would have better interchange of information, possibility of error and technical and organizational barriers would be reduced and connection and coordination of all participants in the chain would be improved which would result in significant time and cost savings. Besides solving the issue of

efficient and reliable distribution of products to end users, respecting the principle of food traceability would be provided for since logistics service provider would ensure a full system of food follow up thus guaranteeing the quality of delivered products in the function of protection of end users.

5. CONCLUSION

Increased investments in agricultural industry show that it is considered to be a propulsive activity. However, agricultural producers must be innovative with economically, environmentally and socially sustainable production so that their business can progress. Development of small farms in developing countries is highly sensitive topic in transport-logistics strategies. Small farmers, when conducting their business as isolated entities, have very small chances for success since their potential marketing-selling activities are degraded by inadequate or poor transportation connections. Well planned organization of transportation-logistics activities can help farmers to organize efficiently their production, reduce physical work, make communication easier, stimulate social integration and improve the quality of their lives. When local producers of food are in question, besides characteristic of geographical distance, locally produced food is considered to be the food that satisfies criteria such as: benefit to animals, employment, business ethics, profitability, food safety and environmental protection. During past years the trend of buying locally produced food is on the rise since this food meets the standards of buyers regarding quality and health safety. Proposed concept is fully complementary with principles of socio-economic sustainability due to the following reasons: it promotes production of healthy and safe food which will be accessible to a greater number of beneficiaries; it supports development of small and medium farms and development of local communities in general; it is compatible with principle of preservation of natural resources and environmental protection through improvement of energetic efficiency in food distribution, observes the principles of health and animal benefits. Also, proposed concept is compatible with principles of “green production” and clusterization of economy and fostering economic cooperation among farmers, strengthening private partnership in the field of agriculture and encouraging rural revitalization.

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THE E-COMMERCE ADOPTION LEVEL IN BUSINESSES (CASE OF NORTHERN ALBANIA)

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Abstract: E-commerce development offers a promising way for business to meet challenges of every changing environment. It is important for business to adopt and enhance e-commerce applications because it provides effective and efficient ways of doing business.

The objective of this study is to focus on the businesses in the northern region of Albania (especially cities as Shkodra, Lezha and Koplik) with the purpose to study their readiness to adopt electronic commerce. It will be sufficient the existence of their readiness to adopt electronic commerce from the organization side in order to gradually begin to eliminate barriers and discover the opportunities offered by the electronic commerce.

This paper presents a set of data investigating the adoption of Information Technology (IT) and electronic commerce within Albania north region small and medium enterprises (SMEs); An initial model of factors affecting managers' decisions regarding the adoption of IT was developed and used as a base for the questionnaire construction.

Keywords: IT, E-commerce adoption, Factors, Benefits, Inhibitors, Conceptual Model.

1. INTRODUCTION

Small and medium enterprises (SMEs) form a significant proportion of the economy in many countries but managing SMEs is not the same as managing larger companies since SMEs have fewer resources available and fewer personnel to manage the business. Accordingly, managing the Information Technology (IT) function in SMEs, including the adoption of IT, may be different from managing in large enterprises. There are a lot of studies addressing e-commerce and IT adoption in small and medium enterprises such as: Iacovou et. al., 1995, Thong and Yap 1996, Dutta and Evrard 1999, Akkeren & Cavaye, 2000, Walczuch et al. 2000, Sathye & Beal, 2001, Tunge et. al., 2001, Mehrtens, 2001, Cloete et. al. 2002, Scupola 2002, Daniel & Grimshaw, 2002, Ihlstrom et al. 2003.

The definition of SME varies among organizations and countries. The World Bank uses the following criteria for SMEs as a worldwide definition (IFG, 2002):

- Small enterprise-up to 50 employees, total assets of up to \$3 million and total sales of up to \$3 million
- Medium enterprise-up to 300 employees, total assets of up to \$15 million, and total annual sales of up to \$15 million.

In Albania as Law no. 8957, of 17.10.2002, says “For Small and Medium enterprises” is used the following classification:

- Micro enterprises up to 5 employees;
- Small enterprises 6 – 20 employees;

● Medium enterprises 21 – 80 employees.

After reviewing the relevant literature in order to develop a model we decided to incorporate some of the factors in the model having in mind two important facts: this model must be appropriate for our country Albania, which is a developing country, and must be applied in small and medium sized organizations (Bejleri & Berberi 2015).

This paper presents a set of data investigating the adoption of IT and electronic commerce within Albania north region SMEs. An initial model of factors affecting managers' decisions regarding the adoption of IT was previously developed (Bejleri & Berberi 2015) and used as a base for the questionnaire conception. This e-commerce adoption model demonstrates the determinants of IT adoption process in business and next the e-commerce adoption. We decided to test it through the distribution of a questionnaire in businesses in the northern region of Albania.

In this study we intend to show the findings collected from a modest research, about the acceptance and adoption of electronic commerce that will be undertaken in several businesses. It will address several goals with the purpose:

- To investigate the possible adoption of existing electronic commerce activities in organizations.
- To investigate the perception by the business of benefits and opportunities of e-commerce activities.
- To determine whether these businesses possess the skills necessary for the adoption of electronic commerce.

2. THE USED MODEL

In the literature management's perceptions, as they related to IT adoption, focused on perceived benefit, perceived cost, and risk (Cragg and King 1993; Fink 1998; Ihlstrom et al. 2003; Thong and Yap 1996). The perceptions of business organizations are mostly oriented toward future uses of IT rather than cost and risks. This attitude toward IT may come from their previous education or from information on the benefit of IT obtained from external sources (Ihlstrom et al. 2003).

As mention before we previously derived an e-commerce adoption model (Bejleri & Berberi 2015) from extensive analysis of secondary sources, a model where several factors have been combined in order to describe and clarify the internal factors critical for the success in e-commerce implementation.

We decided to include in the model factors related with *organization's characteristics* (we decided to include four factors: business type, size, revenues, and business's computer ownership) and *management's characteristics* (we decided to include five factors: owner's age, level of education, computer literacy, use of several programs for the organization and frequency of computer use).

Next the perception of *potential benefits and inhibitors* is important and influences organization's adoption of e-commerce. Some of potential benefits of e-commerce as presented by Cloete et al., (2002) are: improved information exchange with customers, increased customer loyalty, increased service to the customer, easier access to international

markets, expanded business reach, reduced costs of maintaining up-to-date company information, improved information exchange with suppliers, reduced costs through web based purchasing and procurement, improved competitive position of the company, and attracting new investments to the company. While inhibitors to e-commerce adoption as of Cloete et al., (2002) are: concerns about legal issues and internet security, contracts and liability, telecommunications services not dependable, cost of computers and network technologies too high, level of computerizations is too low, e-commerce use is too low among suppliers and customers, limited knowledge of the required technology, and the business is not convinced of the financial and business benefits

We believe that actual *technological capabilities* in an organization (from the simpler ones to the most sophisticated) influence the e-commerce adoption. Thus the study of technological capabilities may observe the current infrastructure in an organization such as the existence of a strategy for developing e-commerce, a computerized database for customers and supplies, a computerized inventory for products and services, use of electronic email (e-mail) and access to the Internet. These are considered only as basic infrastructure but more sophisticated potentials and capabilities may be present in the business every day activity such as: a website demonstrating the company's products and services, customers' orders and payments received through an Internet Website, and placing orders and making payments with/to suppliers over the Internet (Bejleri & Berberi 2015).

These discussed factors that were derived from extensive analysis of secondary sources, have been combined into a model in order to describe and clarify the internal factors critical for the success of e-commerce implementation. Such factors as management and organizational characteristics are believed to influence the use of IT in an organization. The current level of IT adoption, thus the technological capabilities in place, perceived benefits and inhibitors are believed to influence the e-commerce adoption (Bejleri & Berberi 2015).

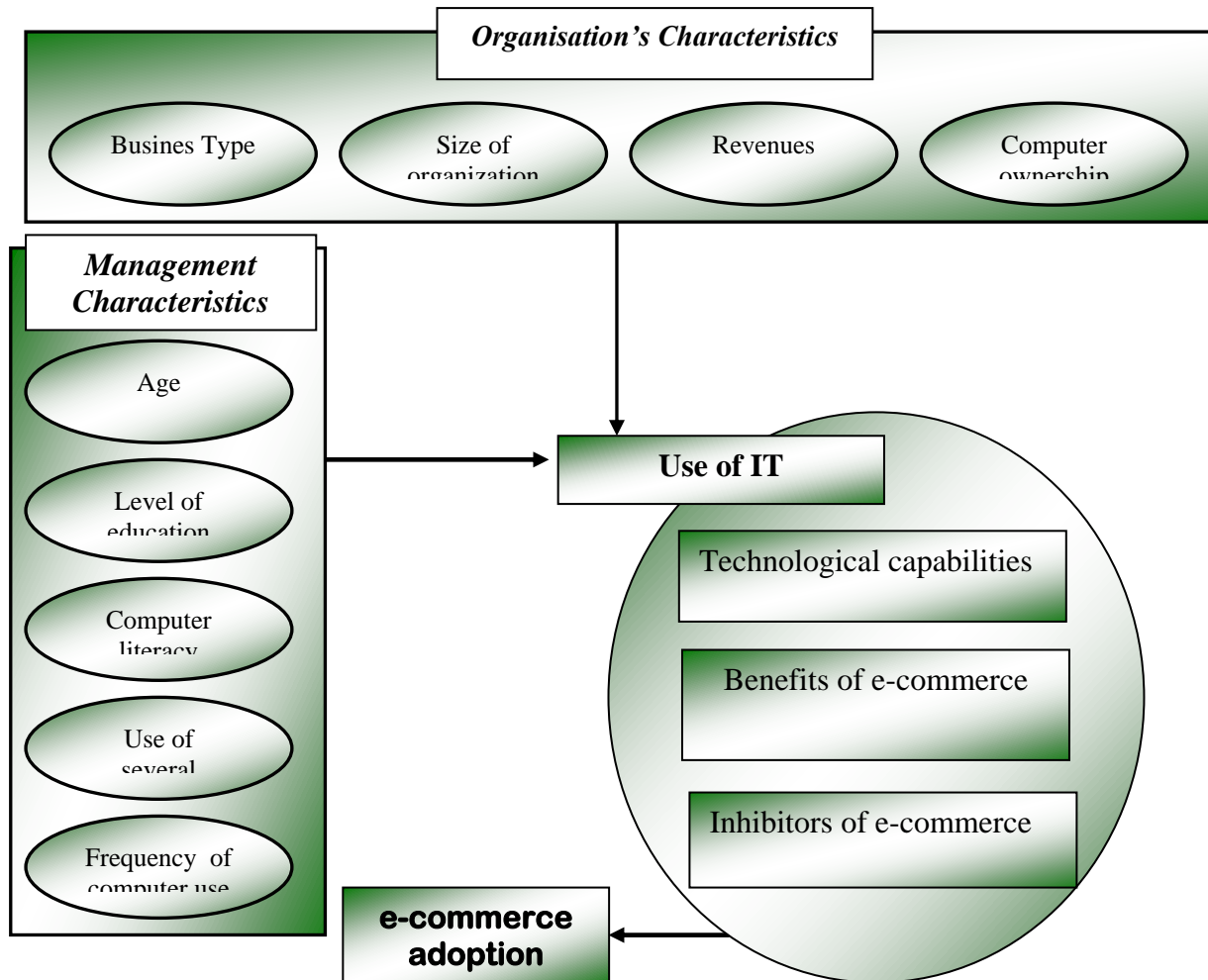


Figure 1. The e-commerce adoption model

3. RESEARCH FINDINGS

In order to achieve the objectives of this study we decided to focus on the northern region of Albania especially in the region of Shkodra. In order to collect the adequate information about the factors that influence the acceptance of electronic commerce based in the model presented above, a questionnaire was developed. The questionnaire was constructed in a such a way in order to test in several directions: connection of use of IT with business type, size, revenues, and business's computer ownership, owner's age, level of education, computer literacy, use of several programs for the organization and frequency of computer use and also the perception of the potential benefits of electronic commerce, the technological capacities necessary for the adoption of electronic commerce, adoption of more sophisticated activities of electronic commerce and the perception of inhibitors.

The questionnaire prepared was distributed to 200 businesses in the northern region of Albania of which returned 189 questionnaires (but 15 of them were considered as invalid)

by consisting in a response rate of 87%. The questionnaire addressed the business owners who were encouraged to freely express their opinions about the questions raised in the questionnaire. The data collected were analyzed using SPSS 11 and a descriptive analysis using graphs and tables was used.

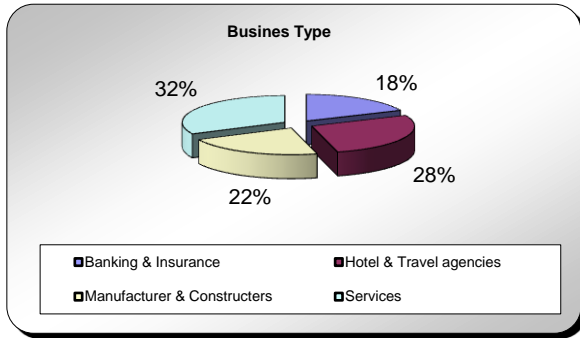


Figure 2. Business Type

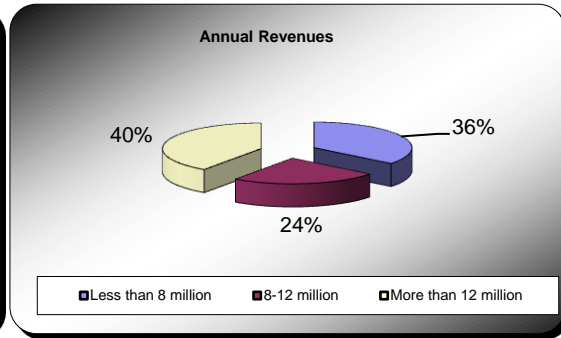


Figure 3. Annual Revenues

Figure 2 reflects analyzed business by type where 22% are manufacturers and constructors, 28% hotels and travel agencies, banks and insurance 18% and 32% services. Business types have considerable influence on the structure of IT activities of the organization (Currie, 1996). In terms of annual revenues, reflected in Figure 3, 40% of businesses have more than 12 million, 24% from 8 to 12 million and 36% less than 8 million. Figure 4 reflects the size of the organizations in terms of number of employees. Therefore 57% of organizations have from 20 to 80 employees, 28% have less than 20, 15% have more than 80 employees. The size and structure of the organization have a significant impact in the adoption of the IT (Lind et al., 1989). The businesses in different sectors have different information processing needs and those in more information intensive sectors are more likely to use IT than those in less information intensive sectors (Yap et al., 1992).

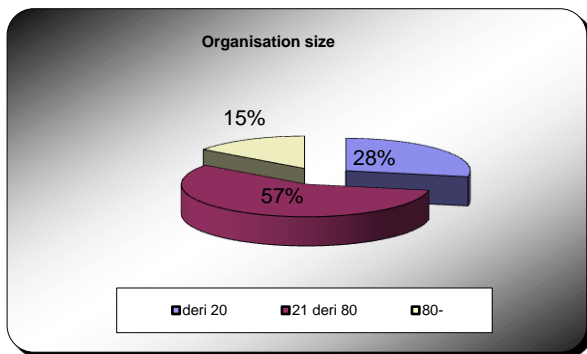


Figure 4. Size of organisation

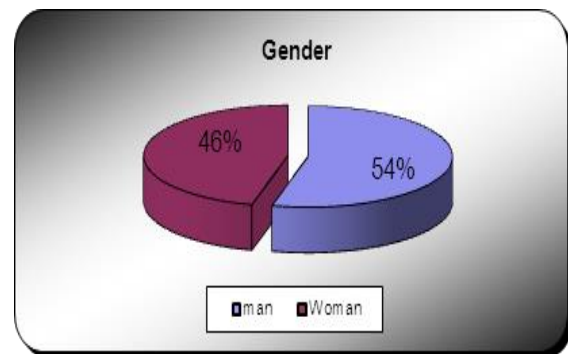


Figure 5. Gender

The questionnaire was addressed especially toward the business owners. The managers were selected because in SMEs almost all decisions are made by the manager and they are often directly involved in the IT design and implementation (Thong and Yap 1996). In SMEs usually the owner is heavily involved in decision making (including IT investment decision making).

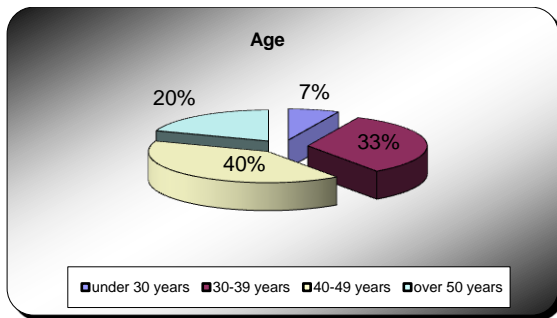


Figure 6. Age

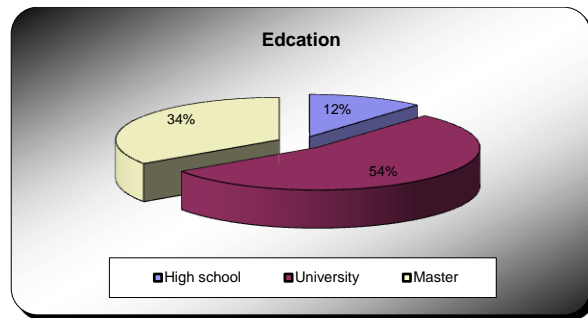


Figure 7. Education

Figures 5, 6 and 7 respectively refer to gender, age and education level of respondents. Adoption of e-commerce is heavily reliant on the acceptance of e-commerce by the business owner (Cloete et al. 2002). Corbitt et al., (1997) underline that the issue of e-commerce seems to be more a management problem rather than a technical one. If the owner neither perceives the technology to be useful, nor understands its potential, then s/he will be reluctant to adopt it (Iacovou et al., 1995). The technology cannot be successfully implemented if the top management doesn't support the process. Thus, most of the owners or managers are men 54% but is interesting that businesswomen make up a high percentage 46%. 40% of managers are aged through 40 to 49 years and 33% aged 30 to 39 years so as we can see the managers' age is relatively new. Regarding the level of education 54% have a university degree and 34% have a master degree this means the business owners are usually well educated.

Regarding the question with the purpose to investigate about the ownership of computers in the organization we concluded that all the businesses have one or more computers in their business and all the owners know how to use computers. Concerning the question how much the computers are used in the organization, 91% answered every day and the rest 9% use computers more infrequently. We can say that 95% of businesses use specific programs for the purposes of the organization in their daily activities. CEO knowledge of computer and involvement leads to more successful use of IT in business and the use of IT is influenced by the organizational factors such as sales and the type of business (Seyal et al., 2000). The level of computer literacy of the owner and a lack of knowledge on how to use the technology will result in the business being less likely to adopt e-commerce (Kirby & Turner, 1993).



Figure 8. How much computers are used

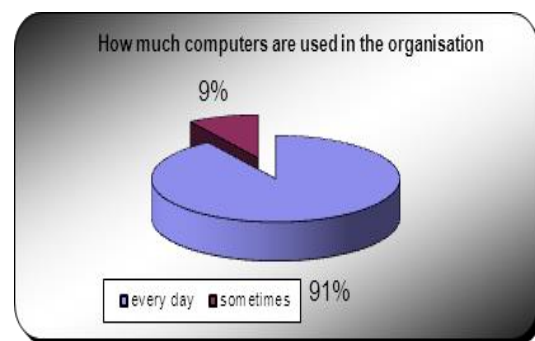


Figure 9. Use of the programs for the

organization purposes

For the purposes of this research, it was necessary to study the technological capacity in possession necessary for the development of e-commerce. It is important to recognize that e-commerce activities range from entry-level activities such as having web browsers, web sites, and e-mail, to sophisticated activities such as online payments, making purchases online, customer services, and video conferencing amongst others (Cloete, et al. 2002). In order to assess if the necessary infrastructure was owned in order to adopt e-commerce, it was necessary to observe the current state of technological capabilities and the adoption of electronic commerce activities. The collected results are presented in Table 1 and reflected graphically in Figure 10.

Table 1. Technological capabilities

	Now	In the future	Never
A company strategy for developing electronic commerce	31%	66%	3%
A computerized database of your company's customers	83%	16%	1%
A computerized database of your company's suppliers	66%	32%	2%
A computerized inventory of your company's products and services	94%	6%	0%
Company electronic email (e-mail)	99%	1%	0%
Company access to the Internet	83%	17%	0%
A website demonstrating the company's products and services	83%	16%	1%
Customers' orders received through an Internet Website	37%	55%	8%
Customer payment by credit card through the Internet	24%	66%	10%
Consumer services provided via the Internet	36%	54%	10%
Placing orders with suppliers over the Internet	38%	56%	6%
Making payments to suppliers over the Internet	24%	66%	10%

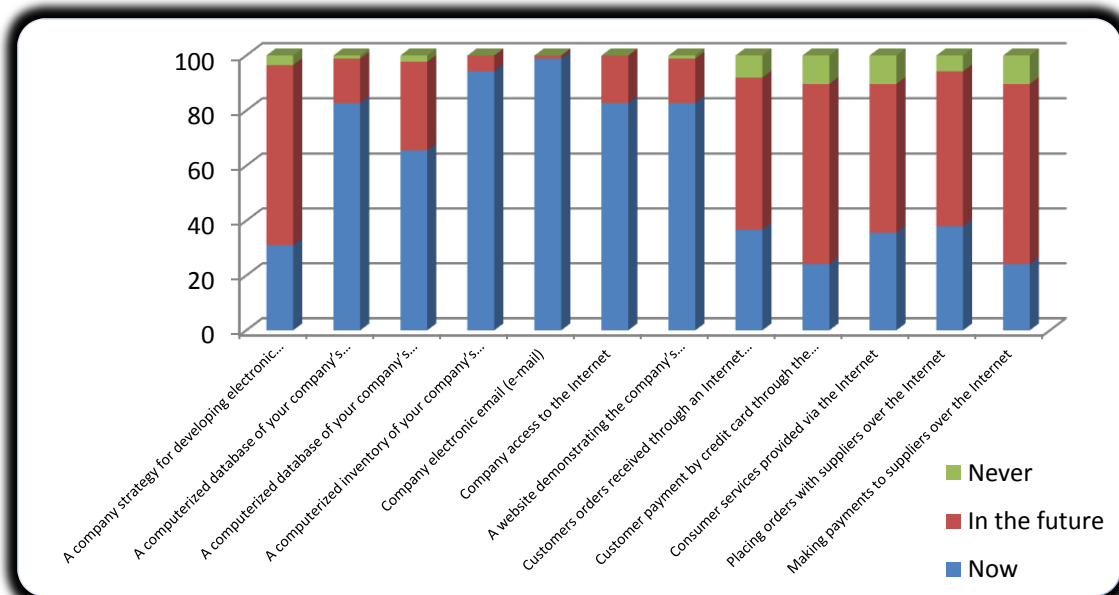


Figure 10. Technological capabilities

It is clear from Table 1 and Figure 10 that there are few businesses that have mastered the necessary technological skills. The most of the answers incline and are distributed between the two columns now or plan to own in the future. It is worth noting that 83% of the businesses have a computerized database of their company's customers and 66% have a computerized database of their company's suppliers. While very good and prominent results we have for the use of electronic email (e-mail), company access to the Internet, and the existence of a website demonstrating the company's products and services respectively with 99%, 83% and 83%. 94% of the investigated businesses have a computerized inventory for their company's products and services. Customers' orders received through an Internet Website, Customer payment by credit card through the Internet, Consumer services provided via the Internet, placing orders with suppliers over the Internet, making payments to suppliers over the Internet 50% plan to have in the future and the rest do not ever think to possess such activity. Manufacturing industry as an area of low labour cost is not information intensive, but they need IT based communications. They also use IT in their internal business operations, but usually do not have a dedicated IT department. All the participants already used basic computer applications for their business, such as office applications (for administrative functions, reporting, and book keeping), internet applications (for simple business intelligence, email, marketing and order tracking). Some of the companies had computerized inventory systems. Ihlstrom et al., (2003) draw attention to the fact that the attitude toward IT may come from manager's previous education or from information on the benefit of IT obtained from external sources.

Perceived benefits and inhibitors are a key reason why organizations adopt and continue to use the Internet (Poon and Swatman, 1999). As e-commerce matured over the last few years, a growing awareness and understanding of the benefits and uses of e-commerce among SME's emerged (Cloete, et al. 2002). The table and chart below shows the answers in percentages for each benefit e-commerce.

Table 2. Benefits

	Important	Neutral	Not Important
Improve information exchange with customers	97%	3%	0%
Increase customer loyalty	80%	16%	4%
Increase service to the customer	95%	5%	0%
Easier access to international markets	87%	10%	3%
Expand business reach	91%	9%	0%
Reduce costs of maintaining up-to-date company information	79%	20%	1%
Improve information exchange with suppliers	90%	6%	4%
Reduce costs through web based purchasing and procuring	71%	17%	12%
Improve the competitive position of the company	85%	9%	6%

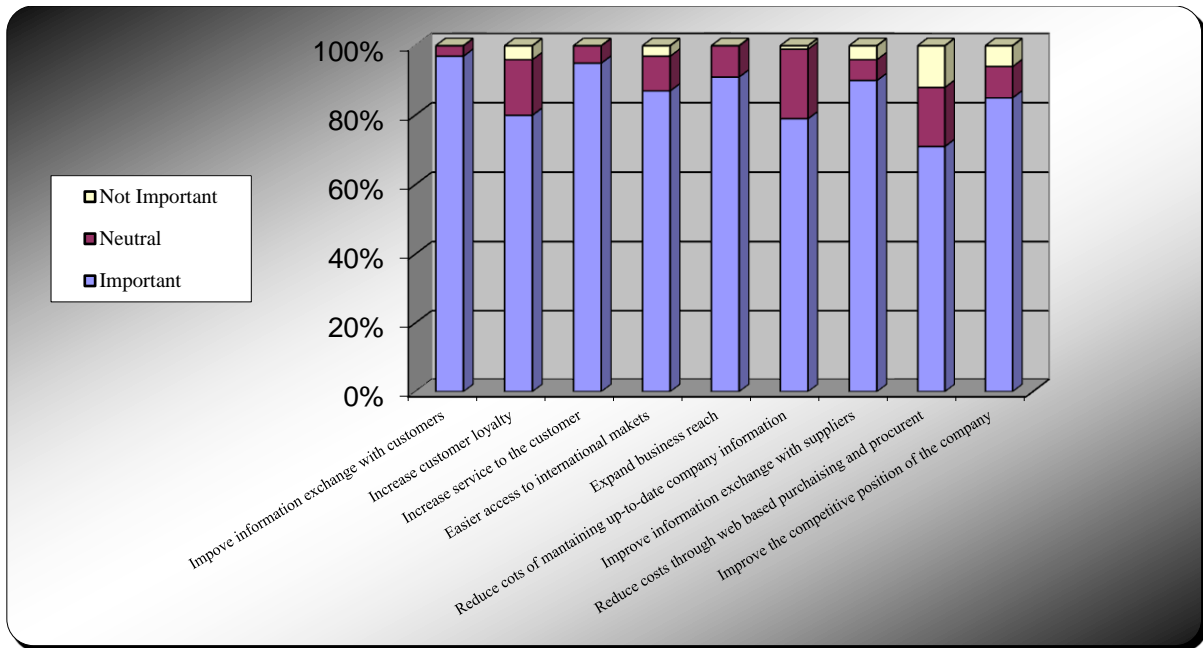


Figure 11. Benefits of e-commerce

As can be seen quite clearly from the chart, the predominant responses are to the “Important” which means that these benefits of e-commerce (such as improved information exchange with customers, increased customer loyalty and service to the customer, easier access to international market and expanded business reach, reduced costs of maintaining up-to-date company information and reduced costs through web based purchasing and procurement, improved information exchange with suppliers and the competitive position of the company while attracting new investments to the company) are very important to their businesses. So in total if we find an average for each answer level we can say that 86.1% consider these benefits as important, 10.6% stay neutral toward these benefits and 3.3% consider them as unimportant. Among the most considered as important benefits are improved exchange of information with customers and suppliers, increased customer service and expand business reach.

The following Table and Figure give information on e-commerce inhibitors. The results indicate that the results are only a few scattered and convincing responses. So in total if we find an average for each answer level we can say that 75% of managers don't agree with listed inhibitors, 19% stay neutral toward these inhibitors and 6% agree with these inhibitors. So 92% and 89% respectively don't think that the level of computerization is too low in their company and that the telecommunications services are not dependable. Also 85% don't think that the cost of computers and network technologies are too high and 88% don't believe they have limited knowledge of the required technology thus managers believe they are develop enough and do not constitute an obstacle. On the other hand 21% have concerns about legal issues, contracts and liability while 34% stay neutral.

Tabela 3. Inhibitors

	Not agree	Neutral	Agree
Company has concerns about legal issues, contracts and liability	45%	34%	21%
Concerns about internet security	74%	22%	4%
Telecommunications services not dependable	89%	11%	0%
Cost of computers and network technologies are too high	85%	8%	7%
Level of computerization is too low in the company	92%	5%	3%
E-commerce use is too low among suppliers	65%	26%	9%
E-commerce use is too low among customers	72%	23%	5%
Company has limited knowledge of the required technology	88%	10%	2%
Company not convinced of the financial and business benefits	64%	31%	5%

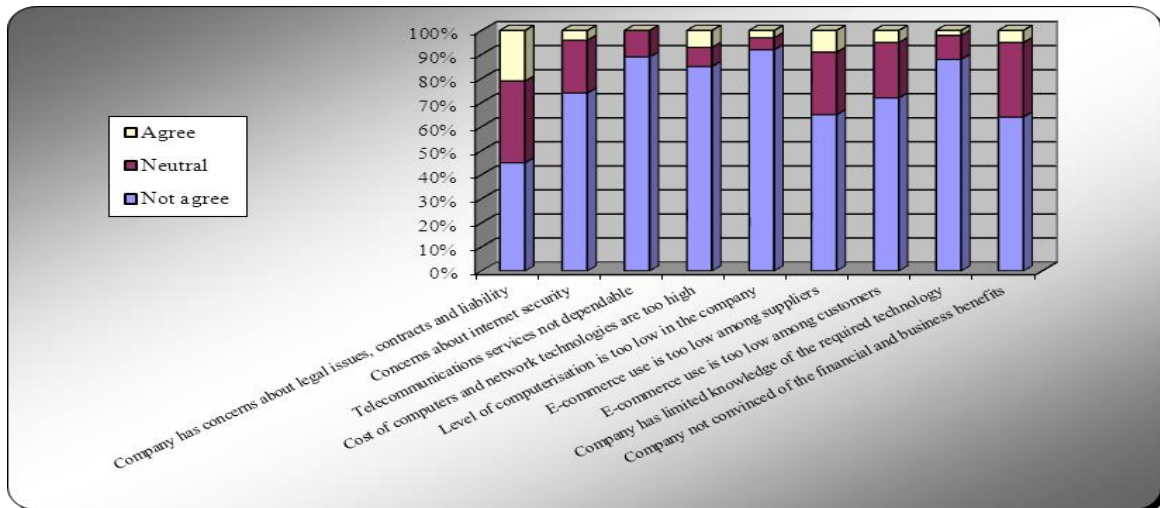


Figure 12. Inhibitors of e-commerce

Regarding the question "What processes are affected by the use of Internet? Most of them 40% believe that Internet use affects marketing, 24% think that affects sales, 18% think that affect product, 10% after-sales services and 8 % receiving orders. There are businesses 72% who own a website that serves mainly to provide information about the company, products and services offered and which serves as a communication and contact with customers and providers while 28% plan to have in the future. While for the question about the type of the website they own (about 72% have a website) 46% have an informative website, 34% advertising, relationship 11% and 9% a transactional website.

CONCLUSIONS

This study aimed to explore the current status of electronic commerce and its acceptance by businesses by assessing the degree of use of new technologies of information

and communication and evaluation of the perception of benefits and barriers to electronic commerce in order to determine their connection with the adoption of electronic commerce this new method of doing business. Actually the study achieved some important conclusions:

- A variety of factors influence the adoption of electronic commerce. These factors are result of perception and acceptance of e-commerce by the business owner, the organization's characteristics and the context of doing business. An important result of the findings is that knowledge of computer and business management involvement leads to more successful use of IT. Also the use of programs by managers for organizational purposes exerts a positive influence encouraging the use of IT in the whole organization.

- The use of IT is also influenced by the type of business. Different business sectors have different levels of integration of IT. Thus, the study shows that banks, insurance companies, hotels and tourist agencies are more likely to use IT.

- The management commitment is essential; skills needed for this process should be redefined and also it is necessary the appropriate training. The business owner should be the one who must explore ways to adapt the latest technology but also encourage its staff to learn and use different techniques in order to get into the business and create a culture of real IT.

- There are businesses that possess technological skills needed to adopt e-commerce. It is important to note that the activities of e-commerce rank from the activities of the entry level such as having browsers, web site's, and email, to the more sophisticated activities such as online payments, online shopping, consumer services, video conferences etc.

- The use of e-commerce in businesses mainly consist in the use of email as a communication tool for customer support as well as for providers of raw materials; use of Internet to search and gather information about prices, export markets or potential commercial partners.

- Businesses perceive the potential benefits of electronic commerce as important and perceived barriers to electronic commerce are regarded as important for its acceptance. There are many benefits and barriers to electronic commerce, but over time with the growth of information managers better understand the benefits and use e-commerce in more sophisticated levels.

Nowadays it is impossible to blame the technology for not capturing new business ideas. The use of new information and communication technologies generates for companies opportunities to create competitive advantage through the adoption of new business models. But the simple use of e-commerce is not a guarantee for business success. The company should be well organized and flexible, have high quality and attractive products in order to be able to compete in the global market and expect good results from the use of electronic commerce in its various levels.

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TECHNOLOGY STRATEGY AS ONE OF THE KEY FACTORS FOR THE DEVELOPMENT OF ENTREPRENEURSHIP

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Abstract: Entrepreneurship as a process of undertaking a business venture becomes a permanent task of modern management, which includes monitoring the conditions in the environment and rapid response to them in the form of innovation in different parts of the business. New opportunities in the environment, constant innovation in the organization, are the essence of the innovative strategies as a permanent challenge and secure way to create long-term profitability and business success. Today, the only thing which is sure is change. In order to accommodate changes entrepreneurs define their technology strategy by choosing from one of the existing strategy or a combination of different strategies depending on their needs and objectives, which are consistent with the mission and vision of the company.

Keywords: Technology strategy, entrepreneurship

Apstrakt: Preduzetništvo kao proces preduzimanja poslovnog poduhvata postaje stalni zadatak savremenog menadžmenta, što podrazumeva praćenje prilika u okruženju i brzog odgovora na njih u obliku inovacija u različitim delovima poslovanja. Nove prilike u okruženju, stalne inovacije u organizaciji, suština su inovativne strategije kao stalnog izazova i sigurnog puta ka kreiranju dugoročne profitabilnosti i poslovnog uspeha. U sadašnjim uslovima poslovanja jedino je sigurna promena. Kako bi se prilagodili promenama preduzetnici definišu svoju tehnološku strategiju birajući neku od već postojećih strategija ili kombinovanjem više različitih strategija u zavisnosti od svojih potreba i ciljeva, koji su u skladu sa misijom i vizijom preduzeća.

Ključne reči: Tehnološka strategija, preduzetništvu

1. UVOD

Predmet istraživanja u ovom radu je uticaj tehnološke strategije na razvoj malih i srednjih preduzeća, odnosno na razvoj preduzetništva koje se zasniva upravo na malim i srednjim preduzećima. Osnovni razlozi važnosti preduzetništva nalaze se u činjenici da ono prvenstveno predstavlja izvor novih poslova, da se kroz mala i srednja preduzeća koja su usko povezana sa preduzetništvom obezbeđuje i podstiče ekonomski rast i proizvodnja na jednoj teritoriji, modifikuje se i podstiče konkurencija i stvaraju potpuno novi proizvodi/usluge i tehnologije. Akcentat je na kolaborativnim sporazumima, odnosno na širenju poslovanja putem kolaboracija, u okviru čega je urađeno i istraživanje, odnosno dat je primer malog preduzeća *Tim electronic* iz Šapca koje se odlučuje za razvoj svog poslovanja putem sporazuma saradnje sa preduzećem srednje veličine, *Indas* iz Novog Sada. Preduzeće *Tim electronic* posluje dugi niz godina i predstavlja preduzeće koje konstantno uvodi inovacije i time obezbeđuje svoj opstanak na promenljivom tržištu. Preduzeće je preduzetničkog

karaktera, sa malim brojem zaposlenih. Uprkos svojoj veličini i nedostatku menadžersko obrazovanih kadrova, preduzeće ima dugu istoriju poslovanja, odoleva pritiscima tržišta. Međutim, u *Tim electronic* ima prostora za nova poboljšanja, te se tako u ovom istraživanju navode mogućnosti napretka ovog preduzeća.

2. TEHNOLOŠKA STRATEGIJA

Pod *preduzetništvom se* podrazumeva društvena funkcija kreiranja i stvaranja novih vrednosti putem kreativnog kombinovanja poslovnih resursa. Ispoljava se kao spremnost za preduzimanje inicijative, aktiviranje društveno-ekonomskih mehanizama i svesno izlaganje riziku prilikom transfera ideje u poslovne poduhvate. Ostvaruje se kao proces definisanja i realizovanja promena radi obezbeđivanja novih profitabilnih poslova i/ili načina poslovanja, proizvoda i usluga (Deakins, 2003).

Svako preduzeće ima određenu strategiju ili pristup za ostvarivanje svojih, postavljenih ciljeva. Izabrana strategija pokazuje put poslovanja preduzeća, kojim će se rešiti određeni problem ili iskoristiti pružena prilika. Preduzetnik definiše svoju strategiju najčešće, ne razmatrajući prilike koje bi mogao da iskoristi. On nije ograničen trenutnim resursima ili sposobnostima preduzeća, već traži način da pribavi neophodne resurse i sposobnosti. Sloboda preduzimanja akcija od strane preduzeća ograničena je potrebama potrošača i investitora koji mu daju resurse da preživi. Investitori i potrošači diktiraju koliko će novca biti potrošeno jer kompanije koje im ne pružaju satisfakciju, neće biti u mogućnosti da prežive na tržištu.

Byers (Byers et al., 2011, str. 78) ukazuje na šest važnih pitanja za kreiranje dinamične strategije koja su prikazana u tabeli 1. Sa solidnim, efektnim odgovorima na ovih 6 pitanja, preduzeće će biti u mogućnosti da formira strategiju koja će moći da ga vodi ka profitabilnosti.

Tabela 1. Šest pitanja za kreiranje dinamične strategije (Byers et al., 2011, str. 78)

Profitabilnost		
Zašto mi ostvarujemo ove ciljeve? ✧ Viziju ✧ Misiju	Gde ćemo biti aktivni? ✧ Kupci ✧ Tržište	Kako ćemo postići naše ciljeve? ✧ Inovacija ✧ Akvizicije
Kada ćemo delovati i kojom brzinom? ✧ Vreme ✧ Izvršenje	Šta će razlikovati naše produkte? ✧ Pozicioniranje ✧ Odgovor konkurenata	Sa kim ćemo se takmičiti i sarađivati? ✧ Konkurencija ✧ Alijanse

Strategija tehnologije u preduzeću znači opredeljenje za neku od sledećih mogućnosti: (Levi-Jakšić, 2008, str.141)

1. primena postojećih tehnologija,
2. poboljšanje postojećih tehnologija,
3. eksterna tehnologija, nova tehnologija kao zamena stare,
4. nova tehnologija ili nova sposobnost.

Tehnološka strategija mora da odgovori na tri opšta pitanja: (Plojović & Bušatlić, 2005)

- koje tehnologije razvijati,
- treba li težiti tehnološkom liderstvu u tim tehnologijama,
- kakva je uloga licenciranja tehnologije.

Izbor u svakoj oblasti mora da bude zasnovan na tome kako tehnološka strategija može najviše da pojača održivu konkurentsku prednost firme.

Preduzeća se danas suočavaju sa mnogim poteškoćama i ograničenjima, koja im mogu ugroziti i sam opstanak. Kako ne bi izgubili tržišnu bitku, neophodno je da preduzeća prate složena kretanja u okruženju, ali ponekad ni to nije dovoljno, već se od njih očekuje da samostalno uvode neke inovacije bilo da su u pitanju radikalne ili inkrementalne inovacije. U turbulentnom okruženju, u kakvom se nalaze danas preduzeća preduzimaju sve neophodne mere ne bi li opstali na tržištu. „Tehnološke promene obuhvataju nove metode rada, nove mašine i alate, novu organizaciju, nove proizvode/usluge, kvalifikacionu strukturu, načine upravljanja. Tehnološke promene mogu da se sagledaju na različitim nivoima: 1) međunarodni nivo; 2) nacionalni nivo; 3) industrijska grana; 4) preduzeće. Osnovni zadatak praćenja i analize tehnoloških promena je u tome da se svi relevantni efekti i uticaji tehnološke promene identifikuju, prate, kvantifikuju i dovedu u vezu sa postavljenim ciljevima razvoja privrede i društva“ (Levi-Jakšić et al., 2015, str. 31).

3. STRATEGIJA KOLABORACIJE

Kolaborativna partnerstva su sporazumi i akcije napravljene od strane organizacija da dele resurse za postizanje zajedničkog cilja. Kolaborativna partnerstva oslanjaju se na učesće najmanje dve firme koje se slažu da dele resurse, kao što su finansije, znanje, i ljudski resursi. Organizacije kroz kolaborativnu saradnju imaju zajedničke ciljeve. Suština zajedničkog partnerstva je da firme koje su u kolaboraciji imaju koristi od zajedničkog rada.

„Postoje slučajevi u kojima se kolaborativna partnerstva razvijaju između onih preduzeća u različitim oblastima kao dopuna vezana za stručnost. Odnosi između zajedničkih partnera mogu dovesti do dugoročnih partnerskih odnosa koji se oslanjaju jedni na druge“ (Saltiel, 1998).

3.1. RAZLOZI ZA KOLABORATIVNIM SPORAZUMIMA

Preduzeća sklapaju kolaborativne sporazume radi koncentracije kapitala, koordinacije i usklađenog obavljanja određenih zajedničkih funkcija i ostvarivanja drugih interesa, odnosno sve u cilju ostvarivanja što većeg profita. Udruživanjem, preduzeća su u stanju da rešavaju probleme i postižu ciljeve koje inače ne bi mogli pojedinačnim nastupanjem na

tržištu. Ovi problemi se odnose pre svega, na sve veća finansijska sredstva i kapitalna ulaganja neophodna za rentabilno poslovanje.

Postoje tri glavna razloga zašto se preduzeća udružuju sa drugim partnerima, uključujući konkurente: (Narayanan, 2001, str. 271)

- sredstva za određeni poduhvat su toliko visoka da nijedna firma ne može to da uradi sama,
- rizici koji se odnose na konkretan poduhvat mogu biti toliko visoki da firme žele da snose samo deo ukupnog rizika od ulaganja,
- različite firme imaju različite mogućnosti, a neki poduhvati mogu zahtevati objedinjavanje mogućnosti različitih firmi za uspešnu realizaciju.

Zajednički rad, udruživanja sredstava, podela rizika, i usklađivanje individualnih sposobnosti preduzeća, osnovni su razlozi zbog kojih se preduzeća opredeljuju za strategiju saradnje. Moguće je klasifikovati različite razloge stupanja u kolaboracije na dve velike kategorije: strateški i operativni (Narayanan, 2001, str. 273).

3.2. KORISTI I RIZICI PRILIKOM KOLABORACIJA

Rad sa drugima može pomoći preduzeću da isporuči nove, poboljšane ili više integrisane usluge, uštedi novac i razvija jače, bolje poslovanje. Ali zajednički rad možda neće odgovarati svakoj organizaciji. Ono što je potrebno da uradi svako preduzeće, odnosno organizacija, pre nego što sklopi neki od mogućih vidova sporazuma sa drugim organizacijama, tačnije kolaborativne sporazume, jeste da identifikuje i da detaljno analizira sve potencijalne rizike, i sve moguće koristi koje konkretno preduzeće može ostvariti kroz tu saradnju.

Potencijalne koristi i rizici saradnje

Saradnja postaje sve važnija u modernom svetu. Uspon cloud computing-a i brže internet veze su omogućili saradnju više nego ikad. Važno je da firma ima alat koji će joj omogućiti da efikasno saraduje. Neke od prednosti saradnje su: poboljšani ili širi spektar usluga za korisnike, širi geografski domet ili pristup novim korisničkim grupama, više integrisani pristup potrebama korisnika, finansijske uštede i bolje korišćenje postojećih resursa, dobra praksa i razmena informacija, deljenje rizika u novim i neproverenim projektima, bolja koordinacija aktivnosti organizacija, uzajamna podrška među organizacijama...

Međutim, kada se pristupa kolaboracijama, u interesu svakog partnera je da se smanji rizik od neuspeha kad god je to moguće, i ukoliko je moguće (mada su takve situacije zaista retke) težiti tome da se potpuno eliminiše rizik. Neki od potencijalnih rizika jesu: ishodi ne opravdavaju vreme i utrošene resurse, zbunjenost korisnika, gubitak fleksibilnosti u praksi, složenost u donošenju odluka i gubitak autonomije, loš ugled organizacije ako je saradnja neuspešna, kulturna neslaganja između organizacija, preusmeravanje energije i resursa od osnovnih ciljeva, izazovi upravljanja promenama, zakonske obaveze.

Organizacije prilikom razmatranja svake dugoročne saradnje moraju temeljno da istraže rizike koji proizilaze iz ovog poteza, uključujući i uticaj na korisnike usluga i osoblja. Oni takođe moraju da procene i održivost saradnje, uključujući njenu sposobnost da ispuni potrebne ciljeve. Potencijalni partneri u toj saradnji treba da sagledaju potencijalne uticaje predložene saradnje na svojoj organizaciji u svom planu upravljanja rizicima.

4. ISTRAŽIVANJE

U ovom poglavlju je predstavljeno istraživanje koje se odnosi na malo preduzeće Tim electronic iz Šapca, i tehnološku strategiju ovog preduzeća. Naime, preduzeće Tim electronic svoje poslovanje može unaprediti putem saradnje sa preduzećem srednje veličine Indas iz Novog Sada.

4.1 PREDUZEĆE TIM ELECTRONIC

Preduzeće „Tim electronic“ osnovano je 12.11.2004. godine u Šapcu. U prvim godinama poslovanja preduzeće se bavilo samo projektovanjem, izvođenjem elektro radova i proizvodnjom elektronskih regulatora, najčešće po narudžbini. Kasnije, kroz poslovanje, preduzeće je polako širilo svoj asortiman.

Osnovni podaci preduzeća dati su u sledećoj tabeli:

Tabela 2. Osnovi podaci Preduzeća (Izvor: Sajt agencije za Privredne registre)

OSNOVNI PODACI	
Naziv:	Tim electronic
Poslovno ime:	Samostalna zanatska radnja Tim electronic Branko Jeremić Preduzetnik Šabac
Status:	Aktivan
Matični broj:	56670998
Pravna forma:	Preduzetnik
Sedište:	Janka Veselinovića 98/5, Šabac
Datum početka obavljanja delatnosti:	12.11.2004
PIB:	103589502

Misija: „Tim electronic“ jeste stvaranje visokokvalitetnih proizvoda i pružanje adekvatnih usluga radi zadovoljenja tekućih i budućih potreba klijenata i potrošača.

Vizija: Stalno povećanje snage na tržištu kroz znanje koje će prepoznati i korisnici i konkurencija kao i ostala preduzeća iz prerađivačke industrije.

Strateške opcije preduzeća

Opšta orijentacija organizacije može se odnositi na izbor između sledećih strategija (Levi-Jakšić, 2008, str 119):

1. **Strategija rasta**, koja podrazumeva ekspanziju operacija preduzeća,

2. **Strategija stabilnosti**, što znači ne menjati aktuelne, tekuće aktivnosti preduzeća,
3. **Strategija opadanja**, koja iziskuje napore ka revitalizaciji ili povlačenju, što znači redukovanje aktivnosti preduzeća.

Preduzeće TIM electronic već duži niz godina ostvaruje poslovnu saradnju sa preduzećem Indas iz Novog Sada.

Indas d.o.o. je preduzeće koje se bavi automatizacionom, merno-regulacionom tehnikom i industrijskim inženjeringom. Bave se uvođenjem i/ili podizanjem nivoa automatizacije, od određenih delova proizvodnje, do povezivanja proizvodnje u kompletan sistem upravljanja sa mogućnošću vizuelizacije.⁴¹

Kako je Indas preduzeće sa razgranatim poslovima i iskustvom u vođenju kompleksnih i raznorodnih operacija, u mogućnosti je da iznajmi svoje menadžere koji treba da pomognu preduzeću Tim electronic za utvrđenu nadoknadu i za određeno vreme.

S obzirom na predhodno navedeno, može se zaključiti da sklapanje menadžment ugovora sa preduzećem Indas predstavlja eksternu mogućnost kojom Tim electronic želi da ostvari strategiju rasta i razvoja.

Opis MSP

Preduzeće „Tim electronic“ posluje već deset godina kako na domaćem tako i na inostranom tržištu, gde prodaju uglavnom svoj najpoznatiji proizvod - *dozator za vodu*, koji trenutno samo ovo preduzeće proizvodi u Srbiji i regionu. Preduzetnik konstantno unapređuje i proširuje asortiman tako što samostalno projektuje i izrađuje različite vrste proizvoda. Prvi u nizu projektovanih proizvoda je *led display*. Nakon toga najznačajniji je već pomenuti dozator za vodu, a radi se i na razvoju novih proizvoda koji će uskoro biti predstavljeni na tržištu.

Preduzeće nema evidenciju o tržišnom učešću, jedini podatak koji može biti prikazan a koji se tiče tržišnog učešća na teritoriji Srbije predstavljen je na slici 1. Mogu se uočiti udeli malih i srednjih preduzeća po delatnostima. Vidimo da prerađivačka industrija ima udeo od 15,9 %. U okviru ovih procenata posluje i preduzeće Tim electronic.



Slika 1. Udeli malih i srednjih preduzeća po delatnostima u Srbiji⁴²

4.2 SWOT ANALIZA RAZVOJA MSP

⁴¹ Dostupno na: <http://www.indas.rs/>

⁴² Dostupno na: <http://www.pks.rs/>

SWOT analiza služi za razumevanje trenutnog položaja firme i definisanje strategije koju treba primeniti da bi se postigao željeni ishod i ostvarili poslovni ciljevi. Pre nego što se započne sa radom, potrebno je definisati predmet SWOT analize. Nakon toga treba odrediti cilj koji se želi postići. I konačno, vremenski period tokom kojeg treba to ostvariti.

Preduzeće ima cilj da u narednom vremenskom periodu razradi strategiju rasta i razvoja kao i mogući ishod, tj. šanse i pretnje koje se tiču realizacije menadžment ugovora sa preduzećem, koje predstavlja eksternu mogućnost (način koji je preduzeće izabralo da ostvari svoju strategiju).

Tabela 3. SWOT analiza

<u>Snage</u>	<u>Slabosti</u>
<ul style="list-style-type: none"> ❖ Desetogodišnje iskustvo u radnim procesima ❖ Dobar ugled kod kupaca ❖ Sopstvena tehnologija ❖ Kvalitet proizvoda ❖ Dobra radna atmosfera ❖ Stručan kadar 	<ul style="list-style-type: none"> ❖ Nerazvijen IR ❖ Nedostatak iskustva u oblasti marketinga ❖ Nedostatak menadžera ❖ Neusklađenost/nepostojanje strategije ❖ Mali broj radnika ❖ Nedovoljno razvijeni kanali prodaje
<u>Šanse</u>	<u>Pretnje</u>
<ul style="list-style-type: none"> ❖ Širenje proizvodnog asortimana ❖ Razvijanje novih usluga ❖ Konkurencija se sporije razvija ❖ Razvoj poslovanja (putem menadžment ugovora sa kompanijom Indas) ❖ Izvoz u inostranstvo (u zemlje u kojima TIM elektronik još nije poslova) ❖ Mogućnost oglašavanja putem interneta 	<ul style="list-style-type: none"> ❖ Povećanje broja konkurenata ❖ Likvidnost kupaca (problem sa naplatom) ❖ Brz napredak tehnologije ❖ Spor rast tržišta ❖ Mala kupovna moć potencijalnih kupaca ❖ Ekonomska kriza u zemlji

4.3 TOWS ANALIZA - FORMULISANJE STRATEGIJA

Na osnovu SWOT analize definisani su interni i eksterni faktori koji utiču na preduzeće. Faktori (u vidu snaga, slabosti, pretnji i šansi) su rangirani prema značajnosti.

Tabela 4. TOWS analiza

<p style="text-align: center;"><u>Interni faktori</u></p> <p style="text-align: center;"><u>Eksterni faktori</u></p>	<p><u>Snage - S</u></p> <ol style="list-style-type: none"> 1. Stručan kadar 2. Kvalitet proizvoda 3. Sopstvena tehnologija 4. Desetogodišnje iskustvo u radnim procesima 5. Dobar ugled kod kupaca 6. Dobra radna atmosfera 	<p><u>Slabosti - W</u></p> <ol style="list-style-type: none"> 1. Neusklađenost/nepostojanje strategije 2. Nedostatak menadžera 3. Nerazvijen IR 4. Nedovoljno razvijeni kanali prodaje 5. Nedostatak iskustva u oblasti marketinga 6. Mali broj radnika
<p><u>Šanse - O</u></p> <ol style="list-style-type: none"> 1. Razvoj poslovanja (putem menadžment ugovora sa kompanijom Indas) 2. Širenje proizvodnog asortimana 3. Razvijanje novih usluga 4. Izvoz u inostranstvo (u zemlje u kojima TIM electronic još nije poslovaio) 5. Konkurencija se sporije razvija 6. Mogućnost oglašavanja putem interneta 	<p><u>SO</u></p> <ol style="list-style-type: none"> 1. Oslanjajući se na stručan kadar, sopstvenu tehnologiju preduzeće može da iskoristi mogućnosti širenja proizvodnog i uslužnog asortimana. 2. Na osnovu dugogodišnjeg iskustva i dobrog ugleda kod domaćih kupaca, preduzeće može lansirati svoj asortiman i na strano tržište. Tome može doprineti oglašavanje putem interneta. 	<p><u>WO</u></p> <ol style="list-style-type: none"> 1. Nedostatak menadžera i neusklađenost/nepostojanje strategije mogu se nadomestiti sklapanjem menadžment ugovora sa kompanijom Indas. 2. Izvozom proizvoda i usluga u inostranstvo, preduzeće bi bilo u mogućnosti da razvije kanale prodaje i iskoristi mogućnost da zaposli više radnika. 3. Oglašavanjem putem interneta preduzeće može da prikrije nedostatak iskustva u oblasti marketinga.

Pretnje - T	ST	WT
<ol style="list-style-type: none"> 1. Brz napredak tehnologije 2. Spor rast tržišta 3. Povećanje broja konkurenata 4. Likvidnost kupaca (problem sa naplatom) 5. Ekonomska kriza u zemlji 6. Mala kupovna moć potencijalnih kupaca 	<ol style="list-style-type: none"> 1. Stručanim kadrom i kvalitetnim proizvodima se preduzeće može boriti sa stalnim povećanjem broja konkurenata na tržištu. 2. Dobar ugled koji preduzeće ima kod kupaca može savladati pretnje koje se tiču problema sa naplatom robe i usluga, jer se zadovoljan kupac uvek vraća, i razvijaju se kvalitetni odnosi prodavac-kupac. 3. Brz napredak tehnologije uslovljava preduzeće da konstantno razvija sopstvenu tehnologiju i prati tržište tehnologije. 	<ol style="list-style-type: none"> 1. Ulaganje u marketing aktivnosti. 2. Ulaganjem u istraživačko-razvojne aktivnosti preduzeće može da savlada brz napredak tehnologije. 3. Zaposlenjem međžerskog kadra, preduzeće će biti u potpunosti spremno na tržišna iskušenja, a samim tim lako će se izboriti sa povećanjem broja konkurenata.

4.4 PREDVIĐANJE RAZVOJA OKRUŽENJA - DELFI METODA

U preduzeću Tim electronic izvršeno je 2015. godine predviđanje Delfi metodom u kome je učestvovalo 7 eksperata. Od njih se tražilo da daju odgovore na prethodno postavljena pitanja, koja se tiču daljeg poslovanja preduzeća. Preduzeće Tim electronic je malo preduzeće, koje trenutno zapošljava samo tri radnika. Iako, malo preduzeće jako dobro posluje za svoje mogućnosti. Među zaposlenima nema stručnog menadžerskog znanja, niti znanja koja se tiču organizovanja, pa je preduzeće rešilo da razvije svoju buduću strategiju sklapanjem ugovora sa većim preduzećem Indas, sa kojim dugi niz godina posluje. Preduzeće se odlučilo za **sklapanje menadžment ugovora**, kojim će obučeni, obrazovani, iskusni menadžeri prethodno navedenog preduzeća pomoći Tim electronicu da upravlja i razvije svoje poslovanje. Pitanja koja su obrađivana primenom Delfi metode:

1. Kada se može očekivati sklapanje menadžment ugovora sa preduzećem „Indas“?
2. Za koliko godina se mogu uočiti očigledne promene (poboljšanja) u upravljanju preduzećem, koje će nastati na osnovu realizacije ugovora o menadžmentu, ako se ugovor zaključi 2015. godine?

Dobijeni rezultati su, na osnovu odgovora stručnjaka na prvo pitanje, pokazali da se sklapanje menadžment ugovora može očekivati za 2,43 godina, odnosno početkom drugog

kvartala 2018. godine. Prilikom statističke analize odgovora stručnjaka na drugo postavljeno pitanje, dobijena je srednja vrednost 3,16. Može se zaključiti da se promene u upravljanju preduzećem, ukoliko menadžment ugovor bude sklopljen tekuće godine, mogu očekivati za 3,16. godina, odnosno početkom 2019. godine.

4.5 FAKTORI (INDIKATORI) KOJI ĆE SE OCENJIVATI U MATRICI CILJEVA

Preduzeće TIM electronic, kako bi ostalo konkurentno na tržištu treba da u svom poslovanju praktikuje konstantna poboljšanja svojih poslovnih procesa. Matrica ciljeva predstavlja metod za ocenu produktivnosti u preduzeću. Ona meri promene u produktivnosti nakon što je uvedena nova tehnologija. Postoje faktori koji se mogu izdvojiti, a koji značajno utiču na produktivnost poslovanja preduzeća.

Posmatrani faktori imali su sledeće vrednosti: 8% škarta uz korišćenje 72% kapaciteta mašina. Materijalni troškovi proizvodnje iznose 200 000 dinara, dok je jedinična cena iznosila 13 000 dinara. Kašnjenja u primeni posmatrane tehnologije bila su 88 dana. Mesečni prihod od prodaje dozatora za vodu su iznosili 325 000 dinara.

Eksperti su ocenjivali značajnost svakog faktora u odnosu na ostale, pa su kao najznačajnije ocenili faktore: materijalni troškovi proizvodnje i korišćenje kapaciteta, kojima su dodelili koeficijente i to 25 za svaki. Preostala četiri faktora ocenili su kao manje značajne i oni su imali težine po 12,5.

Tabela 5. Matrica ciljeva za ocenu efikasnosti nove tehnologije preduzeća TIM electronic

	JC	ŠK	KK	KUP	MPP	MTP
Jedinice	(u din)	(%)	(%)	(dani)	(u 000 din)	(u 000 din)
S.V.	13000	8	72	88	325	200
10	11965	3	92	59	210	185
9	12230	5	89	65	243	190
8	12436	7	85	67	256	195
7	12790	9	82	71	280	205
6	13655	11	78	75	298	215
5	14321	13	74	76	315	266
4	14690	15	72	80	346	325
3	15141	17	69	88	360	330
2	15350	19	67	91	396	359
1	16000	21	63	92	398	449
0	16150	25	59	96	402	516
Ocena	6	7,5	4	3	5	7,5
Težinski faktori	12,5	12,5	25	12,5	12,5	25
Težinske vrednosti	75	93,75	75	37,5	62,5	187,5
Ukupna vrednost	531,25					

Dobijena vrednost matrice ciljeva u preduzeću je 531,25, što pokazuje da je preduzeće u posmatranom periodu ostvarilo dobre rezultate u poslovanju, budući da je reporna vrednost matrice 300. Može se primetiti da je ocena indikatora „kašnjenje u primeni“ 3, a ocena faktora „korišćenje kapaciteta“ 4. U navedenim faktorima pružaju se najveće mogućnosti za povećanje ukupne vrednosti matrice ciljeva.

4.6 ZAKLJUČAK I PREPORUKE

Menadžment i uspešnost malih i srednjih preduzeća zavisiće od spremnosti da se suoče sa globalizacijom tržišta kao i velikim globalnim ekonomskim izazovima i dostignućima koja su obeležila kraj prošlog i početak ovoga veka.

Preduzeće Tim electronic posluje dugi niz godina i predstavlja preduzeće koje konstantno uvodi neke inovacije i time obezbeđuje svoj opstanak na promenljivom tržištu. Preduzeće je preduzetničkog karaktera, sa malim brojem zaposlenih. Uprkos svojoj veličini i nedostatku menadžersko obrazovanih kadrova, preduzeće ima dugu istoriju poslovanja, odoleva pritiscima tržišta. Međutim, kao i u svakom preduzeću i u Tim electronicu postoji prostora za nova poboljšanja. Kroz ovaj rad predložen je jedan od načina koji bi doprineo boljem poslovanju spomenutog preduzeća. Sklapanje menadžmet ugovora je jedan od boljih načina da se proširi poslovanje kako na našem tako i na inostranom tržištu. Preduzeće bi, na osnovu novih znanja iz oblasti upravljanja, bilo u mogućnosti da uredi svoje proizvode i poslovne procese, čime bi učvrstilo svoju poziciju na tržištu i bilo spremno za nove poslovne izazove u budućnosti.

Svetska privreda u kojoj su promene i preduzeća nagrađeni, doživeće bogatstvo novih roba i usluga, što će podići životni standard svih građana.

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LATENT STRUCTURE OF THE DESTINATION COMPETITIVENESS OF STRUGA REGION (R.MACEDONIA) EVALUATED BY THE SPORT TOURISTS FROM DIVERSE NATIONALITY

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Abstract: The heterogeneity of tourism needs imposed broad multi-disciplinary creation of tourism products. Keeping the pace with the heightened global tourism competitiveness involves activation of a series of measures that the existing resource potential of the destination efficiently and effectively managed. The model of destination competitiveness Crouch & Ritchie covers a wide range of segmented variables into factors and is widely dispersive.

A Crouch & Ritchie questionnaire, with 8 independent and 15 dependent variables assessed with Likert scale of 1 to 5 was adapted and applied on 150 respondents - tourists with different nationalities, users of sports - recreational services. Respondents are divided and analyzed as two research samples, domestic and international tourists. With application of factor analysis, latent structure of destination competitiveness is determined, which in varimax transformation of the orthogonal projections of significant principal components, two factors were isolated in each of the samples defined the same as a **factor of destination marketing and management** and a **factor of accommodation – hospitality services**. Differences that are shown in variables included in factor definition, indicates that tourism policy based and created on destination competitiveness should be individualized and segmented. Highest factorial validity to the first factor in domestic tourist sample showed variable historical and cultural heritage and to the second factor the variable gastronomic offer. In the research sample of international tourist highest factorial validity to the first factor showed variable promotion of the destination and to the second variable the ratio cost and value. Findings should be used by the tourism policy makers in order to understand the differences of tourism needs and their validity for creation to the new products offered among this global vigorous concurrency.

Keywords: destination competitiveness, factor structure, Crouch & Ritchie model, Republic of Macedonia.

1. INTRODUCTION

The heterogeneity of the tourism needs arising from the dynamics of the changes in everyday life impose a wide multidisciplinary creation of tourism products. The modern tourist influenced by the intensive technological development has the information at hand, so it becomes highly selective in choosing a tourism destination. Therefore, maintaining the pace with the heightened global tourism competitiveness means activating a series of measures that the existing resources potential of the destination are efficiently and effectively managed (Pantekovska, 2015). Thus it's clear that the destination with rich resources is less

competitive destination than destination with fewer resource's that's better managed (Kosic, 2011).

Destination competitiveness is defined as the ability of the destination to offer goods and services that are rated as superior to other goods and services of the other destinations in the eye of the tourist and its tourism experience (Heath, 2003). It includes a combination of conditions (inherited, acquired or created) and processes that aim to transform the preconditions giving value and distribution of the value of supply to demand achieving economic gain (Crouch, 2000).

In the process of decision making tourists use destination attributes that define competitiveness as determining factor of the trip, characterizing them as attractive and they "reflect the feelings and opinions of visitors that the destination has the ability to meet their needs" (Vengesayi, 2003). Competitive advantages of the destinations are accomplished through two basic levels, pricing and qualitative (Prijavec, B, Kesar, O, 2002). Price level implies a borderline profitability aimed to intensify the tourist turnover, while qualitative level includes the speed of innovations where the elements of the offers are redefined and enriched, bringing the destination to a qualitatively higher level of tourists satisfaction (Gracan, Lugaric-Rudancic, 2013).

Different models of destination competitiveness have their advantages and disadvantages, mainly towards the applicability of the model to various destinations, availability of valid data by criteria, ranking by the degree of importance of the competitiveness and comparability of destination to another and not by "other" (Chakareska, 2012 cited Taberner – Garau, 2007).

Numerous factors can affect the analysis of the destination competitiveness as a form of tourism, the quality of the tourist operator, differences in seasonal and climatic conditions in the form of objective factors and expectations, motivation, and past experience with the destination in the form of subjective factors (Vanhove, 2006). Should critically re-examine the factors which define the various models because of the need for change. It should also determine whether any special (existing or alternative) factors are "deserving" credit for the new tourist countries (Zecevic, 2011).

Integrative model of Crouch and Ritchie is a product of their eight year research work done primarily on destinations in North America and Europe, but also to destinations in other parts of the world (Ritchie & Crouch, 2010). The model is consisted of **five factors**, each with a certain number of variables that define the factor itself and are a result of the global forces which come from macro environment, and also the influence of the competitive micro environment. These are: core resources nad attractions, qualifying and amplifying determinants, destination planing and development, destinations management, supporting factors. The central point of the model are the main resources and attractions that have power to attract tourists, but in a way to deliver a quality of service that includes supportive factors and resources. Competitiveness is implemented with a clear strategic framework that defines the policy, planning and development of the destination, while the destinations management represents the ability of the fore mentioned strategy to be applied.

Qualifying and expansion determinants are shaping the competitiveness overall, placing certain restrictions on upgrading of the competitiveness or creating a base for further intensification of the competitiveness (Zecevic, 2011).

The applicability of this model as whole is aimed at those who create tourism policy, from managers of accommodation facilities, and to the competent administrative bodies for

activities at local and national level. It provides qualitative review, but does not give an official comparative ratio rank multiple destinations. Such a review should serve for projection of further planning and policy development.

Republic of Macedonia in the past years has seen changes in terms for reviving of the tourism industry through a set of measures, strategic or applicative. All of which results in increase in the tourism turnover in both domestic and international (State institute of statistics, 2016). Regardless of the political developments, both internal and external, like no other factor tend to sway the tourism industry statistical data does not show concern for the stability of the tourism industry and its turnover in the country.

Such significance is intensified furthermore after series of massive terrorism acts upon until now stable European countries and the strong weave of refugees on which rout is Republic of Macedonia.

Struga's region throughout the history of the Macedonian tourism is defined as one of the leading tourist destination located on the shores of Lake Ohrid. This identity begins to feels the effects of the crisis and its sticking faithfully to its traditional and conventional tourist offers that modern tourists does not recognize. On the other hand, the evaluation of sport-tourism favors the exceptional potential that readapts to the competitive travel trends, with special emphasis on the necessity of inter-sectorial cooperation in sports and tourist activities (Chakareska, 2012).

In the fight to overcome the seasonal demand, the offers more intensely include activities (sports – recreation) that have their value during off peak seasonal months of June, July and August.

Destination competitiveness in general as the abovementioned model of Crouch and Ritchie serves as an idea in this paper and it's placed on assessment by the tourists (domestic and international). Extracted were the variables that tourists face and perceive as experience in their stay in Struga's region, and thereby the model was reduced quantitatively. Earlier findings indicate a complex structure during which two factors were isolated, imposing security, pricing and gastronomic offer like most valid factorial variables of destination's competitiveness for total demand in general (Pantekovska, 2016). Generating the details in this paper by ethnicity and its demands will crystallize the dilemma in the approach in creating a global destination policy or its segmentation on several bases including segmentation in tourism policy types derived from inbound tourist markets.

2. RESEARCH METHODOLOGY

In this reduced model of Crouch and Ritchie that's consisted of 15 variables that tourists are able to experience as experience in their stay in Struga (Republic of Macedonia), and is assessed by 150 tourists with different nationality.

By using Likert's scale from 1 to 5 each variable was evaluated separately starting from absolute level of dissatisfaction (1) to the level of absolute satisfaction (5). Among other things, each examinee is user of sport-recreational services and as such belongs to sport tourists group included in sports tourism classified as sport-recreational tourism.

The ratio of domestic and international tourists is 40% to 60% and are analyzed as **two separate research samples**. Countries of origins of international tourists are Serbia, Romania, Slovenia, Bosnia and Hercegovina, Bulgaria, Kyrgyzstan, Croatia and Republic of

Srpska. **The goal of the research** is to determine the latent structure of the applied system of variables on both research samples and with that to determine their validity factor in the research sample. In order to determine such established order the **following tasks** are been carried out:

- to determine the homogeneity of the applied system of variables for evaluation the competitiveness of the destination in each particular research sample;
- to determine the degree of inter correlation of the applied system of variables in them and
- to determine its latent structure.

Based on the above defined subject, purpose and assignments the **following hypotheses defined as expected are extracted:**

X1: There is a high degree of variability in the examined variables counting on the experience that comes from the different national characteristics of the tourists;

X2: There is a statistically significant degree of correlation between those variables that define common subspace of competitiveness and pre-designed in the model;

X3: Expected complex structure of the examined system variables for evaluation of the destination competitiveness by extraction of two or more factors, and it will show the different structure of the research samples and the different factorial validity of the variables.

For the processing of the data the following statistical methods are used: basic measures of central tendency and dispersion, testing normality of distribution, inter correlation and factorial structure.

3. RESULTS AND DISCUSSION

With inspection of the **table 1** which displays the basic descriptive statistical parameters of the variables of the destination competitiveness of the domestic tourists there's a noticeable difference in the variability in the results of the individual indicators and their different distribution. The differences arising from one to another measure of central tendency and dispersion indicates among other things their different sensitivity. The analysis of the standard deviation (Sd) indicates exceptional concentration around the mean at the results of almost all variables, which associates of similar experiences of the tourists to each variable.

Contradictory situation occurs following the coefficient of variability (KV%), where the criteria in smaller or greater than 30% in the group with heterogeneity occurs in 5 variables as follows:

Sports events (SPEVEN), extraordinary events and developments (EXTREVEN), sports facilities (SPFAC), image of destination (IMDEST), promotion of destination (PDEST), and being guided by the value of the arithmetic environment as the quality level of satisfaction we can detect them as most problematic. But such a difficulty is not registered as dissatisfaction, but rather as less satisfied when compared to the others. On the other hand, tourists show the highest satisfaction at the variables climate – geographical features (CGF), hospitality (HOSP), and gastronomic offer (GOFF) and in terms of price with quality of service (PRSQUAL) with exceptional homogeneity by group.

Measurements at the skewness (Sk +/-1) confirms the previous mention, that most variables are normally distributed or moderately asymmetrical. Asymmetry with negative sign

are the variables CGF, HOSP and GOFF, which means that the most of the results on the stated variables are in range of above-average results that tourists show a high level of satisfaction with the stated results. These findings are confirmed also by the indicators kurtosis (Kurt). Distribution as a factor in the further multiple variations analysis shows normal distribution in the majority of the variables (K-S).

Table 1. Main descriptive parameters of variables for assessment of competitiveness of the destinations among domestic tourists.

Variables	X	Min	Max	KV%	Sd	Sk	Kurt	K-S	p
CGF	4.93	4.00	5.00	5.42	0.27	-3.74	14.00	0.1	p>.20
HCH	4.21	1.00	5.00	29.69	1.25	-1.84	2.84	0.15	p<.10
SPEVEN	3.71	1.00	5.00	35.70	1.33	-0.54	-0.65	0.22	p<.10
EXTREVEN	3.57	1.00	5.00	35.95	1.28	-1.07	0.68	0.13	p<.10
SPFAC	3.71	1.00	5.00	34.10	1.27	-0.70	-0.15	0.15	p<.10
ACCOM	4.64	4.00	5.00	10.71	0.50	-0.67	-1.84	0.09	p>.20
TRAVAIL	4.50	3.00	5.00	14.45	0.65	-0.98	0.18	0.2	p<.10
INFAVAIL	4.14	2.00	5.00	20.87	0.86	-1.14	1.75	0.18	p<.10
SECDEST	4.50	3.00	5.00	19.00	0.85	-1.29	-0.20	0.14	p<.10
IMDEST	4.07	1.00	5.00	29.64	1.21	-1.69	2.62	0.24	p<.05
PRCQUAL	4.71	4.00	5.00	9.94	0.47	-1.07	-1.03	0.35	p<.05
HUMRES	4.57	3.00	5.00	14.14	0.65	-1.30	0.95	0.18	p<.05
PDEST	4.07	1.00	5.00	28.03	1.14	-1.61	3.09	0.08	p>.20
GOFF	4.71	4.00	5.00	9.94	0.47	-2.07	-1.03	0.1	p>.20
HOSP	4.93	4.00	5.00	5.42	0.27	-3.74	14.00	0.14	p>.20

Table 2. Main descriptive parameters of the variables for assessment of destinations competitiveness among international tourists.

Variables	X	Min	Max	KV%	Sd	Sk	Kurt	K-S	p
CGF	4.51	2.00	5.00	18.9	0.85	-1.55	1.22	0.1	p>.20
HCH	4.20	1.00	5.00	23.67	0.99	-1.38	1.95	0.15	p<.10
SPEVEN	3.51	1.00	5.00	39.87	1.40	-0.61	-0.82	0.28	p>.20
EXTREVEN	3.17	1.00	5.00	42.91	1.36	-0.25	-1.00	0.23	p<.10
SPFAC	3.26	1.00	5.00	44.89	1.46	-0.18	-1.41	0.13	p<.10
ACCOM	4.46	2.00	5.00	18.33	0.82	-1.40	1.19	0.08	p>.20
TRAVAIL	4.06	2.00	5.00	26.02	1.06	-0.60	-1.07	0.19	p<.05
INFAVAIL	4.00	2.00	5.00	26.43	1.06	-0.48	-1.21	0.16	p<.10
SECDEST	4.09	1.00	5.00	28.08	1.15	-1.29	1.18	0.17	p<.10
IMDEST	3.91	1.00	5.00	30.59	1.20	-0.81	-0.08	0.34	p<.01
PRCQUAL	4.29	2.00	5.00	20.85	0.89	-0.88	-0.45	0.25	p<.01
HUMRES	4.49	3.00	5.00	16.55	0.74	-1.09	-0.24	0.18	p<.05
PDEST	3.57	1.00	5.00	46.20	1.65	-0.68	-1.25	0.1	p>.20
GOFF	4.63	2.00	5.00	17.45	0.81	-2.04	3.05	0.08	p>.20
HOSP	4.71	3.00	5.00	12.14	0.57	-1.93	2.93	0.12	p>.20

Findings are conclusive with regards to the descriptive statistical parameters of international tourists (**table 2**) and it shows that they are not very different from the findings interpreted with domestic tourists in the Republic of Macedonia. The heterogeneity in the values of the coefficient of variability (KV %) was recorded for the same variables SPEVEN, EXTREVEN SPFAC, IMDEST and PDEST. The mean of the stated variables in fact suggests that international tourists not did they only differ in their experience listed in the variables, but also were more stringent in assessing to the extent of 0.5 when compared with domestic tourists.

This is due to the dipper analysis which show that international tourists come in line with above average monthly income for the country of origin and have more experience with traveling. Therefore their criteria is sharpened and the requirements are in line with their experiences and they are also higher. However, the greatest pleasure that moves towards absolute variables was registered in hospitality (HOSP) with value of 4.71, gastronomic offer (GOFF) with 4.63 and climate – geographical features (CGF) with a value of 4.51. Asymmetries in the area of above-average results in this case are recorded in variable gastronomic offer (GPON) with -2.04. This characteristic is specific to and a quality of Macedonian tourism, but for destination loyalty it takes more than that. The distribution of the majority of variables in this research sample allows further multivariate statistical analysis. **This confirms the first hypothesis.**

Due to the extensiveness of the tables of inter correlation with the second hypothesis and the limited space for presentation of the research paper it will not be displayed, but there is a need to express the knowledge of it that there are statistically significant links to the variables on the destinations competitiveness that define the same environments of competitiveness such as sporting facilities sport facilities (SPFAC) and sport events (SPEVEN), promotion of destination (PDEST) and image of destination (IDEST) and also security at the destination (SECDEST) with the ratio of price and services (PRCQUAL). With that **the second hypothesis is confirmed.**

Table 3. Factorial analysis of the variables for assessing the destinations competitiveness for domestic tourists

Variables	FACMAT		VARIMAX		
	F1	F2	F1	F2	H ²
CGF	0.22	0.23	0.13	-0.28	0.69
HCH	0.86	-0.15	0.86	-0.13	0.92
SPEVEN	0.84	-0.21	0.86	-0.07	0.90
EXTREVEN	0.90	-0.19	0.91	-0.10	0.91
SPFAC	0.82	-0.16	0.83	-0.10	0.85
ACCOM	-0.21	-0.82	0.06	0.85	0.89
TRAVAIL	-0.30	-0.57	-0.11	0.63	0.82
INFAVAIL	0.19	0.02	0.18	-0.08	0.70
SECDEST	0.90	-0.15	0.90	-0.14	0.91
IMDEST	0.70	-0.47	0.81	0.22	0.86
PRCQUAL	-0.24	-0.77	0.01	0.80	0.88
HUMRES	-0.34	-0.77	-0.08	0.83	0.86
PDEST	0.73	-0.29	0.78	0.05	0.81
GOFF	-0.47	-0.78	-0.20	0.89	0.91
HOSP	-0.17	-0.43	-0.02	0.46	0.61
LAMBDA(λ)	5.38	3.47	CUM (λ)	8.85	
TARG%	35.85	23.15	CUM(%)	59	

From the review of Table 3, on which according to Hotelling method shows the factorial matrix of the variables for destination competitiveness (FACMAT), communalities (h^2), significant characteristics origins (LAMBADA), the percentage of explained variance (TARG%) and orthogonal rotation (VARIMAX) it can be noted that the applied system of variables has formed two significant main components which explain the percentage of the total variance with 59%. The greatest partial participation has the first major component, which is explained from the total variability at 35.85.

On the tabular display of the non-rotated factorial matrix (FACMAT) it can be noted that the first main component is formed by the variables of destination image (IMDEST), promotion of the destination (PDEST), sports facilities (SPFAC), sporting events (SPEVEN), extraordinary events (EXTREVEN) and security of the destination (SECDEST) with saturations from .70 to .90. Based on the above it can be defined as **factor of destinations management and marketing**. In structuring of the second factor variables that participate are: the ratio of price and service (PRCQUAL) accommodation facilities (ACCOM), human resources (HUMRES), gastronomic offer (GOFF), so this factor can be defined as **factor of accommodation – hospitality services**.

Towards satisfying the principle of parsimony, with additional rotation of orthogonal projection of the matrix (VARIMAX) it's obtained considerably cleaner structure of analyzed area that again is isolating the two latent dimensions which according to the variables and its saturations are defined in the same way.

The thing that differentiates is a slightly larger volume of saturation to the variables which factor they define. Greatest factorial validity towards the first factor shows the variable of **historic-cultural heritage (HCH)**, whereas on the second is **gastronomic offer (GOFF)**(h^2).

Table 4. Factorial analysis of variables for evaluation of the destination competitiveness among international tourists.

Variables	FACMAT		VARIMAX		H ²
	F1	F2	F1	F2	
CGF	-0.20	0.58	0.45	0.61	0.45
HCH	-0.35	-0.25	0.59	-0.04	0.59
SPEVEN	-0.65	-0.13	0.62	0.22	0.62
EXTREVEN	-0.68	-0.55	0.75	-0.14	0.75
SPFAC	-0.83	-0.23	0.81	0.22	0.81
ACCOM	-0.51	0.63	0.64	0.80	0.64
TRAVAIL	-0.65	-0.16	0.67	0.19	0.67
INFAVAIL	-0.83	-0.24	0.87	0.21	0.87
SECDEST	-0.77	0.11	0.84	0.48	0.84
IMDEST	-0.76	-0.33	0.85	0.10	0.85
PRCQUAL	-0.61	0.54	0.70	0.77	0.70
HUMRES	-0.47	0.46	0.63	0.63	0.63
PDEST	-0.86	-0.37	0.89	0.11	0.89
GOFF	-0.42	0.58	0.66	0.71	0.66
HOSP	-0.51	0.60	0.68	0.78	0.68
LAMBDA(λ)	6.02	2.72	CUM (λ)	8.74	
TARG%	40.15	18.14	CUM(%)	58.29	

The tabular 4 which depicts the factorial structure of destinations competitiveness assessed by international tourists, it's clear that the applied system of variables formed two significant main components with same participation of the first component which explains the variability with 40.15% from the total 58.29%. From non-rotated factorial matrix (FACMAT) it can be read that the first major component is formed by all variables with significant saturation of .42 to .86 and from which can be defined as **general factor of the destinations competitiveness**. The additional orthogonal projection of the matrix (VARIMAX) provides significantly cleaner structure of the analyzed environment again isolating two latent dimensions.

The following variables retained significant saturation of .75 to .89 to the first factor: extraordinary events (EXTREVEN), sports facilities (SPFAC) the image of the destination (IMDEST), security of the destination (SECDEST), promotion of the destination (PDEST) and the accessibility of information for the destination (INFAVAIL).

Given that with the exception of the variable INFAVAIL, the remaining variables are the ones that take part in defining the factor at the latent structure of destination competitiveness among domestic tourists and it will be defined in the same way as a **factor of destinations marketing and management**. The emergence of additional variable points to different approach in the reception of the experience given that the tourism product is "the complete experience of the tourists from time of departure to the time of return" (TPRG, 2003), which means that for the international tourists it's of great importance the accessibility of the destination in every way.

Variables that participate in structuring of the second factor are: gastronomic offer (GOFF), ratio of price and service (PRCQUAL), accommodation facilities (ACCOM) and hospitality (HOSP), and it may be defined again in the same way as a **factor of accommodation – hospitality services**.

The absence of the variable human resources among the international tourists (namely in defining as statistically valid variables that participate in saturations greater than .70), speaks for the higher standards of this type of tourists with regards to the quality of human resources engaged in tourism. This should especially be considered in terms of education, formal and informal, of resources used, as well as the material and immaterial satisfaction thereof. The analyses of the labor market in the tourism in Republic of Macedonia suggests that the monthly financial income for the human resources engaged in tourism is below the country's average (State Statistical Office, MAKStat – database 2016M01). Variables **promoting the destination to the first factor** showed greatest validity, i.e. **the ratio of the price and service to the second factor**(H^2), which correlates with the previous scientific findings related to promotional activities (Coltman, 1989), or the importance of the pricing and value of services (Dweyer, Forsyth, Rao, 2002). **The above findings partly confirm the third hypothesis.**

4. CONCLUSION

Destination competitiveness is a subject to a global survey. The existing models for its assessment facilitate theoretical and practical handling of tourism as business activity and it helps in reviewing the existing and creation of new tourism policies for the destination and provides economics and other sustainability. Presented findings from the analysis of the applied questionnaire to tourists that have assessed the destination show satisfaction in the experience acquired with different sensitivity by variable. The structure of the competitiveness is complex, and two factors are isolated on both samples variables, but the participation of some variables in defining which are not detected at the others indicate the need for creation of segmented destination policy. Tourism experience of international tourists is based primarily on larger funds and indicated different factor validity of the variables in the defined factor.

Therefore the approach to the creation of the tourism product and its placement on international markets primarily to the ones that belong to the sample of respondents must be taken into account the findings derived from the analysis. If gastronomic offer and the historical and cultural offer are crucial in defining destinations competitiveness among domestic tourists then promotional activities and the proportion of the values of the service to price are key among international tourists. Despite the intention of the Macedonian tourism towards getting back the international tourist there's absolute need for the value of destinations competitiveness to thrive for domestic tourists also. Therefore, the approach of policy-making is necessary to satisfy the principles of individuation, orientation and segmentation of the markets.

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THE SYSTEM OF HIGHER EDUCATION IN SERBIA 2005-2015

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Abstract: The main idea of this paper is reflected in consideration the changes and challenges that Higher Education (HE) System in Serbia has been already faced for ten years. Like the other social processes the process of HE isn't subject of a strict rules, and therefore during the implementation of a new model some difficulties and deviations appeared to the proposed one. These difficulties and deviations mostly stem from the specificities of Serbian society, and the influence of the former HE system on legislators, creators of the system, academic staff, as well as the students themselves who were mid-studies when the new system began to be implemented.

The main objective of this paper is comparative analysis of projected and actual innovations, practical occurrences and results obtained after the new system of HE came into place. Also, it will be examined future challenges that area of HE will be faced. Taking into account the fact that the new system of HE has been around for ten years, and several generations of students have already acquired academic and professional titles, so it is possible to analyze the performance and consequences of implemented changes.

Keywords: changes and challenges in higher education, improving of higher education, future challenges

Apstrakt: Polazna ideja ovog rada vezuje se za sagledavanje promena i izazova sa kojima se već deset godina suočava sistem visokog obrazovanja u Srbiji. Kao i svi društveni procesi, tako i proces visokog obrazovanja ne podleže čvrstim zakonima, te su se prilikom praktičnog sprovođenja javile određene teškoće i odstupanja u odnosu na zamišljeni model. One se pre svega ogledaju u specifičnostima našeg društva i uticaju nekadašnjeg sistema obrazovanja na zakonodavce, kreatora sistema, nastavni kadar i studente koje je primena novog sistema zatekla u toku studiranja.

Osnovni cilj rada jeste komparativna analiza projektovanih inovacija i stvarnih, praktičnih zbivanja i rezultata nakon uvođenja novog sistema visokog obrazovanja i razmatranje daljih izazova sa kojima se visoko obrazovanje u Srbiji suočava. S obzirom na to da se "novi" sistem primenjuje već deset godina nekoliko generacija studenata je steklo akademska i stručna zvanja, pa je moguće analizirati učinak i posledice sprovedenih promena.

Ključne reči: promene i izazovi u sistemu visokog obrazovanja, unapređenje visokog obrazovanja, budući izazovi

1. UVOD

Početak uspostavljanja jedinstvenog evropskog prostora visokog obrazovanja predstavlja potpisivanje Bolonjske deklaracije 19. juna 1999. godine. Pokretanje bolonjskog

procesa zahtevalo je korenite reforme nacionalnih obrazovnih sistema. Osnovna zamisao bila je da se poboljša mobilnost i zapošljavanje građana. U uslovima globalizovane ekonomije u kojoj znanje ima sve značajniju ulogu, ojačava se kompetitivnost i privlačnost evropskog visokog obrazovanja na globalnom tržištu znanja, uz stalnu brigu o kvalitetu (12). Najvažniji cilj, koji je postavljen pred potpisnice, ali i sve države koje su se kasnije priključile, bio je uspostavljanje jedinstvenog evropskog sistema visokog obrazovanja do 2010. godine. To je ozvaničeno na ministarskoj konferenciji u Beču i Budimpešti iste godine. Međutim, Evropski prostor visokog obrazovanja nije jedinstven sistem, već se sastoji od principa na kojima zemlje potpisnice zasnivaju svoje obrazovanje (14).

U drugoj fazi, posle 2010. godine, kao prioriteti postavljeni su razvoj socijalne dimenzije obrazovanja, razvoj procesa celoživotnog učenja, zapošljavanje i mobilnost, veća okrenutost studentima i jačanje aktivnosti istraživanja i razvoja (1).

Svrha bolonjskog procesa bila je da se kroz razvoj obrazovanja u Evropi osigura razvoj privrede i celokupnog društva, kroz dugoročno ulaganje i širenje baze, odnosno stručnjaka i kvalifikovane radne snage (12). Pored toga, stvaranje jedinstvenog sistema visokog obrazovanja na nivou starog kontinenta trebalo bi da vodi produbljivanju saradnje, ne samo u oblasti visokog obrazovanja, već i u drugim oblastima.

Kao većina reformi, i reforma visokog obrazovanja predstavlja veoma složen posao, koji zahteva angažovanje i kontinuiran rad u više oblasti. Primena Bolonjskih principa i na njima zasnovanih reformi nije bila ujednačena i ravnomerna, pa rezultati i posledice nisu iste u svim zemljama Evrope.

U tom smislu, ovaj rad daje pregled promena koje su se desile u sistemu visokog obrazovanja Srbije posle pristupanja bolonjskom procesu.

2. VISOKO OBRAZOVANJE U SRBIJI PRE UVOĐENJA PROMENA

Veliki problem za visokoškolske ustanove u Srbiji predstavljala je izolovanost od evropske i svetske akademske zajednice, koja je nastala kao posledica tadašnjih nepovoljnih političkih zbivanja. Posle promena 2000. godine otvorio se prostor za približavanje i usklađivanje sa evropskim tokovima. Srpski sistem visokog obrazovanja suočio sa izazovima prilagođavanja novim procesima izgradnje evropskog prostora visokog obrazovanja.

Prema nacionalnom izveštaju iz 2003. godine, priroda i pravni položaj visokoškolskih ustanova u Srbiji bili su problematični. Visokoškolske ustanove je osnivala Vlada, a odluka o tome bila je više posledica političke volje nego akademskih kriterijuma i procene potreba tržišta rada. Univerzitet je predstavljao labav skup visokoautonomnih fakulteta, što je dovelo do množenja i dupliranja troškova, rasipanja resursa i visokog nivoa neefikasnosti. Više škole su bile samostalne pod direktnim nadzorom resornog ministarstva. Zakon o univerzitetu nije u dovoljnoj meri prepoznavao značaj autonomije univerziteta, koja je jedna od osnovnih postavki Bolonjske deklaracije. Sve važnije odluke donosila je Vlada preko resornog ministarstva, uz zanemarljivo učešće stručnjaka i akademske javnosti, u čemu se ogledala dominacija države nad univerzitetom. U tome je, svakako, ležao uzrok negativnih efekata (4).

Nedostataka je bilo i kod upravljanja visokoškolskim ustanovama, s obzirom na to da je postojala kombinacija centralizovanog i decentralizovanog upravljanja. Sve važne odluke donošene su na državnom nivou, pripremljene od strane ministarstva i odobrene od strane Vlade. Država je svela svoju funkciju na "skromnog nadzornika", postavljanjem članova u

upravnim odborima (4). U takvim okolnostima do izražaja je došla uloga nastavno – naučnog veća, tela koje je nadgledalo sve aktivnosti ustanove, odnosno univerziteta.

Visoko obrazovanje finansiralo se iz dve vrste izvora, javnih fondova, tj državnog budžeta i sopstvenih sredstava ustanova. Pojedine ustanove imale su sopstvene kriterijume raspodele budžetskih sredstava, ali i svoju politiku zapošljavanja, pa su neke od njih imale manjak, a druge višak zaposlenih. Iznosi opredeljenih sredstava nisu bili dovoljni za efikasan rad ustanova, a efikasnost njihovog korišćenja bila je niska. Ostatak potrebnog novca obezbeđivao se kroz školarine, istraživačke projekte i saradnju sa javnim sektorom i privredom. Zbog toga su visokoškolske ustanove nastojale da povećaju broj upisanih studenata, što je predstavljalo rizik u pogledu narušavanja kvaliteta nastavnih standarda.

Prilikom osnivanja ustanova, veća pažnja posvećivala se političkim razlozima u odnosu na tržišne i akademske, a postupak nadzora je bio usmeren na poštovanje propisane birokratske procedure, a ne na obezbeđenje kvaliteta (4). Odlučujući samostalno o nastavnom programu, ugledajući se na srodne ustanove u svetu i takmičeći se međusobno, naše visokoškolske ustanove uspevale su da dostignu visoke standarde. Međutim, bilo je više loših strana takvih procesa. Studije su postale "teške", što je dovelo do produženog perioda studiranja, a sa druge strane veća pažnja je bila usmerena na istraživačke aktivnosti, uz zapostavljanje nastavnih aktivnosti i potreba studenata (4).

Nacionalni izveštaj iz 2003, kao glavne slabosti sistema označava zastarele kurikulume zasnovane na ponavljanju gradiva, zastarele nastavne metode i literaturu. Pored toga, programi su bili monodisciplinarni i nisu odgovarali potrebama tržišta rada. Teorijska znanja imala su prevagu nad praktičnim, a odustajanje od studija beležilo je visoku stopu. Prepoznat je i nedostatak obezbeđenja i provere kvaliteta, kao i nedostatak u pogledu organizacije poslediplomskih studija. Problematično je bilo i priznavanje diploma sa inostranih ustanova, koje se svodilo na prebrojavanje kurseva i godina studija, bez jasnih kriterijuma, pa su tako pojedine ustanove te diplome priznavale, a druge nisu, što je u suprotnosti sa principima Lisabonske konvencije (4).

Prema Zakonu o univerzitetu, uslovi za izbor u nastavna zvanja zasnivali su se samo na angažovanju u istraživačkoj delatnosti, koje se vrednovalo "prebrojavanjem" objavljenih radova. Ovakav pristup vodio je ka zanemarivanju nastavnih aktivnosti.

Konačno, i proces studiranja je imao svojih nedostataka koji su rezultovali niskom efikasnošću studija. Odluku o broju novih studenata donosila je Vlada države, a ista nije bila u saglasnosti sa potrebama tržišta rada. Nije postojala uslovljenost predmeta, pa se neretko dešavalo da su student upisivali više godine studija sa većim brojem zaostalih predmeta iz prethodnih godina. Sistem nije prepoznavao potrebu ponovnog upisa određenog predmeta, u slučaju neuspešnog završetka kursa. Sve ovo je rezultovalo niskom stopom prolaznosti na ispitima i visokom stopom odustajanja od studija (3).

Na obrazovanje se direktno odražava opšte stanje društva, pre svega ekonomije i kulturnih obrazaca, zbog čega se proces reforme u Srbiji suočio sa brojnim teškoćama, uz otpore i podozrevanja u samoj akademskoj zajednici. Srbija je dugo čekala na novi zakon koji bi formalno uredio oblast u kojoj su se javljale stihijske tendencije i neujednačenosti među institucijama, s obzirom na to da su visokoškolske ustanove na različite načine pristupale uvođenju promena. Zbog svega toga, reformski procesi u Srbiji kasnili su za istim zbivanjima u odnosu na ostale države Starog kontinenta. Srbija je potpisala Bolonjsku deklaraciju 2003. godine, ali su uslovi za primenu njenih principa stvoreni tek donošenjem zakona o visokom obrazovanju dve godine kasnije.

3. BOLONJSKI PROCES I IZAZOVI ZA SRBIJU

Pristupanje Srbije bolonjskom procesu, 2003. godine u Berlinu, donelo je više novina, ali i brojne izazove, s obzirom na to da su se i mnoge ekonomski razvijenije države suočile sa teškoćama i otporima u njihovoj primeni. Bolonjska deklaracija, stvaranje evropskog prostora visokog obrazovanja posmatra kao sredstvo za jačanje mobilnosti i zapošljivosti građana, kroz sisteme lako uporedivih diploma i dodataka diplomu, prenosa bodova, osiguranja kvaliteta i dvostepenog studiranja (12).

Srbija se suočava sa prvim ozbiljnim izazovima, sadržanim u *Bolonjskoj deklaraciji* (iz 1999.) i Praškom komunikeu (iz 2001.), a koji su podrazumevali:

- uvođenje radikalnih promena;
- uspostavljanje sistema prepoznatljivosti kvalifikacija;
- uspostavljanje dvostepenog sistema studiranja;
- uvođenje ESPB sistema bodovanja;
- promovisanje (evropske) saradnje u oblasti osiguranja kvaliteta;
- promovisanje saradnje sa evropskim državama u pogledu razvijanja kurikuluma;
- međuinstitucionalne saradnje;
- zajedničkih programa;
- razmene studenata i osoblja (12).

Praškim komunikeom ističe se značaj:

- celoživotnog učenja – u cilju stvaranja društva i ekonomije zasnovanih na znanju;
- jačanja saradnje sa visokoškolskim ustanovama i studentima – kao aktivnim partnerima u uspostavljanju jedinstvenog evropskog sistema visokog obrazovanja;
- promovisanje atraktivnosti evropskog sistema visokog obrazovanja – kroz prepoznatljivost kvalifikacija i obezbeđenje kvaliteta obrazovnih i istraživačkih aktivnosti na evropskom obrazovnom prostoru (13).

Pored preispitivanja sprovedenih promena, svaka ministarska konferencija država potpisnica bolonjskog procesa podrazumevala je definisanje načina, koji su trebali da olakšaju proces sprovođenja promena, i novih ciljeva.

Na *konferenciji u Berlinu* (2003.) ističe se značaj integrisanja istraživačko-razvojnih aktivnosti sa procesom visokog obrazovanja, kroz uključivanje trećeg nivoa (doktorskih) studija u bolonjski proces i promovisanje interdisciplinarnih studija (10).

Bergenski komunike (2005.) ističe ključne elemente napretka u ostvarivanju ciljeva definisanih Bolonjskom deklaracijom do 2010:

- implementaciju standarda za obezbeđenje kvaliteta izdatih od strane ENQA (*European Association for Quality Assurance in Higher Education*);
- implementaciju nacionalnih okvira kvalifikacija;
- obezbeđivanje prepoznatljivosti zajedničkih diploma (uključujući i doktorske studije);
- stvaranje mogućnosti za ostvarivanje fleksibilnog sistema učenja (uključujući i postupke za prepoznavanje prethodnog nivoa obrazovanja);
- isticanje značaja pridržavanja principa odgovornosti visokog obrazovanja prema široj društvenoj zajednici;

- obezbeđenje neophodne autonomije visokoškolskih ustanova i prepoznavanje potrebe održivog finansiranja (2).

U pomenutim i svim narednim komunikacijama velika pažnja posvećuje se prepoznavanju kvalifikacija, ulozi visokog obrazovanja u široj društvenoj zajednici i povećanju privlačnosti i kompetitivnosti evropskog, ali i nacionalnih sistema visokog obrazovanja primenom Bolonjskih principa.

Odgovor Srbije na ovako postavljene izazove, delom je sadržan i u Nacionalnom izveštaju iz 2003. gde se uočava spremnost države na uvođenje radikalnih promena u oblasti visokog obrazovanja. Obrazovanje i njegovo usklađivanje sa evropskim prostorom obrazovanja je prepoznato kao jedan od ključnih uslova za razvoj države, zapošljavanje stanovništva, sprečavanje odliva stručnjaka i približavanje evropskim integracionim procesima (11). Misija i ciljevi iz 2001. godine upućuju na brojne izazove i teškoće koje je trebalo savladati pri sprovođenju reformi i ostvarivanju zadatih ciljeva (4).

4. REFORME U VISOKOM OBRAZOVANJU SRBIJE 2005 – 2015

Neophodnost reforme visokog obrazovanja isticana je još pre potpisivanja Bolonjske deklaracije. Zvanično je potvrđena donošenjem novog Zakona o visokom obrazovanju 2005. godine, čemu su prethodile višegodišnje pripremne aktivnosti. Kako bi se što više približili postavljenim ciljevima najpre je izvršena analiza postojećeg stanja i promena koje su zadesile evropski sistem, od kojih je Srbija bila izolovana usled sankcija krajem 20. veka. Tako je postavljen okvir strategije reformi, koja je predstavljena 2002. godine, uz istovremeno pripremanje nacarta novog Zakona o visokom obrazovanju (4).

Pored toga, sprovedene su i druge pripremne aktivnosti sa ciljem da se naša stručna javnost upozna sa Bolonjskim principima. Upoznavanje sa promenama u evropskim okvirima počelo je još 1999. godine, kroz održavanje različitih vidova konferencija i skupova. Tokom 2001. i 2002. godine organizovani su brojni seminari i diskusije, uz podršku resornog ministarstva, Saveta Evrope i drugih stranih organizacija i fondacija (4). Sprovedena je i evaluacija visokoškolskih ustanova, koje su ujedno formulisale sopstvene strategije reformi, i započinjale taj proces kroz programe Evropske unije i programe razmene sa stranim univerzitetima (5). Formirana je i komisija koja je vršila nadzor nad primenom bolonjskog procesa, koju su činili predstavnici visokoškolskih ustanova i studenata (5).

Za potrebe uspešnog sprovođenja reforme, trebalo je uspostaviti jasne procedure i ostaviti visokoškolskim ustanovama dovoljno vremena da se pripreme, zbog čega je bilo neophodno doneti novi zakon koji bi ozvaničio primenu Bolonjskih principa. Prednacrt je pripremljen u vreme potpisivanja Bolonjske deklaracije, a u njemu je srpsko visoko obrazovanje definisano kao deo evropskog obrazovnog prostora.

Po pristupanju Srbije bolonjskom procesu, a prema *Nacionalnom izveštaju iz 2005*, izdvaja se prvi set promena koje se preduzimaju u cilju priključivanja evropskom obrazovnom prostoru (5):

- Definisana je nacrt Zakona o visokom obrazovanju – kojim se predviđa određeni stepen autonomije visokoškolskih ustanova, uvođenje i obezbeđenje kvaliteta, uspostavljanje stručnih tela, režim studiranja, izbor u nastavna zvanja, tri nivoa studija, uvođenje bodovne

vrednosti predmeta (ESPB), celoživotno učenje, uvođenje dodatka diplomi, prepoznatljivost kvalifikacija i participacija studenata u odlučivanju i dr.

- Započinje se sa reformama kurikuluma – kroz uvođenje jednosemestralnih predmeta, modula, bodovne vrednosti predmeta, unapređenje veština nastavnika putem programa razmene i uspostavljanje saradnje sa stranim visokoškolskim ustanovama;

- Uvode se trogodišnje studije.

U periodu od 2005. do 2007. godine, Srbija nastavlja sa procesom sprovođenja reformi (6):

- Septembra 2005. godine usvojen je Zakon o visokom obrazovanju – kao i prateća podzakonska akta;

- Uspostavljeni su Nacionalni savet za visoko obrazovanje, Komisija za akreditaciju i proveru kvaliteta (KAPK), Konferencija Univerziteta u Srbiji i Konferencija akademija strukovnih studija;

- Oktobra 2006. doneti su Pravilnici o standardima za akreditaciju visokoškolskih ustanova i studijskih programa;

- Decembra 2006. započinje se sa prvim ciklusom akreditacije tadašnjih viših škola;

- Veći procenat visokoškolskih ustanova su izvršile reformu u pogledu dva nivoa studija i dužine trajanja studija;

- Definisana je mapa prohodnosti između različitih nivoa studija;

- Obezbeđena je participacija studenata;

- Decembra 2006. KAPK postaje punopravni član INQAAHE (*International Network for Quality Assurance Agencies in Higher Education*);

- Predviđa se da studenti upisani 2007, po diplomiranju, uz diplomu dobiju i dodatak diplomi;

- Uspostavljen je sistem ESPB i uvedena su izborna područja (predmeti);

- Uvedeni su posebni programi za studente romske nacionalnosti, studente sa hendikepom, programi podrške za talentovane studente;

- Započinje priključivanje TEMPUS projektima, čime se unapređuje razmena nastavnika, opremanje ustanova i sl.

Prema *Nacionalnom izveštaju iz 2009*, u periodu od Konferencije ministara za visoko obrazovanje održane u Londonu 2007, realizovane su sledeće aktivnosti (7):

- Školske 2006/2007, u određenom broju visokoškolskih ustanova, prvi put počinje realizacija redizajniranih studijskih programa, prvog i drugog nivoa, usklađenih sa Bolonjskim principima;

- U svim ustanovama je u potpunosti implementiran ESPB sistem;

- Uspostavljene su doktorske studije na svim univerzitetskim ustanovama i na većini je upisana prva generacija studenata 2007/2008;

- Na nacionalnom nivou je uspostavljeno funkcionisanje sistema obezbeđenja kvaliteta, na internom i eksternom nivou;

- Sproveden je prvi ciklus akreditacije svih visokih škola strukovnih studija i planiran je završetak akreditacije univerzitetskih ustanova;

- Pripremljen je nacrt Nacionalnog okvira kvalifikacija čije usvajanje se očekivalo pri kraju 2009. godine;

- Unapređuje se mobilnost studenata i osoblja kroz učešće na različitim projektima pod okriljem Evropske Unije.

Prema *Nacionalnom izveštaju iz 2012*, u periodu od 2009. do 2012, zabeležene su sledeće promene u sistemu visokog obrazovanja u Srbiji (8):

Doneta su sledeća dokumenta:

- Strategija obrazovanja u Srbiji do 2020. godine;
- Strategija naučnog i tehnološkog razvoja Republike Srbije za period od 2010. – 2015.;
- Nacionalna strategija mladih;
- Strategija za karijerno vođenje studenata;
- Strategija obrazovanja odraslih;
- Strategija zapošljavanja;

U istom period sprovedene sui sledeće aktivnosti:

- Uspostavljeni su centri za karijerno vođenje studenata i za uključivanje studenata u naučnoistraživački rad, na većem broju univerzitetskih ustanova;
- Sproveden je prvi ciklus samovrednovanja;
- Izdati su prvi dodaci diplome u više od 75 % visokoškolskih ustanova;
- Komisija za akreditaciju i proveru kvaliteta je 2010. aplicirala za članstvo u ENQA;
- Unapređuje se razvoj i implementacija procesa celoživotnog učenja, učenja na daljinu, e-učenja i prepoznavanja prethodnog obrazovanja, kroz učešće visokoškolskih ustanova u Tempus projektima;
- Unapređuje se mobilnost kroz učešće ustanova u Erasmus Mundus programima.

U skladu sa poslednjim *Nacionalnim izveštajem iz 2015*, u trogodišnjem periodu, sprovedene su sledeće promene u sistemu visokog obrazovanja Srbije (9):

- KAPK je primljena u stalno članstvo ENQA-e;
- Unapređeni su postupci priznavanja stranih visokoškolskih isprava i vrednovanja stranih studijskih programa;
- Sproveden je drugi ciklus akreditacije;
- Povećan je procenat upisanih studenata koji u roku završavaju studije;
- Jačanje internacionalizacije visokog obrazovanja.

Sve navedene promene podrazumevale su mnogo zalaganja, kako na institucionalnom, tako i na nacionalnom nivou. U toku sprovođenja propisanih mera pojavile su se mnoge barijere, koje su se ogledale u nedovoljnoj ekonomskoj razvijenosti, neodgovarajućoj društvenoj svesti i uticaju starog sistema obrazovanja. Ipak, promene su doprinele uređivanju sistema, obezbeđenju kvaliteta usluge visokog obrazovanja, razmeni iskustava i jačanju mobilnosti studenata i osoblja, realnoj proceni opterećenja studenata, povećanju broja visoko obrazovanih građana, jačanju socijalne dimenzije i sl.

5. ZAKLJUČAK

Sistem visokog obrazovanja Srbije već duže od jedne decenije se nalazi na teškom putu reformisanja u skladu sa Bolonjskim principima. U tom smislu, državna politika je

usmerena na uključivanje u evropski obrazovni prostor, racionalizaciju, bolju efikasnost visokog obrazovanja, osiguranje kvaliteta, usklađivanje sa evropskim tendencijama, promovisanje mobilnosti studenata i nastavnog osoblja i uključivanje studenata kao partnera u procesu visokog obrazovanja. U uslovima kada je odustajanje od studija beležilo visoku stopu, a efikasnost bila izrazito niska, jačala je svest o neophodnosti reforme. Pored neospornih pozitivnih efekata, promene u uslovima kada društvo ne raspolaže kapacitetima da se nosi sa njima, nose i određene rizike. Tako, nedostatak visokoobrazovanih kadrova i povećanje udela diplomiranih studenata može dovesti do hiperprodukcije diploma sumljivog kvaliteta i zasnovanosti. Jedan od ciljeva bolonjskog procesa, veća mobilnost, Srbiji, zbog specifičnih prilika, može doneti više štete nego koristi, jer umesto plodonosne razmene i cirkulacije znanja ona može dovesti do još većeg odliva obrazovanih kadrova, čime zemlja ostaje bez osnova za društveni progres.

Decenija je prošla od primene Bolonjskih principa u Srbiji, a detaljnija istraživanja treba da pokažu da li je za to vreme došlo do kvalitativnog pomaka ka ostvarenju projektovanih ciljeva, pre svega u smislu efikasnosti studiranja i zadovoljavanje potreba tržišta rada. Tu je posebno važno pitanje zapošljavanja, odnosno mogućnosti sticanja zaposlenja nakon završetka studijskih programa. Mnogi programi i obrazovni profili nisu ustanovljeni nakon osluškivanja tržišta, već su proizvod slobodne procene ustanove ili države.

Mere povećanja efikasnosti, takođe, nose određene rizike. Promene programa radi tog cilja i olakšavanja savladavanja kurseva mogu voditi smanjenju njihovog kvaliteta, pa se kao mera mogu primeniti određeni podsticaji uspešnim studentima i olakšice onima koji završavaju studije u predviđenim rokovima.

Na ministarskoj konferenciji u Jerevanu 2015. godine istaknuto je da se primena Bolonjskih principa, pored određenog napretka, suočava sa teškoćama. Oni se pre svega ogledaju u dugotrajnoj ekonomskoj i socijalnoj krizi, dramatičnoj nezaposlenosti, marginalizaciji mladih, demografskim promenama, sukobima i radikalizaciji (15). Zbog toga su postavljeni ciljevi koje treba ostvariti do 2020. godine, a koji predstavljaju poseban izazov i za Srbiju. To su unapređenje kvaliteta nastavnog procesa kroz primenu inovacija, kako bi se zadovoljile potrebe društva, podsticanje zapošljavanja u uslovima stalnih promena i tehnološkog razvoja, unapređenje socijalne dimenzije visokog obrazovanja i konsolidovanje evropskog prostora visokog obrazovanja (15).

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INFORMATION SYSTEMS STRATEGY: E-LEARNING AT THE UNIVERSITY

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Abstracts: With the advances of information-communication technologies and its intensify usage, it is critical to assess and improve the efficiency and accuracy of management information systems. E-Learning platforms are utilized by many universities to improve information exchange, communication, student collaboration, as well as to better support learning management. Owing to limited IT budget and the need to justify the investment in e-learning platform, assessing the benefits of these is an important field in research and practice. Accordingly, this study proposes an integrated model for evaluating the effectiveness of e-learning platform from a student point of view. This model is based on updated DeLone and McLean IS success theory.

Keywords: IS success, strategy, e-learning, D&M, VLE

Apstrakt: Sa napretkom informaciono-komunikacionih tehnologija i njihove intenzivne upotrebe, neophodno je vrednovanje i unapređenje efikasnosti i preciznosti menadžmenta informacionih sistema. Mnogi univerziteti koriste platforme za e-učenje u cilju unapređenja razmene informacija, komunikacije, kolaboracije između studenata, kao i u cilju boljeg upravljanja procesom učenja. Zbog ograničenog budžeta za informacione tehnologije i potrebe da se opravdaju investicije u platforme za e-učenje, procena koristi koje one donose je jedna od važnih oblasti u istraživanju i praksi. U skladu sa tim, ovaj rad predlaže integrisani model za procenu efikasnosti platforme za e-učenje iz perspektive studenta. Dobijeni model je zasnovan na redefinisanoj Delon i Meklin teoriji uspeha informacionih sistema.

Ključne reči: Uspeh IS, strategija, e-učenje, D&M, VOU

1. UVOD

Tokom poslednjih trideset i više godina istraživači diskutuju na temu uspeha informacionih sistema (IS). Istraživanje je počelo sa modelom uspeha informacionih sistema čuvenih istraživača DeLona i MekLina (*engl. D&M IS Success Model*) [1] i nastavilo sa mnogim drugim istraživanjima u različitim oblastima.

Brojni naučnici i istraživači su ispitivali uspeh različitih informacionih sistema, internet prezentacija [2], sistema za upravljanje znanjem [3], sistema za elektronsku državnu upravu [4], uspeh sistema za kolaboraciju kroz kontekst e-učenja [5], uspeh sistema za e-učenje u obrazovnim institucijama [6] i u industrijskim sistemima [7]. Pored navedenog,

postoje i mnoga druga istraživanja koja su se bavila sličnom tematikom i ispitivala uspeh drugih informacionih sistema [1], [8].

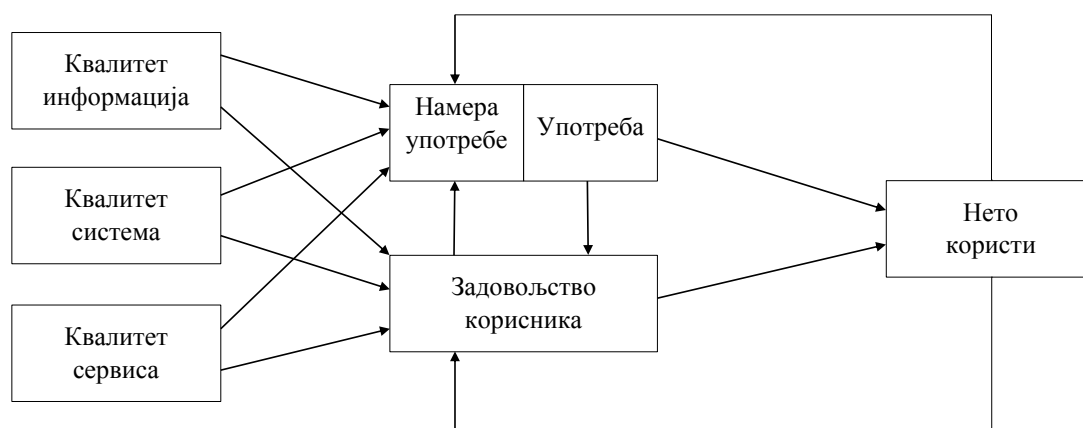
Mnogi univerziteti koriste platforme za e-učenje u cilju unapređenja razmene informacija, komunikacije, kolaboracije između studenata, kao i u cilju boljeg upravljanja procesom učenja. Zbog ograničenog budžeta za informacione tehnologije i potrebe da se opravdaju investicije u platforme za e-učenje, procena koristi koje one donose je jedna od važnih oblasti u istraživanju i praksi. U skladu sa tim, ovaj rad predlaže integrisani model za procenu efikasnosti platforme za e-učenje iz perspektive studenta.

2. EFEKTIVNOST INFORMACIONIH SISTEMA

U cilju unapređenja performansi, organizacije nastoje da implementiraju različite informacione sisteme [9]. Bez pravog načina da se izmeri uspeh informacionih sistema, one nisu u stanju da izvrše objektivnu procenu uloženi sredstava i da sagledaju pravu vrednost različitih IS za organizaciju. Sa jedne strane je veoma važno za organizacije da su u stanju da mere uspeh svojih investicija u informacione sisteme, a sa druge strane postoji veoma malo načina da bi se on izmerio [8].

DeLon i MekLin (D&M) model uspeha informacionih sistema, konstruisan 1992. godine, je najšire prihvaćen u literaturi i najčešće upotrebljavan model merenja uspeha IS [1]. Deset godina nakon objavljivanja prvog modela, DeLon i MekLin objavljuju redefinisani model uspeha IS kako bi mogao da se uklopi u eru interneta, a posebno početak ere elektronske trgovine [10]. Promena modela je zasnovana na izmenama uloge i menadžment informacionih sistema, kao i na osnovu drugih istraživačkih doprinosa od objave njihovog prvobitnog modela.

Nakon izmena i dopuna, dimenzije redefinisaniog D&M modela uspeha IS predstavljaju: kvalitet sistema, kvalitet informacija, kvalitet servisa, upotreba sistema, zadovoljstvo korisnika i neto koristi. Redefinisani model, prikazan na slici 1, sastoji se od šest povezanih i međusobno zavisnih dimenzija uspeha informacionih sistema. Model je primenljiv za procenu efikasnosti informacionih sistema u internet okruženju kao što su sistemi za elektronsku trgovinu, sistemi za upravljanje znanjem, sistemi za kolaboraciju i drugi sistemi zasnovani na informacionim tehnologijama.



Slika 1. Redefinisani D&M model uspeha IS [10]

2.1. KOMPONENTE D&M MODELA

U nastavku su prikazane definicije i objašnjenja svake komponente DeLon i MekLin model uspeha informacionih sistema.

Kvalitet sistema – Kvalitet sistema se odnosi na kvalitet učinka sistema sa tehničkog aspekta. Kvalitet sistem razmatra tehničke aspekte sistema, uključujući jednostavnost, intuitivnost, funkcionalnost sistema, pouzdanost, vreme odziva, lakoću navigacije, fleksibilnost i slično. Kvalitet sistema ima direktan uticaj na upotrebu i zadovoljstvo korisnika [10].

Kvalitet informacija – Kvalitet informacija, odnosno podataka, predstavlja kvalitet izlaznih veličina sistema [11]. Drugim rečima, kvalitet informacije je stepen do kojeg informacije koje se nalaze na informacionom sistemu pomažu korisniku u ispunjenju datog zadatka. Definicija kvaliteta informacija obuhvata mere kao što su tačnost, potpunost, aktuelnost i format informacija [12]. Tačnost se odnosi na stepen do kojeg informacije u informacionom sistemu oslikavaju stvaran svet koji predstavljaju. Informacija mora biti smisljena i uverljiva. Potpunost se odnosi na stepen do kojeg su svi aspekti informacija očuvani.

Kvalitet servisa – Kvalitet servisa se odnosi na kvalitet podrške koju pruža IT odeljenje u organizaciji [13], [14]. Ovu komponentu modela su autori dodali tek u redefinisanoj modelu iz 2003. godine [10]. Za korisnike su najvažnije mere kvaliteta servisa vreme odziva IT osoblja i saosećanje sa kvalitetom servisa [14]. Pored navedenih mera koriste se i veštine, iskustvo i sposobnost IT osoblja u pružanju neophodnog servisa korisnicima informacionog sistema [15].

Upotreba sistema – Upotreba sistema se definiše kao korišćenje aplikacije zasnovane na informacionim tehnologijama od strane pojedinaca, grupa ili organizacija [16]. Drugi autori definišu upotrebu sistema kao stepen i način na koji pojedinci (npr., zaposleni, kupci) koriste mogućnosti informacionog sistema [14]. Tvorci modela tvrde da je upotreba informacionog sistema jedan od najčešće korišćenih mera uspeha [1].

Zadovoljstvo korisnika – Zadovoljstvo korisnika je jedna od ključnih komponenti uspeha [17] i može da se definiše na različite načine. Zadovoljstvo korisnika je opšta ideja pojedinca o sistemu [13]. Drugi autori definišu zadovoljstvo korisnika kao osećanje zadovoljstva ili nezadovoljstva koje proizilazi iz svih prednosti za koje se korisnik nada da će dobiti od interakcije sa informacionim sistemom [8]. Zadovoljstvo korisnika predstavlja povratnu informaciju o reakciji korisnika nakon upotrebe sistema, odnosno, šta pojedinac misli i oseća o samom sistemu [18].

Neto koristi – Neto korist predstavlja uticaj informacionog sistema na pojedinca, tim, organizaciju, industriju ili celu društvenu zajednicu [6]. Ukoliko određeni sistem ima uticaj na pojedinca, taj uticaj će se proširiti na celu organizaciju, a samim tim i na društvenu zajednicu u kojoj organizacija posluje [10]. Informacioni sistem se koristi kako bi se postigli različiti ciljevi u preduzeću. Mnogi od tih ciljeva se odnose na pojedinca koji koristi sistem. Individualni uticaj se meri na različite načine, uključujući i unapređenje produktivnosti, kvalitet donošenja odluka, kao i radnih zadataka [14]. Pored navedenih mera postoje još i ušteda vremena, promena stava, unapređen stepen znanja, i drugo.

2.2. MODEL PRIHVATANJA TEHNOLOGIJE

Model prihvatanja tehnologije je adaptacija teorije razumnog delovanja posebno razvijena za ocenu prihvatanja informacionih sistema od strane korisnika [19], [20]. Cilj modela prihvatanja tehnologije je da pruži objašnjenje faktora, koji utiču na prihvatanje računarskih tehnologija, koji su opšti i objašnjavaju ponašanje korisnika u upotrebi širokog spektra tehnologija.

Model prihvatanja tehnologije se bazira na dva ključna faktora za prihvatanje informacionih sistema, a to su doživljaj upotrebljivosti i doživljaj jednostavnosti upotrebe. Spoljne promenljive ili spoljni impulsi predstavljaju različite tehničke karakteristike sistema i direktno uslovljavaju doživljaj upotrebljivosti i jednostavnosti upotrebe. Korisnici, na osnovu doživljene jednostavnosti upotrebe i upotrebljivosti sistema, razvijaju stav i nameru koje utiču na stvarnu upotrebu sistema. Dalji razvoj ovog modela je usmeren ka utvrđivanju veza između individualnih razlika i procesa prihvatanja novih tehnologija [21].

3. ELEKTRONSKO UČENJE

Danas informaciono-komunikacione tehnologije (IKT) omogućavaju pristupanje širokom spektru različitih izvora znanja [22]. Univerziteti i preduzeća stiču nova znanja obrazujući svoje studente i zaposlene upotrebom odgovarajuće metode zasnovane na IKT ili Veb 2.0 tehnologiji. Učenje uz pomoć tehnologije, kao način sticanja znanja, opšte je prihvateno rešenje od strane mnogih univerziteta i preduzeća u cilju pružanja mogućnosti za „učenje na zahtev“ u cilju smanjenja vremena i troškova prenosa znanja.

Elektronsko učenje ili e-učenje (*engl. e-learning*) je definisano kao širok skup aplikacija i procesa kao što su učenje preko interneta, učenje uz pomoć računara, virtuelna učionica i e-kolaboracija [23]. Kao prostor u kojem se održavaju obuke, e-učenje je funkcionalni alat za isporuku različitih tehnika i metoda učenja. Sistem za e-učenje se definiše kao skup modela, metodologija i procesa za sticanje i korišćenje znanja koje je distribuirano prvenstveno elektronskim putem [24]. Rozenberg [25] u svojoj knjizi definiše e-učenje kao upotrebu internet tehnologije u isporuci širokog spektra rešenja koja unapređuju znanje i učinak. Sistem za e-učenje isporučuje sadržaj učesnicima preko umreženih računara uz upotrebu internet tehnologije i koristi pristup koji je drugačiji od tradicionalnih paradigmi obrazovanja.

U literaturi se navode tri tipa elektronskog učenja – sinhrono, asinhrono i kombinovano e-učenje [24]. Izbor metoda zavisi od sadržaja i brzine potrebne za učenje. Sinhrono e-učenje podrazumeva prisustvo nastavnika, odnosno predavača koji rukovodi procesom učenja, virtuelnu učionicu i isporuku sadržaja u realnom vremenu. Predavač i studenti se sastaju na određeno vreme u virtuelnoj učionici i u stanju su da razmenjuju informacije istovremeno i da direktno komuniciraju sa ostalim učenicima. Primeri za ovaj vid učenja su virtuelne učionice, audio/video telekonferencije, internet forumi, instant poruke i vebinari [26].

Asinhrono učenje je fleksibilnije u tome što ne zahteva istovremeno učešće svih učesnika i instruktora [27]. Asinhrono učenje omogućava studentima da uče u bilo kom trenutku i sa bilo kog mesta. Ovaj vid učenja uključuje obuku u kojoj učesnici dobijaju namensko znanje koje im omogućava da izvrše potrebne zadatke. U asinhronom vidu e-učenja koriste se različiti multimedijalni sadržaji koji čine učenje interaktivnim, a studenti su

posvećeniji tokom asinhronog e-učenja u poređenju sa tradicionalnim učenjem [26]. Primer asinhronog e-učenja je pohađanje obuke koja se sprovodi putem interneta u kojoj učesnici usvajaju određene tematske celine [28].

Mnogi univerziteti u procesu prenosa znanja koriste tehnologiju u kombinaciji sa tradicionalnim metodama sprovođenja nastave [26]. Kombinovano ili hibridno učenje (*engl. blended learning*) se definiše kao integracija tradicionalnog učenja licem-u-lice sa učenjem preko interneta [29]. Kombinovani pristup učenju omogućava predavačima da koriste unapred spremljene materijale koji omogućavaju studentima samostalno usvajanje određenih tematskih celina, pripremu za kontaktne časove i utvrđivanje preslušanog gradiva, zajedno sa učenjem u zajedničkom prostoru bilo da je to učionica, amfiteatar ili laboratorija [28]. Ovaj vid e-učenja pruža veće koristi za sve učesnike učenja jer omogućava direktan kontakt predavača sa studentima [26]. Postoje različite vrste i nivoi kombinovanog učenja: na nivou aktivnosti, na nivou kursa i na nivou programa [30]. Na nivou aktivnosti i kursa, kombinovano učenje može da se koristi za razvoj aktivnosti učenja, interakcije između učesnika i interakcije sa instruktorom. Kombinovano učenje na nivou programa ima tendenciju da bude više administrativno nego pedagoški orijentisano. Takvo učenje uključuje kombinaciju predavanja u učionici i samostalnog rada na računarima.

U odnosu na stepen učenja na daljinu, kombinovano učenje se razlikuje od druge dve vrste učenja koje su zasnovane na upotrebi interneta – e-učenje kao podrška (*engl. enhanced learning*) i učenje koje je u potpunosti preko interneta (*engl. online learning*). E-učenje kao podrška podrazumeva upotrebu multimedijalnog sadržaja u procesu učenja [29] i ovaj vid učenja u celosti isključuje učenje na daljinu. Učenje u potpunosti preko interneta omogućava učesnicima pristup obrazovnom sadržaju i jednosmernu ili dvosmernu komunikaciju sa drugim studentima i nastavnikom [31]. Na ovaj način student može samostalno i u odgovarajućem tempu da usvaja neophodno znanje. Na slici 2 je prikazan kontinuitet e-učenja sa aspekta nivoa obima upotrebe tehnologije.



Slika 2. Kontinuitet e-učenja [29]

3.1. SISTEMI ZA UPRAVLJANJE UČENJEM

Sistemi za upravljanje učenjem (*engl. Virtual Learning Environments – VLE*) su, zapravo, informacioni sistemi za elektronsko učenje koji pružaju potpunu administrativnu i didaktičku podršku u procesu učenja omogućavajući učesnicima pristup adekvatnim resursima za učenje u cilju razvoja projektovanih kvalifikacija na sistematičan način [32]. Poslednjih decenija termin „sistemi za upravljanje učenjem“ je doživeo značajan razvoj i danas se naziva softverskim rešenjem koji sadrži mnogobrojne aplikacije [33]. Ove softverske aplikacije su zasnovane na upotrebi interneta i sadrže skup alata koji centralizuju i

automatizuju faze procesa učenja kroz sledeće funkcije: registracija korisnika, održavanje profila korisnika, upravljanje katalogom kurseva, skladištenje i isporuka kurseve e-učenja, preuzimanje modula i alata za e-učenje, praćenje i snimanje napretka korisnika, ocenjivanje korisnika, praćenje i snimanje rezultata ocenjivanja, obezbeđivanje izveštaja [34]. Razvoj i primena sistema za upravljanje učenjem opravdan je sa aspekta različitih prednosti kao što su napredna kolaboracija i komunikacija, efikasnost u upravljanju troškovima, napredne didaktičke metode i učenje, kontrola korisnika, personalizacija, orijentacija na zadatak i pravovremenost [35]. Uz pomoć softvera koji poseduje ove aspekte, nastavnici i studenti više ne moraju da budu fizički prisutni na istoj lokaciji [36].

Postoje različiti sistemi za upravljanje učenjem na internetu koji mogu da se preuzmu bez naknade, otvorenog programskog koda (npr., Mudl [engl. Moodle], Sakai [engl. Sakai], ATutor [engl. ATutor], Ilias [engl. ILIAS]) ili uz određenu novčanu naknadu (npr. Blackboard [engl. Blackboard], VebCT [engl. WebCT]). U pogledu izvođenja obuka i učenja, prisustvo upotrebljivog sistema za upravljanje znanjem znači potencijalno smanjenje vremena instruktoru, koje nastaje kao rezultat ulaganja u razvoj i isporuku kursa i unapređenje iskustva učenja od strane učesnika [37]. Primenom ovih sistema, nastavnici i studenti ne ulažu dodatno vreme u učenje i savladavanje komplikovane tehnologije koju je potrebno naučiti, nego su usmereni na kvalitet sadržaja. Sistemi za upravljanje učenjem obično imaju veliki broj funkcija, a različitim istraživanjima je pokazano da se one grupišu različito u zavisnosti od subjektivnog stanovišta osobe koja ih klasifikuje, ali i po važnosti funkcija [38]. U istraživanju koje su sprovedi Vuds *et al.* [39] je pronađeno da je sadržaj alata za komunikaciju najvažnija karakteristika ovih sistema. Druga grupa autora je pronašla da su dnevnik ocena, asinhrona diskusije i testovi, najviše korišćene funkcije sistema za e-učenje. Marjanović i Lalić [28] su u svom istraživanju pronašli da su, sa aspekta korisnika, najvažnije funkcije sistema za e-učenje dnevnik ocena, slajdovi sa predavanja, lekcije sa samo-evaluativnim pitanjima i označavanje izvršene aktivnosti.

3.2. MUDL

Mudl (engl. Moodle) je najpopularniji sistem za upravljanje učenjem koji funkcioniše kao softver otvorenog koda [40]. Naziv je nastao od akronima za modularno objektno-orijentisano dinamičko okruženje za učenje (engl. *Modular Object-Oriented Dynamic Learning Environment*), a prvo slovo M je u originalu stajalo zbog njegovog tvorca Martina Dugiemasa (engl. *Martin Dougiamas*) [41]. Ovaj softverski paket služi kao alternativa za licencirana-komercijalna rešenja za e-učenje, ima veliku i raznoliku zajednicu korisnika i preveden je na više od 75 jezika u 233 zemlje širom sveta. Veći broj prototipova je proizveden i odbačen pre nego što je 20. avgusta 2002. godine zvanično predstavljena verzija Mudl 1.0. Napisan je u programskom jeziku *PHP*. Mudl nudi okruženje za učenje koje omogućava kolaboraciju između učesnika a koje može da se koristi kao samostalni program za učenje u potpunosti preko interneta ili može da se koristi kao podrška za konvencionalno učenje [42].

4. ZAKLJUČAK

Pregledom literature je ustanovljeno da ne postoji jedinstvena strategija efektivnosti informacionih sistema koja može da se primeni na sve sisteme pa čak i na sisteme za e-učenje.

Model koji je dobio najveću pažnju od strane istraživačke javnosti je DeLon i MekLin model uspeha informacionih sistema, odnosno, redefinisani model uspeha IS nad kojim su vršena mnoga emirijska istraživanja u cilju daljih potvrda u različitim kontekstima.

Kako univerziteti širom sveta neprestano izdvajaju velika sredstva za održavanje nastave svojim studentima, efektivne i efikasne metode prenos znanja su neophodne u današnjim univerzitetima jer stopa učenja treba da bude veća od stope tehnoloških promena [43]. Sistemi za e-učenje koji funkcionišu kao softver otvorenog programskog koda, postaju dominantni jer poseduju najbolje karakteristike kvaliteta. Upotreba ovakvih sistema unapređuje organizacione performanse

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INCREASING THE VALUE OF SLOVENIA'S INTERNATIONAL TRADE THROUGH SUSTAINABLE APPROACH

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Abstract: The success of businesses depends on their ability to create a strategic position in their domestic and foreign markets. In order to remain or become competitive, enterprises must constantly adapt to the changing business environment. This, however, requires a different approach to their management. Sustainability, for example, offers enterprises (especially small and medium-sized ones) many opportunities to gain a competitive advantage. Our paper analyses Slovenia's trade in goods and services with Baltic states, Slovenia's minor trading partners in goods and services in Europe and propose some measures to increase the value of Slovenia's exports of goods and services to these countries. The results of analysis show that there are some unexploited opportunities to further increase the geographical diversification of Slovenia's exports of goods and services. Our main conclusion is that Slovenia should promote sustainable business practices among Slovenian businessmen and adopt some other measures to increase the sustainability of their businesses, such as increasing cooperation of Slovenian enterprises with their foreign counterparts in entering sustainable markets. In view of these points, this paper presents a starting point for in-depth discussion on the measures that should be adopted by Slovenia to further increase the value of its exports of goods and services to the world.

Keywords: trade, Slovenia, Baltic countries, entrepreneurship, sustainability, competitive advantage.

1. INTRODUCTION

Due to increasing environmental dynamics (Hamilton and Webster, 2015) and intensifying global competition, enterprises—regardless of their age or size—have been forced to build more entrepreneurial strategies in order to compete and survive (Hitt et al., 2001; Meyer et al., 2002). Success in any business depends upon the ability to find a valuable strategic position, whereby the company's resources, competencies, and capabilities are deployed and managed to meet and satisfy the demands and expectations of key stakeholders. In this way, the business adds value in some distinctive way to achieve product or service differences, manage costs effectively, and create some form of distinctiveness or competitive advantage (Thompson, 1999). This is particularly important for small and medium sized enterprises, whose small size make them generally more risk-averse and force them to adapt to changes. Sustainability, for example, offers enterprises (especially small and medium-sized ones) many opportunities to gain a competitive advantage (see Weidinger et al., 2014; Jacobsen, 2011; Wells, 2013; Sanders and Wood, 2014). This is also especially true for

Slovenian enterprises, which have to look for business opportunities in niche markets.

Slovenian businesses must adapt their strategic planning to their changing needs as a result of their commitment to sustainable development. Additionally, they should also promote sustainable business practices among their employees and other stakeholders as a measure of their sustainability policy. This factor, among others, is very important in order to increase their competitiveness and to improve their business results. In order to increase the geographical diversification of their sales, which is very important for managing their risks, Slovenian businesses should look for business opportunities also in lesser-known markets, which are not natural trading partners of Slovenia because of geographical distance and very small mutual trade for many years.

Sustainability is therefore an opportunity to increase the value of Slovenia's exports of goods and services. In recent years, many Slovenian enterprises have adopted a number of measures to increase their sustainability. For these enterprises, sustainability has become an integral part of their culture. In order to increase the value of its exports of goods to the world, Slovenia should promote sustainability as an important factor in human wellbeing. This will have a positive impact on increasing sustainable entrepreneurship in Slovenia in response to its economic and social crisis. So as to achieve the aforementioned goal, Slovenia should promote (sustainable) start-up enterprises and their cooperation in entering new (sustainable) markets. It should also promote sustainable solutions to business problems in response to increasing competition for (scarce) resources.

2. SUSTAINABILITY AND COMPETITIVE ADVANTAGE

Nowadays, businesses need to act strategically in order to create the most value for their stakeholders (see Hitt et al., 2014; Hitt et al., 2015; Klonowski, 2015). This is particularly important for small businesses, which often operate in niche markets. The strategy of a company forms the comprehensive master plan indicating how the company will achieve its mission and objectives. It maximizes competitive advantages while minimizing competitive disadvantages (Wheelen and Hunger, 2004, 67). Competitive strategy deals with how to create a competitive advantage in each of the businesses in which a company competes (Porter, 1987, 2). Competitive orientation helps a firm create the perception and reality of superior value in its products and services in the eyes of the consumers (Balakrishnan, 1996). The dominant paradigm of the 1980s was that of competitive positioning, based upon the work of Porter (1980); it focused on the premise that a business positions itself within its competitive environment with the aim of generating superior performance (Stonehouse and Pemberton, 2002, 854).

Sustainability is an important factor in helping enterprises achieve — and maintain — key competitive drivers. In recent years, sustainable production and sustainable consumption have become increasingly important topics in international business (see Chappells and Trentmann, 2015; Lorek and Vergragt, 2015; Reisch and Thøgersen, 2015). According to Accenture (2013, p. 21), 93 % of chief executive officers (CEOs) believe that sustainability will be important to the future success of their businesses. In recent years, marked by the financial, economic and social crises in the developed world (mainly Europe and North America), sustainability has become a priority for many businesses and their leaders (see Eweje and Perry, 2011; Aras, Crowther, 2012; Laszlo, 2013; Stead and Stead, 2014; Wheelen et al., 2014; Weidinger et al., 2014), including some Slovenian ones. According to Bonini and

Titia Bové (2014), 13 % of CEOs argue that sustainability is the main priority on their agendas, while 36 % of CEOs argue that sustainability is one of the three main priorities on their agendas. By integrating sustainability into business strategies, a number of businesses (including some small ones) have gained a competitive advantage. Sustainability has therefore become an important factor in their competitiveness and business performance. In order to further increase both aspects, these businesses must constantly seek opportunities for all kinds of improvements.

3. SLOVENIA'S TRADE IN GOODS AND SERVICES WITH BALTIC STATES

Slovenia is a small country in Europe. In 2013, the value of Slovenia's gross domestic product (GDP) per capita amounted to €21,800, which is higher than the value of GDP per capita of most other countries in Central and Eastern Europe (CEE). Slovenia is, like most other countries in CEE, highly dependent on its trade in goods and services with the world (mainly Europe). There are many reasons for this, such as Slovenia's lack of some natural resources (natural gas, for example) and the small size of Slovenia's domestic market for goods and services.

In 2013, the value of Slovenia's trade in goods and services with Europe amounted to €46,947.3 million, 90 % of the value of Slovenia's trade in goods and services with the world and an increase of 0.5 % over the previous year. In the same year, the value of Slovenia's exports of goods and services to Europe amounted to €25,075.2 million, 91.5 % of the value of Slovenia's exports of goods and services to the world and an increase of 2.6 % over the previous year, while the value of Slovenia's imports of goods and services from Europe amounted to €21,872.1, 88.2 % of the value of Slovenia's imports of goods and services from the world and a decrease of 1.7 % over the previous year. In 2013, 48.1 % of the value of Slovenia's trade in goods and services with Europe was with Austria, Germany and Italy, Slovenia's major trading partners in goods and services.

Other regions are Slovenia's minor trading partners in goods and services. There are many reasons for this, including geographical ones. Between 2008 and 2012, the number of enterprises that export goods from Slovenia to other countries and that of enterprises importing goods from other countries to Slovenia increased by 49.4 % and 23.1 %, respectively (see Romih et al., 2015, p. 10). There were many reasons for this, such as the financial, economic and social crises, which have had a negative impact on Slovenia's financial, economic and social situation. As a result, many Slovenian enterprises have adopted a number of cost-cutting measures, and others, in order to survive. One of these measures has been their (further) internationalization, which has already had some positive effects on the Slovenian economy.

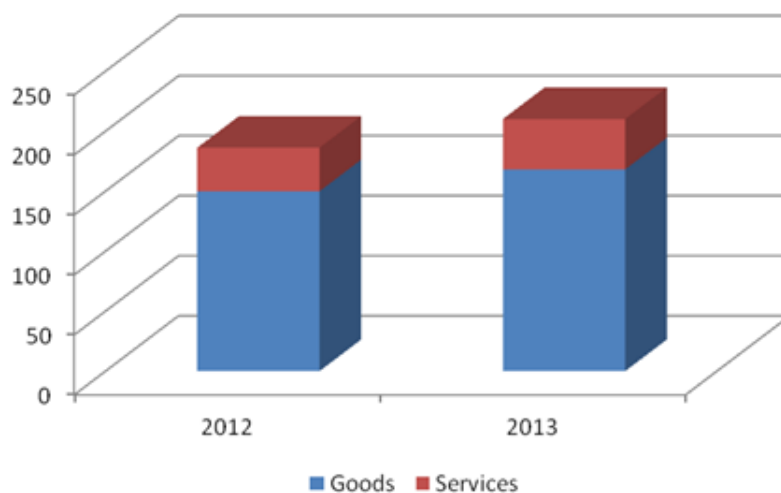


Figure 1. Slovenia's trade in goods and services with Baltic countries (value in million €), 2012–2013 (Bank of Slovenia, 2013, 2014).

In 2013, the value of Slovenia's trade in goods and services with Baltic countries amounted to €210.1 million, slightly more than 0.4 % of the value of Slovenia's trade in goods and services with Europe, and an increase of 12.8 % over the previous year. In the same year, the value of Slovenia's exports of goods and services to these countries amounted to €137.4, which is low in comparison to the values of Slovenia's exports of goods and services to some other countries in Europe, while the value of Slovenia's imports of goods and services from these countries amounted to €72.6 million, an increase of 53.6 % over the previous year. Therefore, Slovenian enterprises should adopt some measures to increase the value of its exports of goods and services to these countries, such as increasing their sustainability, in order to gain competitive advantages.

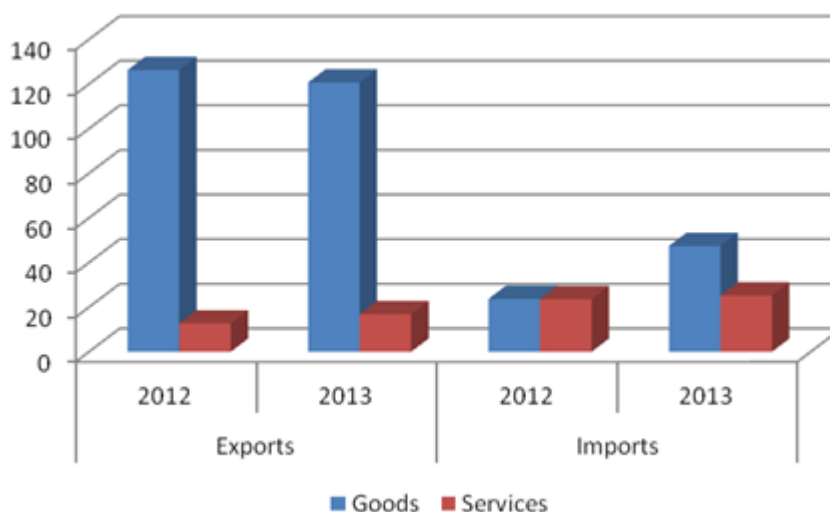


Figure 2. Slovenia's exports and imports of goods and services with Baltic countries (value in million €), 2012–2013 (Bank of Slovenia, 2013, 2014).

The results of this analysis show that there are some unexploited opportunities to further increase the geographical diversification of Slovenia's exports of goods and services. In order to exploit existing business opportunities and create new ones, Slovenia should increase the competitiveness of Slovenian enterprises and adopt some other measures, such as increasing their sustainability. After all, sustainable development creates many business opportunities for Slovenian enterprises in the domestic and foreign markets. In view of these points, this paper presents a starting point for in-depth discussion on the measures that should be adopted by Slovenia to further increase the value of its exports of goods and services to the world (including Baltic countries) and to achieve some of its other goals. In this context, this paper also presents a starting point for in-depth discussion on Slovenia's sustainable development, which creates new business opportunities for domestic and foreign enterprises. However, to further accelerate its sustainable development, Slovenia should adopt sustainable policies and strategies, and promote sustainable practices.

4. DISCUSSION

Today's market conditions are forcing companies to adapt to changes in order to survive, grow, and remain competitive. Such changes include a variety of strategic perspectives and competitive advantage creations, thereby enabling them to compete and innovate in a dynamic environment. In recent years, many Slovenian enterprises have adopted a number of measures to accelerate their sustainable development in order to remain or become competitive and, more importantly, to gain competitive advantages. For these enterprises, sustainability has become a commitment in order to increase their business excellence. However, for small enterprises operating in niche markets, being a sustainability leader is particularly challenging.

In order to further increase their sustainability, Slovenian enterprises must adapt their strategic planning to their changing needs as a result of their commitment to sustainable development. Additionally, they must also promote sustainable business practices among their employees and other stakeholders as a measure of their sustainability policy. This is, among other things, very important to increase their competitiveness and to improve their business results. In order to increase the geographical diversification of their sales, Slovenian enterprises should look for business opportunities in lesser known markets, such as on Baltic markets.

In recent years, entrepreneurship has become increasingly important (see Hisrich, 2010; Hisrich et al., 2010; Schaper et al., 2013). This is particularly true for international entrepreneurship (see Zucchella and Scabini, 2007; Oviatt et al., 2011; Fernhaber and Prashantham, 2015; Rialp et al., 2015), which is an important factor in international trade in goods and services. Therefore, in order to (further) increase the value of international trade in goods and services (which in recent years has been affected by the financial, economic and social crisis (see Acharyya and Kar, 2014; Temouri and Jones, 2014), mainly in Europe (including Slovenia and some other countries in Central and Eastern Europe (CEE), and in North America, its (main) stakeholders should promote international entrepreneurship still further. Additionally, they should also (further) promote cooperation between entrepreneurs/enterprises in areas such as sustainable innovation.

It should also promote sustainable consumption in response to resource scarcity, which is an important factor of sustainable innovation. In order to increase the competitiveness of

Slovenian enterprises, Slovenia should promote best practice in innovation management and adopt some other measures, such as the promotion of sustainable innovation, as a prerequisite for a sustainable future. After all, sustainable innovation is an important factor in sustainable development, which is an important source of business opportunities. In order to increase the geographical diversification of its exports of goods, Slovenia should promote cooperation between Slovenian enterprises and their foreign counterparts in entering new (niche) markets, and it should adopt some other measures, such as the promotion of sustainable innovation, as an important factor for sustainable business.

In the coming years, sustainability will play an increasingly important role in the business world, including the Slovenian one. Entrepreneurial education must therefore be adapted to the current and future needs of a business environment in which businesses are increasingly looking for sustainable solutions to their business problems in order to increase their competitiveness.

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SLOVAK – UKRAINIAN CROSSBORDER REGION AND MANAGEMENT OF CROSSBORDER COOPERATION

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Abstract: In regions presented on a political-administrative level there are various cooperative ties. They take place on a local, regional, as well as state and sub-national level. The level of regional development in cross border territory has been affected by political-administrative restrictions between the neighboring states. These barriers can be mitigated by creating cooperative networks on the level of regional players on both sides of the border. In our paper we deal with the Slovak-Ukrainian cross border region. It is a territory, in which the state border is a barrier of cross border cooperation due to administrative, legislative and politically different environment. The project implemented in this region entitled Through communication towards prosperity of the Slovak-Ukrainian cross border region is supported by the funds of the Norwegian Financial Mechanism. The project is implemented by the University of St. Cyril and Methodius in Trnava in cooperation with partners - National University in Uzhgorod, Regional Development Agency in Svidník, Regional Development Agency in Rachov and Slovak Agency for Development of Investments and Trade. Research activities related to searching for possibilities for improving cross border cooperation and management of cross border activities are also part of the project. Analysis of the territory and a survey in the eligible cross border territory has been carried. Results of the regional analysis and the research of regional stakeholders opinion were used in the creation of a joint strategy for the management of cross border activities. This confirms the justification of assumptions that it is desirable to create conditions in the Slovak-Ukrainian cross border region for uniting regional partners on both sides of the border, for the purpose of better communication when generating cross border project proposals using the potential of the territory.

Keywords: Slovak-Ukrainian cross border region, cross border cooperation of regions, regional development strategy.

1. INTRODUCTION

Regions are not some “ready phenomenon“. They are formed due to the activity of various processes and actors. Except for economic processes, integration processes have also an individual meaning. These processes can be caused by functional activity of differentiated system or by cooperation activity, which leads to the implementation of certain goals [4].

Planning of development of the regions, formulating desired developmental trends in various sectors of regional and local economy leads to the process of active application of methods of developmental territories, respectively regional development management. In a broader context, on regional and national scale, we can discuss the use of tools of regional policy, which should lead to regional competitiveness. In regions defined on a political-administrative level there are various cooperation ties. In territorial units in border locations

there are also cross border ties. Here there are cross border relationships on various bases and ranks. The success-rate of policy of regional development in the cross border region is usually affected also by a mutual interaction of regional actors. In this context the cross border regions can be viewed as territorial units, under which various governing mechanisms and innovative concepts can be integrated and thus achieve synergistic developmental effects.

A relatively short state border of Slovakia and Ukraine (98 km) is the outer border of the EU. Slovakia is also part of the Schengen territory and it is one of the EU member states, which adopted the conditions for building the third stage of the economic and monetary union introduced in the EU member states and thus became part of the Euro Zone. Therefore the Slovak - Ukraine cross border region, in terms of geopolitical and economic context, has significantly limited developmental possibilities especially in terms of cross border economic relationships. Despite this crossborder relationships between the citizens in this region and governments on both sides of the border can be described as above the average. They are based on mutual historic experience, cultural awareness and language proximity, last but not least also on an effort for joint presentation of the region with a high potential for tourism development.

These are also reason why the issue of the Slovak Ukraine cross border region is dealt with in many studies and projects on a theoretical as well as application level. Despite differences in the economic and geopolitical affiliation of the Slovak and Ukrainian part of the cross border region, cross border activities are the focus of support programs of cross border cooperation financed not only from the EU resources, but the Norwegian Financial Mechanism as well. This fact is also an argument that calls for joint cross border coordination of project plans and intensifying communication on the level of universities, regional and local government and non-profit organizations on both sides of the border.

2. REGIONAL GEOGRAPHIC CHARACTERISTIC OF THE SLOVAK UKRAINIAN CROSS BORDER REGION

We defined the Slovak-Ukrainian cross border region based on the criteria of territorial entitlement set by the notice issued based on the EEP grants and Norway for the area of cross border cooperation support. It is administratively defined territory formed at the Slovak side by the Prešov and Košice self-governing region and on the Ukrainian side the entitled region for use of grant aid is the Transcarpathian region (see Fig.1).

With its area of 8 973 km² the Prešov region represents 18,3 % of the area of the state and it is the second largest in Slovakia. Relief of the region is rugged. The largest areas of the region are units of External Carpathians. There are several large and small protected areas, of which in terms of size and significance the largest is the Tatra National Park and Pieniny National Park. Natural beauties of the region and suitable climatic conditions create favorable conditions for the development of tourism. A fifth of the accommodation facilities of the SR are concentrated here, approx. 700 thousand visitors annually use the services. Within the region the most visited regions are the High Tatras and the Bardejov, Kežmarok, Prešov a Stará Ľubovňa counties. With population of 819 977 the Prešov region is the largest in the Slovak republic. Its share on the total population of Slovakia is 15,1 %. Population density of 91 inhabitants / km² is the second lowest value and it is one-fifth lower than the average population density in the Slovak Republic. The region is administratively split into 13

counties. The administrative, economic, cultural and social center of the region is Prešov, third largest city in Slovakia in terms of population (90 349 inhabitants as of 31.12.2014). Industry in the region is without major focus on a specific production sector. Metalworking, woodworking, food, electro-technical, chemical, textile and clothing industry have important representation here. There are more than 16 thousand companies operating in the region, focused on the creation of profit and 55,5 thousand privately enterprising natural persons (small trade licensees, including natural persons enterprising based on other than the small trade license law). They focus their activity especially in the sector of construction, trade and industrial production. Based on the number of employees 95 % of the companies fall in the small enterprise category. A broad network of preschool facilities and primary schools represents education. From universities there are the Prešov University with eight faculties, International Business College ISM Slovakia, Faculty of Manufacturing Technologies belonging to the Technical University in Košice and the Institute of Social Sciences and Medicine P. P. Gojdič belonging to the College of Health and Social Work of St. Alžbeta in Bratislava. Network of health care facilities is supplemented by sought out curative and preventive facilities for respiratory diseases and diseases of the digestive and circulatory system. There are cultural and historical monuments of European significance in the region, specifically in city centers of Levoča, Prešov, Bardejov, Poprad and Kežmarok.

With an area of 6 755 km² the Košice region lies in the south-east of the Slovak Republic and represents 13,8 % of its territory. There are 4 large protected areas in the Košice region. Forests cover two fifths of the area of the territory, mostly in the forested county of Slovakia - Gelnica, almost three quarters. The highest point of the territory is Mount Stolica, 1476 m above sea level in the mountains Slovak Rudohorie. In terms of population it is the second largest and in terms of area the fourth largest in Slovakia. The region is the most densely population region with 117,7 inhabitants/km². The administrative, economic and cultural center of the region is the Košice city (population of 239 797), which is the second largest city in Slovakia. The Košice region has 440 municipalities, of which 17 have the status of a town. The Košice region is one of the regions with a high, almost one-quarter representation of population with other than Slovak nationality. The Košice basin is one of the most promising areas in terms of using geothermal energy. There are energy, metallic and nonmetallic resources in the region. Iron and silver ore are the most important ones from the metallic resources. There are also important resources of magnetite, rock salt, talc and gypsum. As of 31.12.2013 there were 66 thousand organizational subjects in the counties of the region. Small enterprises with less than 19 employees represented the most populous group with 87,1 %. Business activities were focused especially in the sectors of business, scientific, professional and technical activities, industry and construction. In terms of share on gross domestic product of the SR (11,4 % in 2011) and existing economic basis, the region is one of the most important regions of the Slovak Republic. Core economic sectors are industry (metallurgy, engineering, food, electronics, mining, construction materials, fuel and energy), construction and agriculture. Food production is also important. There is a developed network of trade, services, financial institutions, health and social facilities, scientific and cultural establishments. Higher education is concentrated in Košice, where there are 4 universities (University of P. J. Šafárik, Technical University, University of Veterinary Medicine and private College of Security Management). Students can also study at the Business Economy Faculty of the Economic University of Bratislava, Theology Faculty of the Catholic

University of Ružomberok, or the Faculty of Slovak Agricultural University of Nitra. In Košice there is the Constitutional Court of the SR and Office of the President of the SR.

The administrative territory of the Transcarpathian region has an area of 12 800 km² in Easter Carpathians bordering West of Ukraine. It is the only part of Ukraine, which borders with four states – Poland, Slovakia, Hungary and Romania. Mountains make up approx. 80 % of the territory of the Transcarpathian area and emerge from the south of the Pannonia plains to the summits of Easter Carpathians at the North of the region. The highest mountain of Ukraine Hoverla (2 061 m) in Čornohora is in the Easter border area. According to the census the population of the Transcarpathian area was about 1,2 million inhabitants actually. Ethnic Ukrainians make up majority of the population – 80,5 %, Hungarians are the most significant minority with 12,1 %. Population density is on average 100.2 people/km² and in this respect the Transcarpathian area is in the sixth place within Ukraine. In terms of administrative the Transcarpathian region consists of 13 counties. Population centers consist of 11 city settlements. Uzhgorod (118 000 inhabitants) is the administrative center of the area. Majority of the economically active population (38%) is employed in agriculture and forestry, 14 % in industrial production, 10 % in the field education, science and art, 5.5 % in transportation and telecommunication and he rest in medical and social services. The sector of construction, management of economy and state service employs about 3 % of economically active population. As for the industry composition, the main part consists of the wood processing industry (35%), food industry (26%), light industry (11%), engineering industry (9%) and construction (5%). In addition to industry, major part in the economy of the Transcarpathian area is tourism and recreation; there are sanatoriums, health resorts, tourist and recreational centers. The most significant institution of higher education is the Uzhgorod National University, Mukachevo Technological Institute and the Uzhgorod State Institute of Information Sciences, Economy and Law. There are research institutions in the Transcarpathian area, including the regional department of the Ukrainian National Academy of Sciences.

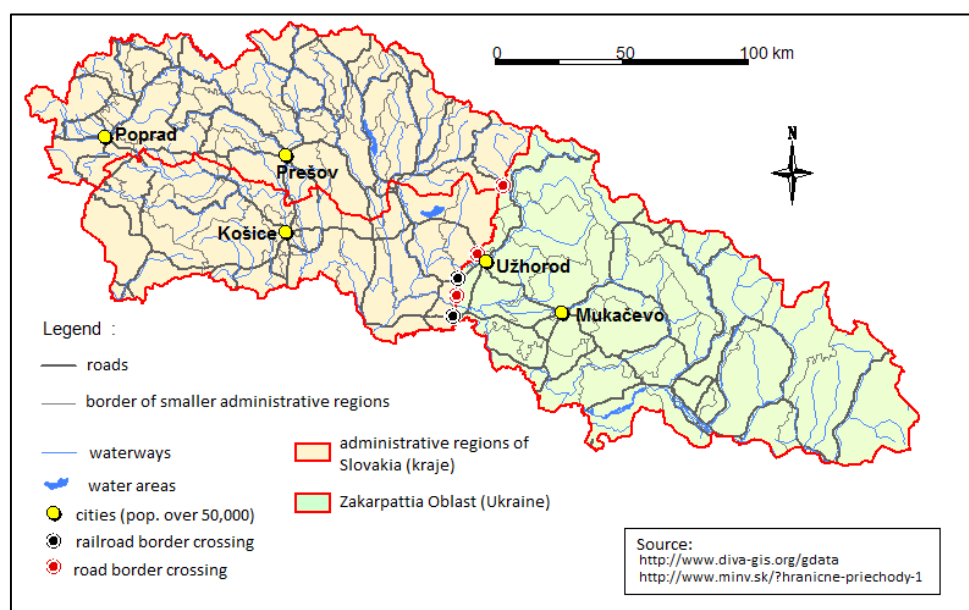


Figure 1. Slovakia - Ukrainian cross-border region

2. 1. COMPARISON OF SELECTED SOCIAL-ECONOMIC INDICATORS OF THE REGION

In terms of social-economic characteristics the Slovak-Ukrainian cross border region is very different (see Table 1. and Figure 2.).

Table 1. Comparison of selected characteristics of the cross-border region

Characteristic / Territory	Prešov region	Košice region	Slovakia	Transcarpathian region	Ukraine
Area (km ²)	8973	6755	49035	12777	603628
Population	819977	795565	5421349	1256 903	45426249
Population density (per km ²)	91,4	117,8	110,6	97	75,5
Number of districts	13	11	79	13	490
Number of cities	23	17	138	30	1 344
Number of municipalities	665	440	2 890	579	28457
Net migration (‰)	-2,0	-0,2	0,6	-0,1	0,07
Natural increase (‰)	2,9	1,6	0,3	2,9	-3,5
Unemployment rate (%)	15,5	14,4	10,6	10,5	8,8
Average monthly salary (€)	636	758	824	209	279

Source: Statistical Office of the Slovak Republic, 2015 / Statistical office of UA, 2013; Own processing

There is also an obvious difference in size of residential settlement and size of regional levels of local governments. Slovakia has decentralized self-governing higher territorial units - regions, in Ukraine there are areas, which in terms of size can be compared with the level of Slovak regions at the NUTS II level. Major differences are in the creation of gross domestic product per capita (see Figure 2). Its value in the Slovak part of the region is significantly higher, *despite the fact that* Prešov and Košice region according to the evaluation of regional disparities achieved the worst position in the regional structure of Slovakia [7],[8]. Disadvantage of the Slovak regions is high level of unemployment when compared to the Transcarpathian region. Because Ukraine still has not solved reforms related to transition to market economy, the level of these values cannot be compared quite objectively.

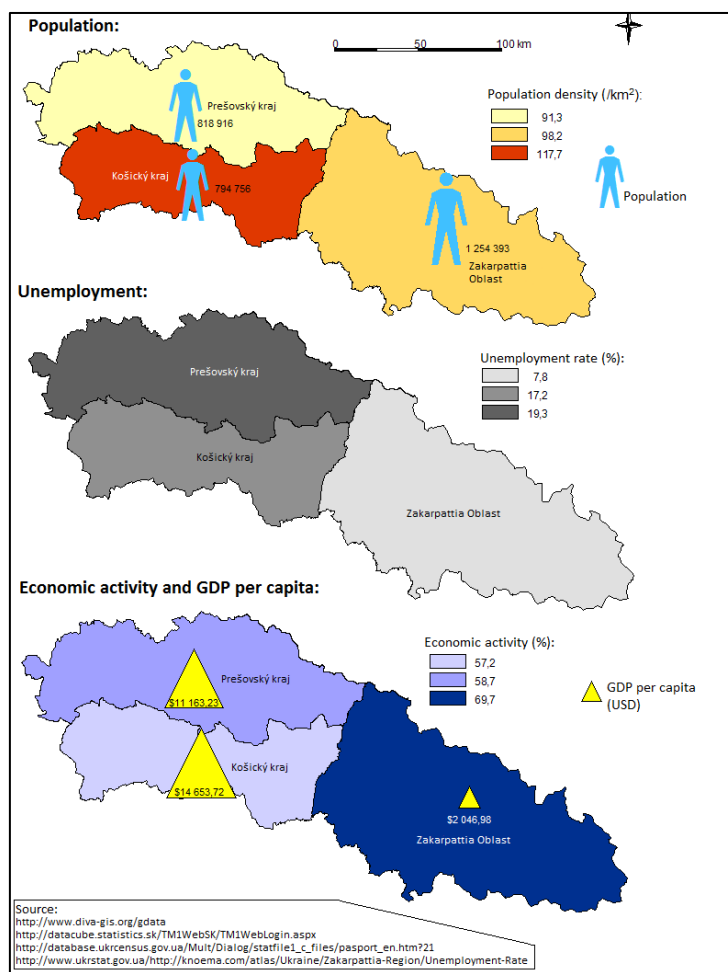


Figure 2. Selected socio-economic characteristics of the Slovak-Ukrainian Cross-border region to 31.12.2014

2.2. CROSS BORDER CONTEXT OF TERRITORIAL DEVELOPMENT

Regional policy of the European Union focuses on the change of social and economic situation of the regions with the goal to support their own endogenous potential. This applies also to cross border regions. In order to meet these goals, aspects of cross border territorial compatibility are very important in terms of possibilities of developing cross border relations, cooperation and generating joint cross border projects using the potential of the cross border region. They can be briefly summarized into areas of settlement and human resources, infrastructure of the territory and protection and planning of the country. Several professional studies are dealing with them. In analyses we have used information also from conceptual and strategic documents created based on regional and national levels [1], [2], [3].

In terms of creating conditions for the territorial development of the region, priority in the area of development of the settlement is its stabilization on the external border of the EU. It is necessary to use similar level of concentration of population and economic activities as are used along the transportation corridor Vienna- Bratislava - Košice - Uzhgorod - Lvov. The

settlement structure and its potential cross border relations require the creation of other border road and railway crossings and modernization of their technical equipment.

In contact with the joint Slovak-Ukrainian state border International Biosphere Reservation Eastern Carpathians has been announced. High-quality landscape potential of cross border territory with lot of natural resources requires the creation of conditions for effective joint action in the area of protection of nature and land and the creation of new bilateral cross border protected areas.

Planning of territorial development on both sides of the border should accent the still insufficiently appreciated recreational potential of the area of the preserved mountain landscape of Eastern Carpathians. It provides conditions for the implementation of activities aimed towards the development of ecotourism and cultural tourism. Even today the Carpathian Bike Route crossing the territory of five countries - Poland, Slovakia, Ukraine, Romania and Hungary is acquiring international significance.

2.3 MANAGEMENT OF THE INTEGRATED DEVELOPMENT OF THE CROSS BORDER REGION

Different quality of internal environments of Slovakia and Ukraine and also the fact that Ukraine is the only neighboring countries of the SR, which is outside of the integrated territory of joint rules and standards of the European Union, NATO and WTO represents a problem for establishing tighter and more permanent cross border relations and cooperation. Currently the SR as an EU member state has to start from the frame of policies and relations, which the EU applies towards Ukraine. Basic changes in the cross border relations between the SR and Ukraine in the area of foreign trade, further development of economic cooperation and operation of the regime of joint border and visa policy can happen especially after adjustment of relations between the EU and Ukraine. Since the introduction of the Schengen regime, the asymmetric visa regime is assessed by the Ukrainian side as the greatest obstacle of developing cross border cooperation. The cross border region is more and more perceived is part of two very different parts of regions from different state formations with deepening developmental disparities. The carrier element of bilateral Slovak-Ukrainian relations is continuing to be the cross border and regional cooperation with emphasis on the Transcarpathian area. However even here the mutual cross border cooperation thus far doesn't use the national or the regional potential, also due to the unfinished institutional basis, major overlapping of competences in individual institutions, non-coordination of activities and initiatives and also significant asymmetry of competences between the Slovak and Ukrainian institutions. Different level of development of border regions is not encouraging and not motivating the planning of mutually beneficial cross border cooperation. Paradoxically the economic situation in the bordering regions in Ukraine is a challenge for entrepreneurs from Slovakia, but the conditions of small enterprising are burdened with unbearable complications with bureaucracy, especially on the Ukrainian side. Practical impassibility of the border is another barrier, when the customs procedure is complicated and takes exceptionally long.

A major hurdle for the Ukrainian side, affecting the development of the Ukrainian-Slovak border cooperation the respondents in the survey, carried out by The Carpathian Development Institute [6] identified:

- low professional capacity of local (Ukrainian) authorities, which lack information on how to participate and ability to raise resources for [implementation of the activities](#);

- lack of strong local non-governmental organizations that are able to independently initiate and implement cross border cooperation activities and also be able to obtain sufficient resources *its functioning*;
- lack of financial resources for the implementation of cross-border cooperation on the state level *at* the municipal level, which is caused not only by the very lack of resources, but also legislative conditions in the redistribution of local taxes;
- lack of structural, long-term support mechanisms for cross-border cooperation by the EU and *by the government*.

Regional and local initiatives and associations aim for improving conditions for the development of cross border cooperation under such conditions. Autonomous regions on the Slovak side of the cross border region do not have the possibility to coordinate cross border cooperation with their partners on the Ukrainian side. The main reason is that on the Ukrainian side they are incompatible in terms of competency, especially the autonomous institutions. This causes issues in communication especially among the cross border actors from the self-government and from the NGO sector. An individual problem is the different level of public administration in the border regions. For the Ukrainian conditions it is characteristic that on the regional level there are administrative units consisting of bodies of local state administration as well as bodies with the competence of local government. If in Slovakia a major part of the competences of the state administration has been delegated to local in regional governments, then in the Transcarpathian area the process of decentralization takes a long time and the effect of the state administration on local and regional development is dominant. In Ukraine there is still a centralized system of financing territorial self-governance, while local budgets are becoming more and more socially oriented. Under current economic conditions and under valid system of inter-budgetary relations, local government is more and more dependent on transfers from state budget. If the cross border cooperation in this region should be successfully started, then the Slovak-Ukraine border should not be viewed as two separate regions, but as one region split in two parts, which must learn to cooperate at all concerned levels [9].

If we want to understand the Slovak-Ukraine cross border region as a real entity and not a territorial unit included ad hoc, then it is necessary to solve also the management of the cross border cooperation.

Effectively managed cross border cooperation in clearly defined conditions and set competences is one of the key factors of development of the border region. It has to be based on already anchored traditions and partnerships of institutions and individualities, which jointly develop mutual cooperation, but it also must support the creation of new and innovative initiatives, partnerships and forms of cooperation.

Pursuant to the objectives of the above stated implemented project Through communication towards prosperity of the Slovak-Ukraine cross border region, we recommend to initiate the creation of a non-profit organization under the auspices of three autonomous regions: Prešov, Košice and the Transcarpathian region.

Such an association will create the conditions for networking of regional actors in the territories and to form the basis for implementation of joint cross-border initiatives and generating strategic projects for cross-border region as a whole.

Building on recommendations of expert teams [2], which participated on creating the strategy of development of the Slovak-Ukrainian region, activities of managing development projects should focus on coordination and joint planning of integrated regional development,

modernization of border infrastructure, support of joint activities of regional parliaments and non-government organizations and support of communication strategy, education and consultation activities and exchange stays at universities.

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COMPETITIVENESS AND COMPETITIVE ADVANTAGES OF THE INDUSTRIAL ENTERPRISES IN THE NORTHEAST REGION

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Abstract: Enhancing the competitiveness of industrial enterprises through accelerated development of research, technology and innovation is a decisive step towards the achievement of sustainable economic growth. Reducing regional economic disparity in Bulgaria as well as the economic inequality between the country itself and the other EU member states, requires the establishment of a more efficient and productive knowledge-based sector of industry.

The prime objective of the paper, therefore, is to examine the development of NER industrial enterprises in terms of their potential, competitiveness and position; to offer a sectoral and territorial analysis of the prerequisites for increasing the economic competitiveness of the region, its business enterprises and sectors of economy. In view of this, the paper, furthermore, provides some concluding observations on how the appropriate framework conditions for the full functioning of the industrial businesses in the region might be improved.

Keywords: competitiveness, competitive advantage, industry, region, growth

1. INTRODUCTION

The present-day requirements for competitiveness under current market conditions go along with the ever-more intensively ongoing processes of globalization. Overcoming some inevitable economic barriers to business interactions in a globalizing world market is directly dependent upon the establishment of high levels of competitiveness not only at the national level as a whole, but also within its regions, business structures and strategic sectors.

As a member of the European Union, the Republic of Bulgaria has to achieve competitive resilience as to the pressure of internal forces of the European market, and make a rapid transition to a knowledge-based economy. Accordingly, of utmost importance is the way in which Bulgaria's regions, industrial sectors and manufacturing industries are positioned in the context of the EU policy for enhancing industrial competitiveness.

In today's market realities, the main industry sectors of Bulgaria, its economic sectors (or branches of economic activity) and a large proportion of the companies fail to stand up successfully to the new challenges they encounter. The crisis in Bulgarian economy may be primarily defined as a crisis of competitiveness. It seems indisputable that overcoming it undoubtedly depends on the functioning of the industrial enterprises and is above all contingent almost entirely upon their ability to achieve high productivity and efficiency, on the basis of innovative approaches to the available factors of production.

The state investment policy to promote competitiveness and growth of the Bulgarian industry's, to a great extent, regarded as a determining factor. Moreover, the state itself has the required ability to enhance the levels of industrial production through exerting an impact

on the volume, redistribution and a more effective implementation of public and private investments in various key strategic areas. [1]

2. IMPORTANCE OF NER FOR THE DEVELOPMENT OF NATIONAL ECONOMY

To perform an objective analysis one should explore the possibilities of the Northeast region to create goods. The specific environmental characteristics of the region lay down the conditions necessary to secure the establishment and development of the industrial sector within its boundaries. NER comprises the northern part of the Bulgarian Black Sea coast, part of the eastern slopes of Stara Planina, part of Ludogorieto and Dobrudzha. The region consists of four districts: Varna, Dobrich, Shoumen and Targovishte and 35 municipalities.

The area of the region is 14 487 km² or 13.05% of the country's territory. It has the smallest area of all the regions in the country. Nevertheless, the Northeast region is associated with comparatively higher levels of economic development. Present in NER are all key economic sectors that have made significant contribution to the creation of gross domestic product (GDP), and correspondingly to the Bulgarian state standard (referred to as BDS). The survey and the analysis of the statistical data show that NER share the positive dynamics in the development of the country during the 2012-2014 period, (the latest data available from 2014) demonstrated in higher GDP growth rates than the average rates for EU28. In 2012 the GDP per capita at NER level is estimated at 8853 lv., in 2013-9267 lv. and in 2014 - 9326 lv. The district of Varna had the highest absolute value in 2014 with 11235 lv per capita, which was lower than the same period of the previous year (11395 lv per capita). In 2014, the GDP per capita in the district of Dobrich was set at 7747 lv. Contrary to the district of Varna, Dobrich had higher GDP per capita as compared to that of the previous year (7440 lv.) As for the other districts – Targovishte and Shoumen, it was significantly below the national average (11283 lv) and the regional level (9327) for 2014, with 7310 lv and 7243 lv respectively. Northeast region had contributed 9.20% to the country's GDP in 2014, which was a drop-down as compared to 2012 with approximately 0.18%. [1,2]

NER ranked third in the country in 2014 as to the size of the accumulated foreign direct investment, which as compared to 2013 was an increase of 52437 thousand euros. The districts that had attracted the largest share of investments were Varna – with 1 679 193 thousand euros and Targovishte – 1 982 86, 2 thousand euros, followed by Dobrich with 1 115 66, 1 thousand euros. The district of Shoumen had the lowest rate of FDI – 104 871, 4 thousand euros. What was noticeable was the significant reduction in the amount of FDI in Dobrich with 37,20% as compared to that of the previous year.

The share of expenditure on research and development (R&D) as a percentage (%) of GDP for 2014 in the Northeast region was rather low (0,30%). That ranked the region third in the country, but compared with the European regions it was close to the lowest levels. That fact did not correspond well with the relatively high scientific and engineering potential of the region. R & D-related expenditure was mostly carried out in Varna and to a lesser extent in Shoumen.

In 2015 the import and export dynamics signals significant slowdown of the regional foreign trade. The export of goods and services for the overall economy in the region decreased by 2.6% as compared to the previous year with the observed development

corresponding to the decreasing demand from our major trading partners. This in turn also limits the dynamics of the import of goods and services, which amounts to 8.9% as compared to 21.6% in 2013, and correlates with its dependence on export-oriented activities. The geographical structure of foreign trade by economic zones is marked by a certain shift towards a lower share of import and export, directed towards the European countries. [1,3]

Systematisation of statistical information clearly shows that there are 51 554 enterprises in NER, and in terms of this indicator the region ranks fourth in the country. The decline in the number of enterprises in 2014 amounts to 0.10% as compared to 0.6% in 2013, which represents a slowdown in the rate of change in the indicator under study. The observed negative dynamics is consistent with the persistently low levels of economic activity in the country, which in turn limits the establishment of new and the survival of already existing enterprises. The analysis of the structure of regional enterprises shows that prevalent are micro, small and medium-sized companies. (fig.1)

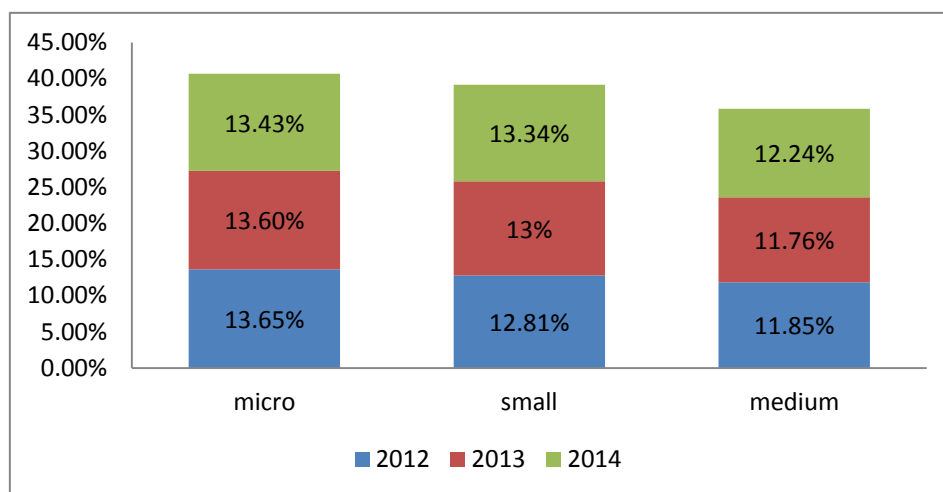


Figure 1. Groups of enterprises by number of employees in NER

On the basis of the above, it can be concluded the industry (viewed as a set of manufacturing and construction) in the Northeast region is a combination of large and small companies, presented on abroad (diversified) industrial base.(table 1)

Table 1. Number of non-financial enterprises in the Northeastern statistical region by groups as regards the number of their employees and by economic sectors

Industry sectors	Total	micro	small	medium
Construction	2 741	2363	313	65
hotel industry and catering industry or restauranturship	3 287	2923	304	60
Agriculture, forestry and fishing	3 303	2918	354	31
Processing industry	3 509	2837	518	154
Professional activities and research	4 442	4345	90	7

Manufacturing is a major structure-defining sector for the regional economy and is of paramount importance by a number of indicators. Primary position is taken by manufacturing of food products, beverages and tobacco and manufacturing of chemicals, chemical products and fibers. Machine-building industry involving vehicle manufacturing, textile and clothing industry and construction sector are other important areas in the development of the secondary sector of the region. The industrial sector is characterized by a high degree of concentration in the district centre sand in the region of Devnya–Beloslav industrial agglomeration.

In the economy of the Northeast region, agriculture is one of the priority sectors. For its existence there is a very favourable combination of natural and climatic conditions. The comparison with other planning indicates that the Northeast region takes up the largest percentage of agricultural areas 21,1% of the arable land and agricultural areas of the country. Within the framework of the region Dobrich area has the highest relative percentage- 81,6%. The agricultural sector is reported to have unrivalled influence on the performance of the regional economy, especially in the formation of gross value added (GVA) and people employed, with the districts of Silistra, Razgrad, Targovishte and Dobrich lagging behind the country's average rates to a very large extent. The region's territory offers a wide range of opportunities for sea fishing and fish farming, which in turn, opens up plenty of opportunities for the local population to meet their nutritional needs of fish and fishery products. The North-Eastern Planning Region holds the leading place among the planning regions in the country with respect to the development of tourism, having 39,7% of the accommodation capacity across the country , 37,8% of the number of accommodations (beds) per 24-hour period of service, 47,1% of the number of the actual overnight stay sand 43,6% of the realized revenue from accommodation. (Table I Industrial sectors)

In the district centres of Varna, Dobrich, Shoumen and Targovishte fostered are the following sectors of the processing industry: metal processing, manufacturing of food products, with the most widespread being the production of bakery products and confectionery (bakery and confectionery), dairy production and products, textile and clothing leather and footwear, machine-building (machinery) and equipment). In Dobrich, Shoumen and Targovishte relatively high is also the share of enterprises producing rubber, plastic and furniture. Of particular note is also the presence of a large number of companies in the field of scientific and professional activities.

Examination of the factors related to the competitiveness of the region's economy has been carried out through a survey in companies representing key industry sectors. **The survey covers 35 enterprises** from the processing industry and more precisely dairy production, production of textile and clothing, leather and footwear industry. The underlying aim of the survey was to get insight and report indicators such as: access to funding, internationalization, innovativeness, level of intellectual property and implementation of best practices.

2.1. OF PARAMOUNT IMPORTANCE IN DETERMINING THE LEVEL OF ABSORPTION OF EUROPEAN FUNDS IS THE REPORT ON ACCESSING THE FUNDS

Assessed have been eight key indicators: Investment bank loans; working capital loans; special purpose loans; financial leasing; company's own equities (financial resources belonging to the owner/s; EU funding and funding available through government programmes or other governments. (fig.2)

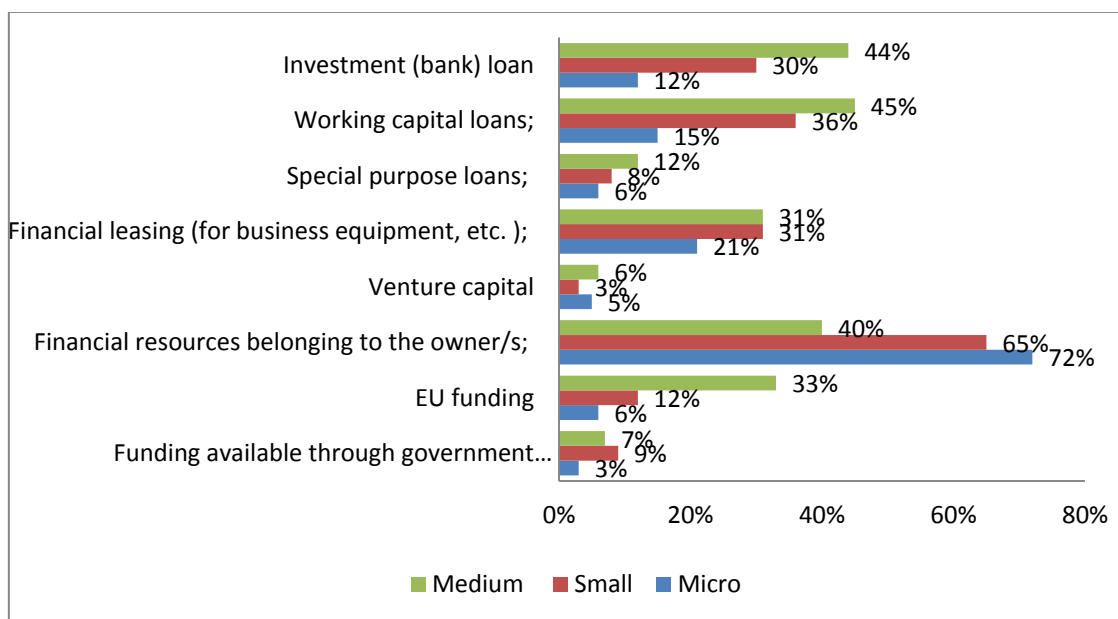


Figure 2. Use of financial instruments by SMEs in NER for the 2007-2013 period

The majority of the entrepreneurs in the surveyed sectors identified company's equity as a major source of financing their economic activities business funding their own financial resources. With micro enterprises this coefficient is significantly high -77%. This is due to a somewhat more hampered access to financing and the requirement for submission of guarantees and credit history. Small and medium enterprises rely on equity financing and finance their production with 65% and 40% respectively out of their own funds. Other favourite types are working capital loans and investment (bank) loans. Every fourth enterprise reports use of investment loans-26%, and financial leasing -22%. 14% of the manufacturing SMEs have obtained financing through EU funding, while 6% have received financial support through programmes of Bulgarian and/or other governments. Venture capital is distributed only among the 4% of the surveyed industrial enterprises. On the whole, accessing funds via banking institutions is easier with medium and small enterprises, where the company's equity (its own financial resources) is used at a significantly lower degree, as opposed to micro enterprises. Nearly 26% of the manufacturing SMEs indicate that they have outstanding financial commitments, and 63% overdue (accounts) receivables. For half of the enterprises, the percentage of overdue receivables in the current general turnover exceeds 10%. At present, a substantial part of enterprises have their own company policy to control cash flows - 75%.

Based on the analysis of results, it can be concluded that an overwhelming majority of the industrial enterprises rely either on bank loans or on their own financial resources (company's equities) rather than access finance through various financial instruments of EU funding programmes.

2.2. MAIN MARKETS AND INTERNATIONALIZATION OF THE SURVEYED SECTORS

According to the survey among the industrial companies for the purposes of the present analysis, entry on foreign markets is becoming increasingly common with enterprises having along experience of international business and much harder for young enterprises — for those established before 1995, the share of exports or domestic output that is exported is over 10%, for the younger ones it is below 10%, and for enterprises, established after 2006 the share of exports is only 4%. (fig.3)

There is a certain relationship between the importance of state incentives for facilitating and promoting exports and the size of the enterprise. When asked “Should the state, in your opinion, have a special foreign trade policy towards the exporters over the rest of the economy?” 24.3% of microenterprises surveyed responded “YES”, as compared with 28.9% of the small and 48.8% of the medium enterprises.

The enterprises in NER recognize the European market as the most promising one (7.6% of the enterprises), followed by that of the neighbouring countries (4.3% of the enterprises). Only 2.9% of the surveyed consider the Eastern market (Commonwealth of Independent States (CIS) and Asia) as suitable for the export of their output.

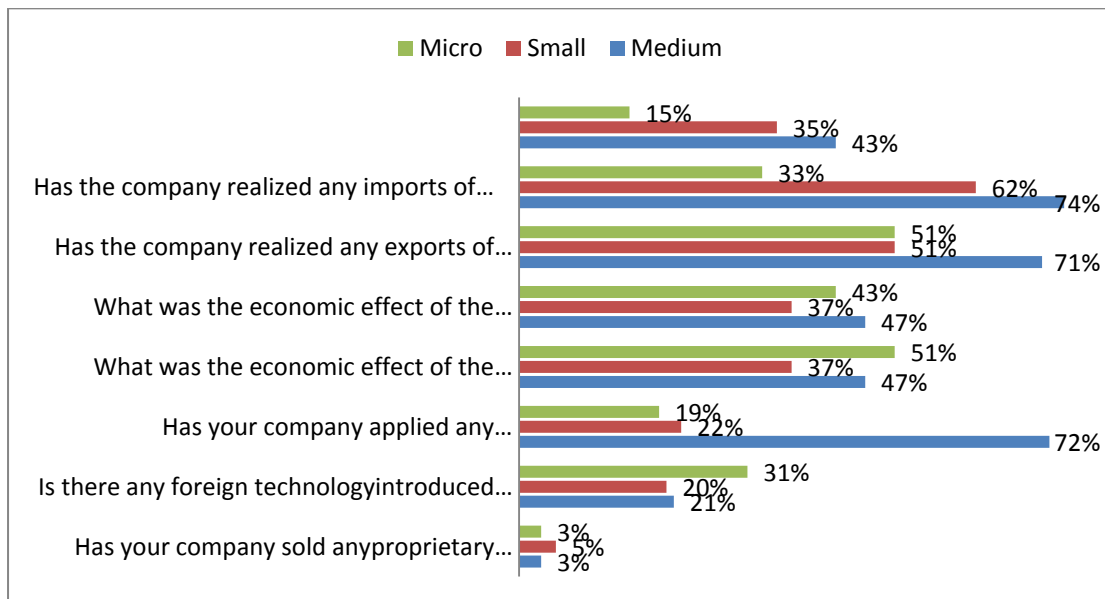


Figure 3. Internationalisation of SMEs in 2015.

The percentage of manufacturing firms or companies that have participated in exhibitions or fairs over the last 12 months amounts to 29%. International standards are applied in 39% of the companies, whereas 18% have foreign technology introduced to their enterprises. 3% of the manufacturing companies have proprietary technologies old abroad. The percentage of enterprises that have acquired foreign equity ownership is nearly the same. Similar is the percentage of those, providing their expertise and experience in the field of management and trade to foreign enterprises (4%).

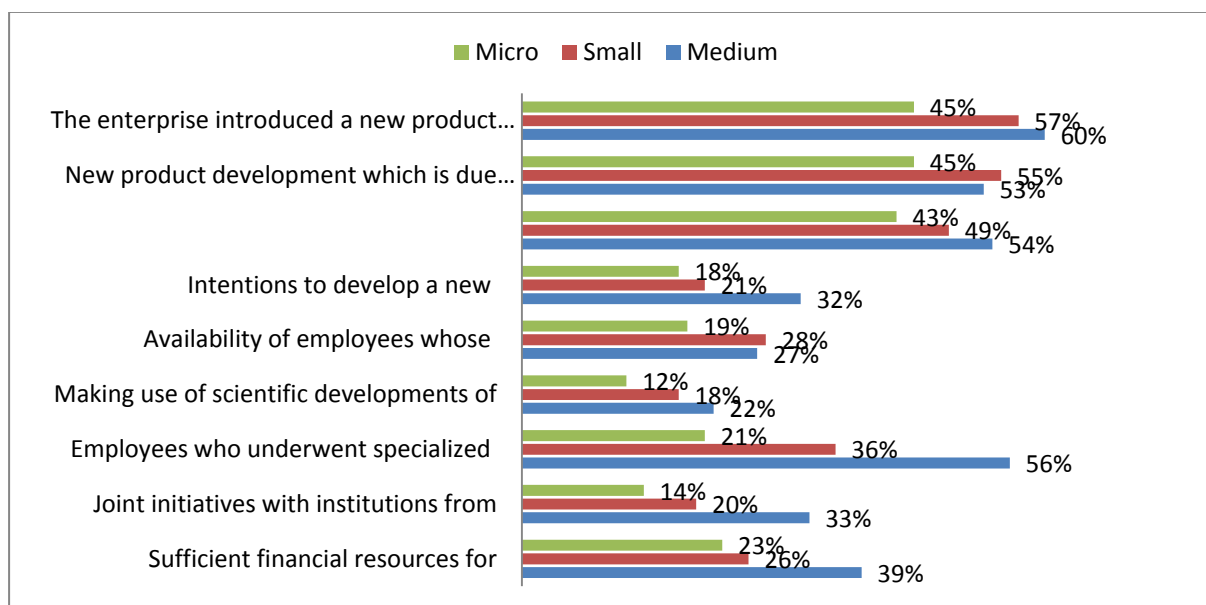


Figure 4. Innovativeness of the companies in NER, 2015

Slightly over half the industrial enterprises introduced a new product into the market in the last year (53%) or have been preparing to launch such a product in the near future (51%). Intentions to develop and implement new products for the coming year have 48% of SMEs. Each fifth enterprise, which has failed to develop new products over the last two years, has an intention to launch such a product in 2015. The percentage of the entrepreneurs, who state that they have sufficient financial resources available for financing innovation in their enterprises, is 29%.

Half of the enterprises (50%) have built up a library to store professional literature—books, guidebooks, specialized periodicals (journals or magazines), etc. Approximately one-fifth of the industry enterprises (22%) have their own research and development units, while one-fourth (25%) have appointed distinctive group of employees whose job descriptions include research and development activities. Over the last five years 34% of the manufacturing enterprises have provided specialized training for their employees as regards the latest cutting-edge innovations in the respective sector.

During the last year 20% of the enterprises participated in joint activities with educational institutions, including internship programs, trainings, professional consulting, scholarship programs, consulted curricular programmes and others. The share of SMEs, applying developments of researchers and institutions in the creation of totally new or improvement of existing products, services and processes is 16%. (fig.4)

2.3. INTELLECTUAL PROPERTY

Successful internationalization of Bulgarian enterprises within the frameworks of the European and world market is likely to be achieved by improving the quality of their goods or services or registering their own brand name. Own –brand offering is more difficult to achieve given the EU highly competitive market.

10% of the surveyed enterprises have a registered trademark in Bulgaria, and 6% in a foreign country. As for patents, these registrations are 8% and 6% respectively. The forthcoming registrations are of insignificant share. Such a situation is closely related to the insufficient financial resources for this activity— only 7% have sufficient resources for a trademark registration, and 5% — for a patent.

Apparent is the very low level of understanding and acknowledging the value of intellectual property, as well as the opportunities to register such a property in the EU. For the purposes of the analysis the patent activity is confined to the following indicators:

- ✓ Registration of trademarks and patents at home and abroad;
- ✓ Opportunities for financing such an activity;
- ✓ Enterprise awareness (regarding the aspect under discussion).

The “Trademark and patents” index summarizes all the activities, associated with intellectual property and implemented in SMEs, addressing three components described below, of equal importance:

- ✓ Availability of registered trademarks and patents at home and abroad, as well as upcoming registrations;
- ✓ Availability of sufficient financial resources within the enterprise for registering the respective trademark, patent or other intellectual property;
- ✓ Level of awareness of the entrepreneurs as regards the value and opportunities, provided by a given trademark, and also as regards the registration of such a trademark in the EU.

The survey reveals that, almost all of the industrial enterprises (94%) have a particularly *low level* of patent activity. Very small, almost insignificant share of the more relatively more active in this direction— 4% have *rather low* patent activity, while 2% — *neither low nor high*. There are only isolated cases with *high* level of patent activity. Patent activity is greatest among small enterprises, almost twice as much as that in microenterprises. The spheres of trade and manufacturing report the highest percentage of patent activity.

2.4. BEST PRACTICES

All in all, “best practices” comprise consecutive steps of predictable and manageable activities—from accepting the idea to its implementation. Quite frequently best practices are considered generic, i.e. generally applicable. Such practices can therefore be assumed to be relatively easy to transfer from the largest to the smallest enterprises. It is precisely because of the general applicability of the generic practices, and for the purposes of the analysis, identified have been such practices, which are relatively easy to transfer from the largest and medium enterprises to the smallest and microenterprises. Within the context of improved access to information technologies, the development of markets for these goods and services and the worldwide trend towards a fall in their prices, the industrial enterprises now have the

opportunity to make use of the best practices in this area. Application of internet technology facilitates the enterprise access to information, communication with their business partners and makes it possible for sales with lower transaction costs to be achieved. The use of management information systems contributes largely to improved organisation's processes, lowers the internal transaction costs inside the company itself, provides precise and timely information for making decisions, etc.

The availability of a strategy, directed towards human resources, is an essential component of the sustainable development of the enterprises, in the short and long. Today's global marketplace calls for new competencies and skills, which gradually enter our domestic market. The required new range of skills and knowledge can be created only through a purposeful result-oriented policy for improving staff qualification.

The development and implementation of market strategies under conditions of strong competition within the European and the global market is decisive for the success of any enterprise. Because of the expanded access to information during the last few years and market pressure, activities such as planning, market research, expansion of domestic and foreign market expansion, specific to the largest enterprises, are increasingly being shifted or transferred to the activities involved in the operation of the enterprises from the surveyed sectors.

The data obtained from the study on best practices in ICT shows that application of internet technologies is most predominant. 37% of the enterprises have a website, while 27% — electronic signature of the senior executives. The share of the enterprises that use information management systems is still very low—below 6%.

Staff training, in most enterprises, cannot yet be regarded as part of the day-to-day practice, but is said to be relatively implemented on a broader basis. 37% of the enterprises organize in-house training, while 17% — external specialized training consistent with enterprise's principal business activities.

In summary, it should be pointed out that the best practices as to the use of modern technologies, strategies for human resource development and market strategies proved to be the key factors enhancing the industrial competitiveness, and the transfer of best practices into their implementation substantially contributes to the overall economic development of the sector.

3. CONCLUSION

The analysis of the surveyed data outlines several main areas, the development of which in our opinion will bring about the enhancement of NER's competitiveness and the industrial enterprises it involves:

- ✓ The region has a potential for further development of the structure-defining manufacturing industry— chemical industry, transport engineering, mineral product manufacturing, as well as food-processing industry based on well-developed agricultural sector;
- ✓ Creating favourable conditions for reducing migration processes to bigger cities in the country and abroad. Job creation and supporting non-agricultural

employment; Agricultural research service and linking it directly to the food-processing industry with the aim of gaining complete control over a product's production, from raw materials to final assembly;

- ✓ Establish better links between higher (tertiary) education, research and development with the business activities in the area;
- ✓ The region has the necessary preconditions for the emergence and development of clusters, which can lead to future territorial-production integration and inclusion of smaller settlements as components or elements of a more effective and dynamic industrial activity;
- ✓ Improvement of regional and local infrastructure - development of transnational infrastructure networks, ensuring access to the European infrastructure networks, construction of coastal transport corridor.

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THE IMPACT OF STRATEGIC HUMAN RESOURCE MANAGEMENT ON ORGANISATIONAL PERFORMANCE

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Abstract: Companies are becoming aware that employees are a source of competitive advantage. Today, organizations can not develop and be successful if employees do not engage enough to accomplish their goals. It should be realized and organizational and individual targets so that experts in the strategic human resource management (hereinafter: SHRM) should allow employees the opportunity for personal and professional development and to provide tools that will help employees to meet the demands that are placed in front of them and that is to achieve positive organizational outcomes that lead to the achievement of competitive advantage. From SHRM professionals are expected to participate actively in enabling organization to benefit from the changes. Their role is implementation of concrete measures to change the outdated model of work and behavior, changing values and culture of the organization. In strategic human resource management, human resource professionals become experts in organization and management. From human resources professionals today are expected to provide concrete, distinctive and measurable results in achieving organizational goals, not to be "guardians of order and status quo." Recent studies have shown that HRM practices have an impact on the organization's performance and to obtain maximum effectiveness of these practices is essential to human resources management becomes an integral part of the organization's strategy.

Keywords: Strategic human resource management, employee, HR practices, performance

Apstrakt: Kompanije postaju svesne da su zaposleni izvor konkurentne prednosti. Danas organizacije ne mogu da se razvijaju i budu uspešne ukoliko se zaposleni ne angažuju dovoljno za ostvarivanje njihovih ciljeva. Treba ostvarivati i organizacione i individualne ciljeve tako da stručnjaci u Strategijskom menadžmentu ljudskim resursima (u daljem tekstu: SMLJR) treba da omoguće zaposlenima šansu za lični i profesionalni razvoj i da obezbede sredstva koja će zaposlenima pomoći da ispune zahteve koji se pred njih stavljaju a to je postizanje pozitivnih organizacionih ishoda koji vode ka ostvarenju konkurentne prednosti. Od profesionalaca u SMLJR se očekuje da aktivno učestvuju u osposobljavanju organizacije da profitira iz promena. Njihova uloga je u uvođenju konkretnih mera za promenu prevaziđenih modela rada i ponašanja, promenu sistema vrednosti i kulture organizacije. U strategijskom upravljanju ljudskim resursima, profesionalci za ljudske resurse postaju eksperti za organizaciju i upravljanje. Od profesionalaca za ljudske resurse danas se očekuje da pruže konkretne, prepoznatljive i merljive rezultate u ostvarivanju organizacionih ciljeva, a ne da budu „čuvari reda i status quo“. Nedavna istraživanja su dokazala da prakse upravljanja ljudskim resursima imaju uticaj na performanse organizacije i da bi se dobila maksimalna učinkovitost tih praksi neophodno je da upravljanje ljudskim resursima postane integralni deo strategije organizacije.

Ključne reči: Strateško upravljanje ljudskim resursima, zaposleni, HR prakse, performanse

1. UVOD

U poslednje vreme smo svedoci porasta interesovanja za menadžment ljudskih resursa jer su i praktičari i teoretičari shvatili značaj ljudskog kapitala u sticanju konkurentske prednosti i o njegovom uticaju na performanse organizacije. Ostroff i Bowen [1] smatraju da je sistem Ljudskih Resursa složen skup praksi namenjenih da utiču na veštine, ponašanje, stavove, motivaciju, zadovoljstvo i posvećenost zaposlenih, i da će ta svojstva zaposlenih biti posrednički mehanizam koji povezuje prakse Ljudskih Resursa i performanse organizacije. Organizacije mogu da ostvare svoje ciljeve ili organizacionu strategiju ili da poboljšaju organizacione performanse samo ako imaju radnu snagu koja ima potrebno znanje, veštine, sposobnosti, ponašanje i stavove.

2. STRATEGIJSKI MENADŽMENT LJUDSKIH RESURSA

Strategijski menadžment je proces, pristup reagovanju na konkurenstke izazove sa kojima se organizacija susreće. To je proces koji služi za analiziranje konkurentske situacije preduzeća, razvoj strategijskih ciljeva organizacije i definisanje plana delovanja i raspoređivanje resursa, kako ljudskih tako i organizacionih i fizičkih, koji će povećati verovatnost ostvarivanja tih ciljeva. Ovde nastupa novi koncept upravljanja ljudskim resursima u kojem ono postaje sastavni deo procesa strategijskog upravljanja organizacijom. Međutim da bi se fokus sa administrativnog upravljanja ljudskim resursima preselio na strateško upravljanje neophodno je da je organizacija sama spremna za promene [2].

U strategijskom smislu više se ne postavlja samo pitanje optimalnog broja i strukture zaposlenih, nego koji će potencijali i sposobnosti ubuduće biti potrebni sa aspekta tržišta, konkurencije, okruženja i poslovnih strategija. Pokazalo se da je pomoću odgovarajućih metoda strategijskog planiranja moguće i neophodno uključiti ljudske resurse u sistematičan razvoj strategija, što je u prošlosti često bilo zapostavljeno. Koncept strategijskog upravljanja ljudskim resursima evoluirao je sa naglaskom na proaktivan, integrativni i na vrednostima zasnovan pristup upravljanja ljudskim resursima. Ovakav pristup vidi ljude kao sredstvo za investiranje i upravljanje.

Strategijski menadžment ljudskih resursa ukazuje na kvalitativno drugačiji odnos savremene organizacije prema ljudskim resursima, to jest, dolazi do povezivanja ljudskih resursa sa strategijom preduzeća, odnosno upravljanje ljudskim resursima postaje integralni deo strategije organizacije. Strategijski menadžment ljudskih resursa možemo definisati kao skup odluka i aktivnosti koje imaju za cilj osmišljeno razvijanje ljudskih potencijala radi obezbeđivanja konkurentske prednosti organizacije i strategijskih ciljeva poslovanja kao odgovor na izazove okruženja [3].

Da bi se strategija uspešno primenila, zadaci moraju biti oblikovani i grupisani u sklopu radnih mesta na delotvoran način. Mora se osigurati da organizacija raspolaže ljudima koji imaju potrebno znanje, veštine i sposobnosti za izvršenje svoje uloge u primeni strategije. Ovaj cilj se ostvaruje prvenstveno kroz zapošljavanje, selekciju i raspoređivanje pravih ljudi na prava mesta, trening, razvoj i upravljanje karijerom. Upravljanje ljudskim resursima mora razviti sisteme upravljanja uspešnošću i sisteme nagrađivanja koji usmeravaju zaposlene da rade za strategijski plan i da ga podržavaju. Drugim rečima, uloga menadžmenta ljudskih resursa (daljem tekstu: MLJR) postaje neka vrsta garancije da organizacija ima dovoljan broj

zaposlenih koji poseduju veštine i sposobnosti koje su neophodne za ostvarivanje strategijskog plana, i da ujedno razvija sistem kontrole koji obezbeđuje takvo ponašanje zaposlenih koji će ostvariti ciljeve sadržane u strategijskom planu.

Strateška uloga se sastoji i u tome da obezbedi jedinstveno sagledavanje strategije, da obrazuje lidere iz drugih funkcija u vezi sa njihovim odlukama koje se odnose na ljudske resurse, da spoji logičke veze između strateškog uspeha i organizacione sposobnosti da se takmiči za i sa talentima. Da profesionalci iz domena upravljanja ljudskim resursima imaju poslovne/biznis veštine, veštine metrike koje se odnose na merenje efikasnosti, efektivnosti i uticaja na strateške aktivnosti kao i uticaja na programe i procedure ljudskih resursa. Da bi bili strateški partneri neophodno je da razvijaju talente kroz rotaciju, koriste timove sa specijalizovanim ekspertima, imaju lidere u poslovnim jedinicama i da uključe linijske menadžere u donošenje odluka u vezi sa ljudskim resursima. Treba da stvore uslove za bolje razumevanje gde i kako ljudski kapital pravi stratešku razliku a potom da obrazuje lidere da razumeju tu konekciju. Sve u svemu, mapa puta za MLJR da postane punopravni strateški partner se sastoji od više uključivanja u različite aktivnosti same organizacije. Strateški menadžment ljudskih resursa mora da se organizuje tako da [4].

- ☞ ima veštine i stručnosti na korporativnom nivou;
- ☞ da ima pokazatelje i analitiku koja meri uticaj ljudskog kapitala, prakse i programa;
- ☞ da utiče na poboljšanje odluka tako što će rukovodstvu doneti analize i znanje iz domena MLJR;
- ☞ da ima set veština koje uključuju organizacioni dizajn, poslovnu strategiju metriku i analitiku;

Dakle, uloga profesionalca za ljudske resurse je značajna u planskim aktivnostima a još je značajnija u implementaciji odabrane strategije. Oni postaju arhitekta organizacije imaju sposobnosti da ponude odgovarajuću formu organizacione strukture, da identifikuju slabosti i daju rešenja za promenu metoda i procesa koji će olakšati primenu strategije. Treba da pokrenu razne inicijative kako bi se poboljšali rezultati rada, objedinjuju i koordiniraju aktivnostima operativnog menadžmenta i da pružaju neposrednu profesionalnu pomoć. Moraju da se bave talentima i intelektualnim kapitalom. Pomažu organizacijama da se menjaju i to veoma brzo, da uvode novine, da razviju leadersku širinu, da obezbede nadležnosti/odgovornosti, da uče i podučavaju, da iskoriste globalno znanje u stvaranje jasne strategije [5], [1], [6].

Mnogi profesionalci MLJR se žale da ne sede za „stolom” rame uz rame sa finansijama i marketingom, kada se priča o strateškom planiranju, kada se donose poslovne odluke. Žale se oni koji nemaju svest ili ne mogu jasno da komuniciraju sa strateškim planerima o svojim ekonomskim razlozima zbog čega treba da budu za tim stolom jer funkciju MLJR još uvek vide pre svega kao administrativnu, odnosno da jedva stignu da odgovore na zadovoljenje trenutnih potreba organizacije tako da imaju malo vremena da istraže dugoročne organizacione planove. Kako bi rekli Ulrich i Beatty [6] profesionalci u MLJR treba da budu „igrači” u igri a ne samo prisutni na utakmici jer igrači doprinose i dodaju vrednost i utiču na rezultat na proširenom terenu. Treba da budu treneri, arhitekta, graditelji, facilitatori, vođe i savest poslovnim liderima u toj tržišnoj utakmici. Da bi sedeli za „stolom” moraju da

predlože postupak za poboljšanje odluka koje će da donesu profit a ne samo da se uključe u proces sprovođenja odluka. U jednom od najobimnijih istraživanja sprovedenih na području upravljanja ljudskim resursima zaključeno je da se MLJR transformiše od specijalizovane, samostalne funkcije u partnerstvo između MLJR i linijskih menadžera a sve u cilju sticanja konkurentne prednosti. Sve se više menadžera MLJR uključuje u odbore koji su zaduženi za oblikovanje strategijske orijentacije organizacije i postaju direktno odgovorni generalnom direktoru, predsedniku upravnog odbora, izvršnom odboru u „strateškim konverzacijama”.

U strategijskom upravljanju ljudskim resursima, profesionalci za ljudske resurse postaju eksperti za organizaciju i upravljanje. Prvenstveno moraju da obezbede efikasnost u postupcima i procesima koji se odnose na dizajniranje radnih mesta, zapošljavanje, uvođenje u rad, raspoređivanje, promociju, nagrađivanje i razvoj zaposlenih.

Transformacija „kadrovske službe” u MLJR je značajan korak u strategijskom uvažavanju ljudskih resursa. Strategijski menadžment ljudskih resursa ima uporište u strategiji i ciljevima preduzeća. To podrazumeva strategijsko razmišljanje i blagovremeno sagledavanje konsekvenci odabranih strategijskih opcija na ljudske resurse, kao i oblikovanje pojedinih područja politike ljudskih resursa sa tog aspekta.

3. UTICAJ MENADŽMENTA LJUDSKIH RESURSA NA PERFORMANSE ORGANIZACIJE

Organizacije su shvatile da su ljudi ključni resurs organizacije i da organizacione performanse u velikoj meri zavise od njih. Da bi kompanije imale pozitivne ishode u sticanju konkurentne prednosti neophodno je istaći značaj celokupnog sistema upravljanja ljudskim resursima u kojem će biti sistemski povezane njene politike i prakse, to jest gde će postojati sinergija između regrutacije, selekcije, obuke, ocenjivanja performansi, razvoja karijere, sistema beneficija. Samo ako ove prakse MLJR deluju zajedno mogu se očekivati da će se iskoristiti pun potencijal zaposlenih a samim tim doprineti i boljim performansama organizacije. U oblasti strateškog upravljanja ljudskim resursima, Dayer i Reeves [7], u svom pregledu istraživanja o efikasnosti " grupisanih/objedinjenih " HR praksi, predlažu četiri vrste merenja organizacionih performansi: 1) ishodi HR (fluktuacija, absentizam, zadovoljstvo poslom); 2) organizacioni ishodi (produktivnost, kvalitet, usluge); 3) finansijsko-računovodstveni ishodi (ROA, profitabilnost); i 4) ishodi tržišta kapitala (cena akcija, rast, povraćaj na uloženo).

Organizacije mogu da usvoje različite prakse upravljanja ljudskim resursima da bi poboljšale veštine zaposlenih. Prvo, napori se mogu usmeriti na poboljšanje kvaliteta novo zaposlenih, ili na podizanju sposobnosti, znanja i veština zaposlenih koji već rade u kompanijama, ili uticati i na jedne i na druge. Zaposleni mogu biti angažovani preko sofisticiranih procedura koje će pomoći da se izvuku najbolji kandidati sa visokim potencijalom tokom selekcionog procesa. Istraživanja pokazuju da dobro urađena selekcija ima uticaja na performanse firme.

Drugo, organizacije mogu poboljšati kvalitet postojećih zaposlenih pružanjem sveobuhvatne obuke i razvojnih aktivnosti nakon selekcije. Značajni dokazi ukazuju na to da ulaganje u obuku utiče na pozitivne organizacione performanse [8]. Literatura o strateškom upravljanju ljudskim resursima (SHRM) obezbeđuje veliki broj modela koji objašnjavaju kako obuka može dovesti do pozitivnih organizacionih ishoda. U zavisnosti od strategije

organizacije i okruženja Wright i McMahan [9] su dali šest teorijskih modela proučavanja MLJR, od kojih su tri modela (teorija zasnovana na resursima- resourced based view; kibernetički sistem-sybernetic system; bihejvioralna perspektiva-behavioural perspective) relevantna za razumevanje odnosa između obuke i organizacionih performansi. Ono što prethodi obuci, a što zaposleni iz MLJR moraju da urade je analiza potreba za obukom, koja treba da bude usklađena sa strategijom i ciljevima kompanije. Analiza potreba utiče na ceo obrazovni proces kao i na evaluaciju programa obuke koja potom daje informacije da li je i koliko obuka bila svrsishodna u cilju postizanja organizacijskih performansi što se meri finansijskim i ne finansijskim rezultatima. Međutim, pre nego dođe do evaluacije, neophodno je da organizacija obezbedi sve uslove za transfer naučenog sa obuke. Na transfer znanja utiču, pored individualnih faktora kao što je motivacija, i faktori radnog okruženja: organizaciona kultura i klima transfera, mogućnost primene naučenog, tehnološka, menadžerska i podrška kolega itd. Dakle, obuka igra važnu ulogu u poboljšanju kvaliteta radne snage koja direktno utiče na rezultate organizacije.

Efikasnost kvalifikovanih zaposlenih biće ograničena ako nisu motivisani da obavljaju svoj posao. Oblik i struktura upravljanja praksama ljudskih resursa u organizaciji mogu uticati na nivo motivacije i zadovoljstva zaposlenih na nekoliko načina: organizacija može implementirati plate ili sisteme kompenzacija nagrađivanjem zaposlenih za ispunjavanje specifičnih ciljeva; pružanje sigurnosti posla; obogaćivanje radnog mesta; davanje mogućnosti da se kroz interno tržište rada zaposleni ostvaruje i razvija. Jednom rečju zaposleni mogu da se materijalno i ne materijalno nagrađuju a sve u cilju boljih organizacionih performansi.

Zadovoljni zaposleni su ključ uspeha organizacije. Step en odgovornosti kompanije prema zaposlenima mora biti daleko veći nego prema kupcima i potrošačima i zbog toga što pre svega od zadovoljstva zaposlenih i njihovog odnosa prema organizaciji i poslu zavisi i step en zadovoljavanja potreba potrošača/korisnika proizvoda i usluga a od njihovog zadovoljstva zavisi profit organizacije. Teorijska osnova zadovoljstva poslom je Lokova teorija vrednosti. Prema toj teoriji, zadovoljstvo poslom postoji u onoj meri u kojoj su ljudi zadovoljni ishodom samog posla. Što pojedinac dobije više onog ishoda koji on ceni, to će biti zadovoljniji. Dakle, na zadovoljstvo ne utiče samo veličina nagrade, već i vrsta nagrade, odnosno da li za uloženi trud radnik dobija one nagrade koje on ceni. Prema toj teoriji, radnici koji imaju malu platu ne moraju biti nezadovoljni, ako njima ta plata nije najvažniji faktor zadovoljstva poslom. Ako su to, na primer, kreativni, mladi inženjeri u razvoju, moguće je da će biti zadovoljni poslom i pored male plate ako na tom poslu imaju mogućnost da kreativno rade, da se usavršavaju, uče i napreduju, jer je to ono što oni cene na poslu. Da bismo, dakle, predvideli nečije zadovoljstvo poslom, moramo uzeti u obzir ne samo zadovoljstvo pojedinim aspektima posla kojim se pojedinac bavi već i njegova očekivanja od tog posla. Na ukupno zadovoljstvo poslom utiče zapravo nesklad ili odstupanje zadovoljstva od očekivanja u pogledu pojedinih aspekata posla, a ne visina zadovoljstva tim aspektima sama po sebi. Neko može biti nezadovoljan poslom iako ima visoku platu i zadovoljan je visinom plate, ako nema visoka očekivanja u pogledu visine same plate već u pogledu mogućnosti napredovanja u karijeri. Lokova teorija skreće pažnju na još jedan bitan fenomen. Ljudi imaju sklonost da visinu zadovoljstva pojedinim aspektima posla vezuju za visinu nesklada između očekivanja i zadovoljstva. Naime, kod onih aspekata u kojima je nesklad očekivanja i zadovoljstva veliki, i apsolutna visina zadovoljstva ima tendenciju pada. Istraživanja su pokazala da su zaposleni

bili najnezadovoljniji onim aspektima posla u kojima je postojao najveći nesklad i obratno [11].

Zadovoljstvo i motivacija zaposlenih utiču na smanjenje fluktuacije i absentizma. U eri konkurentnosti, fluktuacija je posebno osetljivo pitanje jer svaki zaposleni koji ode iz firme sa sobom nosi i stečeno znanje što može da se negativno odrazi na profitabilnost firme sa jedne strane a sa druge povećava troškove jer se ponovo ulazi u proces regrutacije, selekcije i obuke novozaposlenih.

U finansijskom smislu, pozitivni uticaji upravljanja ljudskim resursima, ako su sve njene prakse usklađene, na organizacione performanse mogu biti: povećanje povraćaja na uloženo (ROI), povraćaj na imovinu (ROA, prenos na kapital (ROE) stopu zarade (ROS), utiče na veću produktivnost, kvalitet usluga, itd. Što se tiče ne finansijskih uticaja, oni se ogledaju u smanjenju fluktuacije i absentizma zaposlenih, u povećanju zadovoljstva zaposlenih, kreiranju bolje organizacije klime itd. Neki indikatori ne finansijskih performansi igraju važnu ulogu u organizacionoj strategiji. U principu, prakse upravljanja ljudskim resursima koje pružaju zaposlenima pozitivno radno okruženje, interno tržište rada, mogućnosti obuke i razvoja, kvalitetan sistem procena performansi i nagrađivanja, autonomiju i moć odlučivanja pozitivno utiču na zadovoljstvo zaposlenih a zadovoljan i motivisan zaposleni je konkurentna prednost svake organizacije.

4. ZAKLJUČAK

Sistem ljudskih resursa je vrlo kompleksan set praksi koje utiču na veštine, ponašanje, motivaciju, zadovoljstvo i posvećenost zaposlenih. Ovi atributi zaposlenih mogu biti posrednički mehanizam koji povezuje prakse ljudskih resursa i performanse organizacije. Ljudi čine ljudski kapital i kao druge imovine imaju vrednost na tržištu, ali za razliku od ostalih, potencijalna vrednost ljudskog kapitala može da se ostvari samo uz međusobnu saradnju ljudi i organizacije. Kapitalna ulaganja u ljudske resurse, odnosno troškovi u vezi sa ulaganjem u ponašanje zaposlenih, motivisanjem, monitoringom i zadržavanjem istih ako su urađena u saradnji sa menadžmentom ljudskih resursa mogu da uvećaju kapital.

Međutim, treba reći da upravljanje ljudskim resursima ne može samostalno da utiče na performanse organizacije, već treba da tesno saraduje sa ostalim organizacionim celinama i da postane integralni deo strategije organizacije.

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SOME PRACTICAL ASPECTS OF MANAGEMENT IN EDUCATION

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Abstract: Management is considered to be science, art and activity aimed at mobilizing intellectual, material, financial and human resources for effective developing and functioning any organization. Nowadays education is such a field where good and professional management is highly important. Researchers have been studying this problem thoroughly for some decades and their views can be represented in the following aspects. Thus, management in education is:

- 1) a process influencing structural components of management and their interconnections;
- 2) management of organization with its own hierarchy: the first level is management of lecturers and the second level is management of students;
- 3) a complex of principles, organizational forms, technological methods of managing educational systems directed at improving effectiveness of their functioning and developing.

Management in education is also a specific branch including pedagogical, psychological, sociological spheres, management, marketing etc. Its effectiveness is based on coordinated functioning educational establishments to provide qualitative education in terms of market economy, conduct distant education, offer students possibilities to choose trajectories of education in terms of mobility.

Today improvement of management in education results from the “Program of Development” that is specially worked out for federal Universities in Russia. According to the concept of Ministry of education and science, the main purpose of establishing such Universities is to develop a system of higher vocational education based on optimizing regional educational structures and strengthening connections between higher educational establishments and economic and social spheres of federal districts.

Keywords: Key words: management in education, federal University, Program of University development, effectiveness of management

INTRODUCTION

For last decades, specialists note that systems of management in the field of higher education in some developed countries have become identical. This fact results from economic, technological, intellectual, innovative and other transformations occurring in the modern world.

Nowadays, Russia is integrating into the global system of education makes it analogous to the world ones. The country has constantly been reforming this system of higher education, seeking the most optimal ways, forms, technologies of its development.

Profound higher education depends considerably on a good system of management that is aimed at meeting basic needs of modern society. It has a complicated structure that includes such sub-systems as theoretical and methodical, pedagogical, economic, organizational, technological etc. [1].

Besides, this system is based on such levels as state, regional, municipal and the level of higher educational establishments. In terms of globalization, experts take into account the international level of educational management and the efficiency of educational management depends on the elements interacting on all levels of management. Among the factors influencing the assessment of the management efficiency, one can mention the following:

- the level of teaching;
- research activity;
- modern educational technologies;
- innovative educational methods;
- the Internet-technologies;
- other factors enabling to improve education processes, solve financial problems of higher educational institutions etc.

METHODOLOGY

Management is considered science, art and activity aimed at mobilizing intellectual, material, and financial and human resources for effective developing and functioning any organization. Nowadays education is such a field where good and professional management is highly important. Many researchers have already been studying this problem thoroughly for some decades. Their views can be represented in three aspects:

- 1) a process influencing structural components of management and their interconnections; a process providing effective realization of management functions and their optimal development [2,3];
- 2) management of organization with its own hierarchy: the first level is management of lecturers and the second one is management of students [4, 5];
- 3) a complex of principles, organizational forms, technological methods of managing education systems directed to improving the efficiency of their functioning and developing [6,7].

Overall, researchers consider that management in higher education can be represented in the following groups: management of the educational process that also implies education, upbringing and forming personality; management of educational establishments; management of educational systems (projects, programs, curricula).

RESULTS

Nowadays the main tasks of the national system of management in the field of higher education are determined by the Conception of the long-term social and economic

development of the Russian Federation until 2020. According to this document a strategic goal of state policy in the sphere of education is to make higher education accessible and qualitative, corresponding to the needs of the innovative economic development and contemporary requirements of every person and the society on the whole [8].

The Conception considers some principal moments of the management system in Russia:

- a) Forming twenty educational and research centers of the world level that can integrate advanced methods of research and curricula to make national innovative projects;
- b) Creating infrastructural and institutional conditions for better academic mobility of students and lecturers;
- c) Introducing a system of supporting educational organizations annually, that can realize their best of on-line curricula;
- d) Improving the positions of Russian higher education in the global educational market;
- e) Providing conditions that can enable Russian Universities to take good positions in world rankings;
- f) Increasing incomes allocated for research conducted at Universities;
- g) Making special programs for developing the University staff.

Besides, a modern system of management in the field of higher education in Russia includes the following components:

Innovative education: renewing the structure of educational networks through setting up federal Universities and national research ones; providing a correlation between academic knowledge and practical skills; increasing allocations for R&D at Universities; verifying curricula; improving finance mechanisms of educational establishments etc.

Instruments of modernizing a system of higher education: supporting gifted children and talented youth; improving the infrastructure and financial instruments of students' social mobility.

Mechanisms assessing quality efficiency: providing consumers with accessible, full and true information that must be constantly renewed; attracting foreign students to Russian Universities; assessing students' individual achievements that enable them to continue education.

It is worth noting that management in education is a specific system that comprises management, marketing, pedagogical, psychological, sociological aspects etc. It also possesses its own specific character, normality and regularity.

The efficiency of the management system in higher education is aimed at providing qualitative education, implementing on-line education, and giving possibilities for students to choose themselves their educational trajectories.

Today Russia faces a problem of making necessary changes in vocational higher education. It is especially important for the country to enter the global educational

environment. These circumstances and meeting the needs of the modern society result in setting up Universities of a new type, i.e. federal, through integrating education, doing research, providing competitive education.

A system of management in such Universities is based on the “Program of University Development” that is specially worked out for federal Universities in Russia. This program includes some information about federal Universities; strategic goals and tasks of their development; resources and funds allocated for its realizing. This document defines priorities of University strategy and tactics that is considered and approved by the Russian government.

According to the RF concept of Ministry of Education and Science, the main purpose of establishing such Universities is to develop a system of higher vocational education based on optimizing regional educational structures and strengthen ties between higher educational institutions on the one hand and economic and social spheres of federal districts on the other.

The ways and conditions of setting up federal Universities in Russia are different:

- 1) Establishing them in perspective areas (geopolitical);
- 2) Combining educational and research institutions;
- 3) Uniting some educational establishments existing in the region to provide qualitative education.

The first federal University, founded in 2006, was Siberian that united three Universities: Krasnoyarsk State Technical University, Krasnoyarsk Academy of Architecture and Building, Krasnoyarsk University of Non-ferrous metals and gold [9]. Later the same year on the base of three Universities of Rostov-on-the Don and Taganrog Radio engineering University Southern federal University was established [10]. Regional government and business structures took an active part in financing these educational projects.

On 7. May 2008 President of Russia Dmitry Medvedev adopted a law "On federal Universities". According to this document, the Russian government worked out a project defining the rules of establishing and functioning federal Universities. Questions concerning further foundation of federal Universities were considered in this document [11].

On 21. October 2009 President of Russia signed a decree "On establishing federal Universities in North-Western, Ural, Far-Eastern and Privolzhsk federal districts" [12]. On 13. October 2010 he issued a decree on founding Baltic federal University [13]. On 18. July 2011 a decree "On establishing North-Caucasus federal University in the North-Caucasus federal district" was signed [14].

Today there are nine Universities of such a type in the country: Baltic named after I. Kant (Kaliningrad), Far-Eastern (Vladivostok), Kazan (Privolzhsk), Northern (Arctic) named after M.V.Lomonosov (Arkhangelsk), North-Eastern named after M.K.Ammosov (Yakutsk), North-Caucasus (Stavropol), Siberian (Krasnoyarsk), Ural named after the first President of Russia B.N.Yeltsin (Yekaterinburg), Southern (Rostov-on-the-Don).

It is worth noticing that setting up federal Universities in industrial districts results in a good development of these areas. E.g., Siberian one concentrates on such sectors as oil, gas, mining, non-ferrous metallurgy, hydropower engineering, renewal and alternative sources of energy. Southern is aimed at ecological safety, nanotechnologies, telecommunications, land-tenure regulations, and the development of tolerant society in a multi-national Russian region. North-Caucasus federal University includes an Institute of history and culture where students of any confessions can study Islam. Besides, participating and influencing legislative and executive authorities of these regions are highly important.

The main principles of the federal Universities development are the following:

- training specialists, bachelors and masters based on integrating scientific, research and educational processes and applying all methods of modern higher education that include on-line education on management, economics, education, science, culture and other technological fields of national interests;

- providing conditions for academic mobility of students, lecturers, scholars and researchers;

- integrating Universities in the global education system and achieving world recognition of curricula to export educational services and technologies;

- carrying out fundamental and applied research through effective interaction with the Russian Academy of Science;

- developing active collaboration with the leading Universities of Europe, Asia, the USA and BRICS countries, participating in international educational and research programs and curricula.

It is important to mention that a system of management introduced in federal Universities is an integrated complex of business, education and science. Hence, these Universities become centers of innovative and technological development that train specialists of the world level.

Among the basic distinctive features characterizing these Universities, one can mention the following: they are autonomous; they are established and Rectors are appointed by the government; they can control and distribute their assets by themselves; they have boards of guardians; they have freedom in choosing their own curricula; they are more competitive in the world educational market; they have a flexible system of management.

Moreover, these Universities provide the youth living in remote territories in federal districts and big industrial cities with an access to competitive higher education. In addition, graduates from these Universities have perfect possibilities for their further career promotion.

Nowadays federal Universities do their best to be recognized in the world of higher education and enter global rankings with the following criteria:

- 1) A high level of impact-factor, i.e. citing;
- 2) A number of foreign students in national Universities;
- 3) A number of foreign lecturers working at national University;
- 4) Assets and investments allocated for educating students;
- 5) Accessible and true information about Universities, etc. [15].

Federal Universities get some preferences from the government that enable managers to construct new campuses, stadiums, hospitals, hostels, laboratory complexes for students

and staff, acquire necessary equipment, and allocate money for grants. The last point is especially important for Russian scholars and researchers working abroad and for their colleagues wishing to do research in Russia on the base of special programs on cooperation.

While analyzing the structure of the system of managing University, functions and competence of different bodies of management one should imply some practical aspects of activity of federal Universities.

1. In federal University as in any other educational establishment management functions are conducted by Rector. However, according to the law on federal Universities, there is one more position in such establishments as President (but without any duties).

2. The main function for federal University is strategic planning.

3. The structure of management in federal University should have representatives of regional administrations and business structures.

4. Personnel policy is highly important.

CONCLUSION

The quality of higher education depends on system of management that must be regularly improved. It can be done through the following factors:

- introducing the principles of corporative management;
- forming a system of public and private cooperation in the field of education;
- monitoring a system of the education development that includes national statistics on education corresponding to world requirements, etc.

The management system of higher education is considered as a primary task for the long-term economic strategy that is a basic indicator of a human development of the country. It is aimed at upbringing Russian youth of a new stereotype and positioning the country as the one with competitive labor forces in the global market.

This system is complex and it implies changes in structures, technologies, curricula in education; organizational and legal forms of the educational activity; financial and economic mechanisms that require constant perfection.

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STRATEGIC OPERATIONALIZATION OF THE PROJECT IN ENTERPRISE REORGANIZATION

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Abstract: The project of enterprise's reorganization is organizational-business challenge that is by its nature manageable process of planning, assessment, forecasting, implementation and maintenance of its new organization. In the paper is explained the need and necessity of strategic operationalization as a methodological tool and method of determining and identifying needs for change and selection of favorable organizational solution as a condition of sustainability, stability and improvement the efficiency of business operations of the enterprise.

Keywords: project, enterprise, reorganization, strategic operationalization

Apstrakt: Projekat reorganizacije preduzeća je organizaciono-poslovni poduhvat koji je po svojoj prirodi upravljivi proces planiranja, procena, predviđanja, uvođenja i održavanja njegove nove organizacije. U radu je obrazložena potreba i nužnost strategijske operacionalizacije projekta kao metodološkog sredstva i postupka utvrđivanja i identifikovanja potreba za promenama kao i izbora povoljnog organizacionog rešenja kao uslova održivosti, stabilnosti i poboljšanja efikasnosti poslovanja preduzeća.

Ključne reči: projekat, preduzeće, reorganizacija, strategijska operacionalizacija

1. UVOD

Operacionalizacija projekta reorganizacije preduzeća je neophodna iz više razloga. Prvo, projekat uslovljavaju organizacione promene koje je moguće planirati i realizovati po fazama [13]. Drugo, operacionalizacija je metodološko sredstvo utvrđivanja odlučujućih činilaca uticaja spoljnog i unutrašnjeg okruženja na poslovanje preduzeća kao uzroka reorganizacije [19]. Treće, projektom reorganizacije preduzeća utvrđuju se, identifikuju i definišu: potrebe za promenama u preduzeću; potrebne promene organizacije preduzeća i ostvaruje izbor povoljnih organizacionih rešenja. U krajnjem, operacionalizacijom poduhvata konkretizuju se aktivnosti, postupci, mere i modeli ostvarivanja strategijskih efekata i dostizanja cilja [12].

Uz uvod rad sadrži četiri pitanja: definisanje strategijske projektne operacionalizacije; operacionalizacija - nužan sadržaj projekta reorganizacije; operacionalizacija strategijskih planova organizacionih promena; Strategijska operacionalizacija stanja preduzeća i izbor povoljnih organizacionih rešenja. Izveden je zaključak i prikazana podržavajuća literatura.

2. DEFINISANJE STRATEGIJSKE PROJEKTNE OPERACIONALIZACIJE

Operacionalizacija projekta je važan korak reorganizacije preduzeća. Predstavlja projektni metodski postupak i sredstvo utvrđivanja i definisanja promena preduzeća odgovorima na pitanja: namene, uloge i svrhe reorganizacije.

Namena operacionalizacije je *utvrđivanje interakcije* spoljne i unutrašnje okoline preduzeća i konkurenata na tržištu [4], tj. odgovor na pitanje: koji su uslovi (ne)stabilnosti preduzeća?

Uloga operacionalizacije je *izdvajanje* uzroka (odlučujućih činilaca): šta proizvodi promene?

Svrha operacionalizacije je definisanje odgovora na pitanje: šta je neophodno menjati?

U tabeli 1. prikazani su matrični odnosi i veze različitog ispoljavanja uslova, činilaca i uzroka promena preduzeća i potreba operacionalizacije projekta reorganizacije.

Strategijska operacionalizacija. Predstavlja i obuhvata: pristup, koncept, sredstvo, postupak, proceduru za ostvarenje svrhe reorganizacije preduzeća: određenje odlučujućih promena;

Tabela 1.

<i>Usmeravanje operacional.</i>	NAMENA <i>Utvrdjivanje uticaja</i>	ULOGA <i>Izdvajanje uzroka</i>	SVRHA <i>Šta menjati?</i>	PRINCIPI <i>reorganizacije</i>	Reorganizacija preduzeća
Uslovi	Uticaj na druge pojave	Omogućavaju egzistenciju	Održavanje organizac. Uslovljavaju promene	Promenljivost	
Činioci	Dominantni uticaj	Proizvode pojave	Opređeljujuće promene	STABILNOST	
Uzroci	Izazivaju promene	Proizvode posledice	ODLUČUJUĆE PROMENE	EFIKASNOST	

Moguće je ostvariti operacionalizaciju projekta kao celine po odlučujućim fazama ili sve faze po ključnim aktivnostima.

3. STRATEGIJSKA OPERACIONALIZACIJA – NUŽAN SADRŽAJ PROJEKTA REORGANIZACIJE PREDUZEĆA

Operacionalizacija je procesni i fazni sadržaj projekta reorganizacije preduzeća. Poznato je, projekat reorganizacije preduzeća obuhvata organizacione promene po mogućim fazama [13]: **1.** planiranje organizacionih promena (reorganizacije), **2.** procena postojećeg stanja i opcije razvoja organizacije preduzeća, **3.** projektovanje nove organizacije preduzeća, **4.** uvođenje nove organizacije kao i **5.** održavanje nove organizacije.

3.1. Uslovljenost operacionalizacije projekta mogućim fazama reorganizacije preduzeća. Analiza faza reorganizacije ukazuje na potrebu selektivnosti planova organizacionih promena. Zapravo, faze reorganizacije preduzeća čine okvir operacionalizacije promena, koje mogu biti: organizacione, funkcionalne i delatne [2,5]. Strategijskom operacionalizacijom projekta reorganizacije teži se obezbeđenju stabilnom i efikasnom razvoju preduzeća (tabela 1.) [8].

3.2. Planiranje organizacionih promena. Projekat izrađuje odgovarajući projektni tim organizacione struke pod vođstvom projektnog menadžera. Planiranje podrazumeva raščlanjivanje procesa reorganizacije po fazama; analizu činilaca i aktivnosti organizacije na elementarnom, segmentnom i nivou preduzeća kao celine. Projektno-fazne aktivnosti uslovljavaju operacionalizaciju reorganizacije čija je svrha utvrđivanje potreba za promenama u preduzeću.

3.3. Procena postojećeg stanja i opcije razvoja organizacije firme. Analiza i vrednovanje postojećeg stanja organizacije preduzeća **kao uslova** procena opcija pozicije organizacije preduzeća i identifikacije potrebnih promena organizacije preduzeća

3.4. Projektovanje nove organizacije. Podrazumeva definisanje alternativnih i izbor povoljnog organizacionog rešenja

4. OPERACIONALIZACIJA STRATEGIJSKIH PLANOVA ORGANIZACIONIH PROMENA

Zasniva se na analizi i identifikaciji promena situacije.

Svrha strategijske analize: 1. Uočiti način i vrstu **uticaja** na preduzeće; 2. Otkriti **promene** koje se unutar njih događaju i koje izazivaju; 3. Izdvojiti načine **ovladavanja** ovim uticajima i njihovo **usmeravanje**; 4. Utvrditi **postojeće stanje** po oblastima; 5. Izdvojiti i **predvideti** promene kao i 6. **očekivanje** promena preduzeća [3].

4.1. OPERACIONALIZACIJA UTICAJA PROMENA U OKRUŽENJU

Prema Coleu [4] **analiza** obuhvata **segmente** spoljnog i unutrašnjeg okruženja. Svrha operacionalizacije je oblikovanje utvrđenih potreba za promenama preduzeća.

Tabela 2.

<i>Usmeravanje operacional.</i>	Spoljno okruženje	Unutrašnje okruženje	Utvrđivanje potreba za promenama
Uslovi	Održavanje organizac. Uslovljavaju promene (UP)	Održavanje organizac. Uslovljavaju promene (UP)	
Činioci	Opređeljujuće promene (OpP)	Opređeljujuće promene (OpP)	
Uzroci	ODLUČUJUĆE PROMENE (OdP)	ODLUČUJUĆE PROMENE (OdP)	

4.2. ANALIZA SPOLJNOG OKRUŽENJA

Najznačajniji činioci *spoljnog okruženja preduzeća su*: poslovna okolina, politička i ekonomska okolina, socijalna okolina, tehnološka okolina kao i pozicije preduzeća na tržištu i uticaj konkurencije (prikazani na slici 1. i u tabeli 3. shodo strategijskoj analizi).

I/ Poslovna okolina. Analizom poslovne okoline težište je na uticaju: 1. ponašanja konkurenata, 2. potrebama i željama potrošača, 3. reakciji potrošača, 4. stanju industrijskog i privrednog sektora, 5. bankama i drugim finansijskim organizacijama i dr.

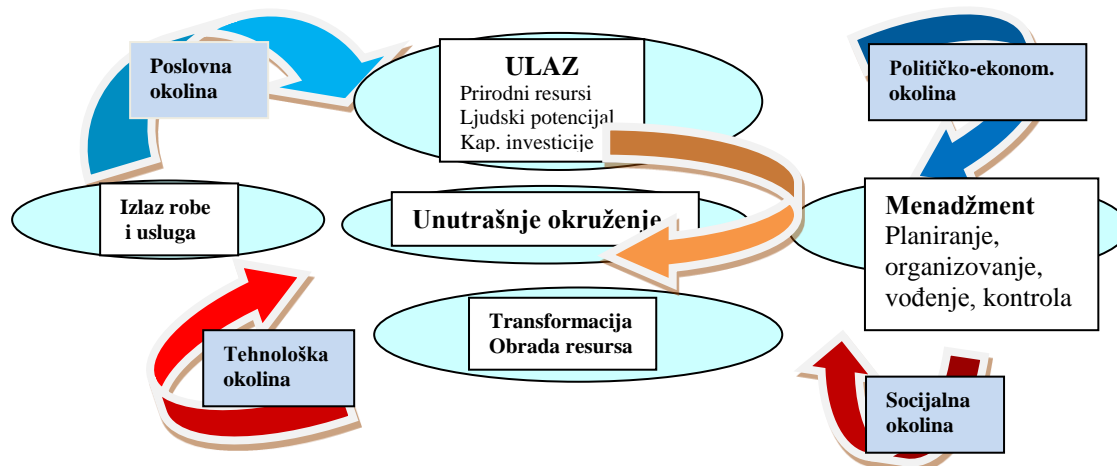
II/ Politička i ekonomska okolina. Analizom se teži utvrditi uticaje: 1. političke situacije i uticaja na ekonomsku i razvojnu politiku; 2. institucionalnog okvira; 3. uvozne i izvozne politike; 4. monetarne i devizne politike; 5. deviznog kursa i dr.

III/ Socijalna okolina. Obuhvata analizu uticaja: 1. socijalne politike vlade, nezaposlenosti i njihovo rešavanje; 2. zapošljavanje i radni odnosi; 3. socijalnu zaštitu, nagrađivanja i dr.

IV/ Tehnološka okolina. Potrebna je analiza uticaja: 1. raspoložive i uvođenja nove tehnologije, 2. tehnologije proizvodnje i administracije, 3. elektronske i kompjuterske

tehnologije, 4. novih materijala i tehnologije, 4. novih upravljačkih metoda, istraživačkog i inovativnog rada, 5. pri-mena svetskih dostignuća i dr.

V/ Pozicija preduzeća na tržištu. Preduzeće posluje proizvedeći – uslužujući u oblikovanom i oblikujućem okruženju (slika 1.). Faktori okruženja utiču na preduzeće spolja i iznutra izazivajući promene. Kao pokazatelj efikasnosti i regulator poslovanja tržište višestranu utiče na preduzeće.



Slika 1. Činioci spoljne i unutrašnje okoline preduzeća

Način uticaja tržišta na preduzeća: tražnjom, izvorima snabdevanja, konkurencijom, razvojem i trendovima potrošnje, razvojem novih tržišta, kanalima distribucije i snabdevanja i dr. Analiza tržišta je osnova procena i predviđanja sadašnjeg i budućeg stanja preduzeća koje je moguće operacionalizovati utvrđivanjem promena koje se očekuju kako opštih tako i:

1. proizvodnog programa;
2. tržišnog učešća;
3. proizvodnih kapaciteta;
4. raspoložive tehnologije;
5. cene proizvoda;
6. potencijala: organizacionog, kadrovskog, finansijskog i dr.

Tabela 3.

<i>Usmeravanje operacional.</i>	Poslovna okolina I (1 – 3)	Političko-ekonom. okolina II (1-5)	Socijalna okolina III (1-3)	Tehnološka okolina IV (1-5)	Položaj preduzeća na tržištu V (a,b,c)	Utvrđene potrebe za prilagodavanjem promenama
Uslovi	4	2	1,2	4	stabilno	
Činioci	1, 5	3, 4	3	5	nestabilno	
Uzroci	2, 3	1,5		1, 2, 3	KRIZNO	

Mogući zaključak o uticaju spoljnog okruženja: **način uticaja na položaj i razvoj preduzeća?** Moguća strategijska operacionalizacija na osnovu faktorske analize po primeru u tabeli 3.

4.3. ANALIZA UNUTRAŠNJEG OKRUŽENJA PREDUZEĆA

Prema Coleu [4] strategijskom analizom obuhvatiti **faktore unutrašnjih mogućnosti Organizacije** (prikazane kao varijable u tabeli 4.) kao što su:

- A. Pogodnost postojeće organizacione strukture za novu strategiju,
- B. Prikaz postojeće menadžerske strukture,
- C. Karakteristike postojeće kadrovske strukture,
- D. Postojeća znanja i veštine osoblja,
- E. Nivo organizacione kulture,
- F. Prikaz organizacione politike prema stakeholderima,
- G. Prikaz korišćenja nove tehnologije,
- H. Prikaz doprinosa osnovnih funkcija,(marketing, kadrovska, proizvodna, i dr.);
- I. Prikaz finansijskog sistema.

Analizom preduzeća obuhvatiti osnovna područja poslovanja i razvoja kao što su:

1. Proizvodni program (Ppr), 2. Tehničko-tehnološke mogućnosti (TTm),
3. Kadrovi (Kd), 4. Finansije (Fin), 5. Organizacija (Org), 6. Upravljačka struktura (UpSt), 7. Istraživanje i razvoj (IsRaz) i dr.

Tabela 4.

<i>Usmeravanje operacional.</i>	A	B	C	D	E	F	G	H	I	Položaj preduzeća na tržištu V (p,o,n)	Utvrđene potrebe za promenama
Ppr	n	o	p	o	p	p	o	o	p	(n) nestabilan	krizne
TTm	n	p	o	o	p	p	p	o	p	(n) nestabilan	krizne
Kd	o	p	p	o	p	p	o	o	p	(o)ograničen	ograničene
Fin	p	p	p	p	p	p	p	p	-	(p)povoljan	redovne
Org	n	o	o	p	p	p	o	o	P	(o)ograničen	ograničene
UpSt	o	p	o	p	p	p	p	p	p	(p)povoljan	redovne
IsRaz	p	p	p	o	p	p	p	p	o	(p)povoljan	redovne
Preduzeće	n	o	o	o	p	p	o	n	p	(n) nestabilan	

Na ovaj način, uz brojne modifikacije, moguće je analizirati, identifikovati i utvrditi potrebe za promenama u preduzeću. Tako, po pregledu u tabeli 4. položaj preduzeća na tržištu je promenljiv i nestabilan. Identifikovane su vrste potrebnih promena i redosled promena po uticaju. Krizne promene je potrebno preduzeti hitno i korenito. Ograničene i redovne saglasno potrebama. Međutim, proces je nedovršen bez procene stanja preduzeća.

5. STRATEGIJSKA OPERACIONALIZACIJA STANJA PREDUZEĆA

Operacionalizacija stanja preduzeća je analitičko - sintetički postupak koji praktikuju upravljački organi određenim organizacionim oblikom i tehnikom. Postupak operacionalizacije stanja moguće je analizirati kao postupak – podsistem analize situacije. Operacionalizacija se zasniva na analizi stanja, kao odlike efikasnosti sastava.

Strategijska procena stanja u funkciji je pronalaženja valjanih kriterijuma i postupaka pri vrednovanju proizvodnih-uslužnih elemenata i dodeli odgovarajućih zadataka odgovarajućim-prilagođenim sastavima. Procena stanja je neophodna [6]. Njen ishod podrška-argumentacija odgovora na pitanje funkcionalnosti sistema na osnovu: **organizacionog stanja** (popunjenosti i strukturnih odnosa i veza), **funkcionalnosti sredstava**, **osposobljenosti ljudstva** za odgovarajuću primenu datih sredstava kao i **efekata** koje je potrebno postići [11.].

5.1. KRITERIJUMI STRATEGIJSKE OPERACIONALIZACIJE STANJA PREDUZEĆA

Za valjanu, realnu i celishodnu procenu stanja bilo koje organizacije potrebna je višekriterijumska kvantitativno-kvalitativna analiza-sinteza relevantnih svojstava njenih elemenata, odnosa i efikasnosti funkcionisanja.

a. Relevantna svojstva elemenata stanja preduzeća

Kvalitativno-kvantitativna svojstva ljudi i sredstava⁴³[15, p.60.] (tehlike, opreme, resursa), integrisana organizacionom strukturom i funkcijama, utiču na stanje organizacije.

a.1. *Analiza kvantitativno-kvalitativnih svojstava ljudstva.* Procena kvalitativnog stanja, od pojedinca do organizacije - kao celine, moguća je na osnovu relevantnih kvaliteta ljudstva, rangiranih po značaju za efikasnost organizacije⁴⁴[6]. Procena kvantitativnog stanja ljudstva moguća je na osnovu popunjenosti (p_o) preduzeća (efektivnosti) u odnosu na projektovani broj radnih mesta.

a.2. *Kvantitativno-kvalitativna svojstva sredstava.* Stanje sredstava moguće je procenjivati i vrednovati na osnovu opštih svojstava: **popunjenosti** (p_o) u odnosu na propisani broj i **ispravnosti** (i_s) sredstava po tehničkom uputstvu (TU).

b. Relevantni organizacioni odnosi i veze od uticaja na stanje preduzeća

To su organizacioni *strukturni*, *funkcionalni* i *delatni* odnosi i veze [4,6].

Zajednički obuhvat njihovih suštinskih odnosa i veza moguć je sintezom po nivoima organizacije, koje mogu odraziti opšti, posebni i pojedinačni kriterijumi.

b.a. *Opšti.* Kriterijumi stanja organizacije kao celine [7,8].

b.b. *Posebni.* Kriterijumi stanja organizacije po: organizacionim delovima po oblastima delatnosti (menadžment, operativa, opslužujući deo), njihovim sadržajima delatnosti (aktivnostima: npr. upravljanje, prevoz) i obezbeđenju poslovanja.

b.c. *Pojedinačni.* Kriterijumi stanja osnovnih činilaca organizacije: ljudstva, sredstava, tehlike, opreme, resursa.

⁴³Pod sredstvima se podrazumeva sveukupnost materijalno-tehničkog činioca koji organizacija primenjuje za plansko i organizovano obavljanje delatnosti. [15, p.60.]

⁴⁴ Rezultati su dobijani istraživanjem autora ovog rada kvaliteta ljudi u transportnoj organizaciji, koja se može smatrati reprezentom bilo koje organizacije u odnosu na kriterijume **uticaja** na stanje organizacije. Utvrđeni su sledeći koeficijenti uticaja kvaliteta (**kv**) relativne vrednosti uticaja od 0,01 do 2,00: **odlučujući kvaliteti**(**kv>1,01do2,00**) 1/ *volja*-63,9%=1,92, 2/ *osposobljenost*-41,8%=1,25 3/ *stručnost*-38,52%= 1,16; 4/ *fizička sposobnost*-37,7%=1,13, **opredeljujući kvaliteti** (**kv>0,50 do 1,00**): 5/ *iskustvo*-24,59%=0,74, 6/ *starost*-18,03%=0,55, 7/ *lopremljenost*-17,21%=0,52 8/ *popunjenost*-16,93%=0,51; **egzistencijalni kvaliteti** (**0,01<kv<0,50**) 9/ *standard* 8,20%=0,25, 10/ *motivisanost* 6,55 %=0,20, 11/ *profesionalizam* 4,10%=0,12, 12/ *uvežbanost* 2,46%=0,075,13/ *kvalitet* 2,46%=0,074, 14/ *zdravlje* 1,46%=0,044, 15/ *дисциплина* 1,46 %=0,043 [5. p.56.].

b.1. *Strukturalna stanja organizacije* su pojedinačne, posebne i opšte veze i odnosi po kriterijumu efektivnosti organizacije na osnovu *popune* (pokrivenosti delatnosti nosiocima).

b.2. *Funkcionalna stanja organizacije* su pojedinačne, posebne i opšte veze i odnosi unutrašnje efikasnosti organizacije na osnovu *odnosa kvantiteta* i *kvaliteta* po nivoima organizacije i *uticaja* stanja dela organizacije na njenu celinu.

b.3. *Delatna stanja organizacije* su opšte veze i odnosi unutrašnje efikasnosti organizacije i *uspeha* preduzetih mera i aktivnosti za konkretan zadatak.

b.4. Zajednički kriterijumi veza i odnosa za sve oblike stanja su stepen uticaja činilaca na stanje, koji je moguće izraziti *koeficijentom značaja* (*kz*), koji može biti: odlučujući-veliki (**kz-3**), opredeljujući-srednji (**kz-2**) ili uticajni-mali (**kz-1**) [9,11].

5.2. OPERACIONALIZACIJA VREDNOVANJE STANJA PREDUZEĆA

Ponderisanje je tehnika modelovanja i nominalnog kvalitativno-kvantitativnog predstavljanja -izražavanja-vrednovanja stanja organizacije na osnovu njenih procenjenih i proverenih relevantnih vrednosti u odnosu na definisane kriterijume stanja efektivnosti i efikasnosti organizacije: *popovoljno, ograničeno, nezadovoljavajuće*.

A. Tehnika ponderisanja. Za jedinstveno ponderisanje i ukupno nominalno izražavanje različitih vrednosti (koje se sada u praksi i teoriji izražavaju: *a/ocenom* (npr.1,00 do 5,00 ili 5 do 10); *b/procentualno* od 00,00% do 100,00% i *c/decimalnim izrazima* 0,00 do 1,00, po zakonima verovatnoće) moguće je primeniti jedinstveni izraz ponderisane vrednosti (**PV**) [10]:

$$PV = Bo \times Ke \quad (1)$$

gde su: **Bo**—brojčana ocena vrednosti, a **Ke**—koeficijent ekvivalentnosti vrednosti⁴⁵.

B. Operacionalizacija procesa vrednovanja ponderisanjem

B.1. Vrednovanje stanja ljudstva

a. Kvalitativno-kvantitativno vrednovanje stanja ljudstva

a.1. Od vrednosti kvaliteta pojedinca do cele organizacije

$$\text{Moguće je po modelu [7,8, 11]:} \quad Slj = \frac{kvolj + kstr + kosp + kis + kodg + \dots}{\Sigma k} \quad (2)$$

po kriterijumu sumativnosti kvaliteta i uticaju k- koeficijenta značaja (iz teksta b.4.,do koga se dolazi istraživanjem), izraza (1.) u odnosu na kvalitet 1,00 do 3,00.

a.2. Opšte kvalitativno funkcionalno stanje ljudstva

⁴⁵⁾ Pri istraživanju organizacije primenjene su sledeće vrednosti veličina: **Bo** – najčešće brojčana ocena vrednosti (na primer znanja, sposobnosti itd. su 1,00 do 5,00); **Ke** - koeficijent ekvivalentnosti iznosi **0,6** (jer je opseg ponderisanja od 1,00 do 3,00, a mogu se primeniti i drugi opsezi, pa je 3,00:5,00=0,6), a ako se polazne vrednosti izražavaju u procentima onda 1 % iznosi 3,00 : 100 = **0,03**.

Primer: ako je popuna preduzeća ljudstvom 85 % ponderisani izraz vrednosti (od 1,00 do 3,00) je 2,55, jer je 85 x 0,03 = **2,55**.

$$\text{moguće je po modelu [6]:} \quad \text{SljOrg} = \frac{\text{Sljmdž} + \text{Slj Op} + \text{Slj Obpo}}{n} \quad (3)$$

pri čemu su: **n**-broj sabiraka u brojiocu; **Sljmdž**-vrednovano stanje ljudstva dela za menadžment; **SljOp**-vrednovano stanje ljudstva u operativi i **SljObpo** - vrednovano stanje ljudstva dela za obezbeđenje poslovanja (po modelu 2.).

Primer: ako je **Sljmdž= 2,95; Slj Op = 2,90 i Slj Obpo= 2,80**
 biće **SljOrg = 8,65: 3 = 2,89** ili zadovoljavajuće (u granicama 2,50 do 3,00).

a.3. Vrednovanje posebnog i opšteg kvantitativnog stanja ljudstva moguće je na osnovu svojstava popunjenosti po izrazu 3., pri čemu se strukturno stanje vrednuje na osnovu stvarne u onosu na potrebnu *popunjenost preduzeća*.

B.2. Kvalitativno-kvantitativno vrednovanje stanja sredstava

Opšte stanje sredstava moguće je vrednovati, na osnovu njihovih opštih svojstava, po modelu 4., kako delova tako i celine organizacije, po vrstama (npr. transportne organizacije: sr₁-autobusi, sr₂-terenska m/v, sr₃-teretna m/v,.....sr_n-specijalna tran-sportna m/v itd.) po zakonima verovatnoće na osnovu *popunjenosti i ispravnosti*:

$$\text{Ssr} = \frac{\sum_{i=1}^n \text{Ssr}_i (p_o \times i_s)}{n} = \frac{1}{n} (\text{Ssr}_1 + \text{Ssr}_2 + \text{Ssr}_3 + \dots + \text{Ssr}_n) \quad (4)$$

$$\text{i 5. kao opšte stanje sredstava organizacije:} \quad \text{SsrOrg} = \frac{k\text{SsrMdž} + k\text{SsrOp} + k\text{SsrOb}}{\sum k} \quad (5)$$

pri čemu su: - **k**-koeficijent značaja stanja sredstava u odnosu na poslovanje (može biti 1, 2, 3, jer npr. za transportnu organizaciju nije istog značaja transportno vozilo i pisaći sto), **SsrMdž** - stanje sredstava menadžmenta (npr 2,80); **SsrOp**-stanje sredstava operative(npr 2,90); **SsrOb**-stanje sredstava za obezbeđenje poslovanja (npr.2,60) i **Σk** - zbir broja svih primenjenih koeficijenata značaja po celokupno stanje (npr 2+3+2= 7).

Primer: (2 x 2,8 + 3x2,9 + 2x2,6)/7 = (5,6 + 8,7 + 5,2)/7 = 19,5/7 = **2,78**.

Prema tome, stanje sredstava preduzeća po ovom primeru je **povoljno**.

B.3.Vrednovanje strukturnog stanja preduzeća (S_t). Moguće je na osnovu kvantitativnih kriterijuma *popunjenosti* organizacije ljudstvom, sredstvima (tehnikom, opremom kao i resursima) počev od organizacionih jedinica do njene celine) u odnosu na propisanu popunu. Strukturno stanje organizacija (S_t) je moguće prikazati opštim modelom:

$$S_{t} = \frac{\sum_{i=1}^n \text{Soj}}{n} \quad (6)$$

pri čemu su: **ΣSoj** - suma stanja organizacijskih jedinica; **n**- broj članova analize. **i** - analizirani broj članova.

U odnosu na potrebnu efektivnost, čiji je kriterijum relativna pokrivenost funkcija jedinica nosiocima delatnosti, pojedinačno, posebno i opšte strukturno stanje organizacije može biti: **povoljno, delimično ili nezadovoljavajuće.**⁴⁶

Primer: Ukoliko je popunjenost posmatrane transportne organizacije zastupljena vozačima $p_o > 100\%$ stanje je povoljno, $p_o = (100\%)$ delimično i $p_o < 100\%$ nezadovoljavajuće. Time su određene približne *granice promene kvaliteta* u zavisnosti od kvantiteta. Logično je da je potreba za vozačima npr. za međunarodni putnički transport $p_o = 200\%$.

B.4. Vrednovanje funkcionalnog stanja organizacije (FSo_{rg})

Moguća je primena u odnosu na sadržaje poslovanja.

a.1. Od organizacione jedinice do organizacione celine

Moguće je po modelu:
$$FSo_{rg} = \frac{Slj + Ssr}{N} \quad (7)$$

pri čemu su: **n**-broj sabiraka u brojiocu; **Slj**-vrednovano stanje ljudstva po modelu 3. i **Ssr**-vrednovano stanje sredstava po modelu 5. **Primer:** Stanje organizacione celine modelovane transportne organizacije je $(2,89 + 2,78)/2 = 5,67/2 = 2,83$ (**povoljno**).

a.2. Procena funkcionalne efikasnosti organizacije ($FEfo_{rg}$)

Moguća je po modelu:
$$FEfo_{rg} = \frac{k FStMdž + k FStOp + k FStdop}{\sum k} \quad (7a)$$

pri čemu su: **k**- koeficijent značaja organizacionog dela po ukupno stanje organizacije; **FSt Mdž** funkcionalno stanje dela organizacije za menadžment; **FSt Op** - funkcionalno stanje operative organizacije; **FStdop**- funkcionalno stanje dela za obezbeđenje poslovanja organizacije. **Primer:** stanje $FEfo_{rg}$ modelovane transportne organizacije je $(3 \times 2,89 + 3 \times 2,78 \times 2 + 2,83) : \sum k = (7,77 + 8,34 + 5,66) : 8 = 21,77 : 8 = 2,721$.

B.5. Vrednovanje delatnog stanja organizacije

Delatno stanje organizacije (Ds_{torg}) odražava odnose njene efikasnosti funkcionisanja u odnosu na tražene efekte rada što je moguće izraziti modelom: $Ds_{torg} = FEfo_{rg} \times UmObOr$ (8.)

pri čemu je **UmObOr uspeh mera** u pripremama, organizovanju i izvođenju aktivnosti, koji je moguće vrednovati po opštem izrazu: $UmObOr = (SljOr + S \text{ sadrž Ob aktiv}) : n \dots (8a.)$

Uspeh mera **Ob** poslovanja moguće je vrednovati primenom zakona verovatnoće. Ponderisana vrednost **UmObOr** je proizvod vrednosti stanja ljudstva i sredstava za **Ob** u granicama: $0,00 < UmObOr < 1,00$ na osnovu izraza: a/ **po kvantitetu**, na osnovu strukturnog stanja ljudstva i sredstava (model 6.) i b/ **po kvalitetu**, na osnovu funkc. stanja (modeli 3., 4. i 5.).

Primer: delatno stanje modelovane organizacije je $(2,721 \times ((2,89 + 2,78) : 2)) = (2,721 \times 2,835) = 90,7\% \times 94,5\% = 0,907 \times 0,945 = 0,857$ ili 85.7% ili **2,57**, što je **povoljno**.

U zavisnosti od segmentnog i ukupnog delatnog stanja organizacije moguće je procenjivati i **vrednovati stanje njene sposobnosti** u odnosu na kraće i duže periode. Sledeći vrednosti

⁴⁶⁾ Za n-tu organizaciju je utvrđeno da je povoljno stanje popunom preko 95% ili 2,85, delimično najamanje 85% ili 2,55. (rezultati istraživanja autora. [6, p.125.-127.])

stanja preduzeća operacionalizovanim modelom moguće je definisati opcije reorganizacije preduzeća.

Tabela 5.

<i>Usmeravanje operacional.</i>	Stanje ljudstva	Stanje sredstava	Upravni deo	Izvršni deo	Obezbeđujući deo	Vrednovano stanje preduzeća
Strukturno stanje	2,55	2,57	2,95	2,90	2,80	2,56/2,88 (85,1%)
Funkcionalno stanje	2,89	2,78	2,89	2,78	2,83	2,72 (91,6%)
Delatno stanje						2,57 (85,7%)

Vrednovano stanje preduzeća otkriva potrebe kvantitativnih promena strukturnog stanja ljudstva i sredstava; redovno unapređenje funkcionalnog stanja i detaljnu promenu delatnog stanja.

5.3. PROCENA OPCIIJA POZICIJE ORGANIZACIJE PREDUZEĆA

Prethodni sadržaji su upotpunili sliku poslovanja i moguće sadržaje uticaja na egzistenciju i razvoj preduzeća. Tako sadržajna analiza povećava mogućnosti i efikasnost utvrđivanja potrebnih promena.

Tabela 6.

<i>Usmeravanje operacional.</i>	NAMENA <i>Utvrđivanje uticaja</i>	ULOGA <i>Izdvajanje uzroka</i>	SVRHA <i>Šta menjati?</i>	Menja se	Reorganizacija preduzeća
Strukturne promene	Uticaj na druge pojave	Omogućavaju egzistenciju	Održavanje organizac. Uslovljavaju promene Fin, UpSt, Ist (A, C, D, I)	Organizaciona struktura 14,9%	
Funkcionalne promene	Dominantni uticaj I, II, IV	Proizvode pojave I(2,3); II(1,5); IV(1,2,3)	Opređeljujuće promene Kd, Org (B, C, G, H)	Jača STABILNOST	
Delatne promene	Izazivaju promene I, II, IV	Proizvode posledice I(3); II(1); IV(3)	ODLUČUJUĆE PROMENE PPr, TTm, Org (A, H)	Poboljšava EFIKASNOST	

Dakle, izdvajaju se tri opcije reorganizacije preduzeća:

- A.** Održavajuće strukturne promene kvantitativnom popunom nedostajućih kadrova i sredstava izraženo stanjem **14,1%**.
- B.** Promene jačanja stabilnosti: funkcionalnim promenama preduzeća prilagođavanjem kadrovske strukture i organizacije dominantnom uticaju faktora I, II i IV.
- C.** Izvršiti korenite promene poboljšanja proizvodnog programa, tehničko-tehnoloških mogućnosti i organizacije i preduzeti hitne promene strukturne i funkcionalne efikasnosti.

6. ZAKLJUČAK

Strategijska operacionalizacija je od odlučujućeg značaja za uspeh reorganizacije preduzeća, jer predstavlja sintezu saznatih i otkrivenih sadržina, suštine i struktura procesa reorganizacije preduzeća. Obuhvata celokupnost unutrašnjih činilaca i procesa reorganizacije preduzeća.

Sušтина operacionalizacije je sinteza saznatih i otkrivenih bitnih uslova, odnosa i veza, funkcija, struktura preduzeća, modelovanje i vrednovanje delatne organizacije kao osnova reorganizacije.

Specifičnost strategijske operacionalizacije projekta je potreba sistematizovanja postupka organizovanih aktivnosti i radnji pojedinaca, lidera, menadžera i timova u procesu projektovanja usmerene ka postizanju cilja.

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EVALUATION OF VISUAL CONTROL IMPORTANCE IN THE PRODUCTION PROCESSES OF ENTERPRISES FROM THE AUTOMOTIVE INDUSTRY

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Abstract: The article presents research results in a scope of evaluation importance in visual control use in the production processes of enterprises from the automotive industry. As a part of undertaken research the concept of visual control was defined, its basic aims, importance and benefits observed in Toyota Company were described. Toyota's management principles by Jeffrey Liker were pointed out, which refers to visual control (second and seventh). An innovative BOST questionnaire survey was characterized as a tool for transformation of Toyota's management principles into questions. Survey questions from BOST study were described, which are used in evaluation of the visual control importance and its elements with reference to second and seventh Toyota's management principle (question E3 and E7). Analysis of respondent's preference in ranging factors of the second Toyota's management principle was conducted using comparative evaluation of Thurstone's method, as well as degree of similarity between these factors was indicated. Subjective factor was assessed by employees of the automotive industry as one of less significant in the production process. There were few reasons for low importance of this factor in the employees opinion, the most important of them are: insufficient care for technical condition of visual control tools by persons responsible for it, unintelligibility of provided information, lack of update information provided by them, improperly design in terms of ergonomics and lack of periodic trainings with a use of these visual control tools.

Keywords: visual control, BOST method, importance hierarchy, statistical analysis, automotive industry

1. INTRODUCTION

Visual control is known as well as *visibility management*, *management by visibility* or *management by sight*. Visual control is a lean technique; way of communication; a type of control; a system; a type of workplace management; a method of problems visualization. The concept of visual controls is a major part of a Lean manufacturing system, which focuses on waste reduction [0].

Visual control is designed to make the control and management of a company as simple as possible. Anyone entering a visual work place, even those who are unfamiliar with the detail of the processes, can very rapidly see what is going on, understand it and see what is under control and what isn't. Essentially, the current status of the operation can be assessed, at a glance. Visual control is a system that helps organizations create and sustain a competitive

advantage in two significant ways. First, it ensures that an organization's internal structure, management systems, work environment, and culture are aligned with its mission and values. Second, it focuses employees' attention on critical performance goals, making sure that employees know what is expected of them at all times and are committed to the organization's success [0]. Visual control is the type of control that will enable even person such as the company president, or other upper-level executives who know very little about the plant, to apprehend a certain amount of important information about the plant (namely, the progress status of the manufacturing processes, the amount of raw materials and work-in-progress being held in inventories, the number of defects being generated, which machines and equipment are out of production and why, and the like) merely by walking through the plant and observing it; this, in turn, will allow these executives to point out problems and make suggestion concerning how to deal with them [0]. It is method or techniques used with a goal to improve safety, efficiency (productivity), quality and effectiveness of a process or processes without great deal of management interaction [0]. Its goal is to provide the current status of all important parameters at first glance.

Visual control is any communication device used in the work environment that tells us at a glance how work should be done and whether it is deviating from the standard [0]. Visual control includes measures, instruments or mechanisms, which were designed to management or operation of control (process) in order to fulfill defined objectives. It is an important element in 5S practice [0]. Visual workplace is self-ordering, self-explanatory, self-regulating and self-improving work environment – where, what is supposed to happen, it will happen, on time, every time, in a day and night – as a result of visual solutions [0]. Visual control includes different approaches, which cause that the state of process is visible at first glance [0].

The goal of visual control in any organization is to reinforce system alignment and improve the organizations' performance. Visual control is all about working better, not about looking good, although looking good is a great side benefit [0]. Jeffrey K. Liker, expert of the Toyota's production system, points at the basic aim of visual control, i.e. visual control above all is supposed to help to identify problems and to show divergences between objectives and current situation. When deviations from standards are visible and obvious for everyone, there is a possibility of immediate corrective actions in order to solve these problems. According to Liker the visual aspect of this control consists in the fact that it is possible to examine some process, machine, element of supplies, information or employee performing some task and at once to notice the standard adopted for them along with possible deviation from it [0]. Visual control, in the broadest sense, refers to timely transfer of any kind of information needed for a quick and correct implementation or carrying processes out.

Masaki Imai, the world-famous *kaizen* expert, distinguished three basic objectives (principles) of visual control: first – indication of problems. Problems in the workplace should be visible. If deviation from the norm cannot be detected, nobody can manage the process; second – help both employees and supervisors in staying alert with reality in the workplace (*gemba*). Visualization of deviations from the norm for all employees –managers, supervisors and linear employees – enables for immediate corrective actions; third – show and explain the purpose of improvements. Existence and visualization of purpose are a basic motivator of people, how states Imai “numbers aren't enough..., without purpose of numbers are dead” .

Based on literature analysis in the content of visual control [0], [0], [0], [0], [0] it is possible to specify the following specific objectives of visual control: organization of

workspace so that all people (even persons from the outside) could state whether everything is going well or badly, without expert assistance; allowing an employee orientation in the new environment that is described, identified and ordered; simplification of determined events perception, and thanks to that shortened response time of the operator to existing incident; showing the operation or work status in a simple to see format; providing instruction; providing information; causing that problems, irregularities, or deviation from standards are visible for everyone, i.e. corrective actions can be carried out immediately; ensure immediate response of people.

2. WHY VISUAL CONTROL IS IMPORTANT IN TMC?

In Toyota Motor Company (TMC) the visual control has a special place, is one of production techniques of the company's excellence, integrated with the enlarging value process [5]. Visual control is a heart of Toyota's production system, an essential element that complements and reinforces other elements of this system. Visual control is a fundamental element in Toyota's production system, a particularly important tool in the "pillar" named Jidoka. Toyota plants use in Jidoka a visual control tool such as problem display board system called "andon" that allows operators to identify problems in the production line with only a glance. The most important in visual control is the fact that it leads to undertaking a specific action, which in the Toyota indicates problem-solving process. Visual control is deep-rooted in the culture of Toyota. It is an evidence of how highly valued is information exchange, which enables to detect the problem and practical understanding of human limitations with regard to information processing. The Toyota applies integrated team of visual control factors, i.e. visual control system aimed to create clear and free from the waste environment. Many tools applied in the Toyota's production system are visual control measures applied in order to make all deviations from standards evident and to facilitate the flow. Implementation of the visual control system brought to the Toyota specific, notable benefits in a form of: increased productivity, reduced number of defects and errors, help in meeting dates, facilitate communication, improvements in safety, reduction of costs, providing employees greater control over their own environment [5].

3. HOW COULD WE ASSESS THE IMPORTANCE OF VISUAL CONTROL IN A PRODUCTION PROCESS? BOST METHOD PRESENTATION

Survey and research method determined as BOST (the name of the is an acronym created from the first two letters of the name and surname of his creator i.e. Stanislaw Borkowski, professor of technical and economic sciences, the acronym is legally protected [0]) was formed as a result of author's fascination in Toyota Motor Company, in its management and production system, enhanced after reading a book by Jeffrey Liker "*The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*" [0].

BOST studies, full name is *BOST study – Toyota's management principles in questions*, were drawn up in order to assess in practice the approach to management in the Toyota Company amongst manufacturing companies and service in Poland. BOST studies are aimed to prove that in enterprises operating in Poland, irrespective of conducted activity, the employees unconsciously use management principles, about which perhaps they never heard.

These are principles of Toyota's management principles (14) [0], [0]. In relation to BOST study over 50 publications were published presenting practical results of this method use in various organizations.

Toyota's management principles in BOST method are described with characteristic factors. A set of factors was called "areas". Toyota's management principles were divided into four sections, while the BOST questionnaire form has two versions: for employees and supervisors. BOST questionnaire form for the staff contains 20 questions and the version for managers - 21 questions and 7 questions so-called "demographics". BOST studies are supplemented with the author's version of Servqual questionnaire forms, which with BOST study create one-off. BOST questionnaire form and statistical analysis method of its results was repeatedly awarded at the international exhibitions of inventions IWIS – International Warsaw Invention Show.

An issue of visual control evaluation in BOST questionnaire form appears twice: in question E3 and E7. The content of question E3 is "a reply" to the second Toyota's management principle, ordering "to create continuous process flow to bring problems to the surface" [0]. Area marked as E3 is described a set of six factors, among which is the factor of visual control use (SW). The content of question E3 is: *what is the most important factor in the production process?* In the box write 1, 2, 3, 4, 5, 6 (6 the most important element) [0].

Content of question marked as E7 is the answer to the seventh principle of the Toyota management requiring "use visual control so that no problem remains hidden." [0]. The area marked as E7 is described in set of six factors. Content of question marked as E7 is: *What is the most important element in the visual control?* In the box, type 1, 2, 3, 4, 5, 6 (6 as the most important factor) [0].

Factors in E3 question in the BOST survey

CP	Continuous system of disclosing problems
PE	Production interruption after detecting quality problem
SZ	Standard tasks, processes, documents
EU	Delegate authority down
ST	Applying exclusively a reliable technology
SW	Usage of visual control

Factors in E7 question in the BOST survey

CS	Cleanness
EP	Flow
TI	Information board
UP	Participation in production places
ME	Monitoring
GW	Graphic presentation of results

For evaluation of the visual control importance and its elements in BOST questionnaire form a six ranking scale was used, described in numbers [0]. The basic pros of using ranking question in the survey research is that each element receives a unique ranking (respondents cannot assign the same value to each element). However ranking questions force respondents to choose between two factors they may wish to rank equally (e.g. "cleanness" and "information board" may be the two most important element in visual control system in the company, yet respondent is forced to choose one over the other in a ranking question) and it typically takes longer to answer ranking questions, often because respondents need to compare items against one another. Even the cons the ranking question

was chosen in the research in aim to determine the arrangement of production process factors in companies.

Applied ranking scale (ordinal) implies use of statistical parameters to data analysis, such as *median, percentiles, deciles, quantile and rang correlation* as a part of descriptive statistic methods and *nonparametric tests* as a part of inductive statistic methods.

4. RESEARCH METHODOLOGY

BOST questionnaire survey – *Toyota's management principles in questions* were conducted amongst 10 enterprises from the automotive industry. Selected 10 enterprises were the most representative companies from studied area. Research area included companies from the area of Silesian province in Poland. The research objects were direct suppliers (Tier 1) and companies from the second in the chain of subcontractors (Tier 2). A preliminary condition for classification of the companies to BOST study was confirmed information about implementation of visual control system in the workstations in analyzed company.

Amongst selected enterprises the population of respondents was chosen, which consisted from production workers of the examined enterprise, having a contact with visual control tools in the workplace. Numbers of tested sample and employees for the study were established according to principle “10:80”, i.e. as a part of the examined industry 10 enterprises were selected, amongst which tested sample was minimum 80% of employees (a percentage of examined employees population). Studies were marked by a low degree of anonymity, but with large degree of control by the interviewer. Applied questionnaire form - lecture and direct questionnaire - affected on increase in measurement control. It was an intentional treatment, which was supposed to contribute in increase of the correctness in filling surveys by pollsters. The entire BOST questionnaire form was filled out, i.e. responds had to answer to 20 questions, in addition important from a point of research question view (marked as E3, E7 and E12 i.e. demographics) were “obtained” from it and analyzed.

In the BOST study 356 production workers took part from 10 companies of examined automotive industry. As a tool for statistical analysis of survey data used: EXCEL program from Office 2007 package, PQStat program of PQStat Software Company and STATISTICA 10.0 of StatSoft Company.

5. REASERCH ANALYSIS

5.1. ANALYSIS OF RESPONSES STRUCTURE WITH REGARD TO VISUAL CONTROL IMPORTANCE IN THE PRODUCTION PROCESS

Analysis of the importance of visual control use in the production process of automotive industry was carried out. For that purpose answers to question E3 were analyzed from BOST questionnaire form, which is a reply to the second Toyota's management principle.

As a part of analysis in obtained replies the structure of evaluations to subjective factor was presented. Analysis results were presented on Figure 1a and b.

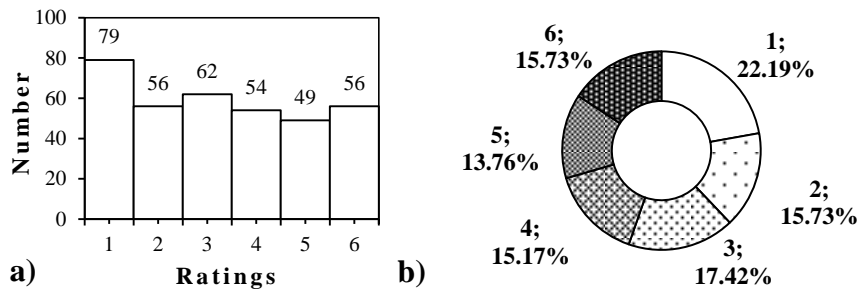


Figure 1. Ratings structure for the use of visual control (SW) factor: a) numerical, b) percentage

Rating most often granted by respondents to subjective factor was “1” (22.19% of readings), and most rarely – “5” (13.42% of readings). Analysis of ratings distribution indicates intermodality, no consensus as to the importance of this factor in cross-section of all examined enterprises from the automotive industry.

A normalcy of rating distribution in importance of factors to the second Toyota's management principle was examined. For that purpose the normalcy test of Kolmogorov-Smirnov was applied. Rating distribution didn't show features of normalcy; moreover examined variables were measured on a ranking scale, which in the analysis of results implies use of *positional statistics* and *nonparametric tests*. It was calculated the basic positional statistical parameters such as *median*, *mode*, *deviation quarter*, *range*, *lower and upper quartile*, *inter-quartile range* and some of the classical statistical parameter (*average*, *standard deviation*, *coefficient of variation*) for evaluation the population structure ratings of the researched factor. The results were shown in the Table 1.

Table 1. Summary of basic statistical parameters of the data set concerning the evaluation validity of factor marked as SW

N valid	Average	Median	Moda	Standard deviation	Deviation quarter
356	3.29	3	1	1.76	1,5
Lower quartile	Upper quartile	Coefficient of variation	Asymmetry coefficient	Range	Quartile - range
2	5	50	0.33	5	3

Average rating to examine factor was 3.29 ± 1.76 . The most frequently occurring value was 1. Calculation results of such positional statistical parameters as median, quartiles and range were presented using box plot with reference to all factors of the production process (Figure 2).

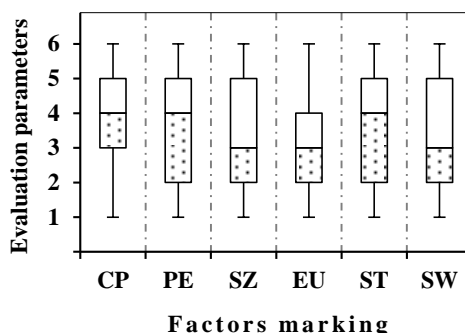


Figure 2. Box plot diagrams for the factors of the second Toyota's management principle

Box plot provided a lot of valuable information about rating distribution to the examined factor. Values of interquartile range shows that half of respondent replies were between the value of "2" and "5". Median rating was "3", i.e. half of polled employees pointed at lower than "3" and half at higher than "3". Median value, which is closer to the first quartile Q_1 , indicates right-handed asymmetry of distribution in 50% central ratings. Identical height of tendrils and central location of box points at the symmetrical distribution of all ratings. A similarity in distribution of positional statistical parameters was recorded between the subjective factor and factor of *standard processes, tasks and documents* (SZ). In a given part of the article it was verified whether this relation is statistically significant.

A place of subjective factor was analyzed amongst remaining factors of the second Toyota's management principles in ranks of importance for individual ratings 1-6 (Table 2).

Table 2. Position of the factors of second Toyota's management principle in a series of importance for individual evaluations

Rnkings	1	2	3	4	5	6
1	EU	SW	SZ	CP	ST	PE
2	SZ	EU	PE	ST	SW	CP
3	EU	SW	ST	SZ	PE	CP
4	SZ	PE	ST	SW	CP	EU
5	CP	ST	PE	SW	SZ	EU
6	CP	PE	ST	SW	SZ	EU

Subjective factor SW (marked with grey color) was assessed as a one of the most important in case of "1" and "3" rating and as one of the less important in case of "4", "5" and "6" rating.

5. 2. ANALYSIS OF RELEVANCE DIFFERENCES IN ASSESSMENTS AND CORRELATION RELATIONS BETWEEN FACTORS OF THE SECOND TOYOTA'S MANAGEMENT PRINCIPLE

In the next stage of analyses it was verified whether evaluations of the importance to subjective SW factor and remaining factors of the second Toyota's management principle

differ. For that purpose *ANOVA Friedman rank test* (Friedman repeated measures analysis of variance by ranks) was used. This test was applied because we have rankings (ordinal scale) from various sources (i.e. from different employees) and they concerned a few objects (i.e. factors of the second Toyota's management principle). Hypothesis was analyzed on the significance level of $\alpha = 0.05$, that *evaluations of at least two factors of the second Toyota's management principle don't differ* (null hypothesis).

Analysis results allow to state (χ^2 ANOVA = 68.531, $p = 0.000005$) that there is a statistically significant difference in ratings (medians of ranks) to at least two factors of the second Toyota's management principle. POST-HOC analysis was carried out using Dunn test in order to indicate factors which differ significant in the assessments of respondents. Analysis results in a form of the statistically significant relation in the evaluations between factors (appearance of pyramid) were presented graphically on Figure 3.

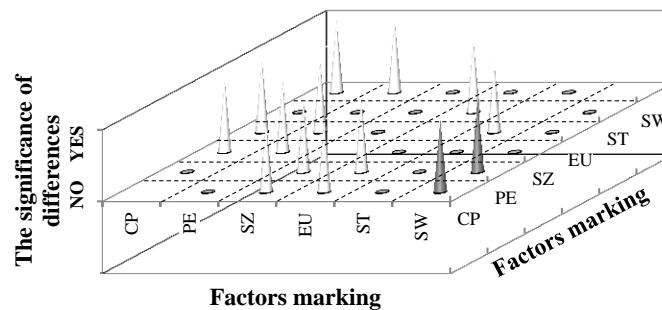


Figure. 3. Presentation in a 3D form the results of the significance analysis of median differences for ratings of the factors of second Toyota's management principle

From Figure 3 results that between SW and CP as well as SW and PE factors there are statistically significant differences in ratings granted by the respondents.

Analysis results analyzing strength, direction and significance of correlation relations between the factor of *the usage of visual control* (SW) and remaining factors of the production process were presented in Table 3.

Table 3. The correlation coefficients of Spearman's rank order for factors of the second Toyota's management principle

Factors marking	CP	PE	SZ	EU	ST
SW	-0.187*	-0.346*	-0.284*	-0.227*	-0.022

Between the subjective factor and remaining factors of the second Toyota's management principle there are negative correlation relations (relevant on a given significance level). The level of these correlations is weak and varies within the limits of -0.187 to -0.346. The strongest negative correlation appeared between the subjective factor and the factor of *production interruption after detecting quality problem* (PE). Along with subjective factor importance increase (decrease) the PE factor importance decreases (increases). Relation inversely proportional between SW and PE factor it is possible to

explain by the fact that effective implementation of the visual control system causes reduction in a number of quality problems in the process, as well as need of production interruption as a result of these problems.

5. 3. ANALYSIS OF THE RESPONDENT’S PREFERENCE IN FACTORS RANGING

Thurstone’s method of comparative ratings was used in order to create one-dimensional demographic scale of preference of factors the second Toyota's management principle based on rankings granted by individual respondents. Thurstone’s method consists in comparing each feature with each, and based on obtained results a scale of preference is created.

Data in a form of rang scale were processed into comparison results in pairs for individual respondents. Based on comparative evaluations the proportion table was created (Table 4), determining in which the given factor (in column) is preferred above other (in range).

Table 4. Table proportion of preference in the evaluation of the factors of the Toyota’s second management principles (a given factor in the column is preferred in such value in % over a given factor in a row)

Factors marking	CP	PE	SZ	EU	ST	SW
CP	x	47.19	39.33	33.71	43.82	39.33
PE	52.81	x	39.04	39.33	49.44	41.85
SZ	60.67	60.96	x	41.01	54.49	50.28
EU	66.29	60.67	58.99	x	59.55	57.58
ST	56.18	50.56	45.51	40.45	x	40.73
SW	60.67	58.15	49.72	42.42	59.27	x

The analysis showed that SW factor was more preferred by respondents than only two factors of the production process i.e. *delegate authority down* (EU) and *standard tasks, processes and documents* (SZ). In other cases it is a less preferred factor of the production process. A graphical compartment of one-dimensional marking scale of comparative assessments was created (Figure 4).

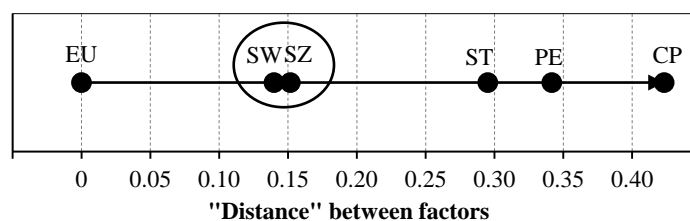


Figure 4. Compartments dimensional scale of comparative assessments

Based on gained scale the preferences of respondents were put in order basis on “distances” between ranged factors. From Figure 8 results that it is possible to distinguish four groups of preferred factors in the structure of factors of the second Toyota's management

principle in the analyzed industry. The least preferred factor (first on the left) is *delegate authority down* (EU), rank among the second group of preferred factors are two factors i.e. *standard tasks, processes and documents* (SZ) and *subjective factor* SW (degree of similarity between these factors is the greatest), the third group of factors includes *production interruption after detecting quality problem* (PE) and *applying exclusively a reliable technology* (ST), and the most preferred factor among all examined industry turned out to be *continuous system of disclosing problems* (CP).

Summing up, a range of important factors of the production process in examined industry presents Figure 5.



Figure 5. The importance series of the factors of the second Toyota's management principle

From analysis of the range of important factors it results that visual control use isn't a key factor of the production process (among examined factors it is on the penultimate place in a range of important factors of the production process).

6. SUMMARY AND CONCLUSIONS

In the article a visual control was characterized, as well as its objectives and benefits of its application were described. The Toyota management principles which are associated with visual control was presented. Innovative BOST questionnaire survey, which are an attempt to convert Toyota's management principles into questions was described.

Analysis of collected replies from employees of 10 companies from the automotive industry was carried out. Numerical and percentage structure of votes to the factor of visual control use in the production process was described. Statistical analysis of the reply to examined factor was carried out using statistical parameters of position and box-tendrils graphs. A place of subjective factor was analyzed amongst factors of the second Toyota's management principle in ranges of the importance for individual evaluations. Comparative evaluation of the Thurstone's method was used in order to create a scale of factor preferences of the second Toyota's management principle and to determine similarity degree in terms of perception the subjective factor importance and remaining factors of the production process. Analysis showed that subjective factor was the most similar in evaluations to the factor of *standard tasks, processes and documents* (SZ). The subjective factor SW is preferred in choice only by 0.28% from the SZ factor.

The fact that visual control use isn't such an important factor in the production process in enterprises of automotive industry may result from the fact that visual control tools have secondary part in implementation of the production and supervision process. Research in "the real place" (in "gemba") conducted by "gemba walk" identified irregularities associated with: keeping these tools in the proper condition, their distribution, causing limited visibility, difficult access to them by staff, lack of cleanliness and lack of practical use of visual control tools during trainings in the workplace. The researched companies were not the OEM companies only their suppliers, so the level of implementation of visual control was lower.

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INVESTMENT POLICY IF THE INDUSTRIAL PARKS IN NIZHNY NOVGOROD REGION

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Abstract: The article introduces the mechanisms of the governmental support for the industrial park projects. Creation and development of the industrial parks in Nizhny Novgorod region is planned with the usage of project funding, public and private partnership mechanisms. The research in the article is carried out on the basis of comparative analysis and mathematical modeling; also the investment attractiveness of the industrial parks in Nizhny Novgorod region is assessed. The article reveals the problem of effectiveness assessment for the industrial parks. The necessity of theoretical-methodological and practical assessment mechanisms development is quite acute. It stimulates the development of the production and economic activities. Also it helps to save resources and provides the enterprises with the economical and rational way of resource usage in the new transitional conditions of Russian economy to the innovative way of development and because of the risks that appear due to the economic crises of the global economy.

Keywords: Mechanisms, industrial parks, state, tools, public-private partnership, region, risk, efficiency.

The goal of the article is to develop theoretical basis and methodology tools in the sphere of industrial parks formation in Nizhny Novgorod region. To achieve this goal we have set the following objectives:

- Justify the profitability of the industrial parks development in Nizhny Novgorod region that are based on the huge enterprises. It helps to develop interfirm productive nets;
- Determine the main directions of the industrial park development in Nizhny Novgorod region;
- Find the factors of the industrial parks' work and suggest the working principals;
- Suggest methodical approach for industrial park.

The object of the research is the industrial parks in Nizhny Novgorod region.

The subject of the research is business relations that appear when the enterprise is integrating into the industrial park.

Theoretical basis for the article is the papers of foreign and Russian scientists that are dedicated to the industrial development. Researches were conducted with the usage of systematic and economic approaches. Also the method of the experts' assessments was used.

The article is interesting for the scientific society, because it develops the theoretical base and methodological tools in the sphere of the industrial parks. [2].

Structural problems can be solved with the help of the industrial parks in Nizhny Novgorod region. It's possible because industrial parks represent especial type of residents, that are situated in specially created areas and demand special type of management, but they provide customers with good quality products [6].

Industrial cluster in Nizhny Novgorod unites more than 70 industrial enterprises, 16 higher education establishments and 96 colleges. Also it includes commercial, engineering, service and transport objects. Enterprises in this cluster are situated only in industrial centers of Nizhny Novgorod region: Kstovo, Dzerzhinsk, Arzamas, Bor.

Cluster is the group of the auto making enterprise, oil makers, car details, assembling departments (GAZ, PAZ, AZ). They are situated at three main industrial sites in Nizhny Novgorod, Kstovo and Dzerzhinsk.

The beginning of the industrial chain is in Kstovo. It is ethylene production at JSC «Sybur-Kstovo» and polyvinyl chloride at JSC «Rusvynil». Then it goes to Dzerzhinsk for recycling. After that the raw materials are transported to Dzerzhinsk, where they produce ethyleneoxide using the facilities of JSC «Sybur-Neftehim». There automobile liquid is produced for the needs of «GAZ» group.

Key companies of the Nizhny Novgorod industrial sites (JSC «GAZ» and LLC «Autozavod «GAZ») are situated at the territory of one industrial site. They serve infrastructure and support processes that are provided by the special out-source companies: LLC «Consulting center», LLC «technological park». The biggest parts of the other companies – companies that supply with the details are situated at the industrial site of GAZ or close to it: LLC «ZHP», LLC «Lear». LLC Bosal-GAZ, LLC Collini, LLC TRM, LLC «Factory «auto detail», LLC «Nizhny Novgorod engines», JSC «Red Ethna».

Development projects for industrial parks «Dzerzhinsk-east» and «Doskino» must be considered as one, united investment project. The project is based on the enterprises from the «GAZ». The following financial sources are supposed to be used:

- 3 675 mln rub. – non-budgetary sources;
- 1 837 mln rub. – local budget;
- 516 mln rub. -domestic budget;
- 2 858 mln rub. – Federal budget.

Total cost of the projects, that develop industrial parks is supposed to be 8886 mln rub. Essential part of this sum should be spent for transport facilities (4 590 mln rub.), to form energetic and engineering facilities, it is supposed to spend 2010 mln rub. Essential investments are for innovations in infrastructure development (2286 mln rub.).

The project has been implemented since 2011 and must finish in the end of 2016. At the same time 60 mlrd rub. (55%) from all investments is for the projects of the anchor participants – Sibur and «GAZ» group.

Last ten years auto making complex has been transformed from a big integrated company that control all the technological processes to the modern international standard of control.

Nowadays this tendency is more noticeable, because in Nizhny Novgorod region, there are many auto makers

The integrity level inside the cluster is different for different product directions. It can be explained by the historical inconsistency in auto makers connections.

The main product directions can show us vertical integrity of big production holdings: making a project of the product, material purchase and mechanical processing; delivery and product realization.

If cluster appears in Nizhny Novgorod region, along with «GAZ» group, it helps to attract big chemical and defense companies.

Transport hub and rail-ways do not protect from some logistic problems and it restricts opportunities of the industrial park:

- There is only one modern logistic center and terminal complex of the international level, that includes custom-storage facilities (Volzhskiy Industrial park);
- Bad conditions of the roads and highways. It doesn't give an opportunity to attract new participants to the industrial parks. Soon this problem will be critical for Nizhny Novgorod industrial cluster;
- Undeveloped cargo infrastructure in Nizhny Novgorod airport. The absence of normal conditions for international operators [1].

In the cluster area energetic power is unbalanced. But generally, energetic infrastructure is suitable for projects' implementation and provides stability.

One of the problems in energetic complex is that long-distance and distribution nets are not developed enough.

- Living conditions, social infrastructure in the region has middle-Russian level. Besides, in the frameworks of the infrastructure development the following projects are implemented:

- Industrial park «Dzershinsk – Eastern» – site to place the resident's manufactures. Place is determined by the needs of the potential residents.
- Industrial park is created in Doskino region (there is free land) – it is dedicated to bring auto makers projects to life.
- IT park – «Ankudinovka» – created for innovative projects and technologies. It should be energy – efficient, include space and medical technologies.

New productions in industrial park «Dzershinsk- Eastern» bring the results:

- new working places;
- working efficiency is increased;
- Industrial production is growing;
- Price competitiveness at the domestic enterprises increased;
- Innovative activity is growing;
- import-substituting;
- international cooperation;
- small and middle business is supported [3].

New directions to intensify the production are the following:

- Import-substitution of the allocated base in order to develop competitiveness. This problem is acute for developing auto making clusters;
- Small and middle business is developed. Financial support for the residents helps to create new small enterprises;
- Investment attractiveness is increasing. The development is restricted by infrastructure - it is not developed enough;
- New highly-paid working places in the real economic segment. New working places are very significant for modern cities, especially for mono-cities. Industrial parks help to create new working places;

- Transfer from innovative technologies at huge enterprises to independent suppliers [5].
 The main prospective for Nizhny Novgorod industrial cluster:

- new competitive products are introduced. These products also suitable for foreign markets - Innovative centers appear in Nizhny Novgorod region (auto details).
- New modern infrastructure helps to attract new enterprises and investments.
- Special education is transformed. Education solves priority issues (chart 1).

Chart 1 – key showings of the cluster development [4]

Key showings	Target showings	
	2013	2016
Cluster profit mlrd rub.	175	465
Investment, research, mlrd rub.	0,35	1,15
Main fond investments mlrd rub.	31,9	21,9
Investments to cluster infrastructure mlrd rub.	0,23	1,336
Number of the working places. People	68650	85 236
Work efficiency th rub. per year	2545	5 455
Part of the working places where salary is higher in 2 times then average, %	6%	10%
Part of the cluster sales in Russian market, %	47%	49%
Part of the cluster sales in Russian market, %	1%	21%
Innovative part, %	7%	58%

In innovative infrastructure can be some the most interesting directions:

- Industrial clusters should have innovative infrastructure-techno-parks, innovative centers, business-incubators.
- Development of the united engineering centers that must develop new products and test them.
- R&D center should be created in order to develop polymer-materials that have synergy-effect in competence.
- Information centers and databases should be developed, as well as statistics.
- Development of the expert-consulting companies that is especially important for Geneva thesis and it is necessary to have an international result.

Education for preparing specialists that suits more to their potential.

Chart 2 – quality changes in the industrial park

Directions for development an changes	changes in the structure			
	2012 year (park is Implemented)	2015 г.	2017 г.	2019 г.
Import-substitute level in the industrial enterprises.	-	0,10	0,20	0,50
Total investment is growing	-	0,05	0,20	0,30
Innovative production is growing	-	0,03	0,10	0,15
Number of the new working places is growing	-	0,01	0,05	0,10
Small business and middle business is developed	-	0,01	0,05	0,15
Economical showings	-	0,10	0,30	0,60

These projects are the most important for Nizhny Novgorod region. That's why special financial measures will support the, for example taxation discount, loans, profitable interest rate for loans. Taxation discounts are maximum in Nizhny Novgorod region.

Chart 3 – investment development of the industrial parks «Dzershinsk-eastern» and «Doskino» [7]

Investments direction	Non-budgetary sources mln rub.	Regional budget mln rub	Local budget mln rub.	Federal budget mln rub.	Total mln rub.
transport	1 355	970	410	1 855	4 590
energy	500	634	106	770	2 010
innovations	1 820	233	0	233	2 286
total	3 675	1 837	516	2 858	8 886

At the same time, the most effective implementation of the projects, demand governmental support in the form of investments in the infrastructure. It helps to perform the most effective scenario – 465 mlrd rub. profit in 2016. Without support of the government some projects must be put off, the others do not work efficiently. These projects let auto making enterprises and chemical factories to adapt to the new WTO reality and guarantee their competitiveness [8].

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A PARALLEL BETWEEN FEMALE ENTREPRENEURSHIP IN ROMANIA AND SERBIA IN THE CONTEXT OF 2016

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Abstract: Female entrepreneurship has begun to take amplex in the countries of Europe and this began to be a topic discussed in many articles and several international conferences in the field. In Romania and Serbia, two neighboring countries, two countries that are trying to develop economically and trying to recover lost time, this area is even more interesting to study. Based on data provided by the National Institutes of the two countries, and based on data from European studies and databases we try to present a clear picture of what female entrepreneurship is, currently, in Romania and Serbia. We will also analyze how evolved the annual growth rate of female entrepreneurship. Conclusion: a few years ago the female entrepreneurship was almost nonexistent and now grows from year to year and develops in a way that affects the country's economic growth.

Keywords: Female entrepreneurship, economic growth, Romania, Serbia

INTRODUCTION

Entrepreneurship is an important initiator of economic and social development, particularly in low and middle income countries, in developed economies entrepreneurship is an engine of economic development, but also the female entrepreneurship. The world's most competitive economies are those where the opportunity gap between women and men is the narrowest. The mentality of a nation and prejudices against women are very often what holds a country's development back.

The aim of this study is to examine the issue of female entrepreneurship in Serbia and Romania, the ability of women to realize their economic potential. The female entrepreneurship have difficulties in accessing finance for starting and growing their businesses, but when they [succeed](#) in this, the importance of women's presence in the labor market and benefits they bring to the economy is important.

An interesting question is why women in Serbia and Romania, in theory have the same rights and opportunities as men, but in practice they fail to exercise them sufficiently or use their entrepreneurial potential.

Cvetković (2015) in her study shows views of some people who have studied the topic: Radović-Marković (2007) noted that when it comes to employment, the most vulnerable categories are young women up to 29 years, due to the birth of children and create families and women older than 55 years who are dismissed because of shutting down state-owned companies. Avlijaš *et.al*, (2012) added that in 2012 began the implementation of some programs to support women's entrepreneurship but the mainly related to women up to 35 years old females. The big issue is financing because banks are skeptical of the financing of female entrepreneurship (Avlijaš *et.al*, 2012).

Monitoring female entrepreneurship is new, even in the EU, which is why monitoring methodologies are still in the development stage and there is a lack of available data.

1. ISSUES RELATED TO FEMALE ENTREPRENEURSHIP

According to the study conducted by Pantić (2014) some of the definitions of a female entrepreneur used in academic circles are: women who found a company (Bennett & Dann, 2000; Hisrich 1986; Inman, 2000); women who are the owners of a company, no matter what the origin of the ownership (Aidis, 2002; Izyumov & Razumnova, 2000); women who employ others (Hisrich&Fulop, 1994; Inman, 2000; Smith-Hunter, 2003). Women entrepreneurs are women who both own and manage the company (Aidis, 2002; Inman, 2000; Lee-Gosselin & Grise, 1990); are women who have established a company with the aim of making a profit and growth (Bennett & Dann, 2000), including the owners of small companies who started their business in order to realize their ambitions and where their business generates their main source of income and consumes most of their time.

We can conclude that a female entrepreneur owns more a part of the company (no matter the origin of ownership), is actively involved in the business activity as a manager, and creates jobs for herself and for others.

The list of criterias that the woman entrepreneur should meet (Avolio, B., 2011):

- 1) She needs to have more than 50% ownership of the company
- 2) The company has to employ at least two people
- 3) She has to play an important role in the business
- 4) She has to work full-time in the company
- 5) She needs to make the most of her revenue from the company she manages
- 6) She should have been in the company for a minimum of 2 years in order to demonstrate commitment.
- 7) The company needs to have officially operated for at least 2 years.

Global Entrepreneurship Methodology (GEM) defines an entrepreneur as a person who simultaneously has ownership of business capital and manages it, the definition of a woman's business would be similar to the academic definition: a company where a woman is both the majority owner and a director. This definition excludes women who are informally employed, self-employed, run a business but are coowners, and have no managing position in the company.

The OECD has started to adjust the monitoring of entrepreneurship in 21 countries with the intention of expanding to more OECD and G20 countries. (Arandjelovic, 2012)

Improving the status of women is crucial for the realization of full economic potential and social development in all countries, including Serbia and Romania. The woman is not only expected to shoulder a great deal of responsibility in the workplace, but also in the family.

Cvetković (2015) shows the relationship that exists between entrepreneurship and education, and that between entrepreneurship and family:

- According to Blanchflower & Oswald (1990) noted that educated people are more likely to engage in own business. Education provides necessary skills and competencies, therefore, can enhance the tendency to start up own business

among those who gained needed skills. There is no doubt that education is the best investment. The entrepreneurs with higher education rank higher in performance.

- Family as a determining factor to start business has also been explored vastly in the entrepreneurship literature. Having a parent entrepreneur or having a poor childhood can improve chances to become an entrepreneur later in life (according to Blanchflower & Oswald, 1990, p 2; Dyer & Handler, 1994).

Capital is precondition for entering into entrepreneurship, people who do not have funds or those without financial support are in disadvantage. The decision to start up business is highly correlated with financing and costs bearing of starting up.

Family support in finding capital has strong implications for females deciding to become entrepreneurs.

2. METHODOLOGY

This study we are going to present the analysis of the statistical data from studies conducted on the male versus female entrepreneurship (The study conducted by the European Commission: *Statistical Data on Women Entrepreneurs in Europe* (2014), data on *Global Entrepreneurship Methodology - GEM*, Republic Statistical Office of Serbia and Statistical Office of Romania).

Most studies of female entrepreneurship focus on individual cases. More recent studies are oriented towards the problems facing female entrepreneurs: the practice and perception of women who run businesses, their work/ life balance, ability to achieve success, and business vision.

This study is based on results of extensive research on the local and global situation regarding female entrepreneurship and represents a summary of findings. We are showing the situation facing Serbia and Romania.

3. FEMALE ENTREPRENEURSHIP IN SERBIA AND ROMANIA

Entrepreneurship in Serbia, but also in Romania has developed in a relatively short period and without adequate regulative and real continuity. Female entrepreneurship has developed during all these years under even worse conditions marked by an established patriarchal regime and general state of economy. Nevertheless, women are increasingly starting businesses and running companies with more success. Statistical data show that female enterprises account for about 26% of the total number of SMEs in Serbia. Moreover, women earn considerably less in enterprises than men with the same education level. (Kalinić et. al., 2014)

The research indicate that: women still prefer well paid jobs to their own businesses, a key motive of women for setting up their own business is a desire for independence. (Kalinić et. al., 2014) This is valid for female entrepreneurs in Romania, can be seen in figure no. 3.4.

Serbian women's businesses are significantly more concentrated in the trade and 'other services' sectors (36,4% women and 28,4% men in the trade sector, 44% women and 41,6% men in 'other services'); women have started to engage in entrepreneurship later than

men, they more often choose simpler legal forms (shops rather than companies) and independently owned businesses. (Pantić, 2014)

Serbian women are especially exposed to the risk of failure in the early business phase (within the first 42 months of operation, according to Global Entrepreneurship Monitor methodology).

Previous work experience is significant when starting an independent business – 80% of serbian women entrepreneurs from the research sample who had been employed before they founded their own company had worked in the same sector in which their current company operated. (Pantić, 2014) Female entrepreneurs in Romania had work experience when they start the business, can be seen in figure no. 3.4.

The study conducted by the European Commission: *Statistical Data on Women Entrepreneurs in Europe* (2014) shows that in 2012, around 26% of all entrepreneurs in Serbia were women compared to 31% in the EU-28. The majority of these women entrepreneurs (82%) were solo entrepreneurs. Women entrepreneurs constituted about 14% of the women in the active labour force (entrepreneurship rate). This was lower than the EU-28 average entrepreneurship rate (10%). In Serbia, the highest proportions of women entrepreneurs were in the sector groups of classical services and administrative and social services and the lowest proportions in the sector groups of transportation and construction.

In 2012, Serbia had 130,000 women entrepreneurs, including 24,000 who employed personnel. These women entrepreneurs amounted to 26% of the total entrepreneurs and 27% of all employers, compared to the total EU proportions of 31% and 26%, respectively. (European Commission, 2014)

Since 2008, the number of women entrepreneurs in Serbia has decreased by 35% and the number of men entrepreneurs decreased by 24%. The EU average of women entrepreneurs increased by 2% the EU average for men decreased by 1%. The number of women employing personnel has decreased by 34% in Serbia, while the number of men entrepreneurs decreased by 27%. The average decrease in women entrepreneurs who were employers in Serbia was lower than the EU-28 average for the same period. (European Commission, 2014)

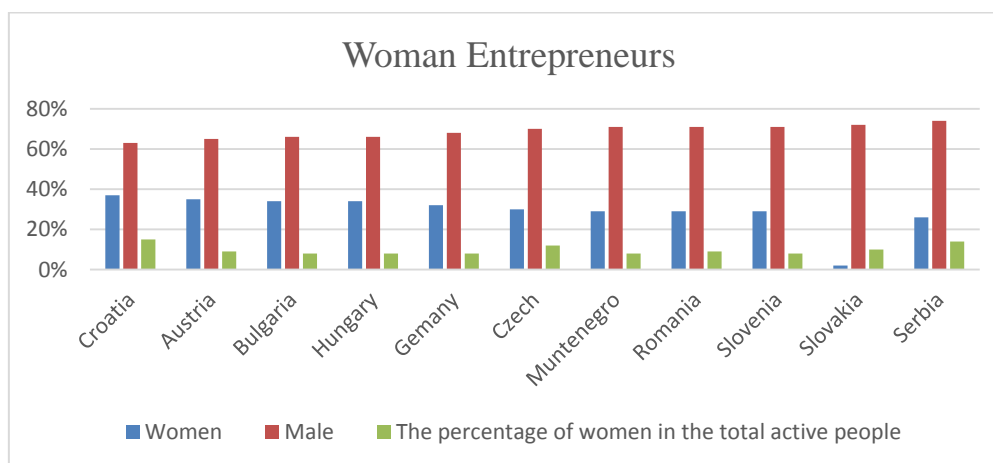


Figure 3.1. Female entrepreneurship in neighboring of Romania and Serbia
 Source: European Commission – Statistical Data on Women Entrepreneurs in Europa (2014)

As can be seen in the figure, the percentage of female entrepreneurs in all entrepreneurs in Romania are at the same level as in Serbia.

Regarding employment rate Romania is better than Serbia, but we must not forget that Romania has a population much larger than Serbia. (Fig. no. 3.2)

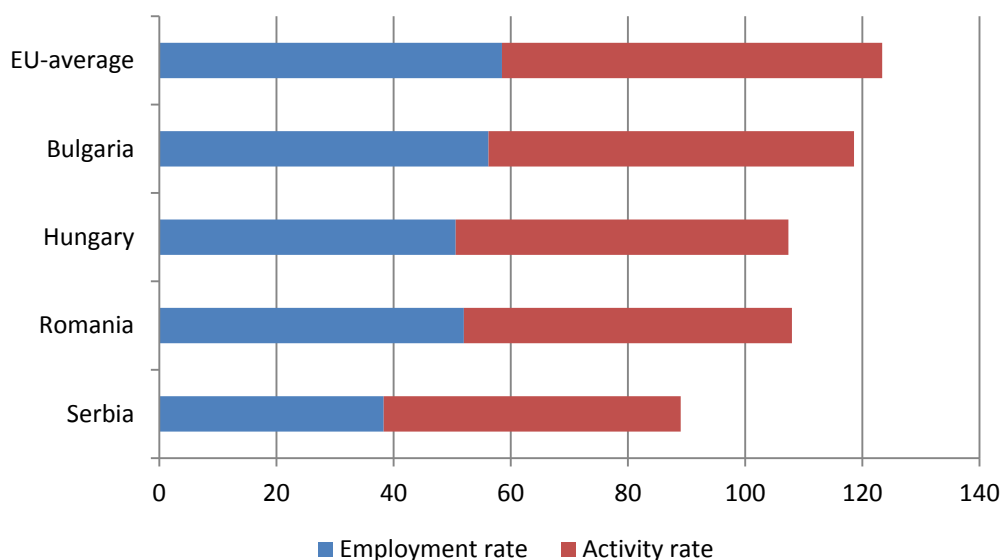


Figure no. 3.2 Activity and employment rate of the female population, comparison with regional countries in %

Source: Arandjelovic, 2012

Republic Statistical Office of Serbia presented the results of a survey on the use of time in Serbia. According to the survey, 63% of women as soon as come back home from work continue with household activities, and so begins a second shift. (www.Statistics of Serbia, 2014). In addition, research has shown that in compared to 100 men, 130 women with a university degree, while the 100 men with college degrees, 150 women have same education. However, when it comes to wages, females receive about 83% of the salary for the same job as men (www.Statistics of Serbia, 2014).

Ministry of Labor of Serbia Republic conducted research in 2014 that indicates alarming overall socio-economic position of women in Serbian society. Woman usually works two jobs - at home and at the workplace. When it comes to discrimination against woman because of her maternal role, 38 percent of the population stated that is familiar with the case that the woman was fired because she went on maternity or parental leave. (www.Ministry of Labor, 2014).

14 % of serbian females had some kind of unequal treatment in relation with formal institutions. 77 % of participants believe that a woman is not fully realized in life if not the mother, and 70 % to the interest of every nation that women give birth to more children. Research shows that 80 % of single parents are females and 30 % of them take care of elders in the family at the same time (www.Ministry of Labor, 2014).

According to the table presented below, Serbian female entrepreneurs are middle-aged (average age 41,9 %), married or living with a partner (78,7%); having children (85%); with

secondary school education (66,2 %); 82,2 % of Serbian female entrepreneurs are living and working in urban areas. (Cvetković, 2015) Serbian female entrepreneur is a small firm owner, employing no more than ten people (99 %) usually in the service sector. The majority of their employees are females (73,4%). Regarding motivational factors, it looks like the majority of Serbian female entrepreneurs are pushed into entrepreneurship (68 %). (Cvetković, 2015)

Table 3.1 Portrait of the Serbian female entrepreneur

Average age	41,9 %
Married or living with a partner	78,7%
Having children	85,0 %
Secondary school education	66,2%
Employs less than 10 people	99,0 %
Dominant sector	Service sector
Female employees	73,4 %

Source: Babović, (2012) in Cvetković, 2015

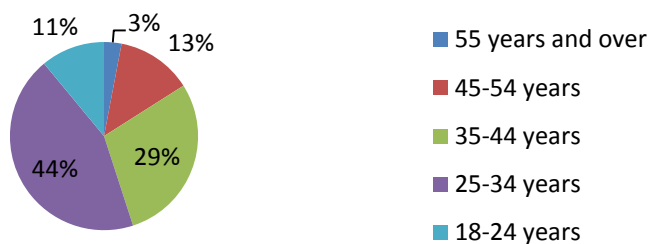


Figure no. 3.3 „How old were you when you became an entrepreneur?” – in Romania
 Source: Pocol, Moldovan-Teselios, 2014

As can be seen from the above data, female entrepreneurs in Romania and Serbia have a similar profile, namely, they began the entrepreneurial activity at an average age after they had children and accumulated experience.



Figure no. 3.4 „What was the main reason for starting a business?” – in Romania
Source: Pocol, Moldovan-Teselios, 2014

The issue of money is the main reason that women in Serbia and Romania have begun an entrepreneurial activity, and the need to no longer have a boss man, the desire to be independent.

CONCLUSION

It is not surprising that numerous studies and research pointedly the very same problems in female entrepreneurship. The situation differs from one country to the other based on the socio-economic picture, but there are many common themes.

Women tend to contribute to the society's development, this is a fact.

We must change the society's perception that business and entrepreneurship are a male-dominated sector. Moreover, Serbia's is a patriarchal society where women's independence and selfsufficiency are not truly embraced or encouraged, which makes it difficult for women to make business endeavors. At this chapter in Romania women entrepreneurs have greater freedom, but also in Romania there is, still, discrimination between men and women.

Serbia and Romania needs to take more aggressive measures in promoting gender equality and introducing a female business environment.

A positive aspect resulting from the analysis of data is that both female entrepreneurs from Romania and Serbia want to be independence, they want to be female entrepreneurs, but want family also.

The independence, freedom and ambition shows that women are competitive and that can help the country's economic growth.

As expected, money is the engine, they are the main reason why women should work and will manage because they are mothers and wives, they have responsibility.

Romania and Serbia are on track in terms of developing an enabling environment for female entrepreneurship development.

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IMPORTANCE AND THE NEED OF UNDERSTANDING RELATIONS AMONG NATIONAL AND ORGANIZATIONAL CULTURE

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Abstract: The aim of this paper is to indicate on importance and the need of understanding relations between national and organizational culture. Special attention in this paper is devoted to cross cultural encounters, which is an inseparable part of everyday activities of numerous organizations at the time of globalization. In the first part, the basic determinants of national cultures are expressed. Further, the research of dimensions of the national culture is presented as well as the consequences which cultural differences have on patterns of thinking and on the way in which people behave. While pointing on relations between national and organizational culture, authors are emphasizing the importance and the need of identifying and understanding the influence national culture has on organizational culture, with all the effects it has on business activities. Process of recognizing cultural diversities is precondition for organizations to adopt their business strategies and behavior, which has a particular importance regarding investment and partnership strategies for entering foreign markets.

Keywords: national culture, organizational culture, international business

Abstract: Cilj ovog rada je da ukaže na značaj i potrebu razumjevanja odnosa nacionalne i organizacione kulture. Posebna pažnja u radu je posvećena situacijama susreta različitih kultura, a što je u vrijeme globalizacije postalo dio svakodnevnog života brojnih organizacija. U prvom dijelu rada su iznijete osnovne odrednice nacionalne kulture. Nakon toga je dat kratak prikaz istraživanja dimenzija nacionalne kulture i posljedica koje razlike među kulturama imaju na razmišljanja i ponašanja ljudi u organizacijama. Ukazujući na vezu nacionalne i organizacione kulture, autori potenciraju značaj i potrebu identifikovanja i razumijevanja uticaja nacionalne kulture na organizacionu kulturu, sa svim efektima koje to ima na poslovanje. Prepoznavanje kulturoloških razlika preduslov je prilagođavanju poslovnih strategija i ponašanja organizacija, što ima poseban značaj kod investicionih i partnerskih varijanti strategija ulaska na inostrano tržište.

Ključne riječi: nacionalna kultura, organizaciona kultura, međunarodno poslovanje

UVOD

Uvažavanje nacionalne kulture sa aspekta njenog uticaja na poslovanje organizacija ne može se ograničiti na oblast eksterne adaptacije organizacije kulturološkim karakteristikama ciljnog tržišta. Naime, jasno je da organizacije u procesu eksterne adaptacije (prilagođavanja potrošačima i drugim stejkholderim) moraju voditi o njihovim kulturološkim obrascima. Ova potreba eksternog prilagođavanja posebno je dolazila do izražaja pri nastupima na inostranim tržištima. No činjenica je da kultura ima značajnu ulogu i u internoj integraciji organizacija.

Svijest o ulozi nacionalne kulture i njenom uticaju na internu integraciju organizacija i u ovom slučaju je podstaknuta situacijama u kojima u internom kontekstu organizacija dolazi do susreta i mješanja različitih kultura. Drugim riječima, internacionalizacija poslovanja dala je dodatni podsticaj jasnijoj identifikaciji i prihvatanju značaja i uticaja kulture na eksternu adaptaciju i internu integraciju organizacija, a samim tim i na njihovo funkcionisanje. Razloge navedenom stavu trebamo tražiti u tome što ljudi u svom ponašanju nijesu svjesni uticaja koji kultura ima jer ona djeluje podsvjesno. Tako da je spoznaja o njenom djelovanju najčešće povezana sa susretima sa drugim kulturama.

Isticanje važnosti nacionalne kulture za funkcionisanje organizacija implicira stav prema kojem je za osmišljavanje sistema i tehnika menadžmenta neophodno uvažiti kulturološki kontekst u kojima će se oni primjenjivati, što posebno treba imati u vidu prilikom internacionalizacije kompanija. Suprotno ranije preovlađujućem uvjerenju da su principi menadžmenta i organizacije, univerzalno primjenljivi nezavisno od kulturnih razlika i kulturološkog okvira u kojem se sprovode, sve je prisutnija svijest o velikom broju i značaju kulturnih činilaca, koji u značajnoj mjeri određuju funkcionisanje savremenih organizacija. U radu ćemo pokušati da, polazeći od iznesenih stavova, skrenemo pažnju na prirodu odnosa nacionalne i organizacione kulture, sa aspekta potrebe uvažavanja uticaja nacionalne kulture na funkcionisanje organizacija u situacijama susreta različitih kultura.

1. NACIONALNA I ORGANIZACIONA KULTURA

Logiku i potrebu uvažavanja, a samim tim i istraživanja, uticaja nacionalne kulture na funkcionisanje organizacija realtivno je lako naći u samom značenju pojma kultura. Prema jednoj od brojnih definicija, kultura predstavlja *složenu cjelinu koja uključuje znanje, vjerovanja, umjetnost, zakone, moral, običaje i ostale sposobnosti i navike koje je čovjek stekao kao član određenog društva*⁴⁷ (Hawkins et al 1989). Kao takva, kultura je duboko „usađena“ u svijest ljudi, odnosi se i utiče na širok aspekt našeg mišljenja, osjećanja i ponašanja. Kultura je uz to vrlo stabilna. Za potrebe ovog rada oslonićemo se na još neke definicije kulture. Tako, na primjer, Hofšted nacionalnu kulturu predstavlja kao *mentalno programiranje: obrasca mišljenja, osjećanja i djelovanja koje svaka osoba stekne u djetinjstvu i zatim primjenjuje kroz čitav život* (prema Janićijević, 2013). Pored nje navodimo i jednu noviju definiciju, prema kojoj *nacionalna kultura predstavlja skup pretpostavki, vrednosti, normi i stavova, manifestovanih kroz simbole, koje je izgradila jedna nacionalna zajednica i koji bitno određuju njihovo razumijevanje sveta i ponašanje u njemu* (Janićijević, 2013).

Kao što se, nacionalna kultura je svobuhvatna i uključuje čitav niz elemenata: znanje, vjerovanja, vrijednosti, mišljenja, osjećanja, pretpostavke, umjetnost, zakone, moral, običaje, navike.... koje većina njenih članova dijeli. To je sadržaj kulture. Kultura je zajednička za članove društva i stiče se, odnosno uči kroz proces socijalizacije, pri čemu poseban uticaj na učenje imaju porodica, sistem obrazovanja, mediji... Tako stečena kultura određuje granice, odnosno definiše okvire u kojima većina pojedinaca kao članova određene zajednice misli ili se ponaša. Pri svemu tome, njen uticaj na ponašanje ljudi je takav da su ga pojedinci rijetko svjesni. Sve ovo potvrđuje stav da nacionalna kultura vrši bazičan i najširi uticaj na ponašanje koje ljudi u nekom društvu ispoljavaju u svakodnevnom životu (uključujući kupovinu i posao).

⁴⁷ definicija Edvarda Tejlora

Dakle, kroz uticaj na ljude kao potrošače i ljude kao članove organizacija, logično je da ona ima značajan uticaj na funkcionisanje organizacija.

Danas je opšte prihvaćen stav da isto kao što pojedina društva - nacije imaju svoju nacionalnu kulturu koja je za njih karakteristična, tako i organizacije mogu imati svoje, za njih karakteristične, organizacione kulture. Hofstede organizacionu kulturu definiše kao *kolektivno programiranje uma koje razlikuje članove jedne organizacije od članova druge organizacije iz čega slijedi da je organizaciona kultura karakteristika organizacije, a ne individua, iako se manifestuje i mjeri pomoću verbalnih i neverbalnih ponašanja pojedinaca* koji čine tu organizaciju, odnosno zajednička je, uči se i stječe radom i socijalizacijom koja se razvija u određenoj organizaciji i razlikuje se od kulture neke druge organizacije (Hofstede, 1998.b.; Hofstede, Hofstede, Gert 2005). Za potrebe ovog rada, ukazujemo i na definiciju prema kojoj je organizaciona kultura *sistem pretpostavki, vrijednosti, normi i stavova manifestovanih kroz simbole, koji su članovi jedne organizacije razvili i usvojili kroz zajedničko iskustvo i koji im pomaže da odrede značenja svijeta koji ih okružuje u kojem pripadaju i kako da se u njemu ponašaju*. (Janićijević 2013). Upoređujući navedene sa ranije datim definicijama nacionalne kulture, jasno se nametnuo zaključak da se radi o različitim nivoima (nivo nacije, odnosno organizacije) ispoljavanja istog pojma (kulture). Pri tom se mora voditi računa da je kod nacionalnih kultura fokus na pretpostavkama i vrijednostima koje su duboko usađene u podsvijesti ljudi koji čine neku nacionalnu zajednicu, dok je u organizacijama fokus na normama, stavovima i simbolima. (Janićijević 2013).

2. ANALIZA ODNOSA NACIONALNE I ORGANIZACIONE KULTURE U SAVREMENOJ LITERaturi

Mnoge vrijednosti nacionalne kulture ukorijenjene su u vrijednostima koje se nauče prije napunjenih deset godina života, djeca ih uče od roditelja, koji su te vrijednosti takođe stekli prije desete godine, zbog čega su one relativno stabilne i prihvataju ih različite generacije (Hofstede 2001). Saglasno tome i članovi različitih organizacija nose u sebi određene vrijednosti i vjerovanja, koja su rezultat uticaja društva kojem pripadaju. Iako članovi preduzeća koja su nastala i djeluju u istom društvu imaju iste ili slične početne stavove, pretpostavke i vrijednosti, to ne znači da je organizaciona kultura ovih organizacija ista. Razlog, naravno, leži u tome što nacionalna kultura nije jedini faktor nastanka organizacione kulture. Naime, postoji visok stepen saglasnosti u literaturi da su osnovni faktori nastanka organizacione kulture: (1) nacionalna kultura; (2) lider, odnosno liderstvo koje karakteriše datu organizaciju i (3) karakteristike privrednog sektora (grane) u kojem preduzeće posluje i lider. Uzimajući u obzir da, kako je već rečeno, sadržaj organizacione kulture čine pretpostavke, vrijednosti, norme i stavovi, te materijalni, jezički i bihevioralni simboli, jasno je da nacionalna kultura članova organizacije, utiče na gotovo sve elemente organizacione kulture, tako da nacionalnoj kulturi, kao izvoru organizacione kulture pripada veoma značajno mjesto kao faktoru koji utiče na funkcionisanje i upravljenje organizacijama. Pojedini autori tako, na primjer, smatraju da nacionalna kultura predstavlja ključnu komponentu šireg kontekstualnog imperativa koji nameće ograničenja u kojima se razvija organizaciona kultura. (Johns 2006). Pored toga, u se literaturi mogu sresti i stavovi da organizaciona kultura predstavlja potpunu refleksiju nacionalne kulture. (Petkovic, Aleksić, 2004). Ovo je samo jedno od shvatanja koje nacionalnu kulturu praktično vidi kao opredjeljujući izvor organizacione kulture.

Ako se pođe od toga da su organizacije, kao otvoren sistem, u interakciji sa okruženjem, razumljivo je da postoji značajan uticaj sredine u kojoj funkcionišu, a u kojoj kultura ima značajnu ulogu. One se kroz različite oblike interakcije sa okruženjem prilagođavaju njegovim karakteristikama i zahtjevima te se tako različiti kulturni elementi iz okruženja unose u organizacije i utiču na njihove kulture (Trice, Beyer, 1993).

Logika uticaja nacionalne na organizacionu kulturu, prije svega leži u tome, da organizacija mora prihvatiti činjenicu da je kultura zaposlenih (radnika, menadžera, lidera) determinisana kulturološkim okvirom u kojem funkcionišu, a na koju organizacija koja ih zapošljava nema moć uticaja, te je treba, odnosno mora uvažavati. Zbog toga će njena organizaciona kultura imati one centralne vrijednosti koje su identične društvenom okruženju u kome ta organizacija postoji, dakle identične nacionalnoj kulturi u kojoj organizacija funkcioniše (Ouchi, 1981).

Prirodu ovog odnosa, u smislu izraženog, ali ne i jedinog, uticaja nacionalne na organizacionu kulturu naročito ističe Hofšted. Naime, Hofšted smatra da nacionalna kultura utiče na organizacionu kulturu tako što pojedine dimenzije nacionalnih kultura podstiču (ili otežavaju) pojavu određenog tipa organizacione kulture. Ukoliko je u društvu izražena distanca moći kao jedna od dimenzija nacionalne kulture, odnosno ako je moć u društvu neravnomjerno raspoređena, za očekivati je da će u organizacijama biti razvijena kultura moći, odnosno da će ih karakterisati neravnomjerna raspodjela moći. Izbjegavanje neizvjesnosti u društvu tj. nizak stepen prihvatanja rizika, kao još jedna od dimenzija nacionalne kulture, podrazumjeva prihvatanje strogo utvrđenih pravila i procedura u društvu, a time i u organizacijama koje funkcionišu u njima. Tako se u njima razvija kultura uloga sa strogom formalizacijom, standardizacijom i jasnom hijerarhijom (klasične birokratske kulture). Kulturnoj dimenziji individualizma odgovara organizaciona kultura zadatka koja ističe individualne karakteristike pojedinaca (aktivizam, inicijativa, preduzetništvo) u smislu težnje da se pojedinačni naponi usmjere za ostvarivanje ciljeva organizacije. Ukoliko u nacionalnoj kulturi preovladavaju ženske vrijednosti, u organizacijama se razvija kultura podrške. Ipak u praksi se rijetko srijeće situacija u kojoj jedna dimenzija nacionalne kulture u tolikoj mjeri dominira da umanjuje ili uništava uticaj ostalih dimenzija. Zbog toga je u ispitivanju odnosa nacionalne i organizacione kulture potrebno primijeniti holistički pristup, gdje se nacionalna kultura posmatra kao sistem pretpostavki, uvjerenja i vrijednosti koji su mnogo više od pojedinačnih kulturnih dimenzija. Iako je jasno da organizacione kulture svih organizacija iz nekog društva nijesu iste, za očekivati je da u jednoj nacionalnoj kulturi budu dominantni oni tipovi organizacione kulture koji su kompatibilni sa njenim osnovnim dimenzijama. Isto tako ne može se izbjeći mogućnost da se u nekoj nacionalnoj kulturi pojavi tip organizacione kulture koji nije u potpunosti vrijednosno saglasan sa njom. Ovo iz razloga što je nacionalna kultura samo jedan od činilaca oblikovanja i funkcionisanja organizacija. Prema tome i navedene kulturne dimenzije samo su preduslov za stvaranje određenog tipa organizacione kulture, jer se mora voditi računa o uticaju ostalih činilaca pri stvaranju organizacione kulture. Naravno, potrebno je istaći da odnos između nacionalnih kultura i organizacionih kultura nije toliko snažan i da bi se pri tome mogao zanemariti uticaj preostala dva faktora (Hofstede i Peterson 2000).

Child je u analizi ovog problema pošao malo dalje i prema njemu treba razlikovati snagu uticaja kulture na pojedine organizacione procese. Dakle, kultura ne vrši podjednak uticaj na sve procese u organizaciji. On smatra da kultura najjači uticaj vrši na procese u organizaciji koji se odnose na autoritet, stil, vođstva, a slabiji na formalnu strukturu i strategiju organizacije (Child, 1981).

Razrađujući uticaj nacionalne na organizacionu kulturu, Lamers i Hikson ukazuju na tri aspekta uticaja kulturnih obrazaca nekog socijalnog okruženja i načina njihovog djelovanja na organizacije:

- Političko-pravni okvir, koji djeluje kroz norme i uloge utemeljene u zakonskim propisima, vladinim uredbama i sl. Drugim rečima, svaka organizacija mora voditi računa o tome u kojoj meri su njene norme ili uloge u skladu sa legalno utemeljenim vrijednostima njenih „značajnih javnih aktera“.
- Kulturološki okvir osnivača i njihove vizije, koji „ugrađujući“ svoje pretpostavke i izbore o tome šta bi ta organizacija trebalo da bude, utiču na strukturu i procese u organizaciji i na taj način oblikuju organizacioni život u njima. Time se jasno prepoznaje da nacionalna kultura utičući na razmišljanje i ponašanje lidera u organizaciji vrši uticaj na organizacionu kulturu.
- Kulturološki okvir članova organizacije. Menadžment i ostali članovi organizacije u obavljajući svojih uloga, ponašaju se na način koji proizlazi iz vrednosti, normi i uloga preuzetih izvan organizacije. Uobičajeni načini delovanja i međuodnosa naučeni prije dolaska u organizaciju utiču, dakle, na osobenost organizacione kulture.

Dakle, kultura ili potkulture u jednom društvu mogu imati potencijalni uticaj na organizacione oblike i procese: 1. zbog toga što akteri iz okruženja postavljaju kulturna ograničenja za organizaciju; 2. zbog toga što elite u organizaciji dizajniraju i redizajniraju život organizacije na osnovu kulturno datih modela organizovanja i 3. zato što se i sami članovi nezvanično organizuju i »kontra-organizuju« na načine koji su izvedeni iz njihovih podkultura (Lammers, Hickson, 1979).

Bez obzira što, kao što se vidi, različiti autori različito procjenjuju jačinu uticaja nacionalne na organizacionu kulturu, počev od onih koje sve raznolikosti kod organizacione kulture pripisuju isključivo i jedino nacionalnoj kulturi, do onih koji umanjuju njen uticaj, ipak se može zaključiti da postoji saglasnost oko činjenice da se nacionalna kultura, kao izvor organizacione kulture, ima poseban značaj.

Do sada prezentirani stavovi odnosa nacionalne i organizacione kulture, odnose se na to kako određena nacionalna kultura utiče na formiranje organizacione kulture u organizaciji koja pripada datoj kulturi. Savremeni uslovi poslovanja, koje karakteriše sve veći stepen internacionalizacije i orijentisanosti kompanija na međunarodna tržišta, porast međunarodne razmjene roba, usluga, tehnologija, ljudi, kapitala, veliki napredak na polju savremenih informaciono komunikacionih tehnologija i sve prisutniji proces globalizacije, nužno su u prvi plan nametnuli i pitanja susreta organizacija koje karakterišu njima svojstvene, nacionalno obojene, organizacione kulture, sa ljudima i organizacija iz drugih zemalja odnosno kultura. Drugim riječima, praksa sve veće orijentacija kompanija ka inostranom tržištu, otvorila je velik broj pitanja i problema u praksi, na koje je trebalo dati odgovore i ponuditi rješenja. U traženju odgovora na njih pošlo se od potrebe razumjevanja kulturoloških obrazaca potrošača, poslovnih partnera i drugih struktura iz različitih kultura, sa kojima kroz proces internacionalizacije kompanije stupaju u kontakt. Prelaskom sa izvoznih na kooperativne i investicione varijante strategija ulaska na inostrano tržište ovo dobija još veći značaj. Ove varijante strategija ulaska na inostrano tržište dovode ne samo do kros-kulturnih susreta sa organizacijama iz drugih zemalja, već i do susreta različitih nacionalnih i organizacionij kultura i u okviru iste organizacije što je, logično, moralo imati posledica i po funkcionisanje takvih organizacija. Ovim pitanjima se bavimo u nastavku rada.

3. KULTUROLOŠKI IZAZOVI INTERNACIONALIZACIJE POSLOVANJA

Potreba uvažavanja značaja nacionalne kulture u smislu njenog uticaja na organizacionu kulturu i poslovanje, kako je rečeno, pojačava se sa izlaskom organizacije na inostrana tržišta. Naime, obzirom da kultura djeluje na podsvjesnom nivou, kulturološki uslovljena ponašanja i razmišljanja u sopstvenoj kulturi prihvatamo kao „normalna“, očekivana, uobičajena. I to važi za razmišljanja i ponašanja u svakodnevnom životu, a koja ispoljavamo u kupovini, na radnom mjestu... Samim tim, proces prilagođavanja organizacija kroz internu integraciju i eksternu adaptaciju pri nastupu na lokalnom tržištu gotovo da teče sam od sebe. Naši kulturološki obrasci su dio nas samih, pa se i u organizacijama ponašamo u skladu sa, po pravilu zajedničkom, nacionalnom kulturom, što olakšava internu integraciju. Istovremeno, kroz kontakt sa potrošačima u procesu razmjene, obzirom da i potrošači pripadaju istoj ili sličnoj, nama poznatoj kulturi, u susretu sa njima ne nailazimo na ponašanja koje su po tom pitanju drugačija, iznenađujuća i kulturološki „različita“ od naših, pa je i proces eksterne adaptacije sa kulturološkog aspekta relativno jednostavan.

Drugačija je situacija kada organizacija izlazi na inostrano tržište, pogotvo ukoliko je ono kulturološki značajno udaljeno od domaćeg. Ukoliko se organizacija opredjeli da pri ulasku na strano tržište koristi izvoznu varijantu generičkih strategija ulaska, proces prilagođavanja se uglavnom svodi na proces eksterne adaptacije kroz prilagođavanje organizacije kulturološkim okvirima inostranog ciljnog tržišta. Ono, obzirom da može biti i često je bitno različito od domaćeg, u tom smislu, predstavlja izazov i šansu koja se kroz proces razvoja i primjene međunarodnih marketing strategija treba iskoristiti.

Situacija se dodatno komplikuje kada se kompanija odluči za veće prisustvo na inostranom tržištu, kroz kooperativne ili investicione varijante nastupa, koje po pravilu podrazumjevaju značajnije i direktno prisustvo organizacije na međunarodnom tržištu. U nastavku rada, pažnju ćemo skrenuti na probleme koji u primjenama ovih strategija nastaju prilikom susreta različitih organizacionih kultura, a što dovodi do nastanka nove ili prilagođavanja postojeće(ih), nacionalno obojene(ih), organizacione(ih) kulture(a). Te „nove“ organizacione kulture, koje se, u manjoj ili većoj mjeri mogu razlikovati od izvorne(ih) organizacione(ih) kulture(a), nameću drugačije pristupe menadžmentu, a u dužem roku mogu u određenoj mjeri uticati i na primjenu izvorne(ih) kulture(a). Poznavanje nacionalnih i organizacionih kultura koje se susrijeću i njihovog međusobnog uticaja koji u konačnom utiče na funkcionisanje organizacija, predstavlja posebni izazov za organizacije. Ovo pogotovo zbog toga što se uzroci značajnog broja neuspjeha na međunarodnom tržištu nalaze u neprepoznavanju, nerazumjevanju i/ili neuvažavanju kulturoloških determinanti kako nacija, tako i organizacija sa kojima je potrebno ostvariti interno-eksternu integraciju/adaptaciju. (Galpin, Herndon 2007)

U tom smislu, ove susrete različitih kultura možemo posmarati u zavisnosti od toga: a) da li nastup dovodi do stvaranja potuno nove kompanije, čija kultura tek treba da nastane, kao što je slučaj sa greenfield investicijama, ili se radi o (b) kupovini odnosno akviziciji kompanije u inostranstvu i njenom pripajanju matičnoj kompaniji, ili pak o (c) spajanju postojećih kompanija sa ili bez stvaranja novog entiteta kroz merdžere, zajednička ulaganja, različite forme partnerstava... Iako se u svim ovim slučajevima radi o o manje ili više direktnom prisustvu kompanija na stranom tržištu, sa aspekta načina i formi susreta nacionalnih i/ili organizacionih kultura i njihovih posledica na funkcionisanje kompanije, postoje određene razlike.

Kada govorimo o tzv. greenfield investicijama, kompanija kroz investiciju u inostranstvu stvara potpuno novi entitet. U tom slučaju, kroz susret, organizacione kulture

investitora sa drugačijom nacionalnom kulturom zaposlenih, u novonastaloj organizaciji „rađa“ se nova organizaciona kultura. Logično je da će organizaciona kultura u nastanku biti pod uticajem organizacione kulture kompanije koja investira (sa svim njenim karakteristikama i izvorima) ali i i nacionalne kulture novozaposlenih radnika. Zato je važno da investitor dobro upozna osnovne karakteristike kulture zemlje u koju se investira, posebno sa aspekta njihovih uticaja na organizacije i procjene kompatibilnosti osnovnih karakteristika nacionalne kulture zemlje u koju se investira sa sa organizacionom kulturom investitora. Situacija se, sa aspekta kulturnoloških izazova, komplikuje ukoliko greenfield investiciju realizuju dvije ili više kompanija, a pogotovo ukoliko su te kompanije iz različitih zemalja, jer se tu dvije ili više organizacionih kultura kroz miješanje susreću sa drugačijom nacionalnom kulturom. Na taj način se javlja i situacija mješanja različitih organizacionih kultura u za njih novom kulturnološkom okruženju.

Kod akvizicija, kao strategijske varijante ulaska na inostrano tržište, kompanija svoju poziciju na stranom tržištu ostvaruje i gradi kroz kupovinu već postojeće kompanije, koju pripaja matičnoj kompaniji čime ona postaje subkultura njene organizacione kulture. U tim slučajevima je veoma važno, uz poznavanje nacionalne kulture zemlje kompanije koja se kupuje, upoznati se i identifikovati osnovne karakteristike organizacione kulture kompanije koja se kupuje, posebno sa aspekta njene kompatibilnosti sa organizacionom kulturom investitora. Veća kulturnološka bliskost implicira manju potrebu za prilagođavanjem. Pozicija investitora (kupca) pri tome otvara mogućnost njegovog većeg uticaja na stvaranje nove organizacione kulture.

Kod merdžera dolazi do formiranja nove kompanije koja postaje mješavina već postojećih kompanija. Merdžer zbog toga po pravilu vodi stvaranju organizacione kulture. Slična je situacija i kod čitavog niza zajedničkih ulaganja i partnerskih strategija, u kojima takođe u manjoj ili većoj mjeri dolazi do susreta i „mješanja“ različitih nacionalnih i organizacionih kultura, od kojih ni jedna nije dominantna i koje kroz interakcije i prilagođavanja stvaraju novu i specifičnu organizacionu kulturu. I u ovim slučajevima bliskost organizacionih kultura, značajno utiče na perspektive, kvalitet i rezultate saradnje, pa se, samim tim, mora uzeti u obzir.

Zajednička karakteristika navedenih varijanti investicionih i kooperativnih strategija ulaska na inostrana tržišta jeste da one vode razvoju multikulturnih kompanija. Pored toga, kako je rečeno, uspjeh u ovim poduhvatima, u velikoj mjeri uslovljen sa i zavisn od kulturnoloških faktora. I pored toga, praksa pokazuje da su pri donošenju odluka u procesima ulaska na stranu tržište kroz investicione ili kooperativne aranžmane, faktori kulture i njihovog uticaja u drugom planu dok se znatno više računa vodi o ekonomskim, konkurentskim, tržišnim, tehnološkim dimenzijama. Razloge ovome treba tražiti u činjenici da se takve aktivnosti po pravilu pokreću da bi se odgovorilo pritiscima i izazovima tržišta, konkurencije, tehnologije i slično, pa se upravo njima posvećuje najveća pažnja. Čak i kad se prije donošenja odluke o direktnom prisustvu na inostranom tržištu analiziraju i identifikuju kulturnološki problemi, često se prihvati logika da će se oni lako riješiti u kasnijim fazama razvoja entiteta, iako se neuspjesi ovih poduhvata često pripisuju upravo kulturnološkim faktorima. (Schein 2009)

Pri tome, mora se priznati da je nekad veoma teško a nekad i nemoguće izvršiti kulturnološki due diligence. Uz to, često se dešava da neki konflikti postanu vidljivi tek kad nova organizacija počne da funkcioniše, a da izvršena istraživanja nijesu ukazala niti mogla predvidjeti da će se tako nešto desiti. Samim tim, ponekad ni korektne procjene sopstvene i tuđe kulture ne garantuju uspjeh u procesu mješanja različitih kultura u organizacijama. Upravo zbog toga, u suštini ovih procesa mora biti prihvatanje i razumjevanje različitosti i permanentno

zajedničko međukulturno učenje proisteklo iz procesa rješavanja zajedničkih problema (Schein 2009).

U tom procesu posebnu ulogu imaju svi oni koji će u takvim kompanijama raditi od osnivanja (preuzimanja). Kada kompanija kroz direktne strane investicije stvara novu organizaciju na stranom tržištu, značajnu ulogu imaju menadžeri kompanije koji su po pravilu bitno involvirani u njen nastanak i razvoj. Zato se posebna pažnja mora posvetiti kako selekciji menadžera (posebno onih koji će iz centrale biti uključeni u proces stvaranja nove firme), tako i procesu njihovih priprema i obuke za susret sa različitom kulturom. Naime, da bi bili uspješni u radu sa ljudima iz drugih kultura, menadžeri moraju biti upoznati sa kulturnim karakteristikama i sličnostima i razlikama između zemlje iz koje potiču i zemlje u kojoj će poslovati, posebno sa aspekta njihovog uticaja na način primjene logike i principa upravljanja. Prethodno iskustvo u radu sa drugim kulturama, kao i spremnost menadžera da razviju vještine za poslovanje sa drugim kulturama su veoma značajne, kao i njihova osjetljivost za individualna i grupna ponašanja i procese u organizacijama. (Schein 2009) Menadžeri treba da razumiju ne samo kulturu zemlje u kojoj treba da posluju, već i implikacije kulturoloških različitosti, kao i da posjeduju potrebne komunikacione vještine da bi mogli da funkcionišu u skladu sa kulturnim specifičnostima okruženja (House et al 2004; Gerhart, 2009). Menadžeri i lideri multikulturnih organizacija moraju podsticati otvorene komunikacije vezane za zadatke koji se trebaju izvršiti i kreirati klimu u kojima menadžer/lider nije barijera komunikaciji, podstičući analitički pristup svih, kao i povratne informacije. Istovremeno važan je i proces selekcije kandidata koji će biti zaposleni na različitim pozicijama u okviru organizacije. I u ovom slučaju iskustvo u radu u multikulturnim organizacijama je dobrodošlo. U svakom slučaju, kulturološka osjetljivost budućih radnika i njihova spremnost da uče i kroz iskustvo razvijaju sposobnost za rad u multikulturnom okruženju predstavljaju prednost pri prijemu budućih zaposlenih.

Uspostavljanje kvalitetnih i otvorenih komunikacija, koje će olakšati prevazilaženje kulturoloških problema i barijera nije jednostavno. Prije svega zbog postojanja iluzije da jedni druge dobro razumijemo. (Schein 2009,) A to i nije baš tako. Čak i kad postoji dobro poznavanje jezika druge kulture ne znači da su nam poznati i bliski i drugi njeni elementi. Čak i kad se identifikuju razlike postoji opasnost da se uđe u zamku da opravdamo sopstvene postupke i ne razumjevajući zašto bi drugi radili drugačije i bez rezerve insistiramo da se primjeni naš pristup. Poseban problem predstavljaju i stereotipi, koje prihvatamo kao istine koje važe za neku kulturu i sve pojedince u njoj, bez obzira što to, naravno, ne stoji. Zbog svega navedenog važan je proces selekcije kako menadžera koji će voditi proces tako i zaposlenih od kojih će sigurno zavisiti uspjeh procesa mješanja i usklađivanja kultura, kao i podsticaj procesa učenja, koji kroz teorijsko upoznavanje sa karakteristikama različite kulture, kao važnu komponentu mora imati i sticanje iskustva kroz kontakt i rad sa drugim kulturama. Slanje zaposlenih iz centrale u inostrane podružnice i obrnuto podstiče procese učenja, i dijaloga kroz otvorene komunikacije (Schein 2009)

4. ZAKLJUČAK

Uticaj nacionalne na organizacionu kulturu je prepoznat kroz prihvatanje stava da je nacionalna kultra jedan od osnovnih faktora organizacione kulture. Polazeći od toga da je nacionalna kultura značajan izvor organizacione kulture, a uzimajući u obzir da organizaciona kultura utiče na mnoge aspekte poslovanja, a samimtim i na funkcionisanje organizacije,

nesporan je značaj koji nacionalna kultura, u tom smislu, ima. Ovo posebno dolazi do izražaja u vrijeme kada se kompanije svakodnevno suočavaju sa izazovima multikulturalizma. Takve organizacije treba da omoguće heterogenoj radnoj snazi, koja pripada različitim kulturološkim i nacionalnim grupama, da rade zajedno na postizanju zajedničkih ciljeva, oličenih u kreiranju zadovoljnih potrošača iz različitih kultura. Da bi se to postiglo organizacija mora biti svjesna značaja koji kultura ima, i pitanju kulturoloških razlika prići na jedan proaktivan način. Samo one organizacije koje prepoznaju značaj kulture u procesima interne integracije i eksterne adaptacije mogu da kvalitetno odgovore na izazove globalnog društva. Nepostojanje svijesti o kulturološkim razlikama i specifičnostima, njihova minimizacija, zanemarivanje ili ignorisanje, predstavljaju siguran put u probleme, uključujući i nastanak konflikata unutar organizacije, a što po pravilu vodi poslovnom neuspjehu.

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MICROBREWERIES AS A NEW PHENOMENA OF CULINARY TOURISM IN CZECH REPUBLIC

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Abstract: Culinary tourism is a new line of tourism activities and since 2001 it is considered a new science sector. In 2003 by Erik Wolf, the International Culinary Tourism Association was established.

Czech Republic is known with its beer, Czechs can drink 140 Hectoliters of it every year. Another record is held by Czechs is in number of microbreweries per capita, and today, there is 300 of them operating. Some of them are offering beer only, others, in efforts to improve their services, are proposing culinary specialties as well.

This case study is analyzing two breweries offering both, beer specials and serving regional culinary products as well. One of them opened and is successfully running beer spa and employs the folklore traditions. Second one is offering luxury accommodation in historic town of Kromeriz, exploiting the tourism opportunities and is preparing to open beer spa as well.

Successful growth of both breweries is in accord with the International Culinary Tourism Association founder Erik Wolf that the food dishes and good beverage are two things which must be purchased by 100 % of travelers. Best food and drinks are often primary reasons of tourist comings to the attractive regions. Why to send them home with the memories full of hamburger and coffee chains experience? They will not come home talking about the culinary experience.

Best food and drinks are thus more than just good restaurants or breweries or wine cellars. Offering regional specialties, food and drinks, thus became the part of complex system of economical development.

Keywords: Culinary tourism. Microbreweries. Regional specialties. Food and drinks. Beer.

1. INTRODUCTION

Culinary tourism is a new line of tourism activities and since 2001 it is considered a new science sector. In 2003 by Erik Wolf, the International Culinary Tourism Association was established. Today this sector is very important and its significance still growing. Specialty Travel Agents Association even described culinary tourism as No.1. trend in travel industry 2009.

2. CULINARY TOURISM

This term was first time used by Lucy Long in her article Culinary Tourism – A folkistic perspective on rating and otherness [1]. She is University of Pennsylvania Associate

and surprisingly her science area research is not travel industry but folklore studies. Such fact is supporting the link of tourism with other science sectors and the reality, that food and drink must be treated as the integral part of culture, traditions, and cultural heritage. In 2004 a book of the same author is published, “Culinary Tourism”, including the original 1998 article. About in the same time are presented publications with culinary tourism topics, dealing with catering within the tourism industry. In 2003 books Food tourism Around the World: Development, Management, and Market (Hall a Sharples) and Tasting tourism: Traveling for food and Drink [2] are introduced. Food tourism written by Alec Clark was published in 2011. Convincing about culinary tourism is science conference European Culinary Tourism in Vienna, Austria, 2011. Participants were many experts on culinary tourism, namely Erik Wolf, President and founder of International Culinary Tourism Association and Professor Michael C. Hall, author of many publications about the culinary tourism [3]. Participating was investigator, responsible for project Vratislav Kozak with the article Beer Tourism in Border Regions as of Culinary Attraction and Vera Kozakova with her entry Culinary Tourism around Bata Waterway.

Founder of International Culinary Tourism Association Erik Wolf [4] in his e-mail to project researcher is pronouncing that meals and drinks are two thinks needed by 100 % of travelers. But residents and visitors not always became aware how extraordinary it is in their region. Marvelous food and drinks are the primary motivation to visitors, as it was demonstrated in previous bulletins, based on our own association research. Why to send them home with the memories full of hamburger and coffee chains experience? They will not came home talking about they culinary experience. Best food and drinks are thus more than just good restaurants or breweries or wine cellars. Offering regional specialties, food and drinks, thus became the part of complex system of economical development, called Geo-culinary.

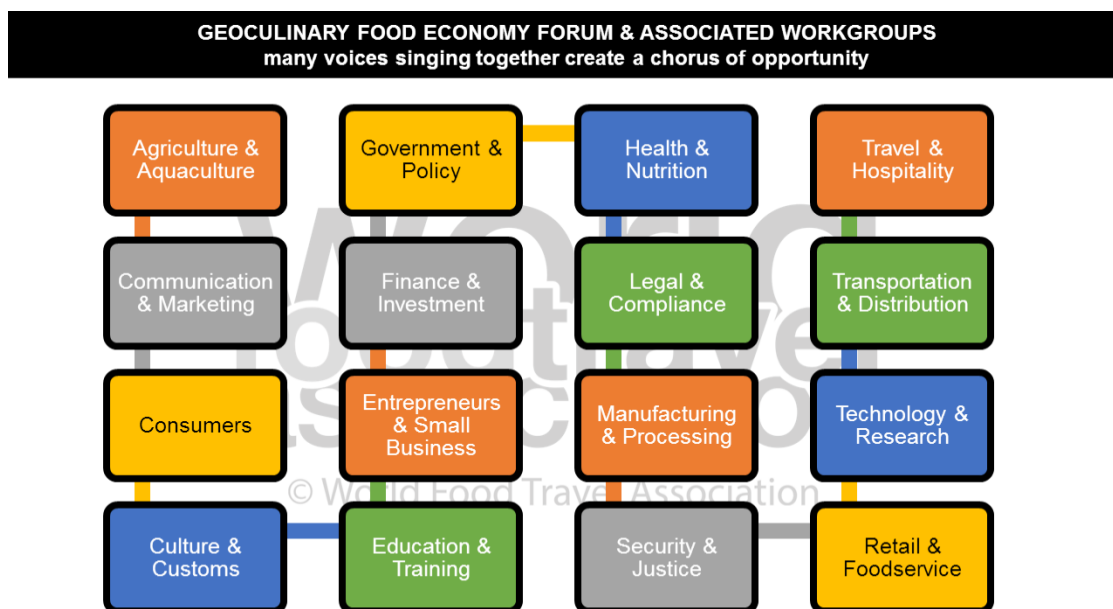


Figure 1 Geo Culinary [4]

Spilková [5] is looking into the function of interconnecting element, forming the ties between rural tourism and regional products. Potential of culinary tourism and its support is

discussed by Otterbacher [6]. Mason [7] is bringing to attention necessity to follow the customers emotions and their satisfaction and their subjective perception as well. Horng [8] in his article is concentrating on communication strategy regarding the growth of local culinary tourism and ways and means of forming marketing strategy. Horng [8] in his small research targeted culinary regions a brand name. Chances of additional growth of beer culture in Belgium and Holland are described by Van Roy [9]. Similar subject, but this time in Central Ontario in Canada was composed by Plummer (2005.) Viticulture tourism was the main motive of Carlsen [10], Alonso [11] a Nela [12] article.

Czech Republic is known with its beer, Czechs can drink 140 hectolitres of it every year in average. Another record held by Czechs is in number of microbreweries per capita, and today, there is 300 of them operating. Some of them are offering beer only, others, in efforts to improve their services, are proposing culinary specialties as well.

3. TOWN OF ROZVOV BREWERY AND ROZNOV BEER SPA

Former brewery premisses were restituted by former owners. They are Tomas Kupcik a Jaromir Benes, after reconstruction returning the brewery to its former glory. Today a copper boiling vessel is regularly brewing light lager Radhost 11%, light special Roznov 13 % and Half-dark special Rothschild 13 %. During the summer months are popular lemon and sour cherry flavored specials, mostly with 11 % alcohol content. In special occasions it is Medové 300 let, (Honey 300 Years) which signifies 300 years of Roznov Brewery history, with 30 % extract from wort. Brew-masters are using from wort 20 % of original wort extract and remaining 10 % is compensated by honey. Production period of such beer special is 10 weeks and beer is mostly available around Christmas. Alternative there is Medový special (Honey Special), as a well-done experiment, with less alcohol content, compared with Honey 300 Years and honey content is 7 %. Another brewery offers are light American Pale Ale 11 %, dark lager Čert 12 %, five-wort lager Žerotín 12 %, Half-dark special Gutmann 16%, dark special Habsburg 16 %, light special Baron Armín Popper 16 %.

Tomas Kupcik a Jaromir Benes, the owners are aiming towards unique approach to their customers, introducing the Spa. Their goal was to build the spas of unique and different sort. According to me it was not only success, but this inspired other entrepreneurs to enter the similar spas business. But “This Something”, which is differentiating the owners in Roznov from others is unparalleled. This uniqueness can one feel just entering the cafeteria or pub. Their objective is “to harmonize the elements of alternative medicine coming from ancient Egyptians and Eastern cultures with more or less commonly known spa and physio-therapeutic elements.” [13] “Thanks to the personal experience we do believe that only by reaching the harmony of body and soul a happy life with love, joy, good health in abundance and prosperity can be lived out“ [13]. Roznov Spas to their visitors are offering complete relaxation in brewery deep cellars. Procedures begins with the complete body warming in delicate herbal steam sauna with peeling, where body and soul, with the help of steam and yogins the audio sounds are released and client is thus more prepared for his bath in dark beer.

Bathing in dark beer, including unlimited beer consumption was in the past very often used as a natural healing method. Even our grandmothers and grand-grandmothers were experiencing the curative effects of beer yeast. Thanks to the high content of B-vitamin they are great for skin and complexion. During bathing a body is receiving intensive doping with

B-vitamin, thanks to the beer, and the complexion thanks to the yeast face mask and locally brewed beer consumption.

Range of services spa offered is broad. Spas are to their customers offering the alternative healing procedures, but for those, not ready to experience such methods classic physiotherapy procedures are offered as well, for example lava stones massage, bamboo massage, as well as with chocolate, honey and others...Thanks to the knowledge of Fiji Island rituals, the trained spa attendants are ready to offer to the customers the best care, from variety of wraps and peelings, such as cane sugar peeling, paraffin wraps, coconut milk wipe, hydrating wraps with coconut oil, Crimea mineral mud wraps or wraps with banana leaves. One cannot be loved, unless you love yourselves.

“One cannot feel the joy if believing that world and its people are bad. You cannot live in abundance, when you believe that abundance is scarce. Join us together on the road to revelation of never before experienced inner world. Perhaps we can change your view of the world and perception of yourselves. Sometimes even one sentence or meeting another human being can change all life entirely. We all do have right to live amazing life and our wish is to open the doors for you on this road, even just little” [13] [14].

4. BREWERY, RESTAURANT, PENSION AND HOTEL ČERNÝ OREL IN KROMĚŘÍŽ

“3-Stars hotel and pension Černý Orel - Brewery, Hotel, Pension is located in historic Kromeriz Town Center, just 200 m from famous Castle with Gardens, which altogether are registered as UNESCO World Heritage site. It offers free Wi-Fi, brewery and restaurant with many awards. 3 beers consumption is included in accommodation price. Cerny Orel (Black Eagle) consists of hotel and pension. Rooms are equipped with refrigerator, lounge furniture and satellite TV with USB port. Hotel can offer the premisses for social meetings and restaurant is serving Czech and international specialties. Different variety of beer is on the tap, from traditional Czech lagers to German type Hefeweizen or bitter Belgian type beer. Cerny Orel Brewery can arrange for periodic tours with guide “[15].

Marketing analysis of services mix sounds for hotel favorable. All services are perfect, including the personnel manners and performance. Cerny Orel is offering the Accommodation Packages according to clients preference and seasons. The only (but significant) disadvantage is the absence of wellness services, which are offered here via contractors. Guest are more and more demanding and they are not interested, especially during the winter months, to walk to other premisses. Wellness absence as the competitive disadvantage was confirmed by analysis of competition as well.

Based on Dagmar Danielová [16] research on random sample of 184 respondents it is clear, that nearly 60 % of them is preferring hotels with wellness services, for 15 % of clients it is not decisive factor and about 25 % of respondents are not requiring them. Research results were consulted with the founder of Institute for services and wellness development. The results can be summarized as:

- Wellness services are becoming essential for hotels
- It is difficult to operate wellness services with profit, but profit is than formed by hotels occupancy rate.

- Wellness is causing the higher rate of guests injuries
- It is necessary to distinguish between swimwear and swimwear-free zone and public or paid private wellness

Based on analysis and consulting with the Hotel operator it was decided that hotel will open beer spa as in Roznov Brewery. Spa can than appreciate the secondary ingredients from beer brewing, mainly diluted wort, malt and yeast. Based on analysed client preferences the wellness and massage services can be offered as well.

To build the beer spa, sauna and massage, the project proposal was examined as of its time, cost and risks factors. The operator after weighing the facts is actually (May 2016) continuing the works on wellness project. Cerny Orel will be offering to its clients not only events on culture and history, but relax and energy regeneration in own wellness center. Basic condition there is the perfect staff conduct, including the personnel selection and education. Since the competition worries, further details are not available.

5. CONCLUSION

This case study is analysing two breweries, with the beer specials in their offerings that are serving regional culinary products. First one of them in addition opened and is successfully running beer spa and is taking advantage of local folklore traditions. Second one based its venture on luxury accommodation in historic town of Kromeriz, is exploiting the tourism opportunities and beer spas are in his project plans as well. Successful development of both breweries is confirming the founder of International Culinary Tourism Association Erik Wolf idea, that drinks and catering are two necessities for 100 % of tourist travelers. Marvelous food and drinks are the primary motivation to visitors. Why to send them home with the memories full of hamburger and coffee chains experience? They will not come home talking about the culinary experience. Best food and drinks are thus more than just good restaurants or breweries or wine cellars. Offering regional specialties, food and drinks, thus became the part of complex system of economical development.

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STRATEGIC MANAGEMENT OF THE PUBLIC SECTOR IN THE REPUBLIC OF MACEDONIA

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Abstract: The strategic management is a continuous process with defined modes of action and should be applied to all of the organizations regardless of whether they are private or public organizations. Therefore, the strategic management includes the following actions: overall analysis of the situation in the organization, monitoring and evaluation of authorities, the working environment, the vision for development in the future and the results and effectiveness of the intended programs. Through strategic management, organizations shape the most important strategic plan, examine the conditions in which they exercise their activity and attempt to find the best ways to deliver the strategic plan. The purpose of this study is to define the application of the strategic management in the public sector in the Republic of Macedonia. The research subject of this paper is to outline the positive and negative effects of the regulatory laws aimed at the establishment and implementation of strategic management in the public sector. Therefore, the research methodology is based on analysis of legal documents and regulations in the field of strategic management and strategic planning of human resources in the state authority. For that purpose, an interview was conducted aimed to perceive the function of the strategic management in the public sector and the methods used of the strategic planning. The interview was completed on 30 public servants employees in twenty state authorities. The survey results suggest that there have been efforts to establishment of legal aspect of organizational units for strategic management and that there has been a positive effect in terms of resolving the tasks in organizations through established uniform rules, backed up by financial structure.

Keywords: strategic management, public sector, public administration, strategic planning

1. INTRODUCTION

Based on the Strategic Plan and regulations, and the need to strengthen the capacity of the "center of government" and the ministries for creation of consistent policies, analysis, coordination and effective implementation there have been new formations within the General Secretariat. In order for the General Secretariat to strengthen the capacities of the ministries for preparation of high quality proposals, consultation and impact assessment, in January of 2007 issued a manual for policy creation. In 2006, the General Secretariat organized two training courses for improving the work of the ministries for preparation of legislation and policy development and in February of 2007, conducted training on the implementation of the manual policy.

The General Secretariat of the Government in February of 2007 adopted Guidelines on the form and content of the preparation of the strategic plans of the ministries and other state authorities. Strategic plans include the following elements: a description of the state administration authority, its goals and priorities, program objectives, the results, consultation

procedures, the impact on laws and regulations and the impact on human resources plans and its implementation. For easier implementation of its instructions the General Secretariat prepared a manual for strategic planning (20).

According to the manual of the Government as stated in Article 23, paragraph 3, the Government decides on the strategic priorities in accordance with the methodology for strategic planning and preparation of the annual work program and the Government makes decisions on strategic priorities in accordance with the Methodology for Strategic Planning (19). The role of the General Secretariat of the Government in the process of strategic planning is defined in Article 24, under which the General Secretariat is responsible for the coordination of the process and to ensure compliance of the strategic plans of the ministries and other state authorities. The methodology for the strategic planning and preparation of the annual program of the Government defines the phases and procedures in the process of strategic planning including time frames for achieving concrete measures and activities, connection with the budget process by clearly defining the responsibilities of the General Secretariat and the Ministry of Finance as responsible state authorities for the coordination of both processes (20).

Hence, the purpose of this paper is to determine the implementation of the documents by the public sector and its advantages and disadvantages. The adoption of these documents has imposed the need for the state authorities to establish organizational units for strategic planning in the form of units or departments for strategic planning. Sectors need to employ professional public servants able to respond to the request and the strategic plans need to be implemented in accordance with the rules for strategic planning.

For a complete realization of the strategy of the state authorities, the responsible authorities have an obligation to design strategy for human resource management that will be incorporated into the overall strategy of the organization. As a result, the responsible authority is forced to adapt their decisions regarding the hiring, firing, training and compensation programs in accordance with the legislation of the work performed, concerning the management of human resources. In order for the organization to successfully perform its strategy, it is necessary to pay attention to the ability of responsible authority, the managers need to know how to manage human resources and be able to make decisions quickly and decisively at a time. The strategic planning is a process that determines priorities and goals of the public administration and defines ways of their realization. This purpose defines measures, assets, projects and budget for implementation of the strategy, according to the particular activity of the organization. Strategic planning has a major task to fulfill the mission and the vision of the organization arising from the responsibilities of the organization. The strategic planning is a continuous process with predefined modes of action. Therefore, the strategic planning includes the following actions: overall analysis of the situation in the organization, monitoring and evaluation of the authority, advantages and disadvantages, the working environment, the vision for the development in the future, policies and programs and the results and effectiveness of the intended programs and its policies.

2. ANALYSIS OF RESEARCH RESULTS

The methodology of the research is based on qualitative analysis and an interview conducted among 30 civil servants in 20 state authorities from various categories of titles. Within the interview, the emphasis was put on the document operational plans and the

procedures relating to the strategic goals of the state authorities. The purpose of this interview referred to determine the extent to which the authorities are accepting to the establishment of strategies in the public sector and whether they are made in accordance with the procedures. In conversation with the respondents, I came to conclusion that all of the respondents are more or less familiar with the strategic plan within the state authority, considering that in the last amendment the formation of the strategic planning within the departments is mandatory. Such units or departments have been established in almost all of the state authorities but only seven of these units consist of trained people who fully exercise their function. The procedure for such strategy in the state authorities is achieved on the basis of the strategic planning manual. Only at the Center for Crisis Management and in the Ministry of Defense, the strategies were prepared based on the rules for planning, programming and budgeting with clear steps of the preparation to the date of its adoption.

Regarding the approach of the strategic plans development, respondents are largely familiar with the role of the strategic plan in the institutions, but the approach to how it will be implemented is perceived as not useful for the functioning of the institutions. This approach is due to the frequent departure from the adopted strategic plans.

The respondents pointed out that one of the largest indicator that shows the departing from the strategic plans is the reduction of the budget for the planned activities or already commenced actions. The strategies are key factors and without written procedures for their certain state authorities will give emphasis on certain strategies. In this context, the respondents noted that budgets are often reduced in cases where the tender has concluded although the Ministry of Finance was informed. In this context, there are non-existent procedures under what circumstances the budget is reduced.

Another indicator suggesting the absence of clear procedures for monitoring the implementation of the strategic plans are the occasional changes of the strategic plans without prior analysis. The state authorities are obliged to follow the standards dictated by the EU or NATO. In the Republic of Macedonia, the State Statistical Office, the State audit Office and the Ministry of defense are ahead of the process of the strategic planning. The overall assessment is that most of the respondents still face a shortage of skilled people and technical resources in order for more effective and efficient strategic implementation.

The results of this research suggest that primer indicator for monitoring the implementation of the activities in the public sector is year-long strategic plans and work programs. These operational plans include objective, time limit for realization, and organizational units responsible for the implementation of the specific activities of the strategic plan. Within this mode the statements of the respondents were as follows: "The basic document which expresses the strategic plan is year-long strategic design, which imposes monthly plans that result in analysis of the overall work within the organization. The implementation of this program is reviewed on a monthly basis. The responsible manager in the organization is obligated to monitor the strategic implementation and to seek for solution if there is problem. The observing of the strategic activities applies only to a general analysis of the work of the organizational units in the public sector for the duration of the implementation of the strategic plan.

3. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the state authorities are facing a shortage of skilled people, materials and technical resources in order to establish effective and efficient implementation of the strategic plans. Also, the lack of clear procedures makes closing the circle of responsibility impossible. This is due to the fact that there is no human resource strategic plan in the state authority. It is well known that the human resource strategic management is an important component for the efficiency of the organization. The lack of the strategic planning in the public administration lead to the problem of lack of experts in the field of strategic planning.

The lack of clear procedures for the strategic planning provides inconsistent approach to this activity and the employees perceive the strategic activities as obligation rather than useful tool for the functioning of the institutions. This approach is due to the frequent withdrawal from the adopted strategic plans.

The conclusion is that even with clear procedures for strategic planning, the state authorities often reduce the budgets in cases where the tender has concluded. All of these inconsistencies obstruct the implementation of the strategic plans of state authorities. An essential element that is missing in the process of strategic planning in the public sector is an analysis of the strategic plans by measuring the achievements of the employees and the reasons for the lack of implementation of the strategic plans. There is a necessity for a serious approach to the process of strategic planning by analyzing all of the indicators and determining the weaknesses and strengths of the public administration in order for greater achievement of the overall strategy of the Government of Republic of Macedonia.

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THE CONTRIBUTION OF GAMIFICATION IN PROMOTION OF TOURISM DESTINATIONS

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Abstract: This work presents the theoretical basis of the concept of gamification, an overview of the history of gamification and effects of using games. Furthermore, the contribution of gamification in the field of tourism promotions has been analysed through several practical examples. The importance of gamification has been explained in terms of learning and education. Research part includes the development of game available in the web version - memory game with cards. Contribution of developed game is reflected in the promotion of the fortress as an important tourist attractions in the city of Novi Sad, on the one hand, and the possibility of learning and obtaining information about attractions at the fortress, on the other hand. Model of created game was developed in the programming tool Construct 2.

Keywords: Gamification, Memory game, Petrovaradin fortress, Tourism, Construct 2

Apstrakt: U radu su predstavljene teorijske osnove koncepta gejmfikacije i dat je osvrt na istoriju gejmfikacije i efekte korišćenja igrica. Potom se sagledava doprinos gejmfikacije u promociji turizma i turističkih znamenitosti, odnosno turističkih destinacija kroz praktične primere primene gejmfikacije. Analiziran je značaj gejmfikacije sa aspekta učenja i obrazovanja. Istraživačkim delom obuhvaćen je razvoj igrice dostupne u veb verziji - igre memorije sa kartama. Doprinos razvijene igre ogleda se kroz promociju Petrovaradinske tvrđave kao važne turističke atrakcije Grada Novog Sada sa jedne strane, ali i kroz mogućnost učenja i dobijanja informacija o atrakcijama na samoj tvrđavi. Model igrice za ovaj rad je razvijen u programskom alatu Construct 2.

Ključne reči: Gejmifikacija, Memorijske igre, Petrovaradinska tvrđava, Turizam, Construct 2

1. UVOD

Gejmifikacija kao novina predstavlja trend koji se može primeniti u bilo kojoj oblasti. Ovaj termin se prvi put pojavio 2008. godine, a popularnost stekao već od 2010. godine. Mnoge poznate kompanije su već usvojile gejmfikaciju da bi povećale angažovanje kupaca, stekle njihovu lojalnost, poboljšale performanse zaposlenih ili stekle konkurentsku prednost. Tržište gejmfikacije je u uzlaznoj fazi i kompanije sve više postaju svesne svih koristi koje im donosi gejmfikacija.

Primeri iz prakse najbolje pokazuju da se koncept gejmfikacije uspešno primenjuje kako u turizmu tako i u ostalim oblastima.

2. GEJMIFIKACIJA – ULOGA I ZNAČAJ

Gejmifikacija: „Odvajanje činjenica od fikcije“ [1]

Gejmifikacija je alat za učenje, kreiran od strane stručnjaka, sa prednostima i nedostacima u različitim situacijama i okruženjima, a ujedno predstavlja i bitan pristup u nastavi. Gejmifikacija olakšava učenje i podstiče motivaciju koristeći elemente, tehnike i mehanike igre i igre bazirane na razmišljanju. Osnovni elementi gejmfikacije su prikazani na Slici 1.

Gejmifikacija predstavlja primenu dizajna igara, metodologije, prilaza i mehanike igre u situacijama koje nisu orijentisane na igru, kao što su:

- angažovanje, razvoj i zadržavanje kupaca;
- zapošljavanje i modifikacija ponašanja studenata, razvoj i poboljšanje; produktivnosti
- izgradnja brenda, priznanje, lojalnost;
- poverenje partnera [2].



Slika 1. Osnovni elementi gejmfikacije [3]

Gemifikacija predstavlja novi koncept koji se vezuje za unapređenje određenih veština. Fortune magazin je definisao gemifikaciju kao novi poslovni koncept koji će prema očekivanjima ostvariti 1,5 biliona dolara u 2015 godini, od početnih 97 miliona u 2011. godine [4]. Kompanija Gartner koja se bavi istraživanjima u oblasti razvoja novih tehnologija smatra da će gemifikacija uskoro postati važna za marketing i privlačenje kupaca, koliko i Facebook, eBay ili Amazon [5].

Kada se razmatra uključivanje gejmfikacije u učenje i strategiju razvoja, treba se pobrinuti da to nije samo dodatak beznačajnih, površnih igara. Zaposleni moraju imati strukturu i osnovu da bi učestvovali u gejmfikaciji. Treba jasno objasniti izazov, način na koji mogu biti uspešni i objasniti gejmfikaciju. Ovi koraci mogu dovesti do boljeg učenja,

pamćenja i na kraju povećati rezultate. Njena implementacija treba da bude zasnovana na konceptima raspoređenog pamćenja i vežbama pamćenja da bi se osigurala čvrsta naučna osnova. Gejmifikacija može da unapredi učenje kada se osmisli, razvije i upotrebi ispravno.

3. PRIMENA GEJMIFIKACIJE U TURIZMU

Poslednjih godina sistem gemifikacije je primenjivan u marketingu [6,7], ali i u oblastima kao što su politika, zdravlje [8], interaktivni sistemi [9], obrazovanje [8,10]. Ovaj brzi razvoj gemifikacije i njena primenljivost u različitim oblastima, povećala je zainteresovanost istraživača za ovu oblast.

Gejmifikacija predstavlja veoma popularan pojam kada se govori o učenju, razvoju i marketingu i podrazumeva korišćenje igrice u cilju podsticanja određenih aktivnosti i angažovanja u učestvovanju u sistemu nagrađivanja. Gemifikacija je veoma primenljiva u procesu učenja i to iz nekoliko razloga. Prvo, igrice privlače mlađe zaposlene koji često igraju kompjuterske igrice. Drugo, gemifikacija često predstavlja nadogradnju postojećih sistema učenja. Treće, gemifikacija je jeftinija u odnosu na razvoj čitavih igara simulacije, koje mogu da koštaju i do nekoliko stotina hiljada dolara, dok dodavanje nivoa gemifikacije na postojeći sistem učenja može da košta samo nekoliko dolara po učeniku [11].

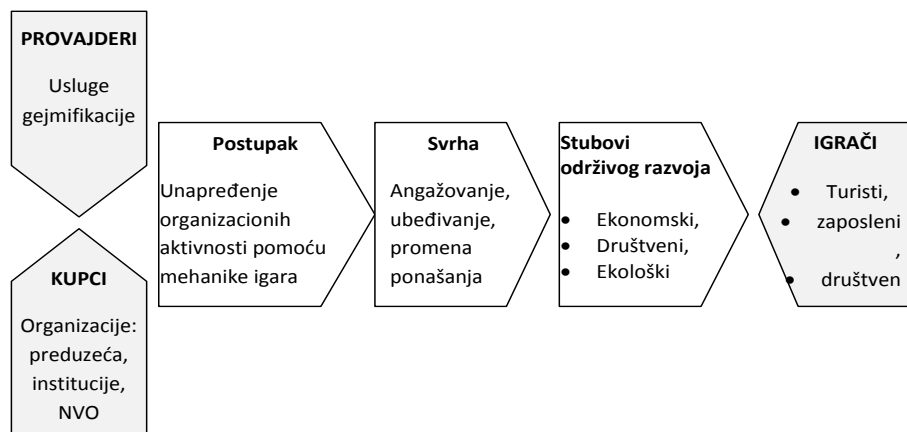
Jednu od najstarijih konceptualnih definicija turizma dali su teoretičari Hunziker i Krapf koji turizam definišu kao skup odnosa i pojava nastalih prilikom putovanja i boravka stranaca u nekom mestu, ukoliko taj boravak ne predstavlja stalno nastanjanje i nije vezan za trajno ili privremeno sticanje zarade [12].

Turizam je najbrže rastuća i jedna od najprofitabilnijih industrija na globalnom nivou sa ogromnim mogućnostima za ekonomski razvoj. U poslednjih pet godina, tačnije nakon velike svetske ekonomske krize 2009. godine, pa do sada zabeležen je uzastopni godišnji rast broja turista u svetu. Predviđanja su da će do 2020. godine prosečni rast biti 3%.

3.1. ZNAČAJ GEJMIFIKACIJE ZA ODRŽIVI TURIZAM

Tokom decenija turizam doživljava kontinuiran rast i pretenduje da postane jedna od najbrže rastućih privrednih grana na svetu. Ova dinamika je učinila da turizam postane ključni pokretač društveno-ekonomskog napretka. Danas je obim poslovanja turizma jednak ili čak prevazilazi obim izvoza nafte, prehrambenih proizvoda i automobilske industrije. Turizam je postao jedan od glavnih igrača u međunarodnoj trgovini i predstavlja jedan od glavnih izvora prihoda mnogih zemalja. Svetska turistička organizacija (World Tourism Organization UNWTO)⁴⁸ pomaže da se destinacije pozicioniraju u sve složenijim nacionalnim i međunarodnim tržištima i ističe da zemlje u razvoju mogu imati velike koristi od održivog turizma [13]. Veza između glavnih aktera i značaj gemifikacije za održivi turizam predstavljena je na slici 2.

⁴⁸ Svetska turistička organizacija (World Tourism Organization UNWTO) je agencija Ujedinjenih nacija, sa štabom u glavnom gradu Španije Madridu, koja je zadužena za promociju odgovornog, održivog i univerzalno pristupačnog turizma. Kao vodeća međunarodna organizacija u oblasti turizma promovise turizam kao pokretač ekonomskog rasta i razvoja i pruža veliku podršku sektoru turizma. Broji 157 zemalja članica i preko 480 pridruženih članica, koje predstavljaju privatni sektor, obrazovne institucije, turistička udruženja i lokalne turističke vlasti.



Slika 2. Mapa procesa gejmfikacije u održivom turizmu [14]

Inicijatori gejmfikacije u turizmu su davaoci usluga gejmfikacije, odnosno provajderi. Kupci usluga gejmfikacije su organizacije koje imaju korist od turističke industrije, uključujući preduzeća (lanci hotela, restorani), javne i lokalne institucije (ministarstvo turizma, javne službe za zapošljavanje), kao i NVO (Nevladine organizacije koje se bave socijalnim, ekološkim i političkim pitanjima).

Važno je napomenuti da se koncept održivog turizma zasniva na tri stuba održivog razvoja i to: ekonomskog, društvenog i ekološkog. Razvoj održivog turizma je moguć samo ukoliko su relevantni činioци u potpunosti obavešteni i uključeni u proces i stoga njegova implementacija predstavlja kontinuiran proces koji se bazira na stalnoj kontroli i korekciji nedostataka, ukoliko se zapaze i ako je to potrebno. S druge strane, potrebno je da održivi turizam odražava visok stepen turističke satisfakcije, a pored toga potrebno je obezbediti i rast svesti o okruženju i voditi veoma aktivnu promociju održivog turizma [15].

Implementacija gejmfikacije u turizmu je dala veliki doprinos promociji turizma. Proces gejmfikacije podrazumeva davanje nagrada kroz zabavu kao podsticaj za različite zainteresovane strane u cilju izazivanja određenog ponašanja kod njih. Tako je, ima mogućnost da poboljša iskustvo turista na inovativan i kreativan način, kombinujući turističke usluge sa elementima igrice.

Mobilne tehnologije su imale veliki uticaj na razvoj gejmfikacije. Na osnovu predviđanja da će do 2030. godine polovina svetske populacije biti mobilizovana, od vitalnog značaja za industriju turizma je da integriše informacione i komunikacione tehnologije u cilju prezentovanja turističkih usluga. IT pružaju strateške alate za razvoj održivog turizma, stvarajući mogućnosti za poboljšanje pozitivnih efekata u turizmu. Benet i Vilijams navode da postoji sinergija između gejmfikacije i održivosti i da se zapravo i gejmfikacija i održivost fokusiraju na emocionalnoj reakciji [16].

Mehanizmi igrice imaju sposobnost da kreiraju pozitivna iskustva kao što su: ushićenje, zadovoljstvo, osećaj postignuća, ali i da informišu turiste i pruže im zabavu. Pored toga dobre su šanse da će turisti usvojiti nove modele ponašanja, jer će im zahvaljujući gejmfikaciji biti omogućeno da mere svoj napredak putem takmičenja sa drugim turistima gde oni sa najboljim rezultatima osvajaju specijalne nagrade poput dobijanja vaučera sa popustima.

3.2. MOTIVACIJA ZA IGRANJE IGRICA U OBLASTI TURIZMA

Ljudi igraju igrice uglavnom pre putovanja, ponekad u toku putovanja, a ređe nakon povratka. Većina ljudi koristi pametne telefone kako bi proverila informacije o odredištu pre samog putovanja, tako da bi igrice koje sadrže ove informacije bile korisne. Ovo ukazuje na mogućnost korišćenja igrica u cilju svesti o brendu pred polazak na putovanje. Radoznalost je jedan od osnovnih motiva za igranje igrica i u oblasti turizma. Ideja o turističkim igricama mnogim ljudima deluje privlačno i mnogi bi upravo iz radoznalosti probali takve igrice.

Istraživanje destinacije, odnosno želja da se vidi destinacija u virtualnom svetu i da se prikupe informacije o destinaciji predstavlja drugi najpopularniji motiv za igranje turističkih igrica. Putem igrica je moguće doći do praktičnih informacija o destinaciji koje će doprineti i uštedi vremena. U poređenju sa drugim tradicionalnim načinima upoznavanja destinacija kao što su turističke agencije, brošure, knjige, Internet i slično, upoznavanje i istraživanje destinacije pomoću igrica je privlačnije. Kada se igra ova vrsta igrica, ako ste već posetili destinaciju imate pomešan osećaj realnosti i virtuelne stvarnosti. Ponovo se doživljava radost, kada se kroz igricu posete mesta na kojima ste bili u stvarnosti. Takve igrice u velikoj meri mogu uticati na poboljšanje iskustava turista i koriste se da inspirišu i edukuju turiste [17].

Socijalizacija podrazumeva druženje sa potencijalnim turistima i online druženje sa lokalnim stanovništvom. Druženje sa potencijalnim turistima može da dovede do razmene ideja, upoznavanja sa turistima na putovanju, dok druženje sa lokalnim stanovništvom rezultira novim saznanjima o željenoj destinaciji i lokalnoj zajednici. Socijalizacija odražava želju da se uspostave nove ili održavaju postojeće društvene veze. Stoga je online zajednica važna kao platforma za druženje putem igrica [18].

Gejmifikacija može predstavljati i čistu zabavu za turističko iskustvo jer upravo animira turističko iskustvo i omogućava korisnicima da se povežu sa destinacijama na interaktivan način. Ovo može biti bolji način da se pokažu različiti elementi destinacije i da se animiraju određeni aspekti.

3.3. DOPRINOS GEJMIFIKACIJE PROMOCIJI TURIZMA I TURISTIČKIH ZNAMENITOSTI

Korišćenje igara u turizmu može potencijalno pružiti velike marketinške mogućnosti. Nove tehnologije kao što su društvene mreže, pametni telefoni i video igrice predstavljaju tehnološke alate za razvoj takvih iskustava.

Sadašnja upotreba gejmfikacije u turizmu može se podeliti u dve grupe i to:

- Društvene igre (igraju se pre nego što se fizički bude na određenoj destinaciji) se baziraju na osnovu društvenih medija kao što je Facebook i pretežno se koriste da privuku potencijalne kupce i da ih upoznaju sa brendom kompanije. Ove igre su razvijene od strane Organizacije za upravljanje destinacijama (destination management organizations-DMOs) za promociju destinacija u marketinške svrhe.
- Lokacijski bazirane igrice za mobilne telefone (igra se dok ste fizički prisutni tamo) se koriste da podstaknu veće angažovanje na licu mesta, da poboljšaju turističko iskustvo na licu mesta na zabavniji i informativniji način. Ove igrice su izuzetno bogat izvor informacija koje služe za snabdevanje turista u svakom momentu sa kontinuiranim protokom slike i zvuka.

4. IGRA MEMORIJE SA KARTAMA I RAZVOJNO OKRUŽENJE

Da bi pokazali na koji način se u praksi mogu koristiti igre u cilju edukacije, kreirana je jednostavna i poznata igra, igra memorije sa kartama, gde se pred igrača postavlja dvodimeziona matrica karata okrenutih licem nadole i potom igrač okreće karte i pokušava da pronađe dve iste karte. Kako u svakom potezu najviše dve karte mogu biti okrenute licem na gore, igrač mora da pamti na kojoj poziciji se nalazi koja karta jer su karte izmešane. Kada igrač u istom potezu okrene dve iste karte one nestaju sa table.

Cilj igre je da u što manje poteza igrač pronađe sve parove i na taj način očisti tablu. Pri svakom novom generisanju table, karte se proizvoljno mešaju tako da igrač ne može da upamti pozicije karata iz prehodne partije. Da bi dodali edukativni karakter ovoj igri sa kartama, na naličju karata se nalaze slike znamenitih građevina sa Petrovaradinske tvrđave. Na prvom nivou igre se iznad slike svake građevine nalazi i njen naziv. Na prvom nivou igrač zapravo uči nazive građevina i atrakcija. Zatim se na drugom nivou igre stvari komplikuju time što sada parovi karata više nisu identični, slika i naziv, već je prva karta u paru slika sa nazivom dok je druga karta samo tekst sa nazivom i dodatnim opisom građevine, a na trećem najtežem nivou na karti sa slikom nema uopšte naziva. Igrajući ovu igru igrač će biti “primoran” da nauči barem nazive građevina da bi uspeo da završi partiju na višem nivou težine.

U okviru ovog istraživanja izabrano je da se igra napravi u nekom od alata za pravljenje igara i da se potom gotova igra iz izabrabog alata izgeneriše samo za veb implementaciju. Ovakav pristup je danas već postao standard jer se upotrebom alata specijalizovanih za pravljenje igara, igre mnogo brže i jednostavnije prave i što je najbitnije one mogu raditi na bilo kojoj platformi, na web-u, na mobilnim uređajima ili na desktopu. Takav pristup je poznat kao “jednom praviš, a svuda koristiš”. Neki od najpoznatijih alata su Unity, Game maker studio i Construct 2.

4.1. KRATAK OPIS IZRADE IGRE MEMORIJE U ALATU CONSTRUCT 2

Za potrebe ovog rada je korišćen alat Construct 2. Zbog svoje jednostavnosti, intuitivnosti i velikog broja tutorijala i snažne korisničke baze, ovaj alat se izdvojio kao logičan izbor za pravljenje igre memorije sa kartama. Construct 2 se može besplatno preuzeti, ali se za kompletnu funkcionalnost alata mora platiti za određenu licencu. U igri koja je kreirana u okviru ovog istraživanja nije korišćeno ništa od naprednih funkcionalnosti tako da je i besplatna verzija bila adekvatna. Aplikacija (alat) je napravljena prema tipičnom Windows korisničkom interfejsu tako da je snalaženje u njoj prilično lako čak i za početnike.

U igri sa kartama, iako je na ekranu prikazan ceo špil karata, postoji samo jedan objekat ili sprajt koji predstavlja kartu. Ali taj jedan sprajt je sastavljen od više animacija gde u svakoj animaciji postoji određeni broj različitih karata. Pri pokretanju igre, taj jedan objekat se kopira onoliko puta koliko je potrebno da se dobije matrica karata, a pri okretanju karte se prikazuje samo jedna od sličica iz animacije.

U igri memorije sa kartama su korišćeni sledeći objekti:

- Sprajt (eng. Sprite) – za karte;
- Tekst (eng. Text) – za tekstualna polja za ispis rezultata;
- Dugme (eng. Button) – za dugmad sa određenim funkcijama;

- Niz (eng. Array) – za matricu karata;
- Miš (eng. Mouse) – za događaje na klik mišem;
- Audio (eng. Audio) – za muziku u pozadini;
- Lokalno skladište podataka (eng. Local storage) – za čuvanje stanja globalne promenjive za vrstu animacije pri promeni nivoa težine igre (neophodno jer se sve globalne promenjive resetuju);
- Pozadina (eng. TiledBackground) – slika Petrovaradinske tvrđave u pozadini nivoa;
- Tekst površina (eng. Text Area) – polje sa tekстом koje se pojavljuje nakon završene partije ako igrač želi da sazna nešto više o objektima označenim brojevima na mapi tvrđave u pozadini;
- CSS stil – lista sa stilovima za dugmad i tekst u igri.

4.1.1. Nivo (eng. Layout)

Igra memorije sa kartama ima samo jedan nivo, a na ovom nivou postoji samo jedan objekat karte. Kada se klikne na kartu otvara se prozor za učitavanje resursa sprajta i gde se takođe definišu animacije i još neka dodatna podešavanja. Sprajt karte sadrži četiri animacije, jednu koja predstavlja naličje karte i koja se sastoji od samo jedne sličice, druga koja sadrži lica karata i koja može imati neograničeni broj parova karata (gde par predstavlja dve identične karte obeležene sa susednim parnim i neparanim brojem, npr. 0-1, 2-3, 4-5) i treća i četvrta koje takođe sadrže lica karata u neograničenom broju parova ali parovi nisu identični. Tri animacije sa licem karata postoje zbog broja nivoa težine gde se:

- na prvom nivou težinu spajaju parovi koji su potpuno identični, dakle lice karte se sastoji od slike građevine i naziva;
- na drugom nivou par sastoji od karte na kojoj je slika i naziv (dok je na drugoj karti para samo naziv sa tekстом koji detaljnije opisuje građevinu); i
- na najtežem trećem nivou je na prvom paru samo slika bez naziva a na drugom samo naziv sa dodatnim opisom.

4.1.2. Lista događaja (eng. Event Sheet)

Lista događaja se nalazi na posebnoj kartici u središnjem delu ekrana Construct 2 alata i ona zapravo predstavlja programsku logiku igre isprogramiranu na specifičan način, bez pravog programskog koda i upotrebe nekog od programskih jezika. Način na koji se programira u Construct 2 alatu se najlakše može opisati kao sklapanje mašine (igre) od već gotovih delova (objekata) i njihovo logičko povezivanje i manipulisanje kroz događaje, akcije, funkcije, uslove i petlje.

4.1.3. Izgled igre u veb pregledniku

Igra se može direktno pokrenuti iz alata Construct 2 u podešenom pregledniku, ali ako bi želeli da se pokrene sa bilo kog računara onda mora biti postavljena online na host-u (<http://www.coordinated.biz/MemoryGameBane/MemGameFinal/index.html>). Na Slici 3. je izgled igre odmah pri pokretanju u Chrome veb pregledaču:



Slika 3. Izgled igre u Chrome veb pregledaču

Na Slici 4. je prikazano kako izgleda kada se završi partija i pojavi tekstualno polje sa opisima objekata označenih na mapi u pozadini igre, a koje sa aktivira odabirom jedne od obeleženih tačaka na mapi.



Slika 4. Izgled igre kada se završi partija

4.1.4. Povezivanje sa Facebook-om

Da bi se omogućilo igraču da objavi rezultat jedne partije igre na svom Facebook profilu u cilju deljenja rezultata sa facebook zajednicom, neophodno je uz pomoć Facebook platforme „Facebook for Developers“ napraviti novu aplikaciju kako bi se dobio jedinstveni

broj aplikacije APP ID i da bi se postavio domen sa kog igra može da pristupa Facebook mreži. Takođe, za neke funkcionalnosti koje traže dodatne dozvole, kao što je upravo postovanje rezultata na zid korisnika, potrebno je uzeti i tajni kod aplikacije (eng. App Secret).

Kada se ovaj deo sa podešavanjem aplikacije na Facebook platformi uradi, onda je potrebno u projektu igre u alatu Construct 2 dodati u igru Facebook objekat i konfigurisati ga sa upravo dobijenim kodovima, App ID i App Secret.

5. ZAKLJUČNA RAZMATRANJA

Gejmifikacija predstavlja veoma popularan pojam kada se govori o učenju i promociji i podrazumeva korišćenje igrica u cilju podsticanja određenih aktivnosti i angažovanja u učestvovanju u sistemu nagrađivanja.

Kroz istraživački deo ovog rada prikazana je mogućnost kreiranja igrice u obrazovanju i promociji sa ciljem promocije turističkih znamenitosti. Doprinos razvijene igre memorije sa kartama ogleđa se kroz promociju Petrovaradinske tvrđave kao važne turističke atrakcije Grada Novog Sada sa jedne strane, ali i kroz mogućnost učenja i dobijanja informacija o atrakcijama na samoj tvrđavi. Kako se u osnovnim i srednjim školama u Srbiji ne uči o lokalnoj istoriji i kulturi, ovakav tip igrica upravo daje rešenje na takav problem jer se na jedan zabavan način uči o kulturnom nasleđu svog grada. Uz mogućnost integracije sa društvenim mrežama (facebook) igra memorije sa kartama korisniku omogućava da sa svojom „zajednicom“ podeli rezultate i pokaže svoje znanje o petrovaradinskoj tvrđavi, ali i da pozove druge da i oni igraju.

U drugoj fazi igru memorije sa kartama trebalo bi igru dodatno grafički oblikovati (grafičkim ilustrovanjem svake atrakcije), a takođe i dopuniti sa atrakcijama koje nisu uključene kako bi bila sveobuhvatnija i atraktivnija igračima. Takođe, igra memorije sa kartama pruža mogućnost dopune same igre uključivanjem svih tvrđava koje se nalaze na Dunavu u Srbiji sa njihovim atrakcijama kako bi se na taj način dobio zaokružen proizvod. Na Dunavu u Srbiji nalazi se sedam tvrđava: Bačka tvrđava, Petrovaradinska tvrđava, Beogradska tvrđava, Smederevska tvrđava, Tvrđava Ram, Golubačka tvrđava, Tvrđava Fetislam. Igru memorije sa kartama koja bi sadržala sve tvrđave sa atrakcijama uz veb izdanje i integraciju sa facebook-om, trebalo bi kreirati posebno i za pametne telefone kako bi bila dostupnija korisnicima.

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INFLUENCE OF CERTAIN FACTORS FOR STRENGTHENING THE CAPACITY OF INSTITUTIONAL INFRASTRUCTURE FOR SUPPORT ENTREPRENEURSHIP

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Abstract: Institutional support is necessary for greater development of entrepreneurship. Current analyzes and experiences confirm that the success and development of small and medium sized enterprises that have limited resources, in close correlation with the strong support of appropriate institutions which offer assistance in the field of information technology, consulting, training, ongoing training and financial support.

Entrepreneurship and the development of entrepreneurial ideas carry the development are bearers of development of a society in a wider sense.

It is therefore important to ensure investment in specialized training, mentoring and access to quality financial resources, which is expected to continuously mature business and hold the growth of their companies.

Entrepreneurship requires constant support by the government and NGOs. Companies constantly emphasize that it is necessary support to be able to grow and become more competitive. Companies have the support of state institutions through various programs, projects and measures, thus achieving a certain level of entrepreneurship, which still need to continue to be more developed.

This paper presents the results of a survey on the impact of these factors on capacity building of institutional infrastructure to support entrepreneurship: (1) investing in the institutions of central and local level, and (2) specialized training and mentoring of staff in institutional infrastructure. In this respect, entrepreneurs should be more active and to focus more on education, specialization and greater use of all the possibilities afforded by the measures, programs, projects to which can come through various institutions and organizations. Can thus expect to improve their own development, progress and growth. The survey included 196 respondents from 42 governmental and non-governmental organizations / institutions and 36 manufacturing and service SMEs.

Keywords: entrepreneurship, factors, support, institutions

1. INTRODUCTION

Entrepreneurship through innovation and implementation of a particular idea has the need for constant support by the government and NGOs. Companies constantly emphasize that it is necessary support to be able to grow and become more competitive. Since country's independence till today companies have the support of institutions in the country through various programs, projects and measures, thus achieving a certain level of entrepreneurship. This support should continue to pursue more development. An important factor in achieving

this support is the training of the institutions. In that sense, this paper treats the impact of participation in specialized training and mentoring of staff in the institutions in order to create a successful implementation of institutional support of entrepreneurship in Republic of Macedonia. The survey included 196 respondents from 42 governmental and non-governmental organizations / institutions and 36 manufacturing and service SMEs.

The realized research aimed at proving the general thesis: "if the employees in the institutions of central and local level consistently participate in specialized training and mentoring, it will be provided conditions for successful implementation of institutional support of entrepreneurship." This means that institutions should continuously increase their capacities, or to be more active and to focus more on education, specialization and greater use of all the possibilities afforded by the measures, programs, projects at central and local levels. Thus it can be expected improvements of their own development, progress and growth.

The country over the years continuously work to raise the level of support and strengthening of the institutional infrastructure, creation of new institutions for support, etc., which gives a new image of the situation in the field. There are a number of different measures that can encourage and strengthen the activities of entrepreneurs in a region or local level. Initiatives to enhance the entrepreneurial climate may come from the community, central government, local authorities, civil society organizations, and universities, but also from the entrepreneurs.

Typically, the support of SMEs in each country usually is realized through⁴⁹:

- o creating policies to support SMEs;
- o creating strategies and programs to support SMEs;
- o development of institutions to support SMEs.

The institutional infrastructure for supporting entrepreneurship in the Republic of Macedonia consists of: National development agency; Regional development agency; Chamber of Commerce; advisory networks; centres for entrepreneurship; entrepreneurial incubators and other institutions.

2. ENTREPRENEURSHIP

Entrepreneurship is the foundation for the development of any economy. World experience shows that in most economies small and medium enterprises or small businesses predominate, according to the structure as business entities in farms. Such is the case with the structure of the Macedonian economy, where 98% of the total number of active businesses are small and medium-sized companies. These small businesses result from entrepreneurial ideas, from some entrepreneurial initiative, for some innovation of advanced persons who want to realize their ideas and establish business.

According to the basic view⁵⁰ of the term, from the etymological point of view, the word entrepreneurship means "looking for opportunities, future situation, change". For

⁴⁹ R.Molnar, "Development of the system of financial support for small and medium-sized enterprises and entrepreneurship in Serbia", Faculty of Technical Sciences, Novi Sad, 2010.

⁵⁰ D.Deakins, *Entrepreneurship and Small Firms* (McGraw-Hill Publishing Company, London, 1999), 9-10.

Schumpeter⁵¹ who is from the so-called Austrian School, the entrepreneur is with a distinct personality, something completely different from those of his predecessor. According to him, the entrepreneur is an innovator and the entrepreneur looks for opportunities to exchange market, but through the introduction of new technological processes and products. Only special people can be entrepreneurs, those who have the ability to create something new, something special. So, this author puts the emphasis on inventiveness, uniqueness of the entrepreneur as a person, as opposed to innovation.

Schumpeter sees entrepreneurship as a process of "creative destruction" through which existing products or production methods are destroyed and replaced with new ones⁵². Thus, entrepreneurs are "concerned with the discovery and exploitation of profitable opportunities"⁵³. Before that entrepreneurship was defined as "any attempt for new business or looking for new creations such as self-employment, new business organization, or expansion of existing business, from individual or team of individuals who already established business"⁵⁴. As this definition suggests, entrepreneurship is an important mechanism to create change, and helping companies to adapt to changes made by others⁵⁵.

European views for entrepreneurship are seen in the definitions that are set according to which "Entrepreneurship is a key skill in life, helps people to think creatively, assess and take risks and innovate: entrepreneurship is the ability ideas to be translated into action"⁵⁶.

Europe is making great attention to the development of small and medium enterprises. In that sense, local experts believe that "whether you want a larger market share, or want to expand within the EU, or see opportunity in emerging markets, your success often depends on whether you have an innovative product. But innovation does not necessarily mean high-tech product. Innovation can also consist of new business models, design, branding and services⁵⁷. To achieve all that, progress and development of small businesses, it is necessary to educate and at a very early stage of development of a population.

In Europe it is considered that as guided educational systems to learning that allows improving and building abilities are appreciated much more entrepreneurial skills. Many European countries and beyond for long have enshrined in the curricula in secondary and higher education, and there are strategies and action plans that give great effects among young people in the educational process. Thus in advanced countries and economies are preparing many entrepreneurs who later are encouraged and set up their own companies and successfully run them.

⁵¹ D.Deakins, *Entrepreneurship and Small Firms* (McGraw-Hill Publishing Company, London, 1999), 11-12.

⁵² Schumpeter, *The Theory of Economic Development*.

⁵³ S. Shane & S. Venkataraman, 2000, The promise of entrepreneurship as a field of research, *Academy of Management Review*; 25: 217-226.

⁵⁴ Reynolds, Hay, & Camp, *Global Entrepreneurship Monitor*, 3.

⁵⁵ A. Zacharakis, P. D. Reynolds, & W. D. Bygrave, 1999, *Global entrepreneurship Monitor*, National Entrepreneurship Assessment, United States of America (Babson Park, MA.: Babson College).

⁵⁶ http://eeas.europa.eu/delegations/the_former_yugoslav_republic_of_macedonia/documents/more_info/publications/eu_thinking_big_for_small_businesses_mk.pdf

⁵⁷ European Commission, *More for small businesses, Making EU SMEs*, Luxembourg, Publications Office naEvropskata Union

The successful examples should be studied in our country, and processes that are implemented should be aimed at institutional support is given effect in the field, and that will mean successful companies and their managers.

Current analyzes and experiences confirm that the success and development of small and medium sized enterprises that have limited resources, is closely correlated with successfully organized and widespread institutional infrastructure. Generally known is the fact that the development of SMEs is closely associated with the strong support of appropriate institutions which offer assistance in the field of information technology, consulting, training and ongoing training, and financial support and so on.

For smooth functioning and growth of SMEs institutional support should result in providing consulting, education, information and so on. This support for the development of SMEs should certainly be complemented by economic policies, laws and regulations, national strategies and adequate environment, which in turn is a key condition for their functioning.

The state declares that consistently supporting the economy; creates measures and activities, programs and plans. It implements projects that improve the business climate. In recent years are evident great results achieved by the measures of the state in improving the business climate and the environment for doing business. Many measures today give great effects by supporting businesses an incentive to start a business through the opportunity for self-employment and so on. Creating a favourable business climate is key to further progress.

3. SAMPLE SURVEY, TECHNIQUES AND MEASURING INSTRUMENTS

The survey was conducted on a representative number of 196 respondents.

Target groups: Institutions (88 respondents) and users (108 respondents).

Techniques used in this study: Surveying; Scaling.

Methods used in this research are as follows: Method of survey; Method of analysis and synthesis; Method of abstraction and concretization; Comparative method; Descriptive method.

Measuring instruments used in this research: Two questionnaires (for each target group of respondents); Scale views.

The survey was conducted by questionnaire with 28 questions or statements, the first 12 are used to prove both cases, the subject of this paper.

The following table presents treated 12 questions or statements.

Table 1. Questionnaire

INSTITUTIONS / USERS	
No.	QUESTION / STATEMENT
1	Whether the central government invests enough in developing appropriate measures at the operational level in terms of the institutional support of entrepreneurship?
2	Whether local governments invest enough in developing appropriate measures at the operational level in terms of the local institutions?
3	Whether investing in the institutions of central and local level in terms of training and knowledge transfer meets the needs of the institutions / entrepreneurs?
4	The central government creates conditions for creating concepts and models for successful institutional support of entrepreneurship.
5	Local government creates conditions for successful institutional support of entrepreneurship.
6	Investing in the institutions of central and local level in terms of training and knowledge transfer meets the needs of the institutions / entrepreneurs.
7	Do the employees in the institutions of central and local level need to participate in specialized training and mentoring in order to increase their capacity?
8	Do you find it important training to transfer knowledge through mentoring?
9	To increase the efficiency of the institutions in support of solving difficulties relating to the management of business users, whether it is beneficial for them to subsidize expert help?
10	Employee participation in specialized training institutions creates conditions for successful implementation of institutional support of entrepreneurship.
11	Training of employees in the institutions of central and local level in terms of knowledge transfer through mentoring is important because it creates the conditions for successful implementation of the support of entrepreneurship.
12	Subsidizing expert assistance to entrepreneurs is an important part of the overall effectiveness of institutions supporting entrepreneurship at central and local levels.

The following text provides the basic data for enterprises and respondents included in the survey:

Type of institution	Number of institutions	%
State	19	45,24
NGO / foundations	23	54,76
Total:	42	100,00

Employees in the surveyed enterprises (manufacturing and service)	Number of enterprises	%
to 9 employees	26	72,22
10 to 50 employees	8	22,22
51 to 250 employees	2	5,56
Total:	36	100,00

Type of company	Number	%
Production	21	58,33
Service	15	41,67
Total:	36	100,00

Detailed status of respondents / interviewees	Number of respondents	%
Founders	26	13,27
Top management	25	12,76
Middle management	30	15,31
Employees	115	58,67
Total:	196	100,00

Level of Education	Number of respondents	%
Basic	6	3,06
secondary	75	38,27
higher	7	3,57
high	96	48,98
Masters / Doctorate	12	6,12
Total:	196	100,00

Gender	Number of respondents	%
Men	109	55,61
Women	87	44,39
Total:	196	100,00

Age of interviewees / respondents	Number of respondents	%
to 30	84	42,86
31 to 45 years	65	33,16
over 45	47	23,98
Total:	196	100,00

3. PROOF OF HYPOTHESES RESEARCH

Hypothesis 1 treats the impact of the investment society (central and local government) in developing appropriate measures at the operational level in terms of the institutions to ensure conditions for concepts and models for successful institutional support of entrepreneurship.

According to the results from the survey, attitudes of institutions and beneficiaries in respect of Investment in the creation of appropriate measures at the operational level in terms of institutions (independent variable) in Table 1 include questions or statements 1,2,3 and institutions 1.2 3 users questionnaire.

The outline of a continuum for the independent variable is 3.590488215 meaning good results and shows that central and local government invested enough in developing appropriate measures at the operational level.

The dependent variable / variable refers to the views of employees and managers about how training for professional development increases the competence of efficiency in operations. The dependent variable / variable in the same table is presented with questions or statements no.4,5,6 institutions and 4,5,6 for users of the questionnaire. The line of the continuum is 3.590488215, or in the scale of values is seen as a good result (Fig.1).

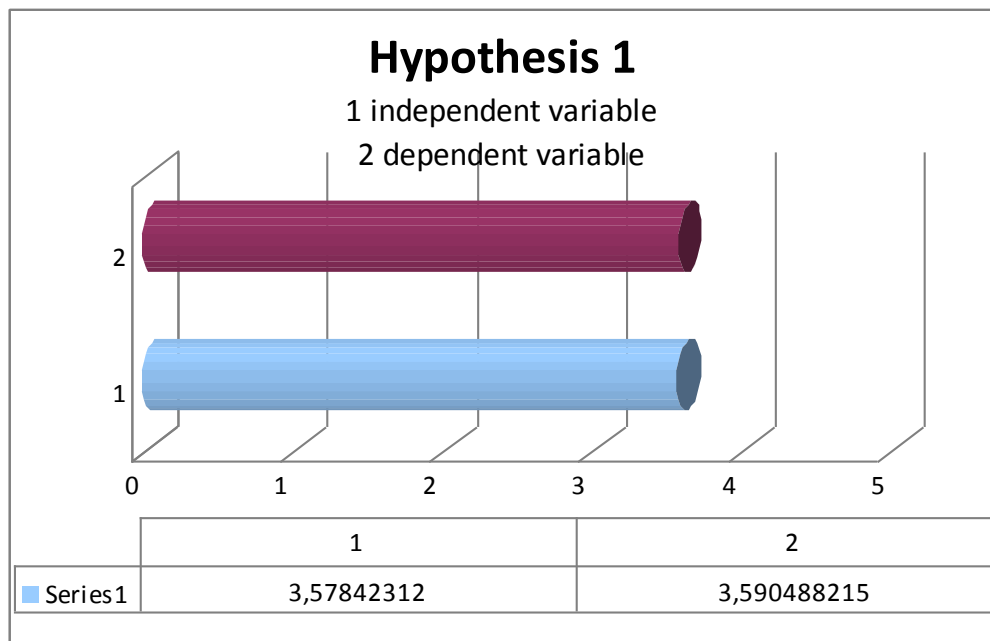


Figure 1. Qualitative changes of the independent and dependent variable for hypothesis 1

Table 2

	Independent variable	Investment in the creation of appropriate measures at the operational level								
	Question number	Yes	Sometimes	Not	Number of respondents	Yes x 5	Sometimes x 3	Not x 1	Total	Points
institution	1	64	14	10	88	320	42	10	372	4,227272727
institution	2	30	28	30	88	150	84	30	264	3
institution	3	42	31	15	88	210	93	15	318	3,613636364
users	1	55	31	22	108	275	93	22	390	3,611111111
users	2	42	39	27	108	210	117	27	354	3,277777778
users	3	58	32	18	108	290	96	18	404	3,740740741
		A set of points:								21,47053872
		A set of points / number of questions:								3,57842312
	Dependent variable	Terms of creating concepts for successful institutional support								
	Question number	Yes	Sometimes	Not	Number of respondents	Yes x 5	Sometimes x 3	Not x 1	Total	Points
institution	4	65	15	8	88	325	45	8	378	4,295454545
institution	5	41	30	17	88	205	90	17	312	3,545454545
institution	6	44	26	18	88	220	78	18	316	3,590909091
users	4	54	36	18	108	270	108	18	396	3,666666667
users	5	40	34	34	108	200	102	34	336	3,111111111
users	6	45	36	27	108	225	108	27	360	3,333333333
		A set of points:								21,54292929
		A set of points / number of questions:								3,590488215

From the information presented in the previous table it can be concluded that the independent and dependent variable on the scale of values ranging between 3 and 4, which means they have relatively overlap and provide adequate, good results which prove the hypothesis of the research:

If society (central and local government) invests in the creation of appropriate measures at the operational level in terms of institutions, will provide the conditions for creating concepts and models for successful institutional support of entrepreneurship.

Hypotheses 2 in research treats the impact of participation in specialized training and mentoring of staff in the institutions in order to create a successful implementation of institutional support of entrepreneurship.

According to the results from the survey, attitudes of institutions and beneficiaries regarding participation in specialized training and mentoring of staff in institutions (independent variable) in Table 3 are covered responses to questions or propositions 7.8 and 9 institutions and 7.8 and 9 users the questionnaire. The outline of a continuum for the independent variable is 4.11952862 which means excellent results and shows that employees and managers invest enough in training for professional development of employees.

The dependent variable / variable concerns the attitudes of institutions and beneficiaries of how participation in specialized training and mentoring creates conditions for successful implementation of institutional support of entrepreneurship.

The dependent variable / variable in the same Table 5 presents the answers to the questions or propositions 10, 11 and 12 institutions and 10, 11 and 12 users of the questionnaire. The line of the continuum is 4.12654321, that is in the scale of values is evaluated as an excellent result (Fig.2).

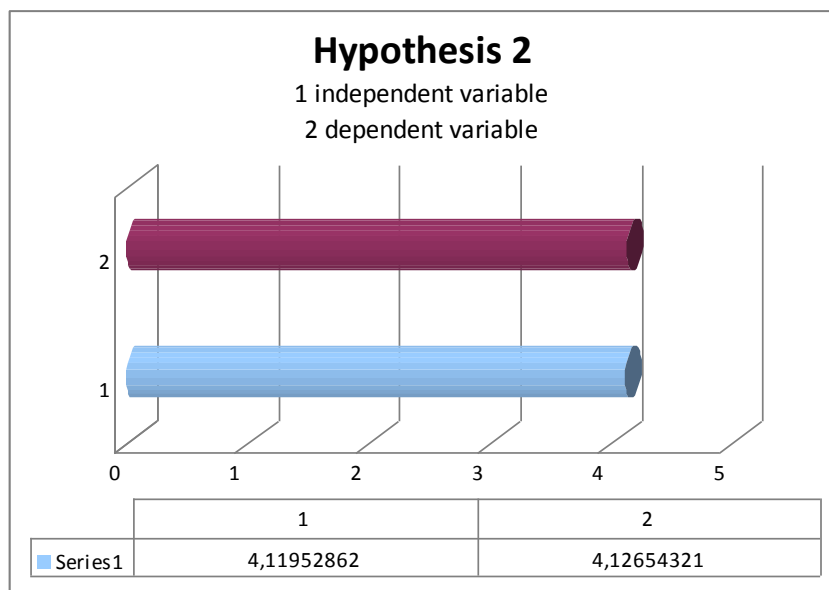


Figure 1 Qualitative changes of the independent and dependent variable for hypothesis 2

From the above it can be concluded that the independent and dependent variable on the scale of values ranging between 4 and 5, which means they have relatively overlap and provide adequate, excellent results prove our hypothesis: If the employees in the institutions of central and local level consistently participate in specialized training and mentoring, will provide conditions for successful implementation of institutional support of entrepreneurship.

Table 3

	Independent variable	Учество во специјализирани обуки и менторство									
		Question number	Yes	Sometimes	Not	Number of respondents	Yes x 5	Sometimes x 3	Not x 1	Total	Points
institution institution institution users users users	7	70	14	4	88	350	42	4	396	4,5	
	8	65	13	10	88	325	39	10	374	4,25	
	9	43	25	20	88	215	75	20	310	3,522727273	
	7	78	24	6	108	390	72	6	468	4,333333333	
	8	60	34	14	108	300	102	14	416	3,851851852	
	9	71	34	3	108	355	102	3	460	4,259259259	
		A set of points:									24,71717172
		A set of points / number of questions:									4,11952862
		Dependent variable	Успешна имплементација на институционална поддршка на претприемаштвото								
institution institution institution users users users	10	72	12	4	88	360	36	4	400	4,545454545	
	11	44	25	19	88	220	75	19	314	3,568181818	
	12	68	13	7	88	340	39	7	386	4,386363636	
	10	76	25	7	108	380	75	7	462	4,277777778	
	11	59	37	12	108	295	111	12	418	3,87037037	
	12	68	32	8	108	340	96	8	444	4,111111111	
		A set of points:									24,75925926
	A set of points / number of questions:									4,12654321	

4. CONCLUSION

According to the positioning of our economy and the structure of business entities, dominated by small and medium enterprises, it is necessary to have the support, and of course there needs to be most present the institutional support. In this paper an analysis of the current support enjoyed by businesses, by considering the situation on the ground in the companies, including entrepreneurs, various institutions, both state and non-governmental, domestic, foreign, state agencies ISL. The paper focuses on the impact that supports the development of entrepreneurship. That support should be strengthened further, and the effects are visible. This means that the institutions should continue to increase their capacities, or to be more active and to focus more on education, specialization and greater use of all the possibilities afforded by the measures, programs, projects at central and local levels. Thus can expect to improve their own development, progress and growth.

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THE FEATURES OF MOTIVATION OF WORKING BACHELOR'S STUDENTS AND MASTER'S STUDENTS IN THE CONDITIONS OF INSTABILITY OF LABOR MARKET

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Abstract: The questions of staff motivation acquire special actuality in modern business because only highly motivated staff can contribute to the achievement of company's goals. A motivation of the individual changes during his life under the influence of external and internal factors such as age, professional experience, a situation on the labor market etc. This article is devoted to the analysis of motivation of working bachelor's students and master's students in unstable labor market conditions.

Keywords: staff motivation, motivation factors, assessment of motivation.

In conditions of development of the Russian economy, growth of competition among companies, the human resources of the organization acquire special importance [2]. The professionalism of staff, its motivation, business and personal characteristics of employees depends on the stable development of both the organization and the economy as a whole.

Under the circumstances formation of an effective staff motivation system, which based on its needs, is one of the most important tasks of management, because it can significantly improve a firm's competitiveness. Only highly motivated staff can contribute to the achievement of company goals, the production of high-quality products and services. However, at this moment, not many Russian companies pay enough attention to the diagnosis of work motivation of personnel. Selection of staff is carried out mainly on such criteria as education, work experience, knowledge of industry, - motivation of future employees, as a rule, not measured. The lack of systemic vision of staff motivation among companies' executives, a mismatch of methods of motivation with needs of workers often leads to increased staff turnover, increased recruitment costs, lower productivity, the formation of negative image of the company, etc.

Work motivation of a person, based on his needs, changes during his professional life under the influence of both external (situation on the labor market, demand for certain specialists) and internal (education, work experience) factors. In the early stages of labor activity, young professionals are interested in obtaining of experience in chosen field, in the opportunity for further training, in working in a well-coordinated and young team. Further, the implementation of such needs as the possibility of self-realization at work, career growth, recognition etc. becomes more actual. Only the organization, where human needs are satisfied, and where the goals and values of the employee and the company owners are the same, can count on the most effective work of the personnel. In this regard, the questions of assessment of staff motivation of qualified professionals as well as young specialists, who just start their career, acquire particular relevance.

In the field of human resource management applies a number of methodologies to assess the needs of staff on which their motivation is based. Such methods include, for

example, "Motivational test" by Sheila Ritchie and Peter Martin, the result of which is the motivational profile of a person. Specialists in human resource management Sh. Ritchie and P. Martin [Ritchie&Martin, 1999] identify 12 factors of staff motivation:

1. Money and tangible rewards
2. Physical condition
3. Structure
4. People contact
5. Relationship
6. Recognition
7. Achievement
8. Power and influence
9. Variety and change
10. Creativity
11. Self - development
12. Interest and usefulness [1].

Analysis of each of the motivational factors, their compatibility, and mutual influence gives the real picture of the needs of the employee, which allows to obtain a more accurate picture of methods of employee's stimulation with different needs and goals, and to develop the most effective system of motivation.

To assess the work motivation of bachelor's students and master's students in the conditions of instability labor market we carried out a study which involved 42 students of 3rd and 4th courses of the bachelor programmes and 30 students of master programmes of Institute of Public and Private Sector Management, Russian Presidential Academy of National Economy and Public Administration (RANEPA).

The aim of the study was to identify the features of work motivation of bachelor's students, who have just started their professional career, and master's students who already have work experience. To identify factors, which are influencing the motivation of students, we have also applied a "Motivational test" by Sheila Ritchie and Peter Martin; the research result is the individual motivational profiles of bachelor's students and master's students, which will be discussed next.

In the motivational profiles of bachelor students (n=42, average age - 20 years) is dominated by the factor of money and tangible rewards (36 points). The second and the third intensity factor is self - development and interest and usefulness (33 and 33 points, accordingly) (Fig.1):

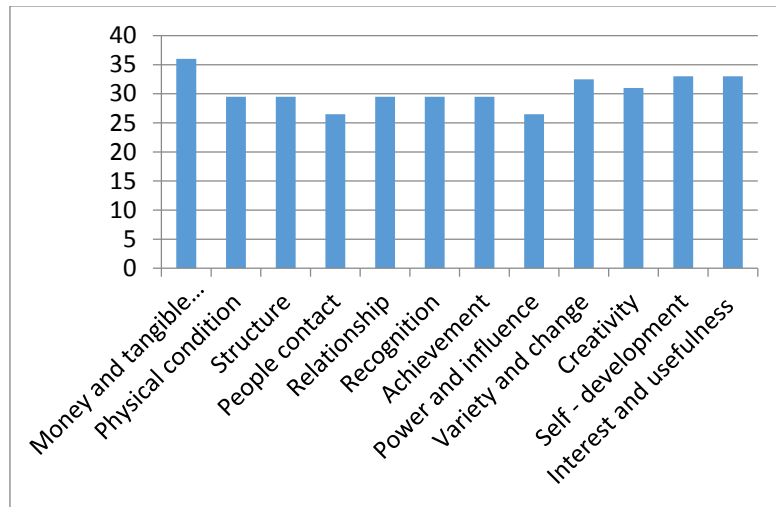


Figure 1. The factors of work motivation of bachelor students

The pursuit of money and tangible rewards are more typical for male students, than female (38 and 34 points, accordingly). The factor of money and tangible rewards equal in importance to factor of interest and usefulness for female students (34 and 34 points, accordingly). For male students the factor of self-development is also very important (33 points) (Fig.2):

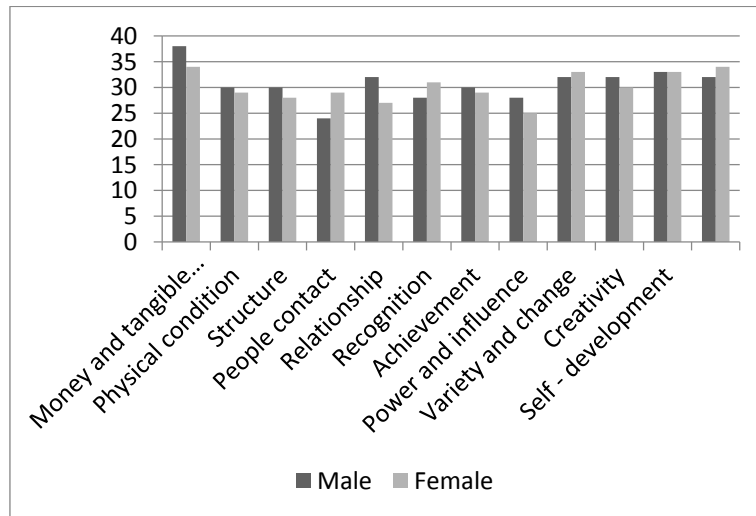


Figure 2. The factors of work motivation of bachelor students, male and female

In the motivational profiles of master students (n=30, average age - 28 years), the prevailing factor of motivation is the factor of interest and usefulness (40.5 points) (Fig.3):

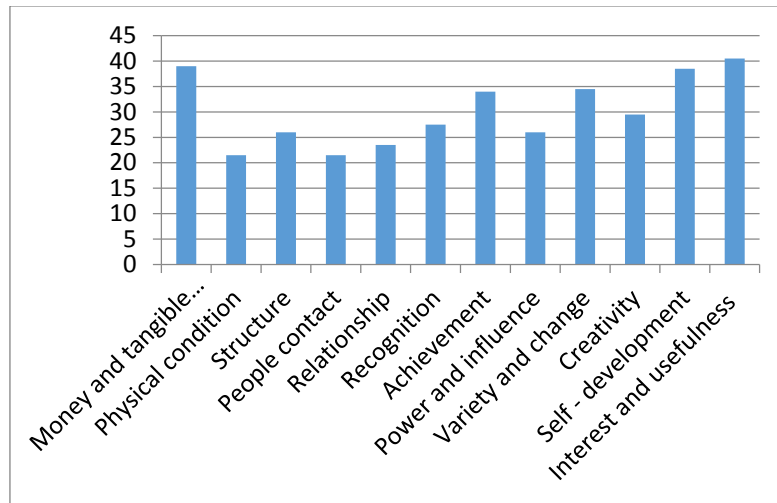


Figure 3. The factors of work motivation of master students

The pursuit of interest and usefulness are more typical for female students, than male (42 and 39 points, accordingly). Unlike the motivational profiles of bachelor students, in the motivational profiles of master students the factor of money and tangible rewards ranks second place in importance (39 points), and it is more important for male than female students (41 and 37 points, accordingly). The third most important factor of motivation of master students is the factor of self-development (38.5 points), and among girls it is expressed to a greater extent than among young men (40 and 37 points, accordingly) (Fig.4):

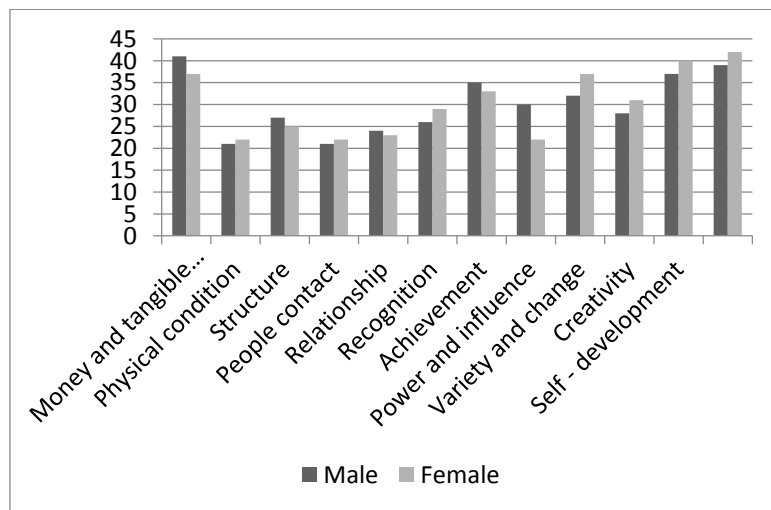


Figure 4. The factors of work motivation of master students, male and female

Thus, the work motivation of bachelor students is based mainly on money and tangible rewards, and for master students, the main motivational factor is interest and usefulness, although money and tangible rewards in motivation also play a big role. Taking into account these features, as well as the instability of the labor market, current employers can develop, in

our opinion, the most effective system of stimulation and motivation of the staff of the their organizations.

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STRATEGIC APPROACH TO THE DEVELOPMENT OF HUMAN RESOURCES IN THE ORGANIZATIONS

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Abstract: The paper examines the significant opportunities for strategic development of human resources in modern business conditions. Different principles are analyzed, in order to create a series of simple, comprehensive and effective recommendations for organizations. These recommendations will be subject for further discussions, with the aim of getting to know the future standards, with the primary aim to increase the quality, efficiency and expediency of the total human capital.

Keywords: strategy, human resources, organizations

Apstrakt: U radu se preispituju značajne mogućnosti strategijskog razvoja ljudskih resursa u savremenim uslovima poslovanja⁵⁸. Analizirani su različiti principi sa ciljem da se stvori niz jednostavnih, sveobuhvatnih i efikasnih preporuka organizacijama. Ove preporuke će biti podvrgnute daljoj diskusiji sa ciljem upoznavanja budućih standarda sa primarnim ciljem da se poveća kvalitet, efikasnost i ukupna svrsishodnost ljudskog kapitala.

Ključne reči: strategija, ljudski resursi, zahtevi organizacije

1. UVOD

Paralelno sa transformacijom tradicionalne ekonomije u ekonomiju znanja, promenila se se uloga i značaj menadžmenta ljudskih resursa. Mnogi humanistički orijentisani teoretičari savremenih trendova i globalizacije ističu da postoji dublji smisao u samom nazivu ove grane menadžmenta, koji oslikava jedno specifično, novo tretiranje čoveka kao nosioca rada. Činjenica je da se po prvi put ljudi, profesionalci i stručnjaci iz različitih oblasti, nazivaju resursom – sirovinom koja se upotrebljava u procesu proizvodnje. Ne može se zamisliti poslovanje bilo kog preduzeća bez odgovarajućih proizvodnih resursa, a ljudi, sa svojim sposobnostima i ukupnim psihofizičkim kapacitetom, predstavljaju jedan od tih resursa – i to najvažniji. Danas se više ne postavlja pitanje usavršavanja instrumenata proizvodnje – mašina i alata, već pitanje kako povećati efikasnost čoveka. Čovekov proizvodni kapacitet je veoma rastegljiv u odnosu na mašine koje imaju unapred određen proizvodni maksimum i stoga povraćaj investicija u ljudski kapital može biti višestruki. Zato ključ krajnjeg uspeha preduzeća leži u načinu na koji preduzeća biraju i organizuju ljude.

⁵⁸ Rad je nastao kao rezultat istraživanja u okviru Projekta Digitalne medijske tehnologije i društveno-obrazovne promene (br.47020) koji se realizuje uz finansijsku podršku Ministarstva za nauku i tehnološki razvoj Republike Srbije za period 2011-2016.

Pristup sa pozicija organizacionog razvoja je sistematičan prilaz, koji je najuže povezan sa planiranjem i implementacijom promena u organizaciji. Osnovna poluga razvojnog pristupa je usmeravanje procesa učenja i promena kod menadžera i svih zaposlenih, fokusirano na povezivanje individualnog razvoja sa ciljevima i razvojem njegove organizacije. Uprkos intenzivnim istraživanjima u tim područjima, još uvek nije u potpunosti utvrđeno koji sve faktori, u kojoj meri, pod kojim uslovima utiču pozitivno na uspeh poslovanja.

Pojedine teorije ističu u prvi plan lične karakteristike, radno iskustvo, individualne doživljaje objektivnih uslova na poslu. Druge teorije više pažnje posvećuju organizacionoj klimi i karakteristikama klime koje doprinose postizanju uspeha. U suštini je za uspeh u poslu najvažnije prepoznati šta je to što je neophodno znati uraditi i kako je to moguće ostvariti. Jedno od najvažnijih pitanja koje se postavlja je kako u poslu uskladiti i usmeriti ka istom cilju učenje ponašanja i razvojnu orijentaciju posla (Grubić-Nešić, 2005).

2. STRATEGIJSKI MENADŽMENT LJUDSKIH RESURSA

Savremeni menadžment ljudskih resursa se suočava sa izazovima koje postavlja era u kojoj živimo. Sve do danas konstantno teče organizaciono restrukturiranje i informatizacija funkcije menadžmenta ljudskih resursa, kao potpuno nove, radikalne koncepcije zasnovane na razvoju zaposlenih i upravljanju procesima rada u organizaciji. Burne promene u globalnom okruženju danas oblikuju i karakteristične trendove koji presudno utiču na savremeni menadžment ljudskih resursa. Savremene organizacije pronalaze nove organizacione forme i nova strukturna rešenja koja su dovoljno fleksibilna i adaptivna, i taj preobražaj je vidljiv u svim elementima organizacije: njenim ciljevima, resursima, ljudskom potencijalu i informacionim sistemima. Nova organizacija ima duboke i značajne implikacije na menadžment ljudskih resursa i uzrokuje krupne promene koje se prvenstveno odnose na fokusiranje na ljude kao ključni resurs organizacije i upravljanje njihovim potencijalima. Posebno se ističe poverenje u sposobnosti zaposlenih, tj. usvaja se moto „snaga organizacije je u sposobnostima svih zaposlenih“.

Poslovanje je danas okrenuto sve manje prema materijalnim, a sve više ka intelektualnim resursima, polazeći pri tome od činjenice da se u današnje doba, doba znanja, konkurentska prednost svake organizacije nalazi u organizacionom znanju. Da bi organizacija bila uspešna, potrebno je definisati strategiju koja će efektivnim iskorišćavanjem znanja omogućiti organizaciji da održi, odnosno osvoji, konkurentsku prednost.

Radikalne promene u načinu odvijanja poslovanja vode do definicije novih poslova i zahtevaju nove veštine, što zahteva potpuno novu vrstu ljudi (Obeng and Crainer, 1996.). Nije dovoljno samo obezbediti da se angažuju zaposleni sa odgovarajućim znanjem, već je podjednako važno, ako ne i važnije, da se obezbedi sticanje novih znanja i da se zaposleni podstiču na učenje i razvoj u svim fazama njihovog radnog veka. Jedan od prioritarnih zadataka menadžmenta ljudskih resursa je razvoj zaposlenih u funkciji organizacionih ciljeva, kao i individualnih potreba pojedinaca. Organizacije imaju interes da podstiču razvoj pojedinaca i da ih profesionalno usmeravaju u skladu sa organizacionim potrebama.

Upravljanje ljudskim resursima, definisano kao proces obezbeđivanja oblikovanja, razvijanja i usmeravanja ljudskih znanja, sposobnosti i motivacije prema realizaciji organizacionih ciljeva, danas ima izuzetan značaj za poslovanje. Menadžeri za ljudske resurse

treba da identifikuju, razviju, usmere i iskoriste potencijale svojih zaposlenih za organizacione ciljeve, omogućavajući im pri tome da u organizaciji istovremeno zadovolje i svoje lične potrebe i ostvare svoje lične ciljeve. Strategijsko upravljanje ljudskim resursima se odnosi na proces uključivanja procesa upravljanja ljudskim resursima u strategijski menadžment organizacije (Wright, Dunford, Snell, 2001). Kroz korišćenje takvih strategija organizacije podstiču inovacije i ostvaruju konkurentsku prednost (Kazmi and Ahmad, 2001).

Organizacija može da ostvari konkurentsku prednost nad drugim organizacijama samo ako stvori vrednosti koje su retke i koje su teške konkurentima da ih imitiraju (Amit and Shoemaker, 1993). Ostvarujući svoju funkciju u organizaciji, odnosno obezbeđujući ostvarivanje i organizacionih i individualnih ciljeva, menadžment ljudskih resursa je sposoban da usaglasi način upravljanja sa ponašanjima zaposlenih na način koji dovodi do toga da strategija organizacije postaje “nevidljivo dobro” koje nedvosmisleno obeležava tu organizaciju i konkurentima postaje teško da je uspešno imitiraju (Itami, 1987).

Strategijski menadžment ljudskih resursa čini pristup koji definiše kako će se organizacioni ciljevi ostvariti kroz ljude uz pomoć strategija i integrisanih pravila i procedura. Dobra strategija je ona koja stvarno vrednuje ljude, koja je u stanju da ukaže na načine kako da rade zajedno ili individualno u skladu sa organizacionim ciljevima i kako mogu da se razvijaju u organizaciji. Osnovu strateškog prilaza ljudskim resursima čine sledeće postavke:

1. Ljudski resursi jedne organizacije igraju stratešku ulogu u njenom uspehu i glavni su izvor kompetitivne prednosti.
2. Strategije upravljanja ljudskim resursima treba da budu integrisane sa organizacionim poslovnim strategijama.
3. Strategije treba da budu koherentne, da dopunjuju jedna drugu radi ostvarivanja zajedničke inicijative i uspeha.

Svrha strategija upravljanja ljudskim resursima je da razjasni šta organizacija namerava da uradi sa sa pravilima i procedurama menadžmenta ljudskih resursa, kako trenutno tako i u dugoročnom smislu. Efektivna strategija upravljanja ljudskim resursima je ona koja ostvaruje ono za šta je uspostavljena, a ogleda se kroz zadovoljavanje potreba posla, sastoji se od elemenata koji podržavaju jedni druge i brine o potrebama svih zaposlenih.

Pošto su sve organizacije različite, tako su različite i strategije upravljanja ljudskim resursima. Ne postoji jedinstvena strategija, moguće je razlikovati dva bazična tipa strategija:

- 1) strategije koje se usredsređuju na visoke performanse,
- 2) strategije koje stavljaju akcenat na učenje, razvoj i nagrade.

Zahtev koji se stavlja pred savremene organizacije je da menadžment ljudskih resursa ne tretiraju ni kao troškovnu funkciju a ni kao profitni centar nego kao investicioni centar, zbog njegove uloge u stvaranju i održavanju kulture koja neguje inovativnost, kreativnost (stvaralaštvo) i učenje. U tom svetlu se mogu izdvojiti sledeći ključni izazovi za menadžment ljudskih resursa:

1. Razvoj i podržavanje znanja, učenja i inovativne organizacione kulture,
2. Pronalaženje skrivenog (tacit) znanja,

3. Stvaranje uslova za poverenje i saradnju,
4. Pronalaženje načina da se u organizaciju uklupe zaposleni koji ne pripadaju tradicionalnim profesionalnim kategorijama, a koji su organizaciji važni zbog svog znanja i talenata koje poseduju,
5. Organizaciono preispitivanje i spremnost za promene, kao što je, na primer, preraspodela moći unutar organizacije i podsticanje veće nezavisnosti zaposlenih koji poseduju ključna znanja (Thite, 2004).

3. STRATEGIJSKI RAZVOJ LJUDSKIH RESURSA

U društvu znanja, znanje postaje najvažniji resurs i ključni faktor poslovnog uspeha. Za razvoj zaposlenih postaju podjednako zainteresovani i pojedinci i organizacije. Shodno tome, razvoj zaposlenih, kao generator novog znanja, se smešta u širi strategijski kontekst menadžmenta ljudskih resursa, odnosno globalnog menadžmenta organizacije.

Razvoj zaposlenih je kompleksan i obuhvata mnoge faktore, kao što su vrednosti i norme na samom radnom mestu i izvan njega. Razvoj se odnosi se na budućnost ali i na tekuće potrebe poslovanja, jer u sebi pretpostavlja unapređenje, sazrevanje, rast i poboljšanje postojećeg. On može da se odnosi na bilo koji aspekt koji se odnosi na pojedinca, a koji se može menjati i usavršavati. Na poslu, o tome se često razmišlja kao o konkretnim veštinama i razvoju znanja koje se direktno odnosi na tehničke aspekte posla. ... Korisno je uzeti u obzir i lični razvoj pojedinca kao veoma značajan faktor u ovom procesu. Na taj način se u razvoj uključuju i lični faktori, kao što su bolje sagledavanje sebe i samosvest, ovladavanje novim veštinama koje se ne odnose direktno na posao, jači osećaj odgovornosti za sopstveni razvoj, samopouzdanje i lični imidž. Ovi "meki" lični faktori ne samo da utiču na sticanje konkretnih veština, već direktno utiču na motivaciju, privrženost, sposobnost izbora i ostvarivanje ličnih ciljeva.« (Tomson, 2000).

Odgovor na izazove poslovanja u savremenim ekonomskim uslovima organizacije pronalaze u novom pristupu razvoju zaposlenih, u procesu obezbeđivanja, korišćenja i razmene znanja unutar organizacije. Nove tehnologije traže nova znanja. Mnoga znanja zastarevaju i pre nego što se upotrebe, a to samo povećava jaz između ponude i potražnje. Stvarati novo znanje, a prevazilaziti staro, je imperativ.

Razvoj zaposlenih povećava nivo znanja u organizaciji, ali ima i ulogu da menja način na koji razmišljaju zaposleni i nauči ih da vole promene i prihvataju izazov, da strategijski razmišljaju na poslu ali i da se strategijski ponašaju kao pojedinci, prihvatajući učenje kao način života.

Jedino holistički pristup i menadžment ljudskih resursa, uz neograničenu podršku top menadžmenta i aktivnu saradnju menadžera svih funkcija i nivoa, koji treba da prihvate menadžment ljudskih resursa sa jednakim entuzijazmom, može da obezbedi ispunjavanje ultimativnog zahteva za opstanak na tržištu, odnosno, stvaranje i deljenje znanja i njegovo korišćenje. Samim tim, razvoj i obuka zaposlenih je visoko na vrednosnoj lestvici u svakoj savremenoj organizaciji, koja traži svoje mesto u društvu znanja (Duđak, 2006).

Pred organizacijama i zaposlenima se otvara nova perspektiva u društvu znanja. Ulaganje u zaposlene, u njihovu kreativnost i znanje, postaje strategijska aktivnost. Za

savremenu organizaciju je karakterističan ambijent u kome se kontinualno odvijaju inovacioni procesi. Da bi opstala i ostvarila poslovni uspeh, potrebno je da motiviše zaposlene da stalno promišljaju na nov način o procesima u organizaciji i da stalno obnavljaju svoje znanje.

Strategijski proces razvoja zaposlenih u organizaciji se tako odvija da podstiče kreativnost, obezbeđuje inovativnost i oblikuje celokupno organizaciono znanje u nešto što bi se moglo nazvati “receptom znanja”, specifičnim znanjem po kome je organizacija jedinstvena, po kome se razlikuje od bilo koje druge. “Recepti znanja” se mogu smatrati proizvodima organizacije u kojoj su oblikovani.

To je kontinualan proces, sa sopstvenim menadžmentom, koji uključuje u sebe kreativnost i inovativnost, koji je iskustven i koji se odvija kroz akciono učenje. Odnosi se, kako na stručnjake, tako i na sve ostale zaposlene u organizaciji. Tako shvaćen proces obuke i razvoja je podržan organizacionom i vizijom menadžmenta ljudskih resursa, kao funkcije koja dobija na značaju i igra ključnu ulogu u organizaciji znanja, u kojoj su zaposleni u fokusu poslovanja.

Izazov je osigurati organizaciono delovanje zaposlenih kojima je njihova profesija na prvom mestu. Uspešne organizacije pokušavaju da odgovore na taj izazov na sledeći način (Thite, 2004):

- (1) Stvarajući učeće okruženje koje će zadovoljiti njihovu želju za znanjem,
- (2) Izgrađujući središta (mesta) dobrovoljne saradnje i
- (3) Tretirajući zaposlene kao “neograničen potencijal” konkurentske prednosti i kao nepresušni izvor ideja, a ne kao trošak koji treba redukovati ili imovinu koju treba kontrolisati.

Razvoj zaposlenih, kao integralni deo menadžmenta ljudskih resursa, ima svoju strategijsku i operativnu dimenziju i ima sve presudniju ulogu u uspešnoj promociji i primeni holističke menadžment filozofije. Kroz svoju misiju, razvoj menja način razmišljanja zaposlenih i odnos prema organizaciji, odnosno afirmiše organizacionu viziju i misiju. Razvoj zaposlenih ne podrazumeva samo nove sposobnosti već i mogućnost da se promoviše kreativnost i preduzetnički duh, da se približe zaposlenima promene u organizaciji, kao i da se podstaknu promene u stavovima. Isto tako, razvoj menja i odnos zaposlenih prema sopstvenim znanjima i sposobnostima, pomaže uočavanje neophodnosti “celoživotnog učenja” i olakšava im orijentaciju u vremenu turbulencija i tranzicije (Duđak, 2006).

Formiranje strategija razvoja zaposlenih u savremenim organizacijama nije isključiva odgovornost ni vlasništvo, odnosno prioritetni zadatak samo funkcije menadžment ljudskih resursa. To je bilo karakteristično za tradicionalne organizacije i personalni menadžment. U društvu znanja, organizacione strategije, pa i strategije razvoja zaposlenih su odgovornost celokupne organizacije i, u skladu sa holističkim pristupom, na njihovom oblikovanju treba svi zaposleni da rade, proaktivno razmišljajući.

Strategija razvoja zaposlenih mora biti tako osmišljena da bude u skladu sa organizacionom strategijom, kako bi se izbegao nesklad do koga je dolazilo u tradicionalnom pristupu obuci. Tako razvoj zaposlenih postaje prioritetna, strategijska oblast delovanja u organizaciji. Na primer, organizacije čija strategija uključuje pružanje izuzetnih usluga kroz privrženost i lojalnost ekstremno dobro obučениh zaposlenih, zahtevaće složenije sisteme

razvoja zaposlenih nego organizacija koja se pojavljuje na tržištu tj. konkuriše na bazi jednostavnih niskotroškovnih usluga od strane nekvalifikovanih zaposlenih.

Performanse i nova znanja koja zaposleni treba da steknu mogu biti neophodne za ostvarivanje trenutno postavljenih poslovnih ciljeva, ali mogu biti relevantne i kao izvor za povećanje inovativnosti i obezbeđenja buduće konkurentnosti. Zatim, one mogu biti sredstva za ostvarivanje promena u kulturi i drugih promena u organizaciji i mogu potpomoći i sam proces implementacije strategije, čineći ga procesom učenja.

Ovaj instrument menadžment ljudskih resursa će biti uspešno operacionalizovan samo ako omogućava postavljanje zajedničkih ciljeva i omogućava stalnu podršku zaposlenima pri ispunjavanju individualnih ciljeva. Individualni ciljevi se postavljaju da bi se pojedinac motivisao i podrazumevaju njegov razvoj jednako koliko i ispunjavanje poslovnih zahteva.

Iako razvoj zaposlenih dobija sve više na značaju, on je povezan sa ostalim aktivnostima menadžmenta ljudskih resursa i bez njihove podrške i međusobnog prožimanja, nije moguće da se postignu sinergijski efekti, koje može da ostvari jedna inovativna, učeća organizacija postavljena na temeljima holističkog menadžmenta i preduzetništva, kao njegovog nerazdvojivog dela (Duđak, 2006).

4. ZAKLJUČAK

Strategijski razvoj ljudskih resursa kroz osvajanje novih znanja i podelu znanja kao jedan od najvažnijih ciljeva koncepta razvoja organizacije, moguće je postići samo kroz potpunu posvećenost i maksimalno angazovanje svih zaposlenih. Ako se uzmu u obzir kompleksnost, dinamičnost i nepredvidivost savremenog poslovnog okruženja, globalizacija, brz i neprestan tehnološki razvoj, radnici znanja kao nosioci inovativnih i kreativnih procesa i, konačno, samo znanje kao osnov konkurentne prednosti organizacije, može se sa sigurnošću konstatovati da je strategijski razvoj ljudskih resursa jedan od ključnih faktora uspešnosti i efektivnosti savremenih organizacija.

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THE FUTURE VISION TO LIBYAN FOREIGN POLICY TOWARDS AFRICAN COUNTRIES

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Abstract: We can say the Libyan foreign politics will witness a change or a shift towards its various circles both during rearrangement to those circles or reconsider to tools that used to deal with those circles. It is worth saying in this regard that the foreign policy of the state could see patterns of change "Herman" summarized these factors in four types as follows Adjustment Change means change in the level of attention directed to an issue with the survival of policy objectives and its tools to deals with this issue without prejudice or change. Program change, it is going out to policy tools change and its means without any change in its goals or objectives. Goal Change according to this pattern, the policy objectives changes, And then its tools, its means will change. Orientation Change is the most extreme four patterns, radical, is going out to affect change the general direction of the country's foreign policy, including. This strategies changes and its flow from change in goals in objectives in means and in tools.

Keywords: Foreign policy, African countries, the Libyan revolution, Strategy, Gaddafi, relationships, transitional government, the African Union.

1. INTRODUCTION

Libyan state seeks post-Gaddafi period to build its foundations its renaissance, through the development by reading the reality of today with all its challenges and interaction with all of this, which the head the former of transitional government in addressing before the African Union (AU) summit in June 2012, by Suring on the basis of building Libyan

It is not an exaggeration to say that the Libyan revolution in the seventeenth of February 2011 have had a dramatic changes, transformations in the internal areas of strategy in all sides like the political, economic, social, cultural, media, etc., which necessarily affects - sooner or later - Libya's foreign policy in practice ,in oriented institution. According to this we can say the Libyan foreign politics will witness a change or a shift towards its various circles both during rearrangement to those circles or reconsider to tools that used to deal with those circles.

we can say that the change which is expected to be in Libyan foreign policy towards the countries of the African continent depends on the extent of change in vision, which was governor before the revolution, it is known that the vision is the ruling philosophy of foreign policy, which stems including positions with making its specific decisions. Since it was difficult for any revolution is stilling ongoing, its events continuous, have on various foreign policy issues, where the revolution took its all concerns in outset how to arrange its inside house, while revolution starts in interesting to the foreign revolution with its transformation from revaluation to State() The foreign policy comes as the second phase. We mean the new

regime formed its legal frameworks, its institutions, as we know the talk about foreign policy not looks like the talk about foreign resolutions related to any regime, this resolutions is linked to the stability of certain situations and relationships to internal level, allowing translated on the international level. As long as the revolutionary elite is moving through the institutions of exceptional, extraordinary laws will remain foreign policy is a set of decisions issued in response to international crises or certain situations. The more in the stability of the new political regime will transfer the sense of the revolutionary elite begins to shift to a political elite working through institutional and legal conditions more stabilize. After that we see the development in these decisions and responses to shape of foreign policy that has specific features working to achieve the goals of the new regime enjoying with growing level of national consensus.

Based on this, we can say, till the Libyan revolution not translate to state with all its foundations we can not see the succeeded foreign policy in our international relation, because of the new state will based on the new institutions, new policies commensurate with the size of the transitions, until now we can say that there is no new vision at all in Libyan foreign policy after the revolution, but we have a new attitudes and decisions about some issues, which remain issues ruling in Libyan relation with African continent is the core of the future vision of the Libyan policy towards the African countries. at least in the near term, including requiring quickly work to find practical logical solutions and realistic contributes in building a Libyan-African relations on the right basis, governed through converging visions and the common principles for vital interests.

2. EXPECTED CHANGES IN LIBYAN POLICY TOWARD AFRICAN NATIONS:

First: In the regard of security issues related to the weapons & drugs smuggling, we can facing these issues through regional role, with hold a security conference in Libya attended by ministers interior and defense to neighboring countries in order to coordinate and create mechanisms to eliminate of these threats, it is importance to activating tat we are reaching in this regard, through international role the contribution of the international community to establish an international fund to collect weapons.

Foreign policy decision-maker puts its priorities pattern as the nature of its country's relations with these countries; these decisions will depend on security side primarily. We not having security concerns with Egypt & Tunisia, that they are living in the phase of so-called Arab Spring and security coordination with them will have a common interest, the big challenge to us is in the ability to control the border with Chad and Niger, which with long thousands of kilometers, as well as monitoring the triangle Libyan border- Sudanese - Chadian, which involves security liquidity situation long time ago. In the past the security doctrine has interested neighboring countries based on the rule that the Darfur region can be a threat to security of Chad. According to that we can see that any work on this region can threaten the N'djamena regime, but the evolution of military methods, modern technology, it is proved that Khartoum also is not immune from the threat of the Darfur region as well as from the border with Libya, so the logic requires a focus on finding a satisfactory solution to the Darfur issue and working to establish good neighborly relations with all of these countries, including the composition of the security committees to coordinate the security level to dealing with dangers that lie,

Second restructuring through integrating the rebel forces, legitimize quickly in the ranks of the state formations to adjust the security and restore stability to the Libyan street and borders.

In the regard the negative attitude of some African countries from the Libyan revolution, requires collapse the past page, then look to the future as the words of the President of the Commission of the African Union, "Jean Ping "that:" Africans want to build a new relations on a new basis with the new Libyan officials, turn the page of Muammar Gaddafi ... The past is the past, no matter what happens, we should turn the page and look to the future.

If this noted around the Libya's relations with some other countries represents a continuation of the trends Libyan towards the countries of the African continent, notably:

1. **Libyan-Moroccan relations:** There is no doubt that is the visit the official delegation of Libyan Prime Minister Abdul Rahim El-Heib to the Kingdom of Morocco in secondhalf in thisyear2012 emphasizes the orientation of the two countries towards the needing of these countries in open a new page in their bilateral relations, especially economic, trade, especially in light of the Kingdom's political positions, clear operation of the Libyan revolution, Whereas it is no secret that Morocco Kingdom its support, without any hesitate, then the Moroccan minister of Foreign Affairs and Cooperation on his visit to Libya, meeting with officials of the National Transitional Council, then receive wounded revolution for treatment, since the stability of the new Libyan political power emerged many political rapprochement between Elrebat and Tripoli, there is no doubt that it will be reflected in the strengthening the economic cooperation between them, so facilitate the movement the people, the goods, the capital, the investment, to serve the interests of the two peoples. In the future the Maghreb region, through incorporation to establishment to the new phase in relations between the two countries, based on mutual respect, non-interference in internal affairs, the comprehensive cooperation in political, security, strategy fields, and also in the fields of economy, development the trade, including invests. Potential of each country and has strengths in the common interest.
2. **The Sudanese Libyan rapprochement:** Libyan-Sudanese relations have witnessed a remarkable rapprochement after revolution after the tensions that characterized the Sudanese following accusations of former Libyan leader "Muammar Gaddafi" that he supports the rebel movements in the Darfur region since 2003, and which is located directly along the Libyan territory, reflected in the level of mutual visits of senior officials in the two countries, which started with the visit of Prime Libyan National Transitional Council "Mustafa Abdul Jalil" to Sudan in November 2011 in the first visit by a Libyan official to this country since the fall of Gaddafi's regime, which he stressed during this visit that: "Sudan has had active role, he was a true partner in the revolution, where donated weapons to the western mountain rebels through Tunisia ... and that were it not aid militarization Sudanese that arrived through Sahara, through borders, it was not possible for the city of Kufra be liberated from the remnants of the former regime, then Followed by the visit of Sudanese President "Omar El-Bashir" to Libya in January 2012, then visit the first vice president of Sudan, "Ali Osman Taha," at 12th June , 2012, which confirmed the solidarity and cooperation between the two countries in various fields, especially security And economic.

There was, several factors are still developments interact such results to play a crucial role in shaping a new reality for the Libyan-Sudanese relations. Among these factors affecting the future of Libyan-Sudanese relations final scenario Libyan revolution in terms of its ability to exert control over security, military on all Libyan soil, completely eliminating the potential pockets of resistance for the remnants of the Gaddafi regime, especially in desert areas bordering Sudan, Chad, because the continuation of any influence of the elements of the remnants of Gaddafi in the region are trying to destabilize the new situation. In Libya may constitute a resource supply of weapons to the Darfur region, which it will abort the settlement efforts Peaceful, enhances the chances of continuing guerrilla warfare if some armed movements rejected engage in the peace process.

3. Many African countries declined for its support Ghaddafi or peaceful solution with him, it was Senegal president Abdalla Wade the first president of the African countries located Sub-Saharan visiting the opposition stronghold city of Benghazi for the recognition of the national council. He also received transitional council leaders in the Senegalese capital Dakar. Equally important, issued a statement attributed to the Mauritanian President Mohamed Weld Abdel Aziz, who previously was part of a mediation committee of the African Union on Libya which he said that the departure of Gaddafi has become a necessity. Chad explained, which has faced accusations from the Transitional National Council Libyan that its soldiers fighting alongside Gaddafi's forces, that it does not support Gaddafi according to the statement by Hillary Clinton and U.S. Secretary of State after talks with Chad's Foreign Minister in the same context. Ellen Johnson Sirleaf President Liberian diplomatic cut the relations with Libya, she is declaring that Gaddafi has lost its legitimacy while doing the same thing by Gambia in West Africa.

Thirdly Correct the misconceptions about the size of the Libyan contribution in the budget of the African Union:

It was believed that Libya is the biggest contributor to the main activities of the Union its effectiveness, but it is not right thing there is a top five shareholders in the EU budget, the share of each of them About 15%, and they are: Libya, Algeria, Egypt, Nigeria and South Africa, which reaches combined share of the five countries about 75% of the budget of the African Union, while remaining percentage is distributed 25% in other EU member states.

Fourthly We must focus on building strong relationships with neighboring countries and geographical distance from policy Axes, maintain the institutions, the existing regional groupings such as the Maghreb Union, enhance in the dialogue in the space of (5+5), positive contribution in solving the problems of desert belt between Mali, Niger from the side of Tuareg from one side and from other side, we must be dealing with the problems of the Sahara, stability in Algeria and Morocco, as well as the search for more practical formulas for dialogue with the southern Mediterranean should also not overlook the importance of the community of Sahel and Saharan States, especially in the security aspects. We should be searching through the framework for addressing the issue of illegal immigration, that will be one of the biggest challenges that will face the new Libya regime in its relations with the South Europe and the desert belt.

Fifth The environmental conditions that surrounding, enforced on the new Libya, the Ministry of Foreign affairs, the Council transition, the interim government to engage in an

objective assessment process towards Africa in general, the African Union in particular is based on any objective assessment process towards Africa to set the following standard:

- 1- Achieve the supreme national interest of the new Libya, whatever the data in Africa.
- 2- Away from ideology, slogans vague to pretext of humanitarian considerations, historical and geographical.
- 3- Use of soft power the hard power in need with the African countries which is still home to some of the family members Gaddafi (buried) or his supporters, especially those neighboring.
- 4- Use all possible means to restore money, gold, Libyan investments from African countries that have taken positions hostile to 17th February revolution.
- 5- Reduce the Libyan missions in Africa and beyond to economic, security considerations, the social, political, where we can maintain on the missions in countries that have recognized in early of Transitional National Council during the revolution of 17th February as the major missions but the tight scope with the new vision that has overcome the national interest above all else.
- 6- Strengthen the relations with African countries that have taken positions in favor of the revolution on 17th February in line with the policy of rewarding friends and punishing enemies.
- 7- Reduce the activity of the Libyan political; economic in the framework of the African Union to near biased a view of the role of this organization for the benefit of the dictatorial system tyrant. Union African was significantly funded from the budget of the Libyan people, and thus can be in this context demand the return of money that has been spent unlawfully on this body. As we know, the Gaddafi regime has contributed to the establishment of the African Union in order to glorify Himself as King of kings and not a service to Africa, and it has contributed to appoint figures loyal to him in this lean body, such as the head of his office (Bing) and many others.
- 8- We should be adopt a firm policies toward illegal immigrants from Africa because that is represented a threat to national security Libyan in present and future, where Libya can take advantage of offers from European countries, the European Union in this field. But on Libyan government to avoid becoming an aim's ground for illegal immigrants returning from Europe, where border controls have to hand and send illegal immigrants immediately to their home countries on the other hand.

Sixth Libya should be establishing its foreign policy on the political geopolitical constants, mutual interests, common values, respect for international obligations, confidence-building, and the most prominent of these features the following:

- 1- Confidence-building, Gaddafi has worked for four decades, to distort the reputation and standing of Libya before the world. through its practices, his antics, deplorable, contrary to norms, international charters, also worked hard to marginalize the role of the foreign ministry, discharged gradually from professional, technical cadres, through, escalation, the revolutionary committees, the people, the various security agencies, which brought elements are not eligible, acquired diplomatic work,

competence, professional content, under the so-called People's diplomacy, ending a traditional diplomatic career. restore confidence in Libyan diplomacy, with it, requires persons, restructuring of the Ministry of Foreign Affairs, a human organizationally, externally requires the establishment of this trust, in international relations on cooperation common interests, mutual respect, Which can be achieved by:

- Re-activation of the Institute of diplomatic Studies.
 - Establishment of the Department of Cultural Affairs, the media belonging to the Ministry of Foreign dispatch supplement the media and the cultural envoy.
 - Rehabilitation of diplomats and administrators who decide to keep them within the cadre Ministry.
- 2- The national security of Libya is related to in a high level with Arabic, Islamic depth, extension, after the African Union, which from its geographical position, representing link between these episodes. Libya can contribute to strengthening cooperation, security, prosperity in the region, which calls for the imposition of strict controls at all their borders, private land sea, at least at this stage, to prevent mercenaries, smuggling and illegal immigration.
- 3- Application of the system of openness, reconciliation which establishes state collect all the factions in one thing, along the lines of what happened in South Africa when the fall of the apartheid regime racial there when it happened in 1993 with the establishment of the National Reconciliation Commission, succeeded restore national cohesion without wasting the rights of victims of the former regime, or deprive former officials the chance of rehabilitation, reintegration into society. If the true that Libya has seen several attempts in recent months in this context, was most recently the formation of a fact-finding body reconciliation of five adviser's retirees. But it is true that the experience of South Africa showed that the presence of international cooperation, support of neighboring countries were the main reasons for the success of the reconciliation experience. The complexities of the situation Libyan current requires that the Arab League, neighboring countries, actors Libyan arena key role in this thing to succeed. More specific sense required is having a comprehensive national reconciliation is not its own political agendas to heal the rift between all Libyans to devote all for building the future.

3. CONCLUSIONS:

In light of this, we can say that the change which is expected to be in Libyan foreign policy towards the countries of the African continent depends on the extent of change in vision, which was governor before the revolution, it is known that the vision is the ruling philosophy of foreign policy, which stems including positions with making its specific decisions. Since it was difficult for any revolution is stilling ongoing, its events continuous, have on various foreign policy issues, where the revolution took its all concerns in outset how to arrange its inside house, while revolution starts in interesting to the foreign revolution with

its transformation from revaluation to State The foreign policy comes as the second phase. We mean the new regime formed its legal frameworks, its institutions, as we know the talk about foreign policy not looks like the talk about foreign resolutions related to any regime, this resolutions is linked to the stability of certain situations and relationships to internal level, allowing translated on the international level. As long as the revolutionary elite is moving through the institutions of exceptional, extraordinary laws will remain foreign policy is a set of decisions issued in response to international crises or certain situations. The more in the stability of the new political regime will transfer the sense of the revolutionary elite begins to shift to a political elite working through institutional and legal conditions more stabilize. After that we see the development in these decisions and responses to shape of foreign policy that has specific features working to achieve the goals of the new regime enjoying with growing level of national consensus .

* We need to mobilize opportunities for regional cooperation, trade, financial integration, especially with Egypt and the Maghreb countries. The regional integration in North Africa of is the most answers to face the challenges with our region, both in terms of job creation or to hand achieve a balanced development within the countries, we should be taking into our account that if it as natural that Libya will using during this phase technical assistance from international organizations such as the International bank, the International Monetary Fund, the experience offices, intellectual forums, the final word in this issue of the development of strategic options should remain in the hand of Libyan people,through consultations.And apolitical consensus within the constitutional institutions.

* But The success of the Libyan policy towards the African continent requires an Arabic comprehensive understand toward continent, to rehabilitate its position within the circles of their foreign policies, which some understand through new concept of new policy in Africa based on:

* We need to activate the common civilization between Africa and the Arab world through the Islamic culture which belongs to the millions of people of Africa, that was one of the main entrances to Gaddafi to hearts Africans, his prayers were multiple universities, his mosques in the countries of the continent is an essential to convince the Muslims of Africa that Gaddafi "Muslim Rebel", he was receiving each year a thousands Africans who declare their incomes in Islam before gifts and gratuities.

* We need to promote regional alliance between Africa and the Arab world, whether through union organizations Maghreb and activating the Arab presence in the African Union as well as the activation of cooperation positive between the Arab League and the African Union organizations.

- So we need to rediscovery the rich Africa with its economic resources, its fertile fields investment allowing the positive impact in the resolution of Africa, which is the first gate is economy so the last.

- So we need to development of the financial or banking sector to support private investment and create jobs. Loans Banking directed to the private sector is still limited, and beyond, according to the attest Figures 20 percent of GDP, and the various financial markets, with its component are stilling under construction.

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IMPLEMENTATION OF NEW ASSULT RIFLE AS A MODEL FOR FACTORY „ZASTAVA ARMS“ MILITARY PROGRAM CONSOLIDATION

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Abstract: Factory “Zastava Arms” represents a renowned manufacturer of military weapons. The market segment that includes light infantry weapons is characterized by extremely strong competition since the countries, that until recently didn’t have any tradition in the field of defense industry, are now manufacturing and marketing highly successful solutions. “Zastava Arms” must without delay implement one prestigious project of the new assault rifle to strengthen its market position and ensure its further development. The realization will not be an easy one and will require engagement of a large segment of the Serbian defense industry as well as active participation of prestigious universities and institutes. The said implementation would require adoption of the new technologies and new ways of thinking. Success of this project will be local, but can also mark a milestone in the further development of small arms at the global level. Preservation of the current situation not only threatens the survival of 2,000 workers of the factory, but also the reputation of the industrial production in Serbia whose foundations were set up by “Zastava Arms” back in 1853.

Keywords: military program, assault rifle, cartridge, development, consolidation.

Apstrakt: Fabrika „Zastava oružje“ predstavlja renomiranog proizvođača vojnog naoružanja. Na segmentu tržišta koji obuhvata lako pešadijsko naoružanje postoji izuzetno velika konkurencija budući da zemlje, koje do juče nisu imale bilo kakvu tradiciju na polju odbrambene industrije, danas proizvode i plasiraju izuzetno uspešna rešenja. „Zastava oružje“ mora da, bez odlaganja, realizuje prestižni projekat nove jurišne puške kako bi učvrstila svoju tržišnu poziciju i osigurala svoj dalji razvoj. Realizacija neće biti nimalo laka i zahtevaće angažovanje velikog segmenta srpske odbrambene industrije kao i aktivno učešće prestižnih visokoškolskih ustanova i instituta. Pomenuta realizacija zahtevaće usvajanje novih tehnologija, ali i novog načina razmišljanja. Uspeh ovog projekta neće biti lokalnog karaktera, već može da označi prekretnicu u daljem razvitku pešadijskog naoružanja na globalnom nivou. Očuvanje postojećeg stanja ne samo da ugrožava opstanak 2000 radnika fabrike, već i ugled industrijske proizvodnje u Srbiji čije temelje je postavila upravo „Zastava oružje“ davne 1853. godine.

Ključne reči: vojni program, jurišna puška, metak, razvoj, konsolidacija.

1. UVOD

Fabrika „Zastava oružje“ ima veoma dugu i bogatu tradiciju u proizvodnji pešadijskog naoružanja. Tokom svog postojanja realizovala je čitav niz uspešnih projekata u tom segmentu poslovanja. Veliki deo tih projekata je podrazumevao inovativna rešenja koja su pobudila veliku pažnju stručne javnosti, a delom se radilo o projektima modifikacije i unapređenja već postojećih sistema pešadijskog naoružanja koji se koriste u svetu. Danas je neophodno učiniti veliki napor za podizanje tehničko-tehnološkog nivoa proizvodnje. To se može postići većim ulaganjem u osavremenjavanje proizvodnog procesa i kroz stručno osposobljavanje radne snage. Kao imperativ se nameće stvaranje čitave nove generacije visokoobrazovanog inženjerskog kadra kroz veću i intenzivniju saradnju fabrike sa visokoškolskim ustanovama u Srbiji. Posebnu pažnju treba posvetiti permanentnom usavršavanju radne snage. Veoma je važno da država uvaži značaj i ulogu koje fabrika „Zastava oružje“ ima u društvu i da pronađe načine da joj pomogne na putu oporavka. Uprkos svim gore pomenutim ograničavajućim faktorima, Zastava bez odlaganja mora da započne realizaciju novih projekata, bez kojih će fabrika veoma brzo izgubiti tržište i potencijalne klijente. Danas, surova tržišna utakmica, na polju prometa naoružanja i vojne opreme, ne prašta greške i pasivan pristup.

2. ISTORIJAT FABRIKE

Livenje topova u kragujevačkoj Topolivnici, koje je počelo 27. oktobra 1853. godine, smatra se datumom osnivanja fabrike „Zastava oružje“. Taj datum ujedno predstavlja i simbolični začetak industrijske proizvodnje u Srbiji. Topolivnica je u to vreme predstavljala demonstratora primene novih tehnologija u proizvodnji, od prvih parnih mašina, pa sve do električnog osvetljenja. Fabrika počinje sa implementacijom prvog sistema kvaliteta u Srbiji. Od svog osnivanja pa do danas fabrika je imala svoje uspone i padove i sa pravom se može tvrditi da je delila sudbinu države u kojoj je nastala. Odlukom Ministarstva odbrane iz 2003. godine, fabrika zvanično postaje deo Odbrambene industrije Srbije. Danas fabrika „Zastava oružje“ gotovo 95% svoje proizvodnje plasira na inostrano tržište. [1] Takođe, veliki deo pešadijskog naoružanja, kojim raspolaže Vojska Srbije, čine upravo proizvodi ove fabrike i sa pravom možemo da tvrdimo da je fabrika „Zastava oružje“ bila, jeste i da će i u budućnosti biti pouzdan oslonac srpskoj odbrambenoj industriji.

3. AKTUELNI TRENUTAK

Okosnicu vojnog programa fabrike „Zastava oružje“ danas čine proizvodi poput familije jurišnih pušaka *M21* (verzije A, S, ABS i SBS) u kalibru 5,56 mm, automat *M21* u kalibru 5,56 mm, puškomitraljez *M84* u kalibru 7,62 mm, snajperske puške *M07* u kalibru 7,62 mm i *M07* (verzije AS i AF) za metak 7,62 x 51 mm i 7,62 x 54mm, mitraljezi *M02* i *M07* u kalibru 12,7 mm, automatski bacač granata *M93* 30 mm, podcevni bacači granata 40 mm i familija pištolja *CZ999* i *EZ9* u kalibru 9 mm PARA i .40 S&W. Razvoj osnovnog modela jurišne puške *M21A* otpočeo je 2001. godine i taj projekat je realizovan do septembra 2002. godine. [2] Puška je predstavljena javnosti u avgustu 2004. godine, a 29. aprila 2004.

godine uvodi se u naoružanje Vojske Srbije i Crne Gore. U februaru 2008. godine usvaja se nulta serija i 26. avgusta otpočinje serijska proizvodnja. [3] Glavne karakteristike, koje je izdvajaju u odnosu na svog prethodnika, jurišnu pušku *M70*, su: poligonalna cev kalibra 5,56 mm, poklopac sanduka koji je povezan sa sandukom u prednjem delu, poluga regulatora paljbe sa leve strane pištoljskog rukohvata izrađenog od polimera, pojednostavljen regulator količine pozajmljenih gasova, polimerski kundak preklopiv u desnu stranu, polimerski jednodelni prednji potkundak, kao i mogućnost montaže *Picatinny* šine na koju se postavljaju optičke sprave u skladu sa NATO standardima. Tokom opitovanja u Tehničkom opitnom centru došlo se do rezultata da je *M21* po pitanju efikasnosti 34,3% bolja u odnosu na pušku *M70*. [4] Tokom upotrebe u terenskim uslovima od strane pripadnika makedonskih specijalnih snaga uočeni su izvesni nedostaci koji su otklonjeni daljim razvojem oružja. [5] Analizom iskustava došlo se do saznanja da postoji prostor za poboljšanje osnovnog modela, što je fabrika „Zastava oružje“ i uradila sa modelima *M21* (u verzijama ABS i SBS) čime je razvoj puške dostigao svoj zenit.

Postavlja se opravdano pitanje da li u ovom trenutku nastaviti sa programom unapređenja bazičnog modela *M21* ili krenuti sa realizacijom potpuno nove jurišne puške? Realizacijom takvog projekta, fabrika „Zastava oružje“ bi morala da ponudi rešenje koje je ravnopravno sa renomiranim svetskim proizvođačima, ili da, u pojedinim segmentima, ide za korak ispred. Što se tiče ponude pištolja namenjenih za vojnu upotrebu, fabrika „Zastava oružje“ slovi za renomiranog i uglednog proizvođača o čemu svedoči uspešan plasman proizvoda na najzahtevnija svetska tržišta. Međutim, nedavno poništen ugovor vredan gotovo 20 miliona dolara, o prodaji 50.000 pištolja *CZ999 Škorpion* za potrebe egipatske policije, zbog primedbi na kvalitet pojedinih delova, predstavlja u najmanju ruku poziv na uzbunu upravo zbog činjenice da se pre spornog transfera pomenuti pištolj proizvodio uspešno u skladu sa mogućnostima fabrike „Zastava oružje“. [6]

4. ANALIZA I PREPORUKE ZA KONSOLIDACIJU VOJNOG PROGRAMA FABRIKE „ZASTAVA ORUŽJE“

Bez oklevanja treba pristupiti realizaciji projekta nove jurišne puške koja bi u sebi inkorporirala savremene svetske trendove kada je taj segment pešadijskog naoružanja u pitanju. Glavni pravac razvoja jurišnih puški u svetu podrazumeva poboljšanje ergonomije, smanjenje mase oružja, modularnost i mogućnost brze montaže različitih dodataka (putem *Picatinny* šina), čime bi se povećala njihova upotrebljivost u složenim uslovima koje diktira savremeno bojište. Poboljšanje ergonomije ima za posledicu efikasnu upotrebu oružja bez obzira da li je strelac desnoruk ili levoruk (obostrane komande), kao i mogućnosti regulacije položaja kundaka radi zauzimanja pogodnog položaja za oslanjanje puške na rame i obraz. Postavlja se i pitanje konfiguracije puške, tj. da li se opredeliti sa klasični dizajn ili *Bullpup* sistem? Kod *Bullpup* sistema okvir sa mehanizmom za okidanje se nalazi smešten u kundaku puške iza okidača. Najveća prednost *Bullpup* sistema je kompaktnost oružja i u pušku iste dužine kao što je ona klasičnog dizajna može se smestiti duža cev. Mane se ogledaju u balansu oružja, visokoj silueti strelca u ležećem položaju kao i u sporijoj promeni okvira. Moramo da naglasimo da se mali broj zemalja odlučio za *Bullpup* sistem kao budući koncept jurišne puške. Smanjenje težine oružja je trend koji je prisutan od razvoja prvih jurišnih pušaka, pa do danas. U konstrukciji puške se koriste novi savremeni materijali male mase i

velike čvrstine. Modularnost podrazumeva mogućnost promene dužine cevi koju obavlja strelac samostalno, u zavisnosti od zadatka koji se izvršava. Kada govorimo o promeni kalibra cevi u zavisnosti od vrste zadatka, kao i od raspoložive municije, ona bi podrazumevala osim promene cevi i promenu zatvarača i magacina. Ovaj stepen modularnosti bi se mogao izbeći brižljivim izborom municije na kojoj se bazira buduća jurišna puška. Uređaji koji se montiraju na *Picatinny* šinu podrazumevaju optičke nišane (optički nišani durbinskog tipa, optički nišani sa svetlećom tačkom - holografski nišani i naposljetku optoelektronski nišani), laserske obeleživače, dvonošce, potcevne bacače granata, baterijske lampe, i dr.

Realizacija nove jurišne puške je zadatak koji bi objedinio pod svoje okrilje sva preduzeća koja se nalaze u sastavu Odbrambene industrije Srbije i mogu da doprinesu uspešnoj realizaciji pomenutog projekta. Tu se podrazumeva i aktivna uloga prestižnih obrazovnih ustanova i instituta. Da bi se zadovoljila potreba za visokim kvalitetom, treba stupiti u pregovore sa državom o nabavci neophodnih savremenih mašina i alata, kako bi se postigao što bolji kvalitet izrade finalnog proizvoda. Mora se pristupiti stručnom osposobljavanju i usavršavanju radne snage koja bi bila angažovana na pomenutom projektu. Izuzetno je važno omogućiti mladim inženjerima, bez neophodnog iskustva, uvid u sve faze realizacije projekta. Ukratko, od fabrike bi se zahtevala realizacija savremene jurišne puške modularnog tipa (mogućnost promene dužine cevi, ali ne nužno i kalibra), sa pouzdanim radom i sa dobrom ergonomijom.

Princip funkcionisanja puške bi se zasnivao na principu pozajmice barutnih gasova sa klipom kratkog hoda sa rotirajućim zatvaračem. Jurišna puška bi morala da poseduje teleskopski preklopiv kundak izrađen od kvalitetnog polimera sa najmanje četiri položaja za regulisanje dužine i sa podešavanjem obrazine u dva položaja. Kundak bi se preklapao u desnu stranu i u tom položaju bi morao da obezbedi nesmetanu upotrebu oružja. Na sebi bi posedovao amortizer trzaja ergonomskog oblika sa velikom nalegajućom površinom. Sanduk bi se sastojao od dve celine, gornje izrađene od aluminijuma i donje izrađene od polimera. Donji deo sanduka bi činili pištoljski rukohvat, mehanizam okidanja i usadnik za okvir. Okvir bi bio poluprovidan i izrađen od polimera. Selektor paljbe mora biti obostrani kako bi njime lakše rukovao i levoruki strelac. Pokretanjem poluge na selektoru strelac bi se opredelio za zakočen režim, režim za jedinačnu paljbu ili režim za automatsku paljbu. Dugme za promenu okvira takođe mora biti prilagođeno ne samo za desnoruke već i za levoruke strelce. Ručica za zapinjanje zatvarača biće smeštena sa desne strane puške. Po potrebi se može demontirati i premestiti na levu stranu. Otvor za izbacivanje čaura sa deflektorom biće smešten sa desne strane puške. Na gornjem sanduku će se nalaziti *Picatinny* šina, kao i preklopni prednji i zadnji nišan. Zadnji nišan će biti podesiv sa četiri položaja za gađanje. Šina će biti postavljena i ispod cevi, kao i na bočnim stranama prednjeg rukohvata. Spoj dva dela sanduka biće omogućen bravljem bez upotrebe čivija. Cev će biti izrađena od kvalitetnog čelika i hladno kovana. Unutrašnjost cevi mora biti hromirana. Obloga cevi mora da ima proreze radi lakše ventilacije. Masa oružja ne bi smela da bude veća od 3,6 kg.

Najvažnija stavka prilikom konstrukcije oružja je taktičko-tehnički zahtev da puška bude konstruisana i izbalansirana za metak u potpuno novom kalibru, znatno drugačijem u odnosu na rešenja koja su trenutno zastupljena u naoružanju Vojske Srbije. Ova činjenica bi predstavljala dodatni izazov za domaću odbrambenu industriju, ali budući da ona u svom sastavu ima i renomiranog proizvođača municije poput fabrike „Prvi partizan“ posao bi bio donekle olakšan. Promena kalibra je uslovljena činjenicom da se niti jedan od postojećih

kalibara municije, koji koriste pripadnici Vojske Srbije, ne može smatrati dovoljno dobrim. Loše strane metka 5,56 x 45 mm, namenjenog jurišnoj pušci *Zastava M21*, ogledaju se u ograničenom dometu na 500 m, putanja je podložna uticaju vetra, zrno ima malu probojnost, podložno je promeni trajektorije prilikom nailaska na prepreke, a postavlja se pitanje letalnosti i zaustavne moći zrna. [7] Loše strane metka 7,62 x 39 mm namenjenog jurišnoj pušci *Zastava M70* se ogledaju u velikoj težini metka, zrno po napuštanju cevi oružja brzo gubi na energiji i brzini što nepovoljno utiče na njegovu trajektoriju (zrno nema ravnu trajektoriju) i prilikom opaljenja, metak proizvodi veliki trzaj oružja, pa je u režimu automatske vatre teško kontrolisati oružje. [8] [9] Puška *M21* ulazi u arsenal Vojske Srbije u malim količinama i za nju ne postoji velika zaliha municije 5,56 x 45 mm. Srbija je proklamovala svoju vojnu, neutralnost pa se postavlja opravdano pitanje čemu standardizacija streljačkog naoružanja sa jednim vojnim savezom čija nismo članica? Za vreme SFRJ, tokom osamdesetih godina, najmasovnije korišćeni metak u inventaru JNA je bio 7,62 x 39 mm. Tada, kao i danas, NATO pakt je koristio metak 5,56 x 45 mm, dok je tadašnji Sovjetski savez koristio metak 5,45 x 39 mm. Članice Varšavskog ugovora su većinom koristile metak 7,62 x 39 mm, baš kao i bivša SFRJ. Iznenađujuća je činjenica da su SAD analizirajući dejstvo svojih pešadinaca, koji su bili uključeni u borbe u Avganistanu, došle do zaključka da su njihove trupe u pojedinim situacijama bile u inferiornom položaju u odnosu na neprijatelja koji je koristio zastarele *AK-47* u kalibru 7,62 mm. [10]

Tabela 1. Problem dometa: Upotreba pešadijskog naoružanja se dešava na većim rastojanjima od onih očekivanih [11]

Domet (m)	100	200	300	400	500	600	700	800	900	1000
Pretpostavljeno	75%		90%	100%						
Avganistan	25%	50%		75%	100%					

Trenutno postoji velika praznina u mogućnosti uspešnog dejstvovanja po ciljevima na rastojanjima većim od 500, a manjim od 1000 metara sa postojećom pešadijskom municijom (Tabela 1). Standardni NATO metak 5,56 x 45 mm kao i stari sovjetski metak 7,62 x 39 mm nemaju odgovarajuću trajektoriju na pomenutim rastojanjima, ali zahvaljujući većem kalibru zrna, metak 7,62 x 39 mm poseduje dovoljnu kinetičku energiju da prouzrokuje veća razaranja u odnosu na već pomenuti NATO *SS109/M855* metak.

U međuvremenu učinjeni su izvesni koraci na poboljšanju performansi standardnog NATO metka 5,56 x 45 mm. Novi poboljšani metak u pomenutom kalibru nosi oznaku *M855A1* i zadržao je istu masu zrna, ali ono sada ima bakarno jezgo i duže je za oko 1/8 inča (oko 3,2 mm). Novo zrno ne sadrži olovo. Redizajniran je i penetrator od čelika koji je sada strelastog oblika. Ovim izmenama povećan je domet zrna, kao i probojnost na većim rastojanjima. Učinjena su poboljšanja u pogledu barutnog punjenja koje sada sadrži aditive koji umanjuju bljesak pri korišćenju kratkih cevi. [12] Jedan od koraka u pravcu poboljšanja efikasnosti jurišnih pušaka i karabina je konstruisanje oružja baziranog na novom metku 6,8 x 43 mm *Remington SPC*. Prilikom konstruisanja težilo se da on po svojim gabaritima bude što sličniji standardnom metku 5,45 x 45 mm kako bi se zadržala mogućnost upotrebe na prilagođenim puškama *AR-15*. Međutim, to je uzrokovalo da zrno bude kratko i relativno

lako. Došlo se do zaključka da trzaj pri opaljenju nije drastično veći u odnosu na metak u 5,56 x 45 mm, ali da postoji značajna razlika u trzaju u odnosu na metak 7,62 x 51 mm *M80*. Na većim daljinama su vidljiva poboljšanja u odnosu na metak 5,56 x 45 mm, ali i nedostaci u odnosu na 7,62 x 51 mm. [13] To nas navodi na zaključak da metak 6,8 mm *SPC* može da bude uspešna alternativa za 5,56 x 45 mm, ali da ne može u potpunosti da zameni 7,62 x 51 mm *M80*. Treba napomenuti da su pojedine zemlje poput Jordana i Saudijske Arabije nabavile u većoj količini karabine koji koriste municiju tipa 6,8 x 43 mm *Remington SPC*, što će doprineti podrobnijem analiziranju potrencijala pomenutog metka, kao i sistema zasnovanih na njemu.

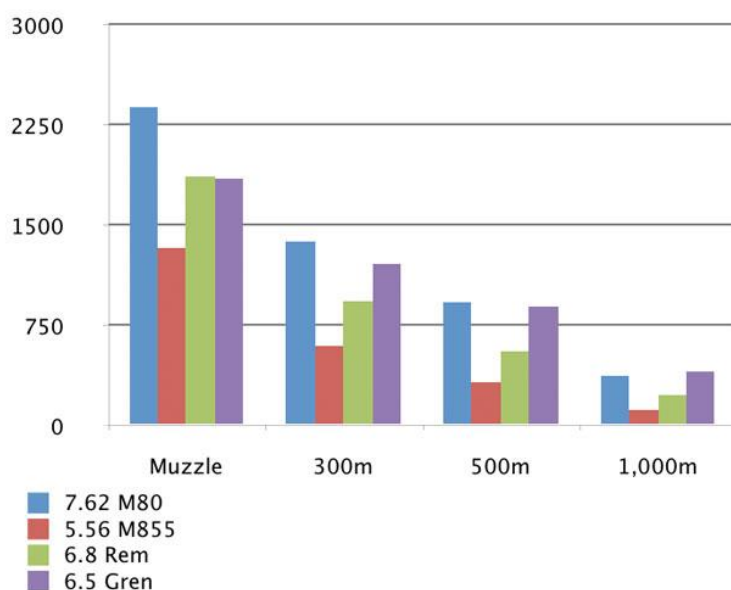
Analizirajući uporedne balističke performanse municije koja predstavlja polazište za konstrukciju novih jurišnih pušaka (Slika 1.) dolazimo do zaključka da bi fabrika „Zastava oružje“ morala da se fokusira na metak 6,5 mm *Grendel* i da napraviti pušku za njega (tačnije „oko njega“).

BALLISTICS COMPARISON				
	5.56x45mm 75-Gr. OTM 20-in. Barrel	6.5 Grendel 123-Gr. Scenar 16-in. Barrel	6.8x43mm SPC 110-Gr. TSX 16-in. Barrel	7.62x39mm 123-Gr. FMJ 16-in. Barrel
Muzzle				
Velocity (fps)	2750	2523	2650	2330
Energy (ft-lbs)	1259	1738	1715	1482
100 Yards				
Velocity (fps)	2523	2366	2376	2042
Energy (ft-lbs)	1060	1528	1378	1139
Drop (in.)	0	0	0	0
Drift (in.)	0.8	0.6	1.1	1.5
200 Yards				
Velocity (fps)	2307	2215	2118	1776
Energy (ft-lbs)	886	1339	1096	862
Drop (in.)	3.9	4.7	4.7	6.8
Drift (in.)	3.5	2.8	4.7	6.6
300 Yards				
Velocity (fps)	2102	2069	1878	1537
Energy (ft-lbs)	736	1169	861	645
Drop (in.)	14	16	17	24
Drift (in.)	8.2	6.5	11.3	15.9
400 Yards				
Velocity (fps)	1908	1929	1656	1332
Energy (ft-lbs)	606	1016	670	484
Drop (in.)	32	36	39	57
Drift (in.)	15	12	21	30
500 Yards				
Velocity (fps)	1726	1795	1457	1169
Energy (ft-lbs)	496	880	519	373
Drop (in.)	60	65	74	110
Drift (in.)	25.3	19.5	35.4	49.9
600 Yards				
Velocity (fps)	1558	1668	1287	1056
Energy (ft-lbs)	404	760	404	304
Drop (in.)	100	105	126	187
Drift (in.)	38.3	29	54	74.9

Slika 1. Balističko poređenje 5,56 x 45 mm, 6,5 *Grendel*, 6,8 x 43 mm *SPC* i 7,62 x 39 mm po pitanju brzine, energije, trajektorije u zavisnosti od daljine na koju se metak ispaljuje. [14]

Metak 5,56 x 45 mm predstavlja neadekvatno i zastarelo rešenje i postoji velika verovatnoća da će u narednih 10 - 20 godina oružane snage brojnih država preći na potpuno novi kalibar. Izborom da puška bude modularna (u pogledu izbora dužine cevi) bi se u potpunosti iskoristili svi potencijali metka 6,5 mm *Grendel*, koji ima predispozicije da

postane izuzetno kvalitetna alternativa današnjim rešenjima. U poređenju sa 6,8 mm *SPC*, metak 6,5 mm *Grendel* bolje zadržava brzinu što rezultuje boljim performansama na daljinama većim od 400 metara. Poređenjem, došlo se do zaključka da je metak 6,8 mm *SPC* neznatno ubojitiji na rastojanjima do 400 metara, dok je 6,5 mm *Grendel* daleko ubojitiji na rastojanjima većim od 400 metara. Treba istaći činjenicu da metak 6,5mm *Grendel* ima veću probojnu moć. [15] Ukoliko pogledamo Sliku 2, vidimo da je pri napuštanju cevi energija zrna 6,8 mm *SPC* nešto veća u odnosu na 6,5 mm *Grendel*, ali, sa povećanjem daljine na koje se zrno ispaljuje, prednost metka 6,5 mm *Grendel* je sve izraženija. Ilustrativno je i to da je na većim rastojanjima energija zrna 6,5 mm *Grendel* približna energiji zrna 7,62 mm NATO *M80*.



Slika 2. Energija zrna (izražena u foot pounds) u zavisnosti od daljine mete. [16]

Sve pomenuto nas dovodi do zaključka da bi eventualno usvajanje pomenutog metka moglo da se pozitivno odrazi na unifikaciju kalibra koji je zastupljen u oružanim snagama neke države. Navešćemo primer da danas članice NATO alijanse u svom inventaru pored metka 5,56 x 45 mm *SS109/M855* poseduju i metak 7,62 x 51 mm *M80*. Metak *M80* se koristi kao snajperski metak ili metak namenjen za lake mitraljeze. Budući da metak 6,5 mm *Grendel* ima dobru energiju zrna i trajektoriju i na većim rastojanjima postoji realna mogućnost za njegovu univerzalnu primenu.

Često se u stručnoj javnosti vode polemike o tome da li je bolje rešenje pri konstrukciji jurišne puške klip sa kratkim ili sa dugim hodom. Klip sa kratkim hodom ima više pokretnih delova, lakši je za izradu i za održavanje i uzrokuje manji trzaj oružja pri opaljenju metka, ali veći broj pokretnih delova povećava mogućnost da dođe do zastoja oružja. [17] *Zastava M21*, po uzoru na svog prethodnika jurišnu pušku *Zastava M70* (7,62 x 39 mm), ima gasni klip dugog hoda, koji uzrokuje veliki trzaj oružja. Metak 6,5 mm *Grendel* po opaljenju uzrokuje veći trzaj oružja u odnosu na metak 5,56 x 45 mm za koji je konstruisana puška *M21*, pa bi bilo logično učiniti dodatni napor da se pri rafalnoj paljbi umanjí uticaj trzaja puške na preciznost. Stoga, kao logično rešenje nameće se upotreba klipa sa kratkim hodom za novu jurišnu pušku budući da se na taj način u režimu automatske paljbe postiže bolja kontrola

oružja. Treba svakako istaći činjenicu da jedna od najboljih jurišnih pušaka danas, *HK416*, ima klip kratkog hoda.

Moramo da napomenemo da metak 6,5 mm *Grendel* nije savršeno rešenje, ali smatramo ga daleko boljim od svoje konkurencije. Njegove loše strane se ogledaju u konstrukciji čaure (tačnije njenim dimenzijama), kao i u činjenici da metak nije toliko dugo testiran kao drugi kalibri koji pretenduju da postanu alternativa sadašnjim rešenjima. Tu pre svega mislimo na terminalnu balistiku. Kada su u pitanju vojni pištolji, neophodna je veća primena polimera čime se dobija oružje manje mase i bolje ergonomije. Upotreba polimera nije od presudne važnosti kada je u pitanju pištolj namenjen oružanim snagama jedne zemlje, već njegova pouzdanost, kvalitet i performanse. Stiče se utisak da mnoge armije u svetu zaziru od upotrebe polimera kada je u pitanju izrada pištolja namenjenog oružanim snagama. Ukoliko se radi o pištolju namenjenom za pripadnike policijskih snaga ili raznih agencija, stvari su nešto drugačije. Svaki korak učinjen u pravcu smanjenja kako mase tako i gabarita oružja uz zadržavanje što većeg kapaciteta okvira je više nego poželjan. Fabrika „Zastava oružje“ je nedavno ponudila tržištu snajpersku pušku *M07* (7,62 x 51 mm). Logičan iskorak bi bio da se tržištu ponudi i poluautomatska snajperska puška u istom kalibru, ili model koji bi koristio isti tip municije kao i buduća jurišna puška.

5. ZAKLJUČAK

Proizvodnja nove jurišne puške, koji ne predstavlja povratak na stara i već videna rešenja, kako u pogledu kalibra metka, tako i u pogledu konstrukcije oružja i njegove ergonomije, predstavlja imperativ za fabriku „Zastava oružje“. Danas se u svetu menja karakter sukoba i način njihovog vođenja. Nužno se menja i filozofija upotrebe pešadijskog naoružanja, koja predstavlja bitan segment proizvodnje fabrike „Zastava oružje“. Jurišna puška, koja se uspešno koristi u urbanoj sredini na malim rastojanjima u jednom trenutku, već u sledećem mora da pokaže istu efikasnost i kvalitet dejstvujući po ciljevima na otvorenom prostoru i na većim daljinama. Napretkom tehnologije i masovnom upotrebom bespilotnih letelica, više ne postoje izolovani i nedostupni delovi bojišta. Veliki napredak je ostvaren i u proizvodnji nove generacije optoelektronskih uređaja koji u potpunosti mogu da iskoriste sve potencijale savremenog pešadijskog naoružanja. Sa pravom možemo da tvrdimo da će se buduća upotreba jurišnih pušaka svesti na maksimum „First look - First shoot - First kill“ (Ugledaj prvi - pucaj prvi - pogodi prvi) po ugledu na slogan kompanije „Lockheed Martin“ za avion *F-22 Raptor* koja se smatra vrhunskim proizvodom iz oblasti odbrambene industrije. [18] Plasmanom samo jednog ili u najboljem slučaju dva uspešna inovativna proizvoda iz vojnog segmenta poslovanja fabrike „Zastava oružje“ stvaraju se preduslovi za konsolidaciju fabrike i pretpostavke za njen dalji uspešan razvoj. Potrebno je uložiti dodatni napor na striktnoj primeni kontrole kvaliteta kada je proizvodnja u pitanju jer svako zanemarivanje procedura može da ima kobne posledice po opstanak fabrike u uslovima kada i zemlje, koje do juče nisu imale tradiciju u proizvodnji streljačkog naoružanja, danas na svetsko tržište plasiraju izuzetno uspešna i kvalitetna rešenja. Postoji još jedan veoma važan aspekt uspešne realizacije projekta jurišne puške. To više nije samo pitanje profita i pokazatelj tehnološke razvijenosti jedne kompanije, već sa pravom možemo da tvrdimo da se radi o nacionalnom prestižu jedne države.

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DEVELOPMENT OF THE LEGAL FRAMEWORK OF COMPETITION POLICY IN THE EUROPEAN UNION

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Abstract: The European Union is the creator of the single market in all the Member States with the free flow of people, goods, services and capital. This international political entity implementing the common commercial policy, agricultural policy and policy on fisheries and regional development. Competition policy is the foundation of the market economy that is based on the philosophy of "level playing field". Transparency and policy prohibiting actions that lead to a distortion of competition, leading to a market economy, which is the foundation of a unified internal market. The legal policy framework of mutual competition by competing criteria of price, quality and other characteristics of products and services, had more development phase, which will be discussed in this paper. Today, the most important trends that occur in the development of competition policy includes modernization, Europeanization, decentralization and liberalization, with appropriate legal, economic and political framework for the functioning of the competent authorities.

Keywords: history, development, the European Union market, competition law, competition policy

1. INTRODUCTORY CONSIDERATIONS ABOUT THE CONCEPT OF COMPETITION AND COMPETITION LAW

Competition rules apply equally to all participants of competition. Their goal is to enable a better functioning of markets, as well as greater range of goods and services at the best price. Legal framework for EU policies against encompasses organizing the cartel, and procedures for combating conduct which violates the principles of competition (illegal agreements between undertakings and abuse of dominant position) as well as the examination of the connection of business entities. The *acquis* includes control of state aid, such as subsidies, state guarantees, tax exemptions. Although EU rules banning state aid grant which would undermine competition in the internal market, the country continues to have the ability to intervene in certain cases, especially when it contributes to the common interests of the EU.

Competition rules are directly applicable throughout the Union and Member States must fully cooperate with the Commission in their implementation. The rules protect consumers, prohibiting undertakings to conclude agreements that would be agreed upon price, production volume, discounts, or mutually shared market prevents the abuse of market position by which larger and stronger economic operators seek to displace competitors from the market. It also prevents the merging of business entities that could have a negative impact on market competition. Prohibited the provision of state aid would unduly certain undertakings were in a more favorable position in the market than those who do not receive assistance. State aid is permitted for the promotion of research and development, small and

medium enterprises, environmental protection, training, employment and culture, in the event of natural disasters, or in the case of assistance to developing areas.

Competition is defined as a struggle for superiority which would mean in the commercial world striving for the realization of a greater profit and taking a better position in the market compared to direct rivals. Imperfect competition, which is precisely regulates competition policy through the legislative form, embodied in monopolies and cartels, implies a restriction in the distribution of products and services at higher prices and under worse market conditions. Regulation of competition is drawing positive characteristics of competition which are embodied primarily in stimulating economic agents to the more entrepreneurial initiative and innovation in addition to creating a wide range of products and services lead to a reduction in unit costs due to economies of scale. Perfect competition can be harmful, because without the initiative for improving the offer, which comes just rivalry economic entities creates uniformity which causes dissatisfaction consumers themselves and therefore lower profits.[1] In order to achieve the positive effects of competition, competition policy is used to its methodological and institutionalized framework paves the way equitable distribution of social wealth. It is necessary for the simple reason that the market can only be counteracted by the behavior of business entities that use the competition for the realization of extra profit. Its institutionalization involves the intervention of the regulatory authority of the country or economic integration which is a member, for which there are a number of reasons. Competition policy acts preventively, because it prevents anti-competitive behavior of market actors, which in order to constantly make extra profit market category in the foreseeable future. As for the competition policy's formation and implementation is often associated with several key elements of each market, as well as the single market of the European Union, such as consumer welfare, consumer protection, redistribution of wealth, the protection of small and medium-sized enterprises, regional, social and industrial aspects, market integration.[2] Such action of competition policy contributes to the development of the single market of the European Union.

2. INSTITUTIONAL DEVELOPMENT OF THE ECONOMIC SPHERE IN POST-WAR EUROPE

Institutional development of the economic sphere post-war Europe was different from any previous attempts at institutionalization of economics at the regional level. Even during the Second World War, the leaders of Western European countries special attention directed to the regulation of certain economic systems both within and beyond the borders of their countries, which will lead to the writing of a new history of the European institutions.

Together with the knowledge that the successful functioning of the European institutions and the overall vision of European policy is crucial Franco-German reconciliation, the creators of all kinds of economic policies, including competition policy, set out on harmonizing market of these two countries as well as representative samples of large and powerful economies. This process did not go far from easy, despite the strong efforts made in the early forties of the twentieth century, most European leaders at meetings in the framework of the forerunners of the European Council. This went on until he came to a constructive proposal from the French foreign minister Robert Schuman on the creation of the community for coal and steel since the beginning history of the European Union. It was the signing of an agreement for the creation of the European Coal and Steel Community made a step towards

the regulation of competition as the economic sphere to which was then in post-war Europe had a significant impact and American capital, which was then placed in a number of businesses.

Following the example of Sherman Antitrust Act of 1890, the European Coal and Steel Community was presented to Jean Monnet's memorandum. Members 65 and 66 of this memorandum contained provisions that were related to the regulation of competition in the form of preventing restrictive agreements and concentrations in coal and steel industry. Although these provisions are used to the signing of the agreement on the creation of the European Economic Community in 1957, it is clear that they were not appropriate for use on other types of markets but had to come to the adoption of new regulations such as Articles 81 and 82 of which are its provisions watered down, that is, expand the operation of the law of competition policy and other segments of the single market, which was then in its infancy.

3. THE MOST IMPORTANT OBJECTIVES OF COMPETITION POLICY IN THE EUROPEAN UNION

With the adoption of the first act of competition law proclaimed as the most important objectives of the oven European Union policy: protection of consumer interests, reduction of cost and increase the quality of products and services, an open market economy with free competition, the distribution of economic power on a broader range of companies, redistribution of economic resources and wealth, establishing optimal efficiency at the microeconomic and macroeconomic, level and development of the European economy, increasing social welfare, protection of business entities from the illicit activities of competitors, balanced regional development in the monitored markets exercise highest possible employment rate in the society, strengthening of internal and external competitiveness of the European economy.[3] The provisions of the above members, modified and adapted to market conditions, are still in the modern competition law of the European Union relating to the limitation of restrictive agreements which create monopolies or cartels (both in the private and public sector), and the behavior of business subjects which were approved by the state authorities.

These components make up the central pillars of early competition policy of the European Union and their operations continued until the end of the nineties. Tight competition policy of the European Economic Community was determined by members of the articles which prohibits agreements or other forms of association unusual practices that destabilize interstate commerce throughout the community. Policy related to the monopoly enshrined in Article 86 (82). The provisions of this Article shall prohibit the conduct of companies that grew into a monopoly, which is thereby abusing its dominant position in the market. The focus of the Commission was solely on the behavior of firms in a given moment and structure that is equally important when it comes to monopolies. Article 90 (86) deals with the special cases of monopoly that occur in the public sector and that of its business with the approval of top government and enjoy the trust and thus acquire the same special law. This member is placed under the control of the controversy that state-owned enterprises or state-sponsored enterprises may be monopolies.

State aid policy and government intervention is determined by the members of the articles, too. This particular part of competition policy includes a ban on subsidies or any form of assistance from the state to certain companies which significantly distorts competition

both in the internal market and on the interstate. Here there are also exceptions only if the company has demonstrated in practice the viability of the territory Economic Community. These elements are not in this period of development of competition policy met with approval by the Member States of the Economic Community. Also, the lack of domestic practices and experiences significantly influenced the forcing of competition policy as a newspaper without coming up for approval.

When the entire procedure of introducing this legislation finally completed in 1962, it was quite clear that the whole procedure over its implementation, control and improvement will be entrusted to a special commission. The Commission together with the Council of Ministers adopted an agreement based on German law competition called "Regulation 17" which represented the beginning of the harmonization of competition policy at the level of the Economic Community. This was also a double-edged sword, given that not all member states were prepared to the same application, but it could lead to delays in implementation. "Regulation 17" is the cornerstone of modern competition policy and the fight against monopolies and restrictive agreements on the territory of the European Union later. The importance of this regulation came to the fore later in the early nineties. It has not created a set of rules that can be applied in all cases just in practice but it certainly succeeded in formulating detailed rights, obligations and responsibilities that must be borne by the participants operating in the European market.

4. PRACTICAL IMPLEMENTATION OF COMPETITION POLICY IN THE EUROPEAN UNION

"Regulation 17" provided the Commission positioning in two directions. The first concerns the granting authority and be able to research the Commission for the application of Articles 81 and 82 of the Treaty establishing, the other provides the Commission's central role and the unique power in implementing Article 81, in particular the area of the exceptions in the formation of cartels. This legislation has 25 members with which the Commission is conducting an investigation effectively cooperating with the Member States. These members emphasize the importance of the Regulation for the further development of competition policy and in them reflected the complexity and detail management of competition policy. The Commission is entitled to on the basis of application or own initiative take action against companies, their associations or companies if the concentration of an offense under Articles 81 and 82 of the Treaty.

The application or request for initiation of proceedings may request that the Member States and natural or legal persons who have a legitimate interest in the EU market. Before you bring any decision on a particular case, the Commission has an obligation to obtain all relevant information about potentially committed offense. Article 4 entitled "Notifications of new agreements, decisions and practices" talks about the recording of any agreement that may be associated with Article 81. The Commission has to look at their actions and possible violations of competition on the EU market. This article stands out for being exempt from the rules of competition agreements one of two or more companies at different levels of reproduction and distribution aimed exclusively mutual cooperation of the two companies in accordance with the subject of such contracts. Also, here are exempt companies that use their patents and intellectual property rights for innovations in the market along with their representatives, contribute to the development of standardization, specialization of production

and quality of products and services. The condition is that the company's products do not take up more than 15% of the entire single market of the European Union, that consumers are not under any kind of coercion in the sale, and that their total annual income does not exceed 200 million units of the current currency.[4]

Duration and revocation of decisions under Article 81 (85) is the eighth member of this regulation, which speaks about the decisions of the Commission and their withdrawal, change or adoption of new ones in the form of a ban if there is a change of facts that affect the structure of decision, contracting parties violate an obligation that is imposed by a Commission decision, the decision was made on the basis of false information or if the result is wrong convictions, and the contracting parties abuse exclusions which brings them Article 81 (85). The next member of the sequence entitled "Request for information" refers to the right of the Commission to the state enterprises and other relevant authority all the information necessary to assess the case and making the right decision. Competent authorities have the consent of the Commission to ask the company or any other company, which is a potential problem in terms of competition, seek review of books and reports, copy of the same for the purpose of further processing and analysis, a detailed explanation on the site of the committed offense, enter the business premises, a tour of the land and assets of companies if the time can prove a potential involvement in a disturbance, preventing and limiting competition. Official authorities the Commission shall draw up a report based on the current situation and make a decision on a possible punishment of a business entity which shall inform the competent authorities of the Member State in whose territory the given entity operates.

Adoption of this Regulation led to the formation of so-called Block Exemption Regulation. This policy is in fact constitute agreements which do not affect competition and who were allowed by the legislative body. It was approved by the Council of Ministers of a body that had been conducted by the Commission. Privacy exemption was aimed to encourage companies to their merger created a positive atmosphere in the market where competition would in fact constitute an instrument for the improvement of products and services. The greatest impact this policy has had on the automotive industry where increased competition, particularly in the retail field.

The European Court of Justice eventually becomes a major destination for all unsolvable cases in national courts and the best instrument for the implementation and testing of the newly-established competition rules.[5] Further development of this institution and the competition policy itself issued a Memorandum on the problems of the concentration on the common market in 1966. The promotion of the common external trade policy towards third countries and the definition of common tariffs and quotas as well as the elimination of internal barriers to trade there has been great progress in terms of harmonization of production and sales of products in terms of technical, qualitative, fiscal and administrative standards. After 1972 there was a less severe marginalization of competition policy which is conditioned by favoring industrial policy and state intervention due to a huge influx of foreign investment from the United States, which leads to a power struggle between European and US companies, which will cause the so-called third stage of development of competition policy.

In the eighties of the twentieth century there was an eventual integration in the form of a common market which caused the outbreak of the reform of competition policy to the forefront. Then it was on improving control of its implementation, transparency and the effective and efficient decision-making by competent institutions. Strong political will by

developed countries was initiated by the higher powers of the Commission in the implementation of programs to provide equal opportunities for all in the single market. One of the most important events in a kind of promotion of competition policy was the adoption of the White Paper in 1985, whose role was to prevent protectionism at national level that could harm single market. Period of development of competition policy to 1989 was marked by legal legislation that has evolved in the direction of trade protection and competition in general, through the control of mergers. Thus, in that year, after more than fifteen years of negotiations signed and adopted the Merger Regulation, which is aimed at restricting and preventing cross-border mergers that have arisen as a result of intense lobbying by multinational companies. With this regulation, the Commission has been given significant powers, which are reflected in the "veto the merger between the companies to achieve a common global turnover of five billion euros and trading at the EU level of 250 million euros." [6] Also, one of the novelties is the possibility for the Commission in the form of fines and the prohibition of action to prevent distortion of competition.

After 1990 there is the emergence of new trends in competition policy which is not based only on the strict application of technical and legal norms, but the entire regulation is based on the rule of reason, which wants to say that we should carefully assess the role of each entity and to pay attention to long-term aspect. The most important trends that occur in the further development of competition policy includes modernization, Europeanization, and the decentralization of liberalization. Trends in the evolution of competition policy aimed at expressing symbiotic functioning of antitrust rules that affect the regulation and structure of the Common Market of the European Union.

The effective implementation of competition law therefore is the combined operation of the European Commission and national authorities to protect competition that make up the European network of competition authorities. [7] Regardless of this networking, the European Commission retained the right to right to control the work of the national authority which transferred responsibility for the protection of competition.

Competition policy after the creation of the European network of competition authorities continues on its path to development in 2006, when the program brings competition policy called „Leniency“ where companies have the possibility of cooperating in the investigations of the illegal cartel agreements. If collaborate later have some kind of privileged position when posting and punish companies that participated in the cartel. The year 2008 was another year which brought some innovations in the competition policy of the European Union. The fight against cartels is celebrated here historical stage of development of competition policy. Were conducted and specific mechanisms for simplified decision-making with regard to cartels. Thus, the function of simplifying the entire procedure, about cartels adopted settlement systems where the company reduced the penalty to 10% if admitted participation in some cartel. The Commission has this year also been active in the field of state subsidies continuation of implementation of the State Aid Action Plan as well as in the field of mergers by adopting the remedy which recently legalized the practice of the courts." (in Serbian) [8] As policies regarding state aid this year, the Commission has announced three communication protocols on the role of state aid in the implementation of competition policy. [9]

5. CONCLUSION

Several elements of competition policy are very important and its various forms corresponding to the reason for which is used to apply. Thus, the most frequently encountered several dimensions of competition policy, such as policy cartels, monopolies and mergers. So, for example, may associate in the application of restrictive practices by forming cartels. These agreements, which may be tacit and informal, can result in setting the price above the real, market price (price fixing), or mutual sharing of markets between the parties to the cartel where each company in its market segment appears as a kind of monopoly.

Agreements may include direct competitors in the market (horizontal agreements) or firms that operate at different levels of the production / distribution process (vertical agreements). The existence of a monopoly (one firm dominates the market) on the other hand, or oligopoly (a small number of large companies that dominate the market), can also have adverse effects on competition. This is usually reflected in the possible misuse of position in the market through which the lower price and the other competitors are removed (so-called predatory pricing), or behavior that leads consumers to the fact that regardless of the amount prices have no other alternative but to pay for the desired product or service. Mergers and joint ventures are still less harmful to competition as it can co-operate with the authorities in assessing the labor market and industrial sectors in which it is best to make this concentration as a function of satisfying demand and maintaining markets.

These three dimensions of competition policy are its pillars, regardless of in which political and social conditions it applies because the main focus of competition policy the elimination of agreements which significantly prevent, restrict and impede the efficient functioning of the "natural" competition. Preventing maneuvers of large firms that their market operation confuse other actors, competition policy eliminates abuse of dominant position and abuse sized to achieve business goals at the expense of others. Policy makers have the difficult task of competition which consists in discovering and putting under the legal framework of all possible forms of malfeasance used by business entities in order to get a larger share of the market pie. The whole process involves a kind of neutrality and resistance policy makers competition in the political and corruption pressures.

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SIGNIFICANCE OF THE STRUCTURAL CAPITAL IDENTIFICATION FOR THE SMALL AND MEDIUM COMPANIES IN TEXTILE INDUSTRY

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Abstract: The main purpose of the existence of each company is increase of the existing and creation of new values. Structural changes in managing principles of business processes, conditioned with computerization, globalization and humanization of managing processes, determining a leading role of intellectual resources in terms of new economy. The practice of open innovation can give a lever effect, focusing intellectual effort of companies on creation of new high technologies. Concept of intellectual resources has been developed very well and it has been applied in many organizations as of today for corporate strategy development. Consulting companies are offering their services in the field of increasing the effectiveness of the intellectual resources more than before. The subject of this article is to point out the importance of researching the value of structural capital in the textile industry, with the comparative analysis of the most recent professional and scientific literature from the area of intellectual capital and open innovations as well as current international scientific projects dealing with the problems of identification and measurement of intellectual capital. Objective of this article is composing a framework for the identification and exploration of the structural value of capital in the textile manufacturing company with a focus on process capital as part of the structural capital. The expected result is the creation and testing of the measuring instrument, its indicators and variables.

Keywords: Textile industry, Structural capita, Intellectual capital, Process Capital, Intangible Capital, instrument for measuring the value of the structural capital

Apstrakt: Osnovna svrha postojanja svakog preduzeća je uvećanje postojećih i stvaranje novih vrednosti. Strukturne promene u principima upravljajnja poslovnim procesima, uslovljene informatizacijom, globalizacijom i humanizacijom upravljačkih procesa, opredeljuju vodeću ulogu intelektualnog resursa u uslovima nove ekonomije. Praksa otvorenih inovacija može dati efekat poluge, fokusirajući intelektualni napor privrednih subjekata na stvaranje novih visokih tehnologija. Konceptija intelektualnog resursa do danas je razvijena prilično dobro i primenjuje se u mnogim organizacijama za razvoj korporativne strategije. Konsultantske kuće sve više nude svoje usluge u segmentu povećanja efektivnosti rada sa intelektualnim resursima. Predmet ovog rada je ukazivanje na značaj istraživanja vrednosti strukturnog kapitala u tekstilnoj industriji, sa komparativnom analizom savremene stručne i naučne literature iz oblasti intelektualnog kapitala i otvorenih inovacija, kao i aktuelnih međunarodnih naučnih projekata koji se bave problemima identifikovanja i merenja intelektualnog kapitala. Cilj rada je formiranje okvira za identifikaciju i istaživanje vrednosti strukturnog kapitala u tekstilnoj proizvodnoj kompaniji sa posebnim naglaskom na procesni

kapital kao deo strukturnog kapitala. Očekivani rezultat je formiranje i testiranje mernog instrumenta, njegovih indikatora i promenljivih varijabli.

Ključne reči: tekstilna industrija, strukturni kapital, intelektualni kapital, procesni kapital, neopipljivi kapital, instrument za merenje strukturnog kapitala

1. UVOD

Identifikacija i upravljanje intelektualnim kapitalom postali su strateški zadatak ne samo kompanija, nego i čitavih država. Sa državnim učešćem organizuju se centri intelektualnog kapitala. Najsvetliji primeri centara intelektualnog kapitala su: Centar Intelektualnog Kapitala u Šotlandiji (Шотландія), inicijativa japanskog Ministarstva trgovine i industrije, saradnja vojnog ministarstva SAD i Instituta upravljanja znanjem i sl. (Mouritzen, 2003.) Primera radi, Australijska direktiva je, analizirajući trendove u pristupu merenja upravljačkog računovodstva, identifikovalo četiri ključne oblasti od suštinskog značaja za uspeh kompanije u novoj ekonomiji: tržišni trendovi i poslovne strategije, buduće vrednosti i potrebe stejkholdera, kvalitet proizvoda, nivo usluga i performanse proizvodnih procesa, spoljašnji uticaj i društvena odgovornost (Australian Guiding Principles on Extended Performance Management).

Lako je zapaziti da je većina pokazatelja na neki način u vezi sa intelektualnim kapitalom organizacije. Pri tome je važno napomenuti da je ovo veoma složen odnos između uticaja unutrašnjih pokušaja organizacije i spoljašnjih uticaja u vezi sa ekologijom, etikom i drugim socijalnim i ekonomskim procesima grada, regiona, države.

Poslednjih godina stvara se međudržavna integracija po pitanju preobražaja intelektualnog kapitala u rezultate rada kompanija i stvaranje pozitivnih uticaja na okolinu.

Tako je sa ciljem učvršćivanja konkurentске prednosti i inovacionog potencijala evropskih organizacija pokrenut projekat Intellectual Capital Statement – Made in Europe (InCaS) (InCaS – Intellectual Capital Statement for Europe, 2008.) u partnerstvu sa 25 evropskih kompanija, 6 poslovnih asocijacija, naučno-istraživačkih instituta i nekoliko nezavisnih eksperata. Oni su sačinili uputstvo (direktivu) za merenje i strateško upravljanje intelektualnim kapitalom kompanije. Najvažniji cilj ovog uputstva ili direktive je podrška malim i srednjim preduzećima u Evropi, koja se aktivno bave naučnim istraživanjima.

Značaj intelektualnog kapitala potvrđen je i mnoštvom empirijskih istraživanja. Ante Pulić je 2000. godine objavio rezultate istraživanja rađenih u periodu 1992-1999. godine na slučajnom uzorku od 30 preduzeća u Hrvatskoj. Rezultati su pokazali da postoji uzročno-posledična veza između nivoa intelektualnog kapitala i tržišne vrednosti organizacije (Pulić, 2000). Bontis je sa još dvojicom autora radio istraživanje na uzorku 107 malezijskih kompanija. Osnovni rezultat ovog istraživanja je da postoji značajna pozitivna korelacija između intelektualnog kapitala i performansi preduzeća, bez obzira na industriju. Uticaj pojedinih komponenata intelektualnog kapitala na performanse preduzeća je različit u različitim industrijama (Bontis, Keow, Richardson, 2000). Na uzorku od preko pet hiljada francuskih preduzeća ispitivanih u periodu 1998-2000 Kremp i Meriz su došli do rezultata da se prilikom povećanja intenziteta upravljanja znanjem za 1% nivo inovativnosti u organizaciji podiže za 4%, a produktivnost rada za 3% (Kremp, Mairesse, 2002). Firer i Viliams su na

uzorku od 75 javnih preduzeća Južne Afrike sa visokim nivoom intelektualnog kapitala istraživanjem došli do rezultata da se na tržištima koja su u razvoju primećuje nizak uticaj intelektualnog kapitala na performanse preduzeća (Firer, Williams, 2003). Tajvanska istraživanja (4254 javna preduzeća, 1992-2002) su pokazala da nivo intelektualnog kapitala utiče na rentabilnost preduzeća, rashode i reklamu (Chen, Cheng, Hwang, 2005). Još jedno tajvansko istraživanje na 81 javnom preduzeću Tajvana pokazalo je da postoji veoma komplementaran uticaj intelektualnog kapitala na tržišnu vrednost kompanije. Ovaj uticaj je znatno veći kod visokotehnoloških kompanija (Tseng, Goo, 2005). Nelinearni uticaj intelektualnog kapitala na rentabilnost preduzeća pokazalo je istraživanje obavljeno 2003. godine na 297 tajvanskih kompanija (Huang, Liu, 2005). Od 1997. do 2001. urađeno je istraživanje na svim IT kompanijama sa Tajvana. Rezultati su pokazali da pojedine komponente Intelektualnog Kapitala (inovacioni kapital, procesni kapital i kapital odnosa sa klijentima) pokazuju jak linearni uticaj na performanse preduzeća, kao i da ljudski kapital utiče na performanse preduzeća isključivo posredno, preko drugih komponenata Intelektualnog Kapitala (Wnag, Chang, 2005). Da je nivo intelektualnog kapitala u direktnoj vezi sa rentabilnošću preduzeća i njegovom tržišnom vrednošću i bez uticaja na produktivnost, pokazalo je istraživanje rađeno na 80 javnih tajvanskih preduzeća 2003 (Shiu, 2006). Kada je u pitanju uticaj intelektualnog kapitala na tip inovacionih aktivnosti, možemo reći da je on vrlo jak i intenzivan i da što je on veći, inovacije su radikalnije. Ovo je pokazalo istraživanje sprovedeno na 93 američke kompanije (Subramaniam, Youndt, 2005). Ruski istraživači takođe su se bavili pitanjem uticaja Intelektualnog Kapitala na performanse preduzeća. Navodimo samo neka od mnogobrojnih empirijskih istraživanja: Popov i Vlasev su 2006. sprovedli istraživanje na 100 preduzeća Uralskog regiona i došli do zaključka da postoji direktan uticaj investicija u proizvodnju novih znanja na vrednost preduzeća (Popov, Vlasev, 2006); Da je tržišna vrednost kompanije direktno određena vrednošću materijalnih i nematerijalnih resursa ustanovilo je istraživanje sprovedeno na 43 ruske kompanije u periodu od 2001. do 2006. godine, s tim da je ustanovljeno da materijalni resursi imaju snažniji uticaj (Garanina, 2008); Istraživanje sprovedeno 2002-2006. na 19 velikih ruskih kompanija potvrdilo je da postoji direktna veza između dodate vrednosti stvorene na osnovu intelektualnog kapitala i prinosa na aktivu. Identifikovani su faktori intelektualnog kapitala koji utiču na dodatnu vrednost preduzeća (Bajburina, Golovko, 2008); Da postoji pozitivan odnos između intelektualnog kapitala i stope rasta prihoda kompanije u zavisnosti od industrije, pokazalo je istraživanje na 401 preduzeću Permskog okruga sprovedeno 2005-2007. (Molodčik, Bikova, 2011). Isti autori su 2012. objavili rezultate istraživanja sprovedenog tokom 5 godina na 332 trgovinske evropske kompanije koji pokazuju da činiooci intelektualnog kapitala mogu i povećati i smanjiti vrednost kompanije i kratkoročno i dugoročno. Pri tome i država i industrija i veličina kompanije igraju veliku ulogu (Molodčik, Shakina, Bikova, 2012). Među najnovijim merenjima su i meranja vršena na Novom Zelandu i Australiji (Low i dr. 2015. pp. 779-808).

2. DEFINISANJE I OSNOVNI ELEMENTI INTELEKTUALNOG KAPITALA

Pojam i koncept intelektualnog kapitala su i dalje nejasni i neprecizno definisani, bez obzira što postoji velika potreba i interesovanje. Problemi u definisanju intelektualnog kapitala nastaju zbog njegovih karakteristika. Intelektualni kapital je proizvod transformacije znanja. Intelektualni kapital može da podrazumeva i ulaz i izlaz procesa stvaranja nove vrednosti. Intelektualni kapital može da bude statičan, kao na primer patenti ili dinamičan kao

na primer, sposobnosti i veštine zaposlenih. Određenu smetnju u tim istraživanjima predstavlja nedostatak jedinstvene terminologije, odnosno definicije intelektualnog kapitala. Iz tog razloga se pojavljuju različiti termini kao što su: neopipljiva svojina, intelektualna svojina, neopipljivi resursi, kapital znanja, reputacija (goodwill) i sl. Većina radova opisuje komponente i strukturu intelektualnog kapitala ali ne pojašnjava šta ti termini tačno podrazumevaju. Mnoge organizacije razvijaju sopstvene definicije intelektualnog kapitala, s obzirom da postoji mnogo uopštenih definicija.

Skandia, Švedska osiguravajuća kompanija, recimo, intelektualni kapital definiše kao „posedovanje znanja, upotrebljivog iskustva, organizacione tehnologije, odnosa sa kupcima i profesionalnih veština, koje doprinose konkurentskoj prednosti kompanije na tržištu“. Intelektualni kapital se u literaturi označava skraćenicom IC. Obično se pod intelektualnim kapitalom podrazumeva intelektualna svojina, odnosno patenti, robne marke i praksa ljudskih resursa. Intelektualni kapital obuhvata: zaposlene, brendove, robne marke, kao i druga neopipljiva sredstva, intelektualni kapital također uključuje: prava na intelektualnu svojinu, što podrazumeva: patente, autorska prava ili robne marke, kao i druge izvore stvaranja vrednosti kompanije - lojalnost kupaca, organizacionu efektivnost (Stahle i dr. 2015, pp. 20-57). Sve navedene vrednosti imaju važnu ulogu procesu održivog poslovanja kompanije.

Intelektualni kapital se u organizaciji javlja u dva osnovna oblika, kao strukturni kapital i ljudski kapital. Strukturni kapital može da ima svoju eksternu i internu komponentu (Giuliani, 2015. pp. 2-19).

Ljudski kapital obuhvata veštine i sposobnosti zaposlenih koji rade u preduzeću, njihovo iskustvo, motivaciju, liderstvo itd. i veoma je bitna kategorija. Interni strukturni kapital obuhvata sve ono što kompaniji pomaže da na profitabilan i efektivan način doprinese iznalaženju adekvatnog odgovora na tržišne zahteve. To su baze podataka, sistemi, metodologija i patenti.

Eksterni strukturni kapital je sadržan u odnosima sa potrošačima i odnosi se na ugovore sa njima, lojalnost, satisfakciju, tržišni udeo itd. Nabrojani elementi intelektualnog kapitala nisu nezavisni, već su međusobno povezani i u stalnoj interakciji. Ljudski kapital predstavlja osnovu za izgradnju strukturnog kapitala, dok se iz njihove interakcije kreira kapital sadržan u odnosima sa potrošačima. Interakcijom sva tri oblika intelektualnog kapitala kreira se finansijski kapital preduzeća, kao vidljiva forma kapitala. Ljudski kapital je izvor informacija i ideja. On je ipak beskoristan ukoliko ne postoje sistemi i kanali koji bi ga učinili produktivnim. Strukturni kapital je taj, koji ljudski kapital pretvara u produktivnu vrednost.

3. MERENJE INTELEKTUALNOG KAPITALA

Bez obzira na značaj intelektualnog kapitala, njegovo merenje još uvek nije dovoljno razvijeno. Organizacija **Ernst & Young Center for Business Innovation** je sprovela istraživanje na uzorku od 431 preduzeća u SAD i Evropi i došla do zaključka da 43% preduzeća visoko rangira značaj merenja vrednosti i performanse zasnovane na znanju, dok je samo 4% zaista uspešno u tome. U okviru drugog istraživanja, koje je obuhvatilo vodeća preduzeća u SAD i Kanadi, utvrđeno je da menadžeri, u principu, shvataju značaj nefinansijskih merila, ali ih samo mali broj utvrđuje.

INDIKATORI ZA MERENJE INTELEKTUALNOG KAPITALA

Kod formulisanja odgovarajućih indikatora, bitno je definisati više indikatora za jedan uticajni faktor. Indikatori se koriste radi otkrivanja i definisanja vrednosti neopipljivih resursa organizacije. Njihova uloga je da nevidljivo učine vidljivim, ilustruju ga i izmere. Iz perspektive menadžmenta, indikatori služe da bi ukazali da li je celokupna organizacija na pravom putu, odnosno da li su odluke pojedinaca u skladu sa ciljevima i strategijama kompanije. To znači da se dobar indikator uvek može prilagoditi novim, neočekivanim zahtevima. Osnovni tehnički kriterijumi za indikatore su: **preciznost, objektivnost, pravovremenost, jednostavnost** (Roberts, 1999).

U pristupu firme **Buckman Laboratories** kao indikatori procenjuju se: broj zaposlenih koji poseduju univerzitetske diplome, postotak prodaje novih proizvoda (mladih od pet godina) u odnosu na ukupnu količinu prodatih proizvoda, procentualni deo kompanije koji je efektivno anagažovan u radu sa korisnicima, procenat prihoda, koji se investira u sistem transfera znanja. **Svetska banka**, u svojoj studiji procene znanja na nivou država, koristi indikatore kao što su: troškovi obrazovanja, u ukupnom iznosu i u relativnom odnosu na bruto nacionalni dohodak, sekundarno obrazovanje, pismenost (broj novinskih čitalaca), pismenost odraslih, prosečno vreme školovanja, itd. U **knjigovodstvu ljudskih resursa**, posmatrani indikatori mogu da budu: Troškovi angažovanja - vrednovanje ljudskih resursa zbrajanja svih troškova vezanih za angažovanje zaposlenog osoblja, nastalih pre nego što organizacija može od tog angažovanja da izvuče korist da izvuče korist. Troškovi koji se odnose na zamenu zaposlenog osoblja drugim osobljem iste vrednosti. Poređenje očekivanih budućih plata zaposlenih sa postojećim platama. **FIVA (Framework of Intangible Valuation Areas) model**, omogućuje organizaciji da otkrije određene pokazatelje poslovnih odlika, da ih na osnovu uticaja na njihovu neopipljivu vrednost poveže, te da ih zatim meri u cilju kontrole i procene njihovog uticaja na ostvarenje strateških zahteva upravljanja znanjem. FIVA obezbeđuje metodologiju za efiksno korišćenje poslovnih resursa i znanja, koji podržavaju želje i mogućnosti organizacije za postizanje određene tržišne prednosti

Da bismo uspešno izradili alat za merenja intelektualnog kapitala navešćemo neke od postojećih metoda za merenje intelektualnog kapitala: Monitor neopipljive imovine - Intangible Assets Monitor (IAM), Danske direktive - Danish Guidelines, Meritum direktive - Meritum Guidelines, Bilans znanja – najaktuelnija.

Zvanično prihvaćena metoda za merenje intelektualnog kapitala još uvek ne postoji.

U osnovi možemo imati dva sistema u koja svrstavamo merenje:

1. Kako bi pružale menadžmentu uvid u neopipljive resurse njihove kompanije, metode merenja koje koriste indikatore.
2. Metode procene pokušavaju da dodele vrednost u monetarnom izrazu neopipljivostima unutar kompanije.

Prilikom definisanja vrednosti neopipljivog kapitala naš alat koristi obe metode. Alatom za merenje vrednosti neopipljivog kapitala smo uključili sve bitne segmente kompanije kao što su:

1. **Ljudski kapital** koji se definiše kao znanje koje zaposleni nose sa sobom po završetku radnog dana. Ovaj kapital obuhvata znanje, veštine, iskustvo i sposobnost zaposlenih. Neka znanja su veoma jedinstvena, dok neka od njih mogu biti opšta.
2. **Strukturni kapital** koji se definiše kao skup znanja koje ostaje u kompaniji na kraju radnog dana. Ovaj kapital obuhvata organizacione rutine, procedure, sisteme, baze podataka, organizacionu kulturu, itd. Deo strukturnog kapitala može biti zakonsko vlasništvo kompanije. Taj deo intelektualnog kapitala je moguće zaštititi zakonom u vidu prava na intelektualnu svojinu. Definišući strukturni kapital, Stjuart mu dodeljuje veoma raznovrsne elemente koji pripadaju organizaciji, tj. sve one „koji ne odlaze kući na kraju radnog vremena“. Ovde spadaju tehnologije, strategija, nou hau, kultura organizacije, organizaciona struktura i pravila ponašanja i poslovanja. Ipak, Stjuart podvlači da „je strukturni kapital destilat intelekta i da zavisi od želje ljudi da svojevolumno dele iskustva i znanja“ (Stjuart, 2007). Strukturni kapital u sebe uključuje klijentski i organizacioni kapital. Klijentski kapital predstavlja vrednost stvorenu iz odnosa sa klijentima. Organizacioni kapital Edvinson deli na inovacioni kapital (patenti, licence, trgovačke marke, ideje i sl.) i procesni kapital, koji predstavlja infrastrukturu kompanije (informacione tehnologije, radni procesi itd.), tj. kapital koji je materijalizovan kroz efektivnost unutrašnjih poslovnih procesa kompanije. Većina istraživača smatra da je ljudski kapital najvažnija, fundamentalna komponenta neopipljive imovine i da ona utiče na strukturni i relacioni kapital. Na određeni način strukturni kapital utiče na relacioni. Ovo je veoma slično logici sistema indikatora koji se koriste za upravljanje korporativnim troškovima (Edvinson, 2005, Kaplan, Norton, 2003). Ništa nije manja i obrnuta zavisnost među intelektualnom imovinom. Delimično i Bontis i Keov i Ričardson u svojim radovima govore o uticaju potrošačkog, klijentskog kapitala na strukturni kapital (Bontis, Keow, Richardson, 2000). Potencijal zaposlenih lakše se realizuje kada kompanija ima razvijene poslovne procese i dobru reputaciju na tržištu. Strukturni kapital prema modelu Skandia navigatora čine kapital korisnika (kupaca) i organizacioni kapital. Organizacioni kapital, u formi inovacionog i procesnog kapitala, čine hardver, softver, baze podataka, patentni, brendovi, odnosno sve ono što organizaciji kao "instituciji" pripada. Pod strukturnim kapitalom u VAIC metodi podrazumeva se razlika između dodate vrednosti i troškova rada - $SCE = (dodata\ vrednost - troškovi\ rada) / dodata\ vrednost$. Pulić je u svojim istraživanjima utvrdio činjenicu obrnute srazmere ljudskog i strukturnog kapitala (Pulić, 2000).
3. **Relacioni kapital** koji obuhvata sve resurse koji imaju veze sa spoljašnjim odnosima kompanije, kao što su potrošači, dobavljači ili R&D partneri. Ovaj kapital obuhvata onaj deo ljudskog i strukturnog kapitala koji je usmeren na odnose kompanije sa stejkholderima (investitorima, akcionarima, potrošačima, dobavljačima), kao i percepcije stejkholdera o kompaniji.

Za potrebe merenja intelektualnog kapitala u tekstilnoj industriji u Srbiji, kreiran je alat imajući u vidu sve specifičnosti poslovanja ove industrijske grane u zemlji. Tekstilna industrija je jedna od perspektivnih grana srpske privrede. Nekada je bila zamajac srpske privrede sa preko 200.000 zaposlenih, a danas u ovoj grani privrede je zaposleno 40.000 radnika. Poslednjih nekoliko godina struktura tekstilnih preduzeća u Srbiji promenjena je usled procesa privatizacije i prilagođavanja nefleksibilnih i velikih organizacija novim zahtevima tržišta. Odevna industrija ili tekstilna konfekcija se javlja ne više u obliku velikih

kombinata konfekcije, već kao mala i srednja preduzeća: Ova preduzeća su u privatnom vlasništvu, što stvara dobre preuslove za uspešan tržišni nastup. Tako danas imamo niz novih, manjih tekstilnih MSP koje su ličnim naporima uspele da stvore svoje mesto na tržištu, vlastitu kolekciju i prihvaćen i prepoznatljiv brend (Urošević i Stamatović, 2011).

Savremeno tržišno poslovanje tekstilnih preduzeća u Srbiji, karakterišu nepovoljni aspekti koji se ogledaju u lošoj pozicioniranosti tekstilnih preduzeća na globalnoj tržišnoj sceni, smanjenoj konkurentnosti, nedostatku savremenih tehnologija, nedovoljnoj obučenosti zaposlenih, nepostojanju standarda. Radi se o radno intenzivnoj grani u kojima je radna snaga veoma značajan faktor konkurentnosti (Urošević i dr., 2012). Ovu privrednu granu opterećuje siva ekonomija, nelojalna konkurencija, visoke dažbine i nedostatak kvalifikovane mlade radne snage, a kao jedno od rešenja prevazilaženja problema sa kojom se susreće je i unapređenje intelektualnog kapitala. Mnoga savremena istraživanja zaključuju da intelektualni kapital ima značajnu ulogu u procesu stvaranja nove vrednosti. Ljudski resursi, kompetencije, inovativnost, mogu biti ključni činoci u strategiji revitalizacije tekstilne industrije kao značajnom segmentu svake privrede. Polazna osnova za unapređenje je definisanje ili merenje zatečenih vrednosti. Iz tog razloga istraživanje je fokusirano na izradu parametara pomoću kojih su dobijene početne vrednosti strukturnog kapitala u cilju izrade strategije za njegovo unapređenje.

Vrednost neopipljivog potencijala u tekstilnoj industriji određivana je merenjem:

1. Vrednosti **strukturnog potencijala** u kompaniji kroz merenje:

- **Vrednosti internih resursa koje su merene od strane ocenjivača obuhvataju:** organizacione procese, delotvornost menadžmenta, poslovne procese, poslovno-upravljačke sisteme.
- **Vrednosti internih resursa koje su merene putem upitnika obuhvataju:** organizaciju, menadžment, sistem, konkurentnost, inovativnost, kodifikaciju.
- **Vrednosti eksternih resursa koje obuhvataju:** ključne dobavljače, klijente, vrednost roba i usluga.

2. Vrednost ljudskog potencijala u kompaniji smo merili posmatrajući sledeće parametre: broj zaposlenih, broj radnika koji su se zaposlili u posmatranom periodu, broj radnika koji su napustili kompaniju u posmatranom periodu, prosečna starost zaposlenih, prosek godina provedenih u kompaniju, broj zaposlenih prema nivou stručnih kompetencija, broj održanih treninga prema nivou stručnih kompetencija, kreativnost zaposlenih, lični razvoj zaposlenih, timski rad zaposlenih, inovativnost zaposlenih, preduzimljivost zaposlenih.

Rezultati merenja biće izraženi numeričkim, procentualnim i finansijskim vrednostima. U neposrednom razgovoru sa ispitanicima pre ispunjavanja upitnika, došlo se do zaključka da postoji saznanje o potrebi identifikovanja vrednosti neopipljivih potencijala u kompaniji, ali da nisu imali prilike da se susretnu sa adekvatnim alatom za njihovo merenje.

Primeru radi dat je deo alata za merenje strukturnog kapitala u tekstilnoj industriji kao i deo pilot istraživanja uređenog u jednoj maloj tekstilnoj proizvodnoj organizaciji:

4. METODOLOGIJA MERENJA STRUKTURNOG POTENCIJALA ORGANIZACIJE

Merenje potencijala organizacije izvršeno je putem intervjuisanja od strane stručnog lica, nezavisnog ispitivača-konsultanta. Intervju se obavlja "jedan na jedan" ili u malim grupama fokusiranim na određenom aspektu poslovanja, odnosno, menadžeri, administrativno osoblje, proizvodni radnici, itd. Merenjem su obuhvaćeni ključni elementi poslovanja: delotvornost menadžmenta, organizacioni procesi, poslovno-upravljački sistemi i poslovni procesi. Rezultati merenja su iskazani skalom vrednosti od jedan do pet. Zbir dobijenih rezultata je mera vrednosti neopipljivog potencijala u kompaniji. Rezultat ukazuje na vrednost postojećeg neopipljivog potencijala u kompaniji ali takođe precizno ukazuje na oblasti koje je moguće unaprediti.

Organizacioni procesi: 1. Poslovni zadaci su dizajnirani tako da se uklapaju u procese, koji su usklađeni sa ključnim vrednostima kompanije i podržavaju poslovne ciljeve. 2. Postoji delotvoran tim-timski rad kada god za to postoji potreba. 3. Zaposleni-pojedinci poseduju odgovarajuća znanja i veštine da mogu da daju svoj maksimalni doprinos kompaniji. 4. Postoje delotvorne metode-sistemi za razvoj organizacije (plan i strategija razvoja, obuke i treninzi, mentoring, povratna informacija o uspešnosti). 5. Jasno su definisani zadaci i odgovornosti kako za pojedince tako i za timove. 6. Rezultati prate ta očekivanja. 7. Postoji efikasan sistem komunikacije koji obezbeđuje prave informacije u pravo vreme da bi zaposleni mogli da obave svoje dužnosti. 8. Nagrade i priznanja pomažu dizajniranju, principa svrhe i poslovnih ciljeva.

Poslovni procesi: 1. Želje kupaca su jasno definisane, razumljive i ispunjene (svi procesi su stabilni). 2. Postoji sistem za praćenje i kontrolu kvaliteta proizvoda, kao i rešenje za „nekvalitetne“ probleme. 3. Postoji sistem za praćenje, unapređenje odnosa sa dobavljačima, koji obezbeđuje kvalitet-prihvatljivost sirovine, informacije. 4. Postoji pristup stalnog poboljšanja u cilju smanjenja odstupanja odnosno poremećaja sistema i poboljšanja ukupne stabilnosti procesa. 5. Sistemi postoje da obezbede tačne podatke za efikasno rešavanje problema i donošenje odluka. 6. Prostorije su čiste i uredne. 7. Postoje vidljivi statistički pokazatelji-dokazi koji ukazuju na napredak u svim aspektima kvaliteta proizvoda i tehničke pouzdanosti.

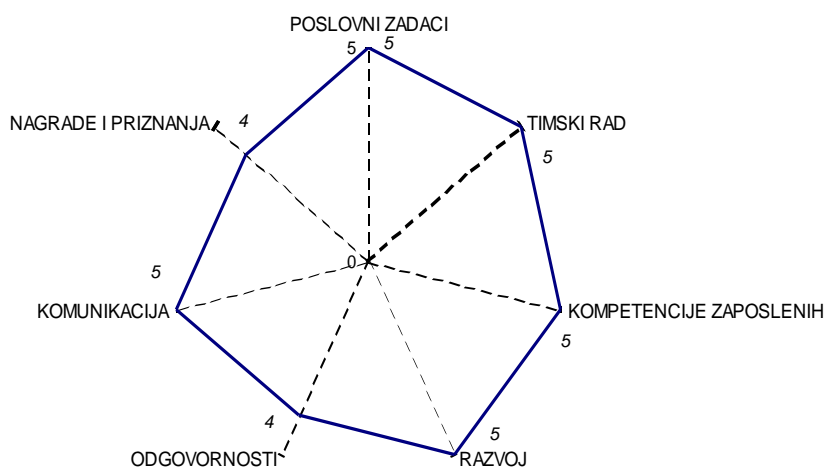
Poslovno - upravljački sistemi: 1. Postoji aktuelan biznis plan sa jasno definisanim ciljevima, definisanim strategijom i taktikom. 2. Biznis plan obuhvata strategiju izgradnje tržišta, za razvoj novih proizvoda/usluga, povećanja tržišnog udela, pronalaženja novih tržišta. 3. Plan obezbeđuje efikasnu raspodelu resursa (novac, ljudi, itd.). 4. Postoje efikasni mehanizmi za merenje i praćenje svih elemenata poslovnog plana koriste se odgovarajuće metrike/proporcije. 5. Svaki član organizacije je uključen u izradu dela poslovnog plana koji se odnosi na oblast za koju je odgovoran. 6. Postoji sistem za unapređenje odnosa cena/profit, koji efikasno objedinjuje i prati mere unapređenja; rezultate poboljšanja. 7. Postoji pristup adekvatnog nagrađivanja/priznanja za pojedince i timove zasnovan na konkretnim doprinosima ostvarenju poslovnih rezultata.

U skladu sa prethodnom teorijskom analizom predmet empirijskog dela je analiza rezultata koji su dobijeni korišćenjem predstavljenog alata za merenje neopipljivog potencijala i kapitala u preduzeću. Osnovni zadatak je da se uz pomoć predstavljenog alata ustanovi vrednost neopipljivog potencijala u kompaniji.

5. REZULTATI SPROVEDENOG ISTRAŽIVANJA

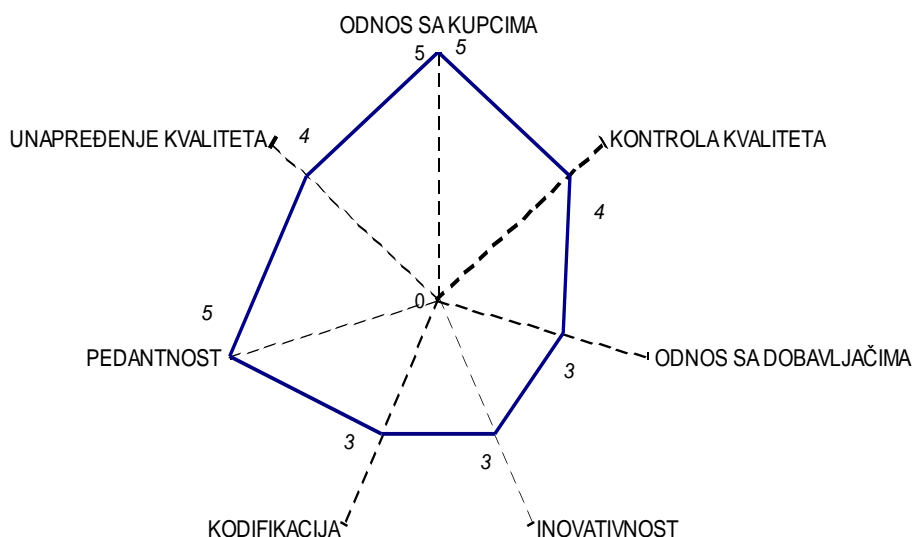
Pilot istraživanje urađeno je u tekstilnom preduzeću koje se bavi proizvodnjom bebi opreme, sa sedištem u Petrovaradinu. Preduzeće zapošljava 15 visokokvalifikovanih radnika, krojača i šivača i dva menadžera koji su ujedno i vlasnici i osnivači. Alatom za merenje vrednosti neopipljivog kapitala smo obuhvatili sve ključne segmente kompanije, a ovde je dat samo deo koji se odnosi na strukturni kapital:

Organizacioni procesi



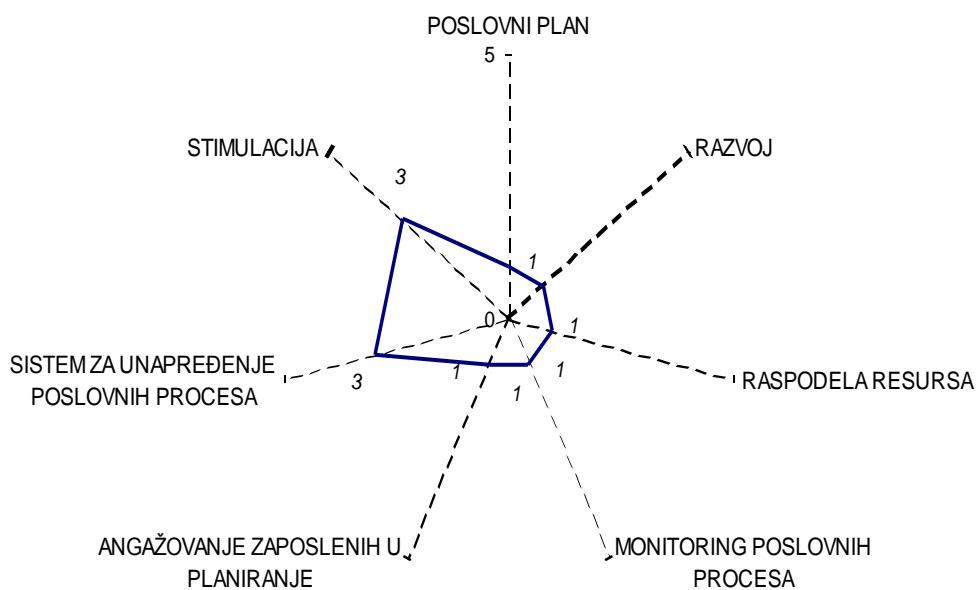
Slika 1. Grafički prikaz rezultata vrednosti organizacionih procesa u kompaniji

Poslovni procesi



Slika 2. Grafički prikaz rezultata vrednosti poslovnih procesa u kompaniji

Poslovno - upravljački sistemi



Slika 3. Grafički prikaz rezultata vrednosti poslovno-upravljačkog sistema u kompaniji
Neopipljiva vrednost strukturnog kapitala data je kao prikaz dobijenih vrednosti neopipljive imovine kompanije kroz formu izveštaja u tabeli 1.

Tabela 1. Tabelarni prikaz rezultata kroz formu izveštaja

NAZIV PREDUZEĆA	„MILBI”
SEDIŠTE PREDUZEĆA	PETROVARADIN
DATUM	21. 05.2015.
PERIOD POSMATRANJA	01.01.2014-01.01.2015.

INTERNI RESURSI	Reultat (%)
OCENA VREDNOSTI I.K. - OCENJIVAČ	71.43
DELOTVORNOST MENADŽMENTA	82.86
1. PLANOVI, VIZIJA MISIJA	60.00
2. DELOTVORNOST MENADŽMENTA	80.00
3. INDIKATORI POSLOVANJA	80.00
4. VREDNOSTI KOMPANIJE	80.00
5. STANDARDI MENADŽERA	100.00
6. KOMPETENCIJE MENADŽERA	100.00
7. MENTORING	80.00
ORGANIZACIONI PROCESI	94.29
1. POSLOVNI ZADACI	100.00
2. TIMSKI RAD	100.00
3. KOMPETENCIJE ZAPOSLENIH	100.00
4. RAZVOJ	100.00
5. ODGOVORNOSTI	80.00
6. KOMUNIKACIJA	100.00
7. NAGRADE I PRIZNANJA	80.00
POSLOVNI PROCESI	77.14
1. ODNOS SA KUPCIMA	100.00
2. KONTROLA KVALITETA	80.00
3. ODNOS SA DOBAVLJAČIMA	60.00
4. INOVATIVNOST	60.00
5. KODIFIKACIJA	60.00
6. PEDANTNOST	100.00
7. UNAPREĐENJE KVALITETA	80.00
POSLOVNO-UPRAVLJAČKI SISTEMI	31.43
1. POSLOVNI PLAN	20.00
2. RAZVOJ	20.00
3. RASPODELA RESURSA	20.00
4. MONITORING POSLOVNIH PROCESA	20.00
5. ANGAŽOVANJE ZAPOSLENIH U PLANIRANJE	20.00
6. SISTEM ZA UNAPREĐENJE POSLOVNIH PROCESA	60.00
7. STIMULACIJA	60.00

Procenat učešća neopipljivog resursa u ostavarenju ukupnog prihoda kompanije iznosi **83.37%**. Analizom rezultata dolazimo do sledećih vrednosti neopipljivog potencijala u malom tekstilnom preduzeću „MILBI“

Ocena neopipljivih internih vrednosti u kompaniji ocenjivanih kroz upitnik

- ORGANIZACIJA 70.00 %
- MENADŽMENT 75.00 %

- SISTEM 65.00 %
- KONKURENTNOST 88.33 %
- INOVATIVNOST 65.00 %
- KODIFIKACIJA* 68.33 %

Ukupna ocena neopipljivih internih vrednosti u kompaniji „MILBI“ ocenjivanih kroz upitnik iznosi 71.94% od mogućih 100%.

Ocena neopipljivih internih vrednosti u kompaniji ocenjivanih od strane ocenjivača

- DELOTVORNOST MENADŽMENTA 82.86 %
- ORGANIZACIONI PROCESI 94.29 %
- POSLOVNI PROCESI 77.14 %
- POSLOVNO-UPRAVLJAČKI SISTEMI 31.43 %

Ukupna ocena neopipljivih internih vrednosti u kompaniji „MILBI“ ocenjivanih od strane ocenjivača iznosi 71.43% od mogućih 100%.

Procenat učešća neopipljivog resursa u ostavarenju ukupnog prihoda kompanije „MILBI“ iznosi 83.37% od mogućih 100%.

Na osnovu dobijenih rezultata izvršene su određene promene u okviru interne strukture. Jedna od promena sastojala se u rotaciji radnih mesta i pokazala je izuzetno dobre rezultate (smanjeno je odsustvo sa posla, povećana produktivnost, bolja saradnja...). Jedna od promena uvedena na osnovu rezultata merenja poslovno-upravljačkih sistema je delegiranje odgovornosti sa menadžmenta na zaposlene, što tek treba da pokaže rezultate i da se vidi tokom daljeg praćenja. Da je povećana inovativnost, ustanovilo se na osnovu izrade sajta i pokrenute inicijative da se proširi proizvodni asortiman i na opremu za kućne ljubimce.

Nakon sprovedenih promena i ponovljenog merenja utvrdiće se preciznost određenih indikatora kao i povećanje dodate vrednosti u preseku svih elemenata intelektualnog kapitala. To će omogućiti preciznije određivanje novih indikatora i praćenja intelektualnog kapitala u istraživanoj organizaciji.

5. ZAKLJUČAK

Zajednica koja se bavi istraživanjem intelektualnog kapitala je izuzetno napredovala u vezi sa klasifikacijom intelektualnog kapitala, kao i u pogledu metoda za vrednovanje i izveštavanje o intelektualnom kapitalu organizacija.

Ipak, još uvek ne postoji kolektivni konsenzus o tome šta obuhvata i gde su granice intelektualnog kapitala. Ovu oblast karakteriše terminološka raznovrsnost. Osim toga, istraživači imaju tendenciju da konstruišu sopstvene definicije u okviru svog odabranog koncepta, što dovodi do velike količine definicija i još veće terminološke konfuzije.

Oblast intelektualnog kapitala (IK) karakteriše i nedostatak opšte prihvaćenih definisanih granica. Neki ga ograničavaju na precizno definisana neopipljiva sredstva i mišljenja su da intelektualni kapital obuhvata samo „ekonomsku vrednost neopipljivih

* KODIFIKACIJA- (l.codex zakonik, facere činiti, praviti) pribiranje pojedinačnih zakona i njihovo sređivanje i unošenje u jedno jedinstveno, sistematsko delo.

sredstava kompanije”, drugi ga pak definišu kao neopipljivo sredstvo i kao „nemonetarno sredstvo, bez fizičke suštine, koje je moguće identifikovati, a koristi se u proizvodnji ili snabdevanju robama i uslugama, uzajmljuje se drugima ili služi u administrativne svrhe”.

S obzirom na to da performanse i vrednost organizacije zajednički grade finansijski i intelektualni kapital, kao i da intelektualni kapital nije obuhvaćen tradicionalnim finansijskim izveštavanjem, nedopustivo je da intelektualni kapital kao strateški važan resurs, ostane izvan sistema upravljanja. Ovaj rad je doprinos merenju intelektualnog kapitala u tekstilnoj industriji, sa posebnim naglaskom na strukturni kapital, a sa manjim modifikacijama, alat koji je kreiran, može se primeniti i u drugim granama privrede. Na osnovu sprovedenog istraživanja došlo se do zaključka da je moguće definisati početnu vrednost neopipljivih resursa u kompaniji kao i da se primenom strategije unapređenja izrađene na osnovu dobijenih rezultata merenja mogu stvoriti nove vrednosti i unaprediti poslovanje.

Na osnovu dobijenih rezultata izvršene su određene promene u okviru interne strukture. Jedna od promena sastojala se u rotaciji radnih mesta i pokazala je izuzetno dobre rezultate (smanjeno je odsustvo sa posla, povećana produktivnost, bolja saradnja...). Jedna od promena uvedena na osnovu rezultata merenja poslovno-upravljačkih sistema je delegiranje odgovornosti sa menadžmenta na zaposlene, što tek treba da pokaže rezultate i da se vidi tokom daljeg praćenja. Da je povećana inovativnost, ustanovljeno je na osnovu izrade sajta i pokrenute inicijative da se proširi proizvodni asortiman i na izradu opreme za kućne ljubimce.

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THE CHALLENGES FOR HUMAN RESOURCES MANAGEMENT IN PROJECT ORIENTED ORGANIZATIONS

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Abstract: Since the beginning of the 21st century, more and more companies are focusing on the orientation towards projects and project management, which means "fixed-term" business processes and tasks in order to meet the demands of clients and has a direct impact on employee engagement. Human resources management enables the success of the project and the organization and creates competitive advantage for the organization. Therefore, it can be said that the management of human resources is one of the most important activities in the project-oriented organizations, making them no different from "traditional" organizations. This paper engages in the qualitative analysis of the specific features of project-oriented organizations that are presenting the challenge to the management of human resources. These characteristics include: the time limit of the project, the dynamism, the need for multiple roles of employees on the project, socialization of staff and team building, employee motivation, career management, lines of responsibility, etc. The more extensive research of this current and important topic is needed in order to obtain an answer to the question of how to effectively and efficiently respond to all identified challenges for the management of human resources in project-oriented organizations.

Keywords: Human resources management, project-oriented organizations, challenges.

Apstrakt: Od početka 21. veka sve više kompanija se fokusira na orijentaciju ka projektima i upravljanju projektima, što podrazumeva „oročavanje“ poslovnih procesa i zadataka u cilju ispunjavanja zahteva klijenata i direktno utiče na radno angažovanje zaposlenih. Upravljanje ljudskim resursima omogućava uspeh i projekta i organizacije i stvara konkurentsku prednost za organizaciju. Stoga se može reći da je upravljanje ljudskim resursima jedna od najvažnijih aktivnosti u projektno orijentisanim organizacijama, što ih ne razlikuje od „tradicionalnih“ organizacija. Ovaj rad se bavi kvalitativnom analizom specifičnih odlika organizacija orijentisanih na projekte koje predstavljaju izazov za upravljanje ljudskim resursima. Ove odlike uključuju: vremensko ograničenje projekta, dinamičnost, kao i potreba za višestrukim ulogama zaposlenih na projektu, socijalizacija zaposlenih i izgradnja timova, motivacija zaposlenih, upravljanje karijerom, linije odgovornosti, itd. Potrebna su dalja obimnija istraživanja ove aktuelne i značajne teme da bi se dobio odgovor na pitanje kako efektivno i efikasno odgovoriti na sve identifikovane izazove za proces upravljanja ljudskim resursima u projektno orijentisanim organizacijama.

Ključne reči: Upravljanje ljudskim resursima, projektno orijentisane organizacije, izazovi.

1. UVOD

Od početka 21. veka sve više kompanija se fokusira na orijentaciju ka projektima i upravljanje projektima što podrazumeva „oročavanje“ poslovnih procesa i zadataka u cilju ispunjavanja zahteva klijenata i direktno utiče na radno angažovanje zaposlenih. Projekat se definiše kao ostvarenje specifičnog cilja, koje uključuje seriju aktivnosti i zadataka za čije su izvršenje potrebni određeni resursi, a koje se mora ispuniti u okviru zadanog vremena, dok se upravljanje projektima definiše kao proces kontrole ostvarenja ciljeva projekta. [1] Samim tim, mnogi aspekti upravljanja ljudskim resursima u organizaciji dobijaju novu dimenziju (kao što su planiranje radne snage, selekcija zaposlenih, upravljanje kompetencijama, motivacija i nagrađivanje zaposlenih), pa je potrebno redefinisati neke uobičajene postavke upravljanja ljudskim resursima. Projektne orijentisane organizacije prilagođavaju svoju strategiju i organizacionu kulturu potrebama projekata, odnosno potrebama klijenata. [2] Sa tačke gledišta organizacije, ključ njenog uspeha su zaposleni sa odgovarajućim znanjima, veštinama i sposobnostima. [3] Međutim, potrebno je da organizacioni ciljevi i individualni razvojni planovi i ciljevi budu usklađeni. „Želja jedne kompanije je da izgradi uspešnu, profitabilnu organizaciju sa talentovanim ljudima, koji će imati priliku da ostvare svoje profesionalne snove učestvujući u izazovnim, zanimljivim zadacima za šta su nagrađeni i za šta se osećaju cenjenim“. [4]

„Idealna“ projektne orijentisana organizacija se prikazuje kao „ravna“ organizacija u kojoj je izražena jaka kultura orijentisana ka projektima, [2, 4] međutim u praksi su mnoge „tradicionalne“ organizacije sa razvijenom hijerarhijom orijentisane ka projektima, odnosno imaju tzv. „matričnu“ strukturu. Mnoge organizacije se orijentišu ka projektima samo kada je u pitanju razvoj novih proizvoda i usluga (farmaceutska industrija, industrija automobila), ili kada je u pitanju specijalizovana usluga klijentu, a u ostalim aspektima predstavljaju i dalje „staromodnu“, funkcionalnu organizaciju sa strogom hijerarhijom, odnosno čine matričnu organizaciju (konsultantske i revizorske kuće, velike advokatske kancelarije). Ima mišljenja da se i ovakve vrste organizacije mogu klasifikovati i kao projektne orijentisane. [5] Matrične organizacije će se takođe posmatrati u ovom tekstu, bez obzira što su mnogi poslovni procesi organizovani po funkcionalnom principu i uzeće se u obzir zbog orijentisanosti ka projektima u pružanju usluga klijentima. Kada se pokušava definisati da li je neka organizacija projektne orijentisana ili ne, treba se složiti sa stavom da je suštinsko pitanje da li organizacija vidi sebe kao projektne orijentisanu. [6] Postoji sve više navoda da od početka 21. veka veliki broj organizacija nastoji da se usmeri ka projektne orijentisanoj organizaciji. [3]

Upravljanje ljudskim resursima na određenom projektu podrazumeva procese koji su potrebni da se na najsvrsihodniji način iskoristi znanje zaposlenih na projektu. Upravljanje ljudskim resursima omogućava uspeh i projekta i organizacije i stvara konkurentsku prednost za organizaciju. [2, 4, 6, 7] Stoga se može reći da je upravljanje ljudskim resursima jedna od najvažnijih aktivnosti u projektne orijentisanim organizacijama, što ih ne razlikuje od „tradicionalnih“, funkcionalnih organizacija. Međutim, kako navodi Pakendorf, politike i procedure upravljanja ljudskim resursima dizajnirane su za tradicionalne organizacije, a ne za projektne u kojima se pozicije konstantno menjaju. [7] Potrebno je definisati sve izazove za upravljanje ljudskim resursima u projektne orijentisanim organizacijama i odgovoriti na te izazove. Potrebni su novi oblici organizovanja poslovanja, redefinisanje uloga sektora za upravljanje ljudskim resursima i uloge linijskih menadžera, kao i definisanje uloga projektne menadžera i tim lidera u procesu upravljanja ljudskim resursima. I pored aktuelnosti teme, o

problematici upravljanja ljudskim resursima u projektno orijentisanim organizacijama, ali i o matičnim organizacijama, ni danas ne postoji veći broj naučnih radova i empirijskih istraživanja.

2. IZAZOVI UPRAVLJANJA LJUDSKIM RESURSIMA

U specifične odlike organizacija orijentisane na projekte, koje su od značaja i koje predstavljaju izazov za upravljanje ljudskim resursima, spadaju: vremensko ograničenje projekta i dinamičnost, kao i potreba za višestrukim ulogama zaposlenih na projektu, linije odgovornosti, motivacija i nagrađivanje članova tima, socijalizacija zaposlenih i izgradnja timova, kompetencije neophodne za menadžera projekta, kompetencije članova tima, upravljanje karijerom, obuke i razvoj zaposlenih, upravljanje znanjem, veći zahtevi od zaposlenih i nepredvidivost, uticaj na zdravlje (stres) i okončanje projekta i posledice.

2.1. VREMENSKO OGRANIČENJE PROJEKTA I DINAMIČNOST

Svaka priprema projekta predstavlja prvi izazov za upravljanje ljudskim resursima. Prema zadatku projekta potrebno je izvršiti alokaciju zaposlenih na novi projekat, relokaciju zaposlenih koji su bili angažovani na drugim projektima, a nekada i regrutovanje i selekciju eksternih članova projektnog tima. Neretko se za ove procese postavljaju kratki rokovi, a dodatne se komplikacije pojavljuju kada je potrebno da određeni članovi tima budu u isto vreme alocirani na više projekata. U ovom procesu učestvuju zaposleni u sektoru za upravljanje ljudskim resursima, sektoru ili jedinici za upravljanje projektima (ukoliko postoji), linijski menadžeri, menadžeri projekata. U velikim projektno-orijentisanim organizacijama, ovi procesi su standardizovani, u skladu sa strateškim i operativnim planovima organizacije i budžetskim ciklusima (najčešće godinu dana). U manjim organizacijama se češće ovakvi planovi donose ad hoc. U konsultantskim kućama u Srbiji, menadžeri projekata smatraju da je čest problem nepostojanje precizno planiranih projektnih aktivnosti i postavljanje kratkih rokova za selekciju članova projektnog tima (nekada kraće i od mesec dana).

Nekada je sam izbor menadžera projekta izazov sam po sebi, kada treba odlučiti da li će to biti neko iz same organizacije ili sa eksternog tržišta rada prema zahtevima i specifikacijama samog projekta. Izbor pogrešne osobe za menadžera projekta može biti ključni razlog za neuspeh projekta. [1] Dodatni izazov za sektor za upravljanje ljudskim resursima često predstavlja planiranje, izrada programa i organizovanje treninga i pripreme (orijentacije) za učesnike na projektu. Kratki projekti kojima treba hitno pristupiti često ne omogućavaju odgovarajući trening ni za projektne menadžere, ni tim lidere i ključne članove tima, a naročito ni za „manje važne“ pozicije na projektu.

U toku trajanja projekta, javljaju se potencijalni problemi u komunikaciji u timu, komunikaciji sa klijentima i dobavljačima, problemi preklapanja projekata i učesnika na projektu. Na kratkoročnim projektima, menadžeri projekata često nemaju dovoljno vremena da se bave ovakvim problemima, naročito kada su u pitanju različiti konflikti i mnogi problemi i nesuglasice ostanu nerešeni.

Treba naglasiti da je u pojedinim industrijama dinamičnost projekata znatno manje prisutna i da projekti traju duže (građevinarstvo, farmaceutska industrija, naročito istraživanje i razvoj), pa projektni menadžeri mogu da pristupe rešavanju različitih problema. U drugim industrijama (informaciono-komunikacione tehnologije, kreativne industrije) potpuno je obrnut slučaj i češće su zastupljeni projekti sa kratkim rokom, čije su osnovne karakteristike dinamičnosti i tenzije.

2.2. VIŠESTRUKU ULOGE ZAPOSLENIH NA PROJEKTIMA

U projektno-orijentisanim organizacijama jedna osoba može u isto vreme raditi na više projekata, a takođe može imati različite uloge na tim projektima. Jedna osoba takođe može imati svoju poziciju i zadatke u tradicionalnoj funkcionalnoj nomenklaturi, a i ulogu u projektu (npr. član tima). U svim navedenim slučajevima su mogući konflikti različitih uloga. [1] Čest je slučaj da jedna osoba radi i na 5 i više projekata istovremeno. [5] Ovo predstavlja veliki izazov i za menadžere projekata, tim lidere i za sektor za upravljanje ljudskim resursima koji najčešće koordiniraju raspoređivanje pojedinaca na različite projekte i koji često nemaju uvid u potrebe pojedinačnih projekata. Pitanje međusobne usklađenosti i saradnje ovih aktera postaje veoma aktuelno.

2.3. LINIJE ODGOVORNOSTI

Iz prethodnog proizilazi sledeće pitanje: ko su ključni akteri procesa upravljanja ljudskim resursima u projektno-orijentisanoj (ali i matričnoj) organizaciji i kako se organizuje i odvija ovaj proces? U funkcionalnim organizacijama, do kraja 20. veka, uobičajeno je da se ovim procesima bave i linijski menadžeri i zaposleni u sektoru za upravljanje ljudskim resursima. Međutim, kako se pojavljuju nove uloge, uloge menadžera projekta ili tim lidera, proširuje se struktura zaposlenih koji imaju ulogu u procesu upravljanja ljudskim resursima. Prvi problem u projektnim organizacijama nastaje u činjenici da menadžer projekta često nema upliv u izbor pojedinih ili svih članova tima, dok u matričnim organizacijama, koje se orijentišu ka projektima, često nastaju nesuglasice između formalnog sektora za upravljanje ljudskim resursima, ili zaposlenog sa tom funkcijom, menadžera projekta i linijskih menadžera. [9] U konsultantskim kućama i advokatskim kancelarijama se situacija dodatno komplikuje, jer, pored linijskog menadžera i projektnog menadžera, postoji uloga „vlasnika“, odnosno donosioca projekta koji ima važnu ulogu i u procesu upravljanja ljudskim resursima na projektu (odabir projektnog menadžera i dodela ključnih uloga na projektu). [10]

2.4. MOTIVACIJA I NAGRAĐIVANJE ČLANOVA TIMA

Jedno od najkompleksnijih pitanja upravljanja ljudskim resursima je motivisanje i nagrađivanje članova tima. [1] To je jedna od najvažnijih uloga menadžera projekata, koji inspirišu ostale članove tima na posvećenost rezultatima, razmenu ideja i rešavanje problema kroz timski rad. Menadžeri projekata takođe moraju da imaju uvid u aktivnosti i rezultate svih članova tima i koji treba da imaju slobodu da nagrade one učesnike na projektu koji imaju najbolje rezultate. Na dužim projektima, projektni menadžeri mogu da vrše periodične

procene rezultata članova tima i da nagrade one sa najboljim performansama, bez čekanja na kraj projekta, jer bi to uticalo na demotivaciju članova tima. U procenu pojedinaca mogu da budu uključeni i ostali članovi tima, saradnici iz drugih jedinica i klijenti, čime se dobija šira slika o njegovim/njenim performansama, tako da je i na projektima vrlo aktuelna evaluacija 360°.

2.5. SOCIJALIZACIJA I IZGRADNJA TIMOVA

Učesnicima na projektu, koji do tada nisu radili, potrebno je duže vreme da efektivno i efikasno rade zajedno, pridržavajući se ustaljenih procedura koje nisu zajedničke, bez sličnog načina razmišljanja, razmene ideja i pristupa zadacima. Mnogi timovi ne uspevaju da uspostave sinergiju tokom kraćih projekata, što dovodi do slabijeg rezultata projekta. Menadžeri projekata, njihovi zamenici i tim lideri često nisu u mogućnosti i nemaju vremena da se posvete izgradnji timova. [7, 8] Jedan od najvažnijih zadataka za menadžere projekata, njihove zamenike i tim lidere, u procesu socijalizacije članova tima i izgradnje tima na projektima u kojima saradnici nisu radili zajedno, je i proces upravljanja konfliktom, odnosno sprečavanja konflikta.

2.6. KOMPETENCIJE MENADŽERA PROJEKTA

Menadžeri projekata u projektno-orijentisanim organizacijama su ključni faktor postizanja konkurentske prednosti. [11] Menadžeri projekata se najčešće regrutuju u ključnoj oblasti u kojoj se organizacija nalazi (u inženjerskim kompanijama - inženjeri, u IT industriji – stručnjaci različitih IT profila). Međutim, postoje oblasti, kao što su kreativne industrije u kojima su menadžeri projekata iz potpuno različitih oblasti. Problem često nastaje kada se menadžeri projekata biraju ad-hoc, prema osećaju i nestandardizovanim kriterijumima. Od standardizovanih kompetencija, najčešće se posmatraju orijentisanost ka postignućima, analitičnost, rešavanje problema, liderstvo, kao i tehničke kompetencije. U istraživanju Tarnera, Kigenove i Krafordove, jedan od ispitanih direktora je izjavio da je najvažniji kriterijum za izbor menadžera projekta da su ljudi jasni u izražavanju svoje ambicije. [11] Često se, međutim, ne uzima u obzir da su za različite projekte potrebne različite veštine projektnog menadžera i da uspešni projektni menadžer jednog velikog projekta ne može da vodi sve projekte.

2.7. KOMPETENCIJE ČLANOVA TIMA

Učesnici u timovima na projektu, često imaju mišljenje da timovi nemaju odgovarajući broj ljudi, naročito kada su u pitanju visoko-profesionalne tehničke pozicije, ali da postojeći članovi tima imaju odgovarajuće kompetencije. [5] Tarner, Kigenova i Krafordova ističu da učesnici u projektnim timovima imaju visoko obrazovanje, da u 85% slučajeva stiču svoje kompetencije kroz iskustvo na projektima, ali da samo 15% učesnika na projektima ima neki sertifikat iz oblasti upravljanja projektima. [11, 12] Njihov zaključak je da je najvažniji izvor kompetencija učesnika na projektima iskustvo. Profesionalne asocijacije nastoje da formulišu potrebne standarde kompetencija (neophodnih znanja, veština i sposobnosti), bez analize aspekata kao što su tehnologija, organizacija i kompetencije

specifične za određeno tržište. [11] Pored članova timova sa iskustvom, projektno orijentisane organizacije regrutuju i najbolje studente različitih profila, sa različitih univerziteta.

2.8. UPRAVLJANJE KARIJEROM, OBUKE I RAZVOJ ZAPOSLENIH

U „tradicionalnim“ organizacijama, profesionalcima je obično u skladu sa kriterijumima kao što su dužina staža kod poslodavca, znanja, veštine i sposobnost i rezultati ocene performansi, omogućeno da napreduju na više pozicije. U „konzervativnim“ organizacijama, staž i lojalnost su često odlučujući faktor, dok su u „modernim“ organizacijama osnovni kriterijumi kompetencije zaposlenih i doprinos organizacionim ciljevima. U projektno orijentisanim organizacijama svaki projekat predstavlja priliku za učenje novih znanja i primenu stečenih znanja, za razvijanje kompetencija kao što su analitičnost i rešavanje problema, timski rad, komunikacija, itd. Međutim, opcije za „klasično“ napredovanje često ne postoje. Jedan zaposleni može na jednom projektu da, u skladu sa svojim kompetencijama i zahtevima projekta, bude projektni menadžer ili tim lider, a u drugom i/ili trećem bude „samo“ član tima. [2, 4]

Hejmanova insistira da je bolje u ovom slučaju koristiti izraz razvoj, umesto treninga zaposlenih jer ne postoje mogućnosti za formalne treninge. [8] Ovde se može naglasiti da često postoji potreba za dve različite vrste formalnih obuka: tehničke ili stručne i obuke koje obuhvataju tzv. meke veštine (komunikacija, timski rad, upravljanje konfliktom, upravljanje vremenom). Kigenova i Tarner su predstavili ideju „karijere spiralnih stepenica“ koja podrazumeva da ljudi napreduju kroz niz raznovrsnih pozicija u okviru projektno orijentisane kompanije. [13] Tarner i ostali su u svojim istraživanjima tvrdili da projektni menadžeri imaju tendenciju dužeg ostanka u projektno-orijentisanoj organizaciji nego drugi učesnici na projektu jer smatraju da u njima mogu da ostvare napredak u karijeri. [14] Na žalost, ne postoji više istraživanja koja bi odgovorila na pitanje potencijalne razlike nivoa posvećenosti projektnih menadžera i drugih učesnika na projektima projektno orijentisanim organizacijama i odnosu projektno orijentisanih organizacija prema različitim strukturama učesnika na projektima. Kigenova i Tarner ističu da kompanije koje imaju velike projekte (u vrednosti od preko 100 miliona dolara) unapred definišu strukturu karijere potencijalnih projektnih menadžera za velike projekte i godinama kontinuirano ulažu u njihov razvoj. [14] Tarner, Kigenova i Krofordova ističu da su projektni menadžeri ključni za pružanje dodatne vrednosti klijentima i da se u njihov razvoj najviše ulaže. [11] Najčešće su ulaže u posebne profesionalne kurseve za sticanje sertifikata iz oblasti upravljanja projektima. Većina generalnih i izvršnih direktora projektno-orijentisanih organizacija su u prošlosti bili menadžeri projekata. [11, 14]

Često se, međutim, zaboravlja na matrične organizacije u kojima je napredovanje u karijeri bazirano na kompetencijama, rezultatima rada i dužini staža, ali u kojima se veliki deo zadataka obavlja u okviru projekata (kao što smo već naveli, u pitanju su velike advokatske kancelarije, kao i revizorske i konsultantske kuće), o čemu gotovo i da nema istraživanja vezanih za izazove upravljanja karijerom zaposlenih u ovakvim organizacijama.

Kada je u pitanju razvoj članova tima, u projektno orijentisanim organizacijama se ostvaruje putem omogućavanja učesnicima na projektu da steknu nova znanja i iskustva radeći na projektima. [8, 11, 14] Takođe je uobičajen neformalan razvoj članova tima u vidu mentorstva, iako postoje tendencije ka formalnim mentorstvima. [11] Treba uvek imati u vidu

da je razvoj učesnika na projektima od izuzetnog značaja i za organizaciju, koja čuva znanje i motiviše zaposlene, a članovi projektnih timova razvijaju osećaj lojalnosti organizaciji i orijentisanost ka dostignućima.

2.9. UPRAVLJANJE ZNANJEM

Tema upravljanja znanjem u projektno-orijentisanim organizacijama je više istraživana oblast, ali uglavnom sa aspekta preklapanja novih organizacionih formi i upravljanja znanjem. [1] Kada je u pitanju veza između upravljanja znanjem i upravljanja ljudskim resursima, ovde se javlja još jedno nedovoljno istraženo pitanje, a to je pitanje o čuvanju i transferu znanja koja su stečena na projektu, a koja nisu vezana isključivo za jednog klijenta i koja ne podležu klauzulama o poverljivosti podataka (kroz biblioteke, intranet stranice, baze podataka). Alverson upravo kao jedan od najvećih izazova za upravljanje znanjem ističe probleme dezintegrativnih tendencija kompleksnih projektno-orijentisanih zadataka u organizacijama u čijem fokusu je znanje. [15] Postavlja se pitanje izgradnje i sistematizovanja politika i praksi upravljanja ljudskim resursima neophodnih projektno-orijentisanim organizacijama u cilju uspešnog upravljanja znanjem, na koje dosadašnja istraživanja nisu dala adekvatan odgovor.

2.10. VEĆI ZAHTEVI OD ZAPOSLENIH, NEPREDVIDIVOST

Kao jedan od vodećih problema na projektima navodi se pitanje radnog vremena članova tima na projektima, koji često rade i više od 10-12 sati dnevno. [2] Ovo je najčešće slučaj sa projektima koji traju kraće od tri meseca. Povremeni duži radni dan za vreme trajanja projekata je uobičajen, ali je najbolje planirati periode u kojima se očekuje porast aktivnosti. Istraživanja su pokazala da su najopterećeniji projektni menadžeri i njihovi zamenici, koji u proseku nedeljno rade i deset sati duže od ostalih članova tima. [2] Pakendorf ističe da se problem najčešće javlja u situacijama kada jedna osoba u isto vreme radi na različitim projektima i koja pokušava da odgovori svim zadacima, da stekne reputaciju stručne osobe i da stvori mogućnost za angažovanje na narednim projektima. [7] Projektno-orijentisane organizacije obično su više okrenute ka zadacima, nego ka ljudima, i potrebno je pronaći balans u cilju očuvanja znanja. [2, 7]

Međutim, zaposleni u projektno orijentisanim organizacijama, pa i matričnim organizacijama, često rad na projektima doživljavaju kao na pozitivnu promenu [2] u okviru koje dobijaju nove izazove i zadatke koji im omogućavaju da uče, ali i da primenjuju svoja stečena znanja. Li-Keli i Long ističu da menadžeri projekata u IT industriji svakim projektom stiču samopouzdanje i bolje razumevanje zadataka. [16]

2.11. UTICAJ NA ZDRAVLJE (STRES)

Dinamičnost procesa i zadataka, različite uloge na projektima, potencijalni konflikti tih uloga, rokovi, novi zadaci, komunikacija sa novim članovima tima, nesigurnost u linije odgovornosti, sve su to problemi koji dovode do pojačanog nivoa stresa kod zaposlenih na projektima. Zaključivanje projekta i nesigurnost u dalje korake, takođe mogu biti uzrok

pojačanog nivoa učesnika na projektu. [2] Jedna od najvećih opasnosti za psihički i fizičko zdravlje predstavlja psihološki pritisak na pojedince koji istovremeno rade na više projekata, opterećeni rokovima, konfliktnim zahtevima različitih projekata i menadžera projekata. Pojavljuju se razne psihosomatske bolesti, kao što su alergije, glavobolje, itd. U finansijskim kućama, na Zapadu među mlađom populacijom je sve prisutniji tzv. *Burnout* sindrom, koji označava nemogućnost postizanja balansa između privatnog života i sve zahtevnijeg poslovnog života. [1] Stariji profesionalci imaju veće mogućnosti, u skladu sa svojim iskustvom i znanjima, veštinama i sposobnostima, da napuste organizaciju u kojoj osećaju suviše veliki pritisak i da se dalje ostvare u tradicionalnoj, funkcionalnoj organizaciji koja im omogućava da naprave kvalitetniji balans između profesionalnog i privatnog života. Time se često gube znanja, veštine i sposobnosti potrebne organizaciji što je veliki izazov za proces upravljanja znanjem. Stoga organizacije orijentisane ka projektima moraju da, u okviru svoje politike upravljanja ljudskim resursima, razvijaju politike za dobrobit zaposlenih, koje će omogućiti čuvanje znanja, motivaciju zaposlenih, razvoj organizacione kulture zasnovane na postignućima, ali i međusobnom poštovanju.

2.12. OKONČANJE PROJEKTA

Okončanje projekta takođe predstavlja izazov za upravljanje ljudskim resursima, jer se mora (nekada vrlo brzo) doneti odluka o raspoređivanju članova tima na druge projekte (one koji počinju neposredno posle završetka datog projekta ili koji počinju kasnije), vraćanju u svoje funkcionalne jedinice ili zaključivanju ugovora za članove tima zaposlene po različitim formama ugovora ograničenih na rad na projektima. [17] U Srbiji se ovde stvara dodatni problem, jer, osim Ugovora o delu, naše zakonodavstvo ne prepoznaje projektno angažovanje spoljnih članova tima. Međutim, sličan problem imaju i druge zemlje sveta u kojima se već više od deceniju i po pokušavaju naći odgovarajuće zakonske forme za angažovanje ljudi na projektima. [17] Ono što je veoma važno, je da se obrati pažnja na učesnike na ključnim pozicijama na projektu, koji moraju od projektnog menadžera dobiti tzv. *fidbek* informaciju o svojim performansama. *Fidbek* je uobičajen po završetku dužih projekata, [4] ali je moguće u praksi izdvojiti vreme i za komunikaciju sa ključnim pozicijama na projektu i posle kraćih projekata u cilju njihovog motivisanja. Po završetku projekta oni mogu dobiti dodatne obuke do narednog projekta ili mogu biti raspoređeni na druge radne zadatke do započinjanja novog projekta u cilju očuvanja znanja u organizaciji. [4] Takođe je neophodno angažovanje na asistenciji članovima tima, čije se angažovanje u potpunosti završava, u pronalaženju novog posla ili projekta (u vidu formalnih ili neformalnih programa).

3. ZAKLJUČAK

Kako postoje mnoge analize, koje ukazuju na to da se u svetu danas pojedine privredne grane razvijenih zemalja, ako ne i privreda u celini, okreću ka projektnoj orijentaciji (tzv. *Project-Oriented Society*), [18, 19, 20] pitanje upravljanja ljudskim resursima u projektno-orijentisanim organizacijama dobija sve više na značaju. [20] Izazovi za proces upravljanja ljudskim resursima u projektno-orijentisanim organizacijama su brojni i zahtevaju promene procesa, reorganizaciju postojećih struktura sektora za upravljanje ljudskim resursima (ukoliko je organizacija ranije bila funkcionalna ili matrična) ili izgradnju stručne

podrške koja može da odgovori na izazove koji se postavljaju, kao što su: vremensko ograničenje projekta i dinamičnost, kao i potreba za višestrukim ulogama zaposlenih na projektu, linije odgovornosti, motivacija i nagrađivanje članova tima, socijalizacija zaposlenih i izgradnja timova, kompetencije neophodne za menadžera projekta, kompetencije članova tima, upravljanje karijerom, obuke i razvoj zaposlenih, upravljanje znanjem, veći zahtevi od zaposlenih i nepredvidivost, uticaj na zdravlje (stres) i okončanje projekta i posledice.

Svaki izazov zahteva poseban pristup, analizu i iznalaženje odgovarajućih rešenja. Rešenje koje odgovara velikoj kompaniji u oblasti građevinske industrije sa dugoročnim projektima na kojima radi više stotina ljudi, sigurno ne odgovara, IT kompaniji koja funkcioniše po principu malih, virtuelnih timova. Međutim, verovatno je najvažnija potpuna promena načina razmišljanja, potreba veće povezanosti različitih aktera procesa upravljanja ljudskim resursima (nosilaca formalne ULJR funkcije, menadžera projekata i linijskih menadžera u matričnim organizacijama), analiza postojećih izazova i odgovora na te izazove, kao i predviđanje novih izazova i potencijalnih odgovora na te izazove.

Međutim, i pored toga što u svetu ima sve više projektno-orijentisanih organizacija, i dalje nema dovoljno naučnih, ali i stručnih, analiza identifikovanog, širokog dijapazona postojećih izazova za proces upravljanja ljudskim resursima (ali i potencijalnih, novih izazova), te je ova tema vrlo zanimljiva za dalje naučno i stručno proučavanje, naročito na nivou empirijskih istraživanja i studija slučaja.

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THE LINK BETWEEN THE ALIGNMENT OF THE INDIVIDUAL GOALS WITH THE ORGANIZATIONAL GOALS AND ORGANIZATIONAL PERFORMANCE

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Abstract: Under conditions of growing complexity and turbulence of the environment in which the organization carries out its activities, objectives constitute the primary planning decision and they are directing and coordinating the organization activities. The goals represent the direction for all management decisions and represent the criteria against which true achievement can be compared. Because of that they are the foundation of planning.

The meaning that is given to performance management is very important in the integration or alignment of individual goals with organizational objectives. The purpose is to focus people to do the right things in order to reach a common understanding of the requirements of performance in the organization.

This paper elaborates the link between the alignment of the individual goals with the organization's goals and organizational performance. The sample contains 48 successful small, medium-sized and large private enterprises paying attention to this problem. The basic data in this study has been obtained through structured questionnaire, and the results have been analyzed using SPSS -Statistical Program for Social Sciences.

Keywords: individual goals, organization's goals, organizational performance

1. GOAL SETTING

The organizational goals are the starting point for an effective management. Goals present the future state, situation or desired result in the planned activity of the organization.⁵⁹ The goal may refer to the profit, organizational growth, efficiency, social responsibility, welfare of employees, higher productivity, survival etc. The goals present a direction for all the management decision making and a criterion for comparing the implementation. Hence, they are the foundation of organizational planning.

Goals have multiple significance to the organization:⁶⁰

a) Goals are a source of motivation. Clearly and participatory defined goals will motivate employees to strongly commit towards their implementation.

⁵⁹ Б. Шуклев, Менаџмент, Универзитет „Св. Кирил и Методиј“, Економски факултет, Скопје, 2005, стр. 138;

⁶⁰ Ibid.

b) Goals present a guideline towards the actions employees take and give a sense of direction. Goals concentrate the attention to specific tasks and guide the effort towards sure results.

c) Goals are the base we use to assess our accomplishments. They are the criterion and the standard we use to evaluate goal achievement in the organization.

d) Goals give direction to the managing process, which starts with planning. Goal setting is the starting point and the final result we tend to achieve.

The importance and benefits of the goals for the organization is undoubtable. In order to maximize the overall impact of goals on organizational performance, a specific system of management by objectives – MBO, has been developed. The first author that set the foundation of the concept was Peter Drucker, in his 1954' classic "The practice of management".⁶¹ The essence of this concept lies in the idea that managers and employees from all the organizational levels should participate in setting the goals of the company, of the organizational units and individual goals, while all the activities are focused on achieving them. The MBO concept is based on the realistic presumption that the employees are the main participants in the process of achieving the goals. You may even say that management success, its efficiency and effectivity, as well as the functioning of the organization in overall, depends on recognizing and accepting the goals which are in compliance with employee's wishes and welfares.

The goal management concept is a series of formal procedures used for progress assessment, implemented by managers and employees. Managers and their subordinates start with goal identification, which results in expected outcomes, on one hand, and specific responsibilities on the other. Monitoring and achievement assessment are being made on a regular basis during the activities. Regular revision procedures are used to assess progress, goals and priorities, in the newbusiness environment.

2. CHARACTERISTICS AND TYPES OF GOALS

In order to accomplish the goals, employees need to find them achievable and commit to them. Otherwise, they will be demotivated to accomplish the objectives. Therefore, it is very important for managers to make sure their employees have accepted the goals and are motivated to achieve them.

The best way is to include employees in the goal setting process, until obtaining challenging and achievable goals. It is important for managers to communicate with employees, to give support by providing guidelines and resources and remove any goal-blocking obstacles. Goal setting should be based on the S.M.A.R.T. criteria. (specific, measurable, attainable, relevant and timely)⁶² S.M.A.R.T. helps putting the focus on gaining knowledge, time management, and resource management, towards maximizing the staff effort. A proper goal setting is a learning process. The moment we precisely know what we want to obtain, we concentrate the energy in the right direction. Well-set goals are a powerful

⁶¹ P. F. Drucker, "The Practice of Management", Harper&Row, New York, 1954, p. 70-71.

⁶²S. A. Burtonshaw-Gunn, M.G. Salameh, Essential tools for organizational performance: Tools, Models and Approaches for Managers and Consultants, John Wiley&Sons, Ltd., Publication, 2009, p. 67;

instrument of work motivation, because, once you set the goal, it boosts confidence at work. According to S.M.A.R.T. criteria, goals should be:⁶³

- *Specific* – which means the goal should be clearly defined and emphasize what it supposed to achieve. A specific goal should contain numbers, like percentages or number of people etc. Thereby, the process of planning will lead to specific actions we need to take in order to accomplish the objectives.
- *Measurable* – for a goal to be measurable it needs to be expressed in numbers (like profitability, income, company growth etc.). Afterwards, it can be used to compare it to the planned value.
- *Attainable* –goals should be attainable as well, meaning the organization should take care of the position, skills and knowledge of employees, as well as its financial opportunities that are very important in achieving the goals.
- *Realistic* – goals should be realistic, which doesn't mean simple, but feasible. To obtain this, you need to know if the organization has the resources to achieve the goal, if it has the necessary support from everyone in the department, and the skills needed to accomplish the goal.
- *Timely* – according to the last component of the S.M.A.R.T concept, goals should be time-limited, i.e. accomplished in a certain period of time. If a deadline is not being set, employees will lack in motivation to attain the goals.

Although the idea of goal setting may seem simple, the process takes time and is much more complicated. Especially in the beginning, when managers and the staff are not used to the process yet, goal identifying and setting can be a real challenge. One of the reasons is the fact that managers and employees tend to pay attention to the way staff behaves at work instead of tangible results. For example, job descriptions usually include duties and tasks.

Regarding the goal characteristics, the most important theory is “Goal Setting Theory”, by Edwin A. Locke (1968), extended by Gary Latham (1990). One basic thesis in this theory is that well defined, understandable and attainable goals have effect of motivation which leads to higher efficiency of the organization. Each individual assess its behavior based on the defined criteria and his own values. If the individual is not satisfied with the achievement of the defined personal objectives, he will redefine the personal objectives. Most of the researches on objectives definition are targeting the characteristics of the objectives leading towards individual motivation and achievement of better results. Locke and many other researchers have defined several important characteristics of the objectives:⁶⁴

- Specific but tough goals result in better performances. However, it should be in accordance with the individual level. The goals supposed to be specific so the aspirations can be clear, comprehensible and assessable.

⁶³ MTD Training, Performance Management, Bookboon.com, Free Business Books, MTD Training&Ventus Publishing ApS, 2010, p. 18-21.

⁶⁴ J. W. Smither, M. London, Performance Management: Putting Research into Action., Jossey-Bass, 2009, p. 89-90;

- Goals need to be challenging, but without giving the impression of being impossible to reach. If the group keeps high performance standards, some individuals may need more effort to improve their result.
- -Goals give direction. The more specific and concrete the goals are, the greater the control that individuals have over them. This is especially true in the competitive context, when victory has been set as a goal, instead of a specific task.

However, in order to set the goals efficiently, there are some requirements that need to be met: 1) Personal and real goals need to be measured and compared. The theory reveals that the assigned goals affect the results, by affecting personal goals. Therefore, we should get to know the intrinsic goals of the individuals. 2) Specific goals must be tough. Easy ones lead to underperforming. 3) It is necessary to see if individuals are truly devoted to achieving objectives. 4) It is necessary to measure self-efficacy, not just the effort. Self-efficacy is the confidence that an individual will be able to perform the duties. All things considered, a goal needs to be clear, measurable, challenging, realistic and timely.

Goals can be categorized by the following criteria:⁶⁵

1. Time wise, goals can be strategic and tactical. Strategic goals are basically a report on where we want the company to be in the future, referring to the organization in general. Tactical goals define the outcome expected to be achieved in the main sectors and units. Tactical/operational objectives describe specific results you should expect from different departments, work groups and individuals.

2. According to assessment possibilities the goals are: quantitative (like market share), on one hand, and qualitative (managerial skills, employee satisfaction and morale) on the other.

3. Based on the timeframe the goals are defined as: long term, midterm, and short term goals.

4. Based on the organizational structure, the goals are divided into three levels: organizational goals, sectorial goals and functional goals.⁶⁶

3. THE ALIGNMENT OF THE INDIVIDUAL GOALS WITH THE ORGANIZATIONAL GOALS

The attention given to performance management has great significance when it comes to adjusting personal and corporate goals. Employees must keep focus on doing the right thing, in order to have mutual understanding about performance requirements in the organization.

There are two strategies that can be used to connect high level personal goals with goals on the next level:⁶⁷

⁶⁵ R. W. Griffin, "Fundamentals of Management", 6th Ed, South Western Cengage Learning, 2012, p.66.

⁶⁶ J. S. Harrison, C. H. St. John: "Foundations in Strategic Management", 5th Ed, South-Western Cengage Learning, 2009, p. 159;

⁶⁷ E. Pulakos, Performance Management: A New Approach for Driving Business Results, Wiley-Blackwell, 2009, p. 133-135.

- The starting point is the employee's personal performance, followed by connecting it to the higher level relevant goals; or

- Start with a higher level goal, significant for the individual performance, and work backwards all the way to the individual performance goal.

Integration of organizational and personal goals is usually made according to the concept of "cascading objectives".⁶⁸ However, this process should not be considered as a simple "top-down" method. Although it includes the general corporate goals, people on every level should be given an opportunity to show their self-confidence and faith they can contribute to the success of their team and unit. This is a 'bottom-up' process, and the views of employees about what they believe they can achieve should be noted and, as appropriate, higher-level objectives amended to take account of them. An approach along these lines increases 'ownership' of the objectives as well as providing a channel for upward communication on key issues affecting the achievement of business goals. Time will come when the main challenge will have to be accepted; time when opinions of those who will do the work, will be of great value.

Table 1. Integration of goals

External factors	Goals	Internal factors
- Competition	- Corporation goals	- Strategic plans
- Market	- Functional goals	- Resources available
- Consumers	- Team goals	- Basic values
- Legislation	- Individual goals	- Performance

Source: M. Armstrong, Performance management, Key strategies and practical guidelines, 3rd ed, Kogan Page, London, 2006, p. 57

The integration is achieved through ensuring that everyone is conscious about corporation, functional and team goals and that their goals are consistent and will contribute in their achievement.

4. ANALYSIS THE LINK BETWEEN ALIGNMENT OF THE INDIVIDUAL GOALS WITH THE ORGANIZATIONAL GOALS AND ORGANIZATIONAL PERFORMANCE OF ORGANIZATIONS IN THE REPUBLIC OF MACEDONIA

Namely, in this part of the paper is performed checking on theoretical aspects, with particular subject of interest are empirical knowledge and experiences for the connection of multiple factors in the field of human resources with success of organizations in the Republic of Macedonia.

Considering everything mentioned above for the need of analysis was conducted survey of 92 respondents from Republic of Macedonia. Questionnaires were voluntarily filled by staff and were asked to respond freely to questions, which were guaranteed anonymity.

⁶⁸ M. Armstrong, Performance management, Key strategies and practical guidelines, 3rd ed, Kogan Page, London, 2006, p. 57.

The analysis of the data is used statistical program SPSS (Statistical Program for Social Sciences). Using the χ^2 - test and Pearson coefficient proves our hypothesis, while using correlation analysis shows the strength of the relationship between the independent variable (alignment of the individual goals with the organizational goals) and the dependent variable (organizational performance).

4.1 TESTING THE HYPOTHESIS

Hypothesis 1: Alignment of the individual goals with the organizational goals, have a positive impact on organizational performance.

Hypothesis 2: Alignment of the individual goals with the organizational goals, have a negative impact on organizational performance.

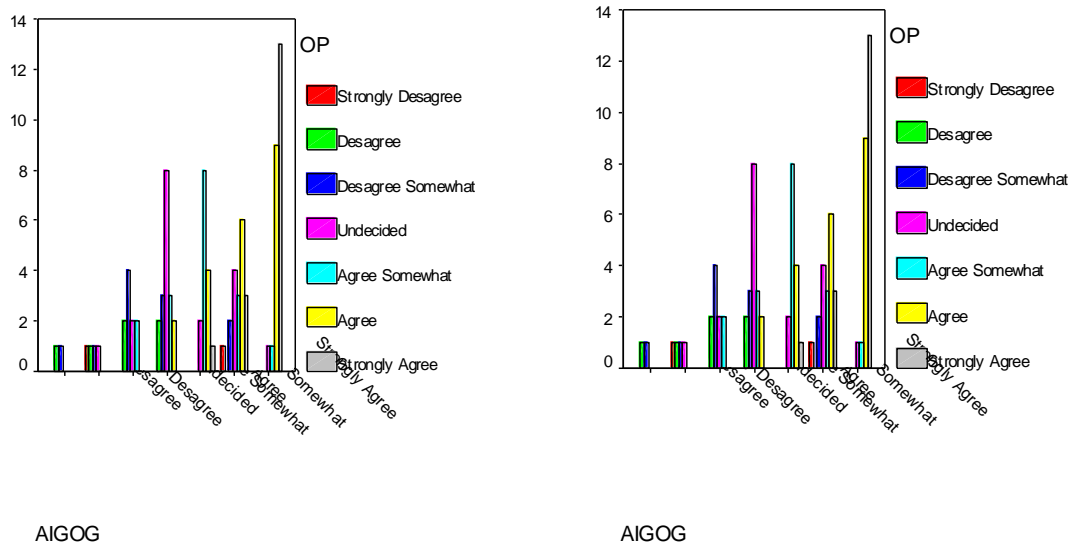
Table 2. Empirical and theoretical frequencies of variables: Alignment of the individual goals with the organizational goals (in rows) and organizational performance (Column)

AGOG * OP Crosstabulation

Count		OP							Total
		Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree	
AIGOG	Strongly Disagree		1	1					2
	Disagree	1	1	1	1				4
	Disagree Somewhat		2	4	2	2			10
	Undecided		2	3	8	3	2		18
	Agree Somewhat				2	8	4	1	15
	Agree	1		2	4	3	6	3	19
	Strongly Agree				1	1	9	13	24
Total		2	6	11	18	17	21	17	92

AGOG * OP Crosstabulation

Expected Count		OP							Total
		Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree	
AIGOG	Strongly Disagree	,0	,1	,2	,4	,4	,5	,4	2,0
	Disagree	,1	,3	,5	,8	,7	,9	,7	4,0
	Disagree Somewhat	,2	,7	1,2	2,0	1,8	2,3	1,8	10,0
	Undecided	,4	1,2	2,2	3,5	3,3	4,1	3,3	18,0
	Agree Somewhat	,3	1,0	1,8	2,9	2,8	3,4	2,8	15,0
	Agree	,4	1,2	2,3	3,7	3,5	4,3	3,5	19,0
	Strongly Agree	,5	1,6	2,9	4,7	4,4	5,5	4,4	24,0
Total		2,0	6,0	11,0	18,0	17,0	21,0	17,0	92,0



Picture 1. Empirical and theoretical frequencies of variables: Alignment of the individual goals with the organizational goals (in rows) and organizational performance (Column)

Table 3. Grouped data for the given variables

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
AIGOG * OP	92	100,0%	0	,0%	92	100,0%

Table 4. Results of χ^2 - test

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	96,449 ^a	36	,000
Likelihood Ratio	94,083	36	,000
Linear-by-Linear Association	45,967	1	,000
N of Valid Cases	92		

a. 48 cells (98,0%) have expected count less than 5. The minimum expected count is ,04.

The calculated value of $\chi^2 = 96,449$

The risk of error from 0.05% and the number of degrees of freedom $df = 6$ theoretical (critical) value of the test χ^2 is $(0.05, 36) = 43.77$.

Because $(\chi^2 = 96,449) > (\chi^2 = 43.77)$ hypothesis is accepted and it can be concluded that **alignment of the individual goals with the organizational goals have a positive impact on organizational performance of organizations in the Republic of Macedonia**. This is confirmed by the fact that the defined risk of error is $1-\alpha$, ie 0.05 is greater than the value of the realized level of risk of error, which is $p = 0,000$.

The proof of the first hypothesis is rejected the second hypothesis which indicated the negative impact of alignment of the individual goals with the organizational goals on organizational performance of organizations in the Republic of Macedonia.

Using correlation coefficient analysis and the coefficient of Spearman we can realize how strong is the link between alignment of the individual goals with the organizational goals and organizational performance of organizations.

Table 5. Correlation between alignment of the individual goals with the organizational goals and organizational performance

			Correlations	
			AI GOG	OP
Spearman's rho	AI GOG	Correlation Coefficient	1,000	,729**
		Sig. (2-tailed)	,	,000
		N	92	92
	OP	Correlation Coefficient	,729**	1,000
		Sig. (2-tailed)	,000	,
		N	92	92

** . Correlation is significant at the .01 level (2-tailed).

Correlation analysis shows that there is a strong link between alignment of the individual goals with the organizational goals (independent variable) and organizational performance of organizations in the Republic of Macedonia (dependent variable).

5. CONCLUSION

Performance management helps the organization to provide the basis for managing the expectations of employees and the organization creates a framework that facilitates the alignment of the individual goals with the organizational goals, motivate through clearly established expectations and creates development process for the organization through a guide that helps in setting up the future needs and results.

In practice, many successful organizations in countries with developed market economies, often invest a lot of effort in preparing programs and strategies to managing and raising the level of awareness of management's role in alignment of the individual goals with

the organizational goals and its impact on organizational performance. Goals are the bridge that connects business strategy to successful results.

Based on the results of statistical analysis can be concluded that there is a positive correlation between alignment of the individual goals with the organizational goals and organizational performance in organizations in the Republic of Macedonia. This means that alignment keeps everyone on the same road and discourages the divergence and distraction that can derail progress toward planned business results.

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ANALYSIS OF METHODS FOR MEASURING INTELLECTUAL CAPITAL

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Abstract: Despite numerous problems related to measuring intellectual capital, organizations all over the world show increasing interest for preparation and publication of intellectual capital reports, which is a consequence of constant striving for more effective assessments of current business opportunities and better anticipation of future results on the market. Today, it is clear that the management system based on accounting performance measures is outdated. Modern enterprises with their intangible assets as the main source of competitive advantage require a new management system, as well as performance measures that would make the effects of investment in intangible assets more visible. Intellectual capital reports derived by these measuring methods, can further be used to overcome the lack of relevant information necessary for improvement of future overall performances. Supplementing financial reports, intellectual capital reports should provide the management of modern organizations with a better insight into the key intangible resources, and at the same time showcasing the potential for their more efficient use and development. Those reports are equally important for investors and other stakeholders because they provide a more realistic picture of the performance and actual worth of the organization, taking into account both financial and non-financial indicators. This paper aims to explain intellectual capital concept, its structure, focusing on analysis of methods for measuring intellectual capital which are the most commonly used in theory and practice.

Keywords: organizational performance, intangible resources, intellectual capital, knowledge, competencies

1. INTRODUCTION

The world has almost insensibly slipped from the industrial to the knowledge age, which approaches business from a completely new perspective, the perspective of knowledge. We are slowly entering the era based on intangible, intellectual creation of value [10]. There is a considerable difference between knowledge based added value and physically added value. During the industrial era, the dominant way of value creation was mass production of goods, in other words, physical creation of value added. The financial capital had a determining role, and an enormous number of workers was engaged in trying to create as many goods as possible because value creation depended on quantity. Today, the situation is different. The created value added does not depend on the increased production of goods, but the knowledge content incorporated into goods and services. Value is not created by the quantity of produced goods but through the quality created by knowledgeable workers who, for example, design new software programs or invent new medicine. All these changes have had a dramatical impact on the nature of value creation [10]. It is no longer possible to think of

goods as physical manifestations of value [6]. This means that the loss of value of goods and services does not occur due to its physical ware but due to out-dated knowledge built into it. Today customers are buying new products not because the previous ones fails to fulfil their function, but because the new ones contain more knowledge. Therefore, it is not the physical component of the product that becomes obsolete, it's the non-material component - the knowledge [10].

As a result, in the knowledge age, the knowledge organizations prevail over the traditional ones that rely on mass production of goods and services. They process large amounts of information, separated from the flows of goods and tangible resources [12]. Those organizations have a small amount of assets in their balanced sheet, compared with the added value they create. They no longer compete in minimizing transaction costs, but in reshaping of the critical assets, in order to create strikingly different and unique combination necessary for meeting the dramatically changing demands of customers [5]. Some authors believe that the real competitive advantage of the organizations lies in their ability to learn faster than the competition, to collect and share knowledge and constantly increase it. Peter Senge defines the learning organizations as groups of people who continuously increase their ability to achieve everything they want and all they can imagine. Therefore, the only permanent source of competitive advantage of the learning organizations remains the time to learn and gain new know-how [5]. Jogesh Malhotra thinks that the learning organizations are the organizations with a firmly embedded philosophy for perception, reaction and response to changes, complexity and uncertainty [7].

The environmental changes are fast and unpredictable, so only learning organizations, which are competent, creative, innovative, and flexible can count on long-term competitiveness and survival on the market. As a result of accelerating technological changes and global competition, companies are forced to continuously innovate and restructure their business models. Innovativeness and creativity become the basis of market competitiveness of modern organizations, and with relevant knowledge, they represent a new source of economic wealth and a key factor of successful businesses.

2. DEFINITION AND STRUCTURE OF INTELLECTUAL CAPITAL

The word “capital” comes from the Latin word *capitale*, an adjective derived from the noun *caput* which means “principal”. Originally, this word was used to make distinction between principal and interest.

Over the centuries, the meaning of the word capital has expanded, until capital started to include all sorts of collections of wealth, not just the sums of money. In traditional economic theory, capital is considered in the context of physical assets (tools, machinery, buildings, etc.) that were used in the production process. Classical economics observe the capital as one of the three elements of production, along with land and work force. It is interesting that the Intellectual Capital Movement expanded further the meaning of the word capital, so it started to cover also non-monetary sources of wealth creation. The Intellectual Capital Movement has created a new perspective from which the companies can be observed, from which the observers can see completely new things the new capital [5].

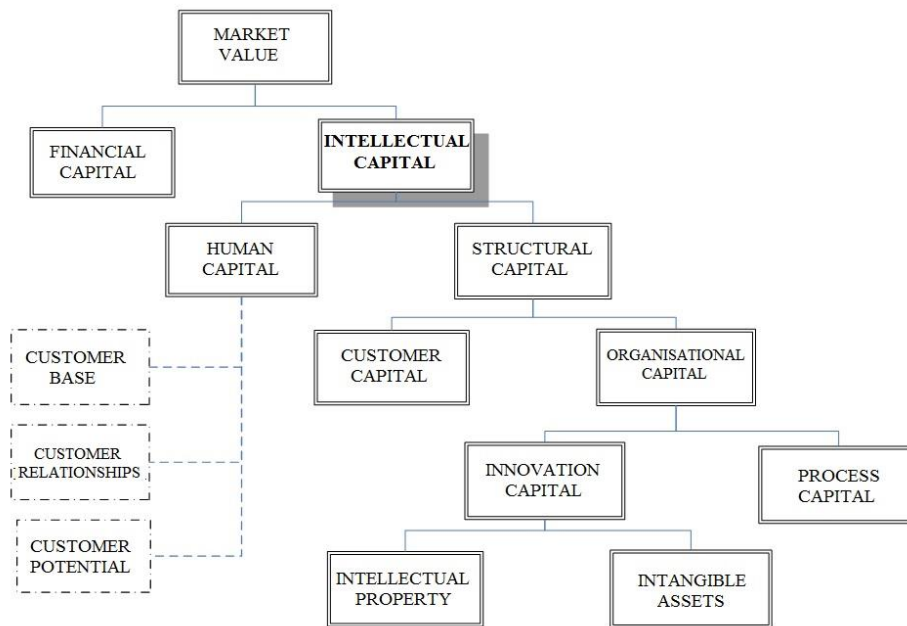
The term intellectual capital was used for the first time in 1969 by John Kenneth Galbraith in his letter to an economist Michael Kalecki. He wrote, “I wonder if you realize how much those of us worldwide have owed to the intellectual capital you have provided over

these past decades” [15]. Later, this term was used and explained by the management guru Peter Drucker in his description of the post-capitalistic society. By the end of the 90s, the term *intellectual capital* settled in the modern business publications and scientific literature [5]. The first managers of knowledge in organizations was established (*CKO – Chief Knowledge Officer*) and also the directors of the intellectual capital, responsible for the intellectual capital management [2].

Authors Petty and Guthrie claim that one of the most workable definitions of intellectual capital is that offered by the Organization for Economic Co-operation and Development (*OECD*) which describes intellectual capital as the economic value of two categories of intangible assets of a company: organizational (structural) capital and human capital. More precisely, structural capital refers to things like proprietary software systems, distribution networks, and supply chains. Human capital includes human resources within the organization and resources external to the organisation, namely customers and suppliers [9]. The Intellectual capital movement defined intellectual capital as knowledge that can be converted into profit. Stewart describes intellectual capital as the bundle of useful information that helps companies to achieve competitive advantage on the market. According to Edvinsson, intellectual capital represents the ability to transform knowledge and intangible assets into wealth creating resources. Hubert Saint-Onge describes intellectual capital as the output of accelerated learning at organisational level. Bontis extends this view when he describes intellectual capital as the total stock of knowledge in a firm [14].

The intellectual capital is a wide concept, often divided in several different categories. The literature contains numerous different classifications of intellectual capital and definitions of its main constructs, the categories of the intellectual capital. Some of the existing classification of intellectual capital that are commonly used are:

- **Meritum guidelines** – in this model of classification, intellectual capital consists of **human, relational and structural capital**;
- **Danish guidelines** – in this approach intellectual capital is defined by the following categories: **employees, customers, process and technology**;
- **Intangible Asset Monitor** – categories of the intellectual capital in this model are: **individual competencies of the employees, internal structure capital and external capital structure** and
- **Skandia Navigator** – according to the model of Skandia company intellectual capital is composed of **human and structural capital** (Picture 1.). Structural capital includes the customer and the organisational capital, representing its external and internal focus, respectively. Organisational capital consists of the innovation and the process capital.



Picture 1. The Skandia intellectual capital value scheme [14]

The main difference between the various classification approaches is that they assume different levels of aggregation of the elements of intellectual capital. Most of these classification schemes for intellectual capital distinguish between [3]:

- External processes related to customers;
- internal organisational processes and
- human capital.

There is general consensus among researches and practitioners to define intellectual capital as encompassing [3]:

- human capital, refers to the tacit knowledge embedded in the minds of employees;
- structural capital which include the organisational routines of the business and
- customer or relationship capital which represents the knowledge embedded in the relationships established with the outside environment.

The different classifications associated with intellectual capital by various authors are reflected in the following table 1. This summary reflects human, structural and customer capital as the three main components of intellectual capital [14].

Table 1. Components of intellectual capital identified by different experts [14]

Author/Intellectual capital categories	Human capital	Structural capital	Customer capital	Commitment	Competence	Attitude	Intellectual agility	Relationship	Organisation	Renewal and development	Intellectual assets and property
Bontis (1998)	✓	✓	✓								
Brooking (1996)	✓	✓	✓								✓
Edvinsson i Malone (1997)	✓	✓	✓								
Roos et al. (1997)	✓	✓			✓	✓	✓	✓	✓	✓	
Stewart (1997)	✓	✓	✓								
Sullivan (2000)	✓	✓									✓
Sveiby (1997)	✓	✓	✓								
Ulrich (1998)	✓			✓	✓						

3. MEASURING INTELLECTUAL CAPITAL

3.1. INTELLECTUAL CAPITAL REPORTS

The traditional financial reports fail to include all value generators, so they cannot give a real picture about organizational performances and do not represent a guarantee of its future success. That could be a problem for managers, as well as for external stakeholders such as potential partners, investors and creditors. Without additional reports that would provide them an insight into the potential of the available knowledge and innovative potential, managers have no other choice than to rely on their own intuition when they have to make decisions related to mid-term and long-term survival on the market. On the other hand, without information about individual competence of employees, corporate culture and other factors that could affect the added value and organizational success, external stakeholders cannot accurately assess their own risk. It is possible to overcome the lack of relevant information with intellectual capital reports, which are generated by implementing the methods for measuring intellectual capital.

Intellectual capital report is an instrument for accurate access and development of the intellectual capital of the organization. The report shows how are the organizational objectives related to business processes, intellectual capital and business success, using the indicators that better describe all of these elements [1]. Through intellectual capital reports, companies communicate their own ways of using the intangible resources and publish the results of their activities and initiatives focused on intellectual capital management. In a systematic and methodical way, these reports reveal specific knowledge of the company and its innovative potential, which together can contribute to the creation of added value and overall market

competitiveness of the organization in future. Intellectual capital reports represent the supplements to traditional financial reports (such as balance sheet or balance of income), because they take into account measures and criteria, which they need in order to be comprehensive [4].

The motives for compiling the intellectual capital reports are as follows [1]: managing the organization in systematic way; getting loans, credits and equity capital; compliance with legal regulations; recruiting new and retaining existing employees; cooperation development; acquiring new and retaining existing customers; etc.

3.2. METHODS FOR MEASURING INTELLECTUAL CAPITAL

Methods for measuring intellectual capital are mainly dealing with internal measuring and reporting about performance. Their application should provide the company management the quality basis for monitoring and encouraging its progress in business.

Methods for measuring intellectual capital that are the most commonly used in theory and practice are as follows:

1. Intangible Asset Monitor (IAM),
2. Balanced Scorecard,
3. Danish Guidelines,
4. Meritum Guidelines and
5. Balance of Knowledge.

3.2.1. Intangible Asset Monitor

Karl-Eric Sveiby, creator of Intangible Asset Monitor believes that by using this method companies could overcome the difficulties in measuring intangible assets. The Monitor acts as a management and communication tool aimed at measuring intellectual capital.

At the external reporting level, problem that Sveiby noticed was the quality of information about the real value of the company and its potential. In the knowledge economy, external stakeholders cannot make the correct decisions based on of the financial reports only. The problem is finding the way to describe and represent the companies more accurately, in order to provide a complete overview of quality of the management system and reliability of the company to stakeholders. Sveiby proposed that the information given in the external reports about intangible assets should include key indicators and text which explain their role in the assessment of intangible assets of the company. The focus of the management in the area of internal measuring is to know as much as possible about the company, in order to monitor its progress and to take corrective action if necessary [13]. Intangible asset reports are becoming managerial information systems. The environment has been changing dramatically, so information that are available to the management of company should reveal flows, direction of changes and trends. Therefore Sveiby believes that managers are more interested in amount of time necessary to measure intangible assets, than in absolute accuracy of those measurements.

Sveiby highlights the confusing diversity in a way that accounting treats tangible and intangible assets and shows that traditional financial indicators such as return on investment (ROI) and return on equity (ROE) are not useful for companies with large intangible assets. Sveiby thinks that the organizations in the knowledge economy need new measurement systems. “If you measure something new with the old measurement system, you won't be able to see what is actually new” [13]. Five hundred years' old system for calculating the value of the company must make space for the new system for measuring non-financial knowledge flows and intangible assets, which uses a completely new metrics, new indicators and different unit rates.

Instead of the term intellectual capital Sveiby uses expressions like intangible assets or intangible resources. According to him, the intangible assets consist of the following elements:

1. internal structure which include management structures, patents, concepts, models, information and administrative systems, R&D, attitudes, culture and spirit of the organization;
2. external structure which include relationships with customers and suppliers, brands, trade marks and organizational image;
3. individual competencies which represent the ability of people to find a solution in different situations.

Within the visible assets as well as the each category of intangible assets, Sveiby has formed a list of potential indicators of growth, renewal, efficiency and stability/risk. Managers should select at least two the most relevant indicators for each perspective and for each of the three categories of intangible assets. Which indicators will be selected depends of strategy of the company and its goals.

Intangible asset monitor is a comprehensive method that allows the adjustments to unique characteristics of companies. The strength of this method is focusing on risks and a company's ability to survive changes. Using intangible asset monitor for measuring intangibles is suitable for comparing the indicator values. However, companies in their monitors import specific indicators, so comparison is possible only with previous years, but not with other companies, even companies from the same industry.

3.2.2. Balanced ScoreCard

Balanced ScoreCard is a technique that maintains the balance between short-term and long-term goals, financial and non-financial measures, positive and negative indicators and internal and external decisions. Originally it was designed by Kaplan and Norton and represents a suitable tool for conversion of strategy and vision into concrete goals. For example, if a company wants good business results, it needs good customer service; if a company wants good customer service, it needs to have great processes for support and if it wants great processes, it needs right people and knowledge, i.e. intellectual capital [4].

The basic perspectives of Balanced ScoreCard are financial perspective, customer perspective, perspective of internal business processes and perspective of learning and growth. For each of them objectives need to be defined, as well as the measures and activities necessary for realization of projected plans. This technique can be used to evaluate the effects of intangible assets management, and the procedure consists of following steps [8]:

- concretization of the vision of intangible assets management, where it is necessary to provide unique opinion of managers about the reasons and needs for intangible assets management. The vision of the organizations in terms of investments in intangible assets management should be defined, and then the conversion of that vision into concrete and measurable objectives need to be done. After that, objectives are broken down into short-term and individual tasks.
- communication and connecting provide monitoring of activities which helps in achieving defined objectives. It is necessary to pay attention to the trainings of employees, to monitor the level of efficiency of using the intangible assets management system and to introduce that management concept to employees, and highlight their individual contributions significant for functioning of the whole system.
- with business planning, companies control to what extent resources, selected measures and specific objectives match with the previously defined vision and strategy of intangible assets management system.
- learning and feedback are essential for the evaluation and improvement of intangible assets management system.

Benefits of using this model derive from its specific characteristics: the ability to provide insight into the current state of intangible resources of enterprises in any time, the optimal number of indicators and measures significant for management of the company's performance and not only of the intangible resources, the possibilities for expanding the concept to all levels in the hierarchy, linking the individual objectives with realization of the overall vision of the company, a direct connection between long-term objectives related to intangible assets management and budget of the company, a direct connection between financial indicators and the effects of implementing the intangible assets management system, etc.

The main disadvantages are gathered in the fact that the development process of this model is more complex and complicated in comparison to other models. In the most cases it is impossible to just take over the Balanced ScoreCard from the similar company, because all of its elements differ significantly from an organization to organization.

3.2.3. Danish Guidelines

Danish Guidelines are result of a three year R&D project that was initiated and organized by the Danish Agency for Trade and Industry, with an aim to find a way that will enable Danish companies to better use and to faster develop the knowledge that creates value, in order to increase their competitiveness and provide further prosperity. The project was

coordinated by professor Jan Mouritsen (the Copenhagen Business School) and Per Nikolaj Larsen (the Aarhus School of Business), and included several academic researchers and 17 companies from Denmark [5]. Those companies have contributed to the project by preparing two sets of intellectual capital reports each. Based on their experience, the concept of Danish guidelines was built with an aim to explain and recommend the way in which companies should generate the intellectual capital reports, as well as the form of presentation of the external reports. Danish guidelines was first published in the November 2000. The second phase of the project began in 2001 and within that phase the original guidelines were tested in over 100 private and public companies in Denmark. The final result of the project is a model for measuring intellectual capital, named Danish guidelines or intellectual capital reports [5, 16].

The concept of Danish guidelines proposes 4 phases during preparation of the intellectual capital reports. Those phases are actually the key elements of the report. The first three phases are: a knowledge narrative, management challenges and actions and they represent the analytical aspect of the report. The report itself with text, figures and illustrations represent the fourth phase [16].

An intellectual capital report that is based on Danish guidelines is action-oriented. It reports on the company's efforts to obtain, develop, share and anchor the knowledge resources required to ensure future results [16]. It may be in form of internal report suitable for management of the company, external report for external stakeholders or both. Although Danish guidelines are mainly a tool for improving internal management, the part that refers to reporting is focused on the preparing and publishing the external knowledge reports. The authors of this model believe that external reporting is important for communication with customers (current and potential), employees, and other stakeholders.

Mouritsen is one of the few authors who believe that the process of creating the intellectual capital report is important equally as the report itself. The process of thinking, exchanging the ideas and communication during creation of the reports could clarify the vision, mission, strategy and priorities of the company [5].

The main disadvantages of this model is that it is not entirely new, because it has almost the same phases of implementation as the Balanced ScoreCard. The only big difference is that intellectual capital reports based on Danish guidelines are focused on knowledge resources and knowledge management, while Balanced ScoreCard refers to management in general.

3.2.4. Meritum Guidelines

The full name of MERITUM is “**MEasuRing Intangibles To Understand and improve innovation Management**” [11, 17]. Meritum guidelines are classified as a model for measuring intellectual capital and they include instructions for completing the intellectual capital reports in order to identify the most important intangible assets and activities linked to strategic objectives of the company [5]. This model discloses the connections between intangible assets and intangible activities and also considers the ways of creating value for customers and other stakeholders [17].

Meritum guidelines include two main models: the model for managing the intellectual capital and the model for reporting about the intellectual capital. The guidelines are the result of a R&D project created and financially sponsored by the European Commission in the late 1990s. The concept is based on experience of the companies which were involved in the project and on evaluation by the experts in the field of the intangibles. The concept of knowledge in Meritum guidelines is not explicitly defined, but implicitly it is defined as the key intangible that provides a competitive advantage on the market. The intellectual capital is a combination of human, structural and relational capital and their mutual interactions. The process of managing the intellectual capital consists of the following phases: identification of the intangible resources, measurement and monitoring [17].

According to Meritum guidelines, intellectual capital management and reporting should be adjusted to firm-specific characteristic, which means that each company has to develop its own processes and procedures for managing the intellectual capital and its reporting. Implementation of the proposed guidelines is on voluntary basis, and their wider acceptance is more than welcome, because it would make possible to compare the reports of different companies, as it is the case with the financial reports.

3.2.5. Balance of Knowledge

The Balance of knowledge is the German model for intellectual capital reporting. The development of the model for intellectual capital reporting began, as in other countries, at the national level. The project was initiated and sponsored by the Federal Ministry of Economics and Labour as a kind of support to small and medium enterprises in Germany to better use and develop their intellectual capital, in order to achieve greater transparency and competitiveness on the global market and their further prosperity. Fourteen German companies were involved in this R&D project, and in August 2004 the guidelines for intellectual capital reporting were published [1, 5].

This model allows two things. First, it helps in decision making, because it clearly states the various aspects that contribute to the business success and second, it could be used as a tool for monitoring the stocks of intellectual capital. The starting points in this model are the vision and strategy of the organization with an overview of alternatives and risks that stand in front of the organizations in their business environment. Based on those starting points, the organizations derive a number of measures that describe the position which they want to build according to the various categories of intellectual capital (human, structural, and relational).

Intellectual capital report measures and evaluates all of its three categories, but also deal with all the interactions between individual categories and the process of knowledge. These interactions reveal the status of individual success factors. Some of them have a pretty risky effect on the system, and others act as stabilizers. In this way, the organizations identify all the impacts and relations and are able to plan a successful future accordingly.

Business success is achieved by the interaction of business processes and processes based on knowledge, combined with other tangible and financial resources that intellectual capital reports fail to identify. Based on the results, the organizations derive certain

conclusions that may lead to some changes in their vision and strategy. Information about the process of knowledge and relevant resources, which are obtained in reports, helps in detecting the appropriate measures in the new cycle and accelerate the sustainable orientation of the organization.

4. CONCLUSION

An organization performance measurement is a key precondition for successful management and its transition from the existing to a particular desired state. Measuring intellectual capital is an integral part of the overall performance measurement.

It seems that there is still no common consensus on what are the scopes and boundaries of intellectual capital. This area is characterized by diverse terminology, because certain authors use the concept of intellectual capital, while others rather speak in terms of intangible assets, intangible resources, invisible assets, invisible wealth or knowledge capital. Along with this confusion of terminology, it should be mentioned the tendency of researchers to construct their own definitions within the concept they choose, but the problem is that they are not based on previous research, and so they lead to excessive amounts of different definitions and even greater terminological confusion in this area. The studying of intellectual capital exceeds the limits of one scientific discipline, so constant communication and cooperation between the researchers from different scientific areas are more than welcome.

The measurement is a complex problem, because it is difficult to find an absolutely accurate and universal system for measuring intangible intellectual capital. Today there are over 85 different methods for valuation, i.e. assessing and measuring intellectual capital. That number leads to the conclusion that there is still no comprehensive system for measuring intellectual capital which uses money as a common denominator of values and at the same time it is practical and useful for managers. The number and diversity of the new methods for measurement, point out the absence of standards, opposite the traditional accounting system for measuring financial capital. However, it shouldn't be forgotten that traditional accounting has developed for hundreds of years. International Accounting Standards Committee (IASC) is faced with the great challenge in terms of setting standards for expressing the value of intellectual capital. Experts in the field of finance and accounting could provide a significant assistance to the intellectual capital community, especially in developing management systems able to cover and control intellectual capital, using their own professional skills and experience in measurement.

The importance of measuring intellectual capital and intellectual capital reporting is receiving wide interest by many modern companies, especially ones that have a high value of intangible assets. They list intellectual capital reports within their regular reports about the company's performance and together they provide a more precise picture of the current strategic position of the company and its potential in the future.

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COMPARISON METHOD OF STRATEGIC MANAGEMENT

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Abstract: How to be successful and how to do an effective job in the time of changing and crisis, it is very demanding task. Benchmarking is a management's action and the tool at the same time, we can use it to make success and to improve it.

In the actual conditions of the globalization and extension of the markets throughout the world wide, the realization of the comparison between products and services, between economic entities, has become an indispensable instrument in the establishment of the real situation of the own firm comparing with that other firms and for the identification of the most appropriate practices of improvement of the existent situation. By using some modern management instruments, the firms try to increase their competitiveness in the actual business environment. Benchmarking comes to help the firms surpass the problems, to gain durable competitive advantages through the development of the strengths and by reducing the weaknesses. The paper proposes to emphasize the necessity of using benchmarking, the application methodology, the advantages and the disadvantages of the new process, as well as the concerned critics.

Keywords: Strategic Management, Economy, Comparison, Companies, the quality, Ability, Services, Measurement.

What does benchmarking presuppose?

The application methodology.

For an organization, benchmarking consists in the following steps:

- To analyse in detail the own processes and approaches.
- To compare the processes, the practices and the results with different locations, with the best from, inside and outside the activity domain, being placed in the country or outside.
- To action in order to equalize or even to outrun the best.

The benchmarking application methodology

A benchmarking process presupposes to go through the following stages which are distributed in five phases:

1. The identification of the subjects and of the benchmarking object
2. The selection of the benchmarking reference partners
3. The research process on the Internet
4. The analysis of the performances and the identification of the variance causes
5. The fixing of the performance levels
6. The communication of the analysis results
7. The establishment of the functional objectives (aims)
8. The development of an action plan
9. The identification of the benchmarking object
10. The readjustment of benchmarking

These steps reunite in the following phases:

a) **The planning phase** consists in the preparation of the researches which must define what, who and how :

- What precisely must we research?
- With whom must we realize the comparison?
- How can we obtain the information?

b) **The analysis phase** presupposes knowledge of the used methods and a rigorous evaluation of the advantages and weaknesses. The problems to which we must find an answer would be :

- Is the benchmarking partner the best in the domain?-
- If yes, why is that?
- Which are the methods which he utilizes or which he intends to utilize?
- How could these methods be adapted within the own organization?

The answers to these questions will constitute the base for the establishment of the performance interval and of the direction of the future action: the maintenance of the achieved advantage.

c) **The integration phase** is constituted in the process which allows the utilization of the analysis results for *the establishment of the operations objectives*. It is necessary to make an attentive planning, well-considered in order to incorporate the new methods achieved within the entity.

d) **The development phase**. The results of the benchmarking must be emphasized within some applications which allow recurrently evaluations in order to establish the evolutions, the obtained progresses. Also, there will be taken into consideration measures of updating the process, because *the only constancy of the modern world seems to be the change*. This way, the entity must dispose of a very rigorous surveillance system of the concurrence in order to apply successfully the “best practices” in which there are elaborated the action plans, being measured the obtained process and it is in search of extension ways towards other domains.

e) **The maturity phase** is reached when all the methods have been applied and when a progress has been obtained. Also, benchmarking must become an essential element of the management process within the economic entity.

What is benchmarking?

Benchmarking is the continuous search for and adaptation of significantly better practices that leads to superior performance by investigating the performance and practices of other organisations (benchmark partners). In addition, it can create a crisis to facilitate the change process.

Benchmarking goes beyond comparisons with competitors to understanding the practices that lie behind the performance gaps. It is not a method for 'copying' the practices of

competitors, but a way of seeking superior process performance by looking outside the industry. Benchmarking makes it possible to gain competitive superiority rather than competitive parity. The term benchmark refers to the reference point by which performance is measured against. It is the indicator of what can and is being achieved. The term benchmarking refers to the actual activity of establishing benchmarks and 'best' practices.

Why do you need to benchmark?

The main benefits of benchmarking :

- provides realistic and achievable targets
- prevents companies from being industry led
- challenges operational complacency
- creates an atmosphere conducive to continuous improvement
- allows employees to visualise the improvement which can be a strong motivator for change.
- creates a sense of urgency for improvement.
- confirms the belief that there is a need for change.
- helps to identify weak areas and indicates what needs to be done to improve.

For example, quality performance in the 96 to 98% range was considered excellent in the early 1980's. However, Japanese companies, in the meantime, were measuring quality by a few hundred parts per million by focusing on process control to ensure quality consistency.

Thus, benchmarking is the only real way to assess industrial competitiveness and to determine how one company's process performance compares to other companies'.

Key steps to benchmarking

Benchmarking must be a continuous process with the extent and scope of the project being dependent on the resources that the company has available. Based on our research and experience we would recommend the following stages in your Benchmarking projects:

1. Identify what to benchmark.
2. Ensure management support and involve all stakeholders
3. Select the benchmarking team
4. Analysis of internal processes
5. Identify companies to benchmark
6. Decide on method(s) of data collection
7. Collect public domain information
8. Analyse collected information to establish what other information needs to be collected.
9. Establish contacts with benchmark partners
10. Plan the actual visits
11. Conduct the benchmarking visits

12. Establish whether a performance gap exists
13. Predict future performance levels
14. Communicate benchmark findings
15. Establish targets and action plans
16. Gain support and ownership for the plans and goals
17. Implement the action plans, measure performance and communicate progress
18. Re-calibrate benchmarks
19. Adopt benchmarking on a company-wide scale

TYPES OF BENCHMARKING

We can affirm that benchmarking means comparing one's organization or a part of it with that of the other companies; in this way, companies can adopt one or more of the following *types of benchmarking* :

- Strategic Benchmarking: Aimed at improving a company's overall performance by studying the long-term strategies and approaches that helped the 'best practice' companies to succeed. It involves examining the core competencies, product/service development and innovation strategies of such companies. This type is usually not industry specific, meaning it is best to look at other industries.
- Competitive Benchmarking or Performance Benchmarking: Used by companies to compare their positions with respect to the performance characteristics of their key products and services. Competitive benchmarking involves companies from the same sector.
- Process Benchmarking: the initiating firm focuses its observation and investigation of business processes with a goal of identifying and observing the best practices from one or more benchmark firms (firms involved in performing similar work or offering similar services).

Strategic Benchmarking

Concerned with comparing different companies' strategies and assessing the success of those strategies in the marketplace. Analyses the strategies with particular reference to:

- strategic intent
- core competencies
- process capability
- product line
- strategic alliances
- technology portfolio
-

Should begin with the needs and expectations of the customer. This can be achieved through surveys to measure customer satisfaction and the gaps between a company's performance and its customers' standards.

Ensures a co-ordinated strategic direction regarding benchmarking and reduces the possibility that one improvement project will cancel out the effect of another. Benchmarking candidates are normally direct competition.

The main difficulty is persuading the benchmark partner to discuss their strategy. However, there is a great deal of information which can be obtained from customers, common suppliers and public domain information.

Functional Benchmarking

- Investigates the performance of core business functions.
- Does not need to focus on direct competition but, depending on the function to be benchmarked, the benchmark partner may need to be in a similarly characterised industry for useful comparisons to be made.

Best Practices Benchmarking

- Applies to business processes.
- It breaks the function down into discrete areas that are the targets for benchmarking and is therefore a more focused study than functional benchmarking.
- Some business processes are the same regardless of the type of industry.
- Attempts to benchmark not only work processes, but also the management practices behind them.

Product Benchmarking

- Commonly known as reverse engineering or competitive product analysis.
- Assesses competitor costs, product concepts, strengths and weaknesses of alternative designs and competitor design trade-offs, by obtaining, stripping down and analysing competitors' products.

Strategic Benchmarking

- **Internal Benchmarks**
- Organizations can learn from other operating units within the organization. Internal benchmarks compare similar business processes, products, or services within the organization.
- These types of strategic benchmarks are relatively easy to conduct. The partners in the benchmarking study can get a detailed understanding of the process. Due to the nature of their business relationship there is a willingness to share information, with little concern of compromising confidentiality. The internal benchmark provides a good avenue for knowledge transfer from one operating unit to the other. There is also the possibility of "borrowing" experienced resources to help introduce process improvements.
- While internal benchmarks provide the most detailed information about similar business processes, the benchmark is limited to the best internal practices. This is a good place to start benchmarking, but to become a "world-class" organization, an organization needs to look beyond its own organization.

- Competitive Benchmarks
- Organizations can learn from their competitors and can rate their performance in relation to their competitors' performance. Competitive benchmarks compare similar business processes, products, or services that are in direct competition within the marketplace.
- Due to security and confidentiality concerns, competitive benchmarks are often limited to measurement of a product or service. This type of strategic benchmark involves purchasing the competitor's product or service. The product or service is then analyzed and tested to assess the performance, quality, and cost of the product or service. Other aspects of the product or service are also evaluated (e.g., packaging, customer service, user manuals, warranty).
- Competitive process information is often available through trade associations or industry groups. Business processes performed by several competing companies are analyzed by a third party. The results of the benchmark are usually published without revealing the companies participating in the benchmark.
- Industry Independent Benchmarks
- Organizations can learn from organizations involved in dissimilar industries. There are many business processes that are completed by all organizations, regardless of their industry (e.g., accounts receivables, inventory management, shipping, and order processing). Industry independent benchmarks analyze business processes completed by organizations that are recognized as leaders in their industry. For example, when benchmarking a warehouse process, look for an organization specializing in warehousing operations. When comparing business processes between dissimilar industries, there must be some similarities in the process, to make a meaningful comparison. A good industry independent benchmark compares analogous processes.
- Since the partners in the benchmark are not in direct competition, there is a willingness to share information between the partners. This type of strategic benchmark can help organizations identify practices not currently in use in their business processes. The introduction of best practices into the business processes can provide the innovation needed to become a "world-class" organization.
- Do not benchmark with the expectations of duplicating exactly what you learn from other organizations. Instead, incorporate the best practices of other organizations into your organization's culture.

Implementation

Regarding *Supplier Management System*, Xerox found that all the Japanese copier Companies put together had only 1,000 suppliers, while Xerox alone had 5,000. To keep the number of suppliers low, Japanese companies standardized many parts. Often, half the components of similar machines were identical. To ensure part standardization, Japanese companies worked closely with their suppliers. They frequently trained vendor's employees in quality control, manufacturing automation and other key areas. Cooperation between the company and the vendor extended to just-in-time production scheduling, i.e. delivery in small quantities, as per the customer's production schedule.

In line with the best practices, Xerox reduced the number of vendors for the copier

Business from 5,000 to just 400. Xerox also created a vendor certification process in which suppliers were either offered training or explicitly told where they needed to improve in order to continue as a Xerox vendor. Vendors were consulted for ideas on better designs and improved customer service also.

Inventory Management. Xerox's efforts to improve inventory management practices drew inspiration from the innovative spare parts management practices of its European operations.

Traditionally, technical representatives decided the level of spare parts inventory to be carried; little information was available on the actual usage pattern of the spare parts. Xerox's European operations developed a sophisticated information system to get around this problem. Actual usage, rather than mere withdrawal from the stocking point, was used to determine inventory levels. In the late 1980s, Xerox replicated the system in the US and saved tens of millions of dollars in the process. The stocking policy followed by Xerox branch managers was to hold fully finished, fully configured products near to the customer. Because of this policy, they carried vast amounts of inventory, some of which was not even sold during a given period. Another innovative strategy, followed by Xerox to minimize inventory-carrying costs, was to delay the assembly of the product into the final configuration as much as possible. According to a Xerox executive, Graham Scout, *"Some finished goods are language sensitive, software sensitive, voltage sensitive and cycle sensitive for different worldwide markets. We will build it to a level where it's generic and then configure it and finish it when we have an order for it. We may have to hold a little more work-in-progress inventory back in the plant but we can certainly avoid holding lots of finished products out in the field."*

Manufacturing system. The process of benchmarking helped Xerox revamp its manufacturing techniques. Each 'family unit' (a manager and his direct subordinates) was encouraged to identify its internal as well as external customers and to meet their needs. This process significantly improved the operational efficiency of the work groups.

Xerox introduced a *Customer Satisfaction Measurement System* that integrated customer research and benchmarking activities. The company sent out over 55,000 questionnaires monthly to its customers to measure customer satisfaction and record competitors' performance. It then benchmarked against those competitors that had scored high marks on specific measures of customer satisfaction. Xerox also used the vast amount of information gathered by the system to develop business plans for improving quality and meeting customer needs.

As a part of its *Leadership Through Quality* program, Xerox reformulated its quality policy. The new policy supplemented the company's benchmarking efforts. Xerox's new quality policy stated, *"Xerox is a quality company. Quality is the basic principle for Xerox. Quality means providing our external and internal customers with the innovative products and services that duly satisfy their requirements. Quality improvement is the job of every Xerox employee"*. Following this, the company embarked on a complete organizational restructuring exercise that focused on research and development, employee involvement and customer orientation.

By the late 1980s, benchmarking had become a day-to-day activity in every division of the company. According to company sources, Xerox's guiding principle was, *'anything anyone can do better, we should aim to do at least equally well.'* In 1991, Xerox developed Business Excellence Certification (BEC) to integrate benchmarking with the company's

overall strategies. The key performance factors measured by BEC were *management leadership, human resource management, customer focus, quality support and tools, process management and business priorities/results*.

By the mid-1990s, benchmarking was extended to over 240 key areas of product, service and business performance at Xerox. The initiatives were also adopted, at varying levels, at Xerox units across the world. The benchmarking process encouraged Xerox's employees to learn from every situation.

CONCLUSIONS

As it can be extracted from the content of the paper, benchmarking obliges the entity to establish its purposes and objectives based on an external reality.

The clients are not interested if the productivity of the product or the service has increased from one year to another. They *are affected by the quality, the cost and the delivery terms*, these features being primordial when choosing the products.

Benchmarking is an instrument of accomplishing the objectives of the competitive business. It is extremely powerful and efficient when it is used for accomplishing the adequate objectives, aligned to the firm's strategy. But it mustn't be regarded as a method that can replace the rest of the efforts for the realization of the quality or the rest of the management processes. For

a durable functioning, the firms must come with innovations and also to imitate. Benchmarking *increases the innovation* by demanding those who practice this method to constantly maintain under observation the external environment and to use the obtained information in the improvement of the process. The possible losses can be localized and adapted in time.

Benchmarking does not represent a substitute of the innovation; it is a source of ideas coming from the exterior of the entity. The success in business depends on the establishment and the accomplishment of the purposes and objectives.

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SOCIAL ENTREPRENEURSHIP IN THE CONTEXT OF MODERN ENVIRONMENT

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Abstract: The concept of social entrepreneurship is developing rapidly these days. Despite many practical examples, theory of social entrepreneurship is underdeveloped. There is no unified definition of the term, its borders are blurred. This situation leads to discrepancies between researches and practitioners, statistical deviations, and makes it impossible to design specific support measures for social entrepreneurs. In response to such context author's definition of social entrepreneurship was created, it has distinct borders of the term. This definition reflects the essence of the term most accurately.

The legislation concerning social entrepreneurship was analyzed, as well as available support programs in different countries – Russian Federation, Europe, USA, and UK. In Russia there is no sensible definition of social entrepreneurship stated in law. This leads to lack of governmental support, aimed precisely at social entrepreneurship, there are only programs aimed at social service organizations in general. That is a problem, because only social entrepreneurship produces social and economical effects simultaneously, which is of utmost importance in the modern economic environment.

In order to foretell how social entrepreneurship will develop, what will stimulate social entrepreneurs to create their businesses, it is crucially important to understand motivation of social entrepreneurs. It is also important to analyze motives of consumers of products and services of social entrepreneurs. In accordance with this goal, the classification of motivational factors of social entrepreneurs was developed. This classification provides basis for the research of motivation of social entrepreneurs.

Keywords: social entrepreneurship, social entrepreneurs, motivation of social entrepreneurs, social entrepreneurship definition, social entrepreneurship legislation.

1. INTRODUCTION

The term “social entrepreneurship” was introduced in 1963 by Bill Drayton – the founder in 1980 of “Ashoka: Innovators for the Public” [1]. Today the company unites social entrepreneurs from all over the world, helping them in many ways – starting with consulting and ending with providing investments. B. Drayton uses the term “social entrepreneur” to describe a person who combines practical, result oriented methods with the goals of social reformer [3]. Some researches, including J. Gregory Dees [2], note that social entrepreneurs existed even before 1963, though no one called them so. Figure 1 shows periods of development of social entrepreneurship theory.

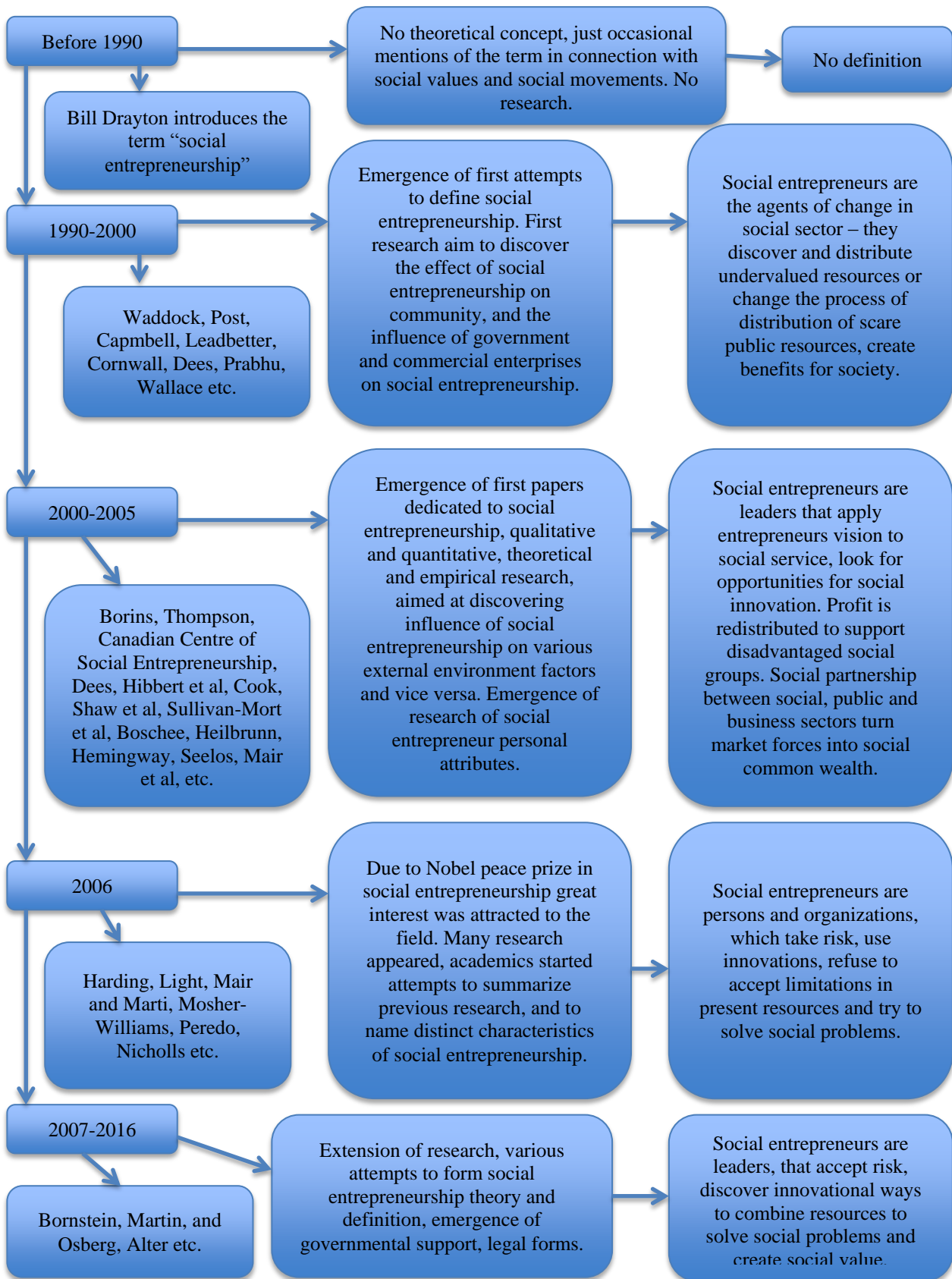


Figure 1. Evolution of social entrepreneurship concept (Developed by author using [6])

2. DEFINITION OF SOCIAL ENTREPRENEURSHIP

Analysis of literature on the topic of social entrepreneurship, originated in different countries, showed that there is no consensus about meaning of the term, consequently there is no unified definition and no distinct borders of the term “social entrepreneurship”. Johanna Mair and Ignasi Marti [5] noted that researches use the term in completely different meanings. Even social partnership [4] can be understood as social entrepreneurship by some researches.

For this reason, author’s definition of social entrepreneurship was formulated. In author’s opinion, this definition most distinctly reflects the essence of social entrepreneurship and sets clear borders of the term. The definition is following: *social entrepreneurship is a sustainable activity, aimed directly at social value creation, which uses innovative approach, infers risk-taking, and the results of which are not specific to a certain area and can be expanded to various regions.*

The definition stated above assumes that social entrepreneurship exhibits several required characteristics, which are showed in figure 2.



Figure 2. Characteristics of social entrepreneurship

The characteristics are: *social goal* – means that organizational activity is aimed at solving or mitigating specific social problem or problems; *sustainability* – means that organization doesn’t depend on external financial resources (such as governmental funding, grants, sponsorship etc.); *direct action* – means that company solves selected social problem directly without any mediators (such as other companies, social activists etc.); *innovation* – means that company solves the problem in a new innovative way or using innovational technology; *risk-taking* – is an attribute of any kind of business, including social

entrepreneurship; *scalability* – means that company’s approach is not specific for certain circumstances and can be adapted and used in various countries and regions, solving same or similar social problems.

3. SOCIAL ENTREPRENEURSHIP IN THE LEGAL CONTEXT

Social entrepreneurship legislation was analyzed in Russian Federation, USA, UK and Europe. The analysis showed that legal system concerning social entrepreneurship in Russia is underdeveloped, comparing to other examined countries. There is no separate law on social entrepreneurship. Official definition exists, but it doesn’t reflect the essence of social entrepreneurship and looks rather like a list of criteria for social service companies, than functional definition.

In other examined countries legislation of social entrepreneurship is developed much better. The results of analysis are described in table 1.

Table 1. Legislation of social entrepreneurship

	Russian Federation	USA, UK, European countries
Definition	Official definition exists, but it is very blurred and doesn’t reflect the essence on social entrepreneurship	Official or commonly used definitions are present in almost all countries
Legal organizational forms	There is no special legal form for social entrepreneurship, so legal forms for commercial organizations are used	There are legal forms designed specifically for social entrepreneurship, such as Low Profit Limited Liability Company (L3C) in the USA, Community Interest Company in the UK or Social Purpose Companies in Europe.
Control	Non existent	There are special entities which control social entrepreneurs, which use special social entrepreneurship legal forms. Criteria include periodical reports, conditions of partnership, process of liquidation, amount of profit reinvested etc.
Support	Government supports social entrepreneurship, but due to absence of clear official definition support is aimed at all social service organizations, there is no focus support for social entrepreneurs. Social entrepreneurship is supported mostly by private funds and organizations.	There are different form of support of social entrepreneurship, including tax preferences, consulting, training, community forming etc. Support is provided by government, as well as private organizations.

3. MOTIVATION OF SOCIAL ENTREPRENEURS

Entrepreneurial behavior is examined during long time. In spite of this, there are very few researches that analyze behavior of social entrepreneurs. Analysis of literature showed that there is no certain factor that defines motivation of social entrepreneur, rather it is a blend of different motives and motivational factors, which together lead to creation of social entrepreneurship.

Studying social entrepreneurs' motivation is very important. Social entrepreneurship delivers social and economic effects simultaneously, which implements concept of sustainable development or triple bottom line. This impact is essential in the context of modern economic environment. In order to understand how to stimulate emergence of social entrepreneurship it is crucial to learn motivation of social entrepreneurs.

Motivation of social entrepreneur is a complicated system with many influencing factors, such as previous experience, personal characteristics, life values, or desire to be in a certain place in a certain time. As a result of analysis of these factors, classification of motivational factors of social entrepreneurs was developed, which is presented in figure 3.

This classification became a foundation for research of motivation of social entrepreneurs, which is now in process. Before starting the research three hypotheses were formulated:

- H1: Social entrepreneurs exhibit same personal characteristics as commercial entrepreneurs: ambitiousness, vitality, inner locus of control, persistence, goal-setting.
- H2: Some commercial entrepreneurs use social entrepreneurship status to gain access to financial support.
- H3: The most important reason to become a social entrepreneur is solving specific social problem.

Research was launched in April 2016 and now is in process. Respondents are social entrepreneurs from Russian Federation, who received support of different types – consultations, classes in schools of social entrepreneurship, financial support etc. Respondents were asked to complete a form with several (mostly closed-end) questions.

Preliminary results showed that all three hypotheses are correct. Social entrepreneurs possess such characteristics as ambitiousness, risk tolerance, energy, goal-orientation etc. These are the same characteristics, which are used to define commercial entrepreneur, according to various research.

Although just two respondents chose making money as a motive to become a social entrepreneur, when choosing degree of importance of high profit, no one marked “not important at all”. This implicitly confirms second hypothesis.

All other things being equal, social entrepreneurs choose closeness to a certain social problem as a main reason to create an enterprise. Other important grounds are creation of person's own company and helping society.

While analyzing respondents' answers, it was decided to provide a series of in-depth interviews as a supplement to questionnaire. It will help making more thorough, deep and constructive conclusions, as well as avoid misinterpretation of answers.

It is also important to study motivation of consumers of products and services generated by social entrepreneurs. This research will be launched later and will complement results of the social entrepreneurs' motivation research.



Figure 3. Factors of social entrepreneurs motivation

4. CONCLUSION

In the context of modern economic environment social entrepreneurship has a crucial role in economic and social development of regions and countries for several reasons. First, social entrepreneurship is, first and foremost, type of entrepreneurship. Positive influence of entrepreneurs on economic growth was noticed by many researchers – it creates workplaces, brings innovations, boosts production, induces competition etc. Second, social entrepreneurship eliminates or at least diminish social problems, creates social value, increases common wealth. Social entrepreneurship is a realization of the concept of sustainable development.

For this reason it is very important to stimulate social entrepreneurship development, which in turn requires presence of certain conditions: 1) clear definition with distinct borders; 2) understanding motivation of social entrepreneurs; 3) understanding motivation of social entrepreneurs' products and services. First point is important because it will allow implement support measures aimed specifically at social entrepreneurs, rather than at social service providers in general. Second and third points are important because they will make possible to design specific support measures that will have superior effect on social entrepreneurship stimulation.

In this article the attempt is made to establish first two points: clear definition is formulated and research of social entrepreneurs' definition is launched. Information provided in the article holds good complement to theory of social entrepreneurship. The results can be used to design and implement social entrepreneurship support measures.

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RISK IMPACT ASSESSMENT ON THE PROJECT NPV BY USING MONTE CARLO SIMULATION

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Abstract: Effective Risk Management (RM) implies assessment of the uncertainty of events and circumstances in two dimensions: how likely is the occurrence of risk event and what would be the effects of risk event realization. Paper presents quantitative analysis for risk evaluation. The assessment is based on use of classical steps of risk management and impact assessment of selected risks on the financial indicators of viability of the project: the net present value (NPV) of the project, the internal rate of return (IRR) of the project and the payback period (PP). Criteria for evaluation were chosen based on simplicity, comprehensibility and very frequent application in practice. To determine the value of the risk impact on financial indicators Monte Carlo (MC) simulation is used in order to obtain a distribution of possible outcomes by analyzing the model multiple times, using random values of input variables.

Keywords: Risk Management, uncertainty, financial indicators, Monte Carlo simulation

Apstrakt: Efektivno upravljanje rizikom (UR) podrazumeva procenu neizvesnosti događaja i okolnosti kroz dve dimenzije: koliko je verovatna pojava rizičnog događaja i kakvi će biti efekti ako se rizični događaj realizuje. U ovom radu predstavljena je kvantitativna analiza procene rizika. Procena je zasnovana na primeni klasičnih koraka upravljanja rizikom i proceni uticaja izdvojenih rizika na finasijske pokazatelje opravdanosti projekta: neto sadašnju vrednost (NSV) projekta, internu stopu rentabilnosti (ISR) projekta i period povraćaja (PP). Kriterijumi za ocenu izabrani su na osnovu jednostavnosti, razumljivosti i vrlo česte primene u praksi. Za utvrđivanje vrednosti uticaja rizika na finasijske pokazatelje korišćena je Monte Karlo (MK) simulacija u cilju dobijanja distribucija mogućih ishoda analizom modela više puta, pomoću slučajnih vrednosti ulaznih promenljivih.

Ključne reči: upravljanje rizikom, neizvesnost, finasijski pokazatelji, Monte Karlo simulacija

1. UVOD

Svaka ljudska aktivnost povezana je sa određenom dozom rizika. Rizik je neizvesnost koja je važna; može da utiče na ciljeve projekta pozitivno ili negativno [1]. U upravljanju projektima kao jedinstvenim poduhvatima koji su ograničeni vremenom, budžetom, ciljevima i kvalitetom, dugo je zanemaran uticaj raznih vrsta rizika. Zbog stalnog povećanja zahteva za ekonomskom isplativošću i povećanja kompleksnosti projekata razvijen je veliki broj metoda i novih pristupa koji omogućavaju uključivanje nesigurnosti i rizika u ocene efikasnosti izvođenja projekata.

Pojedini autori predlažu kombinovanje upravljanja rizikom sa postojećim metodama za višekriterijumsko donošenje odluka, na primer AHP [2, 3] ili TOPSIS [4] za mapiranje

rizika kako bi se adekvatno predvideli i pratili rizici kroz životni ciklus projekta. Neki autori koriste Bajesovu mrežu kako bi predstavili rizične događaje i veze među njima [5]. Ovaj način uvođenja subjektivnih ocena verovatnoća može se primeniti na građevinske projekte [6]. Songer i ostali su predložili Monte Karlo simulaciju kao alat analize rizika kojim se procenjuju neizvesnosti u građevinskim projektima [7].

Pristup koji se koristi u ovom radu predstavlja analizu finansijskog rizika koji se posmatra kroz ocenu projekta putem neto sadašnje vrednosti NSV i ocene rentabilnosti ISR [8] uz korišćenje Monte Karlo simulacije kako bi se procenili uticaji rizičnih događaja na finansijsku opravdanost realizacije projekta. Rizik se prevodi u kvantitativne mere i ocenjuje se njegov uticaj na ciljeve projekta: budžet, vreme i kvalitet. Ako su planirane procedure dobro definisane i podaci pouzdani, simulacija može da omogući planerima i donosiocima odluka kontrolu sredstava, povećanje efikasnosti i kroz mere za ublažavanje posledica rizičnih događaja, značajne uštede.

2. UPRAVLJANJE RIZIKOM PROJEKTA

Rizici su bitan deo svakog građevinskog i infrastrukturnog projekta, naročito kad se u obzir uzmu sledeće karakteristike ovih projekata: a) faza realizacije kod ovih projekata je veoma duga, b) ovi projekti su vrlo kompleksni, c) postoji čitav niz spoljašnjih uticaja koje je nemoguće ili vrlo teško kontrolisati, d) ovi projekti su vrlo skupi i e) njihov uticaj se proteže na brojne stejkholdere sa različitim interesima.

Iskustva koja se zasnivaju na proceni uspeha projekata koji se projektuju determinističkim metodama pokazuju da je vrlo mali procenat projekata koji se izvrši u predviđenom roku i u okviru predviđenog budžeta. Problemi koji se javljaju tokom izvršenja projekata i njihove posledice nameću potrebu da se o mogućim rizicima razmišlja na vreme, tj. još u početnim fazama planiranja projekta i kroz sve ostale faze životnog ciklusa projekta. Predviđanje opravdanosti ulaganja za obimne investicione projekte predstavlja veliki izazov za projektante kako u pogledu kompleksnosti tako i kad se uzme u obzir tačnost procena.

Upravljanje rizikom je proces utvrđivanja aktivnosti kako bi se predupredilo i umanjilo dejstvo negativnih događaja. Cilj upravljanja rizikom je da se kontrolišu oni faktori koji mogu dovesti do poremećaja u vremenu realizacije projekta, promena u troškovima tj. prekoračenja predviđenog budžeta i efekata koji mogu da utiču na kvalitet realizacije projekta.

Proces upravljanja rizikom se sastoji od nekoliko faza, ali se kao najčešće koriste:

1. Identifikacija rizika
2. Analiza rizika
3. Odgovor na rizik [9].

PMI (Project Management Institute) u svojim standardima upravljanje rizikom definiše kroz šest procesa: planiranje upravljanja rizikom, identifikacija rizika, kvalitativna ocena rizika, kvantitativna ocena rizika, planiranje odgovora na rizik i nadgledanje i kontrola rizika [10].

Identifikacija rizika. Rizici u jednom projektu mogu poticati sa raznih strana, budžet, tehnologija, projektni tim, stejkholderi, vremenski uslovi... Identifikacija rizika može da se sprovede korišćenjem različitih metoda: putem intervjua, Delfi metode, brainstorminga, SWOT analize, analize internih dokumenata i u osnovi predstavlja prikupljanje informacija od

svih učesnika u projektu. Identifikacija rizika uključuje događaje sa negativnim i sa pozitivnim uticajem, ali se ipak pažnja usmerava na one događaje koji negativno mogu uticati na neki od ciljeva projekta. Ova faza ima za cilj formiranje registra rizika.

Registar rizika je osnovni alat za praćenje i upravljanje rizikom tokom izvođenja projekata i on je “živi” i aktuelni dokument koji se izrađuje, koristi i revidira tokom čitavog životnog ciklusa projekta pa i nakon završetka projekta kao osnova za upravljanje rizikom kod novih projekata. Registar rizika treba da bude sastavani deo projektne dokumentacije koji se u kasnijim fazama projekta menja u zavisnosti od realnih okolnosti izvođenja projekta.

Klasifikacija rizika se vrši na različite načine. Na početku mogu postojati stotine identifikovanih rizika koji se preliminarno analiziraju i grupišu. Grupisanje se sprovodi kako bi se omogućilo jedinstveno i pravilno dalje upravljanje rizicima. Za grupisanje može da se iskoristi poznati Ishikawa dijagram.

Analiza rizika najčešće započinje kvalitativnom analizom rizika. Svakom riziku se dodeljuje verovatnoća događanja i uticaj koji rizik, ako se desi, ima na projekat, kao i strategija kojom će se odgovoriti na rizični događaj i na kraju u kojim fazama životnog ciklusa projekta određeni rizici mogu da utiču na projekat.

Za analizu rizika u ovoj fazi koristi se dokument “Osnovni plan upravljanja rizikom” koji menadžment donosi na početku procesa planiranja. Plan upravljanja rizikom opisuje kako se sprovodi identifikacija, kvalitativna, kvantitativna analiza, definisanje odgovora i kontrola tokom čitavog životnog ciklusa projekta [10]. U njemu se nalaze podaci o tome koliko je projektni tim tolerantan na rizike, da li se više brine o rizicima sa visokom verovatnoćom događanja ili o onima sa većim uticajem na projekte, da li se na rizike reaguje reaktivno ili proaktivno. Nakon kvalitativne analize dobije se 5-10 rizika koji se realno mogu dogoditi i kojima se može upravljati.

Kvantitativna analiza je numeričko utvrđivanje verovatnoće realizacije projekta u predviđenom roku i u okviru predviđenog budžeta. Za kvantitativnu analizu potrebno je izvršiti brojne procene i matematička proračunavanja. Potrebno je prikupljanje ogromne količine istorijskih podataka. Kako je svaki projekat po definiciji jedinstven poduhvat nije uvek jednostavno prikupiti potrebne podatke, koji ispunjavaju uslove relevantnosti. Tada se pristupa modeliranju i simulacijama.

Planiranje odgovora na rizik je proces razvoja mogućnosti i akcija koje će umanjiti verovatnoću pojavljivanja određenih rizičnih događaja ili predvideti sredstva i aktivnosti koje bi umanjile negativne posledice kada određeni rizični događaj nastupi. Jedan od ključnih preduslova za efikasan odgovor na rizik je adekvatno adresiranje pojedinih rizika individuama, grupama ili organizacijama. Planirani odgovor na rizik treba da bude adekvatan ozbiljnosti i uticaju koji jedan rizični događaj može da izazove.

Postoje četiri tradicionalne strategije za upravljanje rizikom: izbegavanje rizika; kontrola rizika; prihvatanje rizika; prenos rizika [11].

3. MONTE KARLO SIMULACIJA

Upravljanje rizikom je suštinski deo upravljanja projektima, obzirom da su neublaženi ili nekontrolisani rizici jedan od glavnih uzroka neuspeha projekta [12]. Upravljanje rizikom je danas široko prihvaćen alat koji je značajan u upravljanju projektima [13] i priznat je njegov suštinski doprinos poslovnom uspehu i uspehu projekta, jer se fokusira na rešavanje

neizvesnosti na proaktivni način u cilju minimiziranja pretnji, maksimiziranja mogućnosti i dostizanja ciljeva [14].

Jedan od najmoćnijih alata za analizu rizika je Monte Karlo simulacija; prvi put se pojavljuje 1944. godine. Značajno pitanje ove metode [15] je bilo generisanje velikih serija nasumičnih brojeva. U prvoj fazi, korišćeni su pseudo-slučajni brojevi, a zatim sa razvojem kompjuterskih tehnologija, ova barijera je prevaziđena. Monte Karlo analiza je statistička tehnika koja je postala veoma značajna kao sredstvo za procenitelje rizika u evaluaciji neizvesnosti [16].

Rešavanje problema pomoću tehnika simulacije podrazumeva primenu interaktivnih algoritama i postojanje određenih koraka u cilju dostizanja ciljeva.

Algoritam podrazumeva 5 koraka:

Korak 1: Kreiranje parametarskog modela, $y = f(x_1, x_2, \dots, x_q)$;

Korak 2: Generisanje nasumičnog skupa ulaznih podataka, $x_{i1}, x_{i2}, \dots, x_{iq}$;

Korak 3: Efektivni proračun i memorisanje rezultata kao y_i ;

Korak 4: Ponavljanje koraka 2 i 3 za $i = 1$ do ($n \geq 5000$);

Korak 5: Analiziranje rezultata simulacije pomoću histograma, intervala poverenja i drugih statističkih pokazatelja.

Parametarski deterministički model uspostavlja skup ulaznih varijabli, koje rezultuju skupom izlaznih varijabli. U stohastičkom modelu širenja neizvesnosti, ulazne varijable su nasumične, pa će i rezultat biti takođe nasumičan, obično prateći normalnu distribuciju.

U nastavku su opisani metodološki principi Monte Karlo simulacije [17]. Okosnicu Monte Karlo simulacije (MKS) čini deterministički model sistema koji treba analizirati. MKS za analizu rizika koristi nasumične brojeve (ili pseudo-nasumične brojeve) kako bi odabrala nasumične uzorke ulaznih podataka x_i ispitivanog modela sa datom funkcijom gustine verovatnoće i izvodi veliki broj simulacija iznova i iznova u cilju generisanja vrednosti za izlazne varijable y_i modela. Ova procedura ponavljanja postepeno vodi do distribucije y_i vrednosti, koje mogu biti analizirane i transformisane u funkciju gustine verovatnoće.

Nasumični brojevi koji se koriste u ovoj metodi variraju uniformno u intervalu $[0,1]$, što je isti interval kao i kod funkcije standardizovane kumulativne distribucije $F_i(x_i)$ ulaznih varijabli u modelu x_i . Prema tome, inverzna funkcija F^{-1} obezbeđuje uzorak od x_i . Ova procedura se primenjuje odvojeno za svaki različiti x_i kako bi se omogućio ulazni skup podataka za ispitivani deterministički model sistema. Model obezbeđuje skup rezultata y_j koji predstavlja odgovarajući uzorak na izlazu iz modela.

3.1. MONTE KARLO SIMULACIJA SA DISKRETNIM STOHAŠTIČKIM VARIJABLAMA

U terminologiji teorije verovatnoće, može se ustanoviti stohastička varijabla X i x_i kao specifična vrednost varijable X . $P(X = x_i) = P(x_i)$ predstavlja verovatnoću da X ima vrednost x_i . Verovatnoća da vrednost X prelazi određenu vrednost x_i naziva se funkcija kumulativne distribucije i obeležava se sa $F(x_i)$. Najčešće teorijske diskretne distribucije verovatnoće su: diskretna uniformna distribucija, binomna distribucija i Poisson-ova distribucija.

Diskretna uniformna distribucija opisuje varijable sa malim brojem mogućih vrednosti i istom verovatnoćom realizacije. Ako je broj mogućih vrednosti n , a skup mogućih vrednosti

$\{x_1, x_2, \dots, x_n\}$, onda je funkcija gustine verovatnoće $P(X = x_i) = P(x_i) = 1/n$ za svaku vrednost x_i , a funkcija kumulativne distribucije je $F(x_i) = P(X \leq x_i) = i/n$, za $i = 1, 2, \dots, n$.

Binomna distribucija je distribucija diskretnih verovatnoća koja se primenjuje kada postoje samo dva moguća ishoda: uspeh ili neuspeh, priznavanje ili odbijanje, ... Na primer, stohastička vrednost je broj eksperimenata sa „uspeh“. Ako je p (verovatnoća „uspeha“) isto za svaki od n eksperimenata, a eksperimenti su nezavisni, onda se funkcija gustine verovatnoće definiše verovatnoćom da je broj uspešnih eksperimenata jednak vrednosti x_i i izračunava se izrazom: $P(X = x_i) = P(x_i) = C_n^{x_i} p^{x_i} (1 - p)^{n-x_i}$, za svako $x_i = 0, 1, \dots, n$, gde n predstavlja broj eksperimenata. Funkcija kumulativne distribucije se definiše kao: $F(x_i) = P(X \leq x_i) = \sum_{v=0}^{x_i} P(v)$, za svako $x_i = 0, 1, \dots, n$. Prosek μ ima vrednost $n \cdot p$ i disperziju: $\sigma^2 = np(1 - p)$.

Poisson-ova distribucija je distribucija diskretnih verovatnoća koja se primenjuje na nezavisne nasumične događaje. Stohastička varijabla je broj događaja koji se dešavaju u periodu vremena. Funkcija gustine verovatnoće je verovatnoća da broj događaja koji se dešavaju u nekom vremenu jednaka vrednosti x_i i može se izračunati pomoću izraza: $P(X = x_i) = P(x_i) \frac{\lambda^{x_i} e^{-\lambda}}{x_i!}$, gde λ predstavlja prosečnu vrednost događaja u određenom vremenu.

3.1. MONTE KARLO SIMULACIJA SA NEPREKIDNIM STOHAŠTIČKIM VARIJABLAMA

Neprekidna stohastička varijabla je varijabla koja može imati bilo koju vrednost u određenom periodu i ima beskonačan broj mogućih vrednosti u tom intervalu. Verovatnoća da neprekidna stohastička varijabla ima neku određenu vrednost je nula. Moguće je definisati verovatnoću kao vrednost varijable da bude uključena u određeni interval. Iz ovih razloga, distribucija se predstavlja pomoću krive, a verovatnoća se određuje na osnovu procene područja ispod krive između margina intervala na x -osi. Funkcija $f(x)$ koja računa područje, naziva se gustina verovatnoće i mora zadovoljiti neke uslove. U nekim slučajevima je veoma teško izračunati funkciju gustine verovatnoće, ali postoje tablice vrednosti ili softverski programi za neprekidnu distribuciju, kao što su: neprekidna uniformna distribucija, triangularna distribucija, normalna distribucija, beta distribucija i eksponencijalna distribucija.

Neprekidna uniformna distribucija: Ako se stohastička vrednost uniformno distribuira u $[a, b]$, gustina verovatnoće $f(x)$ se definiše kao: $f(x) = 0$ za $x < a$, $f(x) = 1/(b-a)$ za $a \leq x \leq b$ i $f(x) = 0$ za $x > b$. Funkcija kumulativne distribucije F se definiše kao: $F(x) = 0$ za $x < a$, $F(x) = (x-a)/(b-a)$ za $a \leq x \leq b$ i $F(x) = 1$ za $x > b$. Medijana μ je jednaka $(a+b)/2$, a varijansa $\sigma^2 = (b-a)^2/12$.

Triangularna distribucija opisuje verovatnoće varijable sa tri vrednosti: minimum (a), najverovatnije (b) i maksimum (c). Pretpostavlja se da je verovatnoća dostizanja minimuma i maksimuma nula. Funkcija gustine verovatnoće $f(x)$ je $f(x) = 2(x-a)/((b-a)(c-a))$ za $a \leq x \leq b$ i $f(x) = 2(c-x)/((c-a)(c-b))$ za $b \leq x \leq c$. Funkcija kumulativne distribucije $F(x)$ se definiše kao: $F(x) = P(X \leq x) = 0$ za $x < a$, $F(x) = ((x-a)^2)/((b-a)(c-a))$ za $a \leq x \leq b$, $F(x) = 1 - ((c-x)^2)/((c-a)(c-b))$ za $b \leq x \leq c$, $F(x) = 1$ za $x > c$. Medijana μ je jednaka $(a+b+c)/3$, a disperzija σ^2 jednaka $(a^2 + b^2 + c^2 - a*b - a*c - b*c)/18$.

Normalna distribucija (Gauss-ova distribucija) opisuje karakteristike populacije ili distribuciju količina koje su sume drugih veličina (u skladu sa teoremom centralne tendencije). Normalna distribucija je simetrična kao zvono. Funkcija $f(x)$ je funkcija gustine

verovatnoće sa dva parametra: srednja vrednost μ i disperzija σ^2 , i ima sledeći oblik: $f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} \exp\left(-\frac{(x-\mu)^2}{2\sigma^2}\right)$. Proračun područja neophodnih za određivanje verovatnoća $P(a \leq x \leq b)$ i funkcije kumulativne distribucije zasniva se na standardnoj normalnoj distribuciji verovatnoća, što je normalna distribucija stohastičke varijable sa srednjom vrednošću $\mu = 0$, disperzijom $\sigma^2 = 1$ i standardnom devijacijom $\sigma = 1$. Za transformisanje stohastičke varijable X sa normalnom distribucijom u stohastičku varijablu Z sa standardnom normalnom distribucijom, može se upotrebiti sledeća formula: $Z = (x - \mu) / \sigma$. U tabelama standardne normalne distribucije, postoje verovatnoće $P(0 \leq Z \leq z)$, koje predstavljaju vrednost područja ispod krive funkcije gustine verovatnoće $f(z)$, locirane između prosečne vrednosti $\mu = 0$ i z .

Beta distribucija ima puno oblika koji se određuju podešavanjem sledeća dva parametra: koeficijenta skaliranja i nagiba. Beta distribucija može biti u opsegu od simetrične, normalne distribucije u asimetričnu, sa dugačkim repom na pozitivnoj strani.

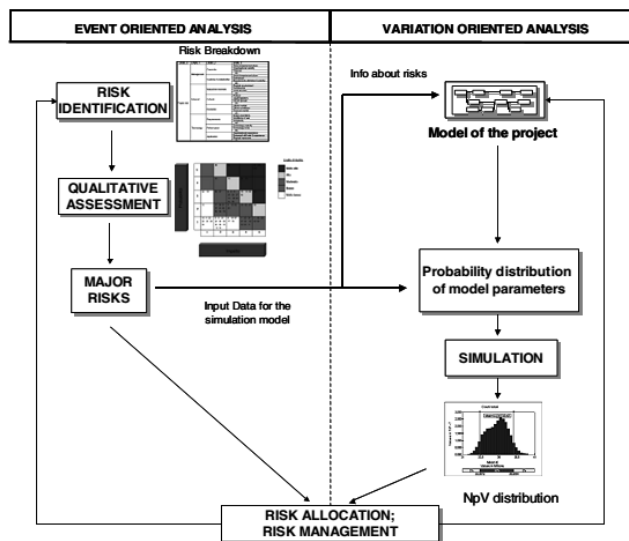
Beta PERT distribucija je specijalni slučaj beta distribucije koji koristi tri parametra minimum, maksimum i najverovatniju vrednost. Koristi se mode ili najverovatniji parametar m za generisanje parametara za oblikovanje krive α i β . Funkcija $f(x)$ je funkcija gustine verovatnoće i ima sledeći oblik: $f(x) = \frac{x^{\alpha-1} (1-x)^{\beta-1}}{\beta(\alpha,\beta)}$ za $0 \leq x \leq 1$. Funkcija kumulativne distribucije F se definiše kao: $F(x) = \frac{B_x(\alpha,\beta)}{B(\alpha,\beta)}$ za $0 \leq x \leq 1$. Srednja vrednost μ se izračunava kao $\mu = \frac{a+4m+b}{6}$, a standardna devijacija σ^2 kao $\sigma^2 = \left(\frac{b-a}{6}\right)^2$. Parametri za oblikovanje krive se izračunavaju na sledeći način: $\alpha = \frac{(\mu-a)(2m-a-b)}{(m-\mu)(b-a)}$ i $\beta = \frac{\alpha(b-\mu)}{(\mu-a)}$.

Eksponencijalna distribucija: Koristi se za opisivanje vremena između događaja. Može se videti da ukoliko se broj dolazaka može opisati Poisson-ovom distribucijom, interval između dolazaka prati eksponencijalnu distribuciju.

4. METODOLOGIJA

Simulacija je jedna od najšire korišćenih tehnika u nauci o menadžmentu, ali jedinstven model procene troškova još nije sistematski u upotrebi, naročito u realizaciji građevinskih projekata [18]. Uobičajen način merenja finansijskih rizika je takozvani Vrednost-rizika [19] kriterijum koji odgovara na pitanje koliki gubitak se očekuje u toku nekog perioda (dan, mesec, godina) i sa kolikom verovatnoćom.

Definiše se finansijski model projekta kako bi se ocenilo kako pojedini rizici utiču na cash flow projekta, Slika 1. Leva strana dijagrama predstavlja uobičajene korake u procesu upravljanja rizikom dok desna strana predstavlja kvantitativnu analizu projekta kako bi se utvrdila NSV projekta i izračunale novčane vrednosti kojima rizici utiču na promenljive u projektu.



Slika 1. Dijagram toka kojim se definiše cash-flow model projekta [19]

Prvi korak u simulaciji projekta je formiranje adekvatnog modela [20]. Za simulaciju se koristi softver Oracle Crystal Ball koji proračunava vrednosti definisane modelom više puta koristeći slučajne vrednosti ulaznih promenljivih uzetih iz dodeljene distribucije verovatnoća.

Važan zadatak u stohastičkoj proceni budžeta projekta je određivanje adekvatne distribucije verovatnoća za svaku varijablu koja se procenjuje. Metodološki pristupi određivanju distribucija verovatnoće su: a) korišćenje istorijskih i statističkih podataka, b) korišćenje subjektivnih procena ili mišljenja eksperata [21].

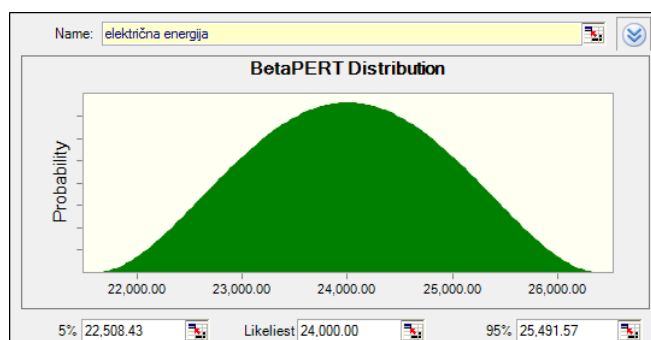
Rizici projekta se ocenjuju putem rizika da se ne ostvare ciljevi projekta a to znači da se gubitci nastali realizacijom rizičnih događaja ogledaju kroz uticaj na osnovne ciljeve projekta: budžet, vreme i kvalitet.

5. STUDIJA SLUČAJA

Kao primer je predstavljen projekat izgradnje postrojenja za prečišćavanje otpadnih voda čija ukupna vrednost investicionih ulaganja u izgradnju objekta i infrastrukture iznosi 3.000.150,00€, period ulaganja je tri meseca. Finasiranje projekta vrši se od strane Direkcije za vode preko budžetskog fonda sa do 50% od vrednosti investicije. Ostatak sredstava se obezbeđuje iz prepristupnih fondova Evropske Unije i ona su bespovratna. Korišćenje komercijalnih kredita nije predviđeno. Trajanje realizacije projekta je 30 godina.

Prihodi su projektovani u skladu sa normama potrošnje i projektovanim brojem korisnika. Procena troškova u toku eksploatacije i upravljanja objektima radi se na bazi sledećih pretpostavki: bruto zarade i ostala lična primanja zaposlenih su element troškova projekta jer se planira zapošljavanje 8 radnika čija je planirana zarada 80.000 €; troškovi električne energije obračunati su na bazi normativa potrošnje projektovane opreme i ostalih kapaciteta i na osnovu jedinične cene 0,1€/kWh; primenjen je princip stalnih cena; troškovi hemikalija obračunati su na bazi poznatih normativnih jediničnih cena. Obračun amortizacije urađen je primenom funkcionalnih stopa na nabavnu vrednost osnovnih sredstava, korišćenjem principa linearne amortizacije sa stopom amortizacije 3,33. Poštovan je i princip

da se stalna funkcionalna sigurnost sistema obezbeđuje odgovarajućim tekućim održavanjem. Promenljive su u modelu definisane BetaPERT distribucijama, Slika 2.



Slika 2. Prikaz BetaPert Distribucije

Bilans uspeha je projektovan za poslovanje 30 godina. Pri ocenjivanju projekta kao kriterijumi ocene uzeti su:

- Neto sadašnja vrednost
- Interna stopa rentabilnosti
- Period povrata investicije

Neto sadašnja vrednost projekta izračunava se jednačinom

$$NSV = \sum_{k=0}^n \frac{NP_k}{(1+i)^k} = \sum_{k=0}^n NP_k a_k \quad (1)$$

gde je neto sadašnja vrednost jednaka sumi diskontovanih neto priliva (efekata) koji se ostvare u periodu eksploatacije investicije. Neto prilivi NP predstavljaju cash flow tokom čitavog perioda eksploatacije i u njega ulaze investicije, prihodi, rashodi. a_k je diskontni faktor i on predstavlja sadašnju vrednost jedne novčane jedinice raspoložive kroz n godina $a = 1/(1+i)^2$.

Neto sadašnja vrednost izračunava se pomoću svođenja iznosa neto priliva na sadašnju vrednost, za diskontnu stopu koja iznosi 6%.

Ocena rentabilnosti se bazira na internoj stopi rentabilnosti ISR. To je ona diskontna stopa pri kojoj je suma diskontovanih koristi jednaka sumi diskontovanih troškova tj. predstavlja onu diskontnu stopu pri kojoj je kriterijum neto sadašnje vrednosti jednak nuli. Upoređuje se sa diskontnom stopom projekta i mora biti jednaka ili veća od nje. Izračunavanje ISR vrši se metodom iteracije.

Period povrata ukupnih investicionih ulaganja predstavlja rok, izražen u godinama za koji će sadašnja vrednost neto koristi od investicije da otplati uložena sredstva.

$$\sum_{k=0}^n I_k a_k = \sum_{k=0}^n NP_k^* a_k \quad (2)$$

NP^* je neto priliv u k-toj godini eksploatacije gde nisu uzeta u obzir ulaganja.

Simuliranje NSV se izvodi tako što se u modelu, Tabela 1, prihodi uzimaju kao slučajne promenljive sa BetaPERT distribucijom.

Tabela 1. Finansijski model projekta

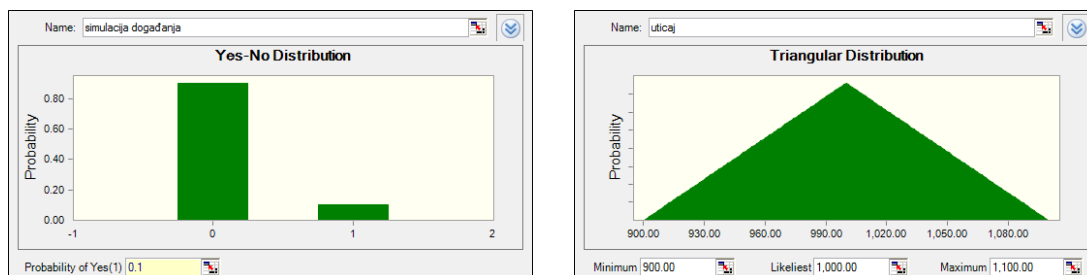
Godina eksploatacije	0	1	2	3	4	5	6	...	30
Prihodi		403.512,00	403.512,00	403.512,00	403.512,00	403.512,00	403.512,00	...	403.512,00
Troškovi		88.060,00	88.060,00	88.060,00	88.060,00	88.060,00	88.060,00	...	88.060,00
Troškovi realizacije rizičnih događaja		-	-	-	-	-	-	...	-
Investicije	3.000.150,00								
Prihodi poslovanja		315.452,00	315.452,00	315.452,00	315.452,00	315.452,00	315.452,00	...	315.452,00
Porez	15%	47.317,80	47.317,80	47.317,80	47.317,80	47.317,80	47.317,80	...	47.317,80
Neto priliv	(3.000.150,00)	268.134,20	268.134,20	268.134,20	268.134,20	268.134,20	268.134,20	...	268.134,20
Diskontni faktor	1,00	0,94	0,89	0,84	0,79	0,75	0,70	...	0,17
Diskontovani neto priliv	(3.000.150,00)	252.956,79	238.638,48	225.130,64	212.387,40	200.365,47	189.024,03	...	46.684,88
Kumulativ	3.000.150,00)	(2.747.193,21)	(2.508.554,72)	(2.283.424,08)	(2.071.036,68)	(1.870.671,21)	(1.681.647,18)	...	690.671,99
Diskontna stopa	6%								
NSV	690.671,99								
ISR	8%								

Uticaj rizičnih događaja se u model implementira preko registra rizika. U registar rizika, Tabela 2, uvršteno je četiri rizika čiji se uticaj određuje. U prikazanom statičkom modelu u polju “Troškovi realizacije rizičnih događaja” ne vidi se vrednost. Simulacioni model je formiran tako da se vrednost rizika dodaje samo ukoliko se rizični događaj realizuje. Za svaki rizik je predviđena verovatnoća i trošak koji se javlja u slučaju realizacije rizičnog događaja.

Tabela 2. Registar rizika

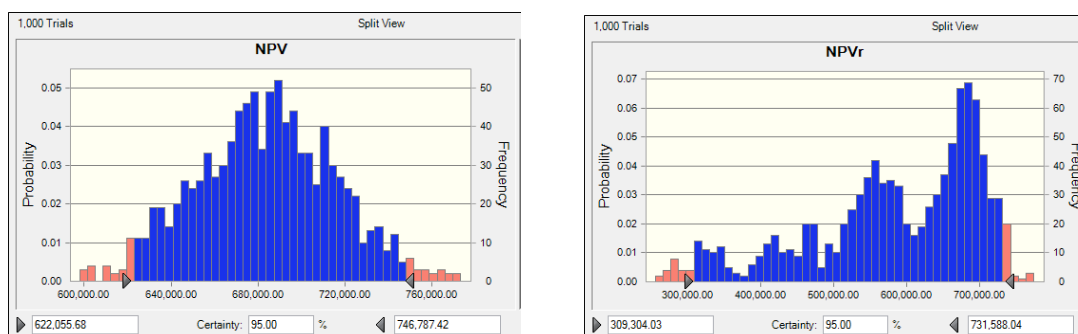
Red. br	rizični događaj	verovatnoća	uticaj	simulacija verovatnoće događaja	rizik se dogodio DA/NE	trošak rizika
1	promena ekoloških standarda	0,1	1.000,00	0	ne	-
2	akcidenti	0,4	10.000,00	0	ne	-
3	pogoršanje kvaliteta dobavljača	0,3	500,00	0	ne	-
4	raskidanje ugovora sa ključnim klijentima	0,2	20.000,00	0	ne	-
ukupno						-

Registar rizika u simulacionom modelu formira se tako što se uticaj definiše kao slučajna promenljiva koja se definiše triangularnim distribucijama a verovatnoće događanja pojedinih rizika Da-Ne (binomnom) distribucijom, Slika 3. Ovo omogućava da se u koloni trošak rizika vrednosti pojave samo ako se rizični događaj desi po verovatnoći koja je zadata kod definisanja distribucije simulacije događaja.



Slika 3. Da-ne distribucija i triangularna distribucija

NSV se koristi za procenu rizika investiranja i treba da bude pozitivna kako bi se izbegao rizik gubitka novca prilikom investiranja. Rezultati simulacije NSV bez uključivanja rizika u proračun pokazuju da srednja vrednost NSV projekta nakon 30 godina eksploatacije iznosi 683.46,67 € i sa intervalom poverenja 95% u opsegu od 598.059,81€ do 774.377,09€. ISR je 8% što projekat čini finasijski opravdanim. Period povrata investicije iznosi 20 godina. Simulacija NSVr sa uključenim troškovima rizičnih događaja pokazuje da srednja vrednost NSV projekta nakon 30 godina eksploatacije iznosi 583.968,47 € i sa intervalom poverenja 95% u opsegu od 242.102,67€ do 773.482,88. Dijagram frekvencija raspodele veovatnoća NSV i NSVp prikazan je na Slici 4. Razlike u dobijenim rezultatima pokazuju da izračunata NSV kada rizici nisu bili uzeti u razmatranje predstavlja optimistički tj. manje realan rezultat realizacije projekta.



Slika 4. Statistička distribucija NSV i NSVr

6. ZAKLJUČAK

NSV se uzima kao mera finansijske izvodljivosti projekta s obzirom da je lako razumljiva i često se koristi. Negativna NSV pokazuje da investicija ne može da ostvari dovoljno povraćaja sredstava kako bi se nadoknadili svi troškovi. Pozitivna NSV klasifikuje projekte kao profitabilne. Kada investitori donose odluku o investiciji moraju biti svesni postojanja rizika jer rezultati pokazuju znatan uticaj na NSV.

Probabilističke procene mogu da kompenzuju nedostatke u tradicionalnim načinima za procenu rizika projekata [8] jer se jasnije predstavljaju verovatnoće i stepen uticaja na troškove i vreme izvođenja projekta. Monte Karlo simulacija može biti primenjena u ranim fazama projekta kad je dostupna mala količina informacija. Rezultati pomažu da se na adekvatan način isplaniraju odgovori na rizik i utvrdi količina novčanih sredstava za neutralisanje procenjene nesigurnosti.

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QOS INFORMATION TECHNOLOGIES THE WEB SITE

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Abstract: At the present time transport organizations can not imagine business without the presence of the Internet. Statistics show that almost all organizations possess and use information technology in their business, as a way of coca to achieve competitiveness in the market of transport services. Transport organizations are using the Internet as the main means of communication with their users via the website. The application of the Internet, multimedia can have a wide range of services in each organization. Multimedia is specific and it is distinguished by four main features: an interactive, personal is digital and requires the use of computers. Multimedia can be characterized as a combination of text, graphics, sound, animations and videos that were delivered with the help of computer, digital or electronic means. Multimedia is associated with the experience that is interactive, personal and based on the use of computers. Interactivity is a kind of dialogue between users and applications, which allow the user choice, decision-making, as well as an influence on the program where there is more navigational routes. Employees at the site operators have to present such content for multimedia users are also observers that through interaction control their experience and experience. If the multimedia strategy is designed so users can expect that there is a possibility to achieve their goals and meet their needs. Through the website organization services are delivered to the user information in the form of data through suitable transmission, media in which are embedded signals. Multimedia applications are the most demanding in this respect. The aim is to show that the quality of service can be a powerful tool for evaluating and improving multimedia on the Internet.

Keywords: information technology, quality of service, multimedia, website, interaction

1. DEFINITION AND POJAM QOS-A

The growth of the Internet has brought with it a huge volume of multimedia traffic. Providing the required level of quality of service (QoS) and multimedia traffic modeling is a huge task [7]. QoS framework is proposed in order to meet user requirements for quality of service. Mechanisms for monitoring performance on operation and maintenance should be considered with care. [8]

QoS provides enhanced and predictable network services [4]: Reserved bandwidth (data rate, bandwidth) Minimizing packet loss, traffic shaping, traffic prioritization, management and congestion avoidance.

The quality of transmission is defined by the following:

- Losing package
- The delay (in delivery)
- Variations delays - jitter

If it happens that some percentage of it arrives at its destination is referred to as packet loss. When an error occurs in the network there is a packet loss. Losses in coming because of congestion in the network and damage of the package. In a well-optimized networks, some packets are deliberately evade by network devices to avoid congestion [4].

The delay is defined as the time it takes to package arrives from the source to the destination.

There are two categories of delay [4]:

- Fixed delay - includes components such as serialization, encoding and decoding, and propagation delay
- Variable delay - most often the result of congestion and includes primarily the time packages are implemented in network buffers (grips) while waiting for access to the transmission medium.

Jitter (delay variation), deviation or displacement of some aspects of pulses in high-frequency digital signals. Another definition is that jitter "period of displacement frequency signal from the ideal city ". Among the causes of jitter are electromagnetic interference (EMI) and crosstalk with other signals.

1.1. QOS REQUIREMENTS FOR MULTIMEDIA TRAFFIC

Various types of user applications will have different requirements for the establishment and QoS monitoring and management of real QoS. There are differences between the multimedia traffic and traffic in traditional networks. They relate to:

- requirements for the transfer of continuous media (audio and video transmission) in real time;
- significantly greater flows of certain media;
- distributed-oriented applications.

Multimedia applications in real time not tolerate large variations in terms of delay and bandwidth. A steady increase in the number of multimedia applications require the modification of existing network protocols to provide quantitative QoS parameters. As a result, commenced several projects aimed at improving the existing network protocols with the possibility of QoS management, ie. verification and maintenance of the desired level of quality required by each application [4]. Multimedia applications in real time have characteristics which are significantly different from the characteristics of standard network applications [4]:

- Greater sensitivity in terms of QoS parameters in comparison with classical applications. Multimedia applications in real time are sensitive to delay and loss of certain segments of the message. That is why these applications can not use standard techniques of protection from distortion and transmission errors.

- A large number of multimedia applications in real time generates continuous traffic for a longer period, so that the network must provide the necessary resources on a continuous basis.

1.2. QUALITY OF SERVICE (QoS) IN THE NETWORK MULTIMEDIA SYSTEMS

Quality of service (QoS) guarantees in multimedia systems end-to-end (from the end-to-end). The key observation is that applications rely on the transmission through multimedia, continuous media streams, it is essential that the quality of service is configurable, predictable, sustainable, including end-device system, communication system, subsystem, and of course the network.

The current status of support for QoS on the architectural framework of the man is represented as follows [3]:

- Incomplete. Current interface (eg, an application programming interface) for general QoS is non adjustable and provides only a small subset of facilities required for the control and management of multimedia flows.
- Lack of support mechanisms and guarantees QoS. Research quired to distribute the control, monitoring and maintenance of QoS mechanisms so that the agreed service levels can be predictable and safe.
- Lack of a comprehensive framework. It is essential to develop a common architectural framework to build upon and adopt existing term quality of service at different levels of the system and between different network architectures.

A number of principles QoS design that motivates the general framework for QoS [3]:

- The benefits of transparency that reduces the need functionality in applications, hiding the details of the basic service specification of applications and the complexity of handling QoS delegated activities.
- The principle states that integration must be configurable QoS, predictable, and sustainable in all architectural layers to meet the end-to-end QoS. Flows walk resource module (eg, processor, memory, multimedia devices, networks, etc.) in each layer from the source media devices, down through the protocol of origin to the device.
- Mains decoupling states that medijskii transmission, control and management of functional with a variety of architectural activities. The main allegations are that the tasks should be separated in terms of architectural QoS.

1.3. THE SELECTION AND CONFIGURATION OF QoS MECHANISMS

QoS mechanisms are selected and adjustable by the user who receives from the QoS specifications, availability of resources and resource management policies. In resource management, QoS mechanisms can be categorized either as static or as dynamic in nature. Static resource management deals with the establishment of the flow of end-to-end QoS in the

stages of negotiation (which is described as QoS policies), and dynamic resource management deals with the stages of the transfer medium (which is described as a QoS control and management). The difference between QoS control and management of QoS is characterized by different time scales in which they operate. QoS control is working on a faster time scale of QoS management.

QoS provision consists of the following components [3]:

- QoS mapping performs the function of automatic translation between representations QoS at different levels (for example, the operating system, the transport layer, and network) and thus relieves the user of the necessity of thinking in terms of low-level specification. For example, transport-level QoS specification can express the current requirements in terms of service levels, average, jitter, loss and delay constraints. To test the grip and resource allocation purposes, this representation must be translated into something meaningful in the final system.
- entrance test is responsible for the comparison required resources arising from the required QoS against available resources in the system. A decision on whether the new requirements can be placed largely depends on the management policies at the level of system resources and the availability of resources.
- Resource reservation protocols organize the allocation of the relevant end system and network resources to the QoS profile in the specification. Resource reservation protocol interacts with the QoS based and directed to establish a path through the network in the first instance; Then, based on the QoS mapping and control admission to each local r module (eg, processor, memory, I / O devices, switches, and routers) from end to end resources are allocated. The end result is that QoS control mechanism, such as a network level cell.

2. QOS CONTROL

QoS control mechanisms work on time scales at or near the speed of transmission media. They provide real-time control of traffic flows on the basis of the required QoS levels that were established during the phase of QoS provision. Basic QoS control mechanism include the following [3]:

- Flow and scheduling management and forward flows (pieces of media based on application-layer) at the end of the system and the network (packet / or cells) in an integrated way. Flows are usually scheduled independent in end systems, or can be collected in the network. This depends on the level of services and scheduling discipline that has been adopted.
- Bandwidth shaping regulates the flow based on the performance specifications of flow that the user receives. The flow of the design can be based on a fixed flow rate or some form of statistical representation that depends on the required bandwidth. The benefit of traffic shaping is that it allows the QoS framework

provide sufficient end-to-end resource and configure the schedule to regulate the flow through the end systems and networks.

2.1. QOS MANAGEMENT

In order to maintain the agreed level of QoS, it is often enough to adapt to the necessary resources. Instead, the management of QoS is often necessary to ensure that the contracted QoS is maintained. QoS flow management is functionally similar to QoS control. Monitoring QoS ensures that each level of the system for monitoring liquid levels of QoS achieved in the lower layer. QoS monitoring is often an integral part of the loop in the QoS, which maintains the QoS resources that have been made of the module. tracking algorithms working in different time scales. For example, they can run as part Scheduler (as a control mechanism QoS) for measuring individual performance liquid flows. In this case, the measured statistics can be used to control packet, planning and control of the reception. Alternatively, QoS Monitoring can operate on the basis of end-to-end as part of a feedback mechanism transport - level or within the application itself.

2.2. QOS ARCHITECTURE

Integrated services architecture enable the model to provide services on the Internet guarantees the quality of service in real time or near real time when viewing multimedia content [6]. In recognition of researchers have recently proposed a new communication architecture that are broader in scope, network and have the end-system domains. Quality of service architecture (QoS -A) is layered architecture services for the quality of services for the management and control of fixed media streams in multi networks. The architecture includes the following key terms [3]:

- flows that characterize the production, transfer and possible use of a single media flow and associated QoS;
- service contracts, which are binding on the level of QoS agreements between users and providers;
- flow management, enabling the monitoring and maintenance of the agreed levels of QoS.

The realization of the concept of flow management requires active QoS, and tight integration between device management, end-system planning, network protocol and network. The top layer consists of a distributed application platform provider to provide enhanced multimedia communication and QoS specification in the environment. Below the level of the platform is a layer that provides a shake correction and multimedia services to more synchronization flows related applications. Supporting this layer traffic that contains a variety of customizable service and QoS mechanisms. Below that, a working Internet layer and lower layers form the basis for end-to-end QoS support.

3. QOS PROVIDERS AND CONSUMER ATTITUDES

The existing definition of QoS lacks the clarity that is required to express the separation of the service provider and consumer attitudes. QoS requirements of customers is a statement of a certain quality level of services required or recommended by your customer. The level of quality can be expressed by the customer in technical language. The typical customer is not concerned with how a particular service is provided or any aspect of the network is interior design, but only with the new service quality end-to-end.

3.1. QUALITY OF SERVICE PARAMETERS

QoS is defined by certain parameters for the cells that are in accordance with the contract in traffic. Defined on the basis of end-to-end. This perspective actually makes sense for the end user. The definition of the place can be the end workstations, network space clients, private or public ATM cash machine. QoS is defined in terms of one of the following outcomes measurement, where the measurement was done with respect of cells that have been sent from one user to another place [3]:

- transmitted from the cell of origin of users,
- successfully transferred to destination cell
- lost cells, which do not reach the destination user
- error cells, which arrives at the destination, but there are errors in the payload
- misinserted cells arriving at the destination, but has not been sent by the author. This can happen because of undetected errors in the header cells or configuration errors.

3.2. QUALITY OF SERVICE CLASSES

The quality of services, especially for multimedia applications depends not only on user requirements but also the load in the household. So as to guarantee QoS, it is necessary to introduce a set of parameters in the layers of the protocol. These QoS parameters are defined for each layer so that each layer can not guarantee service requirements. [8].

In each network performance parameters should be defined for at least the following ATM service classes of ITU-T Recommendation I.362 in the reference configuration [3]:

- Service Class A: wheel emulation, constant speed Video
- Service Class B: Variable bit sound and video
- Service Class C: connection-oriented data transfer
- Service Class D: connectionless data transfer.

In the future, more QoS classes can be defined for a given class of service. After a certain QoS class defined by the ATM Forum:

- That QoS Class 1 supports QoS service that meets the requirements of the class it presents. This class should provide the performance to be comparable to current digital private line performance.

- That QoS Class 2 supports QoS service that meets Class B performance demands. This class is intended for packaging of video and audio in teleconferencing and multimedia applications.
- That QoS Class 3 supports QoS service that meets Class C performance requirement. This class is designed for interoperation for connection-oriented protocols, such as Frame Relai.
- That QoS Class 4 supports QoS service that meets Class D performance demands. This class is designed for interoperation of Protocol.

3.3. QOS MAINTENANCE AND MONITORING

The overall system resource manager is potrebnan to manage different components of the system and to control the receipt of guarantees QoS of existing connections. Model packet loss account packet loss when servers and networks, can be used as the basis for the systemic control of receipt. Maintaining QoS for each component can include congestion control and flow control in networks, as well as real-time scheduling system on the host and media servers. QoS Monitoring exercise control to prevent a user violates the negotiated traffic characteristics. If a user violates the service agreement, the penalties can be imposed, by reducing the priority services. Since transport is a dynamic, sometimes the system can be overloaded. If the negotiated QoS can not be guaranteed or the user wants to change the negotiated parameter values during a call, it will be necessary negotiations between the user and the system.

The home network is increasing its demands for guaranteed quality multimedia services in real time which require high bandwidth and support system. To meet the needs of the service user QoS mechanisms ensure the quality of the network. But can not always be guaranteed QoS from end to end in the home network [5].

4. RESEARCH METHODOLOGY

Problem research: For the definition of the problem has a major role Purchaser research that is aware of the problem but can not solve. The main purpose of this paper is to explore QoS website users who use the service on the basis of the presented multimedia provided by transport organizations using ICT, the website of the organization, where the research results are used to improve the quality of service. If we try to perceive mentioned above we can formulate the research problem, how satisfied they are service users WEB SITE IN A NEW ORGANIZATION OF SERBIA TRAIN IN PROVIDING SERVICES.

The subject of research: One of the principles is "Customer focus", and which is based on the approach that the organization should understand current and future customer needs, and meet the expressed and, when possible, unexpressed, requirements and expectations of the service user. If the railways as a new organization wants to meet service users must follow the changes that occur in an environment with other carriers and to improve the quality of service Web site, they expect a variety of categories that they want to meet their needs before the competition. It can be concluded the following: BENEFICIARIES expected to improve WEB SITE THAT IS SEEING THROUGH MULTIMEDIA CONTENT

The aim of the research: The main objective of the research in this paper is to identify the expectations of service users on one side and the other on the quality of multimedia services website, which can provide new transport organizations. The goal of these investigations is reflected in the fact that the new transport organization, analyze shortcomings Web site and through research defines certain measures to be taken as soon as possible as to meet and satisfy the expectations of the traveling world. Defined measures must bring about a significant improvement in the quality of web pages.

Research questions and hypotheses: Hypotheses are assumptions in the study what is going to get a concrete investigation. Hypotheses should be: specific, closely related to the subject of research, verifiable and meaningful. At the beginning we need to formulate the assumption that it would check the facts. The hypothesis is tested by comparing the facts to which we can collect data and their treatment. The basic hypothesis of the research is HOW SATISFIED CUSTOMERS SERVICE MULTIMEDIA CONTENT WEB SITE ORGANISATIONS. Based on the research problem and the basic hypotheses must be defined research questions.

The method of investigation: For this work will be carried out consumer research services which is reflected in the survey, with predefined questions. In this way we gain new knowledge that can be applied in transportation organizations. In order to expand knowledge in the field of transport organization can spread knowledge and implemented through a new offer in order to increase the quality of the service website. To obtain the answer to the question of the service user will be used Likert scale as a measuring instrument. The study will be conducted at the station in Belgrade.

Justification research: Any investigation must have its justification. If we meet all the parameters of the draft concept of scientific research through research problem, case studies, research objective, research hypotheses and methods of research come to the data to be processed and presented. This example shows the interest of the transport organization for current and potential future service users, in order to increase its share of the transport market based on the wishes and expectations at a maximum of improving the quality of transport services, normally with the capabilities of the organization through the website.

Constant consideration of user needs transportation services, the organization must look and see what are the expectations to be able to analyze. One of the main motives of the organization of transport must be quality multimedia Web site to the satisfaction of service users in order to be competitive in the market.

4.1. DEFINING ISSUES

As already mentioned above must be defined questions that will be part of a survey to determine the satisfaction of users of services website "Serbia train" ad for rail passenger transport <http://www.srbvoz.rs>.

QUESTION 1: DO YOU AGREE THAT NOWADAYS MODERN TECHNOLOGY CAN IMPROVE QUALITY OF SERVICE

QUESTION 2: DO YOU AGREE THAT SOCIAL NETWORKS CAN IMPROVE QUALITY OF SERVICE

QUESTION 3: DO YOU AGREE THAT I HAS A NEW ORGANISATION FACEBOK PAGE

QUESTION 4: DO YOU AGREE THAT THE NEW ORGANIZATION USES THE MAILBOX FO AND CONTAINERS E-MAIL

QUESTION 5: DO YOU AGREE THAT MULTIMEDIA COMMUNICATION CAN IMPROVE AN ORGANIZATION'S OPERATIONS

After defining issues it is necessary to interviewing service users. The survey will be done on the platform of the main railway station in Belgrade. For two days, included 15 service users who have agreed to be interviewed. The polling included service users who have time between trains to continue the journey. To obtain research results Likert scale was used as a measuring instrument, where users of the service on a scale from 1 to 5 expressed their agreement or disagreement.

Expressed dissatisfaction or satisfaction expressed as follows:

- Number 1 means strongly disagree
- Number 2 indicates NOT AGREE
- Number 3 means NOT SURE
- Number 4 means AGREE
- Number 5 means FULLY AGREE

4.2. POLL RESULTS

The following table presents the results of the survey will be expressed as a percentage.

Table 1. Results of the survey

POLL	I TOTALLY AGREE	I AGREE	I'M NOT SURE	I DO NOT AGREE	STRONGLY DISAGREE
Question 1	62	18	8	7	6
Question 2	57	29	6	4	3
Question 3	50	29	7	8	7
Question 4	44	22	10	16	9
Question 5	55	21	9	8	7

For the first question, 80% of respondents agree that modern technology can improve the quality of service.

For the second question, 86% of respondents agrees that social networks can improve the quality of service.

For the third question 79% of respondents agree that feyzbug benefits.

For the fourth question 66% of respondents agree that the organization uses e-mail.

For the fifth question 76% of respondents agree that multimedia communication can improve an organization's operations.

5. CONCLUSION

The development of information technology and the Internet, providing QoS in networks is a priority requirement which must be respected in the planning and design of the network. Constant improvements and improve the quality of service given positive results, of course with the implementation of appropriate machinery. This paper presents the quintessence of quality of service, user requirements and the possibilities of modern technologies. In humans Internet in recent years has been in use with daily increasing interest, where they have an enviable high need for quality and quick services providing.

The aim of this study is to examine QoS. One can say that from the QoS depends on customer satisfaction and the extent to which requirements are met for quality of service. The basic idea in terms of target QoS parameters that are set so as to provide a quality service.

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DEVELOPMENT OF THE SYSTEM CRITERIA FOR MAKING SOFTWARE SOLUTIONS FOR BUSINESS DECISION

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Abstract: Objective of this study was to evaluate important criteria of software solutions for business decision-making. The paper deals with the problem of selection and decision-making criteria for software solutions in business decision making. Consideration of possibility that by applying Fuzzy Delphi method and fuzzy sets theory to develop a model for improving the selection criteria decision making. Fuzzy Delphi approach will be applied for assessing and determining the important criteria for evaluating software solutions. Results of research the most important criteria for differentiating also provides guidance for improvement of models selection criteria or greater number and select the appropriate solutions softver the development of multi models ranking of alternatives in terms of multiple criteria.

Keywords: Selection criteria, Fuzzy Delphi method, software solutions.

1. UVODNA RAZMATRANJA

Prilikom razvoja višekriterijumskog modela, često je potrebno koristiti metode koje ističu težine atributa donosilaca odluka, kao npr. metoda AHP, SMART i SVING. Namenski programi, uopšteno, obezbeđuju sledeće funkcije: nabavku, (formulisanje i modifikaciju odluke modela i njegovih komponenti), predstavljanje podataka o alternativama, procenu i analizu alternativa, upravljanje projektima, strateško odlučivanje i prezentaciju rezultata kroz izveštaje.

Softversko tržište raspolaže programskim rešenjima namenjenim kvantitativnom višekriterijumskom modelovanju: HiViev, Decision Pad, Logical Decisions, Decisions Prime, Electro, Expert Choice, Criterium Decision Plus, HIPRE, VISA, Winpre, Web-HIPRE. Kvalitativno više atributivno modelovanje podržano je od strane programa kao što su Dexia i DoctuS [28].

Aplikativna podrška procesu donošenja odluka predstavlja moćan alat donosiocu odluke sa ciljem postizanja željenih rezultata. Primena savremenih metoda i tehnika gotovo da je nezamisliva bez primene adekvatnih softvera namenjenih rešavanju određenih problemskih situacija. Za potrebe objektivnijeg sagledavanja problema, donošenje nepristrasnih i racionalnih odluka, efikasnim upravljanjem podacima, uštedi vremena, vizuelnoj prezentaciji rezultata, razvijen je veći broj softverskih rešenja. Poznati programi za ovu namenu, Expert Choice, MindDecider [Pro], Decision Manager, DPL Syncopation, TreeAge Pro, Doctus i brojni drugi omogućuju više kriterijuma analize prilikom odlučivanja. Na svetskom tržištu egzistira veći broj programskih rešenja namenjenih poslovnom odlučivanju. Proces izbora programskog rešenja za poslovno odlučivanje može da predstavlja jednostavan zadatak u slučaju da se primenjuje samo jedan kriterijum prilikom procesa odlučivanja. Međutim, u

realnim situacijama neophodno je razmotriti veći broj kriterijuma za donošenje odluke. Različiti zahtevi korisnika, kao i odabir adekvatnog programskog rešenja čije će performanse unaprediti proces odlučivanja predstavlja kompleksan problem za čije rešavanje je potrebno odrediti sistem kriterijuma i njihov relativni značaj.

Određeni broj istraživanja fokusiran je na proceni kriterijuma za odabir programskog rešenja za poslovno odlučivanje [11]. Istraživanje pokušava da identifikuje početne kriterijume u cilju izbora odgovarajućeg programskog rešenja, formiranjem grupe stručnjaka sa akademskih institucija i poslovno – proizvodnih sistema, primenom Fuzzy Delphi metode (FDM), za selekciju i procenu značajnih kriterijuma. Fuzzy Delfi metod (FDM) predstavlja integraciju fuzzy koncepta i metode Delphi, zahteva manji istraživački uzorak za dobijanje objektivnog i prihvatljivog rezultata. Navedenom metodom, resursi vreme i troškovi tokom procesa distribuiranja i prikupljanja upitnika mogu da se minimiziraju i mišljenja stručnjaka su prihvatljiva jer su bez devijacija [8].

2. KONCEPTUALNI OKVIR ISTRAŽIVANJA

U istraživanju je primenjena Fuzzy Delphi metoda (FDM) za procenu i selekciju značajnih kriterijuma. Celokupan proces istraživanja realizovan je sledećim aktivnostima : 1) formiranje i određivanje početnih kriterijuma; 2) Fuzzy Delfi metoda FDM za evaluaciju i određivanje značaja kriterijuma ; 3) odabir značajnih kriterijuma.

2.1. FORMIRANJE I ODREĐIVANJE POČETNIH KRITERIJUMA

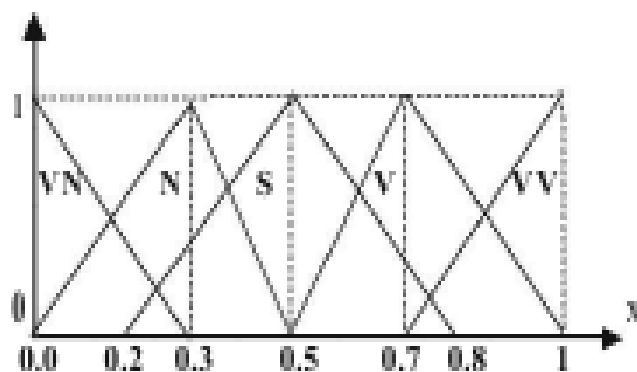
Identifikacija značajnih kriterijuma za odabir programskog rešenja namenjenog poslovnom odlučivanju je prva aktivnost prilikom razvoja modela. Kriterijumi su razvrstani u dva aspekta: opšti i posebni parametri programskih rešenja, kao što je prikazano u tabeli 1.

Tabela 1. Kriterijumi za selekciju programskih rešenja

ZNAČAJNI ASPEKTI KRITERIJUMA	KRITERIJUM		OPIS
A. Opšti parametri	A1	Cena	Vrednosni izraz. Poželjno je što niža.
	A2	Kompatibilnost sa OS	Najpopularnije OS kompatibilnost. Dovoljno je da softver bude kompatibilan sa operativnim sistemom Windows, to se rad u navedenim programskim rešenjima za poslovno odlučivanje zasniva na osnovnim standardnim postupcima koji se koriste pri radu sa ostalim aplikativnim programima iz svog okruženja.
	A3	Primeri i šabloni	Šabloni i primeri za najpopularnije projekate ili probleme, grupisane u kategorije.
	A4	Vreme na tržištu (god.)	Vreme na tržištu, značajan kriterijum, protok vremena je najbolji pokazatelj primene određenog programskog rešenja.
	A5	Podrška i nadogradnja	Podrška i nadogradnje, u idealnom slučaju, kupovina programa podrazumeva dostupnost tehničke podrške i redovno ažuriranje tokom celog perioda.
	A6	Pokušaji pre kupovine	Pokušaji pre kupovine, je jedan od najčešćih načina da se procene karakteristike programa, da li određeno programsko rešenje zadovoljava postavljene kriterijume, korišćenjem demo verzija sa ograničenim brojem opcija ili funkcija.
B. Posebni parametri	B1	Interfejs (projektna struktura i funkcija)	Korisnički interfejs je jednostavan za upotrebu. Ovaj parametar je naročito važan za donošenje odluka o odabiru softvera, definiše njegov kvalitet i upotrebljivost.
	B2	Matem. i graf. zastupljenost (Fuzzy proračun)	Matematičke i grafička zastupljenost, podržavaju mogućnosti promenljivih u modelima, analize odluka, skup i potpunost matematičkih funkcija i alata za crtanje grafova. Fuzzy proračuna, kada ponekad nije moguće dati preciznu vrednost varijanti. Programskim rešenjima može se odrediti interval varijabilnosti za varijantu koja omogućuje izvršenje analize osetljivosti.
	B3	Saradnja alata	Saradnju alata podrazumeva korekciju ili ažuriranje informacija u jednom okviru. Ovaj pristup se najčešće odnosi na poslovno okruženje u kojoj tim radi na projektu i potrebama fleksibilnosti diskusije.
	B4	Izvoz u druge formate	Izvoz u druge formate, Microsoft Office Word, Excel, Power Point i BMP / JPEG slike. Značajna karakteristika, ako program podržava navedenu mogućnost, da izveze podatke u MS Project, MS Access, SKL i Oracle baze podataka, KSMML / HTML formate.

2.2. FUZZY DELPHI METODA FDM ZA EVALUACIJU I ODREĐIVANJE ZNAČAJA KRITERIJUMA

Fuzzy Delphi metodu predlaže Ishikawa (1993) i predstavlja integraciju fuzzy teorije i tradicionalne Delphi tehnike. Noorderhaben (1995) predlaže da se za rešavanje problema grupnog odlučivanja u uslovima neizvesnosti, kada postoji neodređenost mišljenja od strane donosilaca odluke, primeni Fuzzy Delphi metoda. Primenom FDM moguće je odrediti važnost različitih kriterijuma. Za procenu i evaluaciju karakteristika performansi, sa aspekta značajnosti i prikladnosti lingvističkih varijacija, primenjuje se koncept trougaonih fuzzy brojeva i lingvističkih promenljivih. Svaki donosilac odluke vrši direktnu procenu važnosti kriterijuma, nezavisno. Prema [9], autori su predvideli osam skala za konverziju lingvističkih izraza u fuzzy brojeve. Koja će se skala upotrebiti zavisi od ukupnog broja lingvističkih iskaza koji će se konvertovati u trougaone fuzzy brojeve. Na slici 1 prikazana je skala sa pet iskaza koja je korišćena u ovom radu [30]. U tabeli 2 dat je prikaz lingvističkih promenljivih i fuzzy brojeva težinskog značaja.



Slika 1. Funkcija pripadnosti težinskog značaja kriterijuma

Primenom skala za konverziju lako se konvertuju određeni lingvistički izrazi u fuzzy brojeve, tako npr. lingvističkom iskazu “visok” (kada se usvoji skala sa pet lingvističkih iskaza) odgovara trougaoni fuzzy broj (0.5, 0.7, 1.0) što je prikazano u tabeli 2.

Tabela 2. Lingvističke promenljive i TFB težinskih značaja

Lingvistička promenljiva	Fuzzy broj
Veoma nizak (VN)	(0.0, 0.0, 0.3)
Nizak (N)	(0.0, 0.3, 0.5)
Srednji (S)	(0.2, 0.5, 0.8)
Visok (V)	(0.5, 0.7, 1.0)
Veoma visok (VV)	(0.7, 1.0, 1.0)

Računa se srednja vrednost mišljenja grupe koja je na osnovu pravila algebre takođe opisana trougaonim fuzzy brojem. Srednja vrednost procena donosilaca odluka :

$$\tilde{W}_{ij} = (l_{ij}, m_{ij}, u_{ij})_{L-R} \quad (1)$$

$$l_{ij}^i = \frac{1}{E} \sum_{e=1}^E l_{ij}^m, \quad m_{ij}^i = \frac{1}{E} \sum_{e=1}^E m_{ij}^m, \quad u_{ij}^i = \frac{1}{E} \sum_{e=1}^E u_{ij}^m, \quad e = 1, \dots, E; j=1,2,\dots,m; \quad (2)$$

gde je i indeks za iteraciju razvijene FDM.

Takođe, računaju se fuzzy distance između srednjeg mišljenja grupe od fuzzy brojeva kojima su opisani unapred definisani lingvistički iskazi. Na osnovu ove informacije donosioci odluke u prvoj iteraciji koriguju svoje procene.

Proračun srednje vrednosti procena donosioca odluka u drugoj iteraciji razvijene FDM primenom relacije (2).

Smatra se da konsenzus mišljenja se postiže u drugoj iteraciji. U najvećem broju prikazanih radova autori smatraju da kriterijum prema kome se postiže stabilnosti FDM je broj iteracija. U radu [10] je razvijena FDM. Autori smatraju da stabilnost FDM je postignuta ukoliko razlika fuzzy mišljenja između dve uzastopne iteracije za svaki razmatranu stavku je manja od unapred zadate vrednosti δ . Prema referenci [9], razlika između fuzzy brojeva dve uzastopne iteracije za razmatranu stavku ne treba da bude veća od 0.2.

Agregacija mišljenja eksperata postignuta je primenom metode srednje vrednosti. Navedenu metodu ima smisla primeniti ako su važnosti donosilaca odluka jednake ili približno jednake. U ovom radu realno je da uvedemo pretpostavku da svi članovi ekspertske grupe imaju približno jednaku važnost, tako da agregiranje njihovih procena u konsenzus moguće je dobiti primenom metode srednje vrednosti.

Agregirana težina za svaki od kriterijuma dobija se osrednjavanjem težina dobijenih od svih m eksperata pod uslovima konsezensa:

$$W_{ij} = \frac{\sum_{i=1}^m W_{ij}}{m}, \quad j = 1, \dots, n \quad (3)$$

Defazifikacija je operacija pomoću koje se određuje reprezentativni skalar fuzzy skupa. Ulazna veličina procesa defazifikacije je fuzzy skup, a izlaz – jedna, tačna vrednost iz fuzzy skupa. Konverzija fuzzy broja u nerasplinut broj može da se izvrši primenom modifikovane metode (težišta), centra gravitacije COA (Centroid of area) metode [26].

Metod COA je razvijena sa ciljem da omogućiti preudiciranje donosilaca odluke. Relacija za defazifikaciju trougaonog fazi broja \tilde{a}_{ij} u defazifikovan broj DF_{ij} :

$$DF_{ij} = [(u_{ij} - l_{ij}) + (m_{ij} - l_{ij})]/3 + l_{ij} \quad (4)$$

Primenom metode COA izvršena je defazifikacija trougaonih fuzzy brojeva u nerasplinut broj DF_{ij} .

2.3. ODABIR ZNAČAJNIH KRITERIJUMA

Nakon formiranja i određivanja početnih kriterijuma i primene FDM za razvijanje modela selekcije značajnih kriterijuma za odabir programskog rešenja namenjenog

poslovnom odlučivanju, u tabeli 3 dat je prikaz direktne procene ekspertske grupe o značaju kriterijuma odlučivanja.

Tabela 3. Značaj kriterijuma odlučivanja

E_i	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4
E₁	S	V	S	S	VV	VV	S	V	S	S
E₂	V	V	S	S	V	VV	V	VV	V	N
E₃	V	V	S	S	V	VV	V	V	V	S
E₄	V	V	S	S	VV	VV	S	VV	V	N
E₅	V	V	S	S	V	V	V	V	V	S
E₆	V	V	S	S	V	VV	S	V	V	S
E₇	V	V	N	V	V	VV	V	V	S	S
E₈	S	V	S	V	VV	VV	V	V	V	S
E₉	V	V	N	S	V	VV	V	V	V	S
E₁₀	V	VV	S	S	V	VV	V	V	S	S

Primenom relacije (2) i skale za konverziju lingvističkih iskaza u trougaone fuzzy brojeve izvršen je proračun srednje vrednosti mišljenja grupe koja je na osnovu pravila algebre takođe opisana trougaonim fuzzy brojem. Nakon izvršenih potrebnih proračuna, dobijenih vrednosti razlika fuzzy mišljenja između dve uzastopne iteracije za svaki razmatranu stavku, najveća razlika iznosi 0.05. U tabeli 4 dat je prikaz rezultata proračuna relativnog značaja kriterijuma i model evaluacije Fuzzy Delphi metode .

Tabela 4. Rezultati proračuna relativnog značaja kriterijuma i model evaluacije Fuzzy Delphi metode

KRITERIJUM		l_{ij}	m_{ij}	u_{ij}	DF_j
A1	Cena	0,41	0,66	0,96	0.68
A2	Kompatibilnost sa OS	0.52	0.73	1.0	0.75
A3	Primeri i šabloni	0.16	0.46	0.74	0.45
A4	Vreme na tržištu (god.)	0.26	0.54	0.84	0.55
A5	Podrška i nadogradnja	0.56	0.79	1.0	0.78
A6	Pokušaji pre kupovine	0.68	0.97	1.0	0.88
B1	Interfejs (projektna struktura i funkcija)	0.41	0.64	0.94	0.66
B2	Matem. i graf. zastupjenost (Fuzzy proračun)	0.54	0.76	1.0	0.77
B3	Saradnja alata	0.41	0.64	0.74	0.60
B4	Izvoz u druge formate	0.16	0.46	0.74	0.45

Kao što je prikazano u tabeli 4, nakon defazifikacije broja DF_j , kao najznačajniji kriterijum programskih rešenja za poslovno odlučivanje identifikovan je kriterijum A6 pokušaji pre kupovine (0.88).

Prema aspektu opštih karakteristika programskih rešenja, razmatrani kriterijumi su navedeni: A6 pokušaji pre kupovine (0.88), A5 podrška i nadogradnja (0.78), A2 kompatibilnost sa OS (0.75), A1 cena (0.68), A4 vreme na tržištu (0.55), A3 primeri i šabloni (0.45).

Sa aspekta posebnih karakteristika: kriterijum B2 Matematička i grafička zastupljenost (0.77), B1 Interfejs (projektna struktura i funkcija), (0.66), B3 saradnja alata (0.60), B4 izvoz u druge formate (0.45). U tabeli 5 je prikazano rangiranje kriterijuma programskih rešenja:

Tabela 5. Rangiranje kriterijuma programskih rešenja

KRITERIJUM	DF_j	RANG
A6 Pokušaji pre kupovine	0.88	1
A5 Podrška i nadogradnja	0.78	2
B2 Matem. i graf. zastupljenost	0.77	3
A2 Kompatibilnost sa OS	0.75	4
A1 Cena	0.68	5
B1 Interfejs (projektna struktura i funkcija)	0.66	6
B3 Saradnja alata	0.60	7
A4 Vreme na tržištu	0.55	8
A3 Primeri i šabloni	0.45	9
B4 Izvoz u druge formate	0.45	10

Na osnovu tabele 5, najvažniji kriterijumi sa aspekta opštih i posebnih parametara programskih rešenja namenjenih poslovnom odlučivanju, može se zaključiti da je kriterijum A6, zatim slede kriterijumi A5, B2, A2, A1, B1, B3, A4. Dok kriterijumi A3 i B4 imaju jednak značaj.

3. ZAKLJUČAK

Programska rešenja namenjena poslovnom odlučivanju omogućuju dobijanje preciznih i kompletnih informacija, relevantnost informacija, mogućnost kvantifikacije uticaja složenih problema u strukturiran i efikasan način, objektivnije sagledavanje problema, doprinose povećanju profita i smanjenju troškova, adekvatan uvid, pravilno usmeravanje donosioca odluke, donošenje racionalnih i nepristarasnih odluka.

Na osnovu rezultata sprovedenog istraživanja, kombinovanog tima sa akademskih institucija i dva poslovno – proizvodna sistema, identifikovani su i diferencirani najznačajniji kriterijumi. Može se zaključiti da sa aspekta opštih i posebnih parametara programskih rešenja, da kriterijum A6 pokušaj pre kupovine identifikovan kao najznačajniji kriterijum. Pokušaji pre kupovine, je jedan od najčešćih načina da se procene karakteristike programa, da li određeno programsko rešenje zadovoljava postavljene kriterijume, korišćenjem demo verzija sa ograničenim brojem opcija ili funkcija. Takođe, razvijeni model sa dva aspekta

parametara i deset kriterijuma rangirao je i obezbedio smernice za razvoj višekriterijumskog modela rangiranjem alternativa programskih rešenja.

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EVALUATION OF R&D PROJECTS IN PHARMACEUTICAL INDUSTRY: DO PHARMACEUTICAL COMPANIES ADEQUATELY ACCOUNT FOR RISK AND FLEXIBILITY?

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Abstract: The aim of the paper is to explore the level of project evaluation sophistication among pharmaceutical companies. Literature review and the empirical study in the UK pharmaceutical company revealed very low confidence in financial analysis when making important project decisions. Additionally, the analysis showed meagre level of managers' familiarity with more advanced project evaluation tools and significant hurdles for adoption of new methods, including the fear from false assumptions, excessive complexity of analytical techniques, lack of education and technical sophistication, self-satisfaction with existing methods and cultural differences inside the company. The conclusion of the paper is that pharmaceutical companies do not account as much as they could for risk and flexibility in their project evaluation practice and that they should adopt more sophisticated tools for project evaluation, including Monte Carlo, Real Options Analysis, Decision Tree Analysis and optimization models.

Keywords: pharmaceutical R&D project; risk; flexibility; project evaluation; decision-making.

1. INTRODUCTION

Pharmaceutical research and development (R&D) projects assume enormous investment costs, long investment horizon, sequential nature of investment decisions and complex mosaic of numerous uncertainties affecting the value of the projects. Among the infinite number of potential compounds that may have desired pharmacological effect, pharmaceutical companies must choose the compound in which to invest the millions. Such circumstances require the use of project appraisal-and-evaluation methods, which adequately account for risk and flexibility (Triantis, A. and Borison, A. 2001). The growing scepticism and suspicion about traditional project evaluation methods have led managers to look for more sophisticated methods, such as Monte Carlo Simulation or Real Option Analysis (Sharp, P. and Keelin, T. 1998).

This paper aims at investigating the application of more sophisticated and advanced methods for project evaluation within the pharmaceutical companies. The level of their adoption and the dominant modalities of their use would serve as a strong indication of pharmaceutical companies' project evaluation and risk management progressiveness. Therefore, the study seeks to answer the following research question: Do pharmaceutical companies adequately account for risk and flexibility in their R&D project appraisal? In order to answer the defined research question, we need to answer the following questions:

- What kind of uncertainties and risks do pharmaceutical companies face during R&D project lifecycle?
- What is the importance of various evaluation tools in such circumstances?
- What is the range of evaluation tools available to pharmaceutical analysts and managers?
- Are there any specifics in the application of particular methods across various R&D phases?
- What is the level of popularity of various project evaluation methods among pharmaceutical companies?
- How do relevant decision makers see the current practice of project evaluation, risk assessment and investment planning at the crucial points and how do they value their usefulness?
- Which project evaluation tools could be considered to improve the effectiveness of project appraisal-and-evaluation-related decision making to better deal with uncertainty of this kind of projects?
- To what extent have more sophisticated project evaluation tools been adopted in the pharmaceutical industry?
- Are there any obstacles to adoption of more sophisticated tools, and if any, how they could be overcome?

The attempt to answer the main research question and other supporting questions is based on two sources of information: first, a literature review of the experiences of different pharmaceutical companies, which were pioneers in using advanced project evaluation tools, and second, the analysis of pharma managers' opinions.

The paper comprises the following sections. We begin with a brief introduction on the current trends in the pharmaceutical industry, with the strong focus on uncertainty and risk evolution (Section 2). An overview of project evaluation issues in pharmaceutical R&D projects is given in Section 3. Here, we present the arguments in favour of the importance of project evaluation in pharmaceutical industry, describe the range of evaluation tools used by pharmaceutical companies, analyze the usefulness of these tools in different R&D phases, and investigate the level of use of these methods in practice, based on insights from literature review. Section 4 is dedicated to the empirical study conducted in the UK pharmaceutical company. This section describes the subject company, displays research results and discusses their implications for the main research question. The concluding section summarizes the ideas displayed in the paper and gives some trajectories and directions for further analysis.

2. RESEARCH AND DEVELOPMENT PROCESS AND EVALUATION CHALLENGES

According to Nagle and Nagle (2005), the generic pharmaceutical R&D process can be roughly divided into three broad stages: fundamental research, drug discovery and drug development (*Figure 1*).

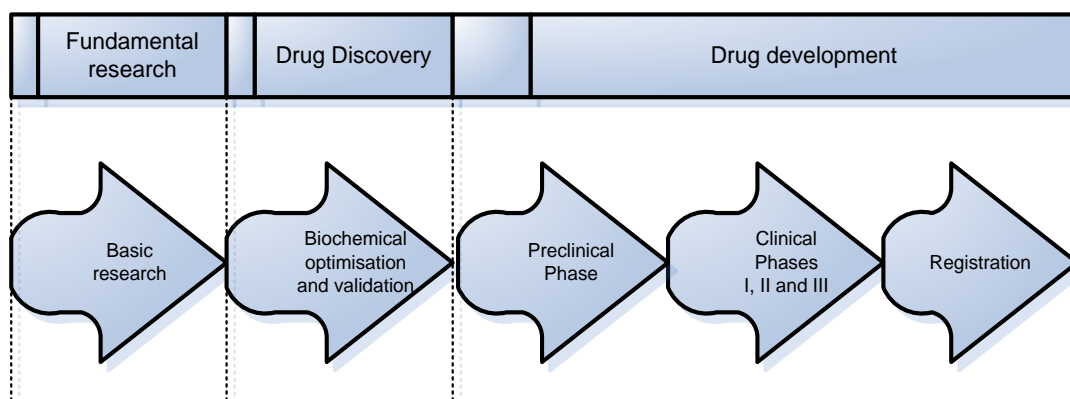


Figure 1. Pharmaceutical R&D process

Adapted from: Hartmann and Hassan (2006): 345

Fundamental (basic) research aims at learning how certain biological and chemical mechanisms generally operate. The information and knowledge adopted in fundamental research stage is exploited in drug discovery by chemists and biologists to design a molecule or compound known to be linked to a pathological condition. The drug development process consists of a series of phases that the discovered molecule have to pass through in order to be regulatory approved and successfully launched on to the market. Those sub-phases are: preclinical testing, clinical testing and regulatory approval (Pocock, S. 2004). In preclinical testing the new molecular entity is screened, virtually and in animals, for pharmacological activity (e.g. toxicity or carcinogenicity). In Phase I of clinical trials testing is conducted in a small number of healthy volunteers. In Phase II the focus is on a limited number of real patients for whom the drug is believed to be of benefit. Finally, Phase III incorporates large-scale trials in different patient subgroups aimed at gaining statistical significance of actual drug benefits or limitations. If the clinical development phases have been completed successfully and the firm believes it has sufficient evidence for approval, it will submit a new drug application with the national regulatory body for review. Upon official approval from the regulatory body, the company may start to launch marketing campaign, if it is allowed by a national legislation, and continue to monitor for any adverse reactions in the drug use.

The drug R&D process is a very risky endeavour. Only 1 out of 5,000 to 10,000 compounds discovered will become prescription drug (US Government Accountability Office. 2006). Even the one successful compound will require 10 to 15 years of work to reach the market. Even then, only 20% of new drugs launched to the market will reach breakeven point. Beside long time horizon and high attrition rates, excessive riskiness of pharmaceutical business is reflected through sky-high R&D costs. According to DiMasi (2003), the average out-of-pocket costs for 68 randomly selected new drugs, obtained from a survey of 10 pharmaceutical firms, were between US\$ 403 and 802 million (2000 dollars).

In order to understand key management decisions, concerns and dilemmas we need to describe the evolution of uncertainty and risk along the sequential decision-making pipeline. Hubbard (2009) claims that uncertainty refers to probabilities assigned to outcomes, while risk refers to probabilities of outcomes coupled with potential losses or foregone benefits for each outcome. In other words, risk may be viewed as uncertainty with potential negative exposure or impact (Sicotte, H. and Bourgault, M., 2008). Therefore, within the context of

pharmaceutical R&D projects, we will consider uncertainty as a reflection of variability in project variables and project outcome, and risk as an adverse impact of that variability on project performances and outcome.

Uncertainties in pharmaceutical setting can generally be classified as technical, cost and commercial uncertainty [for similar classifications see: Pass, D. and Postle, M. (2002); Saari, H.-L. (2004)]. Technical uncertainty reflects unpredictability of the drug technical performances, such as efficacy, toxicity or dosing. Cost uncertainty is related to fluctuations in drug discovery and development costs, as well as sales and marketing costs. Commercial uncertainty refers to demand and price variations and the undesired appearance and movements of competitors.

Drug discovery phase is characterized by enormous uncertainty due to substantial variations in project variables, large number of potential project directions and low predictability of the project outcome. On the other hand, level of risk taken is still relatively low compared to later R&D stages due to relatively insignificant investments and numerous abandonment options along the way. Only the technical risk may be considered significant, because most of analyzed molecules are rejected in this phase owing to technical failures. From financial and risk management point of view, it is important to shrink the size of the library as early as possible in order to avoid large costs pertaining to the following drug development stage (Trott, P. 2002).

Small number of compounds, that survive scientific filtration in drug discovery phase, enters drug development phase. Each drug development sub-phase is characterized by different duration, costs and probability of technical success (*Table 1*). Early stages of drug development are relatively inexpensive in comparison to heavy expenditures incurred in after progressing to stage III of clinical trials. Again, this tendency fosters management to identify possible failures as early as possible and “kill” unpromising candidates earlier, in less costly stages.

Table 1. Duration, costs and transition probabilities in drug development process

<i>Stage</i>	<i>Preclinical</i>	<i>Clinical studies</i>			<i>Regulatory</i>	<i>Total</i>
	<i>Studies</i>	<i>Phase I</i>	<i>Phase II</i>	<i>Phase III</i>	<i>approval</i>	
Variable Duration (years)	5-7	1	2	3	1.5-2.5	12-15
Costs (\$ million)	50-80	35-65	35	100-200	30-40	250-420
% success at each stage	0.05%	10%	33%	67%	95%	0.00001%

Adapted from different sources: Interviews in BioX; Parexel (2009); GAO, 2006; DiMasi, 2003; Stewart et al., 2001.

As the drug progresses through the drug development pipeline, technical uncertainty plunges, most notably after Phase III of clinical trials, because not many “scientific and technical surprises” may appear during regulatory approval or market launching. Costs are growing substantially from preclinical studies towards Phase III of clinical trials. Therefore, during drug development phase, cost uncertainty soars until Phase III and falls rapidly afterwards. Finally, commercial uncertainty decreases slowly, but steadily, as project managers and project members collect more and more information on relevant market trends within the selected therapeutic area. In general, as the drug progresses through project life-cycle overall uncertainty experiences stable downward trend due to richer available information and higher predictability of major events.

As opposed to uncertainty trend, general risk trend follows stable upward line. The main reason lies in growing costs and investments incurred in clinical and regulatory approval phases. Commercial risk shows slower growing trend during drug development phase, with rapid increase after market launch due to fierce market competition. Technical risk or risk of technical failure is stable or slowly diminished up to Phase III of clinical trials as scientists get more familiar with the selected compound. After Phase III, the risk of technical failure becomes negligible. It is possible that the drug exhibits technical deficiencies in post-approval phase, but it rarely occurs in practice.

Pharmaceutical companies face many problems in performing project evaluation (Villiger, R. and Bogdan, B. 2005). Valuation of pharmaceutical projects is particularly difficult because of project long time horizon, sequential and multidisciplinary decision making, deficiency of hard information in early stages, investment inertia problem and high risk of failure owing to turbulent business and market conditions. Therefore, selection of proper project evaluation methodology is of immense importance to pharmaceutical companies when making strategic, operating and financing decisions.

Critical operating project decisions in pharmaceutical R&D projects are go-no decisions. Namely, resource-allocation decisions take place sequentially after each phase, with additional investments approved only if the product fulfils the appointed economic and technical criteria. That means that effective go-no go decision making requires careful selection and application of project evaluation tools at critical decision-making points (go-no go gates shown in *Figure 1*). It is very important for pharmaceutical company to find “the optimal convergence for the project” (Sharp, P. and Keelin, T. 1998). The convergence means that, by entering the next phase in drug R&D process, the number of potential targets and options decreases. The aim of decision-making and evaluation tools should be to recognize and keep open only those options that may pay off in the future.

In go-no go decision making the key question becomes: how to select appropriate decision-making criteria (“score to beat”), which justify the continuation decision for a single project? In many regards, this is still a black box, especially in earlier phases of R&D process related to biological and chemical assays. Profit and value maximization, as a widely accepted criterion at the company level, should be accompanied by additional criteria, such as organisational capabilities, strategic fit, project champion attributes or cumulative riskiness of the project (Islei G et al. 1991). The ambiguity of project success as a complex composite of various subjective and objective criteria has attracted huge attention among academic researchers in recent years [e.g. Cicmil S. et al. (2009); Dvir, D. and Lechler, T. (2004); Stockstrom, C. and Herstatt, C. (2008)]. The complexity of identifying and measuring project success have driven project managers to use simplistic and mechanistic approach to project

success measurement based on achieving planned budget, schedule and performance, although it ignores the dynamics of organizational environment during project implementation.

3. EMPIRICAL STUDY

On the basis of theoretical background and literature review, we will now try to shed more light on the issue of R&D project evaluation in pharmaceutical industry, by analyzing the appraisal and risk management practice of the particular pharmaceutical company. This chapter reports the results of empirical study done in April and May 2014 in one of the leading pharmaceutical companies in the UK, colloquially named BioX. BioX is one of the world leaders in researching human monoclonal antibodies (mAbs) as a treatment for diseases. The empirical study is based on nine semi-structured interviews with managers (interviewees' profile given in *Table 2*) with different backgrounds (biology and chemical sciences, financial evaluation, project management, strategy, business collaborations, market research) responsible for various decisions along R&D project pipeline (drug discovery, drug development, regulatory approval and market launch). The results could not be published earlier due to confidentiality agreement signed at the time.

Table 2. Profile of interviewees

No.	Initials of the interviewees	Occupational Title	Responsibilities
1.	INT-1	Pharmaceutical Physician	- Preliminary prioritisation of candidate drugs based on multiple commercial, technical and regulatory criteria - Focus: Drug development and regulatory approval
2.	INT-2	Chief Executive Officer	- Strategy - Focus: all R&D phases (as a coordinator, supervisor and strategic decision-maker)
3.	INT-3	Director of Collaborator Funded Programmes	- Selection of drug discovery candidates - Establishing research collaboration with other research institutions - Focus: Drug discovery
4.	INT-4	Chief Financial Officer	- Financial analysis, accounting - R&D phase: all R&D phases (as a financial supervisor)
5.	INT-5	Financial Controller	- Financial controlling, project financial evaluation - Focus: all R&D phases (as a controller and financial evaluator)
6.	INT-6	Senior Vice President Business Alliances	- Business collaborations, market research, competition and trend monitoring - Focus: Drug development (market and commercial side)
7.	INT-7	Director of Programme Management	- Project management, portfolio management - Focus: all R&D phases (project appraisal, selection and implementation)
8.	INT-8	Director of Discovery Planning	- Analysis of prospective candidates, collaboration with research institutes - R&D phase: Drug discovery (research perspective)
9.	INT-9	Senior Vice President Drug Discovery	- Selection of therapeutic areas, selection of prospective candidates - Focus: Drug discovery (decision perspective)

DISCUSSION OF SURVEY RESULTS

The strong impression in analysis of decision-making process in BioX was very low confidence in benefit-contribution evaluation methods when making important decisions. High level of scepticism is expressed towards both traditional quantitative tools and, far more, towards the more sophisticated ones. The implication of this might be negligence of potentially very helpful financial instruments and indicators and relying entirely on scoring system and personal judgments in making project decisions.

The managers in BioX are fully aware that pharmaceutical sector represents high-risk-high-reward field. However, their ability to incorporate risk and uncertainty into quantitative analysis could be improved. Even the use of scenario planning and decision tree analysis is in its infancy, not to mention the lack of familiarity with and poor application of more risk-advanced techniques for project valuation, such as Monte Carlo Simulation or Real Option Analysis. This conservative approach to project evaluation goes hand in hand with the adherence to risk-adjusted NPV.

Based on respondents' statements, we are able to discuss in more detail the obstacles to increased sophistication in project evaluation, such as: 1) fear from false assumptions, 2) complexity and lack of education, 3) resistance toward change and complacency, 4) additional effort, and 5) diverse subcultures.

The fear from false assumptions was the most frequently stated reason for such a meagre adoption of advanced project evaluation methods. This view reflects something very positive in BioX managers' attitude. That is watchfulness about something that is not well understood. This checking of the assumptions on numerous hierarchical levels and various checkpoints is, no doubt, very positive part of BioX financial culture. It is based on the simple notion that mobilization of multiple sources of intelligence should outweigh any individual. On the other hand, excessive scepticism towards the introduction of multiple and more complex assumptions contributes to preferring NPV to MCS. However, conceptual basis of giving ranges for the assumptions instead of best guesses mitigates the threat that the involvement of multiple assumptions may imperil the reality of the model's results.

The next obstacle was complexity and lack of education. There are two potential difficulties for BioX managers: difficulty to understand and difficulty to implement. The first problem can be alleviated by attending seminars and presentations, taking intensive courses, reading basic (less technical) articles. Implementation problem may be considerably eased by using spreadsheets, lattice designs and decision trees instead of complicated stochastic differential equations and models. Analysts should start with simple demonstrations and applications of these methods with minimal organizational and technical requirements, just to see the clear evidence of the benefits and downsides, and then they should try to involve harder and more contentious problems. This way it is easier to gain support and "sponsorship" from top managers, which is essential for the adoption. Also, the company can expect an influx of more recently trained junior managers, who are already familiar with the concepts and who can exert positive influence on other colleagues.

The third obstacle is natural resistance toward new and complacency with the existing way of doing things. Managers and financial analysts strongly resist new methods they are not familiar with. Managers are aware that NPV is not perfect and many times in the past it gave wrong indications for action. Despite that, the combination of NPV and other decision-making instruments historically resulted in predominately positive decisions. So, why would

they replace or modify evaluation methods if they are a successful company anyway? Related to previous question, Simons (1999) argues that success brings profits and growth, but also unbounded optimism as a way of blinding executives to the many organizational dangers that can creep in. The introduction of proactive-oriented analytical methods can help by anticipating potential risks and opportunities and giving the company a chance of preparing a palette of proper responds.

The fourth observed obstacle is related to additional effort and investment. Analysts and managers need time to learn how to use these tools and interpret their results. Additional investment of time and money might be reflected through additional education of managers, less fluency in decision-making process during the adjustment period, the cost of training courses of current employees at different organisational levels, the cost of employing new people, hiring external consultants, and buying new, 'user-friendly' software packages.

Finally, a significant obstacle is related to diverse subcultures in the company and hidden conflicts between them. Some managers are by nature of their jobs conservative in their approach to decision making under uncertainty. Others have a larger capacity for risk taking. Nine interviews in BioX were sufficient to notice the difference in managers' opinions regarding their willingness to adopt more advanced risk appraisal and project evaluation methods. The analysis is based on two similar and correlated criteria: different backgrounds and different departments. According to these criteria, the interviewees are divided into four distinctive subcultures: "scientists", "finance and accounting (F&A) people", "top managers" and "risk-takers".

Scientists are more loyal to their specialty than to the company itself. Under this term, we designated only people working in the laboratory, not the top managers with a scientific background. They are happy in the micro-world of science. They are characterised by high level of personal attachment to particular projects, which is obvious when some project ("baby") has to be abandoned. Their domain is not that much affected by the use of financial techniques. Therefore, they are willing to adopt advanced financial tools easily and quickly.

F&A people are, by nature of their work, oriented toward efficient compliance with prescribed procedures. They are committed to the planned costs and time and frightened of open solutions and flexible approaches. They prefer the risk-adjusted NPV, because it is the most convenient and familiar tool for them. Consequently, the greatest resistance against the new analytical methods is coming from them, because they are trying to secure their longstanding and deep-seated identity, which is in danger of being disturbed.

Risk takers are project managers with medical background and managers from business alliances department. In contrast to F&A people, their working area is completely unpredictable. Every day is a new challenge and they require flexible analytical tools to respond adequately. They are highly aware of the necessity to improve financial analytical tools by incorporating uncertainties and flexibilities in financial models.

Finally, *top managers* are mediators in this process. They try to understand both "conservative" and "progressive" subcultures and alleviate their immanent conflict. Terms "progressive" and "conservative" do not reflect the value of any of the views, but the fact that one view is in favour of the change and the other for *status quo*. *Top managers* understand that scoring models and NPV abound in fallibilities, but they are also very sceptical about new analytical tools. They are in favour of transition from NPV to MCS and ROA, but only after the new methods have proved helpful for making more informed decisions.

4. CONCLUSION

Drug R&D process in pharmaceutical industry is a very expensive, time-consuming and risky challenge. Investments are made sequentially over the extended period of time and potential revenues can be collected only after the drug has been launched on the market. Consequently, evaluation of pharmaceutical R&D projects is one of the most complex investment problems. R&D project evaluation is essential for selection of promising therapeutic areas and individual projects, for making go-no go decisions within the ongoing projects and for attracting strategic partners and investors.

Although logical arguments favour evaluation methods which take account of risk and flexibility in the pharmaceutical industry, available empirical studies indicate the dominance of qualitative over benefit-contribution methods, both in earlier and later stages of pharmaceutical R&D process. Among qualitative methods the most widespread are scoring models, Analytical Hierarchy Process (AHP) and scenario analysis. Among the less popular benefit-contribution methods, literature review implies that convincing leaders are Discounted Cash Flow (DCF) group of methods and Decision Tree Analysis (DTA), whereas Monte Carlo Simulation (MCS) and Real Option Analysis (ROA) are rarely used.

Empirical study conducted in the UK pharmaceutical company showed that managers in this company have very low confidence in project quantitative analysis when making important decisions. All respondents are familiar with NPV analysis, which is the dominant analytical tool for project evaluation. However, the level of familiarity with more sophisticated risk-enhanced evaluation tools, such as Monte Carlo Simulation or Real Options Analysis, is dramatically low. The study also suggests that there are several obstacles to widespread use of these techniques in the company. The main hurdle is scepticism regarding the complex assumptions inserted in the model and fear that more compelling and sophisticated models may give even more flawed results compared to the NPV method. Several respondents mentioned high complexity of the techniques and, related to this, the lack of proper education among the managers and technical sophistication inside the company. Additionally, advanced valuation techniques are seen as unnecessary and time-consuming methods of modelling and interpreting results, which is not in line with the nature of the pharmaceutical business that requires almost prompt reactions and decisions. Finally, deeper analysis of interview findings indicated the problem of organizational and cultural resistance towards new methods. Managers with different backgrounds and from different departments have expressed different opinions regarding the adoption of advanced evaluation techniques. Obviously, the introduction of new methods may be disturbing and disorienting for some executives of the traditional DCF school.

Altogether, literature review and the insights from the empirical study indicate that pharmaceutical companies do not account as much as they could for risk and flexibility in their project evaluation practice. Project evaluation tools require more than NPV, because it treats projects as a passive asset and does not take into account the value of managerial flexibilities. The excessive riskiness of pharmaceutical business requires evaluation techniques that can cope with interplay of uncertainties and flexibilities in conceptually correct and logically consistent way. More sophisticated tools, such as MCS and ROA, can help by respecting numerous uncertainties and valuing managerial intangibles. These methods do not guarantee that every decision made will automatically result in better outcomes, but, in

the long run, new culture of proactive and flexible project analysis may represent vast improvement in R&D project decision-making.

The major motive for writing this paper was poor literature coverage of topics related to project evaluation methodology used by pharmaceutical companies and the level of their risk management sophistication. Also, to our best knowledge, not even one paper has been written regarding the level of adoption and the hurdles to using more advanced financial evaluation and risk assessment methods in the pharmaceutical industry. This made the research even more challenging and interesting. This paper has only scratched the surface and left many questions open for further similar studies.

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ANALYSIS OF PERFORMANCE MANAGEMENT PRACTICES IN SMALL AND MEDIUM ENTERPRISES IN SERBIA

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Abstract: Performance management, as one of the main HR processes, plays very important role in creating high performing organization, and well designed, effective performance management system can support company to achieve its goals in terms of profitability and creating competitive advantage over other enterprises.

In this paper we analyze results from a study conducted on 78 small and medium-sized enterprises that operate in Serbia which were surveyed on use of performance management practices. The main findings show that standardized performance appraisal process is not so common among SMEs in Serbia where only 28.2% of small and medium companies in Serbia possess standardized performance appraisal process. Written set of rules for assessing performance of employees fully implemented 26.9% of SMEs, while customized performance appraisal process for managerial roles is applied in 17.9% of them.

Keywords: Small and medium sized enterprises (SMEs), Human resources management, Performance management, Performance appraisal, HRM practices

1. INTRODUCTION

Very often small and medium-sized enterprises are considered as the growth drivers and backbone of each country's economy. (Amini, 2004; Radam et al., 2008) [4][31]. These are in the same way important for developed as well as for developing countries since they significantly contribute to job creation, social stability and economic welfare (Ladzani and Van Vuuren, 2002) [25].

A number of studies proved how substantial SMEs' role is for economic growth and employment opportunities increase (Karides, 2005; O'Regan and Ghobadian, 2004) [24][30], especially in developing countries where they remarkably contributed to macroeconomic indicators improvement, stimulation of competition, productivity, facilitation of trainings, innovations and poverty reduction (Abdullah and Manan, 2011) [1].

Having in mind that Serbia belongs to the group of developing countries that faced many issues in the past which weakened and devitalized its economy, reinforcement and development of SME sector has to be one of the priorities of national economic policy. Identifying the integration into European Union as the main official foreign policy goal of the Republic of Serbia, it is crucially important to consider and analyse the topic of SME sector development from the perspective of EU community.

2. HRM IN SMALL AND MEDIUM-SIZED ENTERPRISES

As defined by EU Commission the main factors which determine whether an enterprise is a SME are number of employees and either turnover or balance sheet total. In

accordance with these criteria “the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million” [17]. Comparable principles for defining SMEs are generally accepted in Serbia, and consequently all the enterprises that meet two out of following three criteria should be considered as SME: company employs less than 250 people, has annual turnover up to EUR 35 million and/or values of its assets is below EUR 17.5 million [29]. According to Annual Report on European SMEs, 99 out of every 100 businesses in EU are SMEs and these employ two in every three employees and produce 58 cents in every euro of value added, where value added refers to net contribution of the company to the economy. Based on the data from the same Report “the SME share of employment in the 'non-financial business economy' of Serbia was 70 %, slightly above the EU average of approximately 67 %. The SME share of value added, at 53 %, was lower than the EU average of 58 %. SME labour productivity, measured as value added per head, was also lower, i.e. roughly 80 % below the EU average” [16].

It is apparent that small and medium sized enterprises perform very important role in economic growth, however the fact that less than half (44 %) of them survive for a five - year period [18] illustrates how challenging is the process of their evolution and development, therefore in order to improve their performance and competitiveness SMEs have to implement the advanced managerial practices in the main business processes (Cagliano et al., 2001)[10].

There is substantial number of studies worldwide that proved positive impact of HRM practices on company's performance. According to Zheng et al (2006) mostly mentioned embrace Arthur (1994) [7], Huselid (1995) [21], Huselid et al. (1997) [22], MacDuffie (1995) [27], and Youndt et al. (1996) [38]. Much research has also been done in Western and developing countries: Lahteenmaki et al. (1998) [26], Guthrie (2001) [20], Chang and Chen (2002) [13], Wright et al. (2005) [37], Stavrou and Brewster (2005) [35]. The results from these studies have consistently revealed that the adoption of HRM practices enhances company performance [39].

Adnan et al (2011) also wrote about positive effects that HR practices have on company financial performance [2]. In a study by Islam and Siengthai (2010) the relationship between HRM practices and firm performance was investigated. Based on the empirical findings, most of the core processes of HRM, namely, recruitment and selection, performance appraisal, training and development, compensation, except unionization were found to have a significant and positive impact on firm performance [23].

3. PERFORMANCE MANAGEMENT PRACTICES IN SMES

Beaver and Hutching (2004) claimed the use of formal performance evaluation systems can reduce absenteeism and turnover, and improve employee performance and satisfaction, consequently positively influencing company's results [9]. The same authors in discussing impact of HRM practices on company performance stated that: “The hardest task in respect to HRM of small businesses is to convince owners and managers that there is much to be gained in the long term if financials and time investments are made in the short term. Of all the functional aspects of HRM it is most difficult to convince small business managers of

the need for taking a strategic approach to developing formal performance appraisal system” [9].

Mondy (2012) described performance appraisal as “formal system of review and evaluation of individual or team task performance” [28]. The same author identified performance appraisal as vital component of performance management, especially critical to the success of that process because it directly reflects the organization’s strategic plan. Armstrong also wrote about importance of connection between performance appraisal and business objectives, as well as about importance of observing performance appraisal as integral part of performance management process [6]. As defined by him “Performance management is a systematic process for improving organizational performance by developing the performance of individuals and teams. It is a means of getting better results by understanding and managing performance within an agreed framework of planned goals, standards and competency requirements [5]. The similar view on performance management presented by Aguinis (2009) indicating that it is a “continuous process of identifying, measuring, and developing the performance of individuals and teams and aligning performance with the strategic goals of the organization” [3].

As a continuous process, performance management must evolve over time in line with the business needs, helping the organization to adopt and survive in challenging environment. Considering the significance of small and medium sized enterprises for national economies as well as proven possibilities for improvement of their performance through implementation of different HRM practices, main goal of the study will be presented in this paper is to investigate the scope of core performance management processes implemented in small and medium-sized enterprises in Serbia.

4. RESEARCH METHODOLOGY

With the intention to practically explore the extent to which small and medium companies in Serbia apply performance management practices, quantitative research method was employed. Given the nature and time horizon of this study, another vital point for choosing quantitative method relates to its ability to systematically and quickly process collected data (Fabozzi et al, 2005) [19].

For that purpose, we opted for survey strategy which allows a cost efficient data collection from large population. It generally goes together with questionnaires and represents the primary practice for data collection (Saunders et al, 2012) [33]. In order to collect data a concise questionnaire was developed, aiming to elicit as detailed as possible information. It is structured around two main segments one related to introductory questions about surveyed companies and other referring to implementation of performance management practices. As stated in previous sections, we limited our research to SMEs doing business in Serbia regardless of a type of business and industry within which they operate. Taking into account the exploratory nature of this paper and a sampling methodology, firms were selected on a random basis throughout Serbia but we paid close attention that the population of surveyed small and medium firms was evenly selected from major administrative areas within country. Questionnaires were given to people in charge of human resource issues or General Managers in companies if former were not appointed. In most cases, questionnaires were emailed directly to responsible persons whereas in other situations due to the simplicity or lack of time

of respondents they were administered and filled out via phone. Despite all contacted companies, some participants showed to be unwilling to complete the questionnaire while others could not keep up with a set time frame. Apart from all sent questionnaires, in the end of the data collection process we gathered 78 questionnaires in total. During the data gathering process, ethical standards were rigorously applied because enterprises needed to release sensitive data about their internal business activities. That was done in a way to assure respondents that all provided information will be treated in professional manner and at the same time to increase the response ratio.

After all questionnaires had been successfully collected, we proceeded to data analysis process and used a statistical software package in order to do a descriptive analysis and examine the degree of implementation of performance management practices in SMEs in relation to their organizational life cycle.

5. DISCUSSION

In this section the main goal is to compare and contrast as well as briefly present and summarize key research findings. Concerning the quantitative nature of this study, at the very beginning we attempted to explore and pinpoint descriptive patterns of core processes of performance management (PM) and organizational life cycle (OLC) of small and medium sized enterprises (Cassel et al, 2002) [12]. With the intention of better presentation of research results, organizational life cycle variable was grouped in statistical software and merged to three broader categories as follows: OLC 1 (0-10 years of business); OLC 2 (11-20 years of business); OLC 3 (21 and more).

Table 1. Standardized performance appraisal process

% within organizational life cycle (olc)

	Standardized performance appraisal process				
	not planned at all	planned more than 3 years	planned in next 3 years	in process of implementation	fully implemented
olc 1	26,5%	5,9%	20,6%	17,6%	29,4%
2	27,3%	12,1%	24,2%	18,2%	18,2%
3	18,2%		9,1%	18,2%	54,5%
Total	25,6%	7,7%	20,5%	17,9%	28,2%

First and foremost, we presented the table showing the degree of implementation of standardized performance appraisal process in connection to organizational life cycle variables. It can be observed that in total a slightly higher number of surveyed companies has fully implemented performance appraisal process (28,2%) in contrast to SMEs that do not plan to do it (25,6%) which can be attributed to the lack of will and limited internal and financial resources (CIPD, 2012) [14]. Moreover, small firms should be very creative and resourceful in working within these limitations (Desouza and Awazu, 2006) [15]. It has been argued that shortage of internal resources leave small companies without opportunities to develop performance management method (Sheehan, 2014) [34]. On second thought, it appears that within firms that fully implement performance appraisal practice a vast majority

exists more than 21 year on the market (54,5%), that could be partially explained by evolution of businesses over time and utilization of accumulated resources (Reid et al, 2002) [32].

Table 2. Written set of rules for assessing performance of employees

% within organizational life cycle (olc)

		Written set of rules for assessing performance of employees				
		not planned at all	planned more than 3 years	planned in next 3 years	in process of implementation	fully implemented
olc	1	29,4%	11,8%	23,5%	5,9%	29,4%
	2	30,3%	15,2%	21,2%	12,1%	21,2%
	3	9,1%		9,1%	45,5%	36,4%
Total		26,9%	11,5%	20,5%	14,1%	26,9%

Concerning the above table, it shows up a polarization in the opposite directions with the same percentage values where some participants has completely implemented written set of rules for performance assessment procedure (26,9%) as opposed to others who do not plan to impose them (26,9%). According to Ates et al (2013) [8], besides from existence of cutting-edge methodologies that support the application of performance management practices, their acceptance within small and medium enterprises is minimal. However, not all small companies are identical and differences in their organizational life cycle phases are also significant which strongly corroborates our research findings that established SMEs in Serbia with at least 21 year of existence are more prone to introduce written set of rules (36,4%) and thus formalize their performance assessment process (Cardon and Stevens, 2004) [11].

Table 3. Customized performance appraisal process for managerial roles

% within organizational life cycle (olc)

		Customized performance appraisal process for managerial roles				
		not planned at all	planned more than 3 years	planned in next 3 years	in process of implementation	fully implemented
olc	1	41,2%	17,6%	11,8%	14,7%	14,7%
	2	39,4%	18,2%	18,2%	12,1%	12,1%
	3	27,3%		9,1%	18,2%	45,5%
Total		38,5%	15,4%	14,1%	14,1%	17,9%

According to presented information, it can be spotted that customized performance appraisal practice for managerial roles is only fully implemented in small number of participant companies in Serbia (17.9%). Moreover, amongst them one can see the frequency of occurrence is strongly related to established firms who operate 21 years on the market (45.5%) indicating high potential for launching contemporary management practices (Storey, 1995) [36]. On the other hand, the majority of respondents showed a lack of interest and claimed that customized performance appraisal is not planned to be applied for managerial positions (38.5%). Much has been written and is extensively documented in literature that

small and medium enterprises cope with pressure in implementing advanced managerial techniques (Cagliano et al., 2001) [10].

6. CONCLUSION

At the beginning of this paper, we presented the definition of small and medium sized enterprises and explained their nature and main characteristics in the Serbian business context. Our aim was to compare and contrast various international research studies with regards to the degree of implementation of HRM practices in SMEs and pinpoint major differences. A strong link was found between implementation of HRM practices and SME's positive performance.

Based on the literature as well as taking into account the importance of small and medium companies to the Serbian economy we chose to practically investigate the existence of core performance management processes in SMEs and their evolution with organizational life cycle. Due to the fact that no similar research has been done before, the study was exploratory and quantitative in nature and included small firms in the Serbian territory. We contacted and informed potential participants and collected 78 completed questionnaires. According to research findings, it was found out that 28.2% of small and medium companies in Serbia possess standardized performance appraisal process. In addition to that, written set of rules appear to be fully defined by significant number of SMEs existing more than 21 years on the market (36.4%). Last variable that was investigated is customized performance appraisal for managerial roles. In a similar fashion, it was observed that mature companies with at least 21 years of life cycle are more inclined to have customized performance appraisal process than other small and medium enterprises.

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THE CRISES INFLUENCE ON “ZASTAVA ARMS” BUSINESS MANAGEMENT

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Abstract: For each company it is very important to take care of their business environment that make economic, political, social, and technological factors, which can be done by carefully defining risk, while taking into the account own weaknesses and strengths. If we analyze the factors of crisis management, it can be concluded that the numerous crises affecting "Zastava Arms" company were influenced by both internal, and external factors. Many markets in which "Zastava Arms" placed its products, from the introduction of sanctions in 1992, until the years after the bombing, became unavailable. Every organization, regardless of the size and importance, the nature of the activity, and number of employees, must have a plan to protect against the possible crises. "Zastava Arms" is making great efforts to return to the world market with the range, quality, and design of their products in order to compete with many major producers worldwide. Great world economic crisis also affected the business of "Zastava Arms". It is necessary to perform a detailed analysis of all decisions and actions that have been taken against the consequences of the crises and whether all the relevant departments and individuals have done everything to prevent the emergence of crisis, or to minimize their consequences.

Keywords: crisis management, „Zastava Arms“, business processes analysis.

Apstrakt: Za svako preduzeće je veoma bitno da vodi računa o svom poslovnom okruženju koje čine ekonomski, politički, društveni i tehnološki faktori, što je moguće učiniti ukoliko se pažljivo definišu opasnosti, istovremeno vodeći računa o sopstvenim slabostima i snazi. Ako analiziramo faktore kriznog menadžmenta, onda se može zaključiti da su na mnogobrojne krize u preduzeću "Zastava oružje" uticali kako unutrašnji tako i spoljašnji faktori. Mnoga tržišta na kojima je "Zastava oružje" plasirala svoje proizvode, su, od uvođenja sankcija 1992. godine, ali i godinama nakon bombardovanja, postala nedostupna. Svaka organizacija, bez obzira na veličinu i značaj, na prirodu delatnosti i broj zaposlenih, mora da poseduje plan zaštite od pojave mogućih kriza. Kragujevačka fabrika oružja ulaže velike napore da se vrati na svetska tržišta i da asortimanom, kvalitetom i dizajnom svojih proizvoda parira mnogim velikim proizvođačima širom sveta. Velika svetska ekonomska kriza je takođe uticala na poslovanje "Zastava oružja". Potrebno je izvršiti detaljnu analizu svih odluka i aktivnosti koje su donete i preduzete, o tome kakve su i kolike posledice krize izazvale i da li su sve nadležne službe i pojedinci učinili sve kako bi sprečili nastanak kriza, odnosno minimizirali njihove posledice.

Ključne reči: krizni menadžment, Zastava oružje, analiza poslovanja.

UVOD

Od samog početka proizvodnje oružja a posebno od uvođenja sistema kvaliteta, ispitivanja i žigosanja 1856. godine,⁶⁹ kvalitet materijala i izrade, funkcionalna i tehnička ispravnost, potpuno proveren i siguran proizvod pre plasmana na tržište, primarni su cilj menadžmenta Zastava oružja. U cilju obezbeđenja kontinuiranog kvaliteta oružja sa aspekta sigurnosti u eksploataciji, neophodno je da se obave sistematska ispitivanja svih vitalnih elemenata oružja a prvenstveno ispitivanje mehaničke otpornosti cevi. Takvim ispitivanjem se, osim sigurnosti, obezbeđuje i:

- registracija utvrđenih tehničkih karakteristika oružja pre njegovog stavljanja u promet;
- evidencija oružja prema vrstama, kalibrima i tipovima;
- s obzirom da oružje, zajedno sa odgovarajućom municijom čini jedan funkcionalno povezan jedinstven sistem, radi bezbednog funkcionisanja oružja neophodno je da i municija odgovara propisanim karakteristikama. To se postiže sistematskom kontrolom svakog elementa municije (baruta, sačme, čepa, poklopca, kapisle, čaure itd .), kao i balističkom proverom gotove municije, posebno u pogledu nivoa ostvarenog pritiska u cevi.

Institucije koje se bave ispitivanjem i žigosanjem oružja i municije su u svim zemljama (koje imaju ovakve institucije) pod jurisdikcijom države a njihova lokacija je najneposrednije uslovljena lokacijom najvećih korisnika usluga koje ove organizacije pružaju, odnosno proizvođačima oružja i municije.

ZAŠTITA BEZBEDNOSTI I BEZBEDNOSNE MERE

Savremeni uslovi života omogućili su čoveku da na više načina može organizovati i sprovesti zaštitu sebe i svojih dobara. Imajući u vidu da svaki čovek, veći deo svog života provede radno, u preduzeću ili nekoj instituciji, veoma je važno da to vreme provodi u bezbednom okruženju. Za svako preduzeće je veoma bitno da vodi računa o svom poslovnom okruženju koje čine ekonomski, politički, društveni i tehnološki faktori, što je moguće učiniti ukoliko se pažljivo definišu opasnosti, istovremeno vodeći računa o sopstvenim slabostima i snazi. Uspešno preduzeće ima dobru organizaciju koja zavisi od karaktera preduzeća, metoda i kadrova. Kontinuirano usavršavanje organizacije praćeno je upravljanjem, koordinacijom i kontrolom rada preduzeća, što spada u nadležnost menadžmenta. Opasnosti koje mogu ugroziti imovinu i poslovanje preduzeća, mogu se generalno podeliti na unutrašnje i spoljašnje. Ukoliko ih rukovodstvo blagovremeno evidentira i primeni preventivne mere zaštite, doći će do smanjenja stepena opasnosti po lica, imovinu i poslovanje.

⁶⁹ Petar Protić prvi srpski upravnik Topolivnice, uveo je sistem kvaliteta i žigosanja. Mihailo Cvejić, kontrolor kragujevačke „Puškarnice“ je svaki komad oružja lično pregledao, kontrolisao i žigosao prema propisu usvojenom 24/05 februar 1856.godine. Tadašnji žig je sadržao:inicijale (u principu inicijale kontrolora), državni grb (kneževska kruna iznad štita sa krstom i četiri ocila) i godinu proizvodnje/kontrole.

Sistem obezbeđenja i zaštite dobija na značaju u periodu osnivanja i ekspanzije privatnih preduzeća, mada je bilo dosta improvizacije i nedovoljnog znanja u projektovanju i eksploataciji bezbednosnog sistema. Svaki sistem obezbeđenja sastoji se iz tri komponente: fizička komponenta sistema; tehnička komponenta sistema i bezbednosno zaštitna komponenta sistema. Iako svaka od navedenih komponenti može da funkcioniše kao zasebna celina, pravi efekat se ipak postiže samo ukoliko se istovremeno uvodi kompletan sistem obezbeđenja koji zauzima veoma važno mesto u funkcionisanju preduzeća, a menadžer obezbeđenja je sastavni deo upravljačke strukture.

Spoljašnju pretnju mogu predstavljati kriminalne grupe ili pojedinci koji imaju određene motive (ekonomske, verske ili političke) i nameru da svojim aktivnostima ugroze bezbednost zaposlenih i imovinu preduzeća. U spoljašnje faktore se ubrajaju i ekonomski i politički činiooci koji bitno mogu uticati na bezbednost i poslovanje.

Unutrašnju pretnju predstavljaju nezadovoljna lica, odnosno zaposleni, koji su skloni kriminalnim radnjama. Ova lica su uglavnom lica od poverenja koja imaju pristup svim mestima, poznaju sistem i samim tim im se pružaju mogućnosti za napad. Ponašanje ovih lica može biti pasivno i aktivno. Pretnja po bezbednost može biti i u vidu kombinacije unutrašnjih i spoljašnjih nosilaca pretnji i predstavlja najčešći oblik ispoljavanja ugroženosti.

Motivi ugrožavanja mogu biti ideološki (posledica partijske pripadnosti ili verskog opredeljenja), ekonomski (želja za materijalnom dobiti), personalni (nezadovoljstvo, mržnja, ljubomora, osveta i sl.) i “ugrožavanje pod pritiskom”.

MOGUĆE MERE ZAŠTITE OD NAPADA

Ako se posmatraju bezbednosni sistemi kojima se treba suprotstaviti napadima, može se reći da kod njih uvek može doći do određenih propusta a s obzirom na činjenicu da u suštini svakim sistemom rukovode ljudi, suprotstavljanje se može sprovesti samo ljudskom inicijativom. Zato je od izuzetne važnosti da se posebna pažnja posveti kreiranju odgovarajućih bezbednosnih, sigurnosnih protokola, kojih će morati da se pridržavaju svi zaposleni u preduzeću ili instituciji. Neki od njih su:

- Sigurnosna politika
- Edukacija zaposlenih
- Prijava incidenta
- Kontrola pristupa
- Fizička sigurnost
- Provera sigurnosti
- Odbrana u više nivoa

Kriza rukovodjenja ili kriza menadžmenta uglavnom nastupa prva a njena prisutnost se vidi kroz višemesečno ili višegodišnje neuspešno poslovanje. U slučaju fabrike oružja ne može se sa sigurnošću reći da se periodi slabog poslovanja mogu pripisati isključivo ovom tipu krize. Rukovodstvo ili menadžment su vrlo često pod uticajem spoljašnjih faktora, bili onemogućeni da sprovedu neke svoje planove i strategije. Međutim, ne može se tvrditi ni da je u pojedinim situacijama, rukovodstvu nedostajalo malo više odlučnosti i istrajnosti. Obaveza menadžmenta je da prati dešavanja u okruženju i da svojim planom mera i efikasnim

delovanjem spreči ili umanju posledice moguće krize. Na žalost, u periodu kada je u značajnoj meri smanjen obim proizvodnje usled uticaja prvenstveno spoljašnjih faktora (uvođenje sankcija i NATO bombardovanje) koji su uticali na gubitak domaćeg, ali prvenstveno svetskog tržišta, došlo je do viška radnih mesta. Prilikom izjašnjavanja zaposlenih za socijalne programe nije se mnogo vodilo računa o tome da se zadrže kvalifikovani radnici (majstori), što je u situaciji ponovnog sklapanja inostranih ugovora i značajnog povećanja obima proizvodnje, stvorilo problem nedovoljnog proizvodnog kadra. Menadžment fabrike u tim momentima nije imao jasnu viziju o poslovanju u budućem periodu već se isključivo vodio činjenicom da ima daleko veći broj zaposlenih nego što su bile realne potrebe u tom momentu. Krizne situacije u upravljanju velikim poslovnim sistemima mogu se odrediti kao:

- **kreativna kriza upravljanja**
- **finansijska kriza**
- **socijalnu kriza**
- **organizaciona kriza**
- **kriza promocije i distribucije (plasmana)**
- **institucionalno uslovljena kriza**
- **opšta ekonomska i/ili društvena kriza**
 - Kod ovog tipa krize neophodno je da menadžment preduzeća poznaje njene četiri dimenzije:
 - njen karakter ili sadržaj,
 - vreme njenog trajanja,
 - dubinu krize i
 - njenu rasprostranjenost.

UTICAJ FAKTORA KRIZNOG MENADŽMENTA NA POSLOVANJE ZASTAVA ORUŽJA

Ako analiziramo faktore kriznog menadžmenta, onda se može zaključiti da su na mnogobrojne krize u Zastavi, uticali kako unutrašnji tako i spoljašnji faktori. Uticaj faktora je bio skoro konstantan ali je njihov intenzitet bio promenljiv. U raznim fazama postojanja i poslovanja, dominantnost jednih ili drugih uzročnika krize se menjala. Međutim, važno je naglasiti da upravljačko rukovodstvo, analizom stanja u kojem se preduzeće nalazi i okruženja u kojem posluje, mora napraviti plan mera kojima bi se minimiziralo ili u najboljem slučaju eliminisalo postojanje unutrašnjih faktora. Na žalost, neretko se dešava da pojedinci imaju nerealne ambicije, da se u kriznoj situaciji ne postupa efikasno, da se okleva pri donošenju brzih i efikasnih odluka, da se prave dugoročni ciljevi koji su u suprotnosti sa realnim stanjem preduzeća. Nezadovoljstvo i nemotivisanost zaposlenih ili pak njihovi nerealni zahtevi ispoljeni kroz proteste ili štrajkove, urušavaju ekonomsko-finansijsku situaciju ali i imidž preduzeća. Međutim, nezadovoljstvo i nemotivisanost vrlo često mogu biti i potpuno opravdani kao recimo u vreme nezapamćene inflacije, jer je nerealno očekivati da je neko motivisan da radi za 5-10 tadašnjih nemačkih maraka. Upravo je ova situacija primer preplitanja unutrašnjih i spoljašnjih faktora krize odnosno, nije poslovanje fabrike izazvalo inflaciju ali je zbog toga nezadovoljstvo zaposlenih bilo usmereno prema rukovodstvu i državi. Političke promene su uticale na promene tržišta i tržišnog okruženja pa

samim tim i na ekonomsko - finansijske promene. Iz ovih promena su proizašle promene u grani u kojoj preduzeće posluje.

DONOŠENJE PREVENTIVNIH MERA U CILJU SPREČAVANJA KRIZE

Svaka organizacija, bez obzira na veličinu i značaj, na prirodu delatnosti i broj zaposlenih, ima svoj plan zaštite od pojave mogućih kriza. Ti planovi se izrađuju nakon detaljnih analiza o sopstvenim slabostima i snagama, analize okruženja i tipova krize koje ih mogu zadesiti. Od izuzetne je važnosti da se raspolaže tačnim i pravovremenim informacijama i da su jasno određena zaduženja svih službi i pojedinaca koji će biti uključeni u suzbijanje krize, kao i njihova međusobna komunikacija. Zato se može reći da su planom jasno definisana ovlašćenja i odgovornosti.

Poučeni ranijim iskustvima, iz svoje dugogodišnje istorije, i imajući u vidu strateški značaj fabrike, kako za grad tako i za državu, menadžment fabrike je imao izrađen plan zaštite u slučaju nastanka kriznih događaja (u skladu sa strategijama nadležnog ministarstva). Međutim, verovatno da niko nije očekivao da će taj krizni događaj prerasti u takvu promociju sile velikih moćnika, sa takvim intenzitetom i obimom, čije će se posledice osećati i mnogo decenija kasnije. Menadžment fabrike nije mogao uticati na odluku o tome da li će do bombardovanja doći ali je učinio sve što je bilo u njegovoj moći da posledice budu što manje.

OPORAVAK OD POSLEDICA KRIZE

Oporavak od posledica krize podrazumeva one aktivnosti kojima će se preduzeće vratiti u stanje funkcionisanja kakvo je bilo pre nastupa krize. Mere oporavka mogu biti kratkotrajne i dugotrajne jer se svaka kriza pre ili kasnije završi. Za pravi oporavak je potreban dug vremenski period, jer je nemoguće da se u kratkom vremenskom periodu izgradi ono što je stvarano decenijama. Ipak, nakon prestanka agresije i sanacije delimično oštećenih proizvodnih pogona, u fabriku su vraćene sve mašine i dokumentacija koji su bili izmešteni na bezbednije lokacije. Naneta je i ogromna indirektna šteta od gubitka dobiti u periodu od početka bombardovanja do uspostavljanja proizvodnje, u cilju ispunjenja ugovorenih obaveza. Mnoga tržišta na kojima je Zastava oružje plasirala svoje proizvode, godinama nakon bombardovanja ostala su zatvorena za njih. Bombardovanjem nije naneta samo materijalna šteta, već ona mnogo veća, koja se nikada ne sme zaboraviti, a to su ljudski životi, kako u toku trajanja agresije tako i nakon agresije. Mnogi radnici fabrike koji su radili na sanaciji, oboleli su, a mnogi od njih su izgubili živote. Nakon bombardovanja, država je podržala process oporavka Zastava oružja, odobrivši joj, posredstvom Fonda za razvoj Republike Srbije, kredite za nabavku nedostajuće opreme i sredstava i otpisavši joj sve dugove (koje je fabrika u tom momentu imala prema državi).

ZAVRŠETAK KRIZE I POVRATAK NA REDOVNE POSLOVNE AKTIVNOSTI

Završetak krize predstavlja prelazak iz kriznog u normalno stanje. Najnužnija obnova i ponovno pokretanje proizvodnje realizovani su do kraja 1999. Godine. Nabavljeno je nekoliko novih mašina i uz već postojeće, izvršeno je raspoređivanje proizvodnih linija u onim delovima fabrike koji nisu porušeni. Bombardovanjem fabrike izvršena je i prinudna

redukcija instalisanih kapaciteta, jer je trajno oštećeno 419, a oštećena 451 mašina. Zbog hitnosti nastavka proizvodnje nije bilo moguće formiranje tri proizvodne celine: za civilnu proizvodnju; za vojnu proizvodnju i zajednički kapaciteti⁷⁰, a što je ipak realizovano 2005. godine. I pored svega, kragujevačka fabrika oružja je uspela da se vrati na svetska tržišta i da asortimanom, kvalitetom i dizajnom svojih proizvoda parira mnogim velikim proizvođačima širom sveta. Tradicija i kvalitet su garancija koja je fabrici obezbedila ugovore, na čijoj realizaciji danas radi.

Nakon što je došlo do demokratskih izbora 2000-e godine, bilo je za očekivati da će država pružiti podršku vojnoj industriji, posebno zato što bi njen oporavak doveo do pokretanja i drugih privrednih grana razrušene srpske privrede. Na samom početku ovog veka (2000-2003.godine) Ministarstvo odbrane je odigralo veoma bitnu ulogu u konsolidaciji poslovanja Zastava oružja. Započinje sa subvencionisanjem proizvodnje davanjem povoljnih kredita i sa ovom praksom je prekinuto krajem 2011. godine. U par navrata je država otpisala sve dugove koje je fabrika imala prema njoj, konvertovanjem svog udela u kapitalu Zastava oružja, što je uradio i Fond za razvoj Republike Srbije, na ime datih, subvencionisanih kredita.

ZAKLJUČAK

Donošenje zaključaka podrazumeva detaljnu analizu svih aktivnosti i odluka koje su donete i preduzete, o tome kakve je i kolike posledice kriza izazvala i da li su sve nadležne službe i pojedinci učinili sve kako bi sprečili nastanak krize, odnosno minimizirali njene posledice. U ovoj fazi kriznog menadžmenta, u skladu sa svim prethodnim saznanjima, kao i onima koja su stečena u toku ove krize, donose se zaključci i predlažu mere za suprotstavljanje ili upravljanje nekom novom, budućom krizom. Zastava oružje i njeno rukovodstvo su, kroz istoriju dugu 160 godina, uvek mogli da prepoznaju svoje kvalitete i mane, da kvalitet stalno unapređuju a mane neutrališu. Ta čudna spona između fabrike i njenih radnika je nekako “neraskidiva”, njena sudbina je i njihova.

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PROJECT MANAGEMENT IN THE ENERGETICS WITH EMPHASIS ON SOLAR ENERGY, AS A RENEWABLE ENERGY SOURCE

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Abstrakt: The question that imposed more than often in modern society is based on the strategic potential of electricity sources. We are witnessing that the last two decades marked by abrupt climate change and that in this period the average temperature on Earth has increased by 0.6 degrees Celsius, which is the highest temperature increase in the last thousand years. Of the total potential of renewable energy sources in the Republic of Serbia, 16.7% is the potential of solar energy, but far less was utilized. Although the potential of solar irradiation by about 30% higher in Serbia than in Central Europe, an assumption is that unused capacity occurs due to insufficient investment activity in this area. For decades, solar energy is used for the heating of water, living space, and also for cooling, and its use is reflected in multiple benefits. It is a quiet, clean and reliable source of energy. Therefore, the topic of this paper will be the methodology for effectively managing and evaluating the investment in projects in the energy sector, which is shown in a particular case of the construction of solar power plants on the territory of Belgrade.

Keyword: project management, investment evaluating, renewable energy sources, solar energy, energetic

Apstrakt: Pitanje koje se sve češće postavlja u savremenom društvu bazirano je na strateškom potencijalu elektroenergetskih izvora. Svedoci smo da su protekle dve decenije obeležile nagle klimatske promene, te da je u ovom periodu prosečna temperatura na Zemlji porasla za 0,6 stepeni, što predstavlja najveći porast temperature u poslednjih hiljadu godina. Od ukupnog potencijala obnovljivih izvora energije u Republici Srbiji, 16,7% čini potencijal Sunčeve energije, no daleko manje je iskorišćen. Iako je potencijal sunčevog zračenja za oko 30% viši u Republici Srbiji nego u Srednjoj Evropi, pretpostavlja se da je do neiskorišćenosti kapaciteta došlo zbog nedovoljne investicione aktivnosti u ovoj oblasti. Decenijama unazad, solarna energija se koristi za generisanje toplote u smislu zagrevanja vode, životnog prostora, a takođe i za hlađenje, te se njena upotreba ogleda u višestrukim prednostima. To je tih, čist i pouzdan izvor energije. Zato, predmet ovog rada biće metodologija za efikasno upravljanje i ocenu opravdanosti ulaganja u projekte iz oblasti energetike, prikazana na konkretnom primeru izgradnje solarne elektrane na teritoriji grada Beograda.

Ključne reči: upravljanje projektima, ocena opravdanosti, obnovljivi izvori energije, solarna energija, energetika

1. UVOD

Tematika ovog rada je upravljanje projektima iz oblasti energetike sa glavnim fokusom na obnovljivim izvorima energije. U nastavku je prikazana teorijska pozadina

obnovljivih koji sve više zamenjuju neobnovljive izvore energije, potkrepljena projektom iz prakse čija je realizacija planirana za početak naredne godine. Podaci prikazani u radu zasnivaju se na Studiji izvodljivosti komercijalnog projekta izgradnje solarne elektrane pod pokroviteljstvom privatnog investitora.

Generalno posmatrano, svet je došao do kraja jedne epohe kada neobnovljivi izvori energije ne mogu biti osnova za planiranje budućeg rasta i razvoja, jer mogućnost njihove eksploatacija u budućnosti je postala neizvesna. Najpre, prirodni resursi se definišu kao obnovljive ili neobnovljive geološke, hidrološke i biološke vrednosti, koje se direktno ili indirektno, mogu koristiti/upotrebiti, a imaju realnu ili potencijalnu ekonomsku vrednost.[1] Prema *Nacionalnoj strategiji održivog korišćenja prirodnih resursa i dobara* koju izdaje “Službeni glasnik RS” br. 33 od 15. aprila 2012. prirodni resursi na teritoriji Republike Srbije obezbeđuju pet osnovnih funkcija:

- 1) Funkciju izvora (proizvodnja obnovljivih i neobnovljivih resursa);
- 2) Funkciju primaoca (apsorpcija otpadnih tokova, kao što su otpad i zagađujuće materije);
- 3) Funkciju kruženja (globalni ciklusi kruženja materije, obnavljanje biomase);
- 4) Informacionu funkciju (genski fondovi, model ili prototip tehničkih sistema);
- 5) Rekreativnu i druge funkcije (zadovoljenje obrazovnih, duhovnih, estetskih, kulturnih, turističkih i zdravstvenih potreba ljudi).

Prema istoj strategiji, prirodni resursi se u osnovi dele da obnovljive i neobnovljive resurse, a dalje na iscrpive i neiscrpive resurse i dalja diferencijacija prikazana je u nastavku.

Tabela 1. Podela prirodnih resursa

	Neiscrpivi resursi	Ischrpivi resursi
Obnovljivi resursi	Dispergovani resursi (toka): solarna energija, vetar, plima i oseka, talasi, padavine Akumulirajući resursi: vazduh, okeani	Biološki resursi: šume, riblji fond, biomasa Akumulirajući resursi: površinske vode, izdani, zemljište
Neobnovljivi resursi	Resursi koji se mogu reciklirati povratiti (zavisno od disperzije): metali, minerali, (zemljište, tlo)	Resursi koji su neobnovljivi i resursi koji se ne mogu ponovo iskoristiti: fosilna goriva: nafta, gas, ugalj

Termin neobnovljivi izvori energije, odnosi se pre svega na nosioce energije koji su stvoreni u prošlom vremenu i ne mogu se ponovo regenerisati ili proizvesti. Najveći deo neobnovljivih izvora energije se odnosi na fosilna goriva, goriva nastala anaerobnom digestijom uginulih/mrtvih organizama u unutrašnjosti zemlje pod uticajem visoke temperature i pritiska, milionima godina unazad. Ograničenost rezervi fosilnih goriva i ekološki problemi izazvani njihovom eksploatacijom doveli su do povećanog interesovanja za obnovljive izvore energije, prvenstveno za solarnu energiju i energiju vetra. Naziv obnovljivi ili trajni, potiče od činjenice da se energija troši u iznosu koji ne premašuje brzinu kojom se stvara u prirodi. Karakteristika obnovljivih izvora energije je da se tokom korišćenja njihove

zalihe ne smanjuju kao recimo kod fosilnih goriva. Važno je istaći da ih ima u ogromnim količinama i da ne zagađuju okolinu.

Sva energija na planeti Zemlji, primarno potiče iz tri izvora, a to su: [2]

- 1) Sunčeva energija, koja nastaje kao posledica termonuklearne reakcije unutar Sunca koje se prenosi ka Zemlji;
- 2) Raspadanje izotopa teških elemenata (nuklearna fisija);
- 3) Kretanje planeta, odnosno gravitaciona energija koja se manifestuje kroz energiju plime i oseke

Solarna energija je energija sunčevog zračenja koju primećujemo u obliku svetla i toplote koju primamo od najvećeg izvora energije na Zemlji, Sunca. Sunčevo zračenje je odgovorno i za stalno obnavljanje energije vetra, morskih struja, talasa, vodenih tokova i termalnog gradijenta u okeanima. Decenijama unazad, solarna energija se koristi za generisanje toplote u smislu zagrevanja vode, životnog prostora, a takođe i za hlađenje. Zbog rastuće cene fosilnih goriva kao i zbog jačanja svesti o potrebi očuvanja životne sredine sve više raste interes za korišćenje sunčeve energije. Potencijal sunčevog zračenja u Republici Srbiji je za 30% veći nego u Srednjoj Evropi, i sam intezitet sunčeve radijacije je među najvećima u Evropi. Prosečna dnevna energija globalnog zračenja za ravnu površinu u toku zimskog perioda kreće se od 1,1 kWh/m² na severu i 1.7 kWh/m² na jugu, a u toku letnjeg perioda između 5,4 kWh/m² na severu i 6.9 kWh/m² na jugu. [3]

Mogućnost iskorišćenja Sunčevog potencijala, rast u potrošnji energije od strane stanovništva i Javnog snabdevača, i brzina izgradnje solarne elektrane, dovode do povećanja broja projekata koji se javljaju u oblasti energetike. Takođe, nizak nivo rizika ulaganja, obzirom da se država obavezuje na otkup energije u narednih 12 godina, isplaćujući investitoru unapred definisanu otkupnu cenu energije. Banke daju povoljne investicione i preduzetničke kredite, što omogućava investitoru da pozajmi sredstva po vrlo niskoj kamatnoj stopi i zadovoljavajućim uslovima.

Osnovni principi direktnog iskorišćavanja energije Sunca su: [4]

- 1) Pasivne tehnike
- 2) Solarni kolektori (pretvaranje sunčeve energije u toplotnu)
- 3) Fotonaponske ćelije (direktno pretvaranje sunčeve energije u električnu energiju)
- 4) Fokusiranje sunčeve energije (za upotrebu u velikim energetske postrojenjima)

Fotovoltaika je jedna od grana svetske ekonomije koja se najbrže razvija. Sunce je daleko najveći, obnovljivi i za čoveka neograničen izvor energije, te predstavlja potencijal kakav nema ni jedan drugi izvor. Period koji sledi, okreće čovečanstvo prirodi, što omogućava tehnološki razvoj i dalji prosperitet. Fotovoltaika važi za najprihvatljiviji obnovljivi izvor koji odlikuju modularnost, rasprostranjenost, stabilnost, nečujan rad, ekološka i konkurentna cena.

Odabir pisanja rada na datu temu, može se posmatrati kroz konkurentske prednosti izgradnje solarnih elektrana, koje odlikuju sledeće ključne karakteristike: [2]

- 1) Korišćenju fotovoltaike kao obnovljivog izvora energije
- 2) Ekološki su podobne, ne zagađuju životnu sredinu
- 3) Mogućnost distribuiranja odnosno prodaje električne energije

Gore navedene karakteristike upućuju na izraziti potencijal i mogućnost investicioih aktivnosti u oblast energetike i eksploataciju solarne energije.

2. ENERGETSKI POTENCIJAL REPUBLIKE SRBIJE

Srbija ima značajan potencijal u obnovljivim izvorima energije koji je, na žalost, još uvek nedovoljno iskorišćen. Jedan od razloga za takvu situaciju je nedovoljna investiciona aktivnost. Očekuje se da će u narednih nekoliko godina doći do krupnih pomaka u tom pogledu, s obzirom na najnoviji korak Vlade Republike Srbije u smislu prihvatanja odluke Ministarskog saveta Energetske zajednice o promociji obnovljive energije kroz transpoziciju Direktive 2009/28/EC o obnovljivim izvorima energije. Ovom odlukom Srbiji je postavljen ambiciozni cilj da poveća učešće obnovljive energije u ukupnoj potrošnji finalne energije na 27% u 2020. godini u odnosu na trenutno prosečnu potrošnju od 21%.

Pažljivim tumačenjem dokumenata dostupnih na sajtu Ministarstva rudarstva i energetike i Republičkog zavoda za statistiku, zatim Zakona o energetici, Strategije razvoja energetike Republike Srbije i drugih uredbi, došlo se do zanimljivih zaključaka. Radi što boljeg razumevanja podataka o proizvodnji i potrošnji energenata na teritoriji Republike Srbije, tabelarno i opisno će se predstaviti podaci o datim elementima u odnosu na prethodne četiri ili pet godina, u zavisnosti od dostupnosti podataka.

Najveće učešće u proizvodnji energenata u Republici Srbiji u 2014. godini imala je proizvodnja uglja (41,63%). Uvoz od 53,23% u 2014. godini imali su nafta i naftini derivati, dok se najviše izvozila električna energija (46,19%). U okviru finalne potrošnje u 2014. godini najviše uglja trošilo se u sektoru domaćinstava (39,18%); u sektoru saobraćaja najviše su se trošili naftini derivati (61,30%); električna energija se najviše trošila u sektoru domaćinstava (52,58%), a prirodni gas u sektoru industrije (70,67%). [5]

Tabela 2. Bilans električne energije za 2014. godinu [6]

2014. godina	Solarna energija	Hidroelektrična energija	Ukupna električna energija
GW/h			
Primarna proizvodnja	6	11.617	/
Uvoz	/	/	7.008
Izvoz	/	/	5.445
Saldo zaliha	/	/	/
Međunarodna skladišta	/	/	/
Statistička razlika	/	/	/
<i>Ukupno raspoloživa energija</i>	6	11.617	1.563

U Republici Srbiji, kao proizvođači energije javljaju se sledeći subjekti sa iskazanim tržišnim učešćem: [6]

- 1) Javno preduzeće „*Elektroprivreda Srbije*“ sa udelom na tržištu od 92,37%
- 2) Uvoznici električne energije sa udelom od 7,55%
- 3) Povlašćeni i privremeno povlašćeni proizvođači sa tržišnim učešćem od 0,003%
- 4) Ostali proizvođači iz obnovljivih izvora energije sa udelom od 0,08%

Planirano iskorišćenje energije sunca u 2015. godini bilo je 5,856 GWh što je za 17% više u odnosu na 2014. godinu kada je iznosilo 4,989 GWh. [6] Kod eksploatacije solarnih elektrana, investitor se može javiti u statusu privremeno povlašćenog i povlašćenog proizvođača električne energije. Na osnovu Uredbe o uslovima i postupku sticanja statusa povlašćenog proizvođača električne energije (Sl. Glasnik RS br. 8/2013), status povlašćenog proizvođača mogu steći pravna lica i preduzetnici koji obavljaju energetska delatnost proizvodnje električne energije u solarnoj elektrani, odnosno elektrani na energiju sunčevog zračenja. Privremeni proizvođači električne energije, mogu postati povlašćeni, po završetku određenog vremenskog perioda, odnosno od puštanja elektrane u probni rad do zaključenja ugovora o otkupu ukupnog iznosa proizvedene električne energije tokom podsticajnog perioda, a najduže tri meseca.

Posmatrajući različite tipove solarnih elektrana, diferencijacija na teritoriji Republike Srbije izvršena je na sledeći način: [7]

- 1) Solarne elektrane „na zemlji“
- 2) Solarne elektrane na objektima do 30kW
- 3) Solarne elektrane na objektima od 30kW do 500kW

Poslovno okruženje se posmatra kroz broj solarnih elektrana koje su instalirane na teritoriji Republike Srbije. Kroz veličinu i iskorišćenost kapaciteta može se utvrditi atraktivnost privredne grane i stepen konkurentnosti.

Podaci Ministarstva rudarstva i energetike beleže da u Srbiji trenutno ima 17 solarnih elektrana “na zemlji”. Prvo rešenje za otvaranje solarne elektrane odobreno je 09.05.2012, nakon čega se povećava interesovanje za solarnu energiju i mogućnost utvrđivanja sopstvenih postrojenja. Ukupno instalisana snaga povlašćenih proizvođača električne energije iznosi 5.340,00kW, dok ukupna instalisana snaga privremenih proizvođača električne energije je 660,00 kW. Broj solarnih elektrana na objektu do 30kW je 154, odnosno ukupno instalisana snaga povlašćenih proizvođača električne energije je 1.711,10 kW, dok ukupna instalisana snaga privremenih proizvođača električne energije iznosi 238,70 kW. U Srbiji su instalisane i solarne elektrane na objektu od 30 kW do 500 kW i čiji trenutni broj iznosi 21. Ukupno instalisana snaga povlašćenih proizvođača električne energije je 1.504,10 kW, dok ukupna instalisana snaga privremenih proizvođača električne energije iznosi 495,90 kW.

Prema poslednjim raspoloživim podacima ukupan iskorišćeni potencijal solarne energije za proizvodnju električne je mizernih 0.02056%, dok u proizvodnji toplotne uopšte nije iskorišćena, iako postoji veliki potencijal.

Tabela 3. Ukupni neiskorišćeni i potencijal u upotrebi instalisanih solarnih elektrana u proizvodnji toplotne i električne energije (u GW/h) [6]

Namena elektrane	Potencijal u upotrebi	Neiskorišćeni potencijal	Ukupni potencijal
<i>Za proizvodnju električne energije</i>	0,11	534,87	534,98
<i>Za proizvodnju toplotne energije</i>	0,00	2.256,22	2.256,22
Ukupno:	0,11	2.791,09	2.791,20

Na osnovu prethodno iznetog potencijala kojim raspolaže naša država, zaključuje se da postoji velika perspektiva za investicione aktivnosti u datoj oblasti i dalji prosperitet privredne grane i pojedinačnih investitora.

3. UPRAVLJANJE PROJEKTIMA SA OSVRTOM NA ENERGETIKU

Racionalno usklađivanje aktivnosti, resursa, učesnika i eliminisanje potencijalnih tj. mogućih odstupanja dovode do efekisane i efektivne realizacije projekta. Pod projektom se najčešće podrazumeva poduhvat koji se preduzima u cilju postizanja definisanih ciljeva u predviđenom vremenu i sa predviđenim troškovima.[8] Projekti iz oblasti energetike okarakterisani su kao investicioni obzirom na svojstva dugoročnosti posmatranja, složenosti, velikih novčanih ulaganja neophodnih za realizaciju, potrošnje resursa i učestvovanja velikog broja stejkholdera. Vek trajanja ovih projekata je dvadeset i više godina, sa izrazito visokim inicijalnim ulaganjima. Samo upravljanje je bazirano na konceptima koji koriste odgovarajuće metode organizacije, planiranja i kontrole u cilju racionalnog usklađivanja svih potrebnih resursa i koordinacije obavljanja potrebnih aktivnosti. Najpoznatije metodologije za upravljanje projektima su: PMI metodologija, IPMA Competence Baseline, APM metodologija, Project Cycle Management Evropske komisije, PRINCE2, YUPMA metodologija za upravljanje projektima, itd. [9]

Prilikom projektovanja poduhvata izgradnje solarne elektrane na teritoriji grada Beograda, primer koji je u nastavku prikazan, korišćena je YUPMA metodologija za upravljanje projektima. Procedura primene ove metodologije zaniva se na sledećim osnovnim fazama: [8]

- 1) Određivanje ciljeva
- 2) Definisane organizacije
- 3) Definisane strukture projekta
- 4) Definisane sistema planiranja i kontrole
- 5) Planiranje vremena za realizaciju
- 6) Planiranje i nivelisanje resursa
- 7) Planiranje troškova realizacije
- 8) Definisane sistema operativnog planiranja

- 9) Praćenja i kontrola utrošenog vremena i utrošenih resursa
- 10) Aktualizacija planova
- 11) Sumiranje rezultata i zatvaranje projekta

U nastavku je ukratko predstavljeno idejno rešenje, projekat izgradnje solarne elektrane, investicionog poduhvata iz oblasti energetike koji se odnosi na iskorišćavanje obnovljivih izvora energije.

4. PRIMER IZGRADNJE SOLARNE ELEKTRANE

Predmet projekta je izgradnja solarne elektrane na istočnoj strani krova koji ima nagib do 60°, na teritoriji opštine Voždovac grada Beograda. Prema relevantnoj proceni stručnjaka, krov je u zadovoljavajućem stanju, te će u narednih 25 godina, omogućiti eksploataciju izgrađene elektrane. Solarna elektrana će se sastojati od fotonaponskih solarnih modula, koji će prikupljati sunčevu energiju, i daljem putem invertora transformisati je u električnu energiju.[10] Životni vek **solarne fotonaponske elektrane** je 25 godina i više, što omogućava veoma siguran i dugoročno usmeren oblik investicije. Sigurnost investicije je pored zagarantovanih otkupnih cena električne energije osigurana i dugoročnom profitabilnošću pri proizvodnji električne energije, jer posle završenog perioda vraćanja uloženih sredstava, proizvedena energija investitoru donosi čistu dobit.

Proizvod koji se dobija iskorišćavanjem solarnih elektrana je električna energija, akumulirana proizvodnjom toplotne energije, izražena u kW/h. Na površini od 105m², planirano je postavljanje 81 solarnog panela, sa maksimalnom snagom od 140kW, uključujući prateću opremu kojom se postiže pretvaranje solarne u električnu energiju. Projektovano je da prosečna godišnja proizvodnja iznosi 30.494,05 kW/h električne energije tokom perioda eksploatacije projekta, uz potpuno usmerenje (distribuiranje) na elektromrežu Republike Srbije. Period trajanja projekta posmatra se u odnosu na 12 godina, tj. period u kojem se vrši otkup energije od strane države, s tim da je uključena i polovina godine u kojoj se vrši inicijalno ulaganje sredstava. Iako je vek trajanja solarnih elektrana znatno duži, opravdanost investicije posmatrana je samo u periodu otkupa energije, jer ukoliko je isplativa investicija, nakon isteka, investitor može koristiti proizvedenu energiju za sopstvene potrebe.

Projektno rešenje ima za cilj da investitor ostvaruje određenu dobit, nakon podmirjenja inicijalnih ulaganja u izgradnju. **Elektrane** su priključene na mrežu i svu proizvedenu energiju „prodaju” mreži po subvencionisanoj ceni. Cenovnu strategiju ne može definisati investitor projekta, već je ona unapred određena od strane države, obzirom da se proizvedena energija distribuira javnom snabdevaču na teritoriji Republike Srbije. Vlada Republike Srbije je u januaru 2013. godine donela novu uredbu o podsticajnim cenama za otkup električne energije iz obnovljivih izvora energije. Ova Uredba predviđa podsticajni period od 12 godina za sve elektrane povlašćenih proizvođača koje su puštene u pogon manje od 12 meseci pre potpisivanja ugovora o otkupu ukupnog iznosa proizvedene električne energije sa javnim snabdevačem, odnosno podsticajni period od 12 godina umanjen za razliku između godine zaključenja ugovora i godine puštanja u pogon za sve druge elektrane povlašćenih proizvođača. Feed-in-tarifa će se jednom godišnje usklađivati sa iznosom inflacije u euro zoni. Isto tako, Uredba predviđa pravo povlašćenog proizvođača koji je prethodno stekao privremeni status povlašćenog proizvođača da prodaje javnom snabdevaču ukupni iznos

proizvedene električne energije tokom podsticajnog perioda po podsticajnoj ceni koja je važila u trenutku sticanja privremenog statusa povlašćenog proizvođača. Počevši od 01.01.2014. godine u Srbiji su na snazi sledeće feed-in tarife za solarne elektrane, propisane Uredbom o merama podsticaja za povlašćene proizvođače električne energije:

- 1) Solarne elektrane na objektu do 0,03 MW(20,66 € centi/kWh),
- 2) Solarne elektrane na objektu 0,03 do 0,5 MW(20,941 € centi/kWh),
- 3) Solarne elektrane na tlu (16,25 € centi/kWh).

Izgradnjom solarne elektrane investitor otvara sebi mogućnost da se na tržištu pozicionira i kao društveno odgovoran, obzirom na mogućnost korišćenja prirodnih izvora energije.

Javni snabdevač će nakon sklapanja ugovora sa investitorom moći da računa na besprekorno dostavljanje električne energije pomoću postojeće infrastrukture (mreže distribucije), koju će investitor održavati u slučaju kvara i problema na istoj uzrokovano distribucijom. Ugovorom će se garantovati i određen kvalitet i učestalost električne energije koju je investitor u obavezi da dostavi kupcu, u planiranim obimima i vremenskim rokovima.

Ukupna inicijalna ulaganja u ovakav jedan projekat iznose u proseku 35.000,00€, dok troškovi koji nastaju tokom celokupnog perioda eksploatacije su otprilike 50.000,00€. Sa druge strane, projektovani prihod tokom perioda trajanja projekta, u odnosu na proizvedenu količinu energije, u proseku investitoru donosi nešto više od 100.000,00€.

Uvodne pripreme za realizaciju datog projekta (u smislu prikupljanja dozvola i izgradnje elektrane) planirane su za početak naredne, 2017. godine, dok se proizvodni proces planira za mesec avgust, iste godine. Trajanje perioda ulaganja je do 6 meseci, nakon čega je projektovano da se otpočne sa proizvodnjom električne energije koja će se u narednih 12 godina distribuirati na javnu mrežu. Ukupan period od ideje do zatvaranja projekta se posmatra u odnosu na 12 godina i 6 meseci.

Projekat bi se mogao finansirati delimično iz sredstava investitora i putem investicionih kredita koje nude poslovne banke. U posebnim slučajevima banke finansiraju i stoprocentnu izgradnju solarnih elektrana.

U odnosu na pokazatelje opravdanosti ulaganja u dati investicioni projekat, posmatrani su kriterijumi neto sadašnje vrednosti, interne stope povraćaja, indeksa profitabilnosti, CFROI i društvene neto sadašnje vrednosti. Svi kriterijumi su pokazali zadovoljavajuće rezultate i upućuju na opravdanost ulaganja u izgradnju solarne elektrane. Projektovano dad obit investitora po završetku perioda eksploatacije bude približno 15.000,00€, dok rok povraćaja uložениh sredstava je 9 godina.

U skladu sa svim prethodno navedenim, zaključuje se da projekti iz oblasti energetike su opravdani za realizaciju, obzirom na postojanje subvencionisanih otkupnih cena i sigurnog plasmana proizvoda, u ovom slučaju električne energije.

5. ZAKLJUČAK

Ovaj rad i sama tematika su namenjeni za čitanje široj grupi ljudi, jer obrađuje temu od velikog značaja za društveno blagostanje. Energija je glavni strateški resurs razvijenih i nerazvijenih zemalja, te se težilo da se kroz ovaj rad ukaže na važnost iskorišćenja obnovljivih izvora energije. U isto vreme, ovaj rad na jedan sažet i praktičan način trebalo bi

da prikaže opravdanost ulaganja u projekte iz oblasti energetike, konkretnije iskorišćenje obnovljivih izvora energije.

Kroz urađene analize može se konstatovati da su svi značajni aspekti studije izvodljivosti pokazali zadovoljavajuće rezultate. Analizom tržišta ustanovljeni su uslovi obavljanja energetske delatnosti i distribuiranja iste na elektromrežu Republike Srbije. Predviđena su adekvatna tehnološka rešenja koja zadovoljavaju međunarodne standarde i usklađena su sa rezultatima tržišta prodaje. Proizvodni, lokacioni i ekološki aspekti i faktori su obezbeđeni na zadovoljavajući način i prema standardima za ovu vrstu proizvodnje.

Ocena investicionih ulaganja je obuhvatila finansijsku, nacionalnu i ocenu u uslovima neizvesnosti sa analizom rizika i osetljivosti na promene ulaznih parametara. Kriterijumi koji su korišćeni za ocenu diskontovanih novčanih tokova su neto sadašnja vrednost, jedinična neto sadašnja vrednost, interna stopa rentabilnosti, rok vraćanja i društvena neto sadašnja vrednost. Svi razmatrani kriterijumi ukazali su na opravdanost novčanih ulaganja u izgradnju solarne elektrane i povraćaj uloženog kapitala u odnosu na referentni period. Tematika obnovljivih izvora energije je jedan od nužnih uslova daljeg opstanka energetike kao grane teške industrije.

Lični doprinos autora ove studije, ogleda se u daljem porastu broja investicija u ovoj oblasti u Republici Srbiji. Lično zadovoljstvo, težnja ka usavršavanju i usvajanju novih znanja koja će biti primenjena u privatnom i poslovnom okruženju su samo neki od razloga zbog kojih su autori izabrali upravo ovu temu za izučavanje.

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PROOF OBLIGATIONS AS A SUPPORT TOOL FOR EFFICIENT PROCESS MANAGEMENT IN THE FIELD OF PRODUCTION PLANNING AND SCHEDULING

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Abstract: Production planning and scheduling is one of the most important business processes that significantly influence the performance of manufacturing companies. Today's highly dynamic business environment requires processes to adapt to constant change what increases the complexity of production planning and scheduling process. There are many information systems supporting production planning and scheduling and some of them are based on very sophisticated planning algorithms. Despite this fact, many companies still face serious problem even while using professional software tools for production planning and scheduling. Advanced technology itself is not sufficient for reaching expected results. Obviously, a lot of other changes in form of process innovations are required.

This paper deals with the problem of process management in the field of production planning and scheduling. Our study explains reasons for low performance of advanced technologies and provides solution in form of system model of key factors affecting the efficiency of planning software. Research part is based on the study conducted within Czech manufacturing companies in form of questionnaire-based investigation combined with interviews.

Proposed solution is extended to the abstract mathematical model based on proof obligations which prove or disprove the correctness of intended algorithms. Our study provides basic example of such an abstract model and describes its functionality and influence to proper production planning and scheduling. It will be processed to the form of complex expert system based on Event B method in the future.

Keywords: Production Planning and Scheduling, Process Management, Proof Obligation, Production Process, Production System

1. INTRODUCTION

Production planning is one of the most important activities of production management and it significantly affects the whole production process performance. Some production processes are too complex to be managed without using some kind of advanced software tools for their planning and scheduling. However, each technology is always influenced by human factor and the level of integration with other business processes. Lihong and Shengping [8] highlight the importance of integration of planning and scheduling for the purpose of increasing flexibility and total performance of production system. In the practice, very common conflict occurs between the sales process and process of production planning, which is caused by different priorities as Vidová [15] explains.

The process of production planning and scheduling often cross the borders of a single organization and influence the performance of the whole supply chain. Noonan and Wallace

[12] proved the fact that the horizontal cooperation within the whole supply chain helps to increase its flexibility and influence the planning process of each individual member. Therefore, the implementation of the advanced planning software helps to increase the performance of the whole supply chain as Jonsson et al. [7] confirmed in their research.

The research study of Belás et al. [2] showed that the most important business risk, that especially small and medium sized companies face, is market risk. That is why the need of companies to adapt to rapidly changing market environment is increasing. However, Nyhuis and Wiendahl [13] point out conflicts between some production goals that must be considered during decision making processes. For example increasing flexibility and higher utilization of production resources can cause higher production costs, higher level of inventories and related lower efficiency. Therefore, the business strategy must be clearly formulated in order to set all production goals and performance indicators in accordance with it [11]. All these facts influence also the right choice of advanced technology for production planning and scheduling and its future use.

Common database information systems sometimes fail in solving very complicated problems and making complex decisions. Jonsson and Ivert [6] found out that planning environment and process maturity influence master production planning performance and supply and/or production uncertainty make it difficult to use production plan efficiently. On the other hand, a knowledge-based system (or expert system) is more suitable for solving very complex problems because it mimics the behaviour of a human expert and therefore it is able to provide more sophisticated solutions [5]. Weiss et al. [16] explain the purpose of knowledge base refinement which is a critical point of an expert system. It can be simply defined as the localisation of specific weaknesses in the system and improvement of its performance. Even-B method is one of the refinement-based methods for knowledge modelling. It has been used in major safety-critical system applications like emergency services, fire alarms, nuclear reactor control systems etc. It is a formal method that enables the abstraction of complex interactions between its subcomponents and mathematical verification of set rules. An Event-B model consists of contexts, machines and events defined by a set of constants, axioms, variables and invariants. Each event is a guarded command initializing some action [1, 9, 10]. In this context it is useful to analyse the possibilities of Event-B modelling in the field of production planning and scheduling and related process management.

2. RESEARCH OBJECTIVES AND METHODOLOGY

The aim of this paper is to analyse reasons for low performance of advanced information systems for production planning and scheduling and provide solution in form of system model of key factors affecting the efficiency of their planning algorithms. Proposed solution is extended to the abstract mathematical model based on Event-B method whose partial demonstration is also presented in this paper.

Research part is based on the study conducted within Czech manufacturing companies in form of questionnaire-based investigation combined with conversational interviewing in order to achieve higher reliability of gained results.

The questionnaire was sent to Czech companies which meet the following criteria:

- manufacturing company regardless the type of industry

- company uses some type of information system for production planning and scheduling based on TOC principles and advanced planning algorithms (considering finite resources)

The sample included 68 completely filled questionnaires. The size structure of respondents was as follow: 8% were micro-enterprises, 50% were small enterprises, 20% were medium-sized enterprises and 22% were large companies. The industry structure of surveyed companies was very varied: the largest share was comprised of enterprises operating in mechanical engineering (32%), electronic and electrical industry (15%), non-specified manufacturing industry (11%) or plastics industry (7%). The consequent conversational interview was conducted in 13 Czech manufacturing companies, whose size and industry structure is very similar.

For evaluating the level of achieving expected benefits of the implemented advanced technology for production planning and scheduling, the following scientific hypothesis was set:

- ***H: Expected benefits of an implemented advanced technology for production planning and scheduling are not achieved by Czech manufacturing companies at least to 75%.***

The results of quantitative research were examined through Pearson statistics where p-value was compared with the standard 5% confidence level. Consequent qualitative research was used to prove statistic evaluation of the set hypothesis and to understand the problem more in depth in order to create system model the most precisely.

3. RESULTS AND DISCUSSION

In this section the main results of the quantitative and qualitative research are introduced together with proposed solutions for solving identified problems of running advanced software tools for production planning and scheduling.

3.1. EVALUATION OF SET HYPOTHESIS

At the beginning of our study, we want to prove that many Czech manufacturing companies do not achieve expected outcomes and benefits after the implementation of selected information system for advanced planning and scheduling. Therefore, we formulated the following hypothesis, which was subsequently evaluated by the results of questionnaire-based investigation:

- ***H: Expected benefits of an implemented advanced technology for production planning and scheduling are not achieved by Czech manufacturing companies at least to 75%.***

Expected benefits of advanced information system for production planning and scheduling were divided into six categories which were evaluated separately (Table 1). Respondents were asked to state the level of achieving expected outcomes and benefits of the

implemented information system on the scale from 0% to 100%. Because of the fact that the normal distribution was not confirmed in all cases, the one-sample nonparametric median test (sign test) was used for statistic evaluation of the set hypothesis.

Table 1. Statistical evaluation of expected benefits of advanced planning software

<i>Expected benefits of advanced planning software</i>	<i>average % of achievement</i>	<i>standard deviation</i>	<i>p-value</i>
Decreasing the number of re-planning cycles caused by orders with higher priority	62,11	22,25	0,99997
Decreasing the total time of production planning (time of preparation of the production plan)	71,23	20,73	0,92622
Increasing the reliability of production plans	74,41	20,54	0,59297
Shortening the lead time of one order	57,91	24,47	1
Higher flexibility of production scheduling	75,00	23,29	0,5
Decreasing production costs	55,41	26,93	1
Others (opened question, defined by respondents): - more proper measurement of labour productivity - automated communication with other software tools	it was not evaluated, because of a low number of respondents (2 answers)		

Because of the fact that all p-values (except the question of higher flexibility) are higher than the standard 5% confidence level, the validity of set hypothesis cannot be simply rejected. It means that expected benefits of implemented IS for production planning and scheduling are not achieved at least to 75%.

In order to strength the results of the research and increase the credibility and validity of data, methodological triangulation combining multiple methods to gather data was applied. It means that the results of quantitative investigation were evaluated by the consequent qualitative research realized in form of conversational interviewing. We spoke to CEOs or production managers from 13 different Czech manufacturing companies. All of them confirmed that they are not satisfied with the process of production planning and scheduling in their organization despite the fact they use advanced software support for this purpose. Moreover, the results of qualitative investigation provided us with the answers for why companies do not achieve 100% of expected outcomes and benefits from advanced technology for production planning and scheduling. The most often mentioned reasons are the following ones:

- high complexity in the field of synchronizing all key business processes
- individual problems in internal business processes influencing the quality of input data
- human factors (mistakes, low skills, ...)

Despite the fact that some authors [4, 14] mentioned the problem of selecting the appropriate technology for specific type of manufacturing system or unrealistic expectations of companies, we did not notice any of these facts in our respondents. Therefore the following research activities are focused on dealing with internal issues that are major stumbling blocks

in achieving maximum performance of the process of production planning and scheduling and using advanced software tools more efficiently.

3.2. GENERAL SYSTEM MODEL

As Goldratt says in the title of one of his bestsellers [3], information technology is necessary but not sufficient for being competitive in today's highly dynamic business environment. The results of our research activities, presented in the previous section, showed that advanced technology and the high level of process management are two inseparable conditions for efficient production planning and scheduling and achieving expected outcomes in form of high performance of the whole production system.

Therefore, some kind of general system model of key factors affecting the efficiency of advanced software tools for production planning and scheduling was created. It integrates four basic areas of company's management that must cooperate in order to achieve required results (Figure 1).

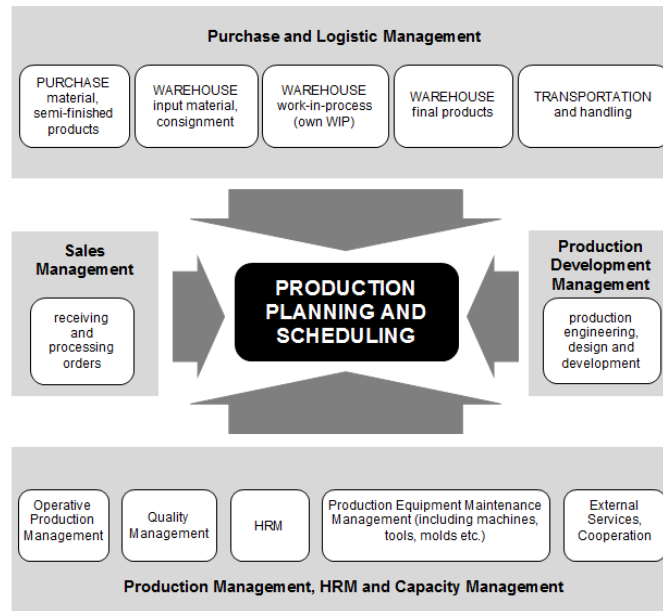


Figure 1. System model of key factors affecting production planning

Each of the four basic areas showed in the picture above (Fig. x) includes several business processes that critically influence the process of production planning and scheduling in two different ways:

- they generate important inputs for production planning and scheduling such as customer requirements, routings, bills of material, work standards and average labour productivity, maintenance plans, utilization of production resources, real time information about the availability of material sources etc.
- they use outputs of the process of production planning and scheduling in order to satisfy customers' requirements in accordance with the production plan and its deadlines

In order to ensure the high quality of inputs for production planning and scheduling (quality of data used by information system) and avoid human mistakes and other kinds of defects as much as possible, some kind of expert system or simplified principles of artificial intelligence tools can be included as a support tool for efficient process management. There is quite new method, called Event B, which seems to be very suitable for this type of problem. Its basic principles, rules for setting proof obligations and short example introducing a piece of our solution are presented in the following section.

3.3. SIMPLE BASIC MATHEMATICAL EVENT-B MODEL FOR EFFICIENT PRODUCTION PLANNING AND SCHEDULING

The majority of available software tools for production planning and scheduling are based on standard database technology. Some of them include advanced planning algorithms combining forward and backward planning, they also work with finite and infinite resources, but they often miss some kind of advanced knowledge based algorithms (artificial intelligence principles) supporting decision making and helping to avoid repeated problems in production planning and scheduling process. Therefore, in this part of contribution, the potential of Event-B modelling in the process of production planning and scheduling will be shortly outlined.

Event-B method and its main logic were shortly explained in the introduction part. In the following section the simplified example of its possible usage in production planning and process management is presented. For the purpose of Event-B modelling, the problem must be defined by [1]:

- a set of constants and their axioms = context
- a set of variables and invariants = machine

In our case, all the constants represent limitation of production planning and scheduling, for example maximum possible productivity of each machine, number of working hours per day, minimum required profit from each order etc. Then axioms describe individual constants. So, the initial context structure can be as follow:

```
CONTEXT      Production Planning Limitations
CONSTANTS

maxM1 // maximum production capacity of machine M1
minP  // minimum profit from one order needed for its acceptance
WR    // wastage rate
...

AXIOMS

axm1:  maxM1 ∈ NI
axm2:  minP ∈ NI
axm3:  WR ∈ NI
...

END
```

In the next step, all variables and invariants describing the state of the machine must be defined. Their number depends on the complexity of solved problem and required level of

detail. Process of production planning and scheduling is too complex and the construction of the complete Event-B model for this purpose would require thousands of variables and other characteristics. This is just a very simple illustrative example which is planned to be developed by research team in the next years. Firstly, all variables have to be given an initial value via a specific event called “initialization”. Each machine works with constants and axioms that were defined in the context using “sees” clause. In our simplified example, the variables, invariants and their initial values can be defined as follow:

```

MACHINE      Production Order
SEES         Production Planning Limitations
VARIABLES

cap_M1 // available production capacity of machine M1
req_M1 // required production capacity of machine M1
profit // profit from the order
Accept // Decision: Accept the order?

INVARIANTS

inv1: cap_M1 ∈ 0 . . maxM1
inv2: req_M1 ∈ NI
inv3: profit ∈ NI
inv4: Accept ∈ BOOL

EVENTS

Initialization:
THEN
act1: cap_M1 := 0 ›
act2: req_M1 := 0 ›
act3: profit := minP ›
act4: Accept := FALSE ›
END
    
```

Then, every action in production planning process must be modelled as a separate guarded event which is automatically proved in order to make the right decision about the acceptance of the order for scheduling. These verification conditions are generated as proof obligations, for example:

```

EVENT
New Order
WHERE
grd1: req_M1 ≤ cap_M1
grd2: profit ≥ minP
THEN
act1: Accept := TRUE
END
    
```

The advantage of Event-B modelling is the possibility to use refinements that enables to add all new details and information into an existing model in a very simple way. For these reasons, it is suitable for solving very complex problems as production planning and

scheduling is. The complex Event-B model has to include all critical factors affecting production planning and scheduling which were simply described in Figure 1 as much in detail as possible. Only then the system will be able to make right decisions based on real human expertise modelled in form of mathematical formulas.

4. CONCLUSIONS

The research on achieving expected benefits of an implemented advanced technology for production planning and scheduling in Czech manufacturing companies proved that the level of their achievement is lower than 75%. The consequent interview based qualitative research showed that the major reasons for this fact are individual problems and high complexity of synchronizing all business processes influencing the quality of input data for production planning and scheduling.

Therefore, in the next steps of the research, a simple system model of key factors affecting production planning and scheduling was created as a basic template for the complex abstract mathematical model formulation. Event-B method was chosen for creating the formal mathematical model based on proof obligation because of its simplicity in using refinements and top reliability. This paper illustrates first steps and the main logic of Event-B modelling in the field of production planning and scheduling while the complex model including all important constraints and critical factors will be developed by the author within the next months and years.

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MANAGEMENT OF TRANSITION TO CIRCULAR ECONOMY

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Abstract: Increased demand for resources and competition has led to a severe disruption of the environment and the need to move towards a circular economy which is focused on environmental protection, increasing the efficiency and value-added products, economic growth, employment opportunities and reducing the volume of waste. The system of circular economy is based on using resources as long as possible in the production process, and after the end-of-life of products, in order to re-productive use and thus create new value. In this way minimizes the amount of waste, since all materials are recycled several times. To the transition to the circular economy, is necessary to realize changes in the entire value chain, from product design to the new business and market models, from new ways to using waste as resources to new models of consumer behaviour. The concept of circular economy is positive, perspective solution for achieving economic development within the constraints and challenges arising from the protection of the environment.

Transition to circular economy is multi-layered process and therefore will be need to involve all stakeholders: government, business and financial sector, civil society organizations and citizens. This will require a different way of doing business and financing models that will go along with technological and social innovations and acquiring new skills and knowledge through education process.

The aim of the paper is to point out the possibilities of transition to the circular economy, as a model that contributes to the efficient use of natural resources, increasing employment and improving the quality of life of the population.

Keywords: circular economy, environment, resources

Apstract: Povećana tražnja za resursima i konkurencija dovele su do velikog narušavanja životne sredine i potrebe za prelaskom na cirkularnu ekonomiju koja je usmerena na očuvanje životne sredine, povećanje efikasnosti i dodatnu vrednost proizvoda, privredni rast i mogućnosti zapošljavanja uz smanjenje količine otpada. Sistem cirkularne ekonomije zasnovan je na zadržavanju resursa što je duže moguće u proizvodnim procesima, i nakon kraja upotrebnog veka proizvoda, kako bi se ponovo produktivno upotrebljavali i tako stvarali novu vrednost. Na taj način se maksimalno smanjuje količina otpada, jer se sve materije višestruko recikliraju. Za prelazak na cirkularnu ekonomiju neophodno je sprovesti promene u celom lancu vrednosti, od dizajna proizvoda do novih poslovnih i tržišnih modela, od novih načina upotrebe otpada kao proizvodnih resursa, do novih modela ponašanja potrošača. Koncept cirkularne ekonomije je pozitivno, perspektivno rešenje za postizanje ekonomskog razvoja u okviru ograničenja i izazova koji proizilaze iz zaštite životne sredine.

Prelazak na cirkularnu ekonomiju je višeslojan proces i zato će morati da uključi sve interesne grupe: vladu, biznis sektor i sektor finansija, civilno društvo i građane. To će zahtevati drugačiji način poslovanja i modela finansiranja, koji će ići uporedo sa tehnološkim i socijalnim inovacijama i sticanjem novih veština i znanja kroz obrazovanje.

Cilj rada je da ukaže na mogućnosti za prelazak na cirkularnu ekonomiju, kao model koji doprinosi efikasnom korišćenju prirodnih resursa, povećanju zaposlenosti i poboljšanju kvaliteta života stanovništva.

Ključne reči: cirkularna ekonomija, životna sredina, resursi

1. UVOD

Prelazak na cirkularnu ekonomiju u kojoj se vrednosti proizvoda, materijala i resursa zadržavaju najduže u proizvodnom procesu, a stvaranje otpada se svodi na najmanju moguću meru je važno za razvoj održive i konkurentne ekonomije sa malom emisijom ugljen dioksida. Prvi korak u tom procesu je upravljanje otpadom, odnosno smanjenje odlaganja otpada na deponijama, unapređeni sistemi za selekciju i recikliranje otpada, pre svega komunalnog i ambalažnog otpada.

Za uspešnu tranziciju ka cirkularnoj ekonomiji neophodno je remodeliranje industrijskih sistema prema principu ekoloških sistema i povećanju njihove efikasnosti u domenu recikliranja materijalnih resursa. Cirkularna ekonomija zahteva promenu poslovne kulture, velike početne troškove u vidu ulaganja u promenu poslovnih procesa, promene u obrazovanju i niz drugih preduslova. Potrebna je reforma poreskog sistema koja podrazumeva preraspodelu poreskih opterećenja sa rada na korišćenje štetnih materijala i zagađivača. Pre svega akcenat treba staviti na primarnu selekciju otpada u domaćinstvima i tretiranje otpadnih industrijskih voda koje u većem delu završe u prirodi neprečišćene.

U većini privreda je duboko ukorenjen linearni model proizvodnje koji je utemeljen na pretpostavci da su resursi neiscrpn i dostupni, da se može lako doći do njih i jeftino ih se osloboditi. Zato je za prelazak na cirkularnu ekonomiju neophodno izvršiti prilagođavanja u celom lancu vrednosti, počev od dizajna proizvoda, poslovnih i tržišnih modela, načina pretvaranja otpada u resurse i u ponašanju potrošača. Preduslov za ove promene je potpuna promena sistema i uvođenje inovacija u celoj privredi, odnosno u tehnologiji, organizaciji, metodama finansiranja i politici.

Tržište predstavlja važan pokretač efikasnog korišćenja resursa i cirkularne ekonomije, s obzirom na to da su troškovi sirovina i energije postali najvažniji troškovi proizvodnje u većini preduzeća. Međutim, iako zahtevi tržišta utiču na promene, postoje mnoge tržišne prepreke za efikasno upravljanje resursima. Sprečavanjem stvaranja otpada, ekološkim dizajnom, ponovnom upotrebom otpada i sličnim merama, preduzeća mogu da ostvare znatne uštede i istovremeno smanje emisiju gasova staklene bašte.

Ipak, da bi se to ostvarilo, potrebno je ukloniti tržišne prepreke koje sprečavaju razvoj takvih mogućnosti. Zbog postojeće infrastrukture, poslovnih modela i tehnologije, kao i zbog načina ponašanja, ekonomije su zarobljene u linearnom modelu. Preduzećima nedostaju informacije, poverenje i kapaciteti za prihvatanje rešenja koja nudi cirkularna ekonomija. Politikom finansiranja se često ne obezbeđuju ulaganja u poboljšanje efikasnosti ili inovativne poslovne modele koji se smatraju rizičnijima i komplikovanijima što odbija mnoge tradicionalne investitore. Navike potrošača takođe mogu da predstavljaju prepreku za razvoj novih proizvoda ili usluga. Takve su prepreke često trajno prisutne u okruženju u kojem tržišne cene nisu odraz stvarne cene koju društvo plaća zbog korišćenja resursa, a politika ne šalje signale za prelazak na cirkularnu ekonomiju.

Za razvoj cirkularne ekonomije neophodno je dugoročno uključivanje stejkholdera na svim nivoima – od države, lokalnih samouprava i preduzeća, do građana.

2. GLAVNE KARAKTERISTIKE CIRKULARNE EKONOMIJE

Cirkularna ekonomija predstavlja fundamentalnu alternativu modelu linearne ekonomije, koji trenutno dominira na tržištu. Osnova modela linearne ekonomije je „uzmi – napravi – upotrebi – odloži“ i on se zasniva na pretpostavci da su prirodni resursi dostupni, da ih ima u izobilju, da su laki za nalaženje i da su jeftini za odlaganje, ali to nije model koji je dugoročno održiv.[7] Za razliku od linearnog, model cirkularne ekonomije je održiv sistem koji minimizira upotrebu novih sirovina i energije u proizvodnom procesu, dok istovremeno smanjuje pritisak na životnu sredinu, u smislu smanjenja emisije i nastanka otpada, tako da stvara uslove za blagostanje, napredak i stvara mogućnosti za otvaranje novih radnih mesta. U cirkularnoj ekonomiji su važni procesi kao što su eko-dizajn, ponovna upotreba, popravka, ponovna proizvodnja, obnavljanje, deljenje proizvoda, sprečavanje nastanka i recikliranje otpada, dok se u isto vreme smanjuju gubici sirovina kroz odlaganje na deponijama i spaljivanje. Dakle, glavna ideja je da se minimizira nastanak otpada i korišćenje novih sirovina u proizvodnji kroz eko-dizajn, recikliranje i ponovnu upotrebu proizvoda.

Jedna od usvojenih politika koje podržavaju prelazak na cirkularnu ekonomiju je hijerarhija upravljanja otpadom u pet koraka, koju je donela Evropska Unija 2008. godine, [5] gde je prvi prioritet sprečavanje nastanka otpada, zatim ide priprema za ponovnu upotrebu, recikliranje, ponovna upotreba sirovina i na kraju odlaganje otpada. Smanjenje nastanka otpada takođe znači i smanjenje potrebe za sirovinama, kao i izbegavanje nastanka novog otpada i štetnih emisija koje nastaju u lancu proizvodnje. Osim toga, pruža se više mogućnosti za smanjenje troškova, od kupovine sirovina do tretmana i odlaganja otpada. Može se smanjiti količina nastalog otpada u fazi proizvodnje, kroz povećanu efikasnost upotrebe sirovina, kroz korišćenje procesa koji manje generišu otpad ili kroz inovacije usluga. U fazi distribucije nastanak otpada se može smanjiti dobrim planiranjem zaliha ili marketing strategijama koje promovišu smanjenje otpada, dok se u fazi konzumiranja nastanak otpada može smanjiti korišćenjem proizvoda koji duže traju, kroz popravku, deljenje i iznajmljivanje proizvoda, kao i kroz smanjivanjem nivoa potrošnje.[1]

Glavne karakteristike cirkularne ekonomije se mogu grupisati na sledeći način: [1]

- ❖ Manje korišćenje i manja potreba za novim unosom prirodnih resursa u proizvodnju
 - efikasnija upotreba svih prirodnih resursa;
 - minimizirana i optimizovana eksploatacija sirovina, dok se u isto vreme izvlači veća vrednost iz manje količine sirovina;
 - smanjena zavisnost od prirodnih resursa;
 - minimizirana ukupna upotreba energije i vode.
- ❖ Povećani udeo obnovljivih i recikliranih resursa i energije
 - zamena neobnovljivih resursa obnovljivim u okviru održivog nivoa ponude;
 - povećani udeo reciklabilnih materijala koji mogu da zamene upotrebu novih sirovina;
 - zaokruživanje sistema kretanja sirovina.

- ❖ Smanjena emisija
 - smanjena emisija u celom sistemu kruženja sirovina kroz manju upotrebu sirovina;
 - manje zagađenje kroz smanjenju emisiju.
- ❖ Manji materijalni gubici
 - smanjeno generisanje otpada;
 - korišćenje spalionica i deponija svedeno na minimum;
 - smanjeni gubici vrednih prirodnih resursa.
- ❖ Zadržavanje vrednosti proizvoda, komponenti i materijala
 - produženi životni vek proizvoda duže održava vrednost korišćenog proizvoda;
 - ponovna upotreba komponenata;
 - sačuvana vrednost materijala kroz recikliranje.

Jedna od glavnih karakteristika cirkularne ekonomije je produžetak životnog veka proizvoda, kroz ponovnu upotrebu i proizvodnju.[6] Ponovna upotreba čuva fizičke karakteristike sirovina, kao i energiju koja se upotrebljava u proizvodnji komponenata. Pritom, priprema za ponovnu upotrebu i popravku je često zaduženje preduzetnika i manjih kompanija, tako da se time stvaraju nova radna mesta na lokalnom nivou. Ovo takođe predstavlja i svojevrsne izazove, jer se mora osigurati da se proizvodi popravljaju i recikliraju bez negativnih uticaja na zdravlje ljudi i životnu sredinu.

3. INOVACIJE KAO KLJUČ UPRAVLJANJA SISTEMSKIM PROMENAMA

Primarni cilj u postizanju neophodne systemske promene jeste pronaći sinergiju ekonomskih i socijalnih podsticaja, na primer, kroz finansijske mehanizme koji ohrabruju potrošače i proizvođače da iznajme umesto da kupe neki proizvod, dok se u isto vreme stimuliše eko-dizajn proizvoda. Nastanak cirkularne ekonomije zahteva fundamentalne promene kroz lanac vrednosti (od dizajna proizvoda i tehnologije do novih poslovnih modela), nove načine očuvanja prirodnih resursa (kroz produženi vek trajanja proizvoda i pretvaranja otpada u resurs), nove modele ponašanja potrošača, nove norme i prakse, obrazovanje i finansiranje. Neophodna je akcija na svim nivoima, od državnog do lokalnog, uključujući sve stajkholdere, kao i vlade, istraživače, civilno društvo i građane.

Tranzicija ka cirkularnoj ekonomiji zahteva fundamentalne promene u više različitih oblasti. Jedan od najvažnijih i najmoćnijih faktora cirkularne ekonomije je inovacija poslovnih modela, jer poslovni modeli koji se uspešno prilagode principima cirkularne ekonomije imaju direktan i trajni uticaj na ekonomski sistem. Međutim, bez prilagođavanja zakonske regulative mnogi inovativni poslovni modeli neće moći da se nadmeću sa postojećim linearnim, koji su duboko ukorenjeni.

Inovativni poslovni modeli se generalno mogu podeliti u tri grupe:

- modeli bazirani na uslugama i upotrebi,
- modeli zajedničke potrošnje,
- modeli otpad-kao-resurs.

Modeli bazirani na uslugama i upotrebi, sa ekonomske tačke gledišta, mogu da unaprede lojalnost potrošača, povećaju udeo na tržištu kroz diferencijaciju proizvoda,

povećaju vrednost polovnih proizvoda (što dovodi do smanjenja troškova) kao i dovođenje novih tehnologija na tržište. Ali u isto vreme ovi modeli mogu da budu okidač negativnih ekonomskih i socijalnih uticaja na tradicionalni lanac vrednosti, jer smanjuju potrebu za novim materijalima i proizvodima.

Modeli zajedničke potrošnje su bazirani na deljenju, zameni i lizingu proizvoda, i njihova ekonomska prednost je veći izbor proizvoda i usluga za potrošače, uz smanjeni rizik i odgovornost vezano za vlasništvo proizvoda, kao i produženi životni vek proizvoda, što dovodi do smanjene upotrebe prirodnih resursa, energije i smanjenih emisija.

Poslovni modeli koji se zasnivaju na principu otpad-kao-resurs promovišu međusektorsku saradnju kroz kreiranja tržišta za sekundarne sirovine. Ovo može dovesti do smanjenja upotrebe energije i materijala tokom proizvodnje, povećati dostupnost jeftinijih materijala kroz recikliranje otpada, kao i smanjiti troškove odlaganja otpada.[9]

U cirkularnoj ekonomiji dizajnom se eliminiše otpad, a inovacije su prisutne u celom lancu vrednosti kroz: [8]

- Smanjene količine materijala potrebnih za izvršenje određene usluge;
- Produženje veka proizvoda (trajnost);
- Smanjeno korišćenje energije i sirovina u fazama proizvodnje i korišćenja (efikasnost);
- Smanjenje korišćenja, u proizvodima i proizvodnim procesima, materijala koji su opasni ili su teški za recikliranje (zamena);
- Stvaranje tržišta sekundarnih sirovina (recikliranje);
- Kreiranje proizvoda koji su jednostavni za održavanje, popravljanje, poboljšanje, preradu ili recikliranje (eko-dizajn);
- Razvijanje potrebnih usluga za potrošače shodno tome (održavanje, popravke);
- Podsticanje i stimulisanje potrošača da smanjuju i odvajaju otpad;
- Unapređenje sistema selektivnog prikupljanja i odlaganja otpada, kako bi se troškovi recikliranja sveli na najmanju moguću meru;
- Olakšavanje stvaranja industrijskih klastera čime se sprečava da nusproizvodi postanu otpad;
- Podsticanje većeg i boljeg izbora robe i usluga za potrošače putem iznajmljivanja, pozajmljivanja ili deljenja usluga umesto kupovine proizvoda, štiteći istovremene interese potrošača.

Važna polazna tačka je osmišljavanje proizvodnih postupaka, proizvoda i usluga. Proizvodi se mogu redizajnirati kako bi se duže koristili, popravljali i poboljšavali ili reciklirali. Proizvodni procesi se mogu više zasnivati na ponovnom korišćenju proizvoda i sirovina, a inovativnim poslovnim modelima se može uspostaviti novi odnos između preduzeća i potrošača.

Na samom tržištu neophodno je uspostaviti veze između proizvođača, investitora, distributera, potrošača i subjekata koji se bave recikliranjem i obezbediti „poštenu raspodelu troškova i koristi“:

- u fazi proizvodnje neophodno je postavljanje standarda za održive nabavke, stimulacija dobrovoljnih programa koje vode industrija i maloprodaja i industrijske simbioze kojom se stvaraju tržišta za nusproizvode;

- u fazi distribucije potrebno je uspostavljanje sistema bolje informisanosti o resursima sadržanim u proizvodima i o načinu na koji se proizvodi mogu „popraviti“ ili reciklirati (dodela „pasoša za proizvode”);
- u fazi potrošnje treba uspostaviti modele zajedničke potrošnje baziranih na pozajmljivanju, zameni, razmeni i iznajmljivanju proizvoda i sistema kojima se kombinuju proizvodi i usluge kako bi se ostvarila veća vrednost iz slabo iskorišćene imovine ili resursa.



Slika 1. Cirkularna ekonomija

Pretvaranje otpada u resurs/sirovinu je poslednji deo u krugu cirkularne ekonomije (Slika 1.). Odvajanjem otpada na mestu njegovog nastanka, zajedno sa odgovarajućom metodologijom za utvrđivanje stope recikliranja, osigurava se visokokvalitetno recikliranje i doprinosi se razvoju tržišta za snabevanje visokokvalitetnim sirovinama. Upotreba energije, uključujući proizvodnju energije iz otpada i korišćenje biogoriva ima vaznu ulogu u pogledu otpada koji se ne može ponovo iskoristiti niti reciklirati.

4. UPRAVLJANJE MODELOM CIRKULARNE EKONOMIJE

Privreda i potrošači su ključni akteri prelaska na cirkularnu ekonomiju. Odluke u celom sistemu lanca vrednosti moraju biti bolje međusobno povezane kako bi se omogućili adekvatni podsticaji između proizvođača, ulagača, distributera, potrošača i subjekata koji se bave recikliranjem, kako bi se osigurala poštena raspodela troškova i koristi među njima. Neophodno je koristiti tržišne mehanizme kako bi se osigurala najefikasnija raspodela korišćenja resursa, uz istovremeni razvoj inovacija u svim segmentima lanca vrednosti.

Proizvodnja

Cirkularna ekonomija započinje na samom početku životnog veka proizvoda – u fazi dizajniranja i proizvodnom procesu utiče se na nabavku i iskorišćavanje resursa i na stvaranje otpada tokom čitavog životnog veka proizvoda. Boljim dizajnom proizvoda može se postići

njegova trajnost ili olakšati popravka, unapređenje ili ponovna proizvodnja. Dizajnom se može pomoći preduzećima za reciklažu lakše rastavljanje radi selektivne reciklaže.

Eko-dizajn [10] podrazumeva proizvode koji su napravljeni korišćenjem manjeg broja resursa, koristeći reciklirane i obnovljive resurse i izbegavanje nastanka opasnih materija, kao i komponente koje traju duže i koje se lakše održavaju, popravljaju, menjaju i recikliraju. Sa ekonomske strane gledišta, eko-dizajn može da smanji cenu proizvodnje što dovodi do povećanja kupovne moći potrošača; ako je proizvod dizajniran da traje duže, i ako može da se lako popravi ili nadogradi od strane potrošača ili profesionalnih servisa za održavanje, onda se vrednost zadržava mnogo duže nego ako bi se proizvod samo odložio za otpad nakon prestanka korišćenja. Uticaj na životnu sredinu se ogleda kroz smanjenu upotrebu materijala i energije, kroz više recikliranja i kroz smanjenje nastanka otpada. Socijalni efekti eko-dizajna mogu se ogledati kroz nastanak novih radnih mesta i kroz povećanje poverenja potrošača u održive proizvode i usluge.

Proizvodni postupak znatno utiče na efikasno korišćenje resursa, ukoliko je kreiran na način da proizvodi manje otpada i smanji troškove resursa i energije. Takođe, važno je promovisati inovativne industrijske procese, gde se nusproizvodi iz jedne vrste proizvodnje mogu koristiti kao resursi u drugoj proizvodnji.

Potrošnja

Uticaj potrošača kroz odluke o kupovini bitno utiče na razvoj cirkularne ekonomije. Na same odluke utiču informacije koje se plasiraju o pojedinim proizvodima, asortiman i cene. Odluke potrošača su presudne za generisanje kućnog otpada. Pri tome, cena igra važnu ulogu pri odluci o kupovini, [4] zato je važno da država putem ekonomskih instrumenata, kao što je oporezivanje, utiče na cene proizvoda koji imaju pozitivan uticaj na zaštitu životne sredine.[2]

Životni vek kupljenog proizvoda može da se produži njegovom ponovnom upotrebom ili popravkom, čime se izbegava njegovo bacanje. Razvijanjem sektora za ponovnu upotrebu ili popravku doprinosi se otvaranju novih radnih mesta, budući da su ovi sektori radno intenzivni. Većina današnjih proizvoda ne može da se popravi zbog njihovog dizajna ili zbog nepostojanja rezervnih delova ili uputstava za popravku. Važan segment cirkularne ekonomije je zbog toga ekološki dizajn proizvoda, koji omogućuje da se poveća upotreba i trajnost proizvoda, kao i stvaranje mogućnosti za njegovu popravku.

Upravljanje otpadom

Centralnu ulogu u cirkularnoj ekonomiji ima upravljanje otpadom. Važno je utvrditi raspored prioriteta od sprečavanja nastanka otpada, njegove pripreme za ponovnu upotrebu, recikliranja – pa do odlaganja na deponiji. Rezultat načina na koji prikupljamo i upravljamo otpadom može biti visok procenat recikliranja i vraćanje važnih sirovina u proizvodnju. Nasuprot tome, ukoliko loše upravljamo otpadom, većina upotrebljivih sirovina odlazi na deponiju uz negativan uticaj na okolinu i velike ekonomske gubitke.[11] Za postizanje visoke stope recikliranja potrebno je unaprediti selektivno prikupljanje otpada.

Recikliranje

U cirkularnoj ekonomiji, reciklabilni materijali se vraćaju u proizvodnju kao nove sirovine, čime se povećava sigurnost snabdevanja i veće uštede, jer su mnogo manji troškovi sekundarnih sirovina u odnosu na dobijanje primarnih sirovina iz rudnika i topionica. Mogući problem pri upotrebi sekundarnih sirovina je nesigurnost u pogledu kvaliteta, tako da je

potrebno razviti standarde kvaliteta u ovoj oblasti kojima će biti definisani stepeni nečistoće u sirovinama ili upotrebljivost za visokokvalitetno recikliranje. Na taj način će se razviti tržište sekundarnih sirovina.

Inovacije

Tranzicija na cirkularnu ekonomiju predstavlja sistemsku promenu. Osim aktivnosti kojima se direktno utiče na svaku fazu lanca vrednosti i ključne sektore, neophodno je stvoriti uslove u kojima cirkularna ekonomija može dalje da se razvija. Važnu ulogu u tom procesu imaju inovacije. Za uspostavljanje novih sistema korišćenja sirovina i recikliranja, potrebne su nove tehnologije, procesi, usluge i poslovni modeli. Zato je podsticanje inovacija važan faktor za dalji razvoj cirkularne ekonomije i povećanje konkurentnosti privrede svake zemlje. Za uspešnu tranziciju, potrebna je i kvalifikovana radna snaga sa posebnim i novim veštinama.[3] Vezano za to, neophodno je uspostaviti i adekvatan sistem obrazovanja i osposobljavanja, što je vrlo često ograničavajući faktor.

ZAKLJUČAK

Za uspešnu tranziciju ka cirkularnoj ekonomiji neophodno je remodeliranje industrijskih sistema prema principu ekoloških sistema i povećanju njihove efikasnosti u recikliranju materijalnih resursa. Cirkularna ekonomija zahteva promenu poslovne kulture, velike početne troškove u vidu ulaganja u promenu poslovnih procesa, promene u obrazovanju i niz drugih preduslova. Potrebna je reforma poreskog sistema koja podrazumeva preraspodelu poreskih opterećenja sa rada na korišćenje štetnih materijala i zagađivača. Pre svega akcenat treba staviti na primarnu selekciju otpada u domaćinstvima i tretiranje otpadnih industrijskih voda koje u većem delu završe u prirodi neprečišćene.

Jedan od najvažnijih i najmoćnijih faktora cirkularne ekonomije je inovacija poslovnih modela, jer poslovni modeli koji se uspešno prilagode principima cirkularne ekonomije imaju direktan i trajni uticaj na ekonomski sistem. Međutim, bez prilagođavanja zakonske regulative mnogi inovativni poslovni modeli neće moći da se nadmeću sa postojećim linearnim, koji su duboko ukorenjeni u privredi.

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REASONS FOR ORGANIZATIONAL CHANGES

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Abstract: Changes is an inescapable part of both social and organizational life. The effects of changes can be studied over different time scales and at different levels, as well as in terms of its effects at the individual, group, organization, society, national or international level.

Organizational changes can be initiated by managers, it can evolve slowly within a department, it can be imposed by specific changes in policy or procedures, or it can arise through external pressures. Most planned organizational changes is triggered by the need to respond to new challenges or opportunities, or in anticipation of the need to cope with potential future problems. Planned changes represents an attempt to improve, in some important way, the operational effectiveness of the organization.

The most well-documented findings from studies of individual and organizational behaviour is that organizations and their members resist changes. Individuals resist changes because of basic human characteristics such as perceptions, personalities, and needs. Organizations resist changes because they are conservative, and because change is difficult. The status quo is often preferred by those who feel they have the most to lose if changes goes ahead.

Keywords: organization, changes, resistance, change management

Apstrakt: Promene su neizbežan deo društvenog i organizacionog života. Efekti promena mogu se proučavati u različitim vremenskim periodima i na različitim nivoima, kao i u smislu njihovih efekata na individualnom, grupnom, organizacionom, društvenom, nacionalnom ili međunarodnom nivou.

Organizacione promene mogu biti inicirane od strane menadžera, mogu se polako odvijati u pojedinim delovima organizacije, mogu biti nametnute specifičnim promenama politike ili procedura ili nastati zbog spoljnih pritisaka. Većinu planiranih organizacionih promena pokreće potreba da se odgovori na nove izazove i mogućnosti ili potreba da se izbori sa potencijalnim budućim problemima. Planirana promena predstavlja pokušaj da se na neki način poboljša operativna efikasnost organizacije.

Najbolje dokumentovani nalaz iz proučavanja individualnog i organizacionog ponašanja jeste da organizacije i njihovi članovi pružaju otpor promenama. Pojedinci se opiru promenama zbog osnovnih ljudskih karakteristika, kao što su percepcija, ličnost i potrebe. Organizacije se opiru promenama jer su konzervativne i zato su promene teške. Status quo najčešće preferiraju one koji misle da će najviše da izgube ako se promene izvrše.

Ključne reči: organizacija, promene, otpor, upravljanje promenama

1. UVOD

Jedna od retkih stvari u našem svetu koja je realno stalna je promena. Ona je postala neizbežna činjenica života i fundamentalni aspekt evolucije. Promena je neizbežna u progresivnoj kulturi. U stvari, u današnjem društvu promena je ubrzana. Dešavaju se revolucije u političkim, naučnim, tehnološkim i institucionalnim segmentima. Porasle su sofisticirane sposobnosti komunikacije, količina dostupnih informacija udvostručuje se svakih deset godina, a telemarketing i robotika su neki od primera koji ukazuju na brze promene organizacija.

Pritisci za promenu se kreiraju i spolja i unutar organizacija. U stvari, organizacija koja odbija da se prilagodi i usvoji promene ne može dugo da opstane. Organizacije, naravno, uče kako da se izbore sa razornom stopom unutrašnjih i spoljnih promena uz pomoć nekih temeljnih promena u filozofiji upravljanja i organizacionoj tehnologiji. Karakteristike organizacionih promena su:

- ❑ promena u osnovi proizlazi iz stimulusa unutar i izvan organizacije,
- ❑ promena se odvija u svim organizacijama, ali različitim brzinama i stepenom značaja,
- ❑ konačno, organizacija se menja na više načina – može da se promeni njena tehnologija, struktura, ljudi, procedure i drugi činioci.

Svako odstupanje u ukupnom radnom okruženju se zove promena, a svaka promena zahteva nove korekcije i nove ravnoteže. Priroda promena je toliko komplikovana da rukovodstvo treba da ih prihvati i ponovo uspostavi neophodnu ravnotežu grupe i lično prilagođavanje koje promena izaziva.

Svi prihvatamo promene na različite načine, delimično zbog naših različitih ličnosti i delimično zbog naših pojedinačnih istorija. Mi vidimo svet na različite načine i, takođe, reagujemo na različite načine. Oblast upravljanja promenama je ona u kojoj nove ideje imaju posebnu relevantnost i rezonancu. Ukoliko se promene konceptualizuju na poseban način, onda ćemo pokušati da upravljamo njima na način koji je naizgled logičan.

Iako su promene u interesu organizacije, mnogo puta promene nailaze na otpor zaposlenih, kao i organizacije. Zaposleni se opiru promenama iz ekonomskih ili ličnih i socijalnih razloga. Ono što je najvažnije, mnogo puta se pokazalo da promene uzrokuju neophodnu prekvalifikaciju. Generalno ljudi ne vole da se prekvalifikuju, jer smatraju da im se na taj način oduzima ponos zasnovan na veštinama koje imaju. Ljudi, takođe, smatraju da prekvalifikacija znači da su njihove veštine zastarele i prevaziđene. Otpor organizacije na promene je zbog strukturne inercije, ograničenih sredstava, velikih troškova ili opšte apatije.

Organizacija može prevazići otpor promenama analizom na terenu, komunikacijom ili pregovorima, uključivanjem zaposlenih u proces formiranja promena. U krajnjem slučaju, ako je rukovodstvo ubeđeno u realnost i neophodnosti promena, može prisiliti zaposlene da prihvate promene. Savladavanje otpora promenama jedan je od najvećih izazova za one koji te promene treba da realizuju. Menadžeri moraju biti veoma oprezni u uvođenju promena. Promene treba uvesti samo kada su potpuno sigurni da su promene potrebne. Promene nikada ne treba uvoditi iznenada, to treba da bude postepeno i u fazama.

2. ZAŠTO ORGANIZACIONE PROMENE?

Razlozi za pokretanje organizacionih promena su mnogobrojni i ne mogu se sistematizovati jednim prikazom ili definicijom. Svako vreme ima svoje specifičnosti, pa i svaka organizacija prolazi kroz određene faze razvoja. Naravno, svaka organizacija primenjuje sopstvene modele organizacionih promena – prema tome kojoj grani industrije pripada (proizvodnja ili usluge), trenutnom položaju na tržištu, kao i mogućnostima za povećanje konkurentnosti.

Neki od razloga zašto se uvode organizacione promene su:

1. Krize: očigledno da je 11. septembar 2001. godine najdramatičniji primer kriza koje su primorale na promene nebrojene organizacije i industrije (na primer, vazdušni saobraćaj i turistička putovanja). Sadašnja finansijska kriza očigledno je izazvala mnoge promene u finansijskim uslugama kada organizacije pokušavaju da opstanu.
2. Razlike u performansama: organizacioni ciljevi i zadaci nisu ispunjeni ili druge potrebe organizacije nisu zadovoljene. Promene su potrebne radi prevazilaženja tih razlika.
3. Nova tehnologija: identifikacija nove tehnologije i efikasnijih i efektivnijih metoda za izvršenje rada.
4. Identifikacija mogućnosti: kada su identifikovane mogućnosti organizacije na tržištu, tada organizacija treba da nastavi da povećava konkurentnost.
5. Reakcija na unutrašnji i spoljni pritisak: menadžment i zaposleni, posebno oni u organizovanim sindikatima, često vrše pritisak za promene. Spoljni pritisci dolaze iz mnogih oblasti, uključujući kupce, konkurenciju, promene propisa, akcionare, finansijska tržišta i druge faktore iz okruženja organizacije.
6. Merdžeri i akvizicije: merdžeri i akvizicije generišu promene u mnogim oblastima i često negativno utiču na zaposlene (zaposleni sa suprotstavljenim funkcijama se proglašavaju viškom).
7. Promene radi promena: često organizacije imenuju nove generalne direktore kako bi pokazale upravnim ili nadzornim odborima da se nešto radi, ove promene su radi njih samih.
8. Zvuči dobro: drugi razlog zašto organizacija sprovodi promene je što to rade i druge organizacije (kao što su stari krugovi kvaliteta ili hir (moda, trend) po pitanju re-inženjeringa). Zvuči dobro, pa organizacije to pokušavaju.
9. Planirano odustajanje: promene kao rezultat napuštanja proizvoda za kojima vlada manje interesovanje, napuštanje tržišta ili filijala i raspodela resursa na inovacije i nove mogućnosti.

3. ŠTA ORGANIZACIJE MOGU PROMENITI?

Ono što organizacije mogu promeniti spade u sledeće široke oblasti:

1. Misija, vizija i strategija: organizacije treba stalno da se pitaju: "Šta je naš posao i kako treba da ga izvršavamo?". Odgovori na ta pitanja vode do promena u misiji

organizacije (svrha njenog poslovanja), vizije budućnosti (kako organizacija treba da izgleda) i njene konkurentske strategije.

2. Tehnologija: Organizacije treba da menjaju svoju tehnologiju u cilju povećanja efikasnosti i smanjenja troškova.
3. Promene u ponašanju ljudi: menadžerima i zaposlenima treba obezbediti obuku kako bi stekli nova znanja i veštine ili se određeni ljudi moraju zameniti ili smeniti. Kao posledica finansijske krize, koja traje do današnjih dana, mnoge organizacije pokušavaju da spreče generisanje masovne nezaposlenosti.
4. Dizajniranje zadataka-poslova: način na koji se odvija rad u organizacijama može se promeniti sa novim procedurama i metodama obavljanja posla.
5. Organizaciona struktura: organizacije mogu da promene način na koji su strukturirane kako bi sa što više "sluha" odgovorile (reagovale) na njihovo spoljno okruženje. Ali, da bi sa više sluha reagovale na tržište, to zavisi i od toga kako se donose odluke u organizaciji – centralizovano ili decentralizovano.
6. Organizaciona kultura: entiteti mogu da pokušaju da promene svoju kulturu, uključujući menadžerske i liderske stilove, vrednosti i verovanja. Od svih stvari koje organizacije mogu da menjaju, promenu organizacione kulture je najteže izvesti.

Ovo su osnovne stvari koje organizacije mogu promeniti. Važno je naglasiti da će promene jednog od navedenih elemenata obično imati uticaj na drugi element. Na primer, promena tehnologije će zahtevati promene u oblasti ponašanja ljudi (nova znanja i veštine kada se koristi nova tehnologija).

4. ZAŠTO SE LJUDI PLAŠE PROMENA?

Poznati guru menadžmenta Piter Draker je rekao: "Ovo je vreme novih mogućnosti, ali samo za one koji su spremni da prihvate promene kao mogućnost, a ne za one koji ih se plaše." Draker je govorio o potrebi organizacija da postanu "lideri promena." U današnjem veoma promenljivom okruženju, naglasio je, menadžeri moraju biti u stanju da predvide, planiraju i realizuju promene u svojim organizacijama. Menadžeri, takođe, moraju biti u stanju da stvore takvu organizacionu sredinu u kojoj se promene vide kao prilike, a ne kao pretnja ili otpor. Organizacije koji bi verovatno najviše stradale su one sa iluzijom da će sutra biti kao što je danas" [1].

Da li se ljudi zaista plaše promena i zašto se opiru promenama? Svedoci smo protesta koji su se nedavno dešavali na ulicama Atine, kao rezultat napora Vlade da se bavi finansijskom krizom u Grčkoj. Takođe, iz demonstracija i nemira videli smo da se Vlade na Bliskom istoku i Severnoj Africi (Egipat, Tunis, Libija, Sirija i Jemen) opiru promenama i oslanjaju na oružanu silu da bi zaustavili lidere ovih promena. Sve ove grupe su se opirale naporima lidera njihovih Vlada i plašile se ličnih gubitaka kao posledice predloženih promena.

S druge strane, ako se ljudi zaista plaše promena, kako onda, na primer, objasniti izbornu pobjedu malo poznatog senatora iz Ilinoisa, Baraka Obame, čija se platforma 2007. godine zasnivala na sloganu "Možemo verovati u promene". I, njegovu ponovnu pobjedu na izborima 2012. godine sa istom strategijom promena? Prosto je neverovatno da Obama, vodeći kampanju 2007. godine, nije naišao na mnogo otpora, iako je imao gotovo nikakva

izvršna iskustva i nikada nije planirao i uspeo u promenama u nekoj Vladinoj ili privatnoj industriji.

5. OTPOR PROMENAMA I DOŽIVLJAJ GUBITKA

Ne može se sa sigurnošću reći da se ljudi plaše promena. Umesto toga, oni koji će biti "pogođeni" promenama mogu da im se odupru iz više razloga. U stvarnosti, ipak, ispravnije je reći da ne postoji samo nešto kao što je otpor promenama, već postoji lični doživljaj gubitka onoga što ljudi misle da će izgubiti kao posledica promena ili, u nekim slučajevima, stvarnih gubitaka.

Osnovni izvori otpora promenama uključuju:

Izvor #1: Neizvesnost oko uzroka i posledica promena

- ☐ ljudi izbegavaju neizvesnost (rizik) – uspostavljene procedure su dobro poznate i predvidljive,
- ☐ gubitak poverenja – nepoverenje u bilo kakve promene pokreće se odozgo,
- ☐ potreba novih veština – možda treba da se nauče nove veštine ili saznaju nove informacije. Mogu imati početni negativan uticaj na performanse ili nagrade (kompenzacija, promocija),
- ☐ negativne performanse – promene se mogu tumačiti na način da se sadašnji posao ne izvršava kako treba.

Izvor #2: Nespremnost da se odustane od postojećih benefita (doživljaj gubitka)

- ☐ nespremnost da se odustane od zadataka i odnosa – na primer, opsežno restrukturiranje američkog zdravstva kroz pristup "ObamaCare" naišlo je na veoma veliki otpor, jer su mnogi pomislili da će izgubiti odnos koji su imali sa svojim sadašnjim lekarom,
- ☐ gubitak snage, prestiža, plate, kvaliteta posla i drugih beneficija (bezbednost) – nemiri u Atini mogu se pripisati ovom faktoru. Demonstranti će izgubiti određene beneficije kao rezultat pokušaja njihovih Vlada da se bave finansijskom krizom i ogromnim dugom. Veliki broj starijih ljudi u SAD se opire predloženom planu Republikanske stranke za restrukturiranje programa "Medicare" radi kontrole vrtočlavih troškova zdravstvene zaštite, čak iako ove planirane promene ne utiču na bilo koga iznad 55 godina starosti – očigledno je dobar primer doživljaja gubitka.

Izvor #3: Svest o slabostima predloženih promena

- ☐ previđanje potencijlnih problema od inicijatora promena ("Pokušali smo to i ranije, ali nije uspelo") – mnogi u SAD se opiru predlogu predsednika Obame i Demokratske stranke da troše više novca na stimulatívni paket kako bi pomogli podsticanju sporog ekonomskog oporavka ili, kao neki, strahuju od dvostruke recesije. Oni tvrde da je prvi plan Obame uveden početkom 2009. godine koštao više od 1 triliona američkih dolara i proizveo marginalne rezultate (ako neki rezultati uopšte i

postoje). Većina oseća da je to bila politička "isplata i nagrada" za određene grupe, kao što su sindikati koji su podržali Obamu na izborima 2008. godine;

- ☐ plan da se uvedu promene za koje se smatra da su suviše komplikovne (složene), skupe i dugotrajne u isto vreme mogu, takođe, poremetiti tekuće aktivnosti;
- ☐ nedostatak kredibiliteta lidera promena – lider promena ima ili nema kredibilitet u organizaciji. Da li je ta osoba bila u stanju da ostvari rezultate ranije? Kakva iskustva ima lider promena u ranijim procesima promena?

6. POVEĆANJE OTPORA PROMENAMA

Svi faktori koji doprinose otporu ili doživljaju gubitaka će se povećati ukoliko:

- ☐ promene prete – promene se vide kao pretnja ukoliko se ne doživljavaju kao pomoć.
- ☐ promenama će se suprotstaviti "pogođena" grupa, osim ukoliko ih nisu izričito tražili.

Pomenuti demonstranti snažno su se opirali zbog ova dva faktora. Zbog pomoći njihovim državama, kao i zbog osećaja hitnosti da se spreči finansijska kriza i nacionalna katastrofa, agenti promena (Vladini lideri) su ostvarili relativno lošu komunikaciju.

- ☐ menadžment najnižeg nivoa nije zahtevao promene – taj menadžment će se suprotstaviti promenama kao stvarnoj ili imaginarnoj opasnosti za njihov prestiž i autoritet, osim ako su izričito tražili promene,
- ☐ opozicija grupe – opozicija grupe je obično mnogo više od zbira opozicije pojedinaca ($2 + 2 = 6$),
- ☐ veličina promena – veće promene, veća opozicija "pogođene" grupe. Na primer, opozicija demonstranata bila je veća nego bilo kog pojedinca i posebno pogođena veličinom potrebnih promena da se spreči finansijska kriza sa kojom se suočava njihova Vlada.

Ovi faktori koji povećavaju otpor mogu se potencijalno smanjiti komuniciranjem o prednostima promena i održavanjem kontinuiteta promena. Isto tako, veći ugled menadžera utiče na podržavanje promena, jer imaju mnogo veći lični uticaj na realizaciju promena.

Pružanje informacija u vezi sa ozbiljnošću sadašnje situacije i potencijalnih koristi u budućnosti kao rezultatu promena može značajno smanjiti taj otpor. Uključivanje pripadnika ugroženih grupa u proces planiranja može stvoriti unutrašnji pritisak za promene, pa će članovi grupe biti posvećeni promenama.

"Ljudi nisu pod stresom zbog toga što postoji mnogo promena u organizaciji, nego zbog načina na koji se sprovode" – Piter Draker.

7. RAZLOZI ZAŠTO PROMENE NE USPEVAJU

Postoji nekoliko osnovnih grešaka koje organizacije često prave kada implementiraju promene.

- Greška # 1:** **Nije uspostavljen dovoljno veliki osećaj hitnosti** – mogućnosti su izgubljene jer organizacija ne uspeva da uspostavi osećaj hitnosti i obrazloži zašto su promene potrebne.
- Greška #2:** **Nije stvorena dovoljno snažna i vođena koalicija** – organizacije ne uspevaju da formiraju grupu sa dovoljno snage i prestiža lidera za promene i nemaju dovoljnu i punu podršku menadžmenta.
- Greška # 3:** **Nedostatak vizije** – organizacije ne uspevaju da kreiraju viziju za budućnost i pomognu usmeravanju napora na promene – šta će biti drugačije posle promena? Šta će biti sačuvano? Koja je strategija i ciljevi za ostvarenje vizije?
- Greška #4:** **Nedostatak komunikacije o viziji** – organizacije ne komuniciraju o viziji za budućnost. Kako će organizacija izgledati posle promena? Vizija treba da bude predstavljena kao mogućnost a ne kao pretnja.
- Greška #5:** **Nisu uklonjene prepreke za novu viziju** – sistemi, politika ili strukture koje ozbiljno podrivaju viziju nisu uklonjene.
- Greška #6:** **Nema sistematskog planiranja i kreiranja kratkoročnih pobeda** – pojedinci nisu prepoznati ili nagrađeni za poboljšanje performansi kao rezultat njihovih napora za promene.
- Greška #7:** **Prerano proglašavanje pobede** – organizacije ne prate napredak procesa promena i procenu rezultata. Često puta, pobeda se proglašava kada promene još nisu u potpunosti implementirane.
- Greška #8:** **Promene nisu povezane sa organizacionom kulturom** – organizacije ne uspevaju da zaposleni prihvate promene načina na koji će se stvari obavljati od sada i kao takvi, oni su okrenuti starom načinu obavljanja stvari.

8. PROMENE I POTREBA KONTINUITETA

Prema Drakeru, "kada se uvode promene, veoma je važno da se održi kontinuitet i posvećenost temeljnim vrednostima, koje se ne menjaju." Edukacija i komunikacija su izuzetno važni u odnosu na promene koje organizacija planira da sprovede. Deo ovih komunikacija mora obuhvatiti ono što je usmereno na jačanje morala, zaštite sopstvenih vrednosti, izgradnju kredibiliteta i smanjenje potencijalnih otpora. Isto tako, pored opisivanja vizije (ono kako će organizacija izgledati nakon promena), važno je da se komunicira o tome šta će biti sačuvano. Jednako važan je i komunikacioni odnos ili veza između planiranih promena i ukupnog usmerenja organizacije – da li je promena u skladu sa organizacionom misijom, vizijom i vrednostima?

Postoji mnogo stvari koje organizacija ne treba da menja. Te stvari su, uglavnom, u sferi ponašanja ljudi, i uključuju:

- 1. Potrebu za priznavanjem:** Zaposleni treba da budu priznati zbog njihovog doprinosa. Premda promene mogu biti potrebne u organizaciji, radnici moraju da budu sigurni da rade stvari "ispravno" i da promene koje se napravljene nisu rezultat ili odraz njihovog rada [2]
- 2. Potrebu za poštovanjem (uvažavanjem):** Bez obzira šta promene mogu zahtevati, pojedinci u organizaciji moraju da budu tretirani sa poštovanjem (uvažavanjem).

Jedan od načina pružanja poštovanja je da se sa njima stalno komunicira o neophodnosti promene ili promena.

3. **Potrebu za poverenjem:** Zaposleni moraju da imaju poverenje u sopstveni menadžment. Jedan od načina održavanja poverenja u odvijanju promena jeste komunikacija o tome šta će biti sačuvano i koje promene su u skladu sa organizacionom misijom, vizijom i strategijom.
4. **Potrebu za osećajem produktivnosti:** Prema Abrahamu Maslovu i njegovoj "Teoriji hijerarhije potreba", ljudi se bore za samoostvarenje (potrebe da koriste sopstveno znanje i veštine za obavljanje smislenog posla). Promene koje se sprovode moraju da budu u skladu sa usmerenjem i vizijom organizacije i doprinosom pojedinaca [3].
5. **Potrebu za razvojem:** Organizacije moraju da nastave da obezbeđuju mogućnosti zaposlenima i menadžmentu za učenjem i razvojem. Promene mogu da budu povoljna prilika za obezbeđenje ličnog (personalnog) učenja i razvoja [4], [5].

9. "JEDNAČINA PROMENA"

U ranoj analizi i planiranju promena može se koristiti alat koji se naziva "Jednačina promena". Važno je napomenuti da se pomenuta jednačina koristi za ilustraciju i ne može se kvantifikovati. Elementi jednačine su: **C** (željena promena), **F** (situacija u budućnosti (željeno stanje ili vizija) kao rezultat promene), **N** (sadašnja situacija), **P** (plan kako će se raditi od sada u budućnosti) i **R** (potencijal otpor promenama).

Treba napomenuti da bi se R, takođe, moglo označiti kao PL ili percipirani (doživljeni) gubitak. To je, kao što je navedeno, uticaj onih koji vide da će nešto izgubiti kao posledice promena (snagu, prestiž, prednosti, izveštavanje odnosa, nadležnosti i odgovornosti, itd.).

Ako se pozitivan zbir budućnost minus sadašnjost pomnoži sa planom promena i bude veći od potencijalnog otpora, tada su uloženi naponi na promene uspešni:

$$C = (F - N) \times P > R$$

Upravljanje jednačinom promena nameće se kao neminovnost, jer svaki od elemenata im svoje specifičnosti i utiče na drugačiji način na konačan rezultat (ishod) promena. Poznata su četiri koraka u upravljanju elementima jednačine promena.

Korak 1 – upravljanje sa "N"

Prvi korak u upravljanju "Jednačinom promena" bavi se sadašnjom situacijom (N). Lider promena mora da kreira nezadovoljstvo trenutnom situacijom i stvori svest o potrebi za promenom. Na primer, "Kupci se žale na loš kvalitet naših proizvoda. Kao posledica toga manifestuje se pad prodaje i gubitak dobrih kupaca. Ako se ovo nastavi, možemo da zatvorimo fabriku, otpustimo radnike, itd, itd."

Zadatak je da se stvori nezadovoljstvo trenutnom situacijom. Ovde se preporučuje korišćenje edukacije i komunikacije i taktike uključivanja i učestvovanja. Razmenjuju se in-

formacije sa onima koje će uticati na promene, kao što su rezultati istraživanja kupaca, radnih grupa, fokus grupa, itd.

Da bi se ojačao moral, zaštitile druge vrednosti, izgradio kredibilitet lidera promena i pomoglo u smanjenju otpora, važno je da se prizna ono što se stvarno dešava i da ne mora sve da se menja.

Korak 2 – Upravljanje sa "F"

Upravljanje sa "F" predstavlja viziju budućnosti – kako će stvari izgledati posle promena. Ovde je potrebno prikazati benefite promena, kao i šta će biti sačuvano. Cilj je da se stvori i predstavi pozitivna vrednost kretanja u budućnost, da će negativna vrednost biti uklonjena, organizacione potrebe biće zadovoljene i da će se ostvariti vrednost. Isto tako, potencijalnu percepciju gubitka (otpor) treba pretvoriti u korist.

Komunikaciona kampanja treba da obuhvati sledeća pitanja i aktivnosti:

- ☐ Da li će se promeniti način na koji se obavlja posao?
- ☐ Koje nove veštine su potrebne i na koji način će se obezbediti?
- ☐ Da li će ljudi morati da se ponašaju drugačije?
- ☐ Da li promena predstavlja dobru priliku za ljude ili postoje neke negativne posledice?
- ☐ Kako se promene odražavaju na usmerenje i ciljeve organizacije?
- ☐ Promene treba da iskažu konzistentnost sa misijom, vizijom i vrednostima.
- ☐ Fokus na ljude – oni treba da se osećaju uključenim i vrednim.

Korak 3 – Upravljanje sa "R"

Upravljanje sa "R" bavi se uticajem promena i prevazilaženjem potencijalnih otpora ili pretpostavljenog gubitka ili onoga što ljudi misle da će izgubiti kao rezultat promena. Ovde su za korišćenje najprikladnije strategije i taktike učestvovanja – što uključuje one koji će biti "pogođeni" promenama ili predstavnike tih grupa u procesu planiranja promena u cilju da se stekne utisak o željenim promenama.

Korak 4 – Upravljanje sa "P"

Nekompletan plan može doprineti otporu promenama. Stoga, bitno je da plan ispunjava sledeće kriterijume:

1. Plan ne sme biti komplikovan i treba lako da se razume.
2. Plan mora da se doživljava kao izvodljiv i oslikava kredibilitet lidera promena.
3. Plan ne sme da troši veliko vreme i resurse ili da ometa aktivnosti.
4. Plan mora da ukaže na ono što će se sačuvati.

Ostali kriterijumi uključuju ko će biti "pogođen" promenama u procesu planiranja i komunikacije da bi plan bio uspešan i ostvario željene rezultate.

Plan promena treba da uključi sledeće elemente:

1. Opis "N" i "F" – kako organizacija izgleda danas i kako će izgledati posle promena.

2. Plan komunikacija – informisati svakoga o promenama i biti ažuran po pitanju odvijanja promena.
3. Plan prepoznavanja – na koji način će se proslaviti uspeh i nagraditi zaposleni koji su podržavali promene?
4. Vodiči – definisanje procesa, uloga i odgovornosti u cilju smanjenja konflikata i potencijalnih "borbenih snaga".
5. Merenje – identifikacija odgovornosti i praćenje uspešnosti.

Postoje mnogobrojni benefiti (prednosti, pogodnosti) dobrog plana promena. Prvo, on deluje kao putokaz i omogućava da se zna gde organizacija ide, kako će tamo stići i kada je stigla. Drugo, to je instrument komunikacije koji omogućava da svako zna zašto je potrebna promena, pojašnjava eventualne nesporazume, govori zaposlenima šta treba da urade i šta mogu da očekuju. Treće, to je marketinški alat koji omogućava (i podstiče) da se zaposleni zainteresuju i participiraju u promenama [6].

Ostale pogodnosti uključuju: alat za obezbeđenje kvaliteta u kontroli promena, omogućavanje zaposlenima da znaju ko je zadužen za kontrolu, kao i smanjenje otpora pružanjem dokaza da će promene biti uspešne [7].

Ko što se može videti, jednačina promena može biti dobro dijagnostičko sredstvo za analizu i planiranje promena. Iskusni lideri koriste taj alat na početku procesa promena da bi im pomogao u određenju koje grupe mogu biti pogođene i potencijalno otporne na promene i, odavde, izaberu odgovarajuću strategiju i taktiku promena.

I, ako na kraju, ukoliko još uvek postoje nedoumice o sposobnosti da se promene ostvare, upućuje se na citat Drakera: "Pokušaj da napravimo budućnost je veoma rizičan. Međutim, manje je rizičan nego da ne pokušamo da je napravimo" [1].

10. ZAKLJUČAK

Organizacione promene predstavljaju kretanje organizacije iz jednog stanja u drugo. Promena u okruženju često zahteva promene unutar organizacija koje posluju u tom okruženju. Promene u gotovo svakom aspektu poslovanja kompanije mogu naići na otpor, a različite kulture mogu imati različite reakcije na promene i sredstava za promovisanje promena. Da bi se olakšale neophodne promene, treba preduzeti nekoliko koraka da bi se smanjila anksioznost zaposlenih i olakšao proces transformacije. Često, jednostavan čin, uključivanje zaposlenih u proces promena može drastično smanjiti otpor novim metodama. U nekim organizacijama, ovaj nivo uključenosti nije moguć i umesto toga organizacije mogu zaposliti manji broj lidera da promovišu prednosti promene koje će se desiti.

Organizacione promene mogu imati različite oblike. To može da podrazumeva promenu strukture, strategije, politike, procedura, tehnologije ili kulture organizacije. Promena se može planirati godinama unapred ili organizacija može biti prisiljen na promene zbog promena u okruženju. Organizacione promene mogu biti radikalne i brzo promeniti način na koji organizacija funkcioniše, ili mogu biti postupene i spore. U svakom slučaju, bez obzira na vrstu, promena podrazumeva napuštanje starih načina na koji se obavljao posao i prilagođavanje na nove načine. Stoga, u osnovi, to je proces koji uključuje efikasno upravljanje ljudima.

Promene u organizaciji su često od suštinskog značaja da bi ostala konkurentna. Propust da se izvrše promene može da utiče na sposobnost organizacije da preživi. Ipak, zaposleni ne pokazuju uvek pozitivan stav prema promenama. Prema istraživanju koje je 2007. godine sproveo društvo za upravljanje ljudskim resursima (Society for Human Resource Management), otpor zaposlenih prema promenama je jedan od glavnih razloga neuspeha organizacija. U stvari, reakcije na organizacione promene mogu da se kreću od otpora do entuzijazma podršci promenama, s tim da je entuzijazam promenama više izuzetak nego pravilo.

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FINANCING PROBLEMS AS THE GREATEST THREAT FOR DEVELOPMENT OF SMES AND ENTREPRENEURSHIP

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Abstract: The biggest problem of small, medium-sized and entrepreneurial companies, especially those that are just formed, is the financial instability. Difficulties that entrepreneurs and owners of small and medium-sized companies face in accessing financial sources are constant topics in public discussions and reform strategies. However, reform implementation hasn't gotten far away, and financial gap is still big.

Having in mind that research and development is impossible to achieve without financial stability and additional financial sources, it is clear that there is a need for more detailed analysis of the factors that limit the access to financing. The goal of this work is directed to theoretical explanation of the lack of financial sources and adequate financial strategy and policy.

Keywords: financing, development, small and medium enterprises, entrepreneurs

Apstrakt: Najveći problem malih, srednjih i preduzetničkih preduzeća, posebno onih koja su tek formirana, jeste finansijska nestabilnost. Teškoće sa kojima se suočavaju preduzetnici i vlasnici malih i srednjih preduzeća u pristupu izvorima finansiranja stalno su prisutna tema u javnim diskusijama i strategijama reformi. Međutim, u sprovođenju reformi nije se daleko odmaklo, a jaz finansiranja i dalje je veliki.

Imajući u vidu da je rast i razvoj preduzeća nemoguće ostvariti bez finansijske stabilnosti i dodatnih finansijskih izvora, jasno je da postoji potreba za detaljnijom analizom faktora koji ograničavaju pristup finansiranju. Cilj rada usmeren je na teorijsko objašnjenje nedostatka odgovarajućeg finansijskog fokusa i adekvatne finansijske strategije i politike.

Ključne reči: finansiranje, razvoj, mala i srednja preduzeća, preduzetnici

1. UVOD

Prepoznati prave uzroke preduzetničkih nedaća i problema malih i srednjih preduzeća (MSP) nije jednostavno. MSP i preduzetnici žive u takozvanom "svom svetu", pa kada dođu u situaciju "ključa u bravu", ne mogu da veruju šta im se dogodilo. Zapravo, nije lako biti preduzetnik. Tržište se otvorilo i danas preduzetnici moraju da računaju na oštru i nemilosrdnu konkurenciju.

Međutim, mnogi smatraju da su u Srbiji najveći problemi preduzetnika i MSP-a kriza, nemanje para, nenaplaćena potraživanja. Ako se uzme u obzir veličina i značaj sektora MSP i preduzetništva, jasno je da postoji potreba za dubljom analizom faktora koji ograničavaju

pristup finansiranju i za razvijanjem specifičnih rešenja u okviru politika za prevazilaženje takvih ograničenja. Za ovaj strateški važan privredni sektor od ključnog je značaja omogućiti MSP i preduzetnicima pristup izvorima finansiranja po razumnim uslovima koji odgovaraju njihovim poslovnim potrebama.

Treba istaći da se MSP-a i preduzetnici većinom oslanjaju na sopstvene izvore finansiranja, bilo da je reč o finansiranju obrtnih sredstava, bilo o finansiranju investicija. Od spoljnih izvora prihoda najčešće se koriste krediti komercijalnih banaka, a u mnogo manjoj meri krediti državnih fondova i inostrani krediti.

Glavni razlozi oslanjanja na sopstvene izvore finansiranja jesu visoke kamatne stope i bankarski troškovi, kao i dugačke procedure odobravanja kredita. To su razlozi zbog kojih zaduživanje MSP-a i preduzetnika u Srbiji opada, što onemogućava realizaciju investicionih planova. Međutim, dugi periodi naplate i kratki rokovi za izmirenje obaveza i dalje su najveći finansijski problem poslovanja MSP-a i preduzetnika. Više od polovine preduzetničkih organizacija izmiruje svoje obaveze prema dobavljačima u roku kraćem od 30 dana, ali nažalost u istom roku ne uspevaju na naplate svoja potraživanja [7].

2. SADAŠNJE STANJE U POGLEDU FINANSIRANJA MSP-A I PREDUZENTIŠVA

Za veliku većinu MSP i preduzetništva u Srbiji, pristup formalnim izvorima finansiranja radi investiranja i rasta veoma je ograničen i nepredvidiv. Oko 60% MSP-a i preduzetnika navodi da ne koristi kredite iz formalnih izvora. Čak i oni koji svake godine uzimaju kredite – to čine u malom obimu. Polovina MSP-a i preduzetnika uzima kredite od 10.000 evra ili manje, a tek jedna četvrtina njih zadužuje se u iznosu od preko 50.000 evra [4].

Oko 52% ukupne mase MSP čine dugovanja firmi sa prihodom od preko milion evra (8% svih registrovanih privrednih društava). Preostalih 48% dugovanja odnosi se na preduzeća sa prihodima manjim od milion evra (92% registrovanih privrednih društava) [4].

Pristup izvorima finansiranja takođe je neadekvatan za preduzetnička preduzeća u vlasništvu žena i preduzetnička preduzeća u ključnim sektorima kao što su poljoprivreda, predaivačka industrija i građevinarstvo, premda ove grupe mogu da budu održivi i profitabilni zajmoprimci [4].

Opstanak, rast i razvoj MSP i preduzetništva primarno je determinisan mogućnostima finansiranja iz povoljnih izvora. U uslovima ograničenja njihovom pristupu, od izuzetne je važnosti da MSP i preduzetnici budu upoznati sa svim dostupnim alternativama kao i njihovim pojedinačnim prednostima i nedostacima.

Opšti uslovi poslovanja MSP-a i preduzetništva u Srbiji prepuni su administrativnih barijera, prepreka i monopola koji dovode do negativnog trenda da mali procenat malih preraste u srednja i srednjih u velika preduzeća. „Kreirana je negativna poslovna klima u kojoj uspešnost poslovanja u većoj meri zavisi od sposobnosti vlasnika da ostvare razne vrste renti i privilegija, nego od njihovih preduzetničkih i menadžerskih sposobnosti ” [2].

U tom smislu potrebno je da se izvrši promena u privrednom sistemu i da se MSP i preduzetnici više usmere ka tehnološkim i tržišnim inovacijama, a da manje tragaju za raznim subvencijama, privilegijama i sličnim povlasticama, jer one stvaraju iste oblike neravnopravnosti kao i siva ekonomija “ [2].

Pored navedenih činjenica, jaz finansiranja malih, srednjih i preduzetničkih preduzeća nastaje kako na strani ograničenja ponude, tako i na strani ograničenja preduzeća.

Ograničenja na strani ponude su:

- neefikasan izvršni postupak,
- visoki troškovi finansiranja,
- regulatorne smetnje,
- malo alternativnih izvora finansiranja,
- slabost službi koje prižaju podršku,
- ograničena efikasnost države i donatorskih fondova [4].

Ograničenja na strani preduzeća su:

- slabi finansijski kapaciteti,
- stavovi zajmoprimaca i mala sklonost ka riziku,
- slabi kapaciteti za predstavljanje preduzeća,
- slaba pregovaračka pozicija [4].

3. ANALIZA POKAZATELJA POSLOVANJA SEKTORA MSP I PREDUZETNIŠTVA U SRBIJI

Sektor MSP i preduzetništva suočava se sa velikim problemima u svom osnovnom biznis modelu, pri čemu otežani pristup finansijama u tome igra značajnu ulogu. Poslovni modeli banaka utiču na istiskivanje privatnog sektora u odnosu na državni, dok institucionalni investitori inovativnim programima pokušavaju da ublaže disparitet ponude i potražnje za finansijskim sredstvima od strane sektora MSP [5].

Treba napomenuti da je uloga države značajna, ali donosi rezultate samo ukoliko podrazumeva i strukturne reforme. Tokom perioda krize, ključni problemi sa kojima se suočio ovaj sektor odnosili su se na:

- šok na strani tražnje, koji se ogledao u strmoglavom padu prodaje i
- produženje roka naplate potraživanja uz problem njihove konačne naplate [5].

Da bi se pronašlo adekvatno rešenje, neophodno je analizirati pokazatelje poslovanja sektora MSP i preduzetništva i krenuti, najpre, od trenutnog stanja. To bi podrazumevalo analizu strukture privrednih društava za kreditnim proizvodima, kao i prednosti i nedostatke promena određenih poreskih stopa.

Pored analize stanja, mora se obratiti pažnja i na mere koje su preduzele zemlje EU, radi komparacije i prilagođavanju adekvatnih strukturnih mera sa pozitivnim iskustvima. Da bi se implementirale adekvatne mere i pratili pozitivni efekti poslovanja, mora se usaglasiti zakonska regulativa sa posebnim osvrtom na okvir finansijskog tržišta, koji bi trebalo da nadomesti razliku između ponude i tražnje za finansijskim sredstvima sektora MSP i preduzetništva [5].

Ono o čemu svaki preduzetnik i vlasnik MSP mora da vodi računa jeste kreditna sposobnost i kreditni potencijal organizacije koju vodi. One su povezane sa bilansnim kategorijama, tj. veličinom bilansa stanja same kompanije. Pri tome, posebno su bitni parametri

postojeće zaduženosti kompanije. U njihovoj oceni se koriste tehnike racio analize, posebno racija zaduženosti. Postoji više takvih racija, a dva su posebno značajna:

- D/A (*debt to assets*) – odnos duga i ukupne aktive (pasive), što je u stvari parametar ukupne zaduženosti organizacije.
- D/E (*debt to equity*) – odnos ukupnog duga prema ukupnom akcijskom kapitalu, koji pokazuje koliko jedinica akcijskog kapitala dođe na jedinicu duga [1].

Više vrednosti oba racija znače viši stepen zaduženosti, a suviše visoke vrednosti oba racija smanjuju verovatnoću dobijanja kredita od strane banke ili bilo koje druge finansijske institucije. Zato, svaki preduzetnik i vlasnik MSP mora da posveti izuzetnu pažnju praćenju i analizi kretanja visine ovih parametara, posebno ukoliko ima nameru da deo svog poslovanja finansira iz kreditnih izvora.

4. FINANSIJSKO PREDVIĐANJE I ZNAČAJ ZA RAZVOJ MSP-A I PREDUZETNIŠTVA

Nedostatak odgovarajućeg finansijskog fokusa i prave finansijske politike predstavljaju najveću pretnju sektoru MSP-a i preduzetništva, posebno u fazi njihovog rasta i razvoja. Što je novo preduzeće sa brzo rastućim profitom uspešnije, to je opasniji nedostatak finansijskog predviđenja.

Preduzetnici koji započnu poslovne poduhvate, retko kada ne vode računa o novcu. Naprotiv, oni pokazuju tendenciju da budu čak “gramzivi”, pa su stoga koncentrisani, pre svega, na stvaranje profita. Upravo je to pogrešno fokusiranje, koje treba da bude poslednji korak, a ne prvi. Pažnja treba da bude usmerena na obezbeđenje gotovog novca, kapitala i kontrolu ukupnog poslovanja. Zapravo bez tih, prethodno ispunjenih uslova, profit ostaje samo fikcija.

Sa rastom preduzeća, privatni izvori sredstava-fondovi postaju neadekvatni, pa se mora naći pristup do mnogo većih i značajnijih izvora finansiranja. To podrazumeva pre-orijentaciju na zaduživanje, jer postojeća struktura kapitala predstavlja prepreku u daljem uspešnom poslovanju.

Kapital potreban za ostvarivanje rasta može se obezbediti korak po korak, tako da uspeh prethodnog preduzetničkog poduhvata bude istovremeno i podsticaj za investitore da krenu u novi posao. Treba napomenuti da takav sistem funkcioniše jedino kada određeni posao dostigne optimalni obim.

Postoje mere koje Vlada Republike Srbije može i koje treba da preduzima da bi reagovala na efekte finansijske krize i poboljšala uslove finansiranja koji će omogućiti MSP i preduzetnicima da preuzemu značajnu ulogu predvodnika ekonomskog oporavka [6]. Mnoge od ovih mera mogu se uvesti sada, uz manje napore, snažnu saradnju javnog i privatnog sektora i nepokolebljivu posvećenost države.

Preporuke koje mogu da pripomognu finansijskom predviđanju preduzetčkih preduzeća odnose se na:

- unapređenje kreditnog izvršenja,
- uklađivanje finansijskih propisa koji se odnose na aktivnosti MSP i preduzetništva,
- razvijanje alternativnih izvora finansiranja za MSP i preduzetništvo.

Treba zakonski zaokružiti finansijski sektor, pre svega, potrebno je raditi na prepoznavanju alternativnih vidova finansiranja, posebno finansiranja izvoza, i to forfeting, faktoring, franšizing, venture capital.

Jedno od mogućih rešenja jeste i formiranje Kreditno-garantnog Fonda, kao institucije koja treba da podrži MSP i preduzetništvo koji imaju poteškoća u mobilizaciji kolaterala kojeg zahtevaju poslovne banke.

Nedostatak gotovine je "rak rana" i srpskih preduzeća. Nerazumevanje kako se upravlja gotovinom je glavni razlog nelikvidnosti većine naših preduzeća. Posebno kod malih preduzetnika, koji pod gotovinom (cash-flow) podrazumevaju novac koji drže u novčaniku.

5. PODRŠKA DRŽAVE U POBOLJŠANJU PRISTUPA FINANSIRANJA MSP I PREDUZETNIŠVA

MSP neće biti u stanju da zauzmu mesto koje im po pravilu pripada i doprinesu privrednom preobražaju i rastu dokle god se suočavaju sa teškoćama u finansiranju. Iako će usled makroekonomskih činilaca i nestabilnosti u evrozoni i dalje biti opravdan određen stepen opreznosti u kreditiranju, mnogo više treba da se uradi da bi se poboljšali uslovi za finansiranje produktivnih MSP i preduzetništva i na taj način im omogućiti da budu deo rešenja za privredni oporavak. Posebnu pažnju i značaj treba dati alternativnim načinima finansiranja.

5.1. FINANSIRANJE KROZ VLASNIŠTVO NAD KAPITALOM

Suštinski, ovakvo finansiranje je proces prikupljanja sredstava prodajom akcija ili udela neke firme investitorima radi obezbeđivanja pozicija za dalji rast i razvoj biznisa, pri čemu investitori stiču upravljačke interese i prava u toj kompaniji. Ovi modeli finansiranja nisu adekvatni za sve pravne forme organizovanja biznisa, već samo za privredna društva.

Razne vrste institucionalnih ili neinstitucionalnih investitora se profesionalno i/ili iz sopstvenih preduzetničkih ambicija bave ovakvim finansiranjem i trend razvoja te industrije veoma je uočljiv, tako da i prilike postaju sve brojnije.

Ovakvi investitori, za razliku od banaka koje sav rizik prenose na preduzetnika, deo rizika preuzimaju na sebe. Logično je da svaki preduzetnički poduhvat ne mora biti uspešan, pa je, isto tako, logično da ovakvi investitori relativno često ostanu bez sredstava uložениh u neki biznis. Međutim, to ne treba da brine, jer i u ovoj industriji postoje pravila igre koja mogu da učine ovakvo finansiranje profitabilnim.

Ovakvi investitori veoma vode računa o timu i ljudima u koje ulažu, poslovnom modelu, načinima za ostvarivanje prihoda, o potencijalu poslovne ideje da zadovolji potrebe velikog tržišta ili velikog broja potrošača, potencijalu biznisa da se brzo proširi i naglo poraste. Dakle, ovakvi investitori su mnogo više uključeni u poslovanje, često imaju deo upravljačkih prava i/ili kontrolu nad određenim poslovnim funkcijama u firmi. Sve to znači da oni, u suštini, dele rizik sa preduzetnicima (preuzimaju mnogo više rizika od banaka).

Investiranje na ovaj način je najčešće oročeno, jer se investitori profesionalno bave upravo ulaganjem, tako da imaju interes da posle određenog vremena izađu iz konkretnog biznisa prodajući kupljeni udeo, ali po ceni koja je veća od one pri kupovini tog udela.

Izlazak iz biznisa i prodaja udela po znatno većoj ceni osnovni je cilj ovih investitora i osnovno pravilo ove industrije.

5.2. OSTALI NAČINI FINANSIRANJA

Kombinovanje duga i vlasništva – moguće je finansiranje biznisa kombinovanjem duga i vlasništva nad kapitalom. Reč je o situacijama kada finansiranje započinje davanjem kredita, nakon čega se posle određenog vremena i pod određenim uslovima ostatak duga konvertuje u vlasništvo [3].

Bespovratna sredstva – s vremena na vreme, država ili njene institucije kreiraju programe kroz koje, pod određenim uslovima, dele bespovratna sredstva za razvoj poslovanja. Ove situacije su relativno retke i svakako ih treba koristiti kada se za to ukaže prilika, ali ta sredstva najčešće nisu velika ni dovoljna, pa nije preporučljivo zasnivati razvojne planove na takvim programima.

Međunarodni projekti i program – po raspoloživosti ovakvih programa prednjači Evropska unija, koja u svojim budžetskim ciklusima raspoređuje desetine milijardi evra za finansiranje poslovanja. Najveći deo sredstava usmeren je ka firmama koje dolaze iz EU, ali brojni programi omogućavaju i učešće domaćih preduzetnika, posebno u oblastima novih tehnologija. Procedure kojima se dolazi do ovih sredstava su dosta kompleksne, pa je potrebno da firma posveti mnogo rada i vremena da bi se uopšte kvalifikovala za ovakve mogućnosti [3].

6. ZAKLJUČAK

Pored mnogobrojnih preporuka za rešavanje problema finansiranja MSP-a i preduzetništva, ne može se reći da je država ostvarila značajan napredak u pogledu promovisanja malog biznisa. Nažalost, struktura privrede i nove mogućnosti za preduzetništvo još uvek nisu doživele procvat.

Poznato je da se treba usredsrediti na pružanje pomoći u ovom segmentu privrede da bi se obezbedilo finansiranje koje je potrebno za rast i pokretanje privrednog oporavka Srbije. Bolji pristupi izvorima finansiranja omogućili bi MSP i preduzetništvu širinu poslovanja, povećani izvoz, nova radna mesta, a samim tim bi se obezbedilo "zdravlje" čitavog finansijskog sistema.

U suštini rešavanja problema neophodno je sprovesti aktivnosti kojima će se osnažiti institucionalna struktura za upravljanje podrškom i poboljšati informacije o trendovima i prilikama na tržištu, što sa sobom povlači izradu strategijskog plana za korišćenje i integraciju podrške za finansiranje MSP i preduzetništva.

Probleme koji su izazvani nedostatkom znanja i koji za posledicu imaju negativne stavove, kako i neopravdanu percepciju rizika, teško je ukloniti, premda bi njihovim otklanjanjem tržište kredita postalo efikasnije, čime bi se poboljšali ulovi za uzajamno poverenje i transparentnost.

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IMPACT TRANSFORMATIONAL LEADERSHIP ON INNOVATIONS IN ORGANIZATIONS

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Abstract: Liderstvo qualities, such as self-confidence, adaptability, intelligence and conscientiousness are cited as the most important. Researchers have clearly shown that transformational leaders – the ones that are being positive, inspirational and the ones that train and develop their followers – are the best leaders. They are more valuable for their followers and they have teams that perform better. Transformational leaders are, usually, described as enthusiasts, passionate, ingenious and energetic. They are not only dedicated to helping group in achieving its goals, but also to every single member of the group in realizing its full potential.

Assumption of the effect that transformational liderstvo has on organizational level has just recently become a topic of scientific research, and general conclusion is that transformational liderstvo affects significantly and positively on organizational innovations. By using the inspirational motivation and intellectual stimulation leaders have crucial significance in realizing organizational innovations.

Keywords: liderstvo, styles, liderstvo qualities, innovations, organization

Apstrakt: Liderski kvaliteti, kao samopouzdanje, prilagodljivost, inteligencija i savesnost navode se kao najvažniji. Istraživači su jasno pokazali da su transformacioni lideri – koji su pozitivni, inspirativni i koji osposobljavaju i razvijaju sledbenike – najbolji lideri. Oni su vredniji za sledbenike i imaju timove koji ostvaruju više performanse. Transformacioni lideri se, obično, opisuju kao entuzijasti, strasni, genijalni i energični. Oni nisu posvećeni samo pomoći grupi da ostvari svoje ciljeve, nego pomažu svakom članu grupe da ostvari svoj puni potencijal.

Pretpostavka o efektima transformacionog liderstva na inovacije na organizacionom nivou tek nedavno je postala tema naučnih istraživanja, a opšti zaključak je da transformaciono liderstvo značajno i pozitivno utiče na organizacione inovacije. Korišćenjem inspiracione motivacije i intelektualne stimulacije lideri imaju presudan značaj za organizacione inovacije.

Ključne reči: liderstvo, stilovi, liderski kvaliteti, inovacije, organizacija

1. UVOD

Liderstvo je pojava, odnosno pojam koja je predmet pažnje istražavača menadžmenta od druge polovine 20. veka. Pri tom, važno je istaći da stepen pažnje i intenziteta istraživanja ovog fenomena imaju permanentan rast. Liderstvu se danas poklanja izuzetna pažnja i proučavaju ga mnogobrojni naučnici. Pri tom su proučavane karakterne osobine, lidersko ponašanje i situacije u kojima rade lideri. Za liderstvo se vezuju pojmovi autoritet i moć.

Menadžeri određuju koja će se pravila primeniti na ljude koji rade u okviru organizacione strukture, koristeći autoritet i moć koji im po položaju pripadaju. Međutim, ova dva pojma međusobno su isprepletena. Efikasnost menadžera proistekla iz njegovog autoriteta zavisi od njegovog poimanja i umeća upotrebe moći.

Jedna od ključnih odluka za organizaciju jeste način na koji će se formalni autoritet distribuirati na sve nivoe organizacione strukture. Nije dovoljno samo kontrolisati, izdavati uputstva i zadatke, definisati obaveze i odgovornost svakog izvršioca – potrebni su menadžeri koji inspirišu, vode, stvaraju viziju i podsticajno deluju na zaposlene.

Lider je osoba spremna da preuzme rizik upravljanja koji se zasniva na inovacijama i razvoju. Liderstvo je delatnost lidera usmerena na inoviranje poslovanja preduzeća i osvajanje novih tržišta.

2. POJAM I DEFINICIJE LIDERSTVA

Liderstvo se u literaturi definiše na različite načine. Prema jednoj definiciji, liderstvo je "proces podsticanja drugih da preuzmu aktivnosti u pravcu zajedničkog cilja" [1] ili slično, kao "proces kojim pojedinci utiču na grupu pojedinaca kako bi postigli zajednički cilj" [2]. Nešto šira definicija liderstva kaže da je to "proces uticaja na aktivnost organizovane grupe u njihovom naporima definisanja i postizanja cilja".

Iako različite, ove i druge definicije liderstva u osnovi sadrže određene zajedničke elemente, kao što su: liderstvo je proces, javlja se u grupi, uključuje uticaj, liderstvo uključuje i cilj, odnosno postizanje zajedničkog cilja i, najzad, liderstvo podrazumeva neki oblik hijerarhije.

Liderstvo je, pre svega, proces koji se odvija između lidera i njegovih sledbenika, odnosno grupe na koju lider ima uticaj. Dakle, to nije stanje, nego proces. Ali, postoji i povratna veza – sledbenici utiču na lidera.

Treba napomenuti da su ranija shvatanja liderstvo podrazumevala vertikalnu koordinaciju između lidera i njegovih sledbenika, dok najnovija istraživanja ističu potrebu horizontalne koordinacije, čime se dovodi u pitanje peta dimenzija pojma liderstvo koja obuhvata neki oblik hijerarhije.

Nabrojani elementi definicije liderstva ukazuju da na "top-down", odnosno "bottom-up" pristup, koji naglašava međusobni uticaj lidera i njegovih sledbenika. Premda je reč o dvosmernom uticaju, ipak se radi o vertikalnoj koordinaciji, koja podrazumeva određeni vid hijerarhije u grupi. Bez obzira na to da li se radi o formalnoj ili neformalnoj hijerarhiji – lider se nalazi na vrhu hijerarhijske lestvice, a sledbenici na nižim nivoima.

Budući da savremeni koncepti liderstva podvlače potrebu horizontalne koordinacije, može se zaključiti da se navedene definicije liderstva, koje uključuju nabrojane elemente, ne uklapaju u savremeno poimanje liderstva. Savremeni koncept liderstva stavlja u istu ravan lidera i njegove sledbenike. Otuda se u savremenoj literaturi, koja tretira problematiku liderstva neretko ističe da je lider efektivan koliko su efektivni njegovi sledbenici.

Roming naglašava značaj horizontalne koordinacije između lidera i njegovih sledbenika do te mere da ona postaje osnova za novi tip liderstva koji on naziva "Side by Side Leadership" [3]. On ima na umu dvosmerno, uzajamno i interaktivno liderstvo, koje je zasnovano na postavci da sledbenik (koga zove saradnik (engl. contributor)), govori prvi, a lider ga sluša. Potom, lider iznosi svoju ideju dok ga saradnik sluša. Prema Romingu, sledbenik

može biti onaj koji pozitivno sledi uputstva. Sledbenik ne mora da razmišlja, ne mora da doprinosi idejama ili bude odgovoran za uspeh ili neuspeh. Za razliku od sledbenika, saradnik, zajedno s liderom, doprinosi ostvarenju ciljeva i uspeha organizacije. Saradnici prihvataju i izvršavaju poslove koji su im dodeljeni, ali isto tako rade s ostalima, usavršavaju svoja znanja, veštine i ideje, pa su i odgovorni za uspehe ili neuspehe. Lideri, prema Romingu, trebaju saradnike, a ne sledbenike, da bi ostvarili očekivane rezultate. Na kraju, zaključuje da ako se sledbenici tretiraju kao saradnici, liderstvo je zajedničko i obostrano, a radnici su inovativniji.

3. TRANSFORMACIONO LIDERSTVO

Početkom 1990-tih, istraživanju liderstva posvećena su odgovoru na pitanje kako lideri ostvaruju transformaciju. Rikards i Moger [4] ističu da je prelazak sa transakcionih liderskih modela omogućio fokusiranje na lidere kao agente promena koji pružaju ohrabrenje i viziju željene promene. Pošto svi timovi nisu jednaki, autori su pružili vredan dokaz da transformacioni lideri postižu promene tako što dozvoljavaju drugima da učestvuju u njihovom ostvarenju.

Rikards i Moger navode da pojedini autori u svojim studijama ističu da novi zahtevi menadžmenta znanja i inovacija iziskuju novi oblik liderstva koje oslobađa druge za buduću transformaciju. Drugi su izneli pretpostavku da sofisticiraniji menadžeri razumeju haotičnu prirodu procesa odlučivanja koji vodi inovacijama. Ostali su isticali da u dinamičkim uslovima, lideri moraju da pronađu način da ohrabre prilagođavanje, kao i kapacitet za konstruktivno reagovanje tokom promena iz okruženja. U takvim situacijama, liderstvo je manje direktivno, jer lideri moraju da definišu "kuda njihovi sledbenici idu i šta su oni zapravo, jer jedino takav stav ima sličnosti s osećajem stalnosti".

U literaturi o menadžmentu značajna pažnja polaže se transformacionom liderskom stilu i smatra se da on dovodi do organizacionih promena. Jedna od komponenti transformacionog liderstva – harizma – tumači se kao autoritet zasnovan na sposobnosti uticaja na druge zahvaljujući karakteristikama ličnosti pojedinca i šarmu.

Prema Basovoj interpretaciji transformacionog liderstva [5], lider transformiše i motiviše sledbenike na način da ih:

- 1) čini svesnijim važnosti rezultata zadatka koji obavljaju,
- 2) podstiče da prevazilaze sopstvene interese za dobro tima ili organizacije i
- 3) aktivira njihove motive i potrebe višeg reda.

Transformaciono liderstvo transformiše smisao misije timuliše učenje i ispiriše na novi način razmišljanja. Ono je bitno za polsovni uspeh u dužem periodu. Ključevi uspešnog liderstva su:

- poverenje u saradnike,
- razvijanje vizije,
- smirenost,
- ohrabivanje na akciju i prihvatljiv rizik,
- ekspertnost i znanje,
- podržavanje iskrenosti i

- pojednostavljenost.

Najnovija istraživanja u vezi s liderstvom i kreativnošću sugerišu da transformaciono liderstvo može biti izuzetno uspešan mehanizam u povećavanju kreativnosti i inovacija u organizacijama [6], [7], [8]. Ovi autori ističu da transformaciono liderstvo utiče na kreativnost na individualnom nivou, a na inovacije na organizacionom nivou [9].

Takvo lidersko ponašanje služi da motiviše, inspiriše i podrži zaposlene u vremenu neizvesnosti, poput onog u kome organizacija pokušava da poveća učešće u kreativnom ponašanju [10]. Taktike transformacionog liderstva mogu biti korisne u promeni organizacione kulture, poput usvajanja klime koja podržava inovacije (organizaciona kultura i klima su prepoznate kao važni faktori koji u organizacionom kontekstu doprinose kreativnosti zaposlenih).

Kuzes i Posner [11] opisuju pet oblika ponašanja kao karakteristika transformacionog liderstva:

1. modeliranje puta (načina),
2. inspirisanje željenom vizijom,
3. izazivanje procesa,
4. omogućavanje drugima da rade i
5. ohrabrivanje srca.

Transformaciono liderstvo inspiriše zaposlene da stave organizacione potrebe – npr. postizanje konkurentске prednosti putem inovacija ispred ličnih potreba – npr. odbijanje da preuzmu rizik zbog straha od neuspeha [12].

Otkriveno je da nekonvencionalno ponašanje lidera objašnjava promene u kreativnom ponašanju zaposlenih. Ovi nalazi impliciraju da aspekt transformacionog liderstva koje se odnosi na uzor koji lider predstavlja, može biti posebno važan prilikom pokušaja da se inspiriše kreativnost sledbenika.

Slično ovome, u empirijskoj studiji koja je ispitivala vezu transformacionog liderstva, organizacione kulture i klime za inovaciju, jedino su upravljanje željenom vizijom i individualni obzir i podrška predstavljali faktore transformacionog liderstva koji se odnose na klimu za inovacije [13]. Studija implicira da je najvažnija karakteristika transformacionih lidera njihova sposobnost da istovremeno postavljaju inspirativne grupne ciljeve dok vode pojedince kroz kreativni proces.

Što se tiče inovativne klime i kulture, treba naglasiti da one predstavljaju okruženje koje ohrabruje saradnju i eksperimentisanje [6]. Kada neka organizacija poseduje klimu za inovaciju, pozitivni efekti transformacionog liderstva na inovaciju su snažniji [10]. Ovo znači ne samo da transformacioni lideri osnažuju svoje zaposlene, već da oblikuju organizacionu klimu koja nastavlja da ohrabruje kreativnost [14].

4. FAKTORI TRANSFORMACIONOG LIDERSTVA

Basova teorija transformacionog liderstva ima takve performanse da se smatra teorijom koja je nezaobilazna u svakoj teorijskoj ili praktičnoj raspravi o transformacionom liderstvu. Centralna teza Basove teorije transformacionog liderstva sadržana je u njegovom

stavu da transformacioni lideri motivišu sledbenike da rade više nego što se od njih prvobitno očekivalo, a na ovu pojavu deluju brojni faktori.

Najšire prihvaćena i korištena tipologija ponašanja transformacionog liderstva je ona po kojoj se ponašanje transformacionih lidera odlikuje sa tzv. "četiri I" (slika 1): 1) intelektualna stimulacija, 2) idealizovani uticaj, 3) individualizovana pažnja i 4) inspirativno motivisanje [15]. Ove karakteristike sumirane su u tabeli 1.



Slika 1. Faktori tranformacionog liderstva

Tabela 1. Karakteritike i ponašanja lidera

Karakteristika liderstva	Ponašanje lidera
Intelektualna stimulacija	Promovisanje inteligencije Promovisanje i unapređenje novih načina razmišljanja Pomaganje sledbenicima da postanu inovativni i kreativni Promovisanje racionalnosti Proširenje i uzdizanje interesovanja zaposlenih Promovisanje pažljivog rešavanja problema Pružanje podrške inovacijama, autonomiji i izazovima
Idealizovani uticaj	Pružanje vizije Pružanje smisla misije i objašnjenje važnosti kolektivnog smisla misije Ulivanje ponosa Sticanje i inspirisanje poštovanja i poverenja Inspirisanje divljenja i lojalnosti
Individualizovana pažnja	Pružanje lične pažnje Izgradnja odnosa jedan na jedan odnosa sa članovima i tretiranje zaposlenih individualno (pojedinačno, posebno) Obraćanje pažnje na razumevanje i uzimanje u obzir različitih potreba zaposlenih, posebno razvojnih potreba, veština i aspiracija Pružanje priznavanja i ohrabrivanje Razvoj sledbenika Podučavanje (coaching) Pružanje podrške
Inspirativno motivisanje	Komuniciranje visokih očekivanja Artikulisanje uzbuđljivih vizija budućnosti Izražavanje važnih ciljeva (svrha) na jednostavne načine Verovanje u ciljeve, misije i viziju i njihovo ostvarenje i izražavanje (pokazivanje) ovog verovanja Ukazivanje članovima na načine ostvarivanja ciljeva Korišćenje simbola za fokusiranje napora Ohrabrivanje procesa stvaranja ideja Osnaživanje članova da rade u pravcu ostvarivanja vizije

Bass i Avolio [16] smatraju da konstrukcija transformacionog liderstva treba da ima samo tri komponente:

- inspiracioni-idealizovani uticaj,
- individualizovano razmatranje i
- intelektualnu stimulaciju.

Zbog sličnosti i nemogućnosti posebnog merenja u većini slučajeva, u svom modelu oni su spojili harizmu i inspiraciju u jednu komponentu. Međutim, u jednoj ranijoj studiji, Podsakof, Mekenzi, Murman i Feter [17] su proširili model transformacionog liderstva i podelili harizmu i inspiraciju u četiri promenljive:

- identifikovanje i artikulisanje vizije,
- postavljanje očekivanja visokih performansi,
- pružanje modela i postavljanje primera i
- podsticanje prihvatanja ciljeva grupe.

Ipak, izvorna četvorodimenzionalna konstrukcija je još uvek najpriznatiji i najprihvaćeniji model među naučnicima.

5. UTICAJ TRANSFORMACIONOG LIDERSTVA NA INOVACIJE I KREATIVNOST U ORGANIZACIJAMA

Uspešno liderstvo oslanja se na sposobnost pojedinca da efektivno odgovori na promenu i da proaktivno upravlja promenom, tj. da bude kreativan. Imajući u vidu da se jedna promena brzo zamenjuje drugom, lideri moraju neprekidno da budu kreativni [18].

Suština transformacionog liderstva je promena. Zapravo, sam koren ove vrste liderstva podrazumeva znatnu promenu u formi, izgledu ili karakteru, pa i ne čudi da opis transformacionog liderstva uspostavlja direktnu vezu sa kreativnošću. Ponašanja povezana s transformacionim liderstvom su mnogobrojna, kao i njihova veza s kreativnošću, pa pojedini autori smatraju da kreativnost predstavlja jezgro liderskih kompetencija [19].

Na polju kreativnosti, sposobnost da se prati vizija razmatra se kao jedna od primarnih ličnih karakteristika visokokreativnih pojedinaca. Intelektualna stimulacija direktno se odnosi na važnost primene imaginacije u rešavanju organizacionih ili društvenih problema. U ovom pogledu, lideri s namerom angažuju druge u kreativnom procesu kako bi se došlo do promene i inovacije.

Pucio, Mance i Mardok [19] smatraju da transformaciono liderstvo uspostavlja jasnu vezu ka kreativnosti. Kao što su Gumusluglu i Ilsev [9] primetili, "transformaciono lidersko ponašanje podudara se s odrednicama inovacije i kreativnosti, koje uključuju viziju, podršku za inovacije, autonomnost, ohrabrenje, izazov i identifikaciju". Stoga se može zaključiti da od svih liderskih stilova transformaciono liderstvo, po svojoj suštini, predstavlja srž kreativnog menadžmenta i kao takvo, može imati znatan uticaj na kreativnost zaposlenih i organizacione inovacije.

Ponašanje koje proizlazi iz transformacionog liderstva blisko se podudara sa determinantama inovacija i kreativnosti na radnom mestu, poput vizije, podrške za inovacije, autonomije, ohrabrenja, prepoznanja i izazova. Ova liderska ponašanja deluju kao snage koje unapređuju kreativnost: individualizovana pažnja služi kao nagrada sledbenicima pružajući im priznanje i ohrabrenje. Intelektualna stimulacija poboljšava istraživačko mišljenje pružanjem podrške za inovacije, autonomiju i izazov. Inspirativna motivacija "pruža ohrabrenje tokom procesa nastanka i razvoja ideje upućujući sledbenike da slede viziju organizacije [20]. Sve ovo rezultuje motivacijom koju zaposleni osećaju, a koja je važan izvor kreativnosti.

Štaviše, pošto osećanje samoeфикаsnosti vodi ka većem kreativnom učinku, transformacioni lideri koji razvijaju samoeфикаsnost svojih sledbenika pozitivno utiču na njihovu kreativnost. Zaposleni sa poboljšanom samoeфикасношću češće bivaju motivisani na stvaranje novih ideja i rešenja. Osim toga, emocionalne veze koje transformacioni lideri grade sa svojim sledbenicima dovode do viših nivoa kreativnosti. Stoga, zaposleni će pre da odgovore na izazove koje im postavljaju lideri koji pružaju podršku za inovacije, tako što će ispoljavati više kreativnosti tokom obavljanja svojih zadataka, ukoliko postoje emocionalne veze između njih.

O značaju emocija u liderstvu govorio je i Goleman [21] istakavši da nisu uspešni samo oni koji imaju visok inteligencije, nego je bitna emocionalna inteligencija koja se tumači kao sposobnost da se saoseća sa drugim, procenjuje, stvaraju dobri odnosi, da se bude privlačan i sl. Kasnije su Goleman i saradnici izneli tvrdnju da izvorna moć liderstva jeste u ulozi emocionalnog lidera. Upravo situacija kada lideri vode emocije podređenih u pozitivnom pravcu. Tako, uspeh organizacije zapravo direktno zavisi od sposobnosti lidera da ostvari primarnu emocionalnu dimenziju liderstva. Uloga emocionalne inteligencije u liderstvu svodi se na pitanje koliko je lider sposoban da uskladi sopstvenu emocionalnu harmoniju sa grupom i da pozitivnu energiju grupe usmeri u određenom pravcu, stvarajući sinergiju i vodeći organizaciju ka uspehu.

Transformacioni lider prepoznaje svojstvene vrednosti i koristi u podsticanju individualne kreativnosti, jer svojim ponašanja lideri stvaraju radnu klimu koja podržava tuđu kreativnost, ohrabruje pratioce da slede sopstvena rešenja problema, da istražuju složene izazove i ispituju odluke i postojeće prakse.

Inovacije predstavljaju popularnu oblast proučavanja različitih disciplina, počevši od biznisa, ekonomije, inženjeringa, psihologije, javne administracije i sociologije. Inovacije se posmatraju kao na ključni koncept ekonomskog rasta, kreiranja novih industrija i poslova, konkurentne prednosti i učinka kompanija [22]. Iako je većina istraživanja inovacije pružila doprinos novim perspektivama i teorijama, integrisanje ovih istraživanja kako bi se razvile nove teorije postalo je veoma izazovno.

U literaturi se inovacije najčešće definišu i razlikuje od dva slična i povezana koncepta: kreativnosti i promene. Zapravo, pojam inovacije u organizaciji neizbežno uključuje i promenu i kreativnost.

Najveći broj naučnika koji se bavi proučavanjem kreativnosti u kontekstu organizacije odstupa od tradicionalnih psiholoških pristupa i posmatra kreativne ideje i akcije kao elemente inovacije. Ford definiše kreativnost kao "specifični domen, subjektivnu procenu novog i vrednog kao ishod određene aktivnosti" [23]. Za kreativne ideje i aktivnosti kaže da "mogu uticati na procese i ishode koji utiču na mnogostruke nivoe analize i da mogu rešiti dileme koje proističu kroz inovacioni proces". Iz ove perspektive, kreativnost se razlikuje od inovacije i predstavlja prethodnika inovativnog ishoda, odnosno deo inovacionog procesa.

Kreativnost zahteva slobodu i klimu podrške u kojoj su pojedinci nemaju ograničenja prilikom traganja za rešenjima. Inovacija, s druge strane, zahteva sistematičan napor do uspeha. Istraživači su o inovacijama u organizacionom kontekstu razmišljali kao o produktu, odnosno ishodu ili kao procesu. Primarni cilj studija o inovacijama kao ishodu bio je da se odrede kontekstualni, strukturni i procesni uslovi pod kojim organizacije inoviraju. Inovacija kao ishod ima za cilj da kreira nove mogućnosti i doprinese organizacionoj efektivnosti i konkurentnosti. Neki autori tumače inovaciju kao uvođenje novih proizvoda ili usluga na tržište ili uvođenje novih sistema, programa i procesa u organizaciju. Studije koje posmatraju inovaciju kao process ispituju kako se inovacija stvara, razvija, implementira i konačno prestaje tokom vremena. Istraživači inovacionog procesa tretiraju inovaciju kao složenost koja uključuje mnoštvo aktivnosti, odluka, individualnog ponašanja i socijalnih sistema.

Pojam koji povezuje kreativnost i liderstvo je promena. U vremenima krize, neizvesnost je okolnost s kojom se lideri stalno susreću. Zato je 'važan zadatak za lidera da neprestano posmatra okruženje i napravi smisao. Lideri koji pronalaze komfor i sigurnost u stabilnosti imaće poteškoća s preživljavanjem. Umesto toga, lideri sutrašnjice moraju da pronađu komfor u mantri "promena je konstantna".

Menadžment koji ne nauči da inovira, neće potrajati. Zapravo, poslovna (i svaka druga organizacija) danas mora biti projektovana za promene kao normu i treba da stvara promene, a ne samo da na njih reaguje. Inovativni napor zahteva donošenje i sprovođenje različitih politika, pravila i merenja u raznim oblastima. Organizacije koje uče i sposobnost menadžmenta da upravlja takvim procesima čine glavne lozinke novih pobednika uspešnih – inovativnih organizacija. Da bi organizacija u takvim uslovima bila uspešna mora u svoju strukturu da ugradi upravljanje promenama, organizovano napuštanje svega što radi, ali i sposobnost da kreira novo. Sposobnost da organizacija kreira novo, zahteva kontinuirano poboljšanje onog što radi i da organizuje inovaciju kao sistematski proces.

Pretpostavka o efektima transformacionog liderstva na inovacije na organizacionom nivou tek nedavno je postala tema naučnih istraživanja, pa je zaključeno da je transformaciono liderstvo značajno i pozitivno utiče na organizacione inovacije. Koristeći inspiracionu motivaciju i intelektualnu stimulaciju, lideri su od presudnog značaja za organizacione inovacije. Transformacioni lideri promovišu kreativne ideje u svojim organizacijama, a ovo ponašanje odražava "šampionsku ulogu" transformacionih lidera. Oni poseduju viziju kojom motivišu sledbenike, povećavaju njihovu spremnost da izvrše zadatke iznad očekivanja i pružaju im izazov da usvoje inovativne pristupe u svom radu.

Transformacioni lideri takođe mogu imati pozitivan uticaj na uspeh inovacija na marketinškom tržištu. Lideri koji upravljaju snažnom vizijom inovacije i iskazuju osećaj moći i samopouzdanja, nastoje da obezbede tržišni uspeh inovacija. Oni mobilisu sledbenike kako bi obezbedili uspeh inovacije. Upravljanje profesionalcima može zahtevati mnogo više nego što to dopuštaju tradicionalna liderska ponašanja, posebno u odeljenjima za istraživanje i razvoj u kojima je kvalitet umesto kvantiteta kriterijum primarnog učinka.

6. ZAKLJUČAK

Zaključujući analizu transformacionog liderstva može se reći da je ovaj pristup proširio granice poimanja fenomena liderstva, dodajući mu dimenziju emocionalnih i simboličkih aspekata u vezi lider–sledbenici. Sigurno nije koincidencija da u razvijenim zemljama poslednjih nekoliko godina koncepti harizmatiskog i transformacionog liderstva imaju tako značajan uticaj kako u akademskom, tako i u popularnom bavljenju liderstvom. Naime, emocionalni i simbolički aspekti liderstva čine se posebno bitnim u današnje vreme, karakteristično po učestalim promenama koje moderne organizacije moraju preduzimati da bi ostale konkurentne. Stalne promene stvaraju kod ljudi osećaj nesigurnosti i potrebu snažnijeg emocionalnog vezivanja i "prepuštanja" vođstvu izuzetnih, harizmatičnih pojedinaca koji znaju da ih nadahnu i pobude u njima stav prema promeni kao o poželjnom, a ne nužno neprijatnom i traumatičnom iskustvu. Koncept transformacionog liderstva ima značajnu primenu za efektivnost organizacija i trening lidera.

Iz rečenog je očigledno da lideri treba da poseduju neku moć da bi bili efektivni. Ta efektivnost zavisi kako od pravilnog izbora taktike za ostvarivanje uticaja u smislu oslanjanja na raspoloživi izvor moći, tako i od pravilne primeni taktika u pogledu smera delovanja u hijerarhijskom smislu. Isto tako, bitno je voditi računa da se raspoloživa moć primenjuje na etičan način koji će biti u funkciji ostvarivanja ciljeva organizacije i njenih članova. Neke od smernica za razvijanje i korišćenje moći lidera su:

- raditi na razvoju sopstvene kompetentnosti i stručnosti, jer je to najsnažniji izvor moći koji teško da može biti oduzet,
- razvijati dobre radne odnose sa širim krugom ljudi unutar i van organizacije, što obezbeđuje širok prostor delovanja i uticaja,
- kada situacija i položaj to omogućavaju, nastojati da budu velikodušni u nagrađivanju (nagrađivanje nije samo izvor moći, nego može pomoći i razvoju nekih drugih veza),
- u primeni moći kažnjavanja treba biti izuzetno pažljiv, budući da ona dovodi do povinovnja podređenih naređenjima jednostavno iz straha, a ne iz suštinskog slaganja,
- naučiti deliti moć sa drugima,
- naučiti koristiti moć na suptilan i pažljiv način, tako da se minimizuju statusne razlike i izbegne mogućnost negativnog uticaja na samopoštovanje podređenih.

Liderima se, takođe, preporučuje da, zavisno od faze razvoja karijere, treba da prilagođavaju način na koji koriste moć. Neki autori sugerišu da menadžeri u ranim fazama karijere stave poseban akcenat na razvoj široke mreže odnosa i kontakata s drugim ljudima, kao i uspostavljanju kredibiliteta preko pružanja informacija i stručnih mišljenja. Mladim menadžerima se preporučuje da povećavaju svoju "vidljivost" putem dobrovoljnog učešća na izazovnim i popularnim projektima. U kasnijim fazama menadžerske karijere, uz pretpostavku da su već stekli određeni legitimitet kroz formalne pozicije i da su akumulirali druge statusne simbole, pred lidere se postavlja izazov kako da moć koriste na mudar i etičan način, sve u svrhe ostvarenja organizacionih ciljeva i ličnih koristi. Konačno, u završnim fazama svoje karijere, lideri moraju naučiti kako da na pravi način prepuste moć drugima. S tim u vezi, moraju da rade na razvijanju naslednika i pronalaze nove izvore lične moći za sebe.

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INTERCULTURAL DIALOGUE: A PREREQUISITE FOR SUCCESSFUL TOURIST ADAPTATION

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Abstract: For centuries tourism has been one of the most important forms of performing direct contacts between cultures. This process is happening in the most gentle and agreeable manner for all the cultures involved in it. The grounds for considering tourism as an important means for enrichment of cultural diversity are so large that we could hardly indicate a place left untouched by the dialogue between cultures. In this sense there could be found many intercultural relations that can be investigated. The report focuses in particular on the Bulgarian seaside and gives examples of intercultural host-home interactions. Also in this report, the role of intercultural dialogue, communication across different cultures and the influence of individual cultural background are discussed. Particular attention within the scope of this problem is paid to the influences of the national background of tourists (Russian, German and British). The study is carried out reflecting mainly the learning model of the cultures in contact, the cultural diversity and the adjustment process in practice.

Keywords: Intercultural dialogue, intercultural adaptation in tourist context, host-home cultural interaction

1. INTERODUCTION

For centuries tourism has been one of the most important forms of direct contacts between cultures. This process occurs in the most gentle and agreeable manner for all the cultures involved in it. Tourism is conceived as a valuable means of enhancing cultural diversity. Direct intercultural contact can be investigated at a variety of levels. The present study aims to establish the role of intercultural dialogue for the adaptation of foreign tourist in the host culture. The focus on this kind of interaction is actualized by giving prominence to tourists from three different nationalities on the Bulgarian Black Seaside, which gives substantial grounds for further analysis of holiday culture as a whole.

This particular viewpoint results from the consideration of the multi-faceted relations and dialogues between cultures in tourism, where intercultural adaptation may very well turn out to be the critical component. A minor aspect of the scope of the outlined problems concerns the need for cross-cultural adaptation, which brings up the question of how intercultural adaptation transgresses from semblance to assimilation, whether or not it is a threat to cultural diversity and how this process occurs. Such questions naturally emerge if we go deeper into the scope of intercultural adaptation in tourism. This paper treats the positive effect of intercultural adaptation as a result of intercultural dialogue in tourism and of the strong correlation between adaptation and communication processes, i.e. the way intercultural dialogue promotes the processes of adaptation in tourism.

The following analysis is grounded on two key assumptions, namely: 1) The nationality of the tourists does not affect their adaptation in the tourism environment; and 2) The intercultural dialogue in tourism does not depend on belonging to a particular nationality. The confirmation or the rejection of both hypotheses will reveal some essential features of adaptation through intercultural dialogue in tourism. The methodology used is based on qualitative statistical analysis.

2. LITERATURE REVIEW

Modern processes contribute globally to an increased mobility in all areas of life, affecting not only business and education but also leisure. Therefore, in recent years such categories as those of temporary migrant workers, business travelers, students studying abroad, scientists working in foreign countries are in the focus of interdisciplinary research dedicated to cultural differences and conduct and evaluation processes of non-residents [9] [10] [13]. However, few research articles dwell on issues related to tourists behavior in the case of cultural distance [2] [26] [15], cultural expectations of tourism services [14] or acquisition of culture specific knowledge [19]. With greater interest are tackled topics associated with cross-cultural adjustment of tourists [6], communication adaptation [8], and communication accommodation [16]. Generally speaking, the process of adaptation often correlates with other terminological differences but is conceptually synonymous with terms such as adjustment, integration and assimilation. Despite the different degrees of differences between these, they all share an important common aspect – their relation to intercultural processes which affect the purposes of both individuals and groups of people.

Initially, the study of this adaptation was placed within the scope of cross-cultural relationships and fell within the purview of the theory of acculturation [5][17][22]. Adaptation, however, can be perceived not only as a process of pure intercultural dimensions but it can also be understood as: "Inclusion of cultural variables in the Study of Human Evolution" [25]. Adaptation, seen from the perspective of current migration processes is a significant moment in the encounter between individuals from different cultures.

Indeed, there are numerous studies on intercultural adaptation. Still, the researchers put different accents onto understanding this category. As a result, it is difficult to achieve consistency in interpretation. Although adaptation interpretations occur in several directions, they invariably associate it with the development of a sense of empathy, mutuality of values, identity, group affiliation, and even self-identification. The process of adaptation, whether in its cultural, social or psychological aspect, correlates with the feeling of satisfaction with the destination and the hospitality service. Through effective intercultural adaptation tourists gain a sense of comfort; they enter different types of relationships with other travelers or host representatives and communicate successfully even in case of lack of foreign language competence. The rate of interpersonal experiences in different cultural contacts increases and leads to a specific form of intercultural learning. On the other hand, achieving good intercultural relations in the context of tourism largely depends on the positive adaptation of tourists which is an essential part in the discussions of modern travel literature. Interesting aspects of these relations are dealt with in [1] [4] [5] [7] [14] [23].

As [5] claims, adaptation does not mean achieving a better balance in the new environment. In terms of its valency, it may have both positive and negative effects. In the

first case, it is usually argued that a person has adjusted well. However, there are many cases when adaptation can be unsuccessful and the result – negative. Many immigrants, temporary settlers, employees or young people – students, even after living in a new culture for many years, fail to perceive social relations, interpersonal relationships and household routines in the culture of the host community. In other words, we can talk about different degrees of adaptation or quality of adaptability. In the context of tourism in terms of objectives and motivation for traveling we should rather talk about the presence of positive adaptation where intercultural communication and dialogue between communicators play a huge role. This particular viewpoint results from an inquiry into the multiple dimensions, relations and dialogues between cultures in tourism, where intercultural adaptation may well turn out to be the critical component. What is of central interest to this research, however, is not the nature, but the applied aspects of intercultural adaptation in the practice of tourism.

As mentioned above, though the need for cross-cultural adaptation is ancillary to the present research, it will still be considered an important component of the aforementioned intra- and intercultural relations, especially in view of the question how semblance turns into assimilation and whether or not it affects cultural diversity in tourism.

3. METHODOLOGY

A good starting point for understanding the complex nature of intercultural adaptation for visitors in a host culture is to concentrate on the categories influencing the tourist adjustment in the new environment. [18] applies a set of factors to explain the complexity of the Cultural Learning Model. Based on former investigations of [24] the effects of culture shock avoidance and the cultural learning skills, and based on [20] [18], these impacts could be combined as follows: (i) affective (emotional factors) for intercultural learning: empathy and respect; (ii) behavioral factors for intercultural learning: proper behaviors and skills in the new environment and (iii) cognitive factors for intercultural learning: the knowledge of culture and cultural rules or norms.

Without doubt, the factors for the intercultural adaptation are valid in all cases of culture contact and never act separately; therefore they represent a complex setting giving information about intercultural interaction. Because of the complex structure of the suggested categories and their strong reference in the case of tourists' intercultural adaptation, it seems appropriate to accept them as valid for the context of tourism. For the purposes of our analysis we also accept an additional factor, which we define as a communicative one (iv).

So, in the scope of the present study fall 4 main categories with a set of variables, in order to deepen the complex structure of intercultural adaptation in the light of foreign tourists' adaptation. These factors belong as well within the realm of the intercultural dialogue between tourists and host tourism culture. The complex processes of adaptation are being investigated in the following main domains: 1. *adaptation to the location of the hotel*; 2. *adaptation to equipment in the hotel*; 3. *adaptation to the new environment and culture*; 4. *communication with the tourist personnel*; 5. *communication and interaction with other guests*. It should be mentioned that what we identified as the main factors directed the analysis hereafter thus emphasizing the role of intercultural dialogue on adaptation in the scope of tourism relations and should not be understood as generalized processes of intercultural adaptation at all.

4. RESULTS

4.1. CASE STUDY ON INTERCULTURAL DIALOGUE

The case study is qualitative in nature and studied the intercultural dialogue of foreign tourists through the means of tourists' adaptation. A questionnaire was designed to obtain information on the adaptation process of visitors staying at hotels and resorts in South Bulgaria between August and September 2015. Tourists' demographic characteristics were also included as to correlate the role of the main factors enhancing a successful interaction between hosts and visitors.

The questionnaire was divided into two sections. The first section of the questionnaire delivered the usual demo-graphic information from the respondents such as gender, age, nationality, former visits to Bulgaria, duration of the stay and education. In the second section of the questionnaire, we tested the structure of the four dimensional model of intercultural adaptation that had to be presented. Intercultural dialogue includes a complex of factors which are not to be studied apart. Taking this consideration into account, we have only added the communication factor as playing considerable role for the adaptation of foreign tourists.

The profile of the respondents is constituted as follows: 73 Russian, 44 German and 36 English tourists. A total of 151 completed questionnaires were examined. The majority of the respondents surveyed were female tourists (52,3%) and Russian tourists (54%). Over a third of the respondents were between the ages of 35 to 54 (47,1%), and only 13,2 % of the respondents were above 65 years of age and only 18,6% were under 34 years of age.

The study was restricted to the South Bulgarian Coast. The relatively small sample size also limits the generalizability of the study but can nonetheless reveal some specific features of the intercultural adaptation process. The use of quantitative approach alone does not lead to an in-depth understanding of tourist adaptation and intercultural dialogue. However, the current findings open paths for further investigation, namely it can be extended to other destinations and to tourists with different nationalities.

4.2. RELIABILITIES OF THE FACTORS FOR INTERCULTURAL DIALOGUE

The presented results summarize the responses of the three groups of tourists and aim to establish the role of the 4 factors of intercultural adaptation. The survey begins with the aspects which primarily relate to the location of the hotel. From the perspective of the tourists, the location of the hotel and the matter of tourist equipment were crucial factors, that is to say, this result outlines the role of tourist commodification.

The first question of the survey is the question concerning the adaptation of tourists to the location of the hotel and actually refers to the guide/orientating adaptability in general. This issue provides admission to responds as "easily" and "more easily". This assumption is confirmed by the results - 95.8% of respondents have a positive attitude towards the factor "location of the hotel", as 60.3% of them find adaptation as "easy" and 35.5% reveal that adaptation is "rather easy".

Nationality remains a factor with respect to the intensity of cultural adaptation. For the purpose of the study we examined how respondents from the three nations adapt to the location of the hotel. Table 2 illustrates the results obtained:

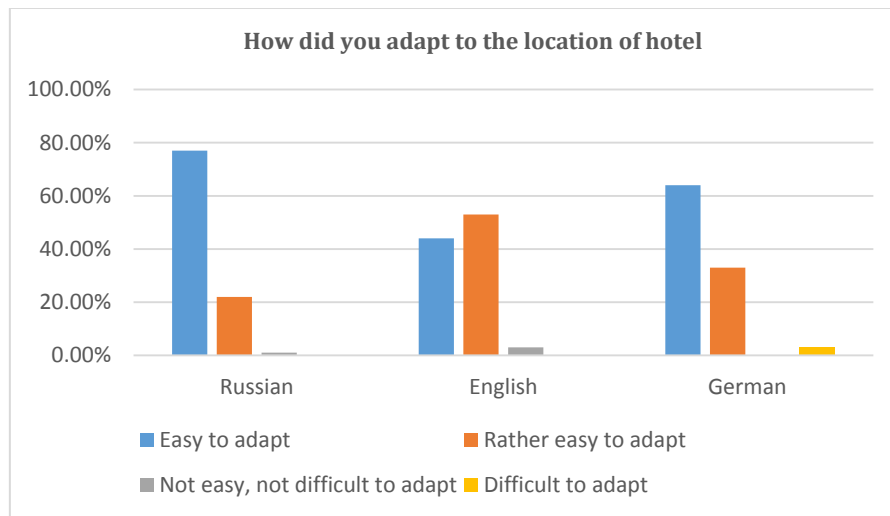


Figure 1. Intercultural Adaptation to the location of the hotel

Russian citizens reveal the highest proportion of respondents who adapt easily where 78% of the total Russian tourists have no problems adapting to the allocation of hotel and other 21.4% adapt “rather easy”. Spatial adaptation is defined as neutral only by 1% of the Russian respondents. The group of German tourists in our survey shows similar distribution – 65% of them adapt easily. For other 33.3% adaptation is almost seamless. There is only one German tourist who has marked spatial orientation relative to the location of the hotel as “rather difficult”. The group of English tourists defined spatial orientation as “easy” or “rather easy”. The distribution of answers observed reveal 44.4% for the first case and the second case takes precedence with 52.8 percent.

Regarding the second question examined “How to adapt to the equipment at the hotel?” and observing the process of homogenization and commodification occurring in the specific tourist culture, again the expectation of the kind of adaptation is an asset to the positive range. This assumption has also been confirmed respectively, which is confirmed by the visualization in Figure 2:

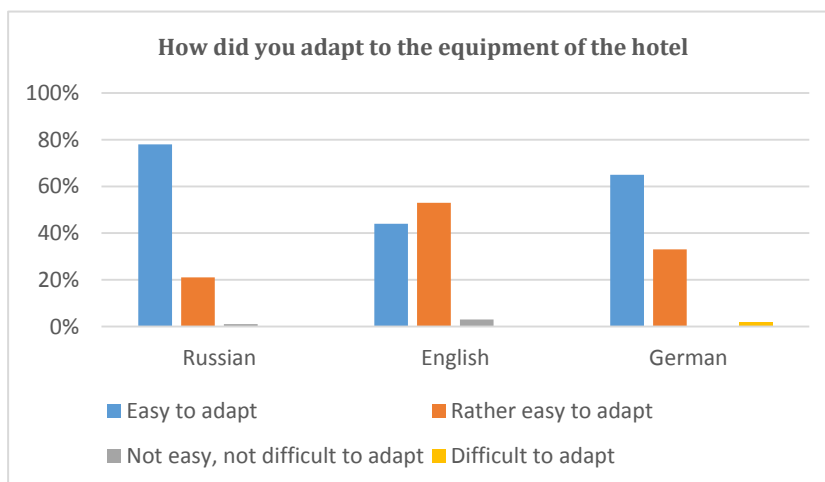


Figure 2. Intercultural adaptation to the hotel equipment

More than half of all respondents, that is 55.6% of respondent tourists indicate an easy mood of adaptation and adjustment to the equipment of the hotel. The statistics based on the nationality affiliation show that 67% of Russian tourists get easily used to the new environment of the hotel. Another 30 percent found that adaptation passes “rather easy”, but only two Russian tourists cannot determine whether adaptation is “neither easy nor difficult”.

The highest values of adaptability to the equipment in the hotel is revealed by respondents in the British tourist group, where according to the answers given 72% of total number of British tourists adapt “rather easy”. The German tourist group have a seamless adaptation - 64% of the total number define the adaptation to the hotel equipment as easy.

The third question from the survey concerns the adaptation of tourists to the Bulgarian culture and tourism environment. As the impact of culture is a complex process, and since in this case the matter correlates with adaptors in terms of tourist culture (under the influences of internationalization, demonstration effects and staged authenticity), results concerning this issue are essential for our analysis. Our basic assumption is that foreign tourists, especially those who do not speak a foreign language, are less able to adapt to the culture and environment in Bulgaria.

On the contrary, our analysis shows that although half of the respondents do not speak any foreign language, they do not indicate problems with adaptation in the tourism environment. Our survey observed 151 foreign tourists and 47.7% define environment as conducive to adaptation, and in addition 41% of respondents state that they have adapted "rather easy". Neutral adaptation is observed by 11.3% of the respondents.

The summary of these answers and the lack of indications of negative adaptation of tourists to the cultural background in Bulgaria definitely support of the claim that the adaptation of German, English and Russian tourists in Bulgaria flows successfully and that they are easily adaptive. Figure 3 below presents the nationality status of the tourists in relation to the rate of adaptation to the new Bulgarian culture:

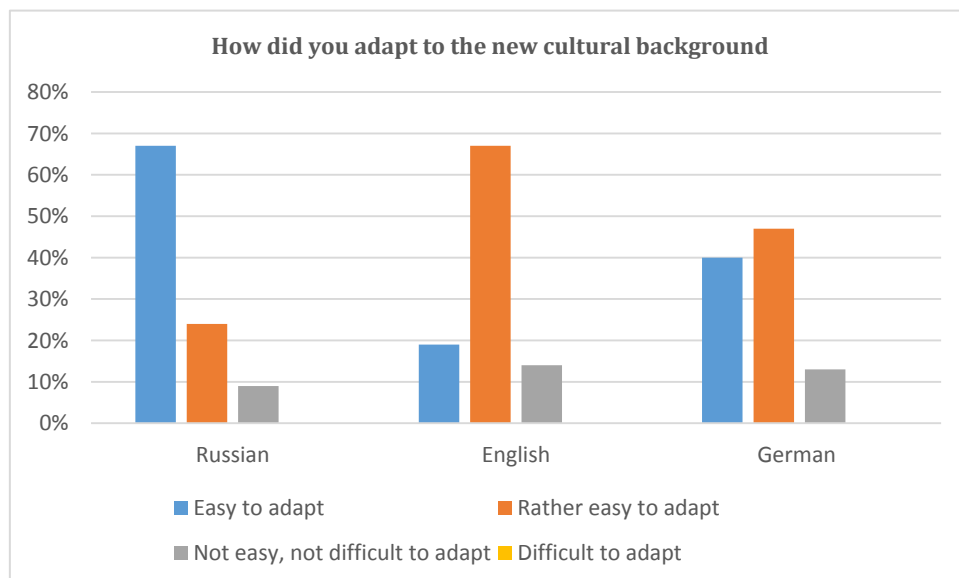


Figure 3. Assessment of the cultural background in Bulgaria

Russian tourists constitute the largest share of people - about 67.1 percent of the total number show easy flow of adaptation to the cultural background. Only 6 tourists (which is 8.6%) of Russian citizenship cannot determine whether adaptation to the new environment in Bulgaria flows easily or with difficult. 47.7% of the surveyed German tourists indicate that adaptation happens “easily”. About 40% state that adapting to the cultural background of Bulgaria was easy, and only 6 tourists have given the neutral answer “neither easy nor difficult”. The group of British tourists, the majority which is 66.7 percent, similarly to the German ones, indicate that adaptation has passed “rather easy”. Other 19.4% are defined as tourists who have adapted easily. There are 13.9 percent remaining who define adaptation as „neither easy nor difficult”.

As the main perspective in our research is focused on intercultural processes in tourism, the respondents' answers in terms of communication are essential for our analysis. The idea of interculturality in tourism is overviewed in both directions: 1. Communication with the host personnel and 2. Communication with other guests. Therefore, the following two questions have been asked: “How to adapt to the tourism staff?” and “How to adapt to communicating with other guests?”.

Overall, the representatives of the three nations say they adapted easily to communication with the hotel staff: 57.6% of all respondents gave such a response. Figure 4 indicates how the representatives of the three groups of foreign tourists have adapted to communication with the tourism professionals:

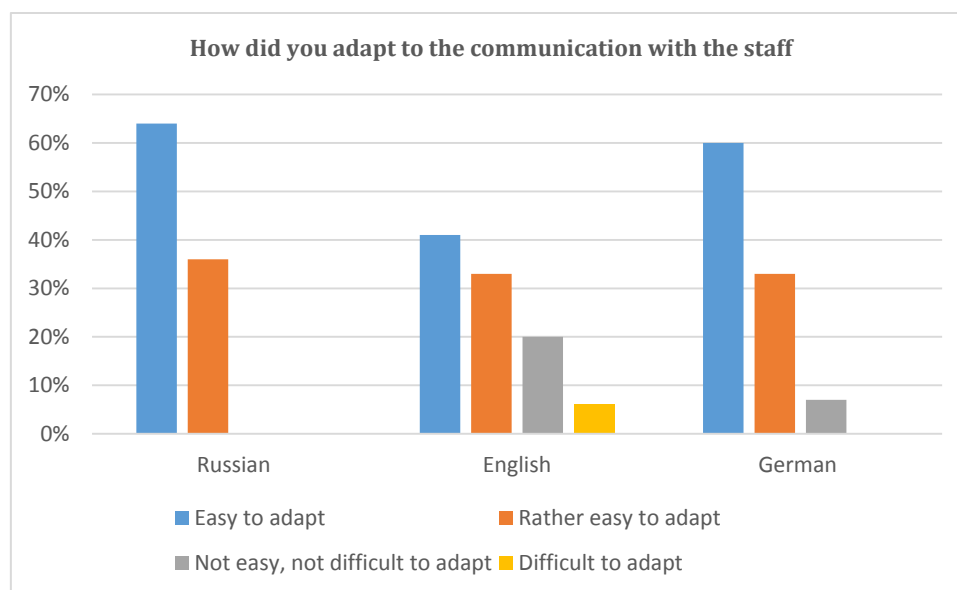


Figure 4. Communication with the tourist professionals

Regarding the nationality factor the most easily adaptive tourists are Russian ones - the answers are entirely positive with answer distribution as follows: 64.3% have adapted easily, and 35.7% have adapted “rather easy”. There is no Russian tourist who has indicated neutral or negative answer to this question.

The next group of tourists who adapt relatively easy to communicating with tourism personnel are the German tourists. About 60% of them find communication with tourist

personnel as easy to adapt to, 33.3% adapt “rather easy” and only 6.7% indicate a neutral response. This group has no respondent who has given a negative answer.

In the case of experiencing some difficulty in adapting to the tourism staff that were encountered by British tourists, 41.7% of them have given precedence to the easy adaptation, 33.3% indicated that adaptation to tourism personnel has passed “rather easily”. Neutral answers has been given by 7 British tourists, which is 19.4 percent of the total number, and two tourists or 5.6 percent of respondents indicate that adaptation took place at “with difficulty”.

The next interesting field of research is the adaptation, which is seen among the visitors from one national group and representatives of other nationality groups, i.e. it is a kind of inner intercultural tourist adaptation. So the last question concerns namely the communication process between different nationality groups of foreign tourists. The average number of all the tourists in the survey assesses their adaptation to communication with other guests as positive (adaptation): 41% of all respondents are “easily adaptive” and another 40% say intercultural adaptation occurs “rather easy”. Neutral attitude to communication, i.e. adaptation that occurs “neither easy nor difficult”, is stated by 16% of the respondents. The distribution of attitudes towards communication to staff according to nationality can be traced in the proposed Figure 5:

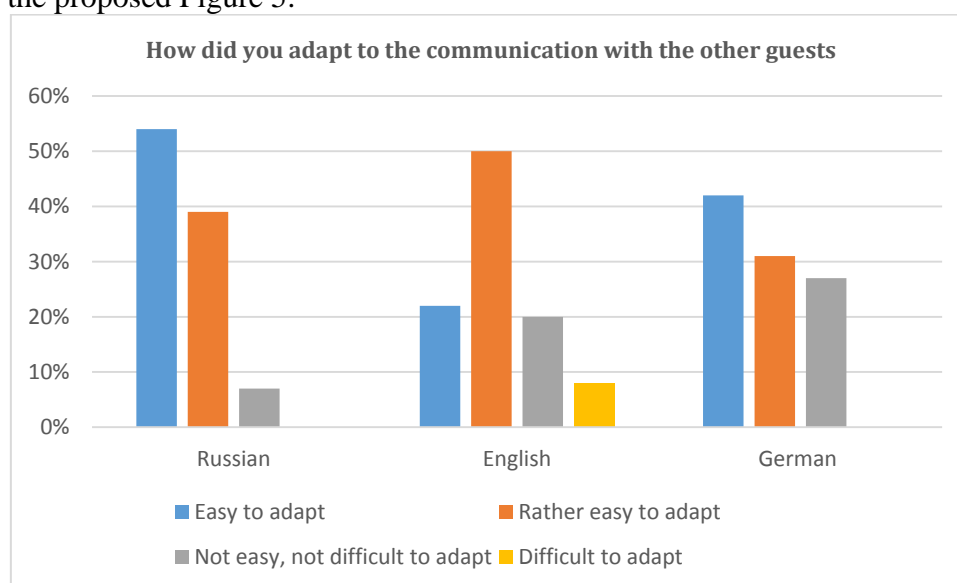


Figure 5. Communication with the other guests

This last stage of the compares the divisions by nationality and the results show that Russian tourists are most easily adaptive - 54.3% adapt easily to communication with other guests and 38.6% adapt “rather easily”. Neutral adaptation show about 7.1% of Russian tourists. Difficult adaptation by Russian tourists is not established. The summary of the results of the groups of German tourists show the processes of adaptation to communication with others guests are divided almost in the same range as positive, more positive and neutral adaptation: 42.2% adapt easily, 31.1 % adapt “rather easily” and 26.7 percent adapt “neither easy nor difficult”. Answers indicating difficult adaptation have not been given. British tourists define 50% of them as “rather easily” adaptive, 22% define themselves as “easily adaptive” and 20 percent are reserved in their assessment. Answers, revealing difficult

adaptation in terms of communicating with others guests are given precisely by British tourists - these are only 8% of the total number interviewed that are 36 British tourists, or 2% of the total foreign tourist respondents.

5. CONCLUSION

In view of the purposes of this study, the establishment of common factors of intercultural dialogue through adaptation of foreign tourists in a host culture can be summarized in several main ways. Based on the obtained results, it is clear that the 4 factors selected for the analysis of adaptation (affective, conductive, cognitive and communicative) should be actually perceived as a complex of factors. The chosen direction of investigating adaptation through intercultural dialogue has been established as appropriate and enables the study and some interesting conclusions. First, the adaptation of foreign tourists even with larger cultural differences, as is the case with British tourists, flows within an easy adaptability. Tourists easily adapt to the location of the hotel, i.e. modern tourists handle tourist space and are able to navigate/ orientate themselves even in a new cultural environment. The percentage for easy and rather easy adaptation reaches 98% of affirmative answers. The indicators for hotel facilities adaptation are also extremely high - 96% for an easy and rather easy adaptation. Easy orientation in the space of a hotel is also a prerequisite for an easy overcoming of insecurity felt in the new environment. In this sense, based on high rates of adaptation to the location and the facilities in the hotel, we take adaptability to the tourist area (location and hotel facilities) as a prerequisite for easier future dialogue between home and host culture. The same direction is attested in the communication processes used in the purposes of tourism development. The communication with tourism personnel is almost unobstructed. So we can state that the highest scores of adaptation achieved are in cases where space and tourist environment is commodified for “visual and aesthetic consummation” (Tazin and Everett). This fact allows us to affirm the existence of specific direct and indirect intercultural communication (by the commoditization of hotel itself, and on the other hand through direct dialogue between guests and the host). Regarding the third factor, the cognitive one, and the specifics of the study, we believe intercultural adaptation can be traced by the attitude of the easy adaptor visitors regardless of their national background. The communicative factor, placed fourth in the study, is one of the leading factors of intercultural adaptation. Guidelines and suggestions for improvements are precisely in the scope of intercultural dialogue. This factor affects, on the one hand, the communication within the personnel of the hotel, and on the other hand - the communication seen through the lens of communicative interactions within other tourist groups. Based on responses to neutral adaptation to the communication in intercultural tourist environment our study determines the necessity for communication processes promotion, and especially between different national groups of tourists because intensifying this kind of relationship would enhance not only the adaptability of tourists, but it will also increase the satisfaction from the host destination. This study on the relationship between adaptation processes and nationality of the tourists has found that intercultural adaptation is an extremely complex process governed by a number of factors that equally affect adaptors where nationality does not have a significant influence upon the gathered results. In the specific intercultural environment tourists successfully pass the phase of adaptation and reach conformity with the new cultural environment. Intercultural tourist atmosphere turns to be a conducive environment for dialogue of people of different nationalities, where cultural distance has no importance.

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SOCIAL AND ECONOMIC COSTS OF ELECTRONIC PAYMENT SYSTEM

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Abstract: This paper presents a case study of the calculation costs for cash management and payment expenses with credit cards in the banking sector, the retail sector and socio-economic costs of the company based on empirical data obtained from the report of the Dutch Central Bank (DNB). On the examples of Netherlands, it explains the overall social and economic costs of the payment system that represent a complex calculation of various parameters which depend on the relative use of available payment instruments of each entity in the market. The costs of the payment system are individually different in the total pay costs of individual transactions and the results shown their correlation. In this study is explained that is possible in a relatively short period of time to make changes that can make the payment system more efficient and to reduce the operating costs of all the participants in the payment system, and overall to reduce the social and economic costs of the company.

Keywords: Electronic banking, operating costs, productivity, payment card, POS

Sažetak: Ovaj rad prikazuje studiju slučaja na primeru Holandije na osnovu empirijskih podataka dobijenih iz izveštaja Holandske Centralne Banke (DNB), na osnovu koga je urađen proračun troškova gotovinskog novca i proračun troškova plaćanja platnim karticama: u bankarskom sektoru, sektoru maloprodaje i socijalno ekonomskih troškova društva. Objasnjeni su ukupni socijalno ekonomski troškovi platnog sistema jedne zemlje koji predstavljaju kompleksnu kalkulaciju različitih parametara koji zavise od relativne upotrebe raspoloživih instrumenata plaćanja svakog entiteta na tržištu u sistemu plaćanja. Troškovi sistema plaćanja se pojedinačno razlikuju u ukupnoj ceni troškova plaćanja po pojedinačnoj transakciji i dobijeni rezultati prikazuju njihovu korelaciju. Studija prikazuje da je moguće u relativno kratkom vremenskom periodu izvršiti promene koje mogu sistem plaćanja učiniti efikasnijim i time smanjiti operativne troškove svih učesnika u sistemu plaćanja, odn. smanjiti socijalno ekonomske troškove društva.

Ključne reči: elektronsko bankarstvo, operativni troškovi, produktivnost, platne kartice, POS

1. UVOD

Cena troškova elektronskih plaćanja i gotovinskih plaćanja izračunata je na primeru Holandije za period od 2002. do 2012. godine. Na osnovu podataka dobijenih iz izveštaja Holandske Centralne Banke (DNB), urađen je proračun troškova plaćanja gotovinskim novcem i platnim karticama u bankarskom sektoru i sektoru maloprodaje. Pomoću dobijenih

rezultata prikazana je njihova korelacija i socijalno ekonomski troškovi društva. U istraživanju su dodatno korišćeni podaci iz izveštaja Evropske Centralne Banke za socijalno ekonomske troškove društva u sistemu plaćanja kao i podaci za operativne troškove različitih sistema plaćanja u Evropskoj Uniji [1]. U istraživanju je učestvovalo 13 centralnih banaka iz sledećih zemalja: Danska, Irska, Grčka, Španija, Italija, Letonija, Mađarska, Holandija, Portugalija, Rumunija, Estonija, Finska, Švedska [2-7]. Istraživanje cene troškova plaćanja prikazuje da su kod plaćanja iznosa većih od 11,63 evra, troškovi gotovinskih transakcija značajno skuplji za društvo u odnosu na elektronska plaćanja debitnim karticama za period od 2002. do 2005. godine. Na osnovu istog istraživanja prosečan iznos plaćanja debitnim karticama je skoro četiri puta veći i iznosi 44 evra [8]. Na osnovu dobijenih podataka za dati period, poslodavci i banke u Holandiji odlučuju da u 2005. godini udruže snage na promociji korišćenja elektronskog plaćanja. U saradnji sa prodajnim centrima, banke postavljaju fondaciju za promociju efikasnog plaćanja koja podržava nekoliko projekata i kampanju na poboljšanju sigurnosti i efikasnosti elektronskog plaćanja. Kampanja je pokrenuta 2007. godine i bila je veoma uspešna, odn. elektronska plaćanja su u sledeće tri godine (2008-2010) zabeležila dvocifreni rast.

2. RAZVIJENOST INFRASTRUKTURE ELEKTRONSKOG PLAĆANJA

Razvoj elektronskog plaćanja zavisi od razvijenosti infrastrukture plaćanja. Kod banaka koje preko filijala svojim korisnicima nude usluge platnih servisa, gde je potrebno da korisnik dođe do svoje lokalne banke kako bi podigao gotovinski novac ili položio depozit na svoj račun. Ovakvi servisi su skupi za banke i zahtevaju dosta manuelnih operacija (popunjavanje obrazaca, potpisivanje, prebrojavanje i provera novca, itd.) od strane službenika banaka.

Nakon pojave ATM-a i debitnih kartica sredinom 1980. godine, platna infrastruktura banaka je pretrpela dramatične izmene [Tabela 1]. Banke instaliraju sve više ATM terminala, ali takođe i racionalizuju filijale. U periodu od 2002. do 2012. godine broj filijala nastavlja da opada (u proseku 4,5% godišnje), dok broj ATM terminala beleži porast.

Tabela 1. Ponuda bankarskih servisa plaćanja u Holandiji, 2002-2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Broj filijala	4.611	4.494	4.348	4.259	4.129	4.106	4.351	3.996	4.017	3.087	2.921
Broj bankomata	7.530	7.556	7.889	7.446	8.114	8.546	8.654	8.506	7.919	7.799	7.607

Sa promenom bankarske infrastrukture sistema plaćanja, od 1990. godine veliki broj prodavaca se odlučuje i prihvata sisteme plaćanja elektronskim karticama i instalira POS terminale [9]. U 2002. godini bilo je 177 hiljada terminala, da bi do 2012. godine taj broj iznosio 279 hiljada POS terminala, što predstavlja prosečan godišnji rast od 4,5%. Elektronske kartice su prvo prihvatile velike organizacije poput benzinskih stanica, velikih robnih kuća i tržnih centara.

Inovacije poput kablovskog ili širokopojasnog interneta značajno doprinosi brzini protoka informacija, što uslovljava pad cena usluga kod provajdera usluga. Vreme potrebno

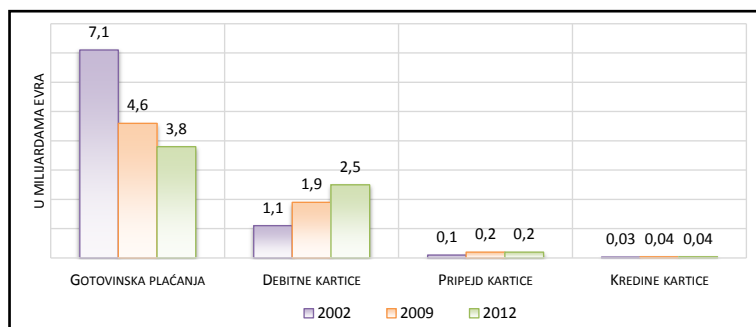
da bi se korisniku saopštio iznos naplate i sam proces potvrde naplate, označava kraj procesa naplate.

Naplata elektronskim karticama je moguća ako prodavac odluči da prihvati elektronski sistem naplate i potrošač odabere elektronsko plaćanje umesto drugih načina plaćanja. Ovaj izbor je pod uticajem različitih faktora, a provizija je jedna od njih [10]. U početku banke nisu naplaćivale troškove održavanja računa korisnika, ali su nakon određenog vremena banke uvele fiksne i periodične provizije koje su se vremenom povećavale. Ove troškove su banke nazvale provizija naplate, a indirektno je značilo da je upotreba elektronskih kartica skuplja od gotovinskog plaćanja [9], što je značajno dobilo na težini kada su pojedini trgovci proviziju plaćanja platnim karticama posebno naplaćivali kao stavku računa. U marketinškom smislu, banke su gore navedeni naziv za proviziju plaćanja promenili u održavanje paketa usluga. Banke su u paket usluga uključili korišćenje tekućeg računa, pristup internet bankarstvu i izdavanje debitne kartice. Kreditne kartice su u početku bile dodatna opcija i posebno se naplaćivala, ali se i ova usluga povezuje sa paketom. Korisnici ne plaćaju troškove transakcije za plaćanje platnim karticama i podizanje gotovinskog novca sa bankomata matične banke. Sa porastom konkurentnosti, banke su u ove pakete usluga uključivale neku od svojih usluga ili su promovisale nove elektronske usluge, poput besplatnog SMS oglašavanja koji bi bio uključen u cenu paketa.

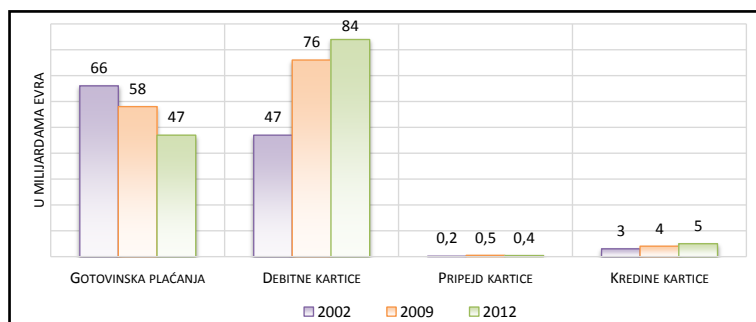
3. PRORAČUN SOCIJALNO EKONOMSKIH TROŠKOVA

Kod zemalja sa POS sistemima za plaćanja, proračun socijalno ekonomskog troška urađen je analizom podataka za period od 2002. do 2012. godine, i izračunat je iznos uštede plaćanja putem POS terminala sa stanovišta klijenata mereno sa jedne strane i sa stanovišta prodavaca i finansijskih institucija mereno sa druge strane. Na osnovu ovih proračuna dobija se podatak koji dokazuje da je moguće u relativno kratkom vremenskom periodu izvršiti promene koje mogu sistem plaćanja učiniti efikasnijim i koje smanjuju operativne troškove svih učesnika u sistemu plaćanja, odn. da se smanjuju socijalno ekonomski troškovi društva.

Slika 1 i 2, prikazuju zastupljenost načina plaćanja u POS sistemima u Holandiji u periodu od 2002. do 2012. godine. Debitne kartice su najčešći način korišćenja elektronskog novca, mogu da se koriste za podizanje novca i za plaćanja na POS terminalima. Ostali načini plaćanja kao što su pripejd elektronske kartice ili kreditne kartice su malo zastupljeni načini plaćanja u POS sistemima.



Slika 1. Broj plaćanja na POS terminalima



Slika 2. Iznosi plaćanja na POS terminalima

U POS plaćanjima kreditne kartice prosečno učestvuju ispod 6% po obimu plaćanja u poređenju sa debitnim karticama u periodu od 2002. do 2012. godine, dok se čekovi više ne koriste u Holandiji. Prikazani podaci pokazuju opadanje ukupnog broja transakcija u POS plaćanjima. Postoji više razloga za ovaj trend, ali najznačajniji je da korisnici kupuju više proizvoda na jednom POS terminalu, umesto da posećuju više POS terminala, odn. izvršavaju manji broj plaćanja. Od drugih razloga najznačajniji je povećan broj onlajn kupovina, kao i uticaj ekonomske krize koja je smanjila potrošnju [11].

Kada su u pitanju iznosi plaćanja, rezultati prikazuju trend opadanja upotrebe gotovinskog novca, dok se u POS sistemima sve više koriste platne kartice, od kojih su nakon 2009. godine sve više u upotrebi debitne kartice. Kada poredimo iznose plaćanja, dolazimo do zaključka da su u 2002. godini gotovinska plaćanja korišćena za 32% više od elektronskih plaćanja, da bi u 2012. godini elektronska plaćanja preuzela primat i njihova je upotreba za 90% veća od gotovinskih plaćanja, posmatrano po iznosima plaćanja.

Tabela 2 prikazuje broj transakcija i iznose podizanja gotovinskog novca na bankomatima i šalterima banaka. Podaci predstavljaju ukupne iznose potrošača i privrede i u prikazanim izveštajima vidi se da od 2006. godine korisnici sve manje podižu novac sa svojih računa. Nakon 2008. godine broj podizanja gotovinskog novca se značajno smanjuje za 11%. Od 2007. godine iznosi podizanja su takođe smanjeni sa 72 milijardi evra na 55 milijardi evra u 2012. godini.

Tabela 2. Podizanje gotovinskog novca u Holandiji: ATM i šalteri banaka, 2002-2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Broj transakcija (u milionima)											
Bankomati	493	494	484	471	475	469	473	455	434	437	425
Šalteri banaka				16	14	13	12	10	7	6	5
UKUPNO	493	494	484	487	489	482	485	465	441	443	430
Iznosi (u mlrd. evra)											
Bankomati	53	51	51	55	55	56	55	54	52	52	50
Šalteri banaka				16	15	16	16	11	6	5	5
UKUPNO	53	51	51	71	70	72	71	65	58	57	55

Troškove provizije za prodavce i privredu, banke naplaćuju posredstvom diferenciranih sistema fiksnih provizija za paket usluga plaćanja i transakcija u zavisnosti od broja transakcija i iznosa koji se obave. Plaćanje platnim karticama postaje jeftinije u sektoru maloprodaje zato što banke troškove provizija stalno snižavaju od 2003. godine. U 2010. godini troškovi bankarske provizije su iznosili u proseku 4 evro-centa [12] i predstavlja nisku cenu u poređenju sa drugim delovima Evrope [13]. Sa druge strane, povećavaju se naknade za gotovinska plaćanja, što gotovinski novac čini skupljim za trgovce. Smanjenje provizija od strane banaka, smanjilo je i broj trgovaca koji naplaćuju proviziju platnim karticama krajnjim kupcima sa 22% u 2006. godini, na 2% u 2011. godini [14]. Ovo značajno podstiče korisnike da platne kartice koriste frekventnije i za njih cena troška plaćanja platnim karticama nije veća od cene gotovinskog plaćanja.

4. KALKULACIJA CENE TROŠKOVA U SISTEMU PLAĆANJA

Definicije koje će se koristiti za kalkulaciju cene troškova u sistemima plaćanja [8]:

Eksterni troškovi (T_{ext}) = transferi (naknade, tarife,...) prema drugim posrednicima u sistemu plaćanja.

Interni troškovi (T_{int}) = svi ostali troškovi koji pripadaju servisima plaćanja (usluge telekomunikacionih kompanija, kompanije za prevoz novca, osiguravajuće kompanije, štampanje novca, itd.)

Ukupni troškovi (UT) = $T_{int} + T_{ext}$

Prihodi (P) = transferi (naknade, tarife,...) od strane posrednika u sistemu plaćanja

Operativni troškovi (PT) = $UT - P$

Društveni troškovi (DT) = suma svih internih troškova posrednika u sistemu plaćanja

Relacija $Z_{i \rightarrow j}$ označava transfer veličine Z od strane sektora i prema sektoru j . Sektor p u relaciji predstavlja potrošače i oni nemaju uticaj na relaciju internih troškova prema sistemu plaćanja, ali su sa druge strane oni suočeni sa eksternim troškovima, jer drugi participanti u lancu plaćanja primaju novac od njih, odn. ostvaruju prihod. Tabela 3 prikazuje eksterne troškove i prihode prema vrsti posrednika u različitim sektorima.

Tabela 3. Eksterni troškovi i prihodi prema vrsti posrednika

	INTERNI TROŠKOVI	EKSTERNI TROŠKOVI	PRIHODI	OPERATIVNI TROŠKOVI
CENTRALNA BANKA	$T_{cb,int}$		$P_{cb} = Z_{b \rightarrow cb} + Z_{t \rightarrow cb} + Z_{p \rightarrow cb}$	$T_{cb,int} - P_{cb}$
BANKE	$T_{b,int}$	$T_{b,ext} = Z_{b \rightarrow cb} + Z_{b \rightarrow t}$	$P_b = Z_{t \rightarrow b} + Z_{p \rightarrow b}$	$T_{b,int} + T_{b,ext} - P_b$
SEKTOR MALOPRODAJE	$T_{t,int}$	$T_{t,ext} = Z_{t \rightarrow b} + Z_{t \rightarrow cb}$	$P_t = Z_{b \rightarrow t} + Z_{p \rightarrow t}$	$T_{t,int} + T_{t,ext} - P_t$

Banke plaćaju određene usluge prema centralnoj banci (npr. za proviziju štampanja novca). Ovi iznosi predstavljaju eksterne troškove za banku, a prihode za centralnu banku. Bankarski sektor je od glavnog značaja za distribuciju gotovinskog novca. Bankomati i filijale su glavni distribucionni kanali za potrošače i trgovce. Periodično, sektor maloprodaje polaže novčane depozite u banku i to zahteva dodatno prisustvo drugih sistema obezbeđenja za

banku (npr. angažovanje ljudskih resursa koji koštaju banku). U slučaju gotovinskog novca potrebno je dodatno angažovanje u vidu provere autentičnosti, prebrojavanja, sakupljanja i skladištenja novca, pre nego što se novac transportuje u centralnu banku ili distribuira drugim filijalama. Bankarske aktivnosti vezane za elektronske sisteme naplate sačinjavaju: produkcija i distribucija elektronskih kartica, garancija bezbednosti, servisi za potrošače, upotreba među-bankarskog mrežnog sistema za procesiranje elektronskih transakcija, a svi troškovi vezani za navedene aktivnosti predstavljaju interne troškove banke.

Eksterni troškovi banke u vezi su sa prenosom novca u centralnu banku. Banke imaju prihode i od gotovinskog novca i od elektronskih kartica. Ovi prihodi predstavljaju fiksne periodične prihode za paket usluga koje banka nudi korisnicima, zatim naplata provizija po transakcijama, bilo u obliku fiksnih iznosa po transakciji ili u procentualnom iznosu od vrednosti transakcije (ovo je češći slučaj za podizanje novca ili plaćanje računa). Provizija troška korisniku mora biti jasno naznačena od strane banke. Ipak postoje i nevidljivi troškovi kao npr. datumi vrednosti valute, kada se prihodi na uloženi novac ne izračunavaju odmah (recimo u slučaju transfera između dva potrošača), jer se datumi debitiranja i kreditiranja njihovih računa ne poklapaju.

Interni troškovi se mogu podeliti na fiksne i varijabilne troškove. Ovo je veoma značajno za procenu koji instrument plaćanja je produktivniji za određenu vrstu i iznos transakcije, a samim tim se smanjuju operativni troškovi poslovanja banke. Fiksni troškovi predstavljaju troškove koji nisu u direktnoj srazmeri sa načinom izvođenja transakcije ili generisanim iznosom sa određenim sredstvom plaćanja. Primer fiksnog troška je npr. trošak banke u izradi elektronske platne kartice. Varijabilni troškovi imaju određenu zavisnost. Neki od varijabilnih troškova zavise od toga da li je transakcija obavljena ili ne (npr. telekomunikacioni troškovi), dok su drugi u zavisnosti od veličine iznosa na koju je transakcija urađena. U slučaju gotovinskog plaćanja, varijabilni troškovi rastu sa iznosom (prebrojavanje papirnog novca i kovanica, povećanje rizika skladištenja i transfera novca sa porastom iznosa transakcije, itd.), dok je kod elektronskog plaćanja značajno samo da li je transakcija uspešno obavljena.

Socijalno ekonomski trošak društva prikazan je u Tabela 4 za period od 2002. do 2009. godine grupisan po sektorima: centralna banka, banke i sektor maloprodaje.

Tabela 4. Društveni troškovi gotovinskog novca i debitnih kartica, 2002-2009

	2002		2009	
	Gotovinska plaćanja	Debitne kartice	Gotovinska plaćanja	Debitne kartice
<i>(u milionima evra, ako nije drugačije naznačeno)</i>				
Ukupan broj transakcija (u mil. evra)	7.066	1.069	4.579	1.946
Ukupan iznos (u mlrd. evra)	66,3	47,2	58,1	76,1
Prosečna vrednost transakcije (u evrima)	9,37	44,13	12,69	39,07
Društveni troškovi nastali od posrednika:				
Troškovi centralne banke DNB	70	-	73	-
- Fiksni trošak	30	-	32	-
- Varijabilni trošak	40	-	41	-
Troškovi banke	895	268	865	322
- Fiksni trošak	351	211	420	239
- Varijabilni trošak	544	57	445	83
Troškovi trgovaca	1.157	252	850	295
- Fiksni trošak	497	99	192	48
- Varijabilni trošak (T)	417	153	321	247
- Varijabilni trošak (P)	243	0	337	0
Ukupni troškovi	2.122	520	1.788	617
- Fiksni trošak	878	310	644	287
- Varijabilni trošak	1.244	210	1.144	330
Ukupni trošak gotovinskog novca i debitnih kartica	2.642		2.405	
% GDP Holandije	0,57%		0,42%	

Analiza podataka prikazuje da je ukupan socijalno ekonomski trošak društva smanjen za 237 miliona evra (sa 2.642 miliona u 2002. godini na 2.405 miliona evra u 2009. godini), odn. da ovaj trošak opada oko 1% godišnje. Razmatrani su ukupni prosečni troškovi po domaćinstvu godišnje i oni su iznosili 380 evra za 2002. godinu i oko 330 evra za 2009. godinu. To predstavlja nominalnu redukciju troška po domaćinstvu za oko 50 evra i predstavlja mogućnost smanjenja troškova za krajnjeg potrošača od strane davaoca bankarskih usluga.

U periodu 2002. do 2009. godine sektor maloprodaje i bankarski sektor je smanjio svoje troškove u sistemu plaćanja, povećana je upotreba debitnih kartica, dok su društveni troškovi debitnih kartica porasli za 18,6% u periodu od 2002. do 2009. godine. Upotreba debitnih kartica je porasla za 82%, a ukupna potrošnja putem debitnih kartica povećana za 61,22%. Ovo pojava se objašnjava time da je prosečna potrošnja gotovinskim novcem po transakciji porasla na 12,69 evra po transakciji, dok je prosečna potrošnja po debitnim karticama po transakciji pala sa 44,13 evra na 39,07 evra po transakciji. Potrošači kupuju više proizvoda na jednom mestu, što za rezultat daje povećanje prosečne transakcije gotovinskim novcem. Uticaj inflacije, takođe utiče na rast iznosa potrošnje gotovinskim novcem.

U prikazanim rezultatima, postavlja se pitanje kako je sektor maloprodaje uspeo da ostvari veće uštede od bankarskog sektora. Odgovor leži u činjenici da je većina troškova u bankarskom sektoru fiksni, dok su kod maloprodaje dominantni varijabilni troškovi. Promena u načinu plaćanja kod potrošača ima značajan uticaj na sektor maloprodaje, za razliku od troškova banaka. Drugi razlog može da leži u činjenici da je bankarski sektor teži za proces optimizacije, jer je znatno kompleksniji i vremenski zahtevniji nego sektor maloprodaje. Kod banaka vremenski period za dobijanje rezultata investicija traje od 3-5. godina. Po broju transakcija od 2002. do 2009. godine upotreba gotovinskog novca se smanjila za 35,2%, dok su debitne kartice zabeležile rast od 82% [11].

Tabela 5 prikazuje uticaj razvoja IT industrije i štednje na socijalno ekonomski trošak društva, proporcionalno skaliran sa načinom upotrebe vrste plaćanja. U tabeli je prikazan iznos vrednosti rentabilnosti ispod koje je plaćanje gotovinskim novcem efikasnije, a iznad koje plaćanje debitnom karticom proizvodi manji socijalno ekonomski trošak za društvo. Iz ove empirijske studije (od 2002. do 2009. godine) se zaključuje da u bankarskom sektoru troškovi plaćanja po transakciji pomoću debitnih kartica opadaju za 32%, dok troškovi plaćanja gotovinskim novcem rastu za 46,1%.

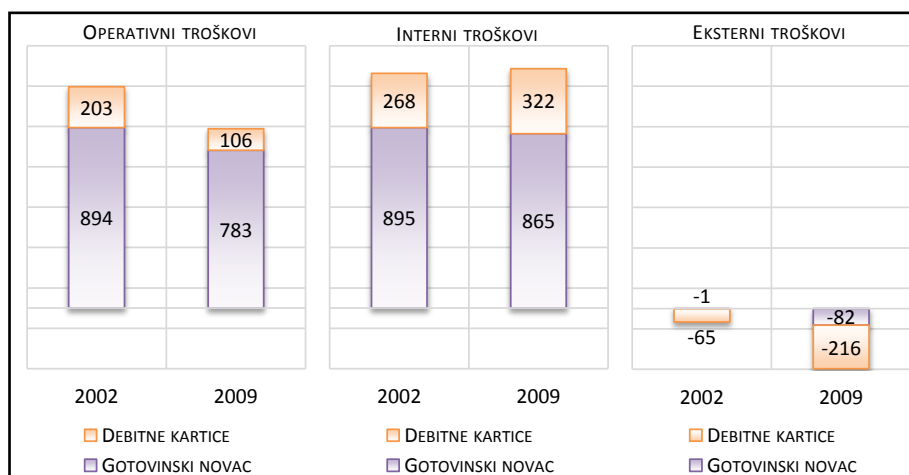
Tabela 5. Troškovi transakcija gotovinskim novcem i debitnim karticama, 2002-2009

(u evrima)	2002		2009	
	Gotovinska plaćanja	Debitne kartice	Gotovinska plaćanja	Debitne kartice
Društveni trošak po transakciji:				
DNB/KNM	0,01	-	0,02	-
Banke	0,13	0,25	0,19	0,17
Sektor maloprodaje	0,16	0,24	0,19	0,15
Ukupno	0,032	0,011	0,031	0,008
Društveni trošak po 1 EUR u prodaji				
DNB/KNM	0,001	-	0,001	-
Banke	0,014	0,006	0,015	0,004
Sektor maloprodaje	0,018	0,005	0,015	0,004
Ukupno	0,032	0,011	0,031	0,008
Trošak za svaku narednu transakciju	0,1117	0,1903	0,1376	0,1643
Trošak za svaki sledeći 1 EUR u prodaji (%/100)	0,0069	0,00014	0,0089	0,00013
Iznos tačke rentabilnosti	11,63		3,06	

Ako se proračun kalkuliše po jednom evru plaćanja u transakciji socijalno ekonomski trošak društva je još značajniji, jer je u 2002. godini gotovinski novac bio skuplji za 233% od plaćanja debitnim karticama po jednom evru plaćanja, dok je u 2009. godini gotovinski novac postao skuplji za 375% od plaćanja debitnim karticama po evru plaćanja.

Dobijeni rezultati prikazuju da je Holandija vrlo slična sa drugim evropskim zemljama, posebno sa Danskom i Švedskom. U istraživanju [15] se navodi da je za Dansku tačka rentabilnosti 3,90 evra između gotovinskog novca i debitnih kartica. Za Švedsku je ovaj podatak još izraženiji, gde je u 2002. godini tačka isplativosti gotovinskim novcem bila 7,80 evra, a za 2009. godinu 1,88 evra [7].

Slika 3 prikazuje da su operativni troškovi kod banaka znatno veći za gotovinski novac, nego za debitne kartice. U periodu od 2002. do 2009. godine, dolazi do pada ovih operativnih troškova za gotovinski novac i trošak debitnih kartica, dok kod internih troškova dolazi do pada troškova za gotovinski novac, ali i rasta troškova za debitne kartice. Zbog pada kamata na gotovinski novac, smanjeno je interesovanje za čuvanje gotovinskog novca, što je posebno uticalo na bankarski sektor. Povećanje prihoda od debitnih kartica je takođe doprinelo smanjenju eksternih troškova za banke. Banke ne samo da imaju veće prihode od sektora maloprodaje, nego su počele da primaju prihode i od potrošača. Nakon 2002. godine, banke predstavljaju periodične fiksne pakete naknada potrošačima za održavanje računa. U ovim paketima se nude i druge usluge banaka, kao što su npr. onlajn bankarstvo.



Slika 3. Operativni, interni i eksterni troškovi banaka, 2002-2009

5. ZAKLJUČAK

Na primeru finansijskog sistema Holandije, na osnovu konkretnih pokazatelja objašnjeno je da plaćanje debitnim karticama značajno povećava produktivnost i smanjuje operativne troškove poslovanja banaka. Sagledani su poslovni aspekti uvođenja elektronskog bankarstva i njegov uticaj na smanjenje socijalno ekonomskih troškova društva.

Generisana je značajna ekonomska ušteda za celokupnu državu promenom orijentacije društva od gotovinskog novca ka elektronskim platnim karticama, inovacijama u sistemima plaćanja, povećanjem kvaliteta infrastrukture, kao i racionalizacijom mreže filijala i bankomata.

Analizom socijalno ekonomskog troška društva, troškova plaćanja gotovinskim novcem i debitnim platnim karticama, u studiji slučaja za period od 2002. do 2009. godine na primeru Holandije i drugih sličnih evropskih zemalja, dokazano je da je za društvo znatno efikasnije i produktivnije plaćanje elektronskim novcem, nego gotovinskim novcem. Cena socijalno ekonomskog troška društva u plaćanju je smanjena sa 0,57% BDP u 2002. godini na 0,42% BDP u 2009. godini. U studiji se jasno vidi porast interesovanja u korišćenju debitnih kartica i smanjenju upotrebe gotovinskog novca. Plaćanje debitnim karticama je značajno jeftinije od gotovinskog novca, za društvo u celini i za same banke, koje imaju poseban interes da promovišu upotrebu platnih kartica. U studiji nije obuhvaćen deo plaćanja posredstvom interneta usled nedostatka preciznih podataka po sektorima, ali ako se uzme računica da je u 2012. godini u Holandiji iznos onlajn transakcije bio preko 10 milijardi evra, dolazi se do podataka da je sve veća zastupljenost elektronskog plaćanja, u odnosu na gotovinska plaćanja.

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THE IMPORTANCE OF SMES INNOVATION FOR IMPROVING THE COMPETITIVENESS OF THE REPUBLIC OF MACEDONIA

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Abstract: Nowadays a lot of scientific researches show that SMEs have a huge contribution for employment, utilization of entrepreneurial abilities, rational use of national and local resources, the creation of added value and the inclusion of the national economy in world trade through their internationalization. That means that they are key drivers of economic growth in the contemporary economies. Their importance is due to their characteristics such as flexibility and rapid production reorientation, entrepreneurial orientation, and especially their creativity and innovation. They represent the most favorable soil where they came to the fore entrepreneurial spirit and innovation processes. From the independence of Republic of Macedonia continuously is increasing participation and importance of small and medium enterprises, not only by their percentage in the total number of enterprises, but also their contribution to the creation of gross domestic product and job creation. Today these enterprises are the most dynamic and efficient segment of the economic structure of the country. With that SMEs are becoming the most important factor for creating competitive economy. From the level of their competitiveness will depend on their future development and their participation in economic development. First they build their competitiveness in the domestic market and then they are expanding their activities in international markets. The competitive advantage of any modern enterprise is based on SMEs ability for innovations in products or production processes. Only through innovation these companies will increase their and competitive advantage of the national economy. Therefore the main task of SMEs is the introduction of innovation in all fields of their activities for adaption to the market needs. Considering all this the main aim of the paper will be through analyzing the importance of small and medium enterprises for the development of the country to realize their competitiveness and contribution for promoting the national economy competitiveness and also to show the necessity of innovation for increasing the competitiveness and economic growth.

Keywords: small and medium sized enterprises, competitiveness, innovation

INTRODUCTION

The basic characteristics of contemporary market economies, such as: free acting of market laws, pluralism in ownership and existence of different kinds of ownership, liberalization of economic entities, development and predominance of financial markets, new forms of contemporary working, applying of new knowledge's, new technologies for providing competitive products in the global market, internationalization of capital and information, are becoming more and more important and getting a role of a key resource for economic development. The entrepreneurship and entrepreneurs increased role creates

conditions, and inevitably puts on necessity for restructuring predominance of business entities in the economic structure in direction for creating and developing the sector of small and medium enterprises. The processes in the surrounding create conditions for more opportunities for the small and medium enterprises, which, thanks to their comparative advantages, such as flexibility, innovatively, creativity, permanent productivity increasing, comply with the newly-created conditions and significantly contribute to total social development.

So, since the last decades of the 20th century, the small and medium enterprises have been experiencing increase of their economic activity, and with that they have been gaining special place in the developing agenda of many countries. According to the results of several researches, today we can note that the small and medium enterprises become one of the key factors for achieving accelerated economic growth and employment increasing. That this is true, the testimony is the fact that in 2014 there were 21,6 million of small and medium enterprises, which represented 99,8% of total enterprises number in 28 members of the European Union. They employed 88,8 million people, or 66% of total employment, and gave 3,666 billions EUR added value or 58% of total added value. Viewed from the other aspect, 99 of 100 businesses in EU are small and medium, they employ 2 of 3 total employed people, create 58 cents of each EUR of added value or on each 2 km of the territory there are 5 SMEs in average.

From all a.m., we can conclude that the small and medium enterprises have characteristics with which they can face the competition and can exist in the more highlighted globalizing processes. Because of that, today they become important segment in the development of every national economy, and therefore, they get eminent role and influence over the economy competitiveness. Furthermore, many studies and researches show that the small and medium enterprises are important for competitiveness because they make more successful diffusion of new technologies, meet the needs of specialized markets more efficiently, are specialized in special products and are highly flexible to the changes in the domestic and global market. The economic theory and empirical studies include the innovations into the key drivers of the economy competitiveness as a whole or of the enterprise as a separate entity of economic growth. The innovation mainly contributes to the productivity increasing and to the products and services quality, making the firms more competitive. In this way, the ability for innovating into different aspects of own working is a basic competitive advantage of each modern company.

In R. Macedonia, from its independence up today, a special attention has been paid to the development of the small and medium enterprises, so they more and more become main driving force of its developing processes. Because of that, in the developing documents and macroeconomic policies of R. Macedonia, on the medium- and long-term, it is predicted that the small and medium enterprises will be important factor for increasing the employment and production. Today, the most of the business entities in R. Macedonia belong to the category of small enterprises. They represent 98% (observatory 2013) of the total number of active firms, which is an important indicator for the participation of this category of enterprises in the country economy. R. Macedonia, in 2013, joined the European chapter for small and medium enterprises (European Commission), with which the main directions for the future development of the small and medium enterprises were drawn up. Concrete details about persistent implementation of that chapter understood acceleration of the processes for harmonizing national legislation with that of the European Union.

For that aim, in 2002, the Government of R. Macedonia brought National strategy for SMEs for the period 2002-2012, while the Agency for supporting the entrepreneurship in R. Macedonia, established in 2003, brings a Program for measures and activities for supporting development of entrepreneurship and competitiveness of small businesses every year. Then, in March 2007, a new Program for development of entrepreneurship and innovativity of the small and medium enterprises for 2007-2010, was adopted. The last changes put on the necessity for innovating and extending the National strategy, and it was updated and it extended its planning horizon up to 2013. Also, new initiatives for matching with the Frame program of EU for competitiveness and innovativity (CIP 2007-2013), were initiated. In December 2015, a new Program for supporting entrepreneurship, competitiveness and innovativity of the small and medium enterprises, was brought in.

According to the established targets in the given notes in the first part of this study, our attention will be directed to the importance of the small and medium enterprises for the economic development of RM, where we shall estimate the working conditions with these enterprises. Then, we shall refer to the importance of the competitiveness of the small and medium enterprises in RM, by its estimation within the Global competitiveness Report on the World economic forum. Then, we shall see innovativity of the small and medium enterprises in R. Macedonia as a determinant for competitiveness of these enterprises, through the marks in the Global Entrepreneurship Index of the Global institute for entrepreneurship and development from Washington. (Global Entrepreneurship Index.

1.COMPETITIVENESS OF SMES IN REPUBLIC OF MACEDONIA

All national economies and each enterprise are interested in achieving higher competitiveness compared to other economies or enterprises. When we talk about the economy competitiveness, it is associated with the country advancement, its wealth, rate of economic growth, living standard and the country ability to place its products in the foreign markets. When we talk about the competitiveness of a special company, we understand the ability of that company to produce and deliver effectively and in continuity products and services preferred by the consumers, and to realize long-term profitability. The competitiveness of each country is also defined as ‘ a sequence of measures, policies and factors that determine the country level of productivity, while the concept of competitiveness includes numerous statistical and dynamic components.

In simple words, the competitiveness can be interpreted as an ability to conquer new markets and we should always have into mind that it is not one-dimensional concept, and this multidimensionality is clearly expressed in the definition given by the European Business Management Forum, i.e.: “ Industrial competitiveness as a measure of current and future ability of the business entity, should shape, produce and sell products which various price and non-price characteristics together give more attractive package than that one of the similar products offered by the competitors, and because of that, it is a final measure for the market competitiveness. The competitiveness is not one-dimensional concept: the buyers estimate better price concerning the bad quality or lack of after-sale services”. [15]

Scientific explanations of this concept, its characteristics and properties, especially emphasise its influence on the country economic development, and examine the factors that affect competitiveness. So, some authors connect the competitiveness with the productivity

most frequently, and stress the innovations role and that the entrepreneurs are the main participants in the process of creative destruction, as a way for achieving economic growth.

While other theoreticians explain competitiveness through the performances of the concrete company. So, according to (Solaris 2011) (Lalinsky, 2013) productivity is crucial for the organizations competitiveness, especially the labour productivity and the capital. While according to (Konstantinidis 2009) (Lalinsky), 2013) the companies profitability as a possibility for reinvesting in order to increase the growth and capacity, is important for their competitiveness. Also, the firm's growth is usually highlighted as a relevant factor for their competitiveness. While Mike Porter in its book 'Comparative advantages of nations' connects the companies competitiveness mainly to the influence of four groups of determinants coming out from the conditions in the national economy. According to him (Porter) the following things are important for the companies competitiveness: factual conditions (availability, utilization and created factorial resources), conditions of the demand (domestic sophisticated consumers), related and accompanying industries (competitiveness of these sectors) and the firms' strategies (the competitiveness in the concrete sector in the country).

While according to other research, functional and strategic competitiveness is more important than the price one. So, as per OECD researches, the key factors determining the competitiveness of the small enterprises, are: [20]

- The role of the owner/manager in the small enterprise competitiveness. The enterprise competitiveness is determined by its strategy, which, on the other hand, depends on the owner's/manager's abilities, responsibility, attitudes and behaviour;
- The ability to get and use scientific and technological information;
- Quality organization of the firm;
- Investments in adequate technology;
- Flexibility

R. Macedonia, in order to offer various forms for supporting Macedonian small and medium enterprises, and first of all, for increasing their competitiveness, has brought several strategic documents, programs and strategies. So, in December 2003, the Agency for supporting entrepreneurship in R. Macedonia, was established. Also, in the "Strategy for partnership of the World bank with R. Macedonia" [19], it is stated that Macedonian business entities must improve their competitiveness, because they adapt themselves to the new market opportunities very slowly, and have very small investments in technologies adaptation, new products development and training, i.e. upgrading of their managers' and total personnel's skills. The researches of the competitiveness of Macedonian business entities, show that since its independence, up today, although as a result of the changes in the society – political and economic system in R. Macedonia, there are conditions for reforms in the economy implementation, however, some more significant progress concerning increasing their competitive ability, has not been made.

The World economic forum, on the basis of Klaus Schwab's original idea from 1979, in 2005 started publishing The Global index of competitiveness, developed by Xavier Sala-i-Martin in collaboration with the Forum. After the changes in 2007, the methodology has

remained unchanged. According to this report, the competitiveness is defined as a sum of institutions, policies and factors which determine productivity level of the economy. The Global index of competitiveness combines 114 indicators considered to comprise the productivity essence. Those indicators are grouped into 12 columns, i.e.: institutions, infrastructure, macroeconomic environment, health and primary education, high education and training, effectiveness of the goods market, labor market effectiveness, development of the financial market, technological preparedness, market size, business sophistication and innovativity. They are organized in three sub-indices according to the main stages of development: basic needs, efficient increase and innovativity and sophisticated factors. The three indices and the appropriate indicators have different difficulty in estimating the total index of competitiveness.

In table No 1 we shall show the mark in the global index of R. Macedonia for the period of time from 2010 to 2015, and at the same time, we shall give side-review of R.Macedonia place compared to other countries in its neighbourhood. (Albania, Bosnia and Herzegovina, Croatia, Bulgaria, Montenegro and Romania).

Table 1

Year	2010		2011		2012		2013		2014		2015	
Country	degree GCI	rang	degree GCI	rang	degree GCI	rang	degree GCI	Rang	degree GCI	rang	degree GCI	rang
	Croatia	4.0	77	4.1	76	4.0	81	4.1	75	4.1	77	4.1
Bulgaria	4.1	71	4.1	74	4.3	62	4.3	57	4.4	54	4.3	53
Montenegro	4.4	79	4.3	60	4.1	72	4.2	67	4.2	67	4.2	70
Romania	4.2	67	4.1	77	4.1	78	4.1	76	4.3	59	4.3	53
Albania	3.9	88	4.1	78	3.9	98	3.8	95	3.8	97	3.9	93
Serbia	3.8	96	3.9	95	3.9	95	3.8	101	3.9	94	3.9	94
Macedonia	4.0	79	4.1	79	4.0	80	4.1	73	4.3	63	4.3	60

Source: The World Competitiveness Report, (2010,2011,2012,2013,2014,2015).

According to the published data for the Global index of competitiveness , R. Macedonia in the last report for 2015 , is better ranked than the previous year. So, as per the last data, R. Macedonia is on the 60th place on the rank list of 140 countries. The previous year, it was ranked on the 63rd place , which means that its ranking has been improved by 3 places. From the table, it can be seen that for this period, R. Macedonia , according to the innovativity index, sees progress, namely, in the first report it was ranked on the 79th place , while in the last report, it is ranked on the 60th place, which means jump by 19 places in the ranking.

While, in comparison with other countries in the region, R. Macedonia is better ranked only than Serbia, Albania, Montenegro and Croatia, and is lower ranked than Bulgaria and Romania. The best ranked countries in this region are Bulgaria and Romania, and according to the last report they are ranked on the 53th place. Serbia and Albania are the worst ranked , i.e. on the 94th and 93th place respectively and are assessed as the least competitive countries compared to the countries in this region.

As the most frequent reasons for the low competitiveness of the business entities in our country, the following ones are mentioned: most of them are classic exporters, i.e. most of them are established in the sphere of trade, and the products of the small and medium enterprises are not recognizable in the foreign markets; low promotion activity, which is unfortunately usually directed only towards domestic market; inappropriate structure of the products range and export offering, inappropriate quality, design and packing; absence of international standards applying; inappropriate information and knowledge; inadequate organization of the products marketing; lack of financial support; absence of access to information on local, regional, state and international level; lack of appropriate institutional support etc. [7]

2. THE IMPORTANCE OF INNOVATION FOR SMES COMPETITIVENESS

Economic theory and empirical studies have shown that innovations are among the key drivers of the economic growth. They significantly contribute to productivity increasing and the products and services quality, making the firms more competitive. In fact, in the dynamic environment, the small and medium enterprises competitiveness depends on the rate at which new products can be presented in the market and on the occurred costs for saving and performed improvements. The innovation is and will be driving force of dramatic changes.

As written by Drucker “entrepreneurs in general bring innovations. They represent specific instrument of entrepreneurship. Innovation represents activity that impregnates the existing resources with new capacities for creation of resources“. Innovation sometimes may result in brand new, unknown product or replacement of some existing function for its more efficient and successful performance. [4]

Innovation sometimes may result in brand new, unknown product or replacement of some existing function for its more efficient and successful performance.

Drucker said that successful entrepreneurs should always practice systematic innovation. Systemic innovation is organized research directed towards changes and systematic analysis of the opportunities such changes can offer and to lead to economic and social innovation. Specifically, systematic innovation means monitoring seven sources for innovative opportunity: the unexpected; the incongruity; innovation based on process need; changes in industry structure or market structure that catch everyone unawares; demographics (population changes); changes in perception, mood, and meaning; new knowledge, both scientific and non-scientific.

The innovativity importance for the economic development is especially emphasized by J. Schumpeter, who defines the innovations as a new combination of existing resources and stresses that the economic development is mainly determined by non-economic factors.

The key role in them is played by the entrepreneur, who is not only a manager, but is the only and specific person, who, by his nature, accepts the risk when introduces new products and new technologies and in this way realizes the process of innovation, which is crucial for the economic development. According to him, innovations are taken over only by brave entrepreneurs, who make profit through them, and with that, benefits for the entire society, because new products open new markets, and that generates demand for new resources and encourages innovations into production technology. [21]

The other definition for innovation has given by Pol Trot, professor of management at the University of Portsmouth, so the innovation are divided as: innovation of product; innovation of process; innovation of organization; management innovation, innovation of production; marketing innovation and service innovation. [24]

Some researches on companies innovativity in different countries , confirm the statement that the small and medium enterprises are more innovative than the big ones. So, according to one examination of American companies, it has been concluded that SMEs have higher innovation rate in high technology, while the bigger firms have innovative advantages in lower technology and capital-intensive industries. [3] While the research in the countries of the European Union, shows that big firms have higher connection with the innovation rates [12], but the reason for that is the fact that the small and medium enterprises lack financial resources for realizing the invention.

The Global Innovation Index, that is calculated by the (institution) , is based on calculations of 5 input columns,i.e. [6] institutions, human capital and research, infrastructure, market sophistication and business sophistication; and 2 output columns, i.e.: scientific and creative results. Each of these columns is divided into three sub-columns , while the sub-columns comprise totally 79 indicators. When calculating the global innovation index , first the innovation sub-index for inputs is calculated, which is composed of the first five input columns, i.e. the columns that mark innovation activities of the national economy and then the innovation sub-index for outputs which is composed of the last two columns, i.e. the columns for outputs comprising the results of innovation activities. The innovation sub-index for inputs is an average of the results of the five columns, while the innovation sub-index for outputs is an average of the results of the two columns, and simply, the global innovation index is an average of these two indices.

Table 2. The mark on the Global innovation index and ranking of R. Macedonia for the period 2009-2015

Year	2009	2010	2011	2012	2013	2014	2015
(Global Innovation Index	2,60	2,89	33,5	36,2	38,2	36,9	38
Rang	89	77	67	62	51	60	56

Source: The Global Innovation Index 2009,2010,2011,2012,2013,2014, 2015: Fontainebleau, Ithaca, and Geneva.

According to the data for the Global innovation index , R. Macedonia , in the last report for 2015, is better ranked than the previous year. So, according to the last data, R. Macedonia is on the 56th place on the rank list of 141 countries. The previous year, it was ranked on the 60th place , which means that the ranking has been improved by 4 places. From the table, it can be seen that for this period , R. Macedonia, according to the innovation index sees rather big progress, namely, in the first report it was ranked on the 89th place , while in the last report it is ranked on the 56th place, which means jump by 33 places on the ranking. Also, it was best ranked in 2013 , on the 51st place, which means, compared to that year, it has fallen by 5 places. As per this international indicator for innovation, R. Macedonia , viewed individually per columns , is better ranked than its average in three columns of the input sub-index : institutions, human capital and research and market sophistication, and one column of the output sub-index ,creative outputs. While worse results in the ranking and special mark it

has in the two columns of the input sub-index: infrastructure and business sophistication and one column of the output sub-index, and that is knowledge and technological outputs. In comparison with previous years, the biggest improvement has been seen in the last column, i.e. the second output column where creative outputs are measured.

While in comparison with other countries from the region, R. Macedonia is better ranked only than Serbia and Albania, and worse than the other countries. That can be seen in more details on the table no 2 which gives a side presentation of the position of R. Macedonia according to the Global innovation index compared to the countries from the region (Croatia, Bulgaria, Montenegro, Greece, Romania, Serbia and Albania) for the period from 2009 to 2015.

Table 3 Macedonia position according to GII – period 2009 – 2015.

Year	2009		2010		2011		2012		2013		2014		2015	
Country	degree GCI	rang	degree GCI	Rang	degree GCI	rang	degree GCI	rang	degree GCI	rang	degree GCI	rang	degree GCI	rang
Croatia	3,03	62	3,28	45	38	44	40,7	42	41,95	37	40,75	42	41,7	40
Bulgaria	2,85	74	3,26	49	38,4	42	40,7	43	41,33	41	40,74	44	42,16	39
Montenegro	2,90	71	3,08	59			40,1	45	40,95	44	37,01	59	41,23	41
Greece			3,28	46	34,2	63	35,3	66	37,71	55	38,95	50	40,28	45
Romania	2,92	69	3,22	52	36,8	50	37,8	52	40,33	48	38,08	55	38,20	54
Macedonia	2,60	89	2,89	77	33,5	67	36,2	62	38,18	51	36,93	60	38,03	56
Serbia	2,57	92	2,68	101	36,3	55	40	46	37,87	54	35,89	67	36,47	63
Albania	2,11	121	2,86	81	30,45	80	30,4	90	30,85	93	30,47	94	30,74	87

Source: The Global Innovation Index 2009,2010,2011,2012,2013,2014, 2015: Fontainebleau, Ithaca, and Geneva.

From the table no 3 it can be seen that R. Macedonia, according to the Global innovation index, compared to some countries in the region, is better ranked only than Serbia and Albania, which are assessed as countries with lowest innovation compared to the countries in the region. The best ranked country in this region is Croatia, with the exception of Slovenia and Hungary, and according to the last report it is ranked on the 40th place. Bulgaria has similar ranking and close mark for innovation, which in 2015 is ranked on 39th place, while Serbia and Albania are the worst ranked on the 63rd and 87th place respectively, and Albania is assessed as the most non-innovative country compared to other countries in the region.

Such low ranking of R. Macedonia according to the innovation index shows that it is one of the limiting factors for the country competitiveness. Low innovation level influences the non-competitiveness of the small and medium enterprises in R. Macedonia. The results of this international index confirm the statements that the innovation of the small and medium enterprises in R. Macedonia is very low, which additionally contributes to their low competitiveness. That means that it is indispensable to increase the enterpreneuring

performances of the small and medium enterprises sector, especially their higher innovation both in products and in the processes for increasing their competitiveness.

CONCLUSION

From the previous analyses, it can be concluded that the small and medium enterprises have potentials and are usually source of new processes, ideas, services and products, and they increasingly become generators of developing processes in all economies worldwide. The small enterprises are forced to be innovators in order to survive in the struggle with the competition and to provide competitiveness in the market. However, often key factors for competitiveness, such as: science, technology and innovatory, are marginalized in the developing countries, so they take out very small amount of GDP for these purposes.

The innovation activity of the small and medium enterprises is in a positive correlation with many indicators of performances, and especially with their competitiveness. The firms that innovate have higher possibility to export and most of them experience significant profit increasing after innovation introduction. The most frequent limiting factors for innovation activities are: high costs for innovations and limited access to the financial resources, such as banking credits or own capital. The small and medium enterprises in R. Macedonia, in the last ten years, have become important factor for economic development, and at the same time in creating competitiveness of the national economy. The level of their competitiveness, on which their future development depends, but also their participation in the country economic development, is mostly conditioned by their innovation capital. Because of that, the Strategy for partnership of the World Bank with R. Macedonia⁹, states that the innovation will help them to increase the productivity and products and services quality, making the firms more competitive. This highlights the need for more intensive activities within the strategy for boosting and making easier the company innovation activity for improving their competitiveness.

Namely, in order to increase the competitiveness and innovatively of the Macedonian business entities, we think that the following changes are needed:

- Encouraging of export activities through increasing mobility of the production factors, higher accumulation and foreign capital inflow, encouraging of technical-technological development etc.;
- Creating ranges of products that meet the consumers' needs, appropriate assortment, design and packing of the products;
- Higher promotive activity in order Macedonian products to become recognizable for the foreign buyers;
- Establishing of business entities in different activities and encouraging collaboration between them;
- Avoiding any kind of interventions for decreasing the production factors price, which will prevent national industries to compete successfully in the global market, because such support would only reduce the productivity and ability of the national industry to innovate;

- Creation of specialized production factors via financing and institutional support of special educative programs and researches, investing in specialized infrastructure;
- Establishing and implementation of strict standards for customers and environment protection, which will enable the national companies to face the same or similar requirements as on the world markets;
- Stimulation of investments in research and development and in other activities that lead towards inventiveness and advancement of individual competitive abilities of the business entities, through encouraging projects of direct competitors within a definite industry.

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THE ROLE OF HUMAN RESOURCES IN THE IMPLEMENTATION OF ORGANIZATIONAL CHANGES

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Abstract: In order to survive the different requirements of the market and the specific requirements of its clients, modern companies are increasingly giving importance to organizational changes, not because their managers and employees like change, but because it is the only way to survive in modern environment. For organizations that are flexible and ready for change adapting to new requirements becoming routine. Changes require constant adjustment of staff and resources business. Organizational changes are an integral part of nowadays and can be seen as critical events in the life of the organization, which has a potentially negative impact on employees. Employees may experience uncertainty about the nature of work and the new working environment and the uncertainty around their career. The willingness and ability of employees to actively engage in the process of change is one of the key elements that influence the effectiveness, profitability, reputation and survival of the organization. Support of employees is crucial for the successful implementation organizational changes. The subject of this research is focused on the identification and analysis of all the factors affecting human resources and its connection with changes in organizational business systems. The paper presents the results of research conducted among the employees of companies in the Republic of Serbia, on the territory of Sumadija region.

Keywords: organization, organizational changes, human resources.

Apstrakt: Da bi opstale uprkos različitim zahtevima tržišta i specifičnim zahtevima svojih klijenata, savremene kompanije sve više daju značaja organizacionim promenama, ne zato što njihovi menadžeri i zaposleni vole promene, već zato što je to jedini način da prežive u savremenom okruženju. Prilagođavanje novim zahtevima postaje rutina za organizacije koje su fleksibilne i spremne za promene. Promene zahtevaju stalno prilagođavanje zaposlenih i resursa poslovanja. Organizacione promene su sastavni deo današnjice i mogu se posmatrati kao kritični događaji u životu organizacije, koji ima potencijalno negativne posledice na zaposlene. Zaposleni verovatno mogu da dožive neizvesnost oko prirode posla i novog radnog okruženja i nesigurnosti oko svojih karijera. Spremnost i sposobnost zaposlenih da se aktivno uključe u procese promena je jedan od ključnih elemenata koji utiču na efektivnost, profitabilnost, reputaciju i opstanak organizacije. Podrška zaposlenih je od ključne važnosti za uspešnu implementaciju organizacionih promena. Predmet istraživanja je fokusiran na prepoznavanje i analizu svih faktora koji utiču na povezanost ljudskih resursa sa promenama u organizacionim poslovnim sistemima. U radu su prikazani rezultati sprovedenog istraživanja među zaposlenima na teritoriji Šumadijskog okruga Republike Srbije.

Ključne reči: Ključne reči: organizacija, organizacione promene, ljudski resursi

1. UVOD

Veruje se da je upravljanje ljudskim resursima i organizacionim promenama u poslovnim sistemima od suštinskog značaja za uspeh u savremenom poslovanju. Savremene kompanije sve više daju značaja organizacionim promenama u preduzeću, ne zato što njihovi menadžeri i zaposleni vole promene, već zato što je to jedini način da prežive u savremenom okruženju. Planiranje i organizovanje promenama jeste važan korak u upravljanju promenama koji može značajno da doprinese njihovoj uspešnosti.

Menadžment ljudskih resursa se stalno menja prateći savremena kretanja, izazove i promene u oblasti privređivanja i u njemu su nastale krupne promene. Menadžment ljudskih resursa je izvršna funkcija u organizaciji, čija je svrha što efektnije postupanje sa zaposlenima, da bi se ostvarili organizacioni ciljevi.

Pri planiranju promene treba definisati: aktivnosti koje će se obaviti, redosled aktivnosti i faze procesa, nosioce aktivnosti, vreme obavljanja aktivnosti, potrebne resurse, kao i parametre kojima će se kontrolisati odvijanje promene i njena uspešnost. Gotovo sva preduzeća danas imaju sektor za ljudske resurse u čije zadatke spadaju i organizacione promene i njihovo sprovođenje.

Promene zahtevaju da se zaposleni stalno prilagođavaju ali promene podrazumevaju i prilagođavanje i resursa poslovanja. Prilagođavanje samo po sebi nije dovoljno da bi organizacija išla u željenom pravcu razvoja i uspeha, zato što svaka promena ne mora biti, i obično nije sama po sebi promena na bolje. Promena menadžmenta u organizaciji povlači pritisak na zaposlene i u tom trenutku mogu nastati veliki problemi. Zbog toga promene mogu biti realne, izvodljive i merljive.

Menadžeri moraju biti sigurni da se zaposleni slažu sa promenama ili da ih bar razumeju kako date promene mogu da se sprovedu. Uloga menadžmenta ljudskih resursa jeste da omogući organizaciji da ostvari uspeh pomoću zaposlenih. Da bi osigurali trajni dotok resursa i neprekidni izlazni tok usluga, menadžeri se moraju prilagoditi svim vrstama promena.

Organizacione promene dovode do bitnih promena u dizajnu organizacione strukture samih preduzeća, što dovodi do dramatičnih posledica po zaposlene (otpuštanje, nesigurnost zaposlenja). Zaposleni se sa takvim promenama različito suočavaju, te se neki relativno brzo prilagođavaju novonastaloj situaciji, dok je drugima potrebno mnogo više vremena da iste promene prihvate.[5] Cilj rada je u prepoznavanju ljudskih resursa kao važnog faktora za sprovođenje organizacionih promena u poslovnim (organizacionim) sistemima. Kroz teorijski i istraživački karakter, rad ukazuje na značaj ljudskih resursa i organizacionih promena na koje svako preduzeće u savremenom okruženju nužno treba da stavi akcenat prilikom poslovanja.

2. POJAM I ZNAČAJ ORGANIZACIONIH PROMENA

Organizacione promene obuhvataju sve promene koje se dešavaju u jednoj organizaciji. Takođe, organizacione promene podrazumevaju i samo one promene koje utiču na organizovanje posmatrane organizacije. Odnosno, pod organizacionim promenama u drugom smislu se podrazumevaju promene u organizacionoj strukturi organizacije, a da pri tom ne obuhvataju tehnološke promene, promene u razvojnoj strategiji ili u finansijskoj politici organizacije. Savremeni zahtevi poslovanja u dinamičnom okruženju zahtevaju od organizacija da se konstantno prilagođavaju stalnim promenama, a rezultiraju raznolikošću

organizacionih formi. Neophodno je da sve promene – organizacione, tehničko-tehnološke i promene ljudskih resursa budu međusobno usklađene, jer zasebno ne mogu dati željene rezultate.[3] Procesi organizacionih promena menjaju fokus menadžmenta ljudskih resursa i stil rukovođenja u pravcu stalnog učenja, razvoja rezultata (a ne pozicija), davanju većih ovlašćenja zaposlenima, participaciji u odlučivanju i orijentaciji na klijente. Takvi procesi stvaraju velike potrebe kod zaposlenih i utiču na osećaj sigurnosti i posvećenosti ciljevima organizacije [8].

Organizacione promene se uvode u organizaciju kada se u istoj jave određeni problemi i teškoće uslovljene uticajem različitih faktora interne ili eksterne prirode, pod uslovom da navedene probleme posmatrana organizacija ne može da reši trenutnom organizacionom strukturom. U takvim situacijama, jedino rešenje za rešavanje organizacionih problema predstavlja uvođenje organizacionih promena kojima se obezbeđuju uslovi, odnosno povoljna atmosfera za prevazilaženje nastalih organizacionih problema. Cilj ovih organizacionih promena je poboljšanje funkcionisanja i razvoj organizacije u celini ili samo dela organizacije u kom problem postoji.

Postoji nekoliko podela organizacionih promena, a u zavisnosti od organizacionog područja u kome se dešavaju, one se klasifikuju na [4]:

- Promene u osnovnom uređenju organizacije koje obuhvataju karakter kao i nivo organizacije, vlasništvo, pravnu strukturu i međunarodne operacije;
- Promene u aktivnostima koje obuhvataju proizvodne linije i linije usluga, zadovoljavanje tržišta, kupaca i dobavljača;
- Promene u tehnologiji koje podrazumevaju alate, opremu, materijale, tehnološke procese, energente i slično;
- Promene u upravljačkoj strukturi koje obuhvataju odlučivanje, kontrolu, unutrašnju organizaciju i informacione sisteme;
- Promene u organizacionoj kulturi koje podrazumevaju tradiciju, neformalne odnose, uticaje, vrednosti i slično;
- Promene u ljudima koje obuhvataju odnose između menadžmenta i zaposlenih, odnose konkurencije zaposlenih, stavove, ponašanje i motivacije.

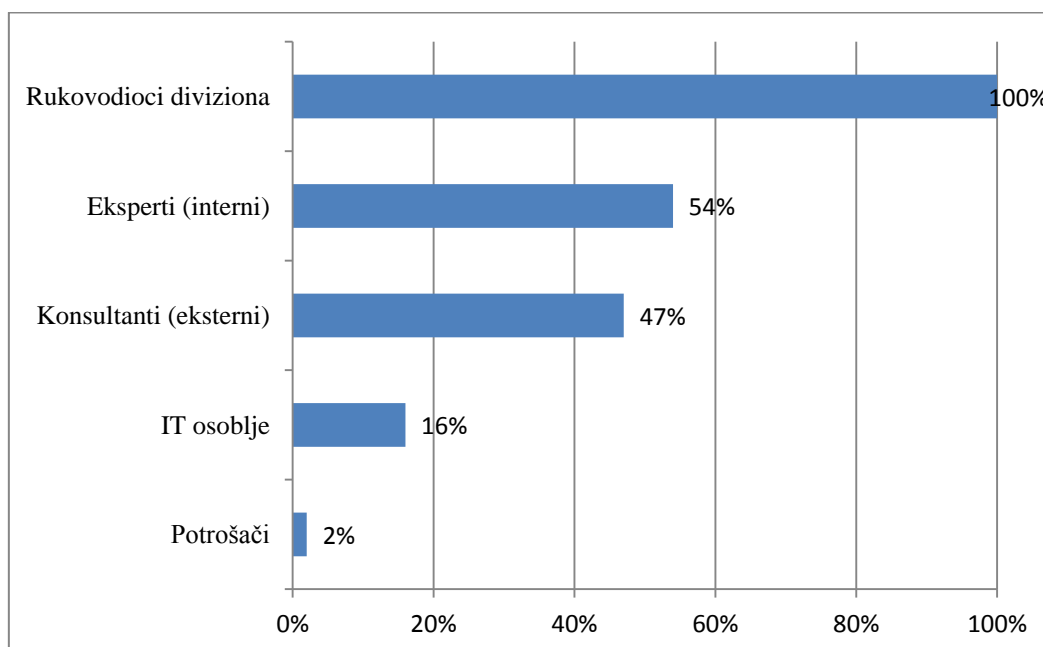
Kako su danas sve češće prisutni razni oblici povezivanja i spajanja organizacija koji istovremeno zahtevaju i harmonizaciju funkcionisanja radne sredine, neophodna je koordinacija i optimizacija svih aktivnosti. Pri tome je u ovim organizacijama neophodno rešiti i pitanje organizacione kulture i kulturne harmonije u organizaciji, pa se u takvim uslovima od menadžera očekuje sposobnost u vođenju promena, stvaranje kulture i atmosfere koja podstiče promene. U savremenim uslovima poslovanja organizaciju karakterišu neprekidne promene koje karakteriše određen tempo i dinamika. Pri tome, promene obuhvataju proces menjanja postojeće organizacije i proces menjanja komponenata od kojih je organizacija sastavljena.

Promena organizacije proizilazi iz težnje organizacije za uspehom i povećanjem efikasnosti, pa je neophodno da se organizacija konstantno menja, iz razloga što je to jedini način za zadovoljavanje uslova opstanka i razvoja u savremenom poslovnom okruženju. Okruženje predstavlja jedan od najznačajnijih i najuticajnijih faktora koji utiču na organizacione promene. Promene proizvodi okruženje, a organizacija se mora prilagođavati promenama, a upravljanje organizacionim promenama sadrži saznanja o uzrocima, sadržaju i procesu promena organizacije.[10]

3. ZNAČAJ LJUDSKIH RESURSA ZA ORGANIZACIONE PROMENE

Kada se govori o promenama, posebnu pažnju treba posvetiti ljudskom faktoru u radnim organizacijama. Ljudski faktor (ponašanje, kultura, moć) je pored organizacione strukture i tehnologije, treći potencijalni objekt organizacionih promena. Organizacione promene su neizbežna pojava, to je proces koji nije slučajan, i nastaje prema jednom dobro utvrđenom planu. Najsvršeniji plan za promenu može doživeti neuspeh ako u njemu nije precizno predviđeno i moguće ponašanje zaposlenih koji su zahvaćeni promenama. Ponašanje pojedinaca i grupa u organizacijama prilikom organizacionih promena može imati različite forme: od prihvatanja kao jedne krajnosti, do aktivnog otpora kao druge krajnosti, egzistira jedan kontinuum sa različitim formama ponašanja.[14] Iako se može reći da je većina promena tehničke prirode, sve se zapravo zaniva na ljudima i njihovom ponašanju. U svom najjednostavnijem obliku promena se sastoji od povećanja znanja i razvoja novih veština. U kranjem slučaju, zbog čega zahteva i promenu ponašanja svih zaposlenih.

U okviru timova formiranih zarad sprovođenja organizacionih promena, neophodno je definisati ciljeve, strategije i planove ostvarivanja ovih promena. Ciljevi koji su jasno definisani se ne mogu lako menjati, već moraju da poseduju karakteristiku stabilnosti za unapred planiran vremenski period, odnosno planski horizont. Ova karakteristika ciljeva timova je neophodna da bi bilo moguće uspešno definisanje potrebnih resursa, dinamike trošenja i efekata organizacionih promena. Restrukturiranje organizacije zahteva veliki broj aktivnosti koje ne može izvršiti samo jedan čovek. "U stvarnosti se sprovođenje promena uvek vezuje za veću ili manju grupu ljudi, koji sačinjavaju timove za promene. To su ljudi koji stvaraju ideje i planove i praktično ih sprovode u realnost, oni daju dijagnozu postojećih procesa i kontrolišu njihovu implementaciju. Uključeni u timove oni rade na promeni organizacije" [11].



Slika 1. Ko je uključen u inicijalni tim za sprovođenje organizacionih promena? [2]

Na osnovu grafika se može primetiti da se timovi za organizacione promene sastoje od članova različitih profila. Prema jednom istraživanju, većina kompanija u ljudske resurse za sprovođenje organizacionih promena uključuje [13]:

- Rukovodioce pojedinih divizionara;
- Eksperte različitih profila;
- Eksterne konsultante;
- Osoblje koje se bavi informacionom tehnologijom i
- Potrošače.

Timovi zaduženi za sprovođenje organizacionih promena, prema mišljenju stručnjaka iz oblasti sprovođenja promena, se sastoje od pet do deset članova, kao i da svaki od navedenih timova čine dve distinktivne grupe ljudi. "Prvu grupu čine oni koji već rade u procesu koji je predmet promena. Oni dolaze iz različitih funkcija uključenih u proces. Ovo su ljudi koji dobro poznaju delove procesa iz njihove nadležnosti, zbog čega su i angažovani u timu za promene. Druga njihova prednost se ogleda u kredibilitetu koji uživaju kod svojih saradnika" [11]. Druga grupa ljudi je neophodna u sprovođenju organizacionih promena iz razloga što se članovi prve grupe smatraju nesposobnim da sami sprovedu organizacione promene. Ovo je slučaj zato što su isuviše vezani za postojeći način funkcionisanja organizacije i trenutnu organizacionu strukturu. Ljudi koji sačinjavaju drugu grupu se često nazivaju autsajderi. Autsajderi ne rade u procesu nad kojim se sprovode promene, pa zbog toga u tim unose veći stepen objektivnosti i drugačiju perspektivu. Pošto nisu neposredno pogođeni promenama, spremni su da preuzmu veći rizik.

Smatra se da današnje timove treba da karakteriše veći stepen pokretljivosti, odnosno fluidnosti, zbog toga što preterana stabilnost nije u interesu timova, a ni organizacija. Takođe, predlaže se takozvana detelinasta struktura timova koja se sastoji iz tri komponente: [1]

1. Stabilna komponenta, sastavljena od tri do pet članova, i ona sačinjava srce tima. Članovi ove komponente poseduju tehničke, interpersonalne i druge sposobnosti neophodne za rešavanje problema. Oni ostaju u timu do okončanja organizacionih promena, obezbeđujući neophodni kontinuitet i stabilnost;
2. Specijalnu komponentu sačinjavaju ljudi sa specijalnim veštinama koji po potrebi ulaze i izlaze iz tima. Oni su uključeni u tim u različitom vremenskom periodu (koji nekad može biti i dosta dug), i u njemu obavljaju različite uloge. Ovi članovi donose u tim nove ideje i različitu perspektivu rešavanja problema i, s obzirom da često izlaze i ulaze u tim, podstiču i pružaju mogućnost ostalim članovima da savladaju nove veštine i rade na sopstvenom usavršavanju;
3. Privremenu komponentu sačinjavaju privremeni članovi. Oni se pozivaju samo u izuzetnim slučajevima, na primer, kada treba pokupiti specifične informacije o potrošačima ili ispitati neki kompleksan problem. Njihovo učešće u timu je kratkotrajno.

Ukoliko se uzme u obzir kompleksnost, više značnost i značaj reorganizacionih procesa, zaključuje se da je u cilju uspešnog sprovođenja istih neophodna uključenost svih članova organizacije, počev od najviših do najnižih organizacionih nivoa. Organizacione

promene ne sprovode kompanije, već ljudi koji u njima rade. Selekcija, organizacija i motivisanost ljudi koji su zaista angažovani u organizacionim promenama, čine ključ uspeha svih napora organizacionih promena.

4. LIDERSTVO I ORGANIZACIONE PROMENE

U procesu organizacionih promena se izdvaja uloga ljudi koji zbog svojih specifičnih veština imaju poseban značaj za sprovođenje ovih promena. Ovi ljudi se često nazivaju nosioci procesa organizacionih promena i u ovu grupu pre svega spadaju lideri timova formiranih za organizacione promene.

Organizacione promene se mogu izvršavati iz više različitih uglova, uzimajući u obzir njihovu:

- Prirodu;
- Karakteristike;
- Način sprovođenja;
- Očekivane rezultate ili
- Paradigmu na kojoj su utemeljene.

U procesima organizacionih promena, ali i u promenama drugog tipa, najznačajniju ulogu imaju lideri. Dok se uvode velike promene tu ulogu mora obaviti menadžerski tim kako bi se postiglo da se liderstvo odražava na niže delove organizacije. Kod lokalnih promena odgovornost da osiguraju vođstvo ima nadzornik ili lider tima. Važno je napomenuti, da se od ljudi koji se suočavaju sa promenom traži ulazak na nepoznato područje, zato je lider taj koji će im dati viziju budućnosti, uveriti ih da će budućnost, nakon promene, biti bolja od sadašnjice i da on zna kako će se stići na odredište. Prema Janićijeviću, lider je potreban organizacijama u vremenu promena, onda kada moraju da prođu kroz promene, posebno transformacione, dok je menadžer potreban organizaciji u stabilnim uslovima. [7]

Iz napred navedenih razloga savremeni menadžeri i lideri moraju biti sposobni da prepoznaju i razumeju osnovne trendove savremenog razvoja, dakle, promena, i da, kada god je moguće, generišu i mobilišu potencijale za buduće promene. Menadžerska sposobnost (znanje, veština i iskustvo) će se sve više meriti ne samo liderskim kapacitetom da efektivno obavljaju prave stvari na pravi način, nego da prepoznaju strateške ciljeve u moru burnijih, dubljih, bržih i dalekosežnih promena.[9] Od posebnog je značaja da i zaposleni sagledaju neophodnost promena, odnosno shvate da postojeće strategije ne daju više zadovoljavajuće rezultate. Lider pomaže ljudima da prihvate potrebu za promenom bez osećanja da su oni odgovorni za eventualni propast. [6]

Najosnovniji zadaci lidera timova u procesu organizacionih promena su stvaranje vizije o načinu sprovođenja promena, kao i pridobijanje članova organizacije koji će da ih slede u sprovođenju istih. Osnovni ciljevi organizacije su ishodišna tačka kojoj teže članovi organizacije, kao i legitimni izvor delegiranih odgovornosti i obaveza koje iz ciljeva proističu. Organizacione promene podrazumevaju racionalizaciju organizacionih procesa i održavanje procesa koji su u funkciji dodatne vrednosti, pri čemu u racionalizaciji organizacionih procesa lideri imaju centralnu ulogu. Uvođenjem paralelnih procesa se ojačava proces organizacionih promena na taj način što se povećava sigurnost u ispunjavanju preuzetih obaveza, akcija i

planova, skraćuje vreme završetka planiranih zadataka, kao i eliminišu postojeća uska grla unutar organizacije. "Menadžerska teorija i praksa posvetile su poslednjih godina veliku pažnju različitim dimenzijama organizacionih promena. Uobličen je znatan broj koncepata i programa promena, usmerenih na redizajniranje pojedinih segmenata ili kompletne organizacione arhitekture, u cilju stvaranja fleksibilne i responzivne organizacije, sposobne da se brzo i efikasno suoči sa izazovima eksternog i internog okruženja i optimalno iskoristi svoje resurse." [12]

5. REZULTATI I DISKUSIJA REZULTATA ISTRAŽIVANJA

U istraživanju koje je sprovedeno učestvovalo je 102 ispitanika koji su zaposleni u preduzećima na teritoriji nekoliko gradova Šumadijskog okruga. Ispitanici se nalaze na poziciji menadžera organizacije u 32 organizacije iz proizvodnog sektora, oblasti trgovine, ugostiteljstva i turizma. Upitnik se sastojao iz demografskih pitanja na osnovu kojih se definisala struktura ispitanika i dve grupe pitanja vezana za organizacione promene i ulogu ljudskih resursa u organizacionim promenama.

Posmatrajući rezultate demografske analize došlo se do saznanja da su najveći broj ispitanih menadžera muškarci 67.66% i da je najveći broj ispitanih menadžera zaposleno u proizvodnim organizacijama 42,16%, u trgovinskim organizacijama 34,31% i u ugostiteljstvu i turizmu 23,53% ispitanih menadžera. Što se tiče starosne strukture prevladavaju zaposleni do 40 godina, sa visokom školskom spremom, što ohrabruje i pokazuje da se na menadžerskim pozicijama nalaze zaposleni koji treba da imaju znanja, kompetencije i sposobnosti za tu vrlo odgovornu poziciju.

Na postavljeno pitanje da li su imali u svojoj organizaciji organizacione promene, najveći broj ispitanika je odgovorio, njih 42,16 %, da ih je bilo malo, 32,35% ispitanika odgovorilo je da ih je bilo nedovoljno, dok je 25,49% ispitanika odgovorilo da ih je bilo vrlo malo, što dovodi do zaključka da organizacione promene nisu bile toliko zastupljene u njihovim organizacijama. Na sledeće postavljeno pitanje, koliko često komuniciraju sa zaposlenima o organizacionim promenama, ispitanici su se izjasnili da veoma često razgovaraju o promenama, dok je samo mali broj ispitanika, njih 0,98% se izjasnio da skoro o tome ne razgovara sa svojim zaposlenima, što ukazuje da je komunikacija sa svojim zaposlenima o organizacionim promenama veoma zastupljena u posmatranim organizacijama. Menadžeri su se izjasnili i u vezi pitanja koje se odnosilo na načine upravljanja promenama koje mogu doprineti organizacionim poboljšanjima, te je najveći broj ispitanika odgovorio da je to razvoj zaposlenih u skladu sa ciljevima preduzeća u budućnosti 38,24%, uključivanjem zaposlenih u odlučivanje sa 33,33% i nagrađivanje prema ostvarenim ciljevima 28.43%.

Uključivanje zaposlenih u odlučivanje i upravljanje promenama je od velikog značaja za organizaciju, što su ispitanici svojim odgovorima i potvrdili. Za veću posvećenost ostvarivanju ciljeva preduzeća izjasnilo se 42.16% ispitanika, za veću fleksibilnost zaposlenih 30.39% anketiranih, za podizanje svesti zaposlenih o biznisu 18,63% ispitanih menadžera, a za povećanje zadovoljstva poslom i morala zaposlenih 8.82% ispitanika.

Promovisanje promene među zaposlenima jeste davanje jasne slike o tome kako se promena sprovodi i sa time se složio najveći broj ispitanika 38.24%, zatim, da je uočavanje uticaja promene na pojedine segmente poslovanja i pojedinca mišljenje je 32,35% ispitanika i da je teško utvrditi uticaj promene na zaposlene mišljenje je 29,41% ispitanika.

Poznato je da organizacione promene narušavaju socijalni sistem organizacije i zahtevaju prilagođavanje zaposlenih. Na postavljeno pitanje kako reaguju zaposleni u takvoj situaciji, veliki broj ispitanika je odgovorio da zaposleni reaguju emotivno i da pružaju otpor promenama koje se sprovode. Ispitanici su se izjasnili da su oni nosioci promena, sa čime se složio veći broj ispitanika, njih 83,33%, jer oni moraju kreirati i preneti viziju, ispirisati zaposlene koristeći svoju harizmu i podstaći ih na promene kako bi bile uspešno implementirane. Na taj način menadžeri mogu smanjiti otpor zaposlenih prema promenama.

ZAKLJUČAK

Pod snažnim pritiscima okruženja malo poslovnih sistema će opstati u budućnosti ako ne razvijaju sposobnost da brzo i efikasno implamentiraju promene. Promena u privrednom subjektu (organizaciji) nikada nije sama sebi cilj već sredstvo prilagođavanja promenama u okruženju, jer organizacija i ljudi u njoj koliko god zavise od pravih i pravovremenih promena zahtevaju stabilnost i kontinuitet funkcionisanja. Menadžment organizacije uglavnom ne može kontrolisati organizaciono okruženje, pa zato treba da bude spreman da uvodi promene koje mu omogućavaju da uspešno prihvati nove izazove.

Rezultati sprovedenih istraživanja ohrabruju, jer pokazuju da su menadžeri u ovim privrednim subjektima svesni neophodnih promena i da se za sada dosta dobro nose sa njima. Iz istraživanja se vidi da se o promenama još i više govori u organizaciji, skoro ukupan broj ispitanika je to potvrdio, ali se promene sprovode samo kada je to neophodno. Uključivanje zaposlenih u odlučivanje i upravljanje promenama je od velikog značaja za organizaciju, što su ispitanici svojim odgovorima i potvrdili, pri čemu naglašavaju da promovisanje promene među zaposlenima jeste davanje jasne slike o tome kako se i zašto promena sprovodi.

Može se zaključiti da stečeno znanje i kreativnost postaju najznačajniji resurs privrednih subjekata (organizacija) danas u Srbiji, a upravljanje promenama ključni proces privređivanja, posebno iz razloga što se Srbija pozicionira u grupu nisko razvijenih zemalja u tranziciji u fazi demokratizacije koju karakteriše visok nivo nesigurnosti i nestabilnosti.

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ORGANIZATIONAL LEARNING FUNCTIONS

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Abstract: Contemporary working imposes discontinuous changes resulting from the need to constantly adjust and create new solutions based on knowledge and learning. Due to that, organizations must learn how to become learning organizations and how to foster organizational learning in order to acquire flexibility to change. Based on this essential meaning of organizational learning, the present paper shall cover the organizational learning functions that define what organizations need to do to become learning organizations.

Keywords: organizational learning, functions, learning organization.

1. INTRODUCTION

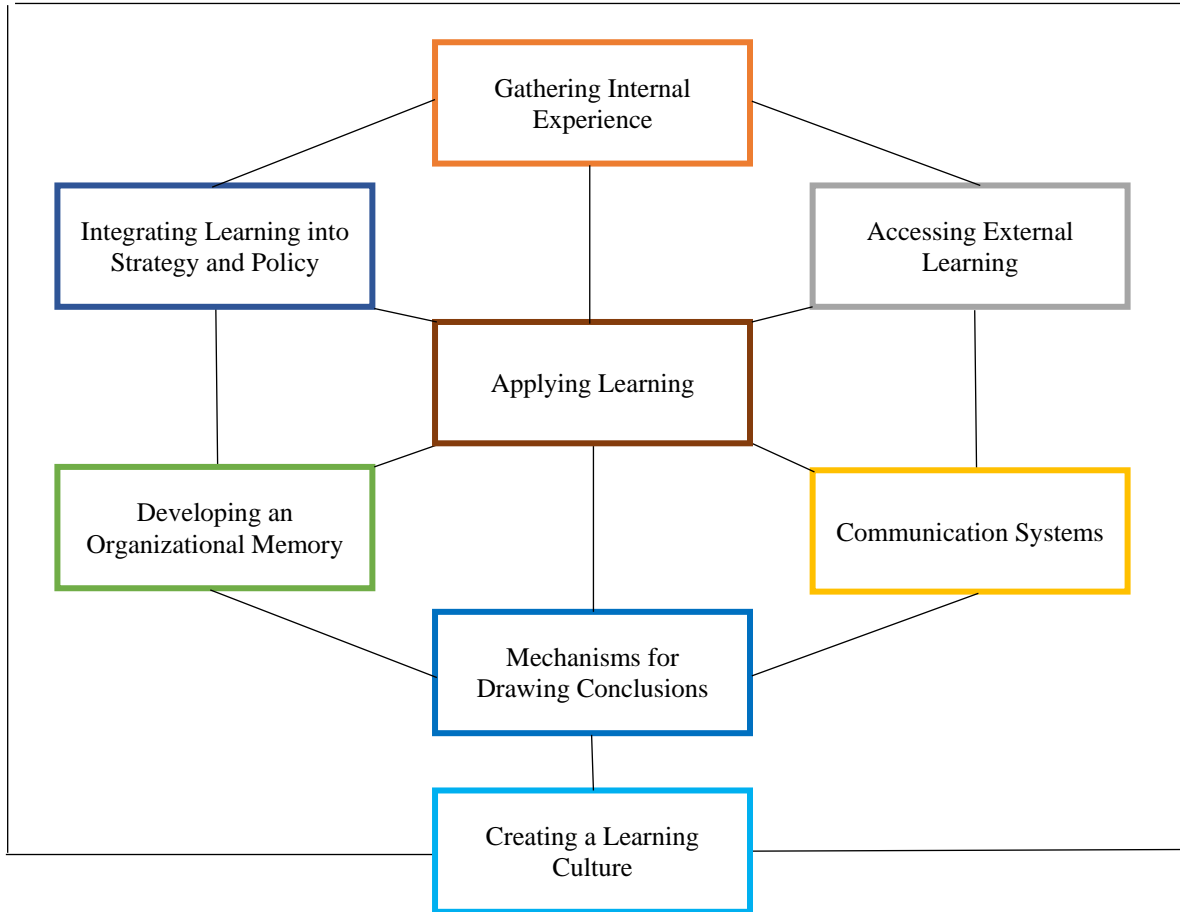
The modern way of work makes organizations treat knowledge as the most important factor which shall enable long-term growth and development of the organization. Knowledge is the basic form of capital and therefore investing in it shall become play a dominant role in the creation of organizations' competitive advantage. The primary task of each modern organization shall be its responsibility towards knowledge, since it is the basic prerequisite for the organization's quality of working and achieving market success.

Organizational knowledge is related to organizational learning. Knowledge is a static, while learning is a dynamic category. Organizational learning is a process in which the organization acquires, manipulates and uses knowledge. Organizational learning as a process, brings about change in the organization. Organizations must learn how to gain flexibility to change and how to become learning organizations. Learning organizations are those organizations that develop capacity for organizational learning, those which provide a favorable environment for learning that encourage and direct its members in their efforts to learn. At the same time, a learning organization is a consequence of the process of organizational learning because learning teaches how to learn, as well. The learning organization is capable to relatively easily and quickly upgrade and change its developmental routine, in a manner that the new competences it acquires enable its survival in the changing environment. This great emphasis on knowledge, organizational learning and learning organizations made me decide to discuss the issue of organizational learning functions in the present paper.

2. ORGANIZATIONAL LEARNING FUNCTIONS

In order to become a learning organization, each organization shall provide adequate treatment to organizational learning and shall have developed the eight functions of organizational learning. The functions of organizational learning answer the question "What

an organization needs to do to become a learning organization?"⁷¹. Those eight functions of organizational learning are as follows:



Picture 1. Organizational Learning Functions

Source: Britton, B., 1990, The Learning NGO Training and Research Center Occasional Paper No17.

2.1. CREATING A LEARNING CULTURE

The organization should strive and make organizational learning become part of the organizational culture. Organizational culture is a complicated and complex phenomenon affecting the overall performance of the organization. It is a set of shared beliefs, expectations, values, norms and work habits that impact the ways employees and management interact and cooperate to achieve the organizational goals⁷². Considering the importance of organizational culture, organizations should strive to create a learning culture and knowledge sharing among the employees in the organization. Creating a learning culture implies creating

⁷¹ Britton (1998)

⁷² Trice, H., Beyer, J., M., (1993), *The Cultures of Work Organizations*, Englewood Cliffs, Prentice Hall Inc, New Jersey;

an organizational environment that allows, encourages, values, rewards learning at individual, team and organizational level. The indicators of creating a learning support culture are as follows: learning is an integral part of each individual's work, employees are encouraged and supported to learn, the organization awards those who learn, the organization strives to overcome the internal barriers to learning, employees ask each other questions, employees jointly solve problems, etc.

2.2. GATHERING INTERNAL EXPERIENCE

Experience is said to be conscious experiencing of something. Experience can mean accumulation of the previous experiences, gradual growth of knowledge of something. Each organization has at disposal, the knowledge and experience which the employees bring into it. To be able to identify the knowledge and experience the organization has, it shall identify the knowledge and experience that are of importance for such organization. The basic criterion for assessment of the relevance of knowledge and experience for the organization is its contribution in the advancement of the organization's key competencies. The identification consists of articulation, systematization and formalization of the knowledge and experience which is recognized as a valid organizational resource. The organization has two main sources of knowledge: the organization's internal experience and the lessons learned from other organizations. Each organization finds ways to stored its experience, so modern organizations use cutting-edge technologies to store their knowledge and experience, such as intranet, databases, availability of documentation, information and alike. It is necessary to note that, the capability of a learning organization is not only directed towards storing the knowledge and experience, but also each learning organization needs to have the ability to immediately converted such knowledge and experience into action. (Michael E. Porter).

2.3. ACCESSING EXTERNAL LEARNING

It is not enough if organizations only store and use their own knowledge. They shall be focused on identification, access and use external knowledge, as well. The identification of external knowledge refers to collecting all knowledge that could be of benefit to the organization, and which could be found outside of the organization. To do this, organizations shall be open and be prepared to enter into dialogue with various organizations. Such readiness implies readiness to share success, but also failure. Partnership with other organizations is one of the ways of access external knowledge. An organization can obtain access to external knowledge by participation in trainings, seminars, workshops, conferences, participation in networks (virtual or real), participation in various communities, associations, etc.

2.4. COMMUNICATION SYSTEM

The organization is constantly exposed to the influence of the large number of information obtained from various sources, which requires that the organization creates such an organizational structure that will enable it to act in all directions of communication. It is essential that the organization creates a communication system the purpose of which will not

be the quantity of information that it will have at disposal, but their quality. In that way, control of information will be provided, focus will be kept, at the same time taking care of the relevance of such information.

2.5. MECHANISMS FOR DRAWING CONCLUSIONS

The conclusion making mechanism actually refers to lessons learned by the organization. Conclusion making process shall be viewed as a process of responsibility for the entire organization. The organization shall base its conclusion making process on the analysis of its own experience and its current situation. The indicators of the conclusion making mechanism are as follows: experience – based learning, monitoring and assessing reports in order to identify what is known and what needs to be learned, converting raw information into usable knowledge, etc.

2.6. DEVELOPMENT AN ORGANIZATIONAL MEMORY

In order to be able to retain its knowledge for its own needs, the organization needs to develop organizational memory. Organizational memory is a set of all data, information and knowledge necessary for the existence of the organization and the process of learning of the individuals who are part of such organization. Organizational memory consists of all documented, not documented, former, and present documents, data, knowledge, routines, rules and procedures, organizational culture as well as individual knowledge. The collection and use of knowledge is achieved by creating appropriate environment which encourages sharing and availability of knowledge and creation of new intellectual capital. The purpose of the organizational memory is that the organization, in the course of its existence, does not repeat the same mistakes, but to remain focused on its main objectives. The organizational memory is as important for the organization as it is for each individual in it. The process of interaction between the individual and the organizational memory is known as experiential learning.⁷³

With the development of information and communication technology, the opportunities for collecting, analyzing, storage and sharing of information expanded. Internet platforms, electronic mail, databases, websites, intranets, possibilities for on-line learning and alike, made a great contribution both for individual and organizational learning.

2.7. INTERGRATING LEARNING INTO STRATEGY AND POLICY

Organizations should strive to create a strategy based on experiential learning, i.e. on the lessons learned. Organizations should develop strategies that will function in the dynamic environment because their surrounding is fully dynamic and unpredictable. Planned and direct strategies are exposed to threats and risks of persistent change impacts. Because of that, the planned strategy often cannot be realized, so newly developed strategies arise. The

⁷³<http://autopoiesis.foi.hr/wiki.php?name=KM%20-%20Tim%2058&parent=NULL&page=Organizacijska%20Memorija%20definicija> (May 2016)

organization shall create a strategy which can be learned from, so that it responds to new opportunities and threats that may occur in the future. Based on this, it can be concluded that the organization shall develop a learning strategy in order to enable organizational development. Organizational development is actually response to changes, a comprehensive educational strategy the goal of which is to change beliefs, attitudes, values and structures within the organization in order to better adapt to the market competition and to follow the growth rate within an environment of constant change.

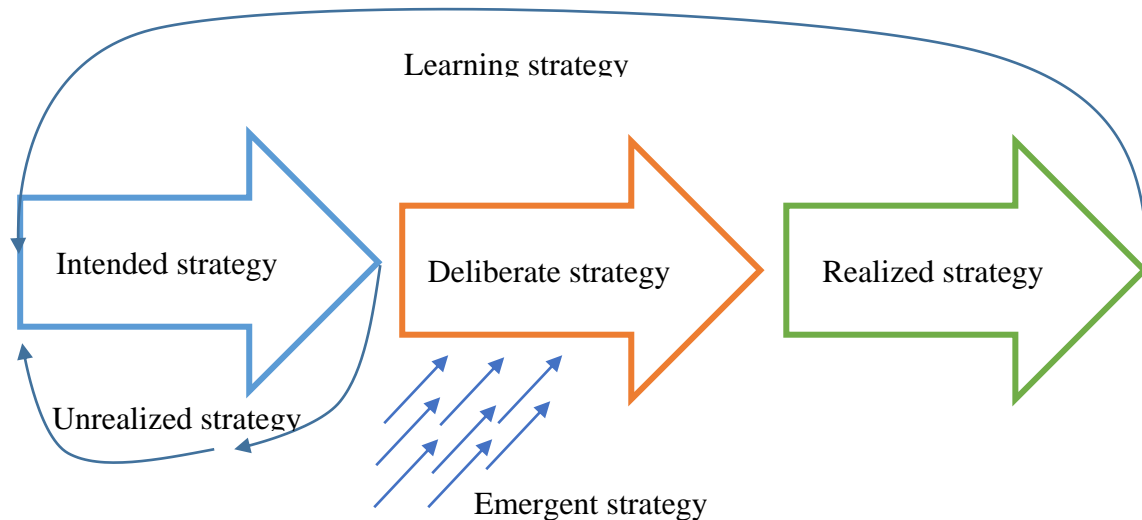


Figure 2. Deliberate and Emergent Strategies (adapt from Mintzberg & Quinn: The Strategy Process)

Source: B. Britton, (1998) The Learning NGO, Intrac, No 17, page 19)

2.8. APPLYING THE LEARNING

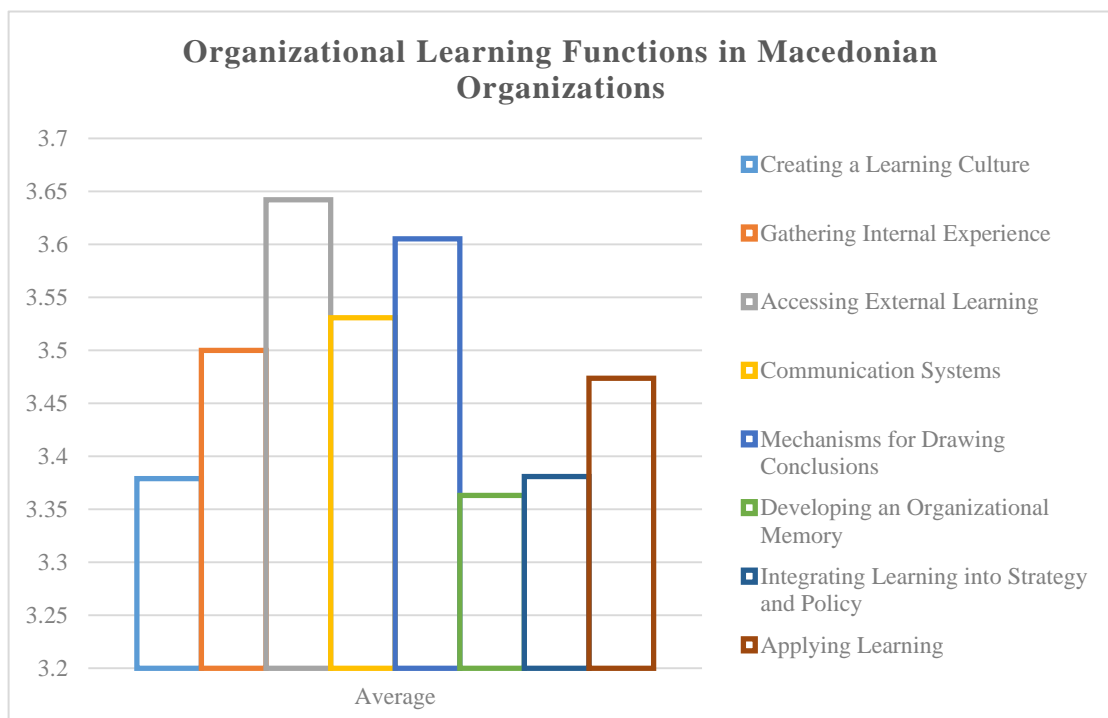
The modern business world is characterized by huge dynamics, constant change and enormous pressures on managers and employees to achieve the desired results, which requires a specific approach and method of work. The decision to meet all these challenges involves creation of new ideas and innovations, as well as creation of new knowledge which should be practical to apply. Knowledge has a strategic importance both for the individuals and the organization. It is the foundation of the organization's successful functioning and its survival of the market. Each organization shall apply what it has learned, i.e. make its knowledge usable and applicable, only in this way the effectiveness of the learned shall be emphasized. The indicators of knowledge application are as follows: the organization uses knowledge in order to improve its practices, the organization shares its experience with the broader audience, the organization has developed a strategy to increase the impact of the learned, the organization is prepared to change its practices and priorities and head towards gaining of new knowledge as to improve efficiency, the organization builds its capacity and innovation based on what it has learned, etc.

3. RESEARCH

In order to realize what treatment of organizational learning by Macedonian companies is, as well as to realize the level of development of these functions, I conducted a research in a total of 12 organizations, where a total of 38 managers at the operational and strategic levels of management were surveyed. The survey covered three large organizations with over 250 employees, 3 medium-sized organizations having from 50 to 250 employees, 3 small organizations with 11 to 50 employees and 3 micro organizations with up to 10 employees.

3.1. RESULTS AND DISCUSSION

Based on the survey results, Chart 1 graphically presents the level of applicability and the development of organizational learning functions. What could be concluded based on this graph is that, in relation to the functions of organizational learning, the surveyed Macedonian organizations place most focus on access to external knowledge, i.e. they aim at collecting external knowledge and experience from various organizations, as well as active participation of their employees in a variety of educational events, conferences, symposia, seminars, workshops etc. This shows that organizations often collect and share relevant information with the outside world, they are open to cooperation with other organizations, encourage employees to get in touch with other organizations in order to gain specific knowledge, experience and information that can be used for their own purposes.



Graphic 1. Organizational Learning Functions in Macedonian Organizations

On the other hand, based on the results shown in Chart 1, it can be observed that most organizations surveyed placed focus on the development of organizational memory. This data suggests that organizations have not developed sufficient mechanisms for storage of information regarding their work, by creating databases or information centers, which makes access to all written reports and key documents restricted and in certain situations, it happens that organizations lose knowledge when employees leave such organization, etc. This means that organizations do not exploit fully the benefits experiential learning brings about.

Based on the functions of organizational learning, I also conducted thorough analysis of the development of these functions according to the size of the organization (Chart no. 2).

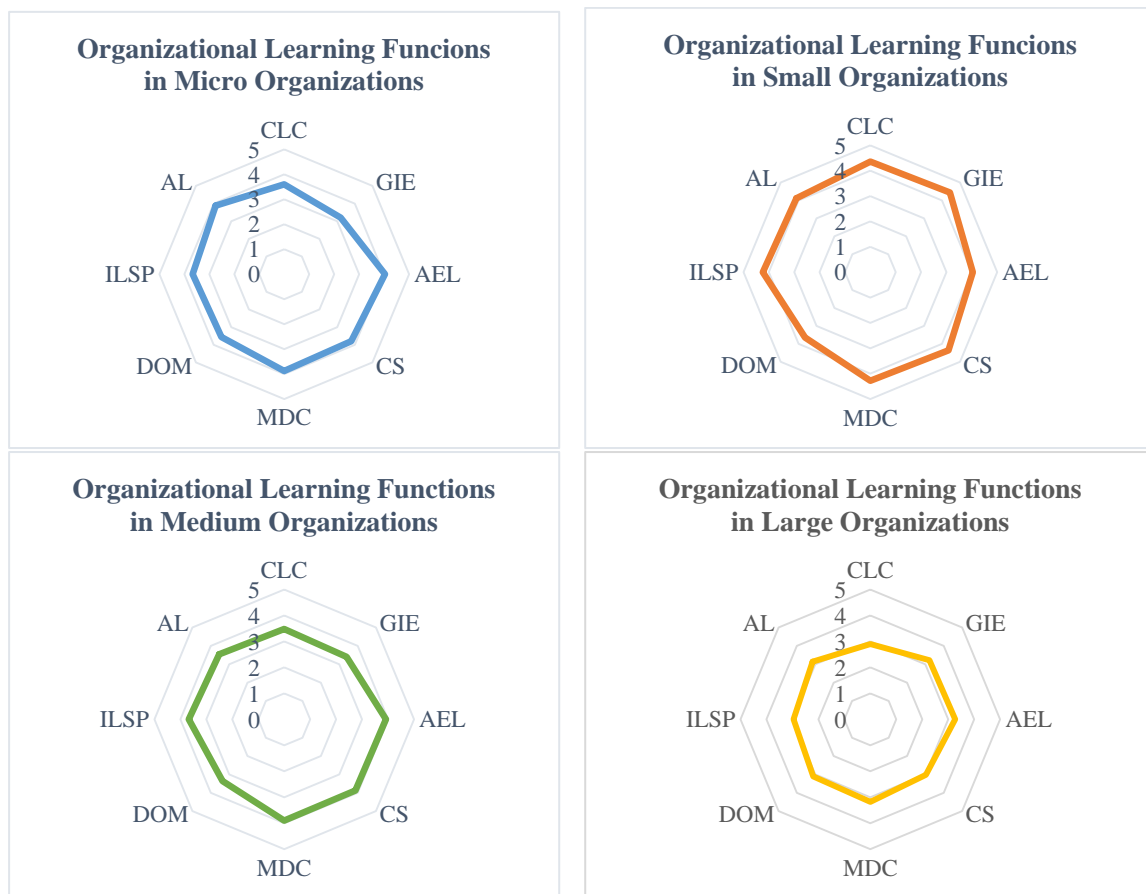


Chart. 2. Comparison of organizational learning the functions based on the size of organizations (CLC - Creating a Learning Culture; GIE - Gathering Internal Experience; AEL - Accessing External Learning; CS - Communication systems; MDC – Mechanisms for Drawing Conclusions; DOM - Developing organizational memory; ILSP - Integrating learning into organizational strategy and policy; AL - Applying Learning)

The charts show that, instead of the expected drive to become learning organizations, the bigger the organization is the more it defocuses on learning. This indicates the fact that if the organization is bigger, it reduces the focus on the organizational learning functions. It means that instead of organizations approaching growth and development into learning organizations, they begin to lose focus to learning, decrease their learning support culture, lose quality of established communication systems, not fully integrate their learning policies

and strategies of action and so on. Although larger organizations have more opportunities to develop organizational learning (because they have more employees, higher capacity, greater stock of knowledge, skills, abilities, broader base of experience, more intellectual capital, etc.), the research shows that they do not fully exploit its capacities and potentials they possess.

4. CONCLUSIONS

The functions of organizational learning shall become partners in building and maintenance of learning organizations. All organizations need to find ways to learn faster and better in order to be able to manage change related to the development of new skills and new technologies. The survey found that the surveyed Macedonian organizations have partially developed organizational learning functions, which leaves room for taking action and initiative for greater focus on this. On the other hand, the survey showed that smaller organizations or organizations with up to 50 employees devote more attention and time of learning, than medium-sized and especially large organizations, where learning opportunities are even greater, but whose approach to organizational learning is, according to the results obtained, lower. However, large organizations, as well as all others, must take into account the fact that learning should be an integral part of any organization if the organization wants to ensure sustainable development.

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THE IMPACT OF NATIONAL CULTURE ON THE MOTIVATION OF EMPLOYEES IN ORGANIZATIONS

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Abstract: In modern business conditions, when the environment of the organization is turbulent and insecure, the people are the most valuable resource of the organization and the source of its competitive advantage. Between organization performances and employee's motivation there is a direct relationship. Nowadays, managers give significance to factors that increase employee's motivation. Managers must to look for ways to improve the motivation of their employers.

The influence of national culture on manager's preferences on a choice of motivators has been presented in this paper. The presentation begins with the definition of national culture and its dimensions. Then, the basic characteristics of motivation and motivation theories are shown: Maslow's hierarchy of needs, Alderfer's ERG motivational theory, Herzberg's motivational theory, McClelland motivational theory and Theory of goals. Finally, it analyzes the impact of dimensions of national culture on the choice of motivators. The aim of this work is to point out the significance to harmonizing the beliefs, values and norms of behaviour of national culture with the needs, motivations and desires of employees. The research is of theoretical character and is applied methods of analysis and synthesis.

Keywords: organization, culture, national culture, motivation

Apstrakt: U savremenim uslovima poslovanja, kada je okruženje organizacije turbulentno i nesigurno, ljudi postaju najvredniji resurs organizacije i izvor njene konkurentске prednosti. Između organizacionih performansi i motivacije zaposlenih postoji direktna veza. Danas, menadžeri pridaju značaj faktorima koji povećavaju motivaciju zaposlenih. Menadžeri moraju da pronađu načine kako da povećaju motivaciju zaposlenih. U ovom radu se analizira uticaj nacionalne kulture na preferencije izbora motivatora. Izlaganje započinje definisanjem nacionalne kulture i njenih dimenzija. Zatim se prikazuju osnovne karakteristike motivacije i teorije motivacije: Maslovljeva hijerarhija potreba, Alderferova ERG motivaciona teorija, Herzbergova motivaciona teorija, Mek Klilendova motivaciona teorija i Teorija ciljeva. Na kraju se analizira uticaj dimenzija nacionalne kulture na izbor motivatora. Cilj ovog rada jeste da istakne značaj harmonizovanja vrednosti, verovanja i normi ponašanja nacionalne kulture sa potrebama, motivima i željama zaposlenih. Rad je teorijskog karaktera i primeniće se metode analize i sinteze .

Ključne reči: Organizacija, kultura, nacionalna kultura, motivacija

1. UVOD

Fenomen motivacije sve više postaje ključna komponenta organizacije i menadžmenta. Šta motiviše ljude? Šta ih pokreće na akciju? Na koji ih način motivisati da

povećaju svoje individualne, te time i organizacione performanse? Sve su ovo pitanja na koja ne možemo dati jednoznačne odgovore i univerzalno ih primeniti na sve ljude i u svakoj organizaciji. Motivacija je jedan od najznačajnijih faktora koji determiniše ponašanje zaposlenih, utiče na njihovo zadovoljstvo, individualne i organizacione performanse. Za menadžera je veoma bitno da prepozna adekvatne motivatore za svakog pojedinca, kako bi uticao da se on ponaša na poželjan način i time doprinese ostvarivanju ciljeva organizacije. Ključni zadatak menadžera jeste da prepozna potrebe, motive i želje ljudi kojima rukovodi i shodno tome pronade način kako da obezbedi njihovo zadovoljavanje. To nije nimalo lak zadatak, jer je opšte poznato da ljude motivišu različite potrebe. Stoga, nema jedinstvene formule koja se može univerzalno primeniti na sve zaposlene unutar jedne organizacije. Fenomen motivacije postaje veoma kompleksan proces kada je potrebno motivisati ljude u različitim kulturama. Potrebe i motivi koje zaposleni zadovoljavaju u svojim organizacijama bitno se razlikuju između zemalja i nacionalnih kultura. Dimenzije nacionalne kulture snažno utiču na sistem vrednosti, kreiraju hijerarhiju potreba i motiva zaposlenih. Dimenzije nacionalne kulture određuju okvir u kome članovi organizacije razumeju svet oko sebe, u kome oblikuju svoje ponašanje, motive i potrebe. U zavisnosti od karakteristika nacionalne kulture menadžer kreira sistem zarada, nagrađivanja i motivisanja zaposlenih. Da bi zaposleni ostvarili veću produktivnost i performanse organizacije, neophodno je da sadržaj vrednosti i verovanja nacionalne kulture bude kompatibilan sa sistemom potreba i motiva članova organizacije. Ukoliko to nije tako, nacionalna kultura može postati demotivator koji sputava kreativnu energiju zaposlenih i time umanjuje performanse organizacije. Osnovni cilj ovog rada jeste da istakne značaj harmonizovanja vrednosti, verovanja i normi ponašanja nacionalne kulture sa potrebama, motivima i željama zaposlenih. Rad je teorijskog karaktera, a navedeni cilj rada ćemo ostvariti primenom metode analize i sinteze. Svrha ovoga rada jeste da objasni značaj izbora adekvatnih motivatora u različitim kulturama, pri čemu bi rad ukazao na potrebu daljeg istraživanja uticaja nacionalne kulture na motivaciju i potrebu njegovog empirijskog testiranja.

2. DIMENZIJE NACIONALNE KULTURE

Nacionalna kultura se može definisati kao „mentalno programiranje: obrazac mišljenja, osećanja i delovanja koje svaka osoba stekne u detinjstvu i zatim primenjuje kroz čitav život“ [5]. U stručno-naučnoj literaturi je prikazano više modela kojima se ističu kulturne razlike među zemljama. Jedno od najpoznatijih istraživanja nacionalnih kultura i njenih dimenzija sproveo je *Hofstede*. Ovaj autor je identifikovao sledeće dimenzije po kojima se nacionalne kulture mogu razlikovati, i to:

- *Distanca moći* je stepen do kojeg članovi društva prihvataju činjenicu da moć u institucijama i organizacijama nije ravnomerno raspoređena. Visoka distanca moći znači da pripadnici nacionalne kulture prihvataju velike razlike u moći unutar organizacije i društva, kao prirodno stanje stvari. S druge strane, niska distanca moći odražava stav da moć treba da bude ujednačeno raspoređena među članovima društva.
- *Individualizam nasuprot kolektivismu*. U individualistički orijentisanim društvima od pojedinca se očekuje da vodi brigu o sebi i svojoj

porodici. U takvim društvima, visoko se ceni inicijativnost i lična odgovornost. U kolektivističkim kulturama pojedinac očekuje od društva da se brine o njemu i njegovoj porodici. Zauzvrat, on zajednici iskazuje lojalnost. Kolektivistički orijentisana društva visoko cene harmoniju i lojalnost, dok se inicijativnost smatra štetnim za harmoniju u društvu.

➤ *Muške nasuprot ženskim vrednostima.* U nacionalnim kulturama sa tzv. muškim vrednostima visoko se cene: agresivnost, preduzetništvo, promene, inovativnost, postignuće, sticanje materijalnog bogatstva. Nasuprot tome, tzv. ženske vrednosti odlikuje: harmonija, stabilnost, dobri međuljudski odnosi, kvalitet života.

➤ *Izbegavanje neizvesnosti* je dimenzija nacionalne kulture koja predstavlja stepen tolerisanja neizvesnosti i promena u okruženju. U nacionalnim kulturama sa visokim stepenom izbegavanja neizvesnosti ljudi ne vole promene, neizvesnost i rizik. Nasuprot tome, u društvima sa niskim stepenom izbegavanja neizvesnosti ljudi su tolerantni, lako prihvataju promene i rizik.

➤ *Dugoročna nasuprot kratkoročnoj orijentaciji* je dimenzija koja se odnosi na stepen orijentacije društva, organizacije i ljudi na budućnost, odnosno na sadašnjost i prošlost. Dugoročnu orijentaciju karakteriše štednja, upornost, podređivanje ličnih interesa opštim interesima. Kratkoročnu orijentaciju odlikuje očekivanje brzih rezultata, sklonost ka potrošnji.

Prema Kluckhohn - Strodtbeckov-oj klasifikaciji, osnovne dimenzije nacionalne kulture su [14]:

➤ *Odnos prema okruženju* predstavlja stav ljudi prema prirodi, odnosno, da li ljudi smatraju da mogu vladati prirodom, živeti u harmoniji sa njom ili treba da joj se pokoravaju. Na osnovu ove dimenzije, definisanje ciljeva preduzeća reflektuje područje u kom se preduzeće nalazi.

➤ *Orijentacija prema vremenu* pokazuje da li su društva orijentisana na prošlost, sadašnjost ili budućnost. Na osnovu ove dimenzije možemo oceniti stav društva, na primer, prema dužini zaposlenja.

➤ *Priroda ljudi* označava da li u jednoj kulturi ljude smatraju dobrima, lošima, ili nekom kombinacijom ovih osobina. Ovu dimenziju nacionalne kulture možemo dovesti u vezu sa stilovima rukovođenja.

➤ *Orijentacija prema aktivnosti* podrazumeva da li u određenoj kulturi se vrednuje rad i postignuća, postojanje za trenutak ili obuzdavanje želja. Poznavanje ove dimenzije može pružiti uvid u odnos ljudi prema radu, donošenje odluka i dizajn nagrađivanja.

➤ *Fokus odgovornosti* pravi razliku između individualistički orijentisane kulture, kulture orijentisane na društvo i kulture orijentisane na hijerarhijske odnose. Ovim razlikama u kulturama mogu se objasniti oblikovanja radnih mesta, sistem nagrađivanja, pristup odlučivanju.

➤ *Poimanje prostora* je dimenzija koja se reflektuje u organizacionom ponašanju. Na primer, u Japanu radnici i menadžeri rade u istoj prostoriji bez pregrada. U SAD, poslovni prostor je izraz statusa.

U novije vreme sve su aktuelnija dva modela kulturnih razlika. Prvi, *Trompenaars-Hampden-Turnerov* model razlikuje sedam dimenzija kulture. To su [12]:

- univerzalizam / partikularizam,
- individualizam / kolektivizam,
- neutralnost / emocionalnost,
- specifičnost / difuznost,
- postignut status / pripisani status,
- unutrašnje usmeravanje / spoljašnje usmeravanje,
- sekvencijsko vreme / sinkronijsko vreme.

Drugi, *GLOBE*-ov model obuhvata devet dimenzija kulture, i to [6]:

- *Distanca moći* – stepen u kojem članovi organizacije ili društva očekuju i prihvataju činjenicu da je moć nejednako didtribuirana.
- *Izbegavanje neizvesnosti* – stepen u kojem društvo, organizacija ili grupa teže da izbegnu nepredvidljivost budućih događaja oslanjanjem na društvene norme, rituale i procedure.
- *Humana orijentacija* – stepen u kojem kolektiv ohrabruje i nagrađuje pojedince za poštenje, altruizam, prijateljstvo, velikodušnost, brižnost i pažljivost prema drugima.
- *Institucionalni kolektivizam* – stepen u kojem organizacione i društvene prakse ohrabruju i nagrađuju kolektivnu raspodelu resursa i kolektivno delovanje.
- *Unutargrupni kolektivizam* – stepen do kojeg pojedinci iskazuju ponos, odanost i zajedništvo u svojim organizacijama.
- *Agresivnost* – stepen u kojem su pojedinci skloni sukobima i suparništvu u svojim odnosima sa drugima.
- *Rodna jednakost* – stepen u kojem kolektiv teži smanjivanu rodne nejednakosti.
- *Orijentacija na budućnost* – stepen do kojeg se pojedinci odlučuju za ponašanja usmerena na budućnost poput odlaganja zadovoljstva, planiranja i ulaganja u budućnost.
- *Orijentacija na postignuće* – stepen u kojem kolektiv ohrabruje ili nagrađuje članove grupe za poboljšanje učinka i ukupni uspeh.

3. POJAM I TEORIJE MOTIVACIJE

Motivaciju definišemo kao „skup procesa koji podstiču, usmeravaju i održavaju ljudsko ponašanje prema nekom cilju“[3]. Tri bitna elementa ove definicije su: podražaj, smer i održavanje. *Podražaj* se odnosi na energiju koja se ulaže za ostvarenje cilja. Ovaj element motivacije neće dovesti do cilja ukoliko se napor ne *usmeri* tako da vodi ka ostvarenju cilju. I na kraju, motivacija sadrži i dimenziju upornosti u težnji da se ostvari cilj, odnosno *održavanje* ponašanja. Robins i Judge definišu motivaciju kao „skup procesa koji je odgovoran za intezitet, smer i upornost u nastojanjima da se postigne neki cilj“[11].

Proces motivacije je veoma kompleksan i sastoji se iz šest koraka: nezadovoljena potreba, tenzija, akcija, traganje, zadovoljenje potrebe, smanjenje tenzije [7]. Osnovni uzrok određenog ponašanja je tenzija. Ona navodi ljude da definišu nezadovoljenu potrebu i pokreće ih na akciju koja ih usmerava da tragaju u određenom pravcu kako bi ostvarili cilj, zadovoljili potrebu i time smanjili tenziju. Postoji i mišljenje da se „osnovni proces motivacije bazira na tri elementa: potreba, pokret, nagrada“ [13].

Različite ljude pokreću različite potrebe i motivi. Nekoga motiviše mogućnost napredovanja u karijeri, nekoga novac i sticanje materijalnog bogatstva. Motivator u organizaciji može biti moć, ali i želja za sticanjem društvenog statusa i priznanja. U traganju za odgovorima na pitanja šta je to što motiviše ljude nastale su brojne teorije motivacije. Neke od njih ćemo izložiti u narednom tekstu.

Teorija hijerarhije potreba. Tvorac ove teorije je psiholog Abraham Maslov. On je na osnovu svojih istraživanja sve čovekove potrebe podelio u odgovarajuće grupe, odredio hijerarhiju potreba i utvrdio njihovu međuzavisnost. Maslov smatra da u svakom čoveku postoji hijerarhija od pet primarnih potreba, koje se mogu podeliti u dve grupe, i to [8]:

1. *Potrebe nižeg reda*, u koje spadaju:

- Fiziološke potrebe (hrana, voda, sklonište...).
- Potrebe sigurnosti (fizička i emocionalna sigurnost).

2. *Potrebe višeg reda*, u koje spadaju:

- Socijalne potrebe (ljubav, prijateljstvo, pripadanje...).
- Poštovanje (samopoštovanje, društveni status, priznanja, pažnja okoline...).
- Samoaktuelizacija (sopstveni razvoj i napredovanje, unutrašnja ispunjenost...).

Maslov je smatrao da postoji hijerarhijska uređenost potreba, što znači da se najpre zadovoljavaju potrebe nižeg reda a zatim potrebe višeg reda. Značaj ove teorije za menadžment organizacije je u činjenici da kada se jedna potreba zadovolji ona prestaje da bude motivator. Ulogu motivatora preuzima naredna nezadovoljena potreba, te ju je neophodno kod zaposlenih prepoznati. Međutim, to ne znači da se potrebe nižeg reda moraju u potpunosti zadovoljiti. Iako je Maslovljeva teorija bila široko prihvaćena među menadžerima u praksi, ona nije dala empirijske dokaze i potvrdila svoja istraživanja.

Alderferova teorija ERG. Ova teorija je nastala na nedostacima prethodne teorije i u svojim istraživanjima je uključila i empirijska istraživanja. Alderfer je sve potrebe podelio u tri grupe, i to [1]:

1. *Egzistencijalne potrebe*, koje čine Maslovljeve fiziološke i sigurnosne potrebe. To su osnovne materijalne potrebe neophodne za život ljudi.
2. *Potrebe za povezivanjem*, koje čine Maslovljeve potrebe pripadanja i ljubavi. Ove potrebe izkazuju želju ljudi za ostvarivanjem međuljudskih odnosa.
3. *Razvojne potrebe*, koje se odnose na težnju za ličnim razvojem, usavršavanjem i napredovanjem. Ove potrebe odgovaraju Maslovljevim potrebama za poštovanjem i samoaktuelizacijom.

Značaj ove teorije za menadžment organizacije je u saznanju da je moguće istovremeno zadovoljiti više potreba i da nije neophodno zadovoljiti potrebe nižeg reda da bi se krenulo dalje. Svaka potreba se može aktivirati u svakom momentu. Alderferova teorija sadrži i frustraciono-regresivnu dimenziju, koja ističe da nemogućnost zadovoljenja potreba na višem nivou povećava želju za zadovoljenjem potreba na nižem nivou. Primera radi, nemogućnost zadovoljenja potreba za pripadanjem i ljubavlju može podstaći želju za novcem.

Dvofaktorska teorija. Herzberg je formulisao teoriju dva faktora na osnovu istraživanja stavova ljudi prema poslu koji obavljaju. Herzberg tvrdi da postoje dve grupe faktora, i to: higijenski faktori i motivatori [4].

1. *Higijenski faktori* su faktori koji kod zaposlenih izazivaju osećaj nezadovoljstva. Na primer: uslovi rada, politika preduzeća, politika plata, međuljudski odnosi. Herzberg smatra da ukoliko su higijenski faktori odgovarajući, zaposleni neće biti nezadovoljni, ali neće biti ni zadovoljni. Poruka za menadžere je da ukoliko žele da eliminišu ili smanje nezadovoljstvo kod zaposlenih to mogu učiniti uticanjem na higijenske faktore. Međutim, ukoliko žele da motivišu zaposlene, potrebno je da koriste motivacione faktore.

2. *Motivacioni faktori*, tzv. motivatori, su faktori koji utiču na zadovoljstvo kod zaposlenih, te time mogu da motivišu zaposlene. Primera radi, na povećanje stepena zadovoljstva utiču: mogućnost za razvoj, napredovanje, priznanja, odgovornost i postignuće. Ukoliko su ovi faktori prisutni, zaposleni su zadovoljni. Ukoliko nisu prisutni, zaposleni nisu zadovoljni.

Herzbergovo istraživanje je pokazalo da je suprotno od zadovoljstva odsustvo zadovoljstva, a suprotno od nezadovoljstva odsustvo nezadovoljstva. Značaj ove teorije je u tome što je ukazala menadžerima da su higijenski faktori potreban, ali ne i dovoljan uslov za motivisanje zaposlenih. Da bi motivisali zaposlene potrebno je uvažavati ih, uključiti u proces odlučivanja, pružiti im mogućnost napredovanja, razvoja, učenja.

Mek Klilendova teorija postignuća. Tri potrebe koje formuliše ova teorija su potrebe za postignućem, posedovanjem moći i povezivanjem [9] [2].

1. *Potreba za postignućem* podrazumeva jaku želju za uspehom i većim postignućima u odnosu na postojeće standarde. Uspeh je veoma jak motiv. Ljudi koji imaju izraženu želju za uspehom teže da posao obave bolje od drugih, imaju visoke kriterijume, postavljaju izazovne ciljeve, preuzimaju odgovornost i očekuju povratnu informaciju o kvalitetu obavljenog posla.

2. *Potreba za posedovanjem moći* je težnja da se utiče na druge kako bi se ponašali na način na koji se inače ne bi ponašali. Osobe sa visokom potrebom za moći žele da naređuju, da utiču na druge, da ih kontrolišu. контролишу. Bitnija im je prestiž i moć, nego performanse organizacije.

3. *Potreba za povezivanjem* je želja za negovanjem prijateljskih i dobrih međuljudskih odnosa. Osobe koje poseduju ovu potrebu traže prijateljstvo, preferiraju kooperativne situacije, teže ka ostvarenju visokog stepena razumevanja.

Teorija postavljanja ciljeva nastoji da objasni uticaj procesa postavljanja ciljeva na performanse. Prema ovoj teoriji, zaposlene u organizaciji motivišu njihovi svesni ciljevi i

namere. Ciljevi moraju biti precizni, kvantifikovani, teški i dostižni. Tri bitna koraka obeležavaju ovu teoriju. Prvi korak je postavljanje ciljeva, drugi je pridobijanje posvećenosti zaposlenih, a obezbeđenje podrške predstavlja treći korak [10].

1. *Postavljanje ciljeva.* Prilikom definisanja ciljeva potrebno je postaviti jasne, precizne i vremenski ograničene ciljeve. Generalizovani ciljevi uvode zabunu, dok precizni ciljevi pokreću unutrašnje stimulanse zaposlenih i vode ih ka ostvarenju postavljenog zadatka. Postavljeni ciljevi ne treba da budu nerealni i teško ostvarljivi, jer time gube motivacioni karakter. Međutim, i lako ostvarivi ciljevi deluju demotivišuće na zaposlene.

2. *Pridobijanje posvećenosti zaposlenih ostvarenju ciljeva.* Proces postavljanja ciljeva, kao motivaciona tehnika menadžera, podrazumeva davanje upustva zaposlenima kao i povratnih informacija. Zadatak menadžera jeste da kod zaposlenih razvije osećaj prihvatanja ciljeva kao pravednih i razumnih. Da ciljeve organizacije prihvate kao lične i da budu maksimalno posvećeni njihovom ostvarivanju.

3. *Obezbeđenje podrške.* Za ostvarenje postavljenih ciljeva neophodna je odgovarajuća podrška. Menadžeri bi trebalo da obezbede resurse, kao što su: finansijska sredstva, vreme, oprema, pomoć i sl.

4. NACIONALNA KULTURA I MOTIVACIJA

Nacionalna kultura ima snažaj uticaj na motivaciju zaposlenih u organizaciji. Kulturne vrednosti, verovanja, norme ponašanja, određuju način na koji će menadžeri i zaposleni razumeti realnost koja ih okružuje, prirodu ljudi i odnose među njima. To znači da, nacionalna kultura utiče na ponašanje ljudi, sistem vrednosti, potreba, motiva i želja zaposlenih. U narednom tekstu ćemo ukratko prikazati uticaj četiri Hofstedeove dimenzije nacionalne kulture na motivaciju zaposlenih.

Individualizam-kolektivizam, kao dimenzija nacionalne kulture, određuje odnos pojedinca prema organizaciji kojoj pripada. Individualizam implicira labavu socijalnu strukturu u kojoj je pojedinac odgovoran za svoju sudbinu. Kolektivizam implicira čvrstu socijalnu strukturu sa čvrstim međuljudskim odnosima. U individualističkim kulturama odnos između pojedinca i organizacije je racionalan. Pojedinici pridaju značaj zadovoljavanju materijalnih potreba i potreba postignuća. To je signal za menadžere da podređene treba da motivišu nagradama u novcu, unapređivanjem, pružanjem mogućnosti za obuku i razvoj. U ovim kulturama se favorizuju individualni učinci, te stoga sistem ocene učinka treba formalizovati. Poželjna je individualna stimulacija za ostvarene rezultate. Kao stimulansi mogu se koristiti bonusi, provizije, podela akcija menadžerima za ostvarene rezultate. U kolektivističkim kulturama odnos pojedinca i organizacije je emocionalan i etički. Zaposleni prioritet daju zadovoljavanju potreba sigurnosti i povezivanja. To je signal za menadžere da razvijaju dobre međuljudske odnose, harmoniju i pružaju brojne pogodnosti zaposlenima. U ovim kulturama se ocenjuje grupni i timski rad, pa treba stimulisati timski, a ne individualni učinak. Osnov za stimulaciju može biti: staž, formalno obrazovanje, veštine i sl.

Izbegavanje neizvesnosti, kao dimenzija nacionalne kulture, determiniše odnos članova organizacije prema promenama, riziku i neizvesnosti. U nacionalnim kulturama sa visokim stepenom izbegavanja neizvesnosti dominiraju potrebe za sigurnošću. Zaposleni su lojalni svojoj organizaciji, a za uzvrat očekuju zadovoljenje potreba pripadanja i egzistencijalne sigurnosti. Dakle, menadžeri bi trebalo da prioritet daju potrebama sigurnosti

pri motivisanju zaposlenih. To bi značilo da plate treba da budu sigurne i da veći deo primanja treba da bude fiksna; da se plate određuju na osnovu staža, znanja i veština. Zaposlenima treba davati razne druge pogodnosti i vrste pomoći. U kulturama sa niskim stepenom izbegavanja neizvesnosti veći deo primanja bi trebalo da bude varijabilan, zavisen od ostvarenih rezultata. Menadžere za ostvarene rezultate treba nagraditi bonusima, mogućnošću kupovine akcija.

U nacionalnim kulturama sa *muškim vrednostima* dominiraju potrebe za postignućem, razvojem i samorealizacijom. U ovim kulturama članovi organizacije favorizuju materijalna bogastva, te ih treba motivisati preko zadovoljavanja potreba postignuća, nagrađivati i unapređivati. Poželjne su individualne povišice za ostvarene rezultate, bonusi, mogućnost kupovine akcija. Prianja treba da budu varijabilna, odnosno uslovljena individualnim rezultatom. U *ženskim kulturama*, članovi organizacije favorizuju pripadnost, harmoniju, dobre međuljudske odnose. Stoga, u ovim kulturama članovi organizacije svoje potrebe zadovoljavaju potrebama za povezivanjem i sigurnošću. Treba ih motivisati kroz pružanje sigurnosti radnog mesta, pohvale, izgradnju dobrih socijalnih kontakata i druge pogodnosti. U ovim kulturama treba koristiti u manjoj meri sistem ocene individualnih performansi, a više favorizovati timski rad i ocenu timskih performansi.

U kulturama sa *visokom distancom moći* nejednaka distribucija moći se smatra prirodnom i poželjnom. Isto tako se smatra i nejednaka distribucija dobara. Stoga i ne čudi što su u ovim kulturama velike razlike u primanjima, statusnim simbolima i drugim pogodnostima za menadžere više prihvaćeni nego u kulturama sa niskom distancom moći. S druge strane, u kulturama sa niskom distancom moći primenjuje se formalizovan sistem ocene učinaka, češće je nagrađivanje menadžera opcijom kupovine akcija.

5. ZAKLJUČAK

U radu smo dali prikaz uticaja nacionalne kulture na motivaciju zaposlenih u organizaciji. Nacionalna kultura ima snažan uticaj na izbor načina motivisanja zaposlenih. Kulturne pretpostavke, vrednosti, verovanja i stavovi koje dele pripadnici određene nacionalne kulture određuju način na koji će oni razumeti okruženje koje ih okružuje i oblikovati svoje ponašanje, potrebe i motive. U nacionalnim kulturama sa visokim stepenom izbegavanja neizvesnosti prioritet treba dati zadovoljavanju potreba sigurnosti. U nacionalnim kulturama u kojima dominiraju muške vrednosti efikasni su menadžeri koji favorizuju zadovoljavanje potreba postignuća, razvoja i samorealizacije. Nasuprot njima, u ženskim kulturama treba favorizovati zadovoljavanje potreba za povezivanjem i sigurnošću. Niska distanca moći implicira zadovoljavanje potreba za postignućem i materijalnom sigurnošću, dok visoka distanca moći implicira zadovoljavanje potreba sigurnosti i povezivanja.

Iz navedenog možemo uočiti da u kulturama koje odlikuje: niska distanca moći, nisko izbegavanje neizvesnosti, individualizam i muške vrednosti, dominiraju materijalne potrebe i potrebe za postignućem. Menadžeri treba da sprovedu racionalan proces motivacije, da novčano nagrađuju podređene, unapređuju pojedince za ostvarene rezultate i primenjuju formalizovani sistem ocene performansi. Kao poželjni stimulansi mogu se koristiti: bonusi, provizije i podela akcija. U kulturama koje odlikuje: visoka distanca moći, visoko izbegavanje neizvesnosti, kolektivizam i ženske vrednosti dominiraju potrebe sigurnosti i povezivanja. U takvim kulturama je poželjan etički proces motivacije, razvijanje socijalnih kontakata, javne pohvale i priznanja. Efikasni su oblici stimulacije na osnovu staža, veština i kompetencija.

Zaposlene treba stimulisati preko ostvarivanja rezultata grupe ili tima. U ovim kulturama, bonusi, provizije i podela akcija treba da budu manje zastupljeni. Na značaju dobijaju razne pogodnosti koje menadžeri mogu da pruže zaposlenima, kao što su: besplatan prevoz, ishrana, pomoć članovima porodice, briga za zaposlene i sl.

Zaključujemo, da bi bili efikasni menadžeri moraju da poznaju potrebe i motive svojih zaposlenih i da pronađu pravi način zadovoljavanja potreba podređenih. U različitim nacionalnim kulturama treba primeniti različite načine motivisanja zaposlenih. Drugim rečima, u određenim nacionalnim kulturama treba primeniti određeni sistem zarada, nagrađivanja, motivisanja zaposlenih .

Rad ukazuje na potrebu daljeg istraživanja odnosa između nacionalne kulture i motivacije. Nacionalna kultura je jedan od faktora koji utiče na izbor adekvatnog načina motivisanja zaposlenih. Međutim, u narednim istraživanjima potrebno je istražiti način tog uticaja i praktično ga testirati.

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AFFIRMATION OF CREATIVITY AND INNOVATION IN ORGANIZATIONS

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Abstract: Contemporary organizations operate in conditions of uncertainty and risk, rapid change and fierce competition. In order to survive in these conditions of business, organizations implement a variety of ways to encourage creativity and innovation. An organization's ability to continually innovate and new ideas implemented in practice, is the basic of its business success. Creativity and innovation have become key resources organization in 21. century. Their application in the developed economies of the world is becoming more intense. In Serbia, social awareness, and awareness of managers on the application and the importance of creativity and innovation in organization is at a very low level. The aim of this paper is to emphasize the need and importance of affirmation of creativity and innovation. For that purpose, we will firstly introduce the basic characteristics of creativity and innovation. Then, we will show how to make an organizational design of innovative organizations. At the end we propose basic guidelines for encouraging creativity and innovation in organizations. The work is theoretical character and it will be used the method of analysis and synthesis.

Keywords: organization, creativity, innovation

Izvod: Savremene organizacije posluju u uslovima neizvesnosti i rizika, brzih promena i oštre konkurencije. Da bi opstale u takvim uslovima poslovanja, organizacije primenjuju različite načine za podsticanje kreativnosti i inovativnosti. Sposobnost organizacije da kontinuirano inovira i nove ideje sprovodi u praksi, osnov je njenog poslovnog uspeha. Kreativnost i inovativnost postaju ključni resursi organizacije u 21. veku. Njihova primena u razvijenim ekonomijama sveta postaje sve intenzivnija. U Srbiji je društvena svest, a i svest menadžera o primeni i značaju kreativnosti i inovativnosti u organizacijama na veoma niskom nivou. Cilj ovog rada jeste da ukaže na potrebu i značaj afirmacije kreativnosti i inovativnosti. U tu svrhu ćemo, najpre, predstaviti osnovna obeležja kreativnosti i inovativnosti. Zatim ćemo prikazati kako treba da izgleda organizacioni dizajn inovativne organizacije. Na kraju ćemo predložiti osnovne smernice za podsticanje kreativnosti i inovativnosti u organizacijama. Rad je teorijskog karaktera i u njemu će se koristiti metoda analize i sistezze.

Ključne reči: organizacija, kreativnost, inovativnost

1. UVOD

Savremene organizacije posluju u dinamičnom okruženju koje karakterišu: globalizacija tržišta i tehnologije, oštra konkurencija, brze promene. U takvim uslovima

poslovanja, poslovni uspeh organizacije zavisi od kreativnosti menadžera, kreativnosti svih zaposlenih i sposobnosti organizacije da kontinuirano proizvodi proizvode i usluge koje će zadovoljiti rastuće zahteve potrošača za kvalitetnijim i jeftinijim proizvodima. Kreativnost i inovativnost sve više postaju ključni resursi organizacija.

Kreativnost, kao proces stvaranja novih ideja, je osnova inovacije. Da bi nova ideja postala inovacija potrebno je da bude primenljiva u praksi. Inovacija je, dakle, primenjena kreativnost. Stoga možemo reći da nema inovacije bez kreativnosti.

Inovacija je rezultat napora organizacije da razvije nove proizvode, nove usluge, procese, nove načine poslovanja i ponašanja koji će dovesti do stvaranja dodate vrednosti za potrošače. Tehnološke inovacije podrazumevaju uvođenje novih proizvoda i procesa koje dovode do radikalnih promena ili mala kontinuirana poboljšanja koja dovode do poboljšanja postojećih proizvoda i procesa i do inkrementalnih promena. Sem tehnoloških, postoje i inovacije u marketingu i organizaciji. U širem smislu, inovacija je i kombinacija postojećeg i novog znanja, odnosno primena postojećeg znanja za rešavanje različitih problema. Inoviranje u organizaciji povećava njenu poslovnu uspešnost, kroz različite vidove poslovne saradnje sa eksternim stejkholderima, kao i poboljšanja interorganizacijskih procesa.

Razvijene zemlje sveta pridaju veliki značaj primeni kreativnosti i inovativnosti. U Srbiji je društvena svest, a i svest menadžera o primeni i značaju kreativnosti i inovativnosti na veoma niskom nivou. U organizacijama ne postoji adekvatno upravljanje inovacijama, stimulisanje kreativnosti, motivisanje i nagrađivanje za kreativnost. Cilj ovog rada jeste da ukaže na potrebu i značaj afirmacije kreativnosti i inovativnosti. Polazni stav rada je da se upravljanjem inovacijama i stimulisanjem kreativnosti mogu postići visoke performanse organizacije i povećati njena konkurentnost. U prvom delu rada ćemo predstaviti osnovna obeležja kreativnosti i inovativnosti. Drugi deo rada prikazuje karakteristike organizacionog dizajna inovativne organizacije. U trećem delu rada izložićemo neke od mera koje treba preduzeti u cilju podsticanja kreativnosti i inovativnosti. Rad je teorijskog karaktera i u njemu se koriste metode analize i sinteze.

2. OSNOVNA OBELEŽJA KREATIVNOSTI I INOVATIVNOSTI

Najprihvaćenija definicija kreativnosti je da ona predstavlja sposobnost stvaranja originalnih zamisli ili sagledavanja postojećih zamisli na novi način. Kreativnost je generacija novih ideja koje mogu da ispunjavaju uočene potrebe ili da odgovore na mogućnosti [3]. Stvaranje novih-originalnih ideja jeste potreban, ali ne i dovoljan uslov za ostvarenje postavljenih ciljeva organizacije. Da bi ideja bila korisna i primenljiva, ona mora doprineti ostvarenju benefita za organizaciju, kao što su: porast produktivnosti, porast kvaliteta proizvoda, porast zaposlenosti, konkurentnosti organizacije itd. Dakle, ideju treba primeniti u poslovnoj praksi. Upravo, inovativnost predstavlja sposobnost pretvaranja nove zamisli u novi ili poboljšani proces, proizvode ili usluge koje promovišu postizanje organizacijskih ciljeva. Dakle, kreativnost i inovativnost predstavljaju međusobno povezane termine. Oni predstavljaju dva kraja jednog kontinuiteta: kreativnost dovodi do stvaranja nove ideje, a inovativnost čini ideju praktičnom i upotrebljivom [7].

Kreativnost se najčešće odnosi na nivo kreativnog izražavanja pojedinca. Bitni faktori kreativnosti pojedinaca su: stručnost, veština kreativnog razmišljanja i motivacija. *Stručnost* se odnosi na sveukupna znanja koje pojedinac poseduje, tehnike i procedure koje koristi, kao i

na način razumevanja organizacije u kojoj radi. *Kreativno razmišljanje* predstavlja sposobnost kombinovanja starih zamisli na novi način. Ovom veštinom dolazi do izražaja fleksibilnost, otvorenost i širina pojedinca u rešavanju problema. *Motivacija* je proces u kome pojedinac, koji ima neku nezadovoljenu potrebu, pokreće i usmerava svoje ponašanje ka određenom cilju. Motivacija je jedan od ključnih faktora kojim menadžer može da podstiče kreativnost pojedinca.

Kreativni proces pojedinca se odvija kroz nekoliko faza, i to: pripreme, inkubacije, iluminacije i verifikacije. Faza *pripreme* služi pojedincu da se suoči sa svojim problemima i da definiše njihove međusobne veze. U fazi *inkubacije* pojedinac nesvesno utiče na rešavanje problema. *Iluminacija* je faza u kojoj pojedinac formuliše nove ideje i nova rešenja. U ovoj fazi se delovi spajaju u novu celinu. U fazi *verifikacije* se potvrđuje rešenje problema i donosi odluka o tome da li takvo rešenje doprinosi ostvarenju ciljeva [6].

Za razliku od kreativnosti, inovativnost se odnosi na nivo kreativnog izražavanja organizacije. Organizacija je inovativna ukoliko je sposobna da kontinuirano dolazi do originalnih ideja i ukoliko nove ideje realizuje. Organizaciona inovacija predstavlja usvajanje ideje ili ponašanja koje je novo u organizacionoj industriji, tržištu ili opštem okruženju [3].

Inovacija se može definisati na različite načine. Većina autora definiše inovaciju kao usvajanje ideja ili ponašanja – sistema nagrađivanja, politika, procesa, proizvoda ili pružanja usluga koja predstavljaju novinu u organizaciji [8]. Prema Manuelu inovacija je implementacija novog ili značajno poboljšanje proizvoda (robe ili usluge), procesa, novi marketinški metod ili novi organizacioni metod u poslovnoj praksi, organizaciji radnog mesta ili spoljnim odnosima. Ovaj autor razlikuje četiri vrsta inovacija, i to [10]:

Tehnološke inovacije proizvoda kao uvođenje novih dobara i proizvoda koja uključuju značajna poboljšanja tehnoloških specifikacija, komponenti, materijala i drugih funkcionalnih karakteristika.

Tehnološka inovacija procesa je implementacija novog procesa ili značajno tehnološko poboljšanje koje uključuje značajne promene u tehnikama, opremi i/ili softveru.

Organizaciona inovacija je implementacija nove organizacione metode u poslovnoj praksi firme, organizaciji radnog mesta i spoljašnjim odnosima.

Marketing inovacija je implementacija nove marketing metode koja uključuje značajne promene u dizajnu ili ambalaži proizvoda, plasmanu proizvoda, promociji proizvoda ili ceni.

Inovacije se mogu posmatrati kao tehnološke, socijalne ili kao njihova kombinacija. *Tehnološke inovacije* podrazumevaju uvođenje na tržište tehnološki novog tipa proizvoda ili nove usluge ili uvođenje novog tipa tehnološkog procesa u organizaciji. *Socijalne inovacije* se odnose na nove načine zadovoljavanja potreba kupaca, promene u načinu funkcionisanja organizacije, nove mere države za regulisanje uslova privređivanja, nove vrste institucija u društvu i dr.[5].

Organizacije mogu da vode različite inovacione politike, tako da možemo govoriti o različitim vrstama organizacija inovatora. Organizacija može da ima *vodeću ulogu* na osnovu sopstvenih istraživanja, može da *usvaja ideje* drugih, da *imitira* konkurente ili da koristi inovaciju kao sredstvo za *traženje i širenje* neiskorišćenog tržišta [11].

U organizaciji, inovativni proces se odvija kroz pet koraka, i to: invencija, razvoj, difuzija, integracija i praćenje [2]. *Invencija* je prvi korak inovacije i njome se utvrđuje nova ideja. Nova ideja može da se odnosi na tehnologiju, proizvodnju, proces ili je reč o upravljačkoj ideji. U fokusu tehnološke ideje je izum koji poboljšava korišćenje tehnologije u

organizaciji. Proizvodne ideje donose novine koje se odnose na novi proizvod ili uslugu. Procesne ideje su ideje koje dovode do poboljšanja procesa proizvodnje. Upravljačke ideje uvode novine u načinu upravljanja organizacijom. *Razvoj* predstavlja korak procesa inovacije koji novu ideju čini praktičnom. *Difuzija* je korak procesa inovacije u kojem krajnji korisnici ideju primenjuju u praksi. *Integracijom* proizvod postaje sastavni deo organizacije. *Praćenje* je poslednji korak procesa inovacije. U ovoj fazi se prati nova ideja, sa ciljem da se utvrdi da li je potrebno ukinuti je ili usavršavati.

Organizacije koje uvode inovacije i promene u tehnologiji, kvalitetu proizvoda i usluga, procesu rada, strukturi, ne doprinose samo sopstvenom razvoju i konkurentnosti, već doprinose i podizanju nivoa nacionalne konkurentnosti i opšteg privrednog razvoja.

3. ORGANIZACIONI DIZAJN INOVATIVNE ORGANIZACIJE

Da bi organizacija bila inovativna neophodno je da bude kreirana prema organskom modelu dizajna. Ovaj model joj omogućuje da bude fleksibilna, otvorena, spremna na promene i prihvatanje rizika. Proces dizajniranja organizacije objedinjuje stvaranje modela organizacione strukture, ali i kreiranje sistema, procesa i politika koji treba da podrže funkcionisanje kreiranog modela organizacione strukture. Samo na taj način organizacija može da funkcioniše efikasno i efektivno i da ostvaruje visoke performanse.

U kreiranju inovativne organizacije ključnu ulogu ima lider i stil liderstva koji on primenjuje. Smatra se da transformaciono liderstvo preuzima najveću brigu za razvoj kreativnosti i inovativnosti sledbenika i razvoj njihovih potencijala. Transformaciono liderstvo je najviši nivo u razvoju liderstva i u sebi objedinjuje sledeće veštine lidera: idealizirani uticaj, inspiracionu motivaciju, intelektualnu stimulaciju i individualizirana razmatranja [1]. Transformacioni lider poseduje sledeće osobine: klalitete agenta promena; hrabrost; otvorenost i vera u sledbenike; vođen je vrednostima; sprovodi doživotno učenje; suočava se sa kompleksnim, dvosmislenim i neizvesnim situacijama; poseduje vizionarske sposobnosti [4]. Lider utiče na podsticanje kreativnosti zaposlenih kroz sopstveno ponašanje koje ohrabruje ili obeshrabruje zaposlene da ulaze u rizik i predlaže nove i korisne ideje koje prete statusu *que* [14].

Organizaciona stuktura inovativne organizacije ima sledeće karakteristike: nizak stepen specijalizacije, nizak stepen formalizacije, visok stepen decentralizacije, timsko grupisanje poslova, neposredno komuniciranje kao mehanizam koordinacije. Niska specijalizacija podrazumeva da zaposleni obavljaju različite poslove i imaju visok stepen uticaja na posao koji obavljaju. Nizak stepen formalizacije daje zaposlenima mogućnost izbora načina obavljanja poslova i zadataka, odnosno metoda rada. To dovodi do povećanja inovativnosti i kreativnosti zaposlenih. Visok stepen decentralizacije odlučivanja omogućuje uključivanje svih zaposlenih u proces donošenja odluka, što pozitivno utiče na izražavanje njihove inovativnosti i kreativnosti. Timsko grupisanje poslova omogućuje okupljanje ljudi koji poseduju različita znanja, veštine i sposobnosti. Koncentracija različitih kompetencija na jednom mestu kreira ambijent za razmenu mišljenja, znanja, kreiranje i primenu novih ideja i novog znanja. Neposredno komuniciranje, kao oblik koordinacije, omogućuje slobodan protok ideja i informacija.

Kako je organizaciona kultura izvor snage, ali i slabosti organizacije, potrebno je da lider kreira sistem verovanja, vrednosti i normi ponašanja zaposlenih koji bazira na:

otvorenosti prema okruženju, orijentaciji na kreiranju vrednosti, toleranciji grešaka i prihvatanju rizika, orijentaciji na pitanja i probleme, orijentaciji na istraživanja, otvorenoj komunikaciji, pozitivnom stavu prema promenama, sistemskoj perspektivi, razvoju ljudi i sl. Šejn ističe kao bitnu ulogu lidera kao agenta promena koji menja kulturu organizacije [12].

Inovativna organizacija ima obeležja organizacije koja uči, a to su: kontinuirano učenje, generisanje i razmena znanja, sistemsko kritičko mišljenje, kultura učenja, ohrabrivanje fleksibilnosti i eksperimentisanja [13].

Bitna podrška kreiranom organizacionom modelu jeste uspostavljanje adekvatnog sistema motivisanja i nagrađivanja zaposlenih. Lider gradi sistem koji nagrađuje kreativne performanse kroz kompenzacije [9].

4. MERE ZA PODSTICANJE KREATIVNOSTI I INOVATIVNOSTI

U kreiranju internog ambijenta koji pogoduje stvaranju klime pogodne za dolaženje do novih ideja i njihove implementacije u praksi ključnu ulogu imaju menadžeri. Menadžeri mogu podstaći kreativnost i inovativnost u organizacijama preduzimanjem određenih mera.

□ *Kreirati organizacioni dizajn koji stvara klimu slobodnog izražavanja kreativnosti pojedinaca i podržavanja inovativne aktivnosti.* To znači da organizaciona struktura, politike i procesi treba da budu kreirani tako da podstiču i podržavaju kreativnost i inovativnost. Podsticanje kreativnosti i inovativnosti treba da bude podržano organizacionim sistemima podrške i postupcima.

□ *Dati radnicima zahtevne zadatke.* Poslovni zadatak predstavlja izazov za radnika. Međutim, zadatak ne treba da bude suviše jednostavan, ali ni pretežak. Neostvarivi i lako ostvarivi zadaci nemaju motivacioni potencijal i ne podstiču zaposlene ka traganju za kreativnim rešenjima. Zaposleni će biti kreativniji ukoliko je pred njima zadatak koji je teško ostvarljiv, ali ipak ostvariv. Traganje za novim kreativnim idejama je izazov za pojedinca, ali i velika satisfakcija za uloženi trud. Novo, kreativno rešenje problema doprinosi dobrobiti za organizaciju, ali doprinosi i jačanju samopouzdanja i podsticaj je za dalje angažovanje radnika.

□ *Dati slobodu radnicima u obavljanju zadataka.* Neizvesni i nestabilni uslovi poslovanja afirmisali su decentralizaciju odlučivanja kao najveću inovaciju u menadžmentu. Poslovna praksa je pokazala da su zaposleni kreativniji ukoliko su upoznati sa zadacima i ciljevima organizacije i ukoliko mogu slobodno i samostalno da odlučuju o celini posla. To znači da samostalno odlučuju o dizajnu posla, da utiču na proces obavljanja svog posla, izbor načina obavljanja posla, izbor metoda rada, načina komunikacija, pristupa informacijama, odnosno o organizaciji svih aktivnosti vezanih za posao.

□ *Dati dovoljno vremena radnicima za obavljanje zadatka.* Vreme potrebno za obavljanje zadatka je važan faktor podsticanja kreativnosti. Ranije se smatralo da kratki vremenski rokovi deluju podsticajno. Novija istraživanja pokazuju da je vreme samo jedan od faktora koji može da podstiče kreativnost. U podsticanju kreativnosti treba primeniti situacioni pristup i uzeti u obzir sve relevantne faktore.

□ *Formirati raznovrsne radne grupe.* U radnim grupama u kojima se na jednom mestu okupljaju ljudi istih ili sličnih specijalnosti dolazi do razmene znanja,

iskustva, usavršavanja veština i sposobnosti. To doprinosi razvijanju organizacionog učenja, inoviranju metoda rada i efikasnijem obavljanju zadataka. Rad u grupama doprinosi učvršćivanju zajedničkog sistema vrednosti i stavova, normi ponašanja. Uz jači osećaj pripadnosti, zajedništva, posvećenosti zajedničkom cilju i podeli odgovornosti članovi grupe lakše dolaze do kreativnih ideja.

□ *Individualan pristup svakom radniku.* Budući da različite ljude motivišu različite potrebe, menadžer treba da ima individualan pristup svakom radniku. Za nekoga je bitna materijalna nadoknada, neki vole javna priznanja i pohvale, drugi mogućnost razvoja i napredovanja u karijeri. Na menadžeru je da podstiče kreativnost svakog radnika pojedinačno u zavisnosti od njegovih želja i potreba. Od posebne je važnosti ulagati u razvoj i obuku zaposlenih.

□ *Uspostaviti različite oblike saradnje i povezivanja sa ostalim organizacijama i naučno-istraživačkim institucijama, pristupiti strateškim savezima, globalnim mrežama koje podržavaju inovativnost i kreativnost.* Organizacija sa otvorenim granicama lakše dolazi do informacija, transfera znanja, tehnologije, kadrova i tržišta.

Podsticanje kreativnosti i inovativnosti, dakle, treba sprovoditi na dva fronta. Interno-unutar organizacije, ali i eksterno kroz razne oblike saradnje i povezivanja na regionalnom, nacionalnom i globalnom nivou. U tom pogledu, neophodna je i podrška države u kreiranju stimulativnog ambijenta. Savremene organizacije se susreću sa brojnim problemima. Jedan od ključnih problema je nedostatak finansijskih sredstava za ulaganje u istraživanje i razvoj. Prisutan je nedostatak poverenja i saradnje između organizacija, naučno – istraživačkih institucija i univerziteta. Nedostaju kreativni ljudi koje bi odlikovala: upornost, spremnost na rizik i promene, fleksibilnost, otvorenost u komunikaciji, spremnost na saradnju, kontinuirano učenje, itd. Dominantan model naših preduzeća je birokratija, koju po definiciji odlikuje: nefleksibilnost, centralizacija odlučivanja, veliki broj hijerarhijskih nivoa, čvrste granice između delova, strogo poštovanje pravila i procedura. Ovakav organizacioni model nije pogodan za stvaranje novih kreativnih ideja i njihovu realizaciju. Mito i korupcija su u velikoj meri prisutni. Ne postoji ni adekvatan eksterni ambijent, podrška države i nacionalni okvir za podsticanje kreativnosti i inovativnosti. Poseban problem imaju mala i srednja preduzeća. Kod njih je najveći ograničavajući faktor uvođenja i realizacije inovativnih projekata nedostatak finansijskih sredstava, znanja i tehnologije.

5. ZAKLJUČAK

Sposobnost inoviranja je krucijalni faktor uspeha organizacije i sve više postaje pitanje njenog opstanka. U uslovima rastuće složenosti poslovanja, konkurentnost organizacije zavisi od brzine uvođenja novih tehnologija, proizvoda, usluga, novog načina poslovanja i ponašanja, odnosno od inovativne sposobnosti organizacije. Dolaženje do novih ideja i njihova primena u organizaciji jedan su od ključnih potencijala organizacije za sticanje i održanje konkurentne prednosti. Inovativna sposobnost organizacije zavisi od sposobnosti stvaranja originalnih ideja i mogućnosti sprovođenja tih ideja. Kontinuirano poboljšanje kvaliteta proizvoda i usluga, uvođenje novih tehnologija, promene u načinu organizovanja poslovanja, promena kulture, strukture, sistema i procesa u organizaciji, podržavanje

organizacionog učenja osnovni su pokretači razvoja, ne samo organizacije već i razvoja privrede uopšte. Krucijalnu ulogu u podsticanju kreativnosti i inovativnosti u organizaciji ima lider, i to lider koji poseduje odlike transformacionog i harizmatiskog lidera. Organizacijama je potreban lider vizionar, lider spreman na promene, lider koji podržava, motiviše, nagrađuje kreativne pojedince i stvara klimu saradnje, poverenja, organizacionog učenja.

Inovacijama je potrebno kontinuirano i sistematski upravljati, a inovativna strategija treba da bude sastavni deo poslovne strategije. U cilju podsticanja i afirmacije kreativnosti i inovativnosti mogu se sprovesti brojne mere na internom i eksternom nivou. U okviru organizacije menadžeri mogu da: grade adekvatnu organizacionu kulturu, formiraju raznovrsne radne grupe, uvode sisteme nagrađivanja, adekvatno motivišu zaposlene, sprovode decentralizaciju odlučivanja, daju više slobode zaposlenima u pogledu načina i vremena obavljanja radnih zadataka, ulažu u razvoj zaposlenih, sprovode različite tehnike upravljanja znanjem itd. Jednom rečju, potrebno je kreirati dizajn organizacije, od strukture do sistema i procesa, koji promoviše i podržava kreativno razmišljanje i ponašanje zaposlenih. Osim adekvatnog internog ambijenta, neophodna je i eksterna podrška afirmaciji kreativnosti i inovativnosti. Potrebno je stvarati stimulatívni ambijent uz podršku Vlade, izgraditi društveni i zakonski okvir za podršku kreativnosti i inovativnosti, saradnju, povezivanja i partnerstva.

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ANALYSIS OF FACTORS WHICH DETERMINE THE FUTURE ENTREPRENEURIAL BEHAVIOR AMONG YOUNG PEOPLE

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Abstract: In less developed countries encouraging entrepreneurial activity is with aim to stimulate economic development. As a result, national and educational programs in many countries support the launch of a new ventures, which is the case with many transition countries, including Serbia. The motivation to become an entrepreneur is generally categorized either by push or pull factors or personal characteristics. Previous studies have shown that people choose to start new business venture for a variety of situational factors. In this paper the survey conducted at the Technical Faculty in Bor, among the students of the Engineering Management Department, was presented. A conceptual model which explains how the locus of control and self-efficacy affect the intention of individual to become entrepreneur, was defined and tested.

Keywords: locus of control, self-efficacy, entrepreneurial intention, entrepreneurial venture, SEM

Apstrakt: U manje razvijenim zemljama ohrabrivanje preduzetničkih aktivnosti je u svrhu stimulisanja ekonomskog razvoja. Kao rezultat toga nacionalni i edukativni programi mnogih zemalja potpomažu pokretanje novog biznisa, što je slučaj i sa mnogim tranzicionim zemljama, u koje spada i Srbija. Motivacija da se postane preduzetnik je generalno kategorizovana ili push ili pull faktorima ili ličnim karakteristikama. Istraživanja su pokazala da se za pokretanje novog biznisa ljudi odlučuju zbog različitih situacionih faktora. U ovom radu biće prikazani rezultati sprovedeni na Tehničkom fakultetu u Boru, među studentima Odseka za Inženjerski menadžment. Definisana je i ispitan konceptualni model koji objašnjava na koji način lokus kontrole i samoeфикаsnost utiču na postojanje preduzetničkih namera.

Ključne reči: lokus kontrole, samoeфикаsnost, preduzetničke namere, preduzetnički poduhvat, SEM

1. UVOD

Većina autora se slaže u tome da su samopouzdanje i samoeфикаsnost jedne od glavnih karakteristika uspešnih preduzetnika [1]. Pojedinci koji poseduju visok stepen samoeфикаsnosti svesni su svojih sposobnosti, lakše prihvataju rizik i veruju u uspeh. Pojam samoeфикаsnosti prvi je uveo Bandura [2], ali su vezu samoeфикаsnosti sa karijernim odlučivanjem pronašli Hackett i Betz [3]. Ljudi sa velikim stepenom samoeфикаsnosti teže da rade poslove koji zahtevaju velike napore kao i poslove od kojih ostali ljudi “beže”. Pojedinci sa visokim stepenom samoeфикаsnosti, pre će teškim problemima pristupiti sa upornošću, a manje je verovatno da će odustati [4]. Razumevanje koncepta samoeфикаsnost je takođe važno, zato što

može da utiče na nameru pojedinca da se uključi u preduzetničke vode. Samoefikasnost utiče na potencijalne preduzetnike, jer namere pojedinaca da započnu sopstveni biznis su u funkciji procene u kojoj meri oni smatraju da je to moguće i poželjno za njih da to učine [5]. Samoefikasnost može bitno da utiče na formiranje preduzetničkih namera kod osoba koje nikad ranije nisu započinjali svoj biznis, kao i između postojećih ili prethodnih preduzetnika.

Lokus kontrole je stepen do kog pojedinac smatra da kontroliše svoju sudbinu. Interni lokus kontrole poseduju ljudi uvereni da sve što im se u životu dešava je rezultat njihovog činjenja, odnosno nečinjenja. Konstrukcija lokusa kontrole razvijena je u sklopu Rotterove teorije socijalnog učenja koja je integrisala biheviorističke S-R teorije sa kognitivnom teorijom polja [6]. Istraživanja su pokazala da ljudi sa izraženim internim lokusom kontrole imaju izraženu potrebu za postignućem, za uspehom, više se trude i spremni su da private rizik.

1.1. POSTAVLJANJE TEORIJSKOG MODELA

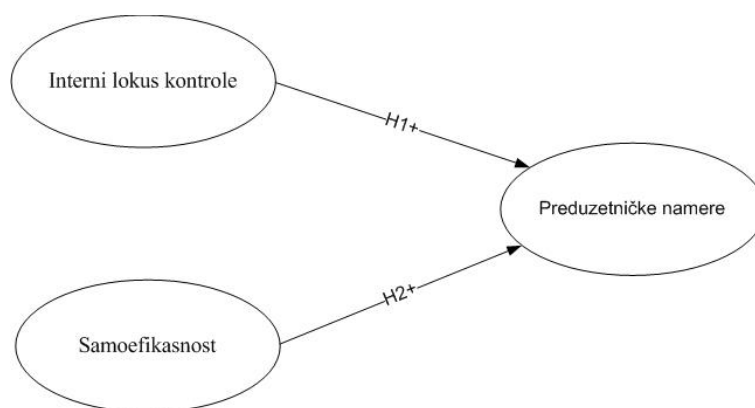
U manje razvijenim zemljama ohrabrivanje preduzetničkih aktivnosti je u svrhu stimulanja ekonomskog razvoja. Kao rezultat toga nacionalni i edukativni programi mnogih azijskih i latinoameričkih zemalja dizajnirani su tako da potpomažu pokretanje novog biznisa, kao i u većini tranzicionih zemalja Centralne i Istočne Evrope. Motivacija da se postane preduzetnik je generalno kategorizovana ili push ili pull faktorima ili ličnim karakteristikama. Istraživanja su pokazala da se za pokretanje novog biznisa ljudi najčešće odlučuju zbog situacionih faktora kao što su frustracije zbog trenutnog statusa, porodično okruženje, dešavanja u detinjstvu, obrazovanje, modeli, istorija posla i mnogi drugi.

Vrlo često se personalne karakteristike javljaju kao razlozi i glavni faktori za pokretanje sopstvenog biznisa. Istraživači su pokazali da kod ljudi koji imaju visoke ambicije, visok stepen samopouzdanja i interni lokus kontrole postoje jake indicije da će se u budućnosti baviti preduzetničkim poslovima. Preduzetnik se definiše kao samomotivišući pojedinac koji preuzima inicijativu da pokrene i izgradi sopstveni biznis oslanjajući se isključivo na svoje znanje i veštine. Personalne karakteristike kao što su nezavisnost, želja za kontrolom, oslanjanje na samog sebe, poverenje, inicijativa vrlo često se dovode u vezu sa preduzetničkim vrednostima i ponašanjem.

Na osnovu prethodnih i sličnih istraživanja u radu je postavljen konceptualni model i predložene su sledeće hipoteze:

H1: Interni lokus kontrole, kao dimenzija ličnosti, ima pozitivan uticaj na posedovanje preduzetničkih namera

H2: Samoefikasnost, kao dimenzija ličnosti, ima pozitivan uticaj na posedovanje preduzetničkih namera



Slika 1. Konceptualni model

2. METODOLOGIJA

Istraživanje je sprovedeno od oktobra do decembra 2015.godine. U istraživanju je učestvovalo 194 studenata Odseka za Inženjerski menadžment, Tehničkog fakulteta u Boru. Cilj istraživanja bio je da se ispita na koji način karakteristike ličnosti kao što su interni lokus kontrole i samoeфикаsnost utiču na buduće preduzetničko ponašanje i koji bi najčešći razlozi bili za pokretanje sopstvenog biznisa. Anketni listić sačinjen je iz tri dela. Prvi deo upitnika sadrži demografske podatke kao što su pol i godina studija, drugi deo upitnika čine istraživačka pitanja podeljena u tri grupe (lokus kontrole, samoeфикаsnost, preduzetničke namere) i treći deo upitnika čine najčešći razlozi otpočinjanja sopstvenog biznisa. Za gradaciju dobijenih odgovora korišćena je Likertova petostepena skala, gde 1 znači „u potpunosti se ne slažem“, 3 znači „neutralno“, 5 znači „u potpunosti se slažem“. Demografske karakteristike uzorka prikazane su u Tabeli 1.

Tabela 1. Demografske karakteristike ispitanika

Demografska varijabla	N	%
Pol		
Muški	42	35,3
Ženski	77	64,7
Godina		
I	48	40,3
II	42	35,3
IV	29	24,4

3. REZULTATI ISTRAŽIVANJA

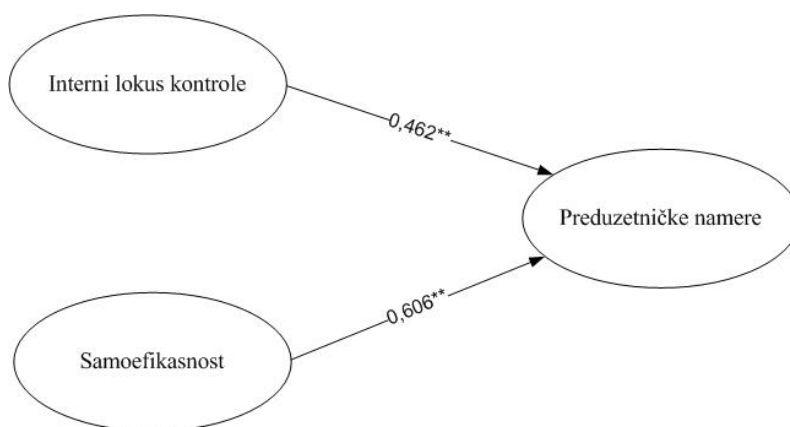
Istraživački model je testiran korišćenjem AMOS 16.0. Umesto regresione analize korišćena je SEM analiza, jer u isto vreme može da ispita sve veze među zavisnim i nezavisnim varijablama [7]. Pouzdanost rezultata ispitana je korišćenjem Cronbach's alpha testa. Prema nekim autorima, vrednost koeficijenta α (koeficijent koegzistentnosti) trebalo bi

da bude iznad 0.7, što predstavlja dobru mogućnost modelovanja dobijenih podataka. Cronbach's alpha koeficijenti za svaku grupu pitanja prikazani su u Tabeli 2.

Tabela 2. Pouzdanost merne skale

Grupa pitanja	Broj pitanja u grupi	Dobijena vrednost	Propisana vrednost
Lokus kontrole	5	0.668	0.7
Samoefikasnost	4	0.847	0.7
Preduzetničke namere	4	0.847	0.7

Dobijeni rezultati (Slika 2) pokazali su da interni lokus kontrole ($b = 0.462$, $p < 0.005$) i samoefikasnost ($b = 0.606$, $p < 0.005$) povećavaju pojavu preduzetničkih namera kod pojedinca. Vrednosti koeficijenta regresije b pokazuju potvrdu postavljenih hipoteza i pozitivan uticaj ovih prediktora na zavisnu varijablu. Međutim relativno niska vrednost koeficijenta ukazuje da njihov uticaj jeste pozitivan i statistički značajan, ali nije prevelik, što znači da neki drugi faktori imaju veću ulogu u stvaranju namera kod pojedinca da se bavi preduzetničkim poslovima.



$$R^2 = 0,519$$

** $p < 0,005$

Slika 2. Rezultati SEM analize

Vrednost R^2 predstavlja procenat varijanse u zavisnoj varijabli objašnjene drugim varijablama koje su direktno povezane sa njom. Celokupan model objašnjava 51,9% varijanse u preduzetničkim namerama.

Imajući u vidu apsolutnu podudarnost modela, indikatori koji se mogu primeniti kod nekompetitivne strategijske analize jesu GFI (goodness-of-fit index) indeks podudarnih vrednosti i aproksimativna greška RMSEA (root-mean-square error of approximation). GFI indikator je ograničen na interval vrednosti (0, 1). Što je veća vrednosti GFI indikatora, bolje je i podudarnost. Dobro fitovanje je označeno vrednošću iznad 0.90 [8]. Ovaj indikator je s toga prihvatljiv u našem modelu ($GFI = 0.865$), nalazi se u okvirima preporučenih vrednosti, pretpostavlja se da bi se njegova vrednost čak i povećala, povećanjem broja ispitanika.

Takođe, potrebno je istaći da predloženi model pokazuje dobro uvećanje podudarnosti. Ovo je bazirano na proveru uvećanja podudarnosti između osnovnog modela i posmatranog

modela. U svim slučajevima, vrednosti iznad 0.80 se smatraju prihvatljivim. U posmatranom modelu svi indikatori su dobri i nalaze se oko granice minimuma.

Tabela 3. Indikatori fitovanja

Indikatori fitovanja	Izračunate vrednosti za strukturni model	Preporučene vrednosti
Chi-Square (χ^2)	127.937	-
Degree of freedom (d.f.)	63	-
Relative Chi-Square ($\chi^2/d.f.$)	2.03	< 3.0
Root Mean Square Error of Approximation (RMSEA)	0.093	< 0.08 – 0.10
Goodness-of-Fit Index (GFI)	0.865	> 0.8
Adjusted Goodness-of-Fit Index (AGFI)	0.805	> 0.9
Comparative Fit Index (CFI)	0.886	> 0.9
Incremental Fit Index (IFI)	0.889	> 0.9
Normed Fit Index (NFI)	0.802	> 0.9

Finalni aspekt koji se mora razmotriti je ekonomičnost predloženog modela. Od predloženog merenja, jedino prosečni chi-square se koristi u validnim analizama. Ovo merenje mora imati vrednost iznad 1 i ispod 3, ili čak 5 da bi se osiguralo fitovanje podataka [8] i da budu zaista reprezentativni podaci. U našem slučaju ova vrednost je $127.937/63 = 2.03$ što je ispod gornje moguće granice definisane od strane navedene grupe autora.

Treći deo upitnika (Tabela 4), činila su pitanja vezana za najčešće razloge otpočinjanja sopstvenog biznisa ili generalno razlozi zbog kojih bi ispitanici uplovili u preduzetničke vode. Kao najčešće razloge ispitanici su navodili finansijsku sigurnost, mogućnost da budu sami svoj gazda i nastavak porodičnog biznisa, dok su najređi razlozi fleksibilno radno vreme i nezavisnost u odlučivanju.

Tabela 4. Razlozi pokretanja sopstvenog biznisa

Pitanja	Ocena					Srednja vrednost	Std. devijacija
	1	2	3	4	5		
Ostvarenje vizije	1	0	17	68	33	4,11	0,6985
Fleksibilno radno vreme	5	3	21	68	22	3,83	0,9049
Finansijska sigurnost	1	0	8	38	72	4,51	0,6994
Vođenje drugih	3	3	21	51	41	4,04	0,9242
Izazov	3	4	19	62	31	3,96	0,8867
Osećaj postignuća	2	1	13	60	43	4,18	0,7915
Veliko bogatstvo	1	4	34	48	32	3,89	0,8712
Nove ideje	2	1	17	64	35	4,08	0,7874
Lična moć	1	7	36	43	32	3,82	0,9265
Porodičan biznis	1	7	23	43	45	4,04	0,9423
Nezavisnost u odlučivanju	1	4	34	53	27	3,84	0,8400
Sam svoj gazda	2	6	29	33	49	4,01	1,0083

U odnosu na prethodno iskustvo u privatnom biznisu rezultati obrade podataka pokazali su da najveći broj onih koji imaju pozitivno prethodno iskustvo u privatnom biznisu sebe kroz 5 godina vidi kao vlasnika sopstvenog biznisa, dok najveći broj onih (čak 30%) sebe vidi kao zaposlenog u nekoj organizaciji.

Tabela 5. Rezultati odgovora na pitanje “ Gde sebe vidim kroz 5 godina”

Sebe vidim za 5 godina kao:	Ukupno	Prethodno iskustvo u privatnom biznisu		
		Pozitivno	Negativno	Bez iskustva
zaposlenog u nekoj organizaciji	49	8	2	39
vlasnika sopstvenog biznisa	33	14	2	17
zaposlenog u porodičnoj firmi	7	3	0	4
ne znam	30	8	4	18

4. DISKUSIJA

Istraživanje prikazano u ovom radu pokazalo je da interni lokus kontrole i samoeфикаsnost kao dimenzije ličnosti imaju pozitivan uticaj na stvaranje preduzetničkih namera kod budućih diplomaca. Predložen je konceptualni model, koji je i potvrđen. Međutim, iako je potvrđena pozitivna veza, uticaj ova dva prediktora na zavisnu varijablu nije tako jak, jer su koeficijenti regresije relativno niski, čime se pretpostavlja da neki drugi faktori igraju veću ulogu u stvaranju preduzetničkih namera kod ispitanika. To se može objasniti nacionalnom kulturom, jer srpsku kulturu odlikuje prisustvo spoljašnjeg lokusa kontrole i visoko izbegavanje neizvesnosti, što nije skopčano sa preduzetničkim poslovima, čak naprotiv. Sa druge strane, kao najčešće razloge ispitanici su navodili finansijsku sigurnost, mogućnost da budu sami svoj gazda i nastavak porodičnog biznisa, dok su najređi razlozi fleksibilno radno vreme i nezavisnost u odlučivanju, što opet ide u prilog tome da nacionalna kultura ima veoma jak uticaj na formiranje ličnosti i kasnije na njihovo ponašanje. Većina ispitanika sebe u budućnosti vidi kao zaposlenog u nekoj organizaciji, dok manji broj vidi sebe kao vlasnika sopstvenog biznisa.

Implikacije koje bi ovo istraživanje moglo da ima na kreatore obrazovnog sistema je da se kod mladih jačaju osobine kao što su samoeфикаsnost, samopouzdanje, otvorenost. Ukoliko postoji želja da se jača preduzetnički duh i podrže preduzetnički naponi, onda mora da postoji i želja za stvaranjem i kulture koja bi taj koncept podržala.

Prvo ograničenja koja trenutno istraživanje ima odnosi se na veličinu uzorka i da su njime obuhvaćeni samo studenti Odseka za Inženjerski menadžment, Tehničkog fakulteta u Boru, što ukazuje na to da dobijene zaključke ipak ne treba generalizovati. Drugo ograničenje tiče se samog upitnika, jer su studenti sami ocenjivali stepen lokusa kontrole i samoeфикаsnosti, čime se dovodi u pitanje objektivnost samog istraživanja. Buduća istraživanja, trebalo bi da idu u pravcu otklanjanja postavljenih ograničenja.

5. ZAKLJUČAK

Godina 2016. u Srbiji je označena kao godina preduzetništva, što znači da je država prepoznala značaj koji prvenstveno mala i srednja preduzeća imaju u razvoju neke zemlje,

posebno imajući u vidu da su dugo u Srbiji velike kompanije imale primat. Međutim, finansijskom podsticaju, država bi mogla da doda i podsticaj da se u školstvu i u javnosti promovišu vrednosti i stavovi koje su u duhu preduzetništva, a koje su suprotne vrednostima naše nacionalne kulture. Nizak interni lokus kontrole i nizak stepen samopouzdanja su neretko razlozi zbog kojih se pojedinci ne odlučuju da pokrenu sopstveni biznis. Jačanje ovih osobina i njihovo nametanje u najranijem detinjstvu može uticati na to da buduće generacije budu mnogo više preduzetnički orijentisane.

Različiti faktori opredeljuju da li će se pojedinac baviti preduzetničkim poslovima. Ukoliko država želi da podstakne preduzetnički duh posebno kod mladih, trebalo bi prvo stvoriti klimu koja takav proces podržava.

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BIBLIOMETRIC ANALYSIS OD SCIENTIFIC WORK AT UNIVERSITY OF BELGRADE FOR PERIOD 2011-2015

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Abstract: Quality assessment at universities has become a central activity of most European countries. The generally accepted measure of scientific production is a scientific paper, which is the culmination of every scientific activities. This is the main reason why the promotion of teachers and researchers at the University is based on good scientific production. Although not perfect, bibliometric analysis is an important and worldwide accepted method for the assessment of scientific work. This paper presents a detailed analysis of the scientific production at University of Belgrade, in the period 2011-2015, which is based on data collected from Scopus. The aim of this study was to determine which faculty provide the greatest contribution to University ranking on the Shanghai list Quality Index was calculated as the ratio of cited and published papers, for each faculty and according to the number of researchers, which eliminates the influence of the faculties' size on total results.

Keywords: Bibliometrics, Ranking, SCOPUS, University of Belgrade

Apstrakt: Jedna od pojava koja se, poslednjih godina, značajno razvila u oblasti visokog obrazovanja u svetu jeste rangiranje visokoškolskih ustanova. Ocena kvaliteta rada na Univerzitetima je postala važna aktivnost u većini evropskih zemalja. Razlozi za tu pojavu su višestruki, a prvenstveno zbog povećane konkurentnosti, različitih programa koje fakulteti nude, ali i opravdanja velikih finansijskih sredstava koja se ulažu u razvoj nauke. Ovaj rad se bavi detaljnom analizom naučne produkcije fakulteta Univerziteta u Beogradu, za period 2011-2015, koja je bazirana na podacima prikupljenim sa SCOPUSA. Cilj rada bio je da se utvrdi koji fakulteti daju najveći doprinos pozicioniranju Univerziteta na Šangajskoj listi. Indeks kvaliteta izračunat je kao odnos citiranih i publikovanih radova za svaki fakultet posebno u okviru sve četiri grupacije i preračunat je po istraživaču, čime je elimisan uticaj veličine fakulteta na ostvareni rezultat.

Ključne reči: bibliometrija, rangiranje, SCOPUS, Univerzitet u Beogradu

1. UVOD

Ocenjivanje i vrednovanje naučnog rada je težak i delikatan posao, jer se ne može vršiti merilima koja važe za bilo koju drugu vrstu produktivnosti. Moguće je vrednovanje celokupnog naučno istraživačkog rada istraživača na osnovu objavljenih radova. Razvoj informatike i primena kompjutera omogućili su izračunavanje naukometrijskih parametara za vrednovanje naučnog rada i doprinosa pojedinca i države razvoju nauke, uz mogućnost međusobnog upoređivanja i određivanja statističke greške i pouzdanosti [1]. Najobjektivnije kriterijume efikasnosti naučnog rada, na osnovu razrade kvantitativnih pokazatelja i metoda analize istraživačke delatnosti, obezbedila je bibliometrija. Najčešće korišćene bibliometrijske

metode su broj publikovanih radova i citatna analiza. Tendencija ka publikovanju i citiranju može znatno varirati između struka, disciplina i u okviru institucija. [2].

Naučna istraživanja se obično izvode u okviru institucijalnog konteksta, u većini slučajeva na univerzitetu ili institutu. Sabiranjem publikovanih output-a radova i citata mogu se meriti i upoređivati rezultati institucija, a naučnu reputaciju prepisati tim istraživačima [2].

Uspostavljanje rang-lista, definisanih prema unapred zadatim kriterijumima, doprinosi utvrđivanju „kvaliteta“ visokoobrazovne ustanove u određenoj zemlji, ali i kao dopuna uspostavljenom procesu procene kvaliteta visokog obrazovanja u toj državi. Jedna od pojava koja se, poslednjih godina, značajno razvila u oblasti visokog obrazovanja u svetu jeste rangiranje visokoškolskih ustanova [3]. Uzroci ili razlozi su višestruki, ali prevashodno treba da odgovore na interesovanja i zahteve postojećih ili budućih korisnika o poziciji, reputaciji i kvalitetu visokoškolske ustanove. U isto vreme rangiranje stimuliše konkurentnost među visokoškolskim ustanovama širom sveta, omogućava opravdavanje uloženih finansijskih sredstava, pomaže diferencijaciji između različitih tipova visokoškolskih ustanova i različitih programa i disciplina.

Međutim, iako u široj javnosti izaziva velika interesovanja, rangiranje fakulteta i univerziteta trpi velike kritike od strane naučne javnosti, zbog različitih kriterijuma i nedostataka sa kojima su suočena [4]. Jedan od najvećih nedostataka trenutnih rang lista jeste da se obično daje prednost starim i velikim univerzitetima, kao i univerzitetima i fakultetima na kojima se neguju prirodne nauke, na taj način ne vodeći računa o drugim oblastima u kojima publikovanje radova i citiranost nije tako velika [5]. Kada zainteresovana strana posmatra rang listu, njemu će biti očigledna razlika između fakulteta koji je na 5. i 10. mestu, ne vodeći računa na osnovu kojih kriterijuma je izvršeno rangiranje. Kao kriterijumi se obično uzimaju broj publikovanih radova i broj citata po fakultetu ili univerzitetu, gde se obično zanemaruje rad sa studentima koji čini drugu komponentu rada u ovim institucijama, ali koje je nekad teže meriti.

Ova studija ima za cilj da ublaži neke od nedostataka prethodnih istraživanja uvodeći indeks kvaliteta koji predstavlja odnos između broja publikovanih radova i broja citata po istraživaču, prikazan prema grupacijama fakulteta Beogradskog univerziteta, uvažavajući na taj način razlike koje postoje u različitim oblastima istraživanja. Rangiranje fakulteta izvršeno je isključivo na osnovu naučno-istraživačkog rada, zbog nedostatka podataka o pedagoškom radu na svim fakultetima.

2. METODOLOGIJA

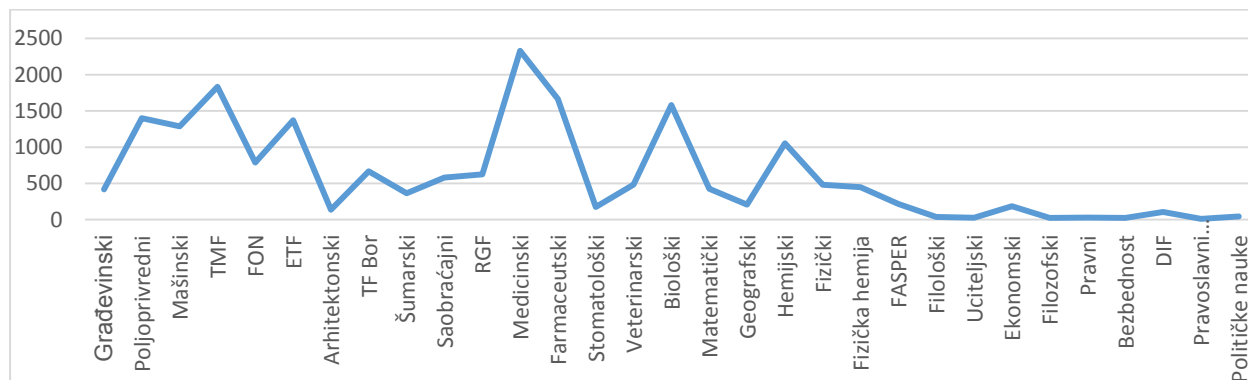
Univerzitet u Beogradu u svom sastavu ima trideset i jedan fakultet, koji su organizovani u četiri grupacije: društveno-humanističke nauke, medicinske nauke, prirodno-matematičke nauke i tehničko-tehnološke nauke. Na njima je zaposleno ukupno 3836 nastavnika i saradnika, od čega 1129 redovnih profesora, 735 vanrednih profesora, 1056 docenata i 916 asistenata.

Podaci o broju i izbornom zvanju zaposlenih istraživača u okviru fakulteta su prikupljeni sa zvaničnih web stranica ovih fakulteta. Treba napomenuti da je pretraga vršena decembra 2015. godine tako da i prikazani podaci odgovaraju tada aktuelnom stanju. Prilikom pretraživanja i evidentiranja broja publikovanih radova, razmatrani su samo radovi objavljeni

u naučnim časopisima sa JCR liste.. Takođe, kada se posmatra citiranost publikacija autora, evidentirani su samo citati bez autocitata.

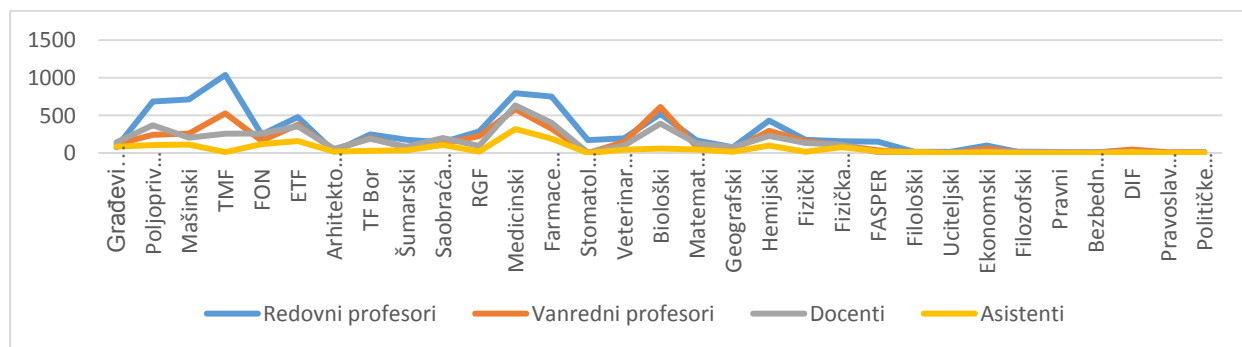
3. REZULTATI ISTRAŽIVANJA

Najpre je izračunat ukupan broj publikovanih radova u posmatranom petogodišnjem periodu za sve fakultete Beogradskog univerziteta i rezultati su prikazani na Slici 1.



Slika 1. Ukupan broj radova

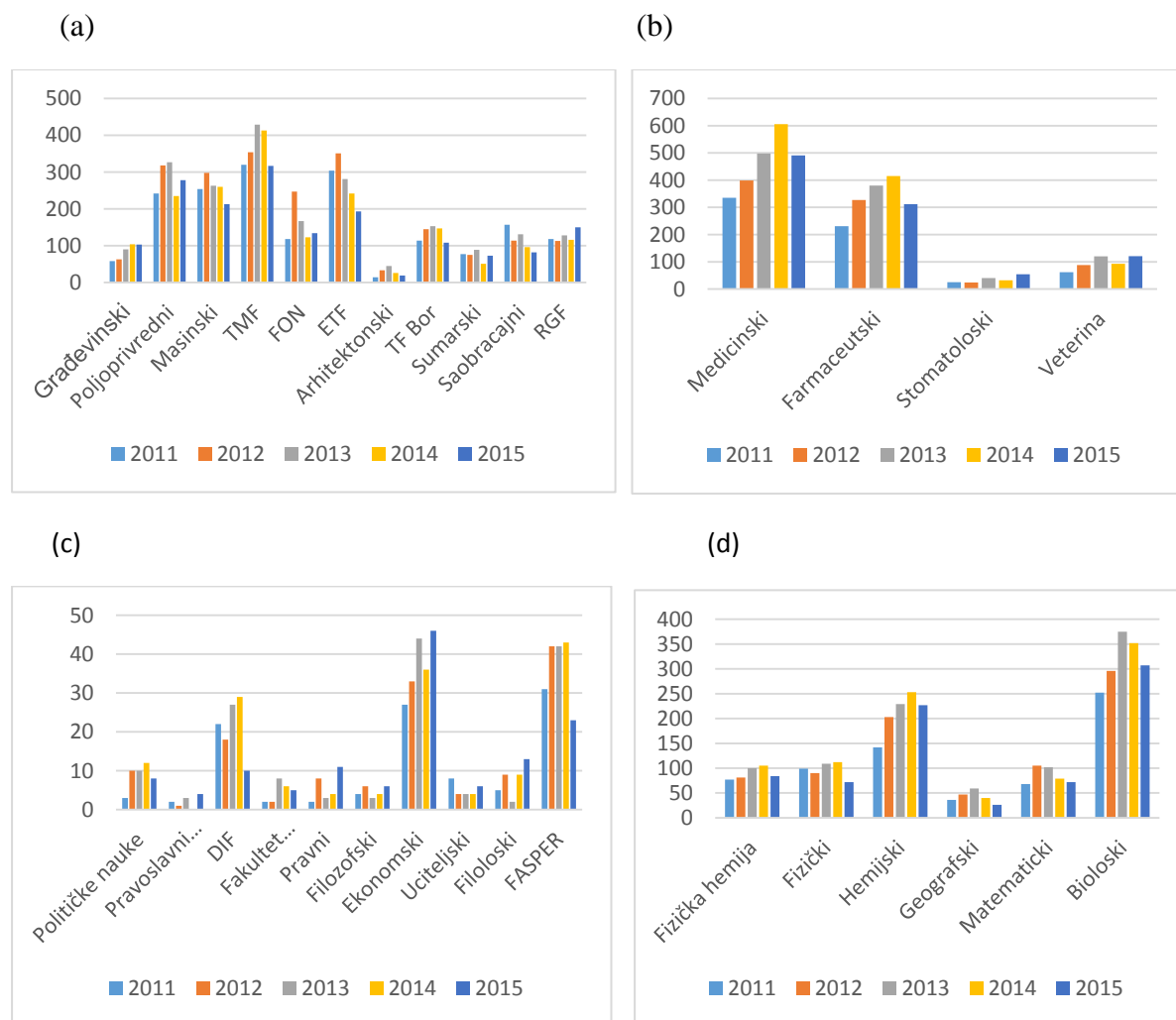
Sa slike 1 može se primetiti da se najveća produkcija radova beleži na Medicinskom fakultetu, a slede ga TMF, Farmaceutski i Biološki fakultet. Ako se uzme u obzir raspodela radova po zvanjima, najveći doprinos broju objavljenih radova imaju redovni profesori TMF-a, Medicinskog i Farmaceutskog fakulteta, dok jedino na Biološkom fakultetu vanredni profesori imaju prednost u broju objavljenih radova u odnosu na ostala zvanja. Vrlo je primetna razlika u broju radova između fakulteta društveno-humanističke grupacije u odnosu na ostale grupacije, što i jeste jedna od glavnih primedbi. Takođe je i primetna razlika i među fakultetima u okviru iste grupacije, što je posledica različitog broja istraživača na fakultetima, jer pretpostavka je da ukupan broj radova raste srazmerno broju istraživača, što će kasnije u radu biti razmotreno kroz indeks kvaliteta.



Slika 2. Ukupan broj radova po izbornim zvanjima

3.1. TREND KRETANJA RADOVA U PERIODU 2011-2015.

Dinamika broja naučnih radova za poslednjih pet godina po grupacijama fakulteta prikazana je na Slici 3.

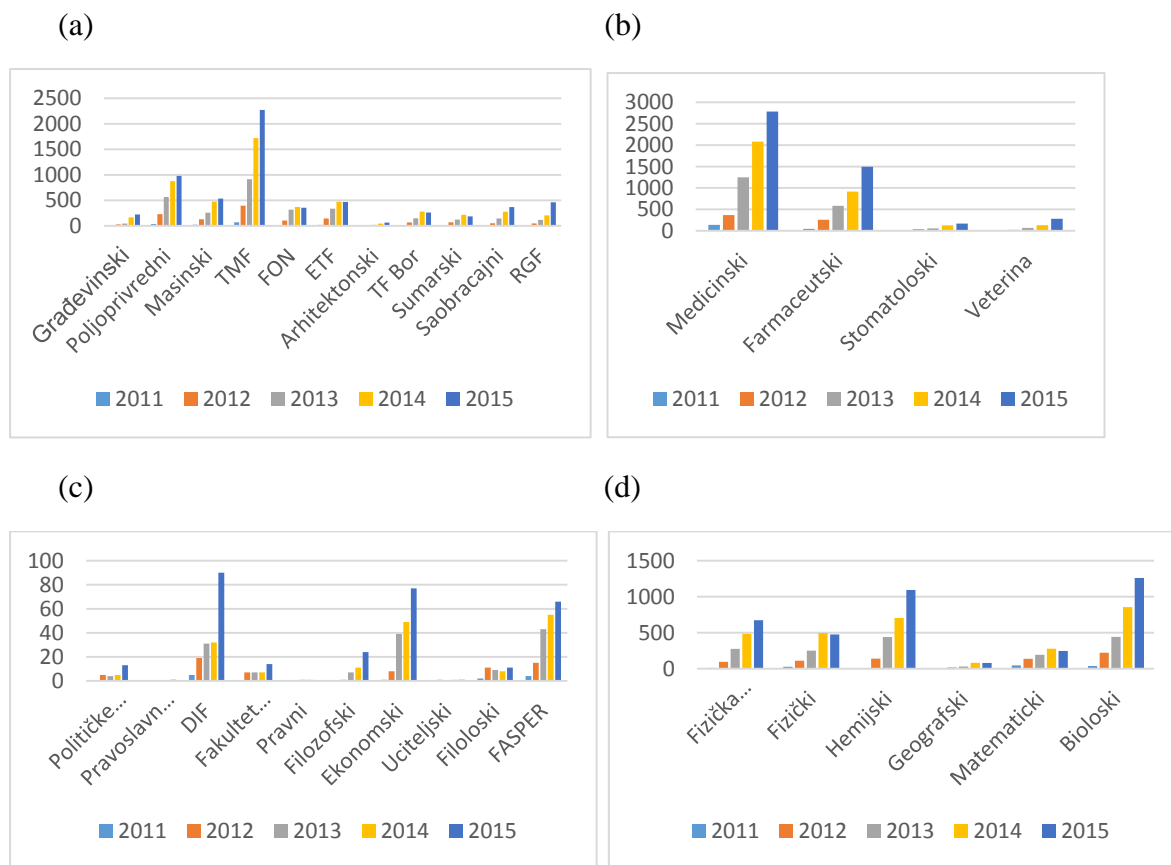


Slika 3. Trend kretanja ukupnog broja radova u periodu 2011-2015. za sledeće grupacije fakulteta (a) tehničko-tehnološka, (b) medicinska, (c) društveno-humanistička, (4) prirodno-matematička grupacija

Trend kretanja radova u posmatranom periodu pokazuje da je došlo do drastičnog smanjenja broja radova u 2015. godini na većini fakulteta. Jedino su fakulteti društveno humanističke grupacije poboljšali svoj rezultat, te se primećuju i povećanja u broju publikovanih radova, ali ipak još uvek daleko u zaostatku za ostalim grupacijama. Broj radova na Građevinskom i Rudarsko-geološkom fakultetu ima uzlazni trend, dok na ETF broj naučnih publikacija dramatično opada.

3.2. TREND KRETANJA CITATA U PERIODU 2011-2015.

Pre analize trenda kretanja citata u posmatranom periodu neophodno je napomenuti da su citati beleženi samo za radove objavljeni u 2011. i nakon toga, zbog toga je i broj citata u 2011. tako mali, na nekim fakultetima čak jednak nuli.



Slika 4. Trend kretanja ukupnog broja citata u periodu 2011-2015. za sledeće grupacije fakulteta (a) tehničko-tehnološka, (b) medicinska, (c) društveno-humanistička, (4) prirodno-matematička grupacija

Analiza trenda kretanja citata pokazuje kumulativni rast citata iz godine u godinu, s tim da se na TMF-u i DIF-u beleži drastičan rast, dok je po broju ostvarenih citata Medicinski fakultet daleko ispred svih.

3.3. INDEKS KVALITETA

Ocena kvaliteta rada na univerzitetu u celini, u najvećoj meri zavise od broja publikacija nastavnika i saradnika u časopisima sa impakt faktorom, kao i broja citata u časopisima te kategorije, sistematizovanih u indeksnim bazama. Ovako definisani rejting je prihvaćen u svetu i danas predstavlja globalnu kategoriju koja se ne dovodi u pitanje. Nesporna je činjenica da je interes svih zaposlenih na univerzitetu, kao i vitalni interes osnivača (države), da se Univerzitet u Beogradu nađe na među najbolje rangiranim fakultetima u Evropi i svetu.

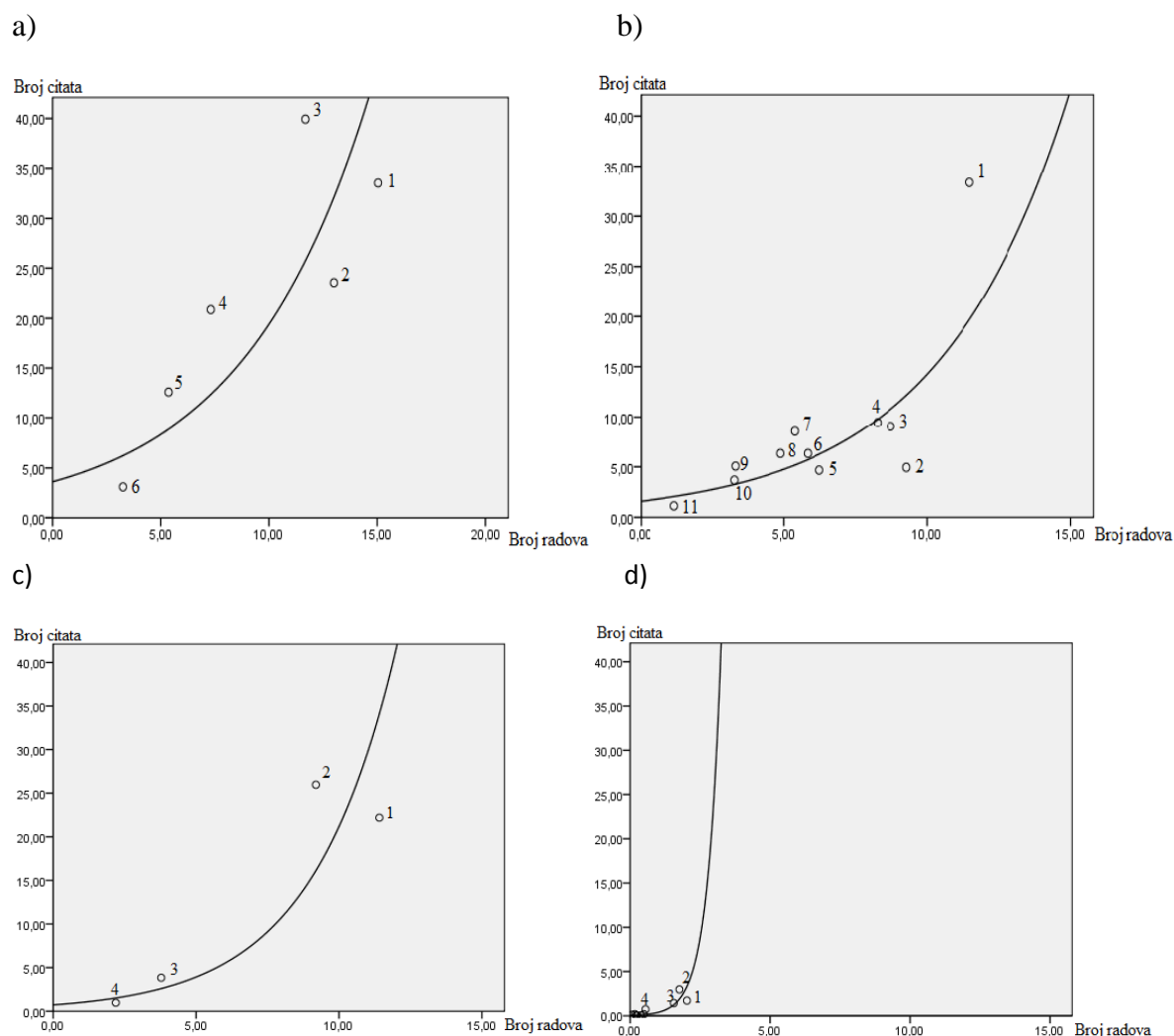
Da bi se to postiglo potrebno je da svi istraživači tome doprinose svakodnevnim aktivnostima. Kvalitet naučno-istraživačkog rada kao osnovne pretpostavke nastavnog rada može se izraziti kao:

$$Q = f(C, R) \quad (1)$$

gde je:

- Q – kvalitet naučnog rada
- C – broj citata
- R – broj publikovanih radova

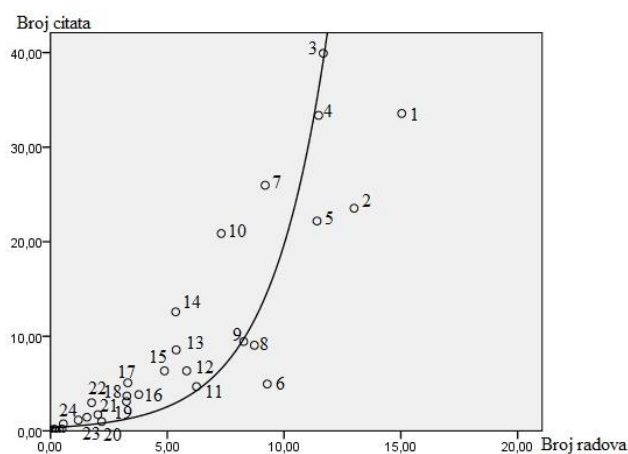
Zavisnost broja citata prema broju publikovanih radova prosečno po istraživaču predstavlja indeks kvaliteta naučno-istraživačkog rada na svakom fakultetu. U narednom delu biće prikazani rezultati navedene zavisnosti za minuli petogodišnji period i četiri ispitivane grupacije fakulteta Univerziteta u Beogradu može prikazati kao na Slici 5.



Slika 5. Indeks kvaliteta izračunat kao odnos broja radova i broja citata po istraživaču za a) grupaciju fakulteta prirodno-matematičkih nauka (1-Hemijski, 2-Biološki, 3-Fizička hemija,

4-Fizički, 5-Matematički, 6-Geografski fakultet 6; b) za grupaciju tehničko-tehnoloških nauka (1-TMF, 2-Poljoprivredni, 3-ETF, 4-TF Bor, 5-Saobraćajni, 6-Mašinski, 7- FON, 8-RGF, 9-Šumarski, 10-Građevinski, 11-Arhitektonski fakultet); c) za grupaciju medicinskih nauka (1-farmaceutski, 2-Medicinski, 3-Veterinarski, 4-Stomatološki fakultet); d) za grupaciju društveno-humanističkih nauka (1-FASPER, 2-DIF, 3-Ekonomski, 4-Fakultet bezbednosti, 5-Političke nauke, 6-Učiteljski, 7-Pravni, 8- Pravoslavni bogoslovski, 9-Filološki, 10-Filozofski fakultet).

Analiza svih fakulteta pokazala je da najveći doprinos dobrom pozicioniranju UB na Šangajskoj listi daju fakulteti prirodno-matematičkih i medicinskih nauka, a da je doprinos društveno-humanističkih nauka najskromniji. Na Slici 6 prikazana je eksponencijalna zavisnost broja citata od broja radova, pri čemu se izdvajaju klasteri fakulteta koji imaju približno isti broj radova i citata.



Slika 6. Indeks kvaliteta svih fakulteta BU: 1-Hemijski fakultet; 2-Biološki fakultet, 3-Fizička hemija. 4-TMF, 5-Farmaceutski fakultet, 6- Poljoprivredni fakultet, 7-Medicinski fakultet, 8-ETF, 9-TF Bor, 10-Fizički fakultet, 11-Saobraćajni fakultet, 12-Mašinski fakultet, 13-FON, 14-Matematički fakultet, 15-RGF, 16-Veterinarski fakultet, 17-Šumarski fakultet, 18- Građevinski fakultet, 19-Geografski fakultet, 20-Stomatološki fakultet, 21-FASPER, 22-DIF, 23-Ekonomski fakultet, 24-Arhitektonski fakultet, 25-Fakultet bezbednosti, 26— Političke nauke, 27-Učiteljski fakultet, 28-Pravni fakultet, 29-Pravoslavno bogoslovski fakultet, 30-Filološki fakultet, 31-Filozofski fakultet.

4. DISKUSIJA REZULTATA

U radu je izvršen pokušaj da se prevaziđu neka od ograničenja koja se tiču pre svega veličine fakulteta i različitih oblasti istraživanja, uvažavajući pri tom svaku grupaciju fakulteta ponaosob. Korišćenjem indeksa kvaliteta izbegnuta je greška rangiranja fakulteta na osnovu ukupnog broja radova i citata, jer bi na taj način fakulteti koji imaju veliki broj istraživača bili u dominantnom položaju u odnosu na manje fakultete. Svođenjem mere na odnos broja radova i broj citata po istraživaču takva greška je potpuno izbegnuta.

U ovom radu razmotren je broj publikovanih naučnih radova i nivo kvaliteta publikacije na trideset i jednom fakultetu Univerziteta u Beogradu u periodu 2011-2015. godine. Posmatran je broj radova i citiranost tih radova u četiri grupacije fakulteta

realizovanih od strane nastavnika i saradnika tih fakulteta: tehničko-tehnološka, medicinska, prirodno-matematička i društveno-humanistička grupacija. Na osnovu istraživanja primećeno je da najveći broj publikovanih radova u posmatranom periodu (2011-2015) ima Medicinski, TMF i Farmaceutski fakultet, respektivno. Pored toga primetno je da se iz svake grupacije istču određeni fakulteti, pa tako kod tehničko-tehnološke najveći doprinos ima TMF, kod medicinske grupacije ima Medicinski fakultet, prirodno-matematičke Biološki fakultet i kod društvene-humanističke grupacije izdvaja se Fakultet za specijalnu edukaciju i rehabilitaciju. Kod društveno-humanističke grupacije je primećen najskromniji broj radova. Kod ove grupacije je zapaženo da se mali broj istraživača bavi publikovanjem radova, pa tako, na primer, kod Pravoslavno bogoslovsog fakulteta koji ima ukupno 49 istraživača, samo tri istraživača je publikovalo radove u posmatranom periodu. Slična je situacija i kod Pravnog fakulteta, koji ima ukupno 104 istraživača, samo se četrnaest istraživača bavilo publikovanjem radova.

Posmatrajući broj publikovanih radova i citata po naučnim zvanjima u datom periodu zapaža se da najveći doprinos velikom broju radova imaju redovni profesori prirodno matematičke, tehničko-tehnološke i društveno-humanističke grupacije, dok su kod medicinske grupacije fakuleta, najvećem broju radova doprineli vanredni profesori. Ono što zabrinjava jeste da na većini fakulteta u strukturi istraživača dominiraju redovni profesori, što ostavlja utisak i o nedovoljnom angažovanju mladih kadrova.

Ostvarena poboljšanja koja su evidentna u poslednjih par godina na većini razmatranih fakulteta Univerziteta u Beogradu, ukazuju da je proces približavanja Šangajskoj listi počeo uz određene otpore dela Univerziteta koji slabije reaguje na činjenicu neminovnih promena, koje su već deo realnosti. Definisani klasteri ukazuju na pojedine grupe fakulteta koji su senzitivniji na promene i one koji su manje senzitivni. Ostvareni rezultati preko broja publikovanih radova i broja citata po istraživaču za svaki fakultet u celini, kao i u kategorijama gde se kreira razvoj fakulteta, i ostvarenog indeksa kvaliteta koji je meren kao funkcija ostvarenih citata prema broju publikovanih radova po istraživaču na svakom fakultetu pojedinačno, globalno definišu efekte ukupnog uticaja pojedinih fakulteta na približavanje i ostanak Univerziteta u Beogradu na Šangajskoj listi.

5. ZAKLJUČAK

Fakulteti, odnosno univerziteti, kao naučno-obrazovne institucije bi trebali da budu primer upravljanja znanjem. Povećanje nivoa znanja i kompetencija nastavnika i saradnika se može izmeriti povećanim brojem publikovanih naučnih radova. Osim kvantitativnog pokazatelja, potrebno je razmotriti i kvalitativne pokazatelje, to jest nivo kvaliteta publikacija koji se reflektuje kroz broj citata.

Iako su se prva rangiranja fakulteta pojavila pre skoro 10 godina, metodologija koja se koristi još uvek nije do kraja razrađena. Postoje još neke manjkavosti trenutnih metodologija, zavisno od shvatanja istraživača koji od kriterijuma smatra važnim za vrednovanje naučno-istraživačkog rada. Kao posledica toga javljaju se i različite rang-liste univerziteta, koje su u mnogome različite. Buduća istraživanja trebala bi ići u tom pravcu da se uspostavi jedinstvena metodologija rangiranja visokoškolskih ustanova.

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PRIVATIZATION OF STATE ENTERPRISES IN THE REPUBLIC OF SERBIA IN THE FUNCTION OF MACROECONOMIC STABILITY IMPROVEMENT AND SUSTAINABLE ECONOMIC DEVELOPMENT

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Abstract: The transition of former centrally-planned economies involves the implementation of numerous reforms in order to preform transition to a market economy. One of the crucial reforms is the change of ownership, having in mind that doing business in market conditions is based on private ownership. Past course of the privatization process in Serbia, contrast to the expected recovery of the economy, the economic boom and a significant inflow of public revenues (and in this regard, solving the problem of over-indebtedness of the country), was characterized by numerous controversial privatizations, great corruption scandals, hundreds of thousands of job losses and insufficient inflow of money into the state budget. Such state in this segment of the reforms influenced in the large extent the performances of Serbian economy.

In this paper, firstly, the ratio analysis was performed for selected state enterprises that have already been privatized and those that are still waiting for privatization, in order to obtain insight into their financial position and performance. Then, the obtained data was used for comparative analysis, using the multi-criteria analysis, in order to determine to what extent the privatization contributed to the improvement of business in the privatized enterprises. At the end of the paper authors presented the state in public sector of Serbia and analyzed its impact on macroeconomic stability and sustainable economic development.

Keywords: privatization, public sector, macroeconomic stability, sustainable economic development, ratio analysis, multi-criteria analysis.

Apstrakt: Tranzicija nekadašnjih centralno-planskih privreda podrazumeva sprovođenje niza reformskih procesa u cilju prelaska na tržišni način privređivanja. Jedna od ključnih reformi je promena vlasništva, s obzirom da se poslovanje u tržišnim uslovima zasniva na privatnom vlasništvu. Dosadašnji tok procesa privatizacije u Srbiji, umesto očekivanog oporavka privrede, ekonomskog buma i značajnog priliva javnih prihoda (i s tim u vezi, rešavanja problema prezaduženosti zemlje), karakterisale su brojne sporne privatizacije, velike korupcijske afere, stotine hiljada zatvorenih radnih mesta i nedovoljan priliv sredstava u državnu kasu. Ovakvo stanje u ovom segmentu reformi u velikoj meri se odrazilo na performanse srpske privrede.

U ovom radu je najpre izvršena racio analiza za izabrana javna preduzeća koja su već privatizovana i ona koja još uvek čekaju na privatizaciju, kako bi se stekao uvid u njihov finansijski položaj i poslovanje. Nakon toga, izvršena je komparativna analiza dobijenih podataka putem multikriterijumske analize, sa ciljem da se utvrdi u kojoj meri je privatizacija preduzeća doprinela unapređenju poslovanja u privatizovanim preduzećima. Na kraju, dat je

prikaz stanja u javnom sektoru u Srbiji i analiziran njegov uticaj na makroekonomsku stabilnost i održivi privredni razvoj.

Ključne reči: privatizacija, javni sektor, makroekonomska stabilnost, održivi privredni razvoj, racio analiza, multikriterijumska analiza.

1. UVOD

Problematika privatizacije i restrukturiranja javnih preduzeća poslednjih par decenija sve više dobija na značaju, pa danas postoje brojna iskustva i relativno veliki broj empirijskih istraživanja iz ove oblasti. Razvoj nauke i tehnike i izmene u strukturi potrošnje stvorili su uslove za sprovođenje liberalizacije u sektorima koji se bave proizvodnjom i distribucijom dobara i usluga od opšteg interesa. Kako su u tim sektorima uglavnom dominirali državni monopoli, prvi korak ka liberalizaciji svakako je bila njihova privatizacija. Ovaj proces pokrenut je najpre u Engleskoj [1,2,3], a ubrzo zatim i u ostalim razvijenim tržišnim privredama [4,5,6].

Nakon što je centralno-plaski sistem ispoljio brojne slabosti, koje se ogledaju prevashodno u neefikasnom funkcionisanju realnog i finasijskog sektora i pojavi brojnih strukturnih neravnoteža, SFRJ se okrenula sprovođenju određenih tržišno-orijentisanih reformi. Sa reformom Ustava i usvajanjem Zakona o preduzećima 1988. godine, privatna svojina postaje ravnopravni oblik svojine sa ostalim oblicima, a privatizacija društvenog kapitala biva propagirana kao jedno od ključnih rešenja za nagomilane probleme u jugoslovenskoj privredi.

Imajući u vidu političke događaje na teritoriji bivše SFRJ i to da je privatizacija tokom 90-ih godina XX veka bila dobrovoljna, ne čudi činjenica da u tom periodu nije ostvaren gotovo nikakav napredak u promeni vlasništva i restrukturiranju preduzeća. Od 2000. godine dolazi do intenziviranja svih reformskih procesa, pa i onih u oblasti privatizacije i restrukturiranja. Veliki broj preduzeća je privatizovan u prvim godinama nakon usvajanja Zakona o privatizaciji 2001. godine i po tom osnovu Srbija je ostvarila značajan priliv SDI. Međutim, od 2007. godine dolazi do usporavanja tempa privatizacije i raskidanja velikog broja ugovora o privatizaciji, što se u velikoj meri odrazilo na funkcionisanje privrede. Poseban problem je to što veliki broj javnih preduzeća nije našao svog vlasnika, niti su u njima sprovedene neophodne mere restrukturiranja. Uloga države u privredi je ostala preterana, što je u kombinaciji sa neefikasnom državom, glavni uzrok problema u srpskoj privredi [7].

Dugogodišnje neefikasno poslovanje pojedinih javnih preduzeća može da dovede u pitanje održivost javnih finansija u Srbiji. U poslednjih nekoliko godina situacija u ovim preduzećima je postala toliko složena, da bi bez državne pomoći njihovo normalno funkcionisanje, a time i isporuka dobara i usluga od opšteg interesa, bilo gotovo nemoguće. Po procenama Fiskalnog saveta državna preduzeća su, po svim osnovama, stvarala godišnji fiskalni trošak od oko 2% BDP-a do 2012. godine, da bi u 2013. i 2014. izdaci države za javna preduzeća narasli na oko 3% BDP-a (oko 1 mlrd evra). U ovaj efekat su uključene subvencije, aktivirane garancije i neplaćeni porezi i doprinosi – što sve opterećuje budžet države, a predstavlja godišnju cenu koju država plaća za neuspešno poslovanje preduzeća u svom vlasništvu [8]. Osim što generišu značajna sredstva države, ova preduzeća blokiraju i

sredstva drugih privrednih subjekata, neplaćajući svoje obaveze prema njima. S tim u vezi, često se u stručnoj javnosti ističe činjenica da su među glavnim generatorima krize likvidnosti, koja ozbiljno potresa domaću ekonomiju, mnoga preduzeća u vlasništvu države [9].

U tom smislu, osnovni cilj ovog rada je da na celovit i sveobuhvatan način sagleda finansijski položaj i profitabilnost ključnih javnih preduzeća, primenom racio analize. Kako je privatizacija najčešće navođeno rešenje brojnih nagomilanih problema sa kojima se ova preduzeća suočavaju, u racio analzu je uključen određen broj privatizovanih preduzeća, sa ciljem da se utvrdi da li se i u kojoj meri performanse ove dve grupe preduzeća razlikuju. Nakon toga, sprovedena je analiza uticaja poslovanja javnih preduzeća na stanje u javnim finansijama, a dobijeni rezultati poslužili su kao osnova za formulisanje odgovarajućih korisnih smernica i preporuka za unapređenje njihovog poslovanja u budućnosti.

2. POSLOVANJE JAVNIH PREDUZEĆA U REPUBLICI SRBIJI

Kako bi se sagledalo poslovanje javnih preduzeća u Republici Srbiji u Tabeli 1 su prikazane osnovne performanse ovih preduzeća u periodu 2010-2014.

Tabela 1. Osnovne performanse javnih preduzeća u Republici Srbiji u periodu 2010-2014. godine [10]

Pokazatelj	2010	2011	2012	2013	2014
Broj preduzeća	474	479	496	510	482
Broj zaposlenih	114.893	95.240	96.934	98.182	87.941
Učešće javnih preduzeća u:					
U imovini	14,9	13,8	13,4	13,6	15,0
U kapitalu	23,2	20,8	19,7	19,3	20,8
U kumuliranom gubitku	13,6	8,6	9,9	10,4	8,9

Na osnovu prezentiranih podataka se može uočiti trend rasta broja javnih preduzeća zaključno sa 2013. godinom (usled statusnih promena i organizovanja novih preduzeća), da bi u 2014. godini broj preduzeća bio značajno smanjen. Naime, u Republici Srbiji je u 2014. godini poslovalo 482 javna preduzeća, što je 0,5% od ukupnog broja privrednih subjekata u zemlji i za 28 preduzeća manje nego u prethodnoj godini. Broj zaposlenih je, pak, najpre smanjen 2011. godine, a nakon toga beleži konstantan rast do 2013. godine. Nakon sprovođenja racionalizacije broja zaposlenih u okviru mera štednje, 2014. godine broj zaposlenih u ovim preduzećima je smanjen na 87941, što je za 2223 radnika manje nego prethodne godine i čini 9% od ukupnog broja zaposlenih. Interesantno je pomenuti da, iako je čak 48,6% javnih preduzeća svrstano u kategoriju malih preduzeća (njih 234), ipak su najveći broj radnika zapošljavala velika preduzeća i to čak 51,3% od ukupnog broja radnika u javnim preduzećima.

Učešće javnih preduzeća u ukupnoj imovini privrednih subjekata u Republici Srbiji se smanjivalo do 2012. godine, nakon čega beleži rast do kraja posmatranog perioda. Poslovna imovina javnih preduzeća 2014. godine je uvećana za 7% (kao rezultat novih investicija), što je znatno veći porast nego na nivou privrede, gde je ostvaren rast imovine od 0,9%. U strukturi poslovne imovine dominira stalna imovina sa čak 85,2%. Istovremeno, javna preduzeća imaju značajno učešće u ukupnom kapitalu, koje je tokom posmatranog petogodišnjeg perioda iznosilo oko petine ukupnog kapitala. Pomenuto učešće se do 2013.

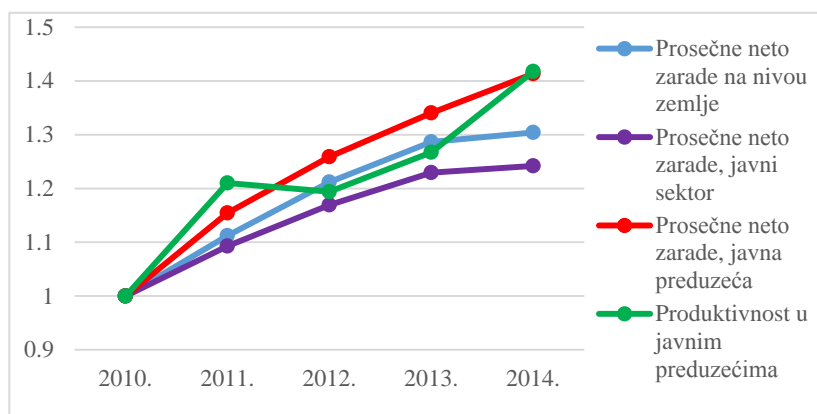
kontinuirano smanjivalo, da bi 2014. godine zabeležilo porast od 1,5%. U strukturi izvora sredstava, više od 60% čini kapital. Međutim, tokom 2014. godine dolazi do porasta zaduživanja, pa je vrednost pozajmljenih izvora povećana za 11,2% u odnosu na prethodnu godinu. Javna preduzeća su se pretežno zaduživala na kratak rok, pa dve trećine ukupnih dugovanja čine kratkoročne obaveze. Takođe, bitno je napomenuti da je oko 80% imovine i kapitala u vlasništvu velikih javnih preduzeća.

U 2014. godini javna preduzeća beleže skromno učešće u ukupnim prihodima privrede (5,9%), ukupnim rashodima (6,3%). Treba istaći i to da su velika javna preduzeća ostvarila 4/5 ukupnih prihoda i rashoda svih javnih preduzeća. U strukturi ukupnih prihoda dominiraju poslovni prihodi koji su gotovo nepromenjeni u odnosu na prethodnu godinu, što je rezultat cenovne stabilnosti u zemlji. Sa druge strane, značajan rast u odnosu na prethodnu godinu zabeležili su finansijski (41,4%) i ostali prihodi (59,1%). Poslovni rashodi su, kao i prihodi, ostali nepromenjeni u odnosu na prethodnu godinu, ali su finansijski rashodi značajno porasli (za čak 72,6%) usled negativnih kursnih razlika i povećanja rashoda kamata. Ostali rashodi, pak, opali su za 16,1% u odnosu na prethodnu godinu. I dok je poslovni rezultat ovih preduzeća pozitivan (iako je manji u odnosu na 2013. za 11,7%), finansijski rezultat je negativan i 7,3 puta veći u odnosu na prethodnu 2013. godinu. Rezultat iz ostalih aktivnosti je takođe negativan, ali je smanjen u odnosu na prethodnu godinu za 29,7%.

Javna preduzeća su 2014. godine poslovala nešto uspešnije u odnosu na prethodnu godinu, imajući u vidu da je povećan broj profitabilnih preduzeća (bilo ih je 342, što je za 20 više nego prethodne godine), i da je njihov neto dobitak više nego udvostručen u odnosu na prethodnu godinu (više od 80% ukupnog neto dobitka ostvarila su velika preduzeća). Ovu sliku pozitivnog poslovanja javnih preduzeća u 2014. u velikoj meri kviri podatak da ova preduzeća kumuliraju značajne gubitke, koji su 2014. godine dostigli iznos od 291.054 miliona dinara ili 8,9% ukupnog gubitka privrede. Učešće kumuliranih gubitaka je zabeležilo značajan pad 2011. godine u odnosu na 2010. godinu, nakon toga beleži kontinuirani rast, da bi ovo učešće 2014. godine ponovo bilo smanjeno. Međutim, iako je učešće u ukupnim gubicima smanjeno, kumulirani gubici javnih preduzeća 2014. godine zabeležili su rast od 22,6% u odnosu na prethodnu godinu, što je skoro dvostruko više nego što iznosi rast kumuliranih gubitaka na nivou privrede (koje iznosi 13,8%). Treba istaći i to da gubici iznad visine kapitala iznose 78.858 miliona dinara i više nego dvostruko su veći nego prethodne godine. Povećanje gubitaka iznad kapitala dovelo je do povećanja stope izgubljenog kapitala sa 18,3% u 2013. na 20,8% u 2014. godini.

Velika javna preduzeća su skoro u celosti iskazala gubitke i oni su na kraju 2014. godine dostigli iznos od čak 270.285 miliona dinara. Jedan od značajnih uzročnika finansijske neravnoteže u javnim preduzećima je nedostatak kvalitetnih izvora finansiranja, pa su ova preduzeća poslovala sa negativnim neto obrtnim kapitalom u iznosu od 233.953 miliona dinara, što je za 20% više nego 2013. godine. S najvećim iznosom negativnog neto obrtnog kapitala od čak 174.252 miliona dinara poslovala su velika preduzeća.

Posebno negativna tendencija, koja značajno utiče na ravnotežu javnih finansija, je rast zarada u javnom sektoru, koje su znatno iznad proseka privrede, proseka javnog sektora i produktivnosti rada. Kako bi se sagledalo kretanje zarada u javnim preduzećima u posmatranom petogodišnjem periodu na Slici 1 prikazano je kretanje baznog indeksa rasta zarada i produktivnosti u javnim preduzećima (pri tom je produktivnost data kao ukupan prihod po radniku), ali i indeksa rasta zarada u javnom sektoru i na nivou čitave privrede (bazna godina je 2010. godina).



Slika 1. Kretanje indeksa rasta zarada i produktivnosti u javnim preduzećima, zarada u javnom sektoru i prosečnih zarada na nivou čitave privrede [10,11]

Na osnovu datog grafičkog prikaza može se zaključiti da je rast zarada u javnim preduzećima tokom 2011. godine bio znatno veći od rasta zarada prosečnih zarada na nivou zemlje i rasta zarada na nivou javnog sektora, ali je bio daleko manji od rasta produktivnosti u javnom sektoru. Nakon 2011. godine, rast zarada u javnom sektoru je daleko viši nego rast preostale tri posmatrane kategorije, pri čemu je produktivnost tokom 2012. i 2013. godine značajno smanjena. Na kraju, 2014. godine dolazi do gotovo identične stope rasta produktivnosti i zarada u javnom sektoru, usled sprovođenja mera štednje, koje su se zasnivale na smanjenju zarada i broju zaposlenih u javnom sektoru.

3. RACIO ANALIZA POSLOVANJA IZABRANIH JAVNIH I PRIVATIZOVANIH PREDUZEĆA

Imajući u vidu da je privatizacija navođena kao jedno od osnovnih rešenja za loše stanje u javnim preduzećima u putem racio analize će najpre biti sagledano poslovanje javnih preduzeća koja su još uvek u državnom vlasništvu i privatizovanih preduzeća koja su ranije bila u državnom vlasništvu, kako bi se stekla slika o tome da li je i u kojoj meri privatizacija dovela do poboljšanja performansi privatizovanih preduzeća. Javna preduzeća koja su uzeta u analizu su Aerodrom Nikola Tesla, Telekom Srbija, Železnice Srbije, Srbijagas i Elektroprivreda Srbije, zbog njihovog strateškog značaja za srpsku privredu. Od preduzeća koja su ranije bila u državnom vlasništvu, pa su kasnije privatizovana analizirana su sledeća preduzeća: Naftna industrija Srbije, Air Serbia i Telenor.

Za racio analizu uzeti su pokazatelji koji se koriste za izračunavanje Altmanovog Z-skora, koji se koristi za predviđanje bankrotstva preduzeća. Za izračunavanje ovog skora koristi se sledeći obrazac [12]:

$$Z\text{-score} = 1,2X1 + 1,4X2 + 3,3X3 + 0,6X4 + 0,999X5$$

Pri čemu je:

- X1- obrtni kapital/ukupna imovina (pokazatelj likvidnosti),
- X2 - zadržana zarada/ukupna imovina (pokazatelj profitabilnosti),
- X3 - dobit pre kamate i poreza/ukupna imovina (pokazatelj profitabilnosti),
- X4 - tržišna vrednost kapitala/ukupna vrednost duga (pokazatelj solventnosti)

X5 - Prihodi od prodaje / Ukupna aktiva (pokazatelj efikasnosti).

Tabela 2. Pokazatelji racio analize za izabrana preduzeća

Preduzeća	X1	X2	X3	X4	X5
Srbijagas	-0,66	0,33	0,33	-0,29	0,59
Aerodrom	0,15	0,12	0,13	7,42	0,39
Železnica	-0,15	0,04	0,04	2,44	0,09
EPS	-0,06	0,01	0,01	2,92	0,22
Telekom	-0,04	0,70	0,70	1,43	0,05
NIS	0,13	0,08	0,10	1,10	0,70
Air Serbia	-2,06	0,03	0,02	-0,15	2,47
Telenor	0,04	0,25	0,29	2,56	1,07

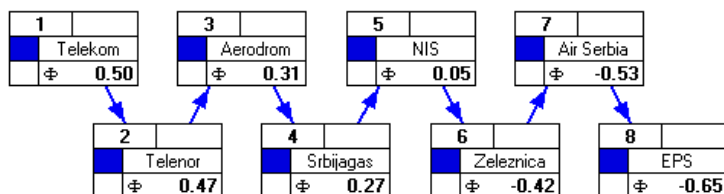
Na osnovu prikazanih pokazatelja može se zaključiti da Aerodrom Nikola Tesla ima najpovoljniji pokazatelj X1, što ukazuje na to da ovo preduzeće najlikvidnije, jer ima 0,15 dinara obrtnog kapitala na dinar imovine, dok je ovaj pokazatelj najnepovoljniji kod preduzeća Air Serbia, koje ima visoku negativnu vrednost neto obrtnog kapitala, pa samim tim i najvišu negativnu vrednost ovog pokazatelja od -2,06. Drugi pokazatelj ukazuje na profitabilnost preduzeća i on je najpovoljniji kod Telekoma koji ostvaruje 0,7 dinara neto dobitka na dinar imovine. Najmanju profitabilnost po ovom pokazatelju ima Elektroprivreda Srbije, koja ostvaruje tek 0,01 dinar neto dobitka na dinar imovine. Situacija je ista ukoliko se posmatra sledeći pokazatelj takođe ukazuje na profitabilnost preduzeća. Naredni pokazatelj X4, koji ukazuje na solventnost preduzeća, je najpovoljniji kod Aerodroma Nikola Tesla, koji 7,42 dinara kapitala na 1 dinar duga. Na kraju, X5 kao pokazatelj efikasnosti je najpovoljniji kod preduzeća Air Serbia, koje ostvaruje 2,47 dinara prihoda od prodaje na 1 dinar imovine, dok Telekom najneefikasniji sa tek 0,05 dinara prihoda od prodaje na 1 dinar imovine.

U cilju što kvalitetnije komparativne analize posmatranih preduzeća dati pokazatelji i težinski koeficijenti iskorišćeni su za postavku modela multikriterijumske analize. Multikriterijumska analiza je sprovedena uz pomoć softverskog paketa Decision Lab koji ima mogućnost grafičkog prikaza dobijenih rezultata, čime se stiče potpunija slika posmatranog problema. Sprovođenje multikriterijumske analize primenom PROMETHEE GAIA metode zahteva definisanje određenih parametara kao što su smer preferencije, funkcija preferencije i težinski koeficijenti. U tom smislu, u Tabeli 3 prikazan je model multikriterijumske analize.

Tabela 3 - Parametri multikriterijumske analize

Parametri	X1	X2	X3	X4	X5
Smer preferencije	Max.	Max.	Max.	Max.	Max.
Funkcija preferencije	Usual	Usual	Usual	Usual	Usual
Težine	15,9996	18,6662	43,9989	7,9989	13,3333

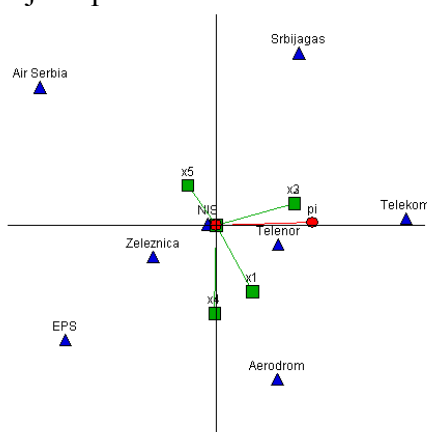
Na osnovu ovako definisanih parametara, sprovedena je multikriterijumska analiza primenom PROMETHEE GAIA metode. Redosled izabranih preduzeća prikazan je na Slici 2.



Slika 2. Rangiranje posmatranih preduzeća primenom PROMETHEE GAIA metode

Sa Slike 2 se može uočiti da je Telekom najbolje rangirano preduzeće među posmatranim preduzećima, a odmah zatim sledi Telenor koji ima nešto niži prag preferencije. Nakon toga slede Aerodrom Nikola Tesla, Srbijagas, Naftna industrija Srbije, Železnice Srbije, Air Serbia i, na samom začelju, Elektroprivreda Srbije. Ova analiza ukazuje na činjenicu koja se često pominja u stručnim krugovima da je Telekom Srbija preduzeće koje treba zadržati u vlasništvu države imajući u vidu da ovo preduzeće uspešno posluje. Telenor, koji već 10 godina uspešno posluje u Srbiji, primer je dobre privatizacije koja je dovela do unapređenja poslovanja kupljenog preduzeća. Aerodrom Nikola Tesla je dospao na treću poziciju zahvaljujući najpovoljnijoj likvidnosti i solventnosti (najveće vrednosti pokazatelja X1 i X5), iako ostali pokazatelji nisu na zavidnom nivou. Srbijagas, pak, i pored vrlo loše situacije u domenu likvidnosti i solventnosti, zauzima četvrtu poziciju zahvaljujući relativno visokom vrednošću ostalih pokazatelja odnosno relativno visokoj profitabilnosti i efikasnosti. Iako se od privatizacije NIS-a očekivalo mnogo, još uvek nisu ostvareni željeni efekti, pre svega u domenu profitabilnosti i solventnosti. Železnice Srbije imaju relativno lošu poziciju usled negativnog neto obrtnog fonda, ali i nedovoljne profitabilnosti i efikasnosti. Air Serbia ima nepovoljnu poziciju, pre svega usled nedovoljne likvidnosti i solventnosti. Treba imati u vidu da je JAT privatizovan 2013. godine i da 2014. još nije izvršena dokapitalizacija preduzeća. Na kraju, najlošije rangirano preduzeće je Elektroprivreda Srbije, koje ima najnepovoljnije pokazatelje profitabilnosti, ali i negativan pokazatelj X1, što ukazuje na nedovoljnu likvidnost.

Dato stanje u posmatranim preduzećima je još uočljivije ukoliko se dobijeni podaci prikazuju na GAIA ravni, kao što je to prikazano na Slici 3.



Slika 3. GAIA ravan

Slika 3 nesumnjivo ukazuje na to da je Telekom Srbija najbolje rangirano preduzeće, imajući u vidu da se nalazi u pravcu štapa odluke i najudaljenije je od koordinatnog

početka. Telenor je takođe u pravcu štapa odluke, ali je znatno bliži koordinatnom početku u odnosu na Telekom Srbija. Nasuprot štapu odluke nalaze Elektroprivreda Srbije i Železnice Srbije, koje su među najlošije rangiranim preduzećima. Pri tom je EPS najudaljeniji od koordinatnog početka. Air Srbija, iako je lošije rangirano u odnosu na Železnice Srbije, nalazi se u prvom kvadrantu gde se nalazi kriterijum solventnosti jer ima najveću vrednost pokazatelja X4. Aerodrom Nikola Tesla se nalazi u pravcu kriterijuma likvidnosti, ukazujući da ovo preduzeće ima daleko najveći pokazatelj X1.

4. STANJE U JAVNIM FINANSIJAMA SRBIJE

Neefikasno poslovanje javnih preduzeća se u velikoj meri odražava na stanje u budžetu, ali i na nivo zaduženosti zemlje. Republika Srbija beleži deficit budžeta već duži niz godina, što se u velikoj meri odražava na visinu javnog duga. Kako bi se sagledalo stanje u javnim finansijama Republike Srbije u Tabeli 4.

Tabela 4. Kretanje fiskalnih pokazatelja i spoljnog u Republici Srbiji u periodu 2010-2014. godine

Pokazatelji	2010.	2011.	2012.	2013.	2014.
Konsolidovani javni prihodi (u mil. dinara)	1.278.435	1.362.641	1.472.118	1.538.054	1.620.752
Stopa rasta javnih prihoda (u %)	6,5	6,6	8,0	4,5	5,4
Konsolidovani javni rashodi (u mil. dinara)	1.419.451	1.526.125	1.717.306	1.750.150	1.878.878
Stopa rasta javnih prihoda (u %)	6,9	7,5	12,5	1,9	7,4
Subvencije (u mil. dinara)	49.511,3	56.277,7	86.597,9	75.632,4	95.538,5
Učešće subvencija u konsolidovanim javnim rashodima (u %)	3,5	3,7	5,0	4,3	5,1
Aktivirane garancije (u mil. dinara)	2.674,9	3.272,0	3.738,3	7.896,8	29.650,8
Učešće aktiviranih garancija u konsolidovanim javnim rashodima (u %)	0,2	0,2	0,2	0,5	1,6
Konsolidovani javni suficit/deficit (u mil. dinara)	-140.016	-163.484	-245.188	-212.097	-258.126
Konsolidovani javni suficit/deficit (% BDP-a)	-4,6	-4,8	-6,8	-5,5	-6,6
Javni dug, kraj perioda, u mil. dinara (centralni nivo vlasti)	1.282.536	1.547.511	2.014.751	2.309.041	2.753.199
Javni dug, kraj perioda, %BDP-a (centralni nivo vlasti)	41,8	45,4	56,2	59,6	70,4
Spoljni dug, u mil. evra	23.509	24.123	25.645	25.643	25.676
Učešće javnog sektora u spoljnom dugu (u %)	38,7	44,8	47,5	51,2	55,1
Spoljni dug (%BDP-a)	79,0	72,2	80,9	74,8	77,1

Izvor: Bilten javnih finansija br.138.

Iz prezentiranih podataka se može zaključiti da su tokom čitavog posmatranog perioda konsolidovani javni prihodi rasli, pri čemu se stopa njihovog rasta povećavala zaključno sa 2012. godinom, kada je zabeležen rast od 8% u odnosu na prethodnu godinu. Nakon toga, javni prihodi beleže gotovo dvostruko manju stopu rasta, da bi na kraju posmatranog perioda zabeležili rast od 5,4%. Javni rashodi su brže rasli od javnih prihoda zaključno sa 2012. godinom, nakon čega je 2013. godine stopa njihovog rasta bila preko 6 puta manja u odnosu

na prethodnu godinu, zahvaljujući sprovedenim merama štednje. Uprkos datim merama, naredne 2014. godine javni rashodi su porasli za čak 7,4% u odnosu na prethodnu godinu. Treba uočiti i tendenciju stalnog povećanja učešća subвенicija u ukupnim javnim rashodima. Ovaj rast je u izvesnoj meri prekinut 2013. godine, ali nakon toga je 2014. godine zabeležen rast njihovog učešća na 5,1%. Sa druge strane, aktivirane garancije beležile su neznatnu konstantnu stopu rasta od 0,2% do 2012. godine, nakon čega je zabeležen značajan rast njihovog učešća u ukupnim rashodima – za 0,5% u 2013. i za 1,6% u 2014. godini.

Brži rast javnih rashoda u odnosu na prihode (osim 2013. godine) doveo je do porasta budžetskog deficita, koji je prekinut 2013. godine, ali je već naredne godine ponovo zabeležio rast i u apsolutnom i u relativnom iznosu (kao % BDP-a). Iako je Republika Srbija još uvek daleko od ulaska u EMU, ipak zabrinjava činjenica da učešće budžetskog deficita tokom čitavog perioda prevazilazi granicu definisanu Mاستrihtskim kriterijumima od 3% BDP-a. Najlošiji rezultat zabeležen je 2012. godine, kada je budžetski deficit dostigao vrednost od 6,8% BDP-a, što je više nego dvostruko više od definisane granice.

Što se tiče javnog duga, on beleži konstantan rast tokom čitavog perioda i u apsolutnom i u relativnom iznosu. Tome je svakako doprinelo značajno smanjenje prihoda od privatizacije, sa jedne strane, i povećanje javnih rashoda, koje je u velikoj meri uzrokovano neefikasnim poslovanjem javnih preduzeća, s druge. Država morala da se zadužuje putem emisije hartija od vrednosti denominovanih, najpre, u dinarima, a kasnije, u evrima, da bi finansirala rastući budžetski deficit [14]. Već 2011. godine narušeno je fiskalno pravilo koje ograničava visinu javnog duga na 45% BDP-a, a 2014. godine je visina javnog duga prevazišla i granicu javnog duga propisanu Mاستrihtskim kriterijumima od 60% BDP-a. Javni dug je dostigao nivo od čak 70,4% BDP-a. Ono što je dodatno pogoršavalo sliku javnih finansija u Republici Srbiji je to što rast zaduženosti nije praćen odgovarajućim rastom investicione potrošnje, čime bi se stvorili uslovi za povećanje BDP-a u budućnosti, a time stvorile i veće mogućnosti za otplatu duga.

Spoljni dug, takođe, beleži značajan rast. Pri tom, spoljni dug u apsolutnom iznosu beleži nešto sporiji rast. Javni sektor u velikoj meri doprinosi rastu spoljnog duga, imajući u vidu da je učešće duga javnog sektora u spoljnom dugu kontinuirano raste i 2014. je dostigao nivo od čak 55,1% spoljnog duga. U relativnom iznosu odnosno iskazan kao %BDP-a, spoljni dug beleži izvesne oscilacije, a 2014. godine iznosi čak 77,1%. Prema kriterijumu koji propisuje Svetska banka, zemlja se smatra prezaduženom ukoliko spoljni dug dostigne nivo od 80% BDP-a. Republika Srbija je ovu granicu 2012. godine prekoračila. Iako je nakon toga ovaj pokazatelj smanjen, srpska privreda se i nadalje nalazila blizu gornje granice prezaduženosti. Ovakvo kretanje datog pokazatelja ukazuje da BDP zemlje raste sporije od rasta zaduženosti, čime se umanjuje mogućnost otplate duga.

5. ZAKLJUČAK

Više od 15 godina nakon intenziviranja reformskih procesa u Republici Srbiji, fiskalna neravnoteža je i dalje prisutna, a stanje se vremenom sve više pogoršava. Ovome su u velikoj meri doprinela javna preduzeća koja su usled neefikasnog poslovanja iscrpela značajna sredstva države i kroz povećanje zarada iznad produktivnosti rada povećala javnu potrošnju. Osim rasta javnog duga, ovakvo stanje u javnim finansijama prouzrokovalo je pojavu novih i produbljivanje postojećih neravnoteža u srpskoj privredi, čime su negativno uticali na makroekonomsku stabilnost.

Proces privatizacije treba biti zasnovan na utvrđivanju realne vrednosti imovine i obaveza sa kamatama i konverziji potraživanja u kapital, što bi sprečilo obezvređivanje imovine preduzeća i stvorilo realnu osnovu za utvrđivanje tržišne cene preduzeća. Pored toga, treba smanjiti subvencionisanje radnih mesta radi privlačenja investitora, jer se ovaj model pokazao kao neefikasan, s obzirom da je veliki broj investitora do sada na ovaj način stekao značajne prihode, a nakon određenog vremena zatvorio kupljenu firmu. Povlastice za investitore treba usmeriti na ustupanje zemljišta i objekata bez naknade, smanjenje poreza na zarade i izuzimanje reinvestirane dobiti iz oporezivanja, čime će se podstaći razvoj tehnike i tehnologije i povećati učešće proizvoda višeg stepena prerade u strukturi izvoza.

Kako veliki broj javnih preduzeća bez prethodnog restrukturiranja neće moći da se privatizuje, neophodno je sprovesti odgovarajuće mere restrukturiranja kojima bi se povećale šanse za njihovu privatizaciju. Najpre, treba smanjiti direktnu podršku države neefikasnim javnim preduzećima (u vidu državnih garancija, subencionisanog kreditiranja i ostalih vidova podrške), čime će se popraviti stanje u budžetu i smanjiti prevaljivanje ovih obaveza na poreske obveznike. Pored toga, kao dodatna mera restrukturiranja nameće se i potreba za racionalizacijom broja zaposlenih u javnom sektoru i smanjivanje njihovih zarada (koje su u pojedinim preduzećima duži period rasle nezavisno od produktivnosti rada), pri čemu treba voditi računa da uštede ostvarene na ovaj način ne treba da budu praćene padom nivoa i kvaliteta proizvoda i usluga ovih preduzeća.

Značajan problem ovih preduzeća je i neefikasan menadžment, koji nimalo ne doprinosi jačanju budžetskih ograničenja i racionalizaciji upotrebe imovine. Bez kvalitetnog menadžmenta, procesi privatizacije i restrukturiranja ne mogu dati pozitivne rezultate, pa je neophodno uvesti rigorozniju proceduru licenciranja direktora društvenih i javnih preduzeća i stečajnih upravnika, izvršiti departizaciju njihovog izbora, povećati njihovu odgovornost za upravljanje preduzećem (ona bi trebalo da bude uređena ugovorom o upravljanju, kojim bi se definisali penali u slučaju neodgovornog upravljanja, ali i nagrada u slučaju uspešnog vođenja firme) i učestalost podnošenja finansijskih izveštaja i izveštaja o stanju imovine i poslovanju preduzeća Agenciji za privatizaciju (koji trebaju biti izrađeni u skladu sa Međunarodnim revizijskim standardima).

Iako članstvo u EU još uvek nije izvesno Republika Srbija bi u formulisanju i implementaciji mera ekonomske politike trebalo da se pridržava Mاستrihtskih kriterijuma, kako bi obezbedila odgovarajući nivo makroekonomske stabilnosti i dugoročno održiv razvoj.

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NEW ASPECTS OF POSSIBLE FLOOD UGLJNOKOPA IN THE REPUBLIC OF SERBIA THROUGH THE FORMAT QUALITY STRATEGIC PROJECTION WITH ECO RISKS

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Abstract: Climate change is happening much faster than it could be expected given the negative synergy of destruction that could arise from the fact that the various statements in the near future, there is a need for very rapid activation of all the world's prevention resource potential with the aim of those trends and Slowdown minimizing the potential damage that has already formed, which are more than obvious and take a very large scale. Flooding generally speaking is only one of the statements or manifestations of climate change and there is almost no place in the world where they do not happen very often, in places of events inflict catastrophic scale destruction of almost not to be controlled. The impact of floods on the environment and mining now has to be considered a multidisciplinary, considering the extent of consequences caused as well as the time required to repair the damage inflicted. Changes folder propagation, duration, quantity and intensity of rainfall and dry periods significantly affect the change in the overall water balance. Analysis of precipitation data so far indicate that there are no changes to a greater extent at least for now, but their high peaks of extremes become more pronounced and more frequent. The floods, which occur due to difficult predictability, and due to the lack of time for organized human reaction, causing significant material damage. In addition to the operationalization of proactive measures before the floods, activities and works, the reaction rate response during flood events is becoming increasingly important for minimization of the damage generated by these circumstances. In this sense, analysis of flood risks can significantly contribute to the planning of proactive and preventive activities through the creation of quality strategies and plans of flood control with explicit data about the possibilities of potential destructive flood events based on past experience, based on real requirements, sized and optimized in accordance with the currently available resources, in order to be given the highest quality milestones could be implemented which would contribute to the greatest degree of their interoperability in practice. U paper analyzes the experiences of the configuration of the new strategy at a river basin in the Republic of Serbia as well as the format eco destruction that could come through the context of its inadequate formation and not taking into account the analysis of eco-risk potential.

Keywords: The floods, the environment, ecological destruction, risk, mining

1. INTRODUCTION

Flooding is only one of the statements or manifestations of climate change and there is almost no place in the world where they do not happen on places of events inflict catastrophic destruction proportions that are getting harder and almost can not put the complete system controlling. The impact of floods on mining and the environment are already considered to be multidisciplinary, considering the extent of consequences caused as well as the time required

to repair the damage inflicted on the basis of experiences and events in the near past. Changes folder propagation, duration, quantity and intensity of rainfall and dry periods significantly affect the change in the overall water balance. They are very active and current in almost all areas of the Republic of Serbia. What is particularly interesting based on the analysis of precipitation data so far analyzed the facts indicate that there are no significant changes to a greater extent at least for now, but their high peaks extremes have become faster, more intense, more explicit and more frequent in real short intervals. The floods, which occur due to difficult predictability, and due to the lack of time for organized human reaction, causing significant material damage. Based on the experience in the case of the great flood of the river basin of the river „Kolubara” mining only in the zone of its flow has suffered damages of 100 million euros of direct and yet so indirect. This is the amount that would be able to redesign surface mining of coal in the subject area with at least ten completely new and modern eco-technical systems that fully meet the requirements of the full technical oil exploitation but also all the environmental requirements in accordance with the legislation of the Republic of Serbia, EU directives and international eco standards. In addition to the operationalization of proactive measures before the floods, activities and works, the reaction rate response during flood events is becoming increasingly important scientific and professional community as quite difficult to envisage a phenomenon for minimization of the damage generated by the circumstances. In this sense, analysis of flood risks can significantly contribute to the planning of proactive and preventive activities through the creation of quality strategies and plans of flood control in the Republic of Serbia is primarily based on real requirements, in order to unexpected circumstances could implement the highest quality, which could contribute to the high degree of their interoperability in practice. In this context, analysis of eco risk is now assumed, due to all previous experiences with which we have now and what we can use. The river basin „Kolubara” has an unfavorable water regime, which create weather, topographic and geological and hydraulic conditions in the basin. The unfavorable spatial and temporal distribution of rainfall and a large inflow falls to the inconvenient arrangement of hydrographic network flow, regularly cause rapid runoff of water and concentrated on a relatively short section of the central valley of the „Kolubara”. Hydrographic network is such that it allows a very high negative synergy of high waters from tributaries in the central part of the valley of the „Kolubara”, with overflowing flood waters after a large plain. Adverse conditions sudden touching the water further increases insufficient throughput capacity of the riverbed of the „Kolubara” River in the plain that such a large concentrated flow could be directly implemented in the main recipient - the Sava River, which occur due to frequent flooding. Large water torrential character, due to the steep slope basins tributaries drain into a short period of time, so that the descent of the central valley of the „Kolubara” destroyed by torrential waters and blue application of agricultural land, create banks of the river bed, causing a very meandering stream and cause a lot of damage settlements, industry, mining and roads, [1], [2].

2. DESTRUCTIVE STATEMENTS FLOODING IN THE RIVER BASIN

Floods threaten around 31,000 hectares of prime land, a number of important settlements and industrial plants, as well as roads. Most of the „Kolubara” basin is densely populated. The average population density in the basin is around 92 inhabitants per km², and the total population of around 335,000 th largest settlements in the basin are: Valjevo,

Lazarevac and Obrenovac. Area „Kolubara“ basin includes parts of or the entire territory of the municipality of Obrenovac, Barajevo, Sopot, Lazarevac, Koceljeva, Vladimirci, Šabac, Osečina, Ub, Lajkovac, Mionica, Subotica, Aranđelovac, Gornji Milanovac and Kosjerić, as well as the city of Valjevo, or parts of the territory of Kolubara, Macva, Morava, Sumadija and Zlatibor district and the City of Belgrade. The road network consists of local roads with a total length of 1,144 kilometers, regional (737.5 km) and main roads (231.7 km). Throughout the basin passes Belgrade-Bar railway, and there is an industrial line which provides supply TENT A coal from surface mines. On the basin „Kolubara” agriculture is well represented over 2/3 of the total land. Agricultural land is used for crop production on soils of different quality. Most of the agricultural land is arable land, then orchards, meadows and pastures, while a small part of vineyards. Farms are mostly small and privately owned. Growing cattle and processing the earth mainly extensive character. „Kolubara” lignite basin is part of the catchment area of the river Kolubara in which more than 60 years of exploiting and processing coal. The area includes parts of the municipalities of Lazarevac, Ub, Lajkovac and Obrenovac, the total area of 547 km². Within its boundaries are areas of existing and planned open pit lignite facilities for the preparation and processing of coal, systems of external and internal transport, landfill overburden, slag and other waste materials from mining and other industrial and municipal sources, re-cultivation of damaged areas of land, settlements, objects of water infrastructure, facilities of transport infrastructure, energy and industrial facilities. The man has for years influenced, but still intensely affects the properties of the soil in the basin „Kolubara”. Processes anthropogenization primarily had a regressive character. Incorrect land use without minimum measures taken, deforestation and irrational use of grass areas, so that the impact of humans on the land had regressive character. All these factors have contributed to the education of land continues to operate in the basin „Kolubara“ and represent a dangerous destructive potential the floods testimonies both now and in the near future. The situation is almost similar in all river basins in the Republic of Serbia. All strategy so far made in the floodplain issue so far have not yielded adequate results because never in fully through design solutions operationalized in hydrologic practice. The floods that the preliminary assessment of flood risks identified as significant at the level of the Republic of Serbia are shown in Figure 1. However, in the basin „Kolubara” are common and flooding local character, which cause damage agricultural areas that are not protected from floods. In recent decades the taken a number of measures on regulation of river beds and the construction of embankments along the river basin „Kolubara” and its numerous tributaries. However because of frequent interruptions of work on the rehabilitation of critical part of the city but also the work done for many years completely unfinished, gradually collapsing a part of the strategic plan of work was never realized.

Figure 1. provides an overview of Significant flooding in the „Kolubara“ basin for the period 1965-2011. year., [1], [2], [3], [4] and [5].

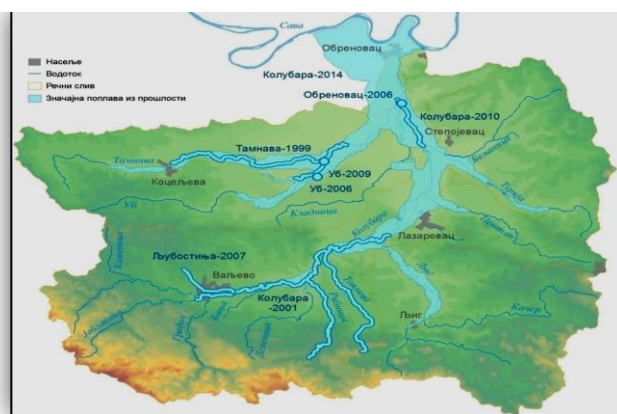


Figure 1. Significant flooding in the Kolubara basin for the period 1965-2011. years

3. WORKS ON CONSTRUCTION AND RECONSTRUCTION OF FLOOD PROTECTION IN THE ZONE ENDANGERED MINING LOCATION

In the Kolubara lignite basin immediately after the flood, work began on emergency care facilities tamnavskih open pit mines from flooding in case of flooding the Kolubara, Pestana, Vranicini and over the dam Kladnica and works in the central part of the Kolubara lignite basin on the relocation of the Kolubara riverbed - Phase II relocation, with the influx of Pestana, in order to open pit mine „Field G“. As part of emergency care facilities, in 2015, initiated and implemented a permanent cap, relocation and regulation of riverbed Vranicini, reconstruction of dams Kladnica. In many largely done work on the construction of the dike on the southern border tamnavskih mines and relocated the streambed Skobalj the mouth in Vranicini. Work on the mentioned facilities were completed in late 2015.

At the point of penetration of the Kolubara River during the floods of May 2014 was immediately made a temporary cap that stopped the further penetration of the Kolubara River in the open pit. At the beginning of 2015 at the same location has started the elaboration of a permanent cap, which was completed by the beginning of the year 2015. Permanent plug is made of clay material from local borrow. The material was embedded in layers of 30 cm. Kota crown cap is at 96 meters above sea level. At the upstream end of the support foot is constructed of gravel natural grit. The construction of permanent flood sink stopper is filled to the level of the surrounding terrain and the way is formed left Forland and a basis for building the dike on the south border tamnavskih mines. During the floods of 2014. riverbed Vranicini is significantly damaged, while the mouth of the Kolubara completely destroyed. By the end of 2014. is drafted and reviewed the technical documentation, and in early 2015 they began work on relocation and regulation of riverbed Vranicini. The works were completed in the fall of that year. Performed relocation and regulation riverbed in the length of 1.9 km. The sink is dimensioned to accept the twenty major water with own basin. At the projected route of the wall has two types of sinks:

- Type 1 is derived in an area where the depth of the riverbed in relation to the line of the terrain is more than 2.5 m. The width of the riverbed in that area is 6 m, the slope of slope 1: 2. At 2.5 m from the bottom of the riverbed is made mutual berm width of 3.0 m. The slope of the ramp berms on the land is 1: 2.

- Type 2. It is made in an area where the depth of the riverbed in relation to the line of the terrain is below 2.5 m. The width of the riverbed in that area is 6 m, the slope of slope 1: 2. On the right bank carried out the village and berm (mound) at 2.5 m from the bottom of the gorge, in the extension of the slope coast. Beram is a width of 3.0 m. The slope of the ramp berms on the land is 1: 2.

In the corners relocated route sinks, as well as the upstream and the downstream end regulation was made insurance coastline and riverbed erosion. insurance is revetments made from granulated crushed stone complex in the dry or washed down with cement mortar. On the part of the route where the riverbed runs through the middle of the sand, every 25 meters, were built stabilizing cross thresholds zero level. Technical documentation emergency reconstruction of the dam Kladnica is made and revised in the second half of 2014. In early 2015, work began on the reconstruction of the dam. The works have been completed in mid-summer of the same year. Work on the reconstruction of the dam are included: rehabilitation of location sites breakthrough dams, rehabilitation of the downstream slope of the dam crown and camber angles to 100.3 meters above sea level, the construction and rehabilitation of evakuator wall of water intake. On the perforation is filling the dam made of clay material and forming terraces on which to build destroyed part of the dam in full profile. Kota plateau is 95 meters above sea level, 45 m wide and slope inclination 1: 2. the downstream slope of the dam at the site of damage covered by the work on clearing the slope, seizing and cutting the slope in the floors (to obtain contact with the buried material existing) and filling and placing of clay material in the body of the dam. Incorporating materials are retained gradients of slopes that were before the flood. Cant crown to 100.30 meters above sea level obtained is new width of the dam crest. The width of the crown topped the dam is reduced from the earlier 4.0 m to 3.0 m. At defend Kladnica, before the arrival of the flood, there was no evakuator high water. Provided for the rehabilitation of the dam was built designed evakuator (dressing). Evakuator AB Krigerov Channel width of 40 m with a crown at a height of 99.6 meters above sea level. Downstream, upstream slope and waterfall spillways are covered with a coating of granulated quarry stone bonded by cement mortar. On location for water intake pumping station built a new wall of water intake in everything according to the measures and dimensions as the original wall of water intake. Defender embankment on the southern border tamnavskih mines. In the context of the main project intervention works includes construction of the dike on the southern border Tamnavskih mines. This facility has a role in the future (the displacement of the riverbed of the Kolubara River in phase III relocation) prevent the penetration of high water on the southern border tamnavskih mines in PK Tamnava West Field. In early 2015, work began on the construction of the dam and are fully completed. The total length of the dike is 2694 m. The crown of the embankment is determined according to the level of respective water and is designed at a height of 99.9 meters above sea level. The height of embankments is conditioned by the projected grade line its crown as the configuration and height position of the terrain along the embankment. Height is, in some locations, moving up to 6 m. In terms of geometric elements of cross section (fuselage) of the dike, such as the width of the crown and slope gradients, performed mound with a width of 3 m in the crown and slope external and internal slope 1: 2. This type of embankment is built of clay material from borrow pits and excavation work from minor riverbed projected relocation of the river Vranicini. The body of the embankment is built in layers of 30 cm. Slopes and crown embankment humusiraju humus layer thickness of

25 cm, which had previously taken off below the hull of the embankment at a thickness of 30 cm, and temporarily deposited at the site to re-installing the outer surfaces of the embankment. Relocation and control streams Skobalj Relocation and regulation of riverbed Vranicini has caused the displacement of the regulation route stream Skobalj and its confluence with the Vranicini. Part troughs Skobalj destroyed arrival of the flood. In late 2015, work began on the relocation and regulation of stream Skobalj. The total length of displacement is approximately 750 m. It was designed following type troughs: width of the bottom is 2.5 m, slope gradients Coast 1: 2, the width of the crown right coastal embankment 3.0 m, inclination of the slopes 1: 2. Since route relocated gorge following the route of the dike on the southern border tamnavskih pits, dikes over the function left coast embankment relocated streambed Skobalj. In the corners relocated route sinks, as well as the upstream and the downstream end of regulation was made insurance coastline and riverbed erosion. Insurance has made a dam made of granulated crushed stone complex in the dry or washed down with cement mortar. From buildings in the outpost trough, a development chute for overcoming leveling the riverbed. In the context of work on the relocation of the Kolubara riverbed - Phase II relocation, with the influx of Pestana so far have done preparatory work. Preparatory works are formation includes the development corridor for the relocation of the Kolubara River in the area where the projected route passes over landfill Tamnava East Field. Making formation is included massive earthworks that were carried out mining machinery, where was formed planum width of 500 m. Relocated Kolubara riverbed The total length of the route relocated riverbed of Kolubara in the second phase of displacement is about 2600 m. Much of the route, around 1900 meters, crossing the landfill PK Tamnava East Field. So far they have done preparatory work, which included making the formation of corridor for the relocation of the Kolubara River in the area where the projected route passes through landfill Tamnava East Field. Making formation included massive earthworks that were carried out mining machinery, where it formed planum width of 500 m. Excavated and test sections of the riverbed to check the stability of the slope excavation and the presence of bad material, (Figure 2), [1], [2], [3], [6], [7], [8] and [9].



Figure 2. Excavation test sections of the Kolubara River Gorge

In the coming period is expected to start work on forming a projected flow profile. The works will include the excavation of minor riverbed, construction of embankments and supporting structures (bridge, chute, coast fortress).

At the projected route of the planned three types of discharge:

- Type 1 with the width of the riverbed from 29 m to 55 m, the slopes coastline 1: 4, the width of the crown 8 m dyke and embankment slopes 1: 3.
- Type 2 with the width of the riverbed of 24 m, the slopes coastline 1: 4, the width of the crown of the embankment 8 m and embankment slopes 1: 3.
- Type 3 with the width of the riverbed of 20 m, the slopes coastline 1: 3, the width of the crown of the embankment 4 m and embankment slopes 1: 2.

Dikes generally follow the main channel forming required flow Profile for large water - major sink. As the route Gorge largely passes through artificially created terrain (loose cubic planum), and that the boundaries of the future open pit box G to a minimum of 230 m from the route relocated riverbed is planned waterproof coating troughs EPDM geomembrane thickness of 1.5 mm. Over geo mebrane are covered with geotextile and a layer of ballast. On parts of the riverbed with increased flow speeds provided insurance coastline and riverbed erosion and excessive deformation. Insurance is carried out by creating coastal defense of granulated crushed stone complex in the dry or encapsulated cement mortar. From the trough of buildings in the outpost, a development of the bridge and flood spillway for overcoming leveling the riverbed. Relocated riverbed Peštan The total length of the route relocated riverbed Peštan is 1814 m. About 400 m route runs through forest land. So far they have done preparatory work and the further cutting of forests by the projected route and made the service road. In the coming period is expected to start work on forming a projected flowj profile. The works will include the excavation of minor riverbed, construction of embankments and supporting structures (bridge, chute, revetments). Riverbed Peštan is designed to accept authoritative centennial highest water flow and control flow of the thousand big water. There are two types of discharge:

- Type 1 with the width of the riverbed of 8 m, slopes coastline 1: 3, the width of the crown of the embankment 4 m and embankment slopes 1: 2.
- Type 2 with the width of the riverbed of 8 m, slopes coastline 1: 2, the width of the crown of the embankment 4 m and embankment slopes 1: 2.

Dikes generally follow the main flow channel forming Profile required for large water - major sink. Defender dams on the downstream end of the coastal fit right into the embankment of the river Kolubara. On parts of the riverbed with increased flow speeds provided insurance coastline and riverbed erosion and excessive deformation. Insurance is carried out by creating coastal defense of granulated crushed stone complex in dry and encapsulated with cement mortar. From the trough of buildings in the outpost, and the development of the bridge and flood spillway for overcoming leveling the riverbed. On the relocated river bed Peštan not provided works on waterproof lining of the riverbed, [1], [2].

4.A PARTIAL VIEW NEW STRATEGIC PROJECTIONS FLOOD INTO THE RIVER

As can be seen from the description of the existing facilities for flood protection in the Kolubara and tributaries, they are sized so as to ensure the safety of the protected area case of high water reverse period of 50, 100 or even 1,000 years in some cases. However, it is

not known which method high water budget are defined authoritative flows, not as steep as determined crowns of these facilities. The only way is to repeat the hydrologic and hydraulic calculations, what is and what should be done in drafting a new strategic projection. The level of flood protection embankments that were built along the Kolubara and its tributaries provide the coastal region can be seen by comparing the vertical alignment of the crown embankment and led away by the level of large longitudinal profile of the watercourse, as well as on the longitudinal profile of the embankment where the lines are drawn water level for the characteristic large water (probability of 1, 2, and 5%). On the basis of comparisons can be ascertain whether, given the content of fortified areas, should increase the level of protection that is enforced camber crown buildings. On maps of appropriate scale to mark the embankment moves that do not have a sufficient height in relation to the level of a hundred year high water, so that participants in flood protection have insight into the state system. However, this does not mean that any dam with a lower crown should be restored as it was for the protection of agricultural land and rural settlements, enough to provide a lower level of protection. Figure 3 provides an overview of the breakthrough water inflow into disarray in Tamnava mines, Branch RB Kolubara, [1], [2], [3], [10], [11], [12], [13] and [14].

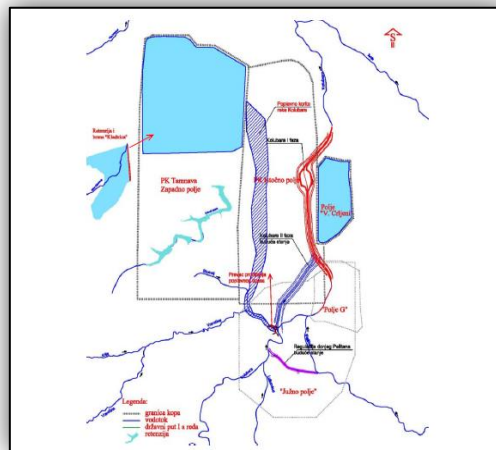


Figure 3. Trends flooding pit mine "Tamnava West Field" (May 2014 years)

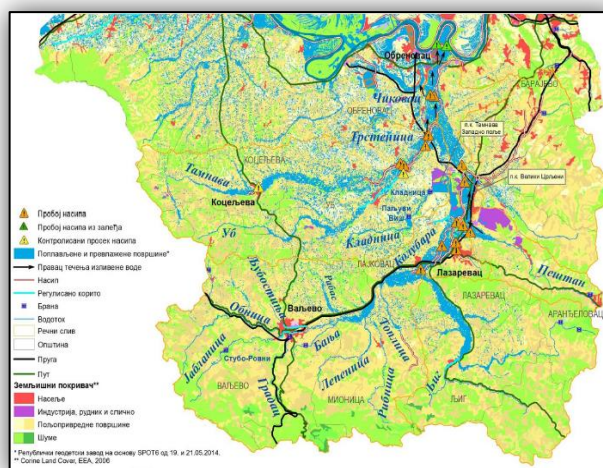


Figure 4. Flooded area in the Kolubara basin, (May 2014 years)

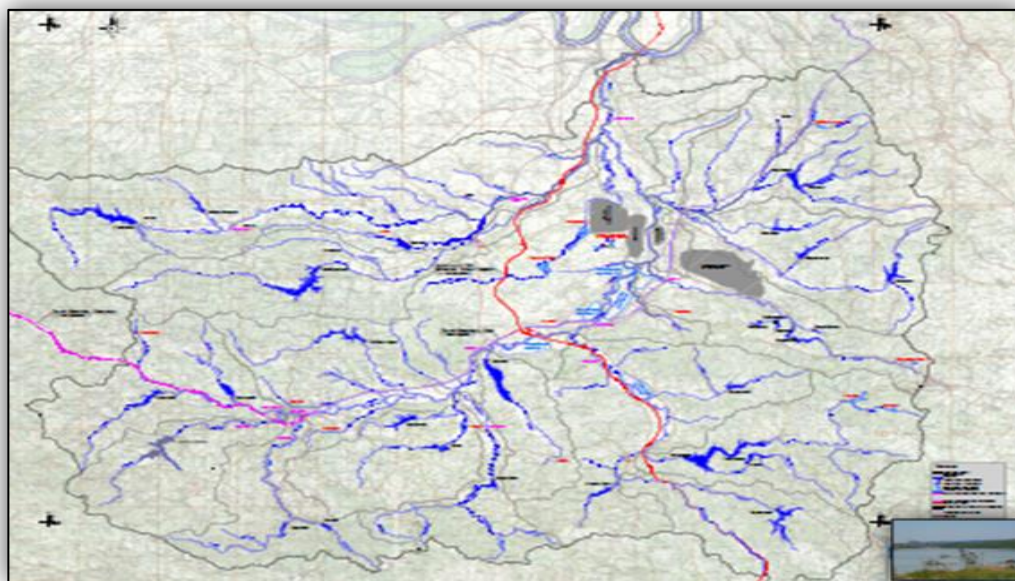


Figure 5. Strategic proposal for a new approach to flood protection in the Kolubara basin

In Figure 4. presents the flooded areas in the Kolubara basin, (May 2014). The new draft strategy for flood protection in the Kolubara basin includes the construction of complete infrastructure necessary logistics along the entire river basin. It is estimated that this approach provided a higher level of protection in the long term. Funds that is necessary to provide for the regulation of the entire basin were considerably less than the damage incurred only in the May 2014 floods. Figure 5 provides an overview of the new strategic approach to flood protection in the Kolubara basin, [1], [2], [3], [15], [16], [17], [18], [19] and [20].

5. CONCLUSION

The paper presents new aspects of foreign strategic access also in consideration of flood protection only one full river basin from the rest in the Republic of Serbia who are in quite a similar situation. The analyzes show that the damage caused by floods far greater than the costs of the regulation of such a very fast and torrential basin, as is the river Kolubara. It is very important for the strategic positioning of these jobs and see all need circumstances and situations through the prism of analysis of ecological risk decomposition to the lowest level. In this sense, analysis of flood risks can significantly contribute to the planning of proactive and preventive activities through the development of quality strategies and plans of flood control with explicit data about the possibilities of potential destructive flood events based on past experience, based on real requirements, sized and optimized in accordance with the currently available resources, to the given milestones could implement the highest quality which would contribute to the greatest degree of their interoperability in practice. It also analyzes experiences configurations of the new strategy at a river basin in the Republic of Serbia as well as the format eco destruction that could come through the context of its inadequate formation and not taking into account the analysis of ecological risk potential. From the aspect of the complexity of the problems in fully be justified in the context of a

multidisciplinary approach to providing adequate solutions and their operationalization in the environmental practices of the Republic of Serbia.

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CONTEMPORARY TRENDS EKO MINING IN SERBIA

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Abstract: At the time of the continuous development of technological processes is necessary and that logistics is the same with a similar or at least approximate variation trends. The situation in the mining industry of the Republic of Serbia is representative of the administration of similar efforts and commitment. This means that mining takes modern concepts of surface coal mining. Compliance with the legislation of the Republic of Serbia, EU directives and international standards in the field of environment, mining takes on a whole new, green dimension. There are two possibilities for monitoring underlying trends. One of the latest green procurement of technical systems for surface mining and the other is a redesign the existing technical systems, which should meet all the previously mentioned requirements. There is a certain discrepancy in such efforts and on stems primarily due to lack of financial resources, but it can not possibly be the reason that the present process stopped or delayed, as well as on any other basis. The paper gives practical examples of strategic projection in this area of the context, as well as risk analysis of potential failures in the process to which reasonably be drawn from the above or any other reason, that really would not be allowed to slow down or stop these processes in the near future.

Keywords: Green technology, technical systems, risk, coal, mining

Apstrakt: U vreme stalnog razvoja tehnoloških procesa potrebno je i da logistika istih bude sa sličnim ili bar približnim varijacijama trendova. Situacija u rudarstvu Republike Srbije predstavlja reprezent upravo sličnih nastojanja i opredeljenja. To praktično znači da rudarstvo poprima savremene koncepte površinske eksploatacije uglja. Usaglašeno sa zakonskom regulativom Republike Srbije, Direktivama EU i Međunarodnim standardima u oblasti životne sredine, rudarenje dobija sasvim novu, zelenu dimenziju. Postoje dve mogućnosti praćenja predmetnih trendova. Jedna je nabavka najsavremenijih zelenih tehničkih sistema za površinsku eksploataciju a druga je redizajn postojećih tehničkih sistema, koji bi morali ispunjavati sve predhodno pomenute zahteve. Postoji i određeni raskorak u takvim nastojanjima i on pre svega proizilazi zbog pomanjkanja finasijskih resursa ali to nikako ne može biti i razlog da se predmetni procesi zaustavljaju ili kasne kao i po bilo kom drugom osnovu. U radu se daju praktični primeri strateških projekcija u ovoj oblasti predmetnog konteksta, kao i analiza rizika eventualnih zastoja u procesu do kojih realno može dolaziti iz navedenih ili bilo kojih drugih razloga, koji realno ne bih smeli usporiti ili zaustaviti navedene procese u bližoj budućnosti.

Ključne reči: Zelena tehnologija, tehnički sistemi, rizik, ugalj, rudarstvo

1. INTRODUCTION

In globalnoj mining economy, new technologies and energy efficiency are becoming key elements for creating sustainable competitiveness while respecting the principles of green

eco principles. The demand for energy is constantly growing and disproportionate with the actual planning of electrical energy balances in almost all countries of the world including the Republic of Serbia. Serbia consumes twice as much energy per unit of GDP as compared to the world average and four times more than the average of European Union countries. The question is how to follow such voracious energy thirst in the market primarily with that kind of resource potential and technology. This is certainly the question of all questions in the world and in the near and distant future it will be especially important. Application of modern technologies in the production of energy to save up to 40%, which makes 30-40% of the operational costs of almost all companies and it seems that this is the way to better position the company, and indirectly the community as a whole and the State. According to the World Economic Forum in 2012, Serbia was in 95th place on the list of 144 countries. Of the countries in its neighborhood only Greece, which was on the site 96, recorded a slightly worse result than in Serbia.

The need for knowledge in the mining and energy sector to intensify constant development of mining and energy technologies. New technology mining implies complete development and improvement of technical and non-technical infrastructure as the overall system complex with which it is possible to implement modern technologies and with them achieve optimal production results on all attributes and elements. When this is especially highlighted green component of a systemic approach in surface coal mining component which is to establish sustainability thresholds balance between production on the one hand and the environment on the other. This is an analytical approach to technical systems placed in the position of the highest qualitative controlling. But it often happens that to blame sustainability in its complexity often varies and sometimes expresses quite high peaks modes to the limit of large conflicts. This is a particularly interesting scenario that should have or seek adequate response almost every time, [1], [2], [3].

2. CURRENT DATA SYSTEMS IN MINING

The fulfillment of environmental requirements in the production of mining is required, a continuous and steady process, for which it can be said that in previous periods began lightly. It took this trend to accept, support and help that he realizes all the more demanding eco Own source dynamics. Now, the time in which we live requires a continuous progression with knowledge but also its practical implementation in the production practice of mining. This particularly applies to the legal requirements of the complete eco regulations, EU Directives and international standards pertaining to this area. Be sure that the things in this area need to change even faster pace so as to achieve the intended objectives of their practical projection. On the way one of the possibilities is investing in modern technology systems belonging to class the latest generation in the field of mining. And companies such as EPS Republic Serbia is committed to such strategic directions for their further positioning both in the Balkans and beyond. Have been recognized not only eco obligations arising in the present context but also eco certain beneficial resources that they can bring to all and for all. Every investment involves economic justification and, at last, looking at the entire life cycle of such technical systems and regimes in the optimal use of the ultimate profitability, [1], [4], [5] [6].

The choice is primarily directed to the credit line for the purchase of the complete BTO system. It contains excavator for surface excavation overburden mass or coal belt

conveyor to transfer the same and excavators trays dumping for the project to a specific location. The latest generation of these technical systems are the last generation evolve from a technical point of view and they are expected to next generation, capacitive projection fully meet all the criteria of eco. The loan was taken for the respective tasks is called green loan and he really is like that. It must be noted that they are at the stage of basic engineering designed to fully satisfy the given initial parameters and a complete eco metrics.

One technical system "Tray" PA 200-2020/200 is already completed and transported to a new open pit mine "Field C", where within the unit BTO system should be involved in the production. The value of the technical system is about 15 million and is tracked and significantly different from other technical systems working in RB „Kolubara“. Putting into operation of these systems begin a new cycle of modernization of mining and a rapid qualitative eco resolution for this type of activity, and in the Republic of Serbia.



Figure 1. Tray starting at the planned location of the conveyor belt for work, (2016, EPS, Branch RB "Kolubara")



Figure 2. Overview of some of the contemporary technical details on the new Tray (2016, EPS, Branch RB "Kolubara")

Figure 1. An overview of starting the disposer on the transport route of the planned location for a work in Figure 2. Some of the contemporary technical details on the new tray that will serve the eco-sustainability of surface mining exploitation. This is the first green project implemented in EPS. Figure 3 presents the final assembly of bucket wheel excavators in RB „Kolubara“, which should become operational at the end of September 2016. The new bucket wheel excavator will begin operating at the end of September 2016. He is in the final stages of assembly and its value is about 23 million euro, [7], [8].



Figure 3. final assembly newest bucket wheel excavator latest generation technical, heavy mining system in the mounting plot in EPS, Branch RB "Kolubara" (2016).

In addition to the technical advantages compared to other systems for surface mining no system BTOC have a number of environmental benefits that are based in the latest generation in the same ptpadaju. Environmental advantages are the following:

- Very high constructive and technical reliability Bagera, belt conveyors and stackers, which is very important for stability in the system, whereby, used significantly higher quality when creating advanced materials and they are fully compliant with all ecological requirements.
- All parts of the system where passing panzer material are sprinkling systems so that maximum will be reduced emissions of suspended particulate mass overburden and coal, which will significantly affect the improvement of air quality in the zone in order eksplatacionog fields and on the edges of the settlement Baroševac and nearby broader spatial locality.
- All parts of the system that generate noise will be shielded with steel curtains and at transfer stations interior will be lined with eco-materials (working the wheel with all components, drive and return Bunji on belt conveyors).
- All the moving parts of the system are used specifically balanced bearings that generate noise levels acceptable effort below acceptable limits (this refers to the band transpoter and reels that spin carrying excavation material).
- Along the route of the complete work BTO system after the first release will be set up a system for spraying and travel infrastructures where moving extra transport and working machinery as the logistics of the system).
- Represented a high degree of electronic controlling systems as well as part of automated system components, materials which satisfy all the eco-requirements.
- A high degree of reliability and protection of the rotating elements of the oil leakage and wastage of different types of lubricants.
- Increased generation and use of waste materials.
- The most modern electrical drives with aggregate units and transformers to ensure the stress state of the system.
- State of the art electronic control packages and control components on each unit of the system and the command control controller position.
- There is an alternative possibility of remote control software systems.

These benefits of modern technical system of the latest generation provide and meet the most stringent eco-criteria for all claims in relation to the provision of qualitative eco performance and sustainability of all aspects of the environment, [][][]

Within the first green project in EPS the procurement management system and quality control of coal and trays interburden for coal "Tamnava-West Field". The entire project, worth 181 million euros and is financed by the European Bank for Reconstruction and Development (80 million), the German Development Bank KfW (65 million), and with the help of the German government of nine million and participation EPS of 27 million euros. This project will improve the technology of coal mining and ensure the standardization of the quality of coal from MB "Kolubara" from which the thermal power plants in Obrenovac more than half of electricity in the Republic of Serbia. The system will provide for the homogenization of the use of coal of equal quality at the same time increase the efficiency of thermal power plants and reduce negative impacts on the environment. Homogenization is

technical-technological and organizational process of mixing coal excavated a range of equipment from different, mutually close, locations and

transported in an integrated system that allows pre directing toward the standardization of thermal power plants make coal quality, by default or the adopted parameter. Successfully implemented homogenization enable increasing amounts of coal, whose exploitation is justified, reduce the costs of burning coal, transport and disposal of ash improve the system of protection of the environment from pollution, primarily in the phase of combustion and, accordingly, will contribute to more efficient and profitable use of available natural resources. Specifics related to the development of the system of harmonization of the quality of coal from open pit mine "Tamnava" and field "G" (later "Radljevo") are related to the large variation of quality, [1], [9], [10].

According to geological considerations to end the exploitation of the mine "Tamnava-West Field" has about 50 million tons of coal of lower quality that can be used by mixing with coal that is of higher quality than required. A particular problem will pose a kop "Radljevo" from which you can dig up about 94.5 million tons of coal of low calorific value (average 5,936 kJ/kg). So, it is a complex but flexible system that can meet the initial requirements (capacity, quality, smooth operation of the mine and thermal power plants). For this to happen, and practically the whole management system is divided into two segments: the system of planning and control system of quantity and quality of coal. The planning system for the selected time period, and includes simulation of future production with machines known characteristics, the well-known position of the working levels, where the mined coal at pre-specified operating elements and the known characteristics of the tray. The aim is to automatically or manually finding the optimal working conditions of each machine so that the joint work of several machines simultaneously obtain the required amount of coal required quality. After several iterations yields optimal procedure that becomes an assignment operator, a simulated period. The control system includes a real (online) measuring the quantity and quality of coal production and management of real depending on the results achieved, in accordance with the previously described options. Depending on how the results of simulation and real measurement results is carried out further correction tasks. [1], [3], [11], [12], [13], [14], [15], [16].

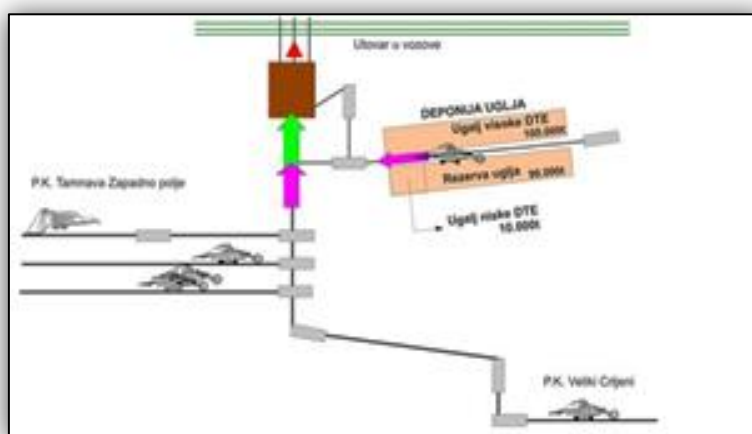


Figure 4. Schematic representation of the functional aspects of the system for coal homogenization in MB "Kolubara"

In Figure 4 shows a schematic view of the functional aspects of the future system for coal homogenization in MB "Kolubara". Figure 5 provides an overview of the technical systems of the new generation with the details of the steel structure in the work of the surface mining of coal in Branch RB "Kolubara".

During large floods in May 2014 all technical systems Tamnavska Open cast mines were sinking. After the exhaustion of water from mines delineated their complete revitalization. As for the electrical and electroshock management packages that have been completely destroyed were followed by their replacement. These systems were installed previously mentioned packages the latest generation in Oblas electrical systems and electronic control units. From this standpoint the above tasks are implemented in full harmonized with target eco demands of this generation of technical systems can generate. [1], [3], [17], [18].

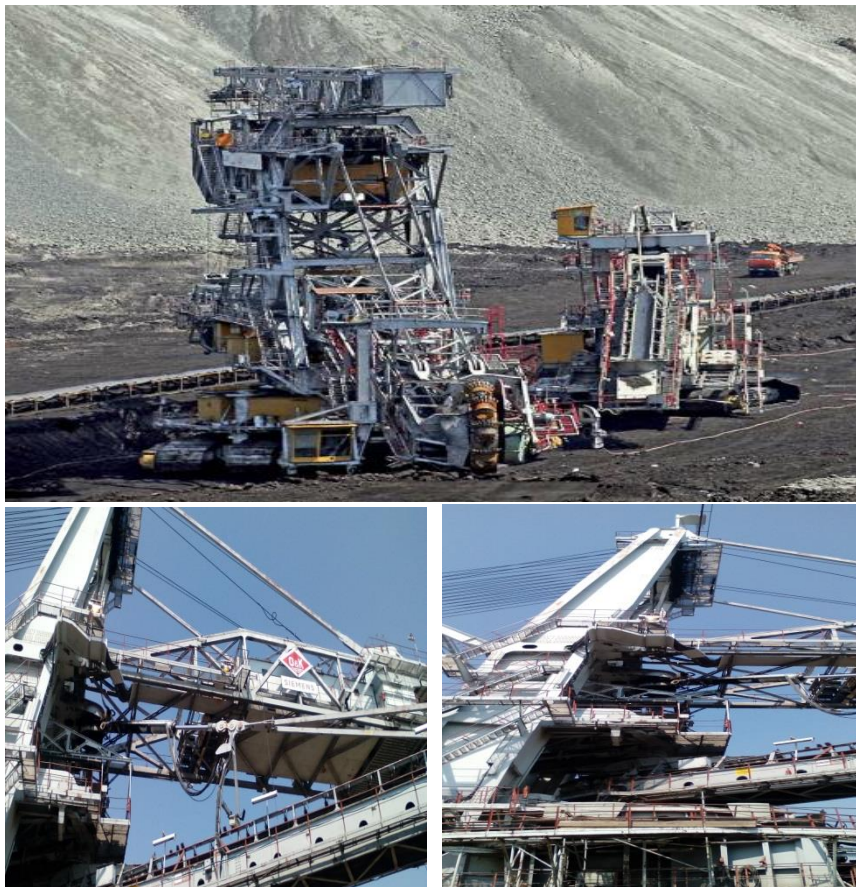


Figure 5. technical systems of the new generation with the details of the steel structure in the work of the surface mining of coal in EPS, Branch RB "Kolubara" (2016).

3. TRED RISK ANALYSIS FOR GENERATION OF MODERN TECHNICAL SYSTEMS IN MINING

Analytical approaches recognize risk as determined by the quality of the property, and in this regard make recommendations for observation and to define in relation to quality. Since all three concepts inextricably generate influential connections and relations, especially the synergy complexities, analytical approaches to the analysis of various aspects of different processes, risk analysts creating new perceptions and foci. The world is profiled two main directions consideration of this issue, which have their own characteristic and distinctive strongholds in theoretical determinations. Issue sleepers are acceptable or tolerable risk. Many organizations, groups and individuals that are considered eligible only zero risk. From this point of reliable or secure only systems that do not contain risk. There is agreement that the definitions of these opinions can be implemented when it comes to technology and systems in the mining industry. It is clear that zero risk is not achievable even in theoretical determinations with regard to relations can always be non-zero part of/the rest of the risk. Non-prime part of the risk is considered satisfactory low, and that is extremely close and reaches a value of zero risk. On the other hand, the opinion on the existence of a real risk, but also his mogumnostima reduction, reduction with no chance for complete elimination. The condition for acceptance of the risk categories as real the existence of general and individual interest in the macro and micro environment of the site process. Specifically, there are absolutely reliable and safe systems in a wide aspect context. The only way that after the exhaustion of all methods to reduce, eliminate and the remaining part of the risk, the absolute cessation of all activities in and around the system-technical and human factors. For most of the participants in the analysis and risk assessment this is unrealistic and unacceptable option given the choice of a process operation of the existing conditions of internal and external environment of the company at the expense of the existence and acceptance of certain levels: criticality, risks and destruction. Previous thinking no matter what at first may be positioned as extreme, have certain correlations and connections. It is notable that security policy and objectives of some companies are not totally separate and incompatible with the theory of zero risk. The key objective of the company activities and the quality in the process of reducing the risk to an acceptable level. The theoretical assumption that there is zero risk kritična the process of risk assessment in the context of the definition of acceptable risk. The question is the way in which the final decision on the threshold of acceptable risk. In some situations the rest of the risks can be high in real terms despite the fact that by analysts rated as acceptable. However, the rest of the risk after its reduction, avoidance and minimization through constant monitoring should be acceptable, in line with analysts' estimates of accountability/decision-makers. Risk management is recognized as an integral part of good management practice. In order to achieve maximum business efficiency of companies, risk management must become part of the organizational culture of the system. Technicians systems of the latest generation are not simultaneously at the maximum qualitative threshold. So the equipment supplier for the latest technical systems and part of the risk transferred to the Purchaser valsanika-technical systems. In the production practice of mining as well as access to the places most realistic risk analysis is the simultaneous use of multiple models, methods and software applications. The results of this approach to provide more accurate target thresholds prihvatljivog risk. In these relations thresholds risks becoming explicit and

realistic. This is very important because of the measures that need to take the company to minimize the potential destruction, [1], [3], [19], [20], [21].

4. CONCLUSION

The paper presents a strategic platform for further directions in the development and modernization of technical systems for surface coal mining. Of course, this requires that logistics is the same with a similar or at least approximate variation in developmental trends. The situation in the mining industry of the Republic of Serbia is representative of the administration of similar efforts and commitment. This means that mining takes modern concepts of surface coal mining. Compliance with the legislation of the Republic of Serbia, EU directives and international standards in the field of environment, mining takes on a whole new, green dimension. There is also a gap in such efforts and slowing the development dynamics of the reasons limiting the necessary funds.

Radi dostuizanja necessary eco qualitative thresholds or this can not be the reason that the present process stopped or delayed, as well as on any other basis. The paper presents practical examples of technical systems of last generation that are current in the production processes of mining. Assume part of the risk from the manufacturer of such systems assumes responsibility under the same user behavior in contexts maintenance. Risk analysis is an integral logistics in the context of generating najvišik qualitative thresholds for a given activity.

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ASSESSING THE PERCEIVED QUALITY SERVICE IN ALGERIAN PUBLIC SECTOR: USING PSQ MODEL

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Abstract: The primary aim of the study is to examine the effect of perceived quality service on users' satisfaction for making the appropriate management strategy in public sector. This study proposes to exploit a hybrid model which offers a comprehensive guide to both measure and manage the perceived quality of public service called PSQ model. The study is based on a sample of 298 users of National Social Insurance Fund services in Algeria. The research uses structural equation modeling (SEM) to analyze and confirm the conceptual model proposed in the research. SEM technique is also used for concurrent assessment of both reliability and validity. As the conceptual model is relatively complex, a partial least squares (PLS) approach was employed using the Smart PLS software. This paper finds that reliability, insurance, relations and ethics have a significant effect on satisfaction user. Instead, the transparency of the decisions taken by service personals and the tangibility of used materials are not important for users. The study suggested an appropriate quality service management for Algerian user in the context of public sector. The paper would help administrators to control performance and improve quality service to satisfy the citizens.

Keywords: Quality Service, Public sector, Satisfaction, Algerian user, SEM technique.

1. INTRODUCTION

The public sector is a part of economic life, not in private ownership, that deals with the production, delivery, and allocation of basic public goods and services. It may exist at any of four levels: global, regional, national, or local. Its processes and structures can take the form of direct administration, public corporations, and partial outsourcing. Its activities are funded through government expenditure financed by taxes, and government borrowing, or through grants. [1]

Often, public service users are not satisfied with the quality and value of the services that they receive. They complain about response delays, incompetent staff, poorly oriented request, long period of waiting, unnecessary and complicated procedures, etc. In this situation, the successive reforms of the public service have stressed the need to take better into account the users' requests. The thought on the role of the user in public services design is a new topic in Algeria. Indeed the public service is not positioned in a logic of competition and customer loyalty, but authority in Algeria often remember on public forum, that the role of administrator, whatever their status in the hierarchy, is to facilitate the daily lives of Algerians "*This is to restore the trustfulness of the Algerian citizen on the institutions of his country. The gap between the citizen and the administration now is large*".

These developments certify to a profound paradigm shift: indeed, in the theory of public services exposed by Duguit, improving relations between the users and the public service can only be undertaken on a legal mode since it devolve on legislator only to know the general interest and thus to define the expectations of users [2] . Therefore, quality of service

expresses the conformity with the law. But today the repository of public service is not only law application but also taking into account the needs of beneficiaries.

From the literature review, it is evident that worldwide studies support the statement that service quality is the precursor of satisfaction [3] and [4]. Additionally, providing service in public sector are more complex because it is not only a matter of meeting the stated needs but also finding out the stated needs, setting the priorities, and allocating public resources [5]. Zamil clarifies that the government has customers and the customers are the citizens, businesses sector, public and private employees. Government through agencies, departments, and ministries delivers information and services for each customer and this customer contributes his evaluation to the performance provided [6].

In this study, we propose to examine the quality service in Algerian public sector and in particular in the National Social Insurance fund better known by its French language acronym (CNAS) which has as mission amongst many others to ensure within the framework of the general government policy, to pay out the various benefits provided for by the legislation of the family and social protection. The said mission is translated concretely by paying social benefits to workers or their rightful claimants: family benefits, old-age invalidity and death pensions, industrial accidents and occupational diseases compensation.

We propose also the application of a hybrid model "PSQ model" which offers a broad guide to both measure and manage the perceived quality of public service. This model is developed by Guenoun & Goudarzi [7] that combines the legal model proposed by Sabadie [8] with some elements from the SERVQUAL quality model of Parasuraman et al. [9] [10].

The study is based on a sample of 298 users of National Social Insurance fund services in Algeria. The research uses structural equation modeling (SEM) to analyze and confirm the conceptual model proposed in the research. SEM technique is also used for concurrent assessment of both reliability and validity [11]. As the conceptual model is relatively complex, a partial least squares (PLS) approach was employed using the Smart PLS software.

In this sense, the current study aims to assess the impact of service quality as it perceived by the users on the their satisfaction by using the 6 dimensions of PSQ model

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. SERVICE QUALITY AND SATISFACTION

In general, the quality recognized like comparison between expectations of users towards the service provided and its real performance. According to Grönroos, the customer assesses the service quality based on two dimensions: the technical dimension and the functional dimension [12]. The technical dimension is relative to the result of the benefit, to the profit that the customer receives the experience of service finished once. The functional dimension makes reference to the process in itself, to the way of which the experience of service is lived by the customer (quality of the interaction with the staff of contact, quality of the environment) [12]. Quality refers to something whether it is good or not [13]. However, several practitioners define the quality from different expectations of users towards the services provided with the perception of the service received [14].

The origin of the term satisfaction is latin: *satis* (enough) and *facere* (to make); which means to provide what we search for until it is "enough", that is also the sense found in the dictionary Larousse" contentment, pleasure that results from the achievement of that we one

waits, of that that we desire." It means that there will be satisfaction if and only if the product or service have exactly provide to the consumer what he wished. What it is necessary to know also is that satisfaction is based on perceptions and expectations [15].

As explained by Gauthier, it is a subjective feeling that can only exist if the customer realizes that there was an event of service, and that doesn't exist in the absolute, but only on a comparative basis. [16]

2.2. SERVICE QUALITY IN PUBLIC SECTOR

The public services would conceive the population extensively in its life of every day: school, health, urban and railway transportation, collection of the garbage, electricity and distribution of water, cultural activities, quality of air, etc. The different activities of public service take a part important of economic resources of the country, where the public services are the investors, the consumers, the producers and the employers of first plan.

Beyond technical tasks that they fill, the public services play a role to oppose poverty, to promote the equality of citizens and to fight the inequality. They are the center of important social stakes; and since about twenty years, some important changes occur within the public services with privatizations. The possible alternatives are presented depending on whether the state exercises himself the service or a private enterprise. The privatizations of the last years have been led while making the hypothesis that a public service delegated to a private enterprise is more efficiency that the one done directly by a public institution.

Various juridical-economic principles apply to the public services [17]:

- The principle of continuity of the service: go at emergencies anytime.
- The principle of equality of the citizens in front of the public service: while forbidding all discrimination (each one must be treated identically whatever is his origin and his social situation);
- The principle of neutrality: the services publics working for general interest and no for particular interests, this principle achieves the universality of the service;
- The principle of adaptation of the public service to the evolution of the general interest: the adaptation of new needs; the general interest drives for example to new public services or technical modifications like disappearance of the bath-shower because of the apparition of the showers in the lodgings.
- The principle of exemption from payment: who can exist in some cases, like vaccination of the children;
- The principle of transparency: it is as well the right of access to the administrative documents. For example a patient has the right to see the nurse file and all what concerns their state of health in an establishment.

Ovrtveit summarizes the complexity of a definition of the quality public services while underlining that this one cannot be technical but political: "*A quality public services is not one which just produces happy customers, but is one which has to meet other higher level regulations and do so economically*" [18].

There is four types of needs to satisfy in the public sector: **(1)** Needs of usage: water, security, lodging, employment, transportation, education...; **(2)** Needs of associated services: information, simplicity, personalization, confidentiality, rapidity, claim..., **(3)** Needs of

society: social cohesion, territorial, sustainable development, citizenship..., (4) to the just cost: need of tax payer and/or the customer. [19]

The multiplication of these new rights mentions the emergence of a principle of quality of the public service that includes two specific requirements [20]:

- Accessibility management in the public services doesn't summarized in planning of the local and the timetables of opening. On one hand, it is about adapting the offer of service to the different social and geographical situations of the users to re-establish the equality of access to the service; on the other hand, it is about reinforcing the legibility of the action while making the information more available and simplifying the administrative steps.
- Improvement of administrative service passes by a better receptiveness of the users and a more rapidity of action. On one hand, by improving the monitoring facilities, to reinforce proximity and on the other hand by accelerating the administrative action and to sanction his delay.

Sabadie sum up this evolution of the public service principles and identified four specific measurements of the public service quality [8]:

- Equality of treatments: the users placed in a similar situation must be treated in the same way.
- Participation: the consideration of user's opinions, or of their representatives, for the definition of the service offer.
- Management of the claims: setting of a complaint process and the consideration of this complaint.
- Transparency: the information provided to the users on the actions of the public service in general and on the treatment of their demand in particular.

2.3. PSQ MODEL

The PSQ model is an operational measurement tool allows a hybrid analysis of the SERVQUAL model and the specific measurements of the public services. This model suggest to combine four principles of the public action (legal model) retained by Sabadie [8] and five measurements of the SERVQUAL model [9] [10] descended of the service marketing or what it called client model. The model proposed also an instrument to measure the users' global satisfaction. Directly operational, the PSQ model can be integrated to the present mode of piloting of the public performance while valuing and piloting each of the measurements of public services quality from user's perceptions. This model can complete the measures of other devices commonly used in the public organizations, based on the norms of service.

After analysis of taken data; the authors keep 31 items and retain 6 measurements of the of public services quality for measuring global satisfaction [7]:

- The first dimension called "**Relations**". It is measured from the items descended of measurements "obligingness" and "empathy" of the SERVQUAL model (9 items). This dimension makes reference to the relations that the users maintain with municipality staff.

- The second dimension called "**Transparency**". It is measured from the items descended of measurements transparency and complaint of the legal model (6 items). This dimension makes reference to the transparency in the offer of the services as well as in the resolution of the problems.
- The third dimension called "**Reliability**". It measured from the items descended of the measurements reliability of the SERVQUAL model (4 items) and participation of the legal model (3 items). So the participation of the users in the offer of the municipal services is associated to the reliability of the global service to form a coherent whole.
- The fourth dimension called "**Tangibility**". It is measured from the items descended of dimension tangibility of the SERVQUAL model (4 items). This dimension makes reference to the material facilities of the municipality.
- The fifth dimension called "**Insurance**". It corresponds to one measurements of the SERVQUAL model and makes reference to expertise and to the courtesy of the employees (3 items).
- The sixth dimension called "**Ethics**". It is measured from the dimension equality of the treatments of the legal model (2 items)

2.4. RESEARCH HYPOTHESES

Based on the literature review, it can be concluded that the hypotheses are as follows:

- H₁. Assurance has a positive and significant effect on user satisfaction.
- H₂. Reliability has a positive and significant effect on user satisfaction.
- H₃. Transparency has a positive and significant effect on user satisfaction.
- H₄. Relations have a positive and significant effect on user satisfaction.
- H₅. Tangibility has a positive and significant effect on user satisfaction.
- H₆. Ethics has a positive and significant effect on user satisfaction.

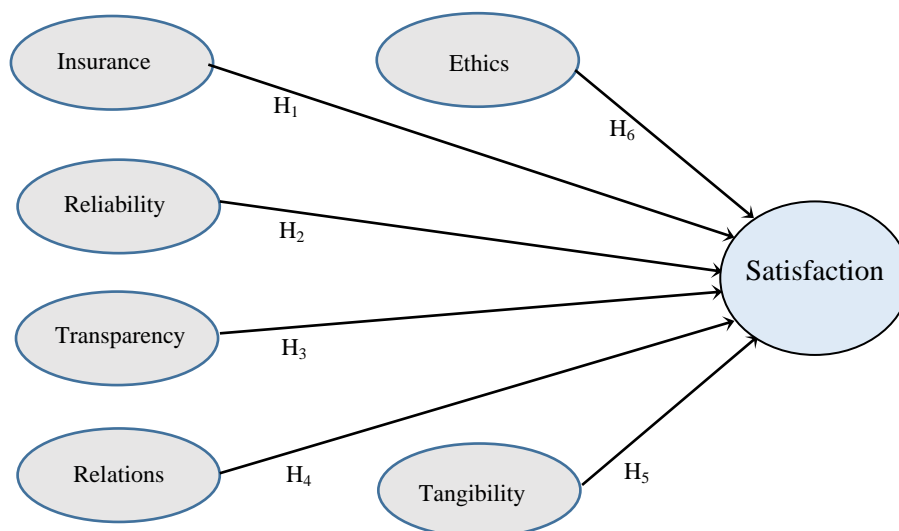


Figure 1. Conceptual Model

3. METHODOLOGY

3.1. MEASUREMENT INSTRUMENT

The questionnaire was the same as the Goudarzi and Guenoun [7] instrument with a 5-point Likert scale. By elimination of some items and that for accurate the questionnaire with the study scope, the final set of 22 items was examined by an academic experienced in questionnaire design. After, it was subsequently piloted with 15 persons among CNAS services users to ensure that the questions and response formats were clear. Minor modifications were made based on feedback from the pilot study.

The final questionnaire consisted of three sections. In the first section, questions were related to public service dimensions. The second section contained items measuring the user satisfaction degree. In the both sections the items were put on a five-point Likert scale where a value of 1 expresses strongly disagree and a value of 5 expresses strongly agree. The third section contained questions regarding demographic characteristics of the respondents such as gender, age, education, seniority and occupational category.

3.2. SAMPLE AND DATA COLLECTION

Testing the suggested research hypotheses was accomplished through a convenience sample survey of 5 different CNAS agencies of Sidi Bel Abbes state (Algeria West). The respondents filled up the questionnaire within the months of April–June, 2015. Total of 315 questionnaires were received out of which 298 were found to be completely and accurately filled, the rest 17 were discarded due to incomplete information. Respondents were the service users of different 5 agencies. The detailed sample characteristics are shown in Table 2.

Table 1. Sample profile

		Frequency	Percent	Cumulative %
Gender	Male	134	44.8	44.8
	Female	165	55.2	100
Age	18- 30	49	16.4	16.4
	30-40	89	29.8	46.2
	40-60	149	49.8	96
	More than 60 years	12	4.0	100
Seniority	Less than 5 years	65	21.8	21.8
	5-15	83	27.9	49.7
	15-25	68	22.8	72.5
	25-35	62	20.8	93.3
	More than 35 years	20	6.7	100.0
Occupational category	Active insured	209	69.9	69.9
	Pensioner	31	10.4	80.3
	Employer	50	16.7	97
	Particular category	9	3.0	100
Education	Illiterate	16	5.4	5.4
	Middle education	117	39.2	44.6
	High education	165	55.4	100

4. DATA ANALYSIS AND FINDINGS

The study used structural equation modeling (SEM) to test the conceptual model. SEM is a second generation multivariate data analysis method that is often used in marketing research because it can test theoretically supported linear and additive causal models [21]. It is also useful for concurrent assessment of both reliability and validity. As the conceptual model is relatively complex, a partial least squares (PLS) approach was employed using the SmartPLS software [22].

4.1. SCALE VALIDITY AND RELIABILITY

To evaluate the construct validity of each latent construct, a confirmatory factor analysis (CFA) was conducted by investigating the convergent validity and discriminant validity. Convergent validity is tested by examining the factor loadings and the average variance extracted (AVE) which should be greater than 0.50 for both [23]. Discriminant validity has been assessed using the square root of AVE which should exceed the construct correlations with all other constructs. The constructs' internal consistency can be measured for all scales through Cronbach's α as well as a measure of composite reliability (CR) and should exceed the recommended threshold criterion of 0.70 for both [21].

The data presented in Table 2 and Figure 2 show that all items had significant loadings onto the respective latent constructs with values varying between 0.761 and 0.941 and the AVE for all exceeded the recommended level of 0.50 [24]. CR and Cronbach's α of all the latent variables are greater than the acceptable limit of 0.70.

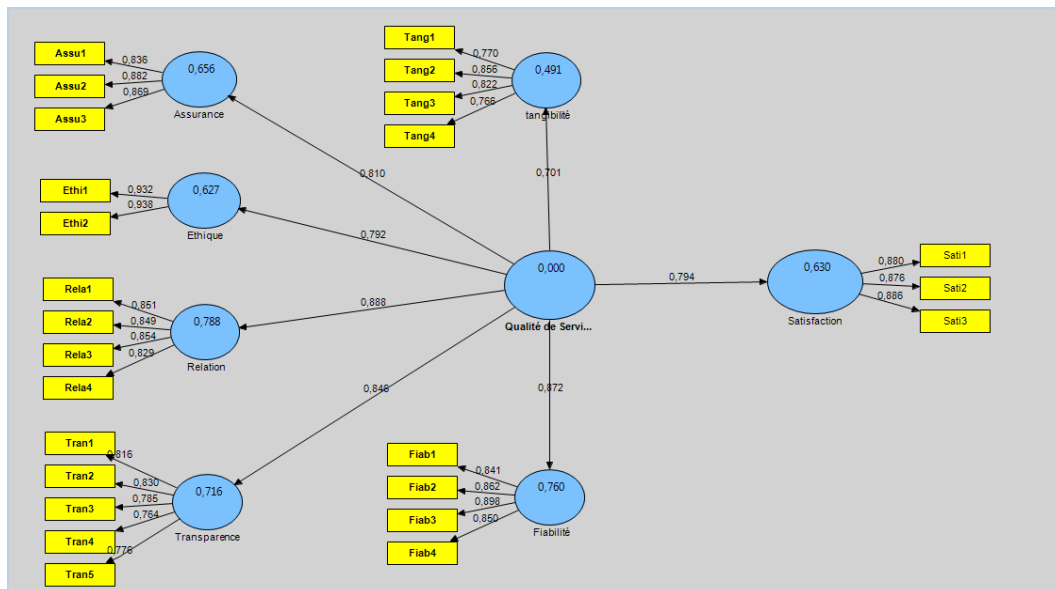


Figure 2. Structural and measure Model with application of PLS algorithm

Table 2. Measurement model summary

Construct	Items	Factor loading	AVE	CR	Cronbach's α
Insurance	Assu1	0.825	0.7445	0.8973	0.8287
	Assu2	0.887			
	Assu3	0.875			
Reliability	Relia1	0.848	0.7449	0.9211	0.8856
	Relia2	0.857			
	Relia3	0.895			
	Relia4	0.851			
Transparency	Trans1	0.821	0.8952	0.8952	0.8541
	Trans2	0.842			
	Trans3	0.773			
	Trans4	0.761			
	Trans5	0.767			
Relations	Rela1	0.851	0.7153	0.9095	0.8673
	Rela2	0.849			
	Rela3	0.848			
	Rela4	0.838			
Tangibility	Tang1	0.771	0.8796	0.8796	0.8204
	Tang2	0.842			
	Tang3	0.816			
	Tang4	0.780			
Ethics	Ethi1	0.929	0.8743	0.9329	0.8563
	Ethi2	0.941			
Satisfaction	Sati1	0.880	0.7750	0.9118	0.8548
	Sati2	0.875			
	Sati3	0.886			

Table 3 illustrates the values of the square root of the AVE are all greater than the inter-construct correlations. Thus, the measurement model reflects good construct validity and reliability.

Table 3. Measurement model summary

Constructs	Assurance	Ethics	Reliability	Relation	Satisfaction	Transparency	Tangibility
Insurance	0.8628						
Ethics	0.5763	0.9350					
Reliability	0.6356	0.6152	0.8631				
Relations	0.7561	0.7388	0.6624	0.8458			
Satisfaction	0.6936	0.6805	0.6840	0.7590	0.8803		
Transparency	0.5250	0.6558	0.7038	0.6948	0.5826	0.7944	
Tangibility	0.5418	0.3973	0.6088	0.4892	.5213	0.4886	0.8042

Note: a Diagonal elements are squared AVE; off-diagonal elements are the correlation between constructs.

4.2. STRUCTURAL MODEL ANALYSIS

4.2.1. Model assessment

SEM is a comprehensive statistical technique for examining relations between observed and latent variables. To evaluate the model within SmartPLS software, we must use the goodness of fit (GoF) index which is calculated by the geometric mean of the average communality and the average R^2 (for endogenous constructs) [25]. The R^2 is the coefficient of determination, it refers to the exploratory power of the predictor variable(s) on the respective construct.

In the present study, the calculated value of $AVE=0.73$ and $R^2=0.67$. For the model, a GoF value is 0.7, which indicates that a very good global model fit with the data collected.

As multicollinearity can affect the results, the study examined the tolerance and variance inflation factor values (VIF) for multicollinearity assessment. To assess collinearity issues of the study model, the latent variable scores (calculated by SmartPLS) can be used as input for multiple regressions in SPSS software to get the tolerance and VIF values, as SmartPLS does not provide these numbers [11]. As presented in Table 5, the variables had no VIF values above 5 and tolerance level greater than 0.2 [26], so there is no multicollinearity between the independent variables. Hence, we proceeded to examine the study model shown in Figure 1.

4.2.1. Hypotheses testing

Bootstrapping with 2000 resample was done to derive t-values for significance testing of the structural path [22]. Standardised path coefficients (β), t-statistics, and associated significance levels for all relationships in the study model are presented in Table 4 and Figure 3. Using a two-tailed t-test with a significance level of 5%, the path coefficient will be significant if the t-value is larger than 1.96 [22]. The results indicated that Insurance ($\beta=0.168$; $p<0.05$), Reliability ($\beta=0.229$; $p<0.05$), Relations ($\beta=0.339$; $p<0.05$) and Ethics ($\beta=0.211$; $p<0.05$) had a positive and significant effect on user satisfaction. Thus, H_1 , H_2 , H_4 , and H_6 were accepted. However, transparency ($\beta= -0.078$; $p>0.05$) and tangibility ($\beta=0.081$; $p>0.05$) showed no significant effect on user satisfaction. Therefore, H_3 and H_5 were rejected.

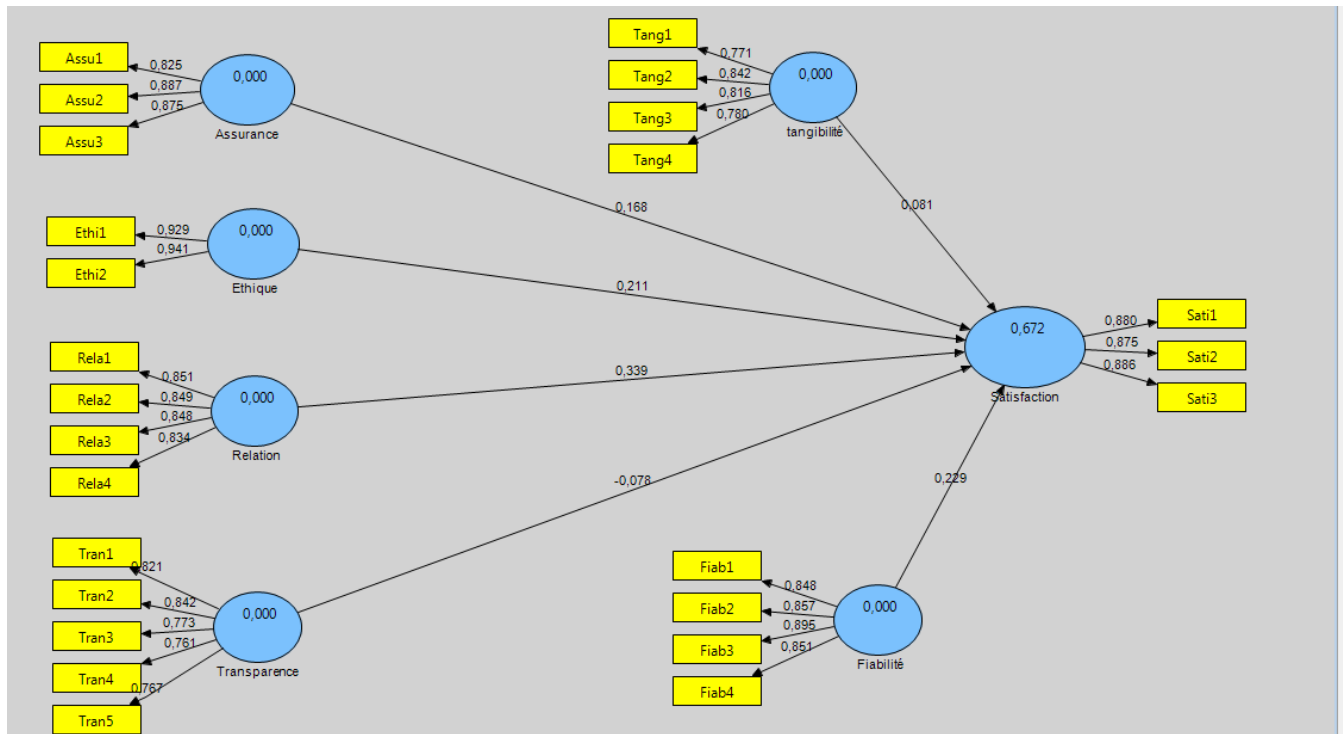


Figure 3. Impact of quality service dimensions on satisfaction (Application of PLS algorithm)

Table 4. Structural model estimates

Path	Coefficient (β)	t-values	Tolerance	VIF	Results
H ₁ : Insurance → Satisfaction	.168	3,056	.368	2.717	Accepted
H ₂ : Reliability → Satisfaction	.229	4,076	.355	2.814	Accepted
H ₃ : Transparency → Satisfaction	-.078	-1,433	.377	2.652	Rejected
H ₄ : Relations → Satisfaction	.339	5,129	.256	3.913	Accepted
H ₅ : Tangibility → Satisfaction	.081	1,854	.580	1.724	Rejected
H ₆ : Ethics → Satisfaction	.211	4,024	.406	2.464	Accepted

5. DISCUSSION AND MANAGERIAL IMPLICATIONS

The perceived quality of service for the social insured represents an important dimension on his satisfaction and a credible indicator to put in evidence as well as to correct some dysfunctions in the National Social Insurance fund “CNAS”.

The purpose of the study was to demonstrate the most important elements of perceived quality service that influence Algerian user in the context of public sector. The present study examined the PSQ model to confirm and explain the mentioned relationship and SEM technique was then applied to test the model with a 2000 subsamples bootstrapping procedure using the SmartPLS software.

The results indicate that the quality as it perceived by the CNAS users has a meaningful and important effect on their satisfactions. This perceived quality who are not measurable directly, is determined by six measurements that are:

- The relation that the users maintain with the staff of the CNAS.
- The reliability that makes reference to the capacity discerned of the beneficiary to achieve the service promised
- The insurance that makes reference to expertise and to the courtesy of the CNAS employee and his/her ability to inspire confidence.
- The ethics that makes reference to the equality in treatment of the social insured.
- The transparency of the information provided to the social insured on the actions of service of the CNAS and on the treatment of their demands in individuals.
- The tangibility that makes reference to the material facilities, and to the staff's appearances.

The findings show that there exists a need for a different view of every single dimension of the perceived quality service. The study found relation; reliability; insurance and ethics had a positive and significant effect on user satisfaction. However, transparency and tangibility had no significant effect on social insured satisfaction. We can conclude that the social insured sees and judges the services of the CNAS with a big emotional part that cognitive.

The results of the analysis indicated that among the different dimensions addressed in the model, the relation had the most ($\beta=0.339$) impact on user satisfaction, followed by reliability ($\beta=0.229$) and ethics ($\beta=0.211$). On the other hand, insurance ($\beta=0.147$) had a small effect on social insured satisfaction among them (see Table 4).

The present study uses PSQ model [7] to measure Algerian users' perceived quality service and satisfaction since it has been not frequently used for evaluate the quality service in public sector. However, this research confirms that this model is compliant with the theory and we have verified its validity. Therefore, it can be considered like an initiative to other structural models in order to establish, shortly, of new studies and research in the domain. On the managerial level, this model gives a new lighting to the local decision-makers in order to integrate it for piloting the public service performance.

There are several boundaries of current study that should to address in near future. The data were collected only among CNAS users therefore these findings cannot be generalized to the entire Algerian public sector. Also, this research has been conducted in limited region (Algeria' west).

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MARKETING ON SOCIAL MEDIA

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Abstract: The nineties of the last century are considered as time when overall economic and political system completely reoriented towards global market access. Namely, information and communication technologies are considered as the main driving forces of economic transformation on a world scale. Indeed, development of the Internet and social media shape the twenty-first century.

In the last couple of years different kind of social media has emerged. The most popular that are widely used are Facebook, Twitter, YouTube and LinkedIn. These social media channels connect people each other all over the world and break barriers creating completely new virtual space. In this virtual world people communicate, interact, collaborate, criticize and associate. Social media is a phenomenon that has provided a new form of consumer socialization. Absolutely has changed the way people communicate and do business. That way social media has become an important aspect in marketing mix.

The aim of this paper is to research the importance of social media, what type of social media users appreciate and have a positive outlook on them. It will help company to create a brand awareness through integrated marketing strategy of traditional and non-traditional advertising channels.

Keywords: social media, global world, technology

INTRODUCTION

We live in the era of the Internet or the so called "Golden age of technology". Since its appearance until today the Internet has undergone significant changes and has grown into a global network with over 3 billion users which completely changed the way of communication and the lifestyle in general. It actually gained its popularity with the emergence of the Web service that represents information space containing documents with text, voice, image, graphics, animation, and even movies. Since the version Web 1.0 to Web 2.0 there has been a change in the way of the usage of the web platform which facilitated the connection of individuals who have similar interests in a large online community. Unlike the Web 1.0 platform where communication was in one direction and the network was used only as an information source, Web 2.0, as an enhanced version, caused a revolution in the communication process allowing interaction between users. In this way, a platform has been created where everything is transparent, accessible and alive. Users transferred from passive recipients of information to active users able to participate in the creation of web content or application, to give their comments, criticisms and impressions, and the information which are continually gathered gain new form and can be used in different ways.

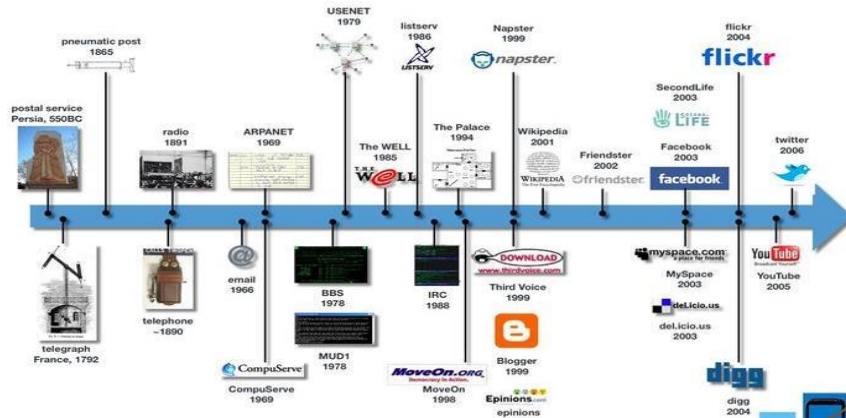
The Web 2.0 technology has not only changed the way of thinking, but also the focus on the social segment, and thus it has become a synonym for social networking and

communication. Nowadays, there is almost no person who is immune to social networking. Even those who try to ignore it are subconsciously under its influence. The social networks have grown into an obsession which has helped thousands of companies, customers and other market players to enhance their online presence. This is why the social networks and all digital technology in general have been included in the support of the modern marketing concept that gives the companies guidance on setting sustainable goals and activities. In continuation of this work the social networks will be handled in terms of their attractiveness and acceptance by users in order to assist companies in building an integrated marketing strategy in performance and market positioning.

SOCIAL MEDIA

The term social media is relatively new. The first part of the term-social concerns the instinctive need of people to communicate with each other, to be surrounded by other people and to belong to a group of people that they can share their opinions with, views, ideas and experiences. The second part-media refers to the means by which one can achieve this connection. Although social media has become a trend that has contributed to increase their popularity, on the other hand they provided new ways of communicating, easier making of friends and quick exchange of specific content which has made them very attractive. Today one cannot imagine life without the use of the Internet and mobile phones. This is confirmed by researches showing that the number of Internet users is increasing progressively tending to surpass 5 billion by 2030. The vast majority of the Internet users are very present on social media and this is the reason why the classic marketing transfers into Internet marketing that gives a new dimension to the whole concept. Many multinational companies such as Coca cola, Apple, Ford, CNN, Red Bull, Starbucks and many celebrities are constantly present on social media, have a large number of fans, followers and are an integral part of a vast network i.e. target group.

If we want to make a retrospective of social media from the beginning until today, a continued progress is evident. For the start of this development the year 550 BC has been designated when the first mail in ancient Persia emerged and continued in France when the telegraph was invented in 1792 which enabled the increase of communication and socialization in humans. In 1890 the introduction of radio and television caused a true revolution in the information process. Nevertheless, the real interaction actually occurred with the emergence of the Internet in the 70s of the last century. The first tool that revived the Internet is e-mail that enabled us to send and receive e-mails. In the further development there is an expansion of various services that are part of the historical development such as: Napster, Usenet, The well, BBC, IRC, afterwards Wikipedia appears and, in the late nineties, the first blog. With the beginning of the new millennium the Internet is completely oriented towards users and they become active participants in the overall content. Tools that are simple to use are emerging with an emphasis on multimedia and interaction. The first popular social network that appears is My space, followed by the emergence of Facebook, Twitter, You Tube and Flickr.



Source: <http://bojanpajicns.wordpress.com/>

Picture No 1. Retrospective of social media from the beginning until today

The social media have several important features that make them specific and attractive in today's living conditions. **First**, they provide a high level of participation because, from technological point of view, they are very complex, but in terms of usage they are very simple and universally applicable. **Second**, in terms of transparency they are completely open and public for all users, simple for communication and collaboration and they are free. **Third**, they are focused towards the community-users are placed in the focus of attention and have the opportunity to express their opinion, criticism, comment or assessment of an activity, product or service. And **fourth**, it certainly is the global association of social media that allows content from any medium to be followed by thousands of people all around the world.

Because the social media represent a broad category, they fall into several subcategories, such as: blogs, forums, Wikis, social networks and sites. The social networks have undergone a strong expansion in recent years, although it can be noted that the users use them for various purposes, from useless spending of time to successfully promoting the work, products or services.

SOCIAL NETWORKS

The impact of social networks is particularly emphasized in recent years. They are called social networks because their purpose is to connect people around the world with the same or different interests in a global network. They especially emphasize the friendship and interaction among users. They are defined from three aspects: *first*, as a network of web-based services that allow the users to create public or partly public profiles within the web system; *second*, to communicate and share data with parties using the same social network and *third*, to follow the activities of the persons to which they are connected. With the widespread use of the social networks a need for compulsory presence is created because not being present is the same as not existing. This fact contributed that they grow from a virtual place for meeting and communicating into a space for promoting ideas, campaigns, motivating and grouping of individuals to deliver specific needs and desires. Moreover, in addition to the informative and entertaining character, they also receive psychological-emotional importance due to the possibility of a high degree of participation.

As a modern way of communicating, the social networks have become an inevitable part both of the work of businesses and a social-political actors worldwide. If we talk about the use of social networks as a marketing tool then of particular importance is whether they are B2B or B2C companies because all platforms have their own specificity and are used for various purposes. B2B companies give evident advantage to the social network LinkedIn as its platform is more oriented to professional users compared to the Facebook platform that has greater use in B2C companies.

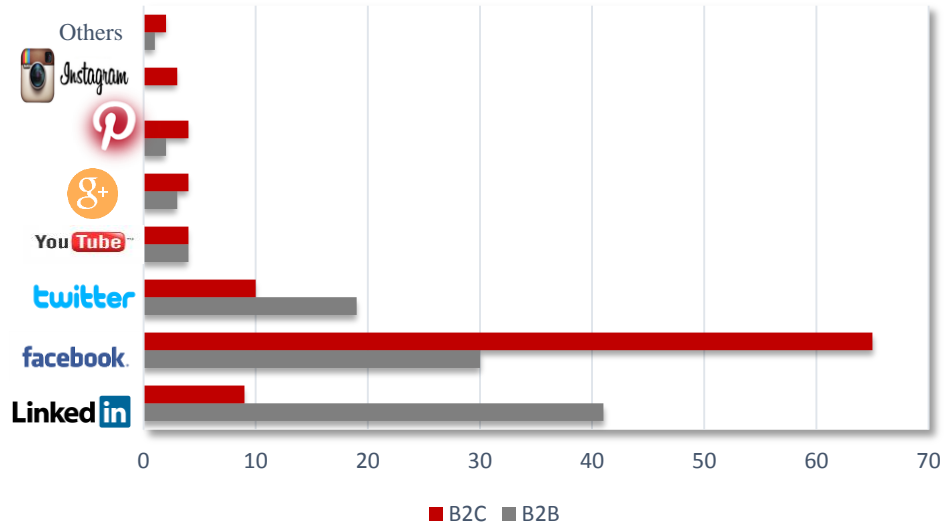


Figure 1. Usage of social networks by B2B and B2C companies

Source: <http://www.statista.com/topics/1538/social-media-marketing/>

If we want to analyze how social networks are perceived by the consumer in terms of attendance, attractiveness and positive attitude, the social network Facebook is the domineering, followed by You Tube, Google+, LinkedIn, Twitter, Instagram and Pinterest.

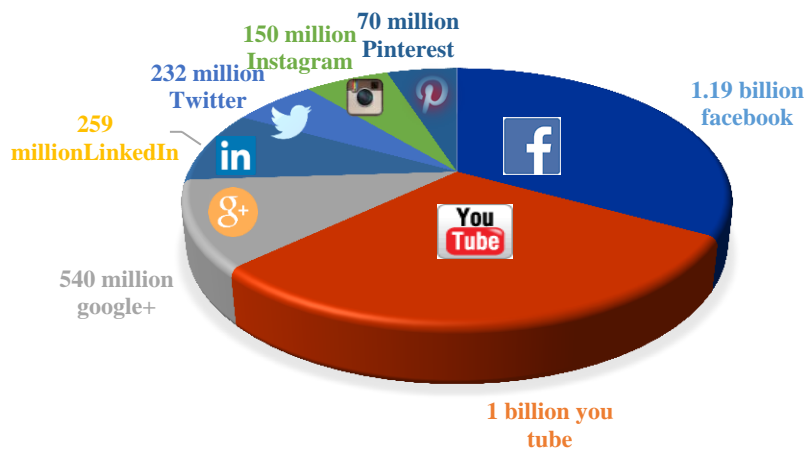


Figure 2. Number of monthly social networks' users

Source: <https://www.dbsquaredinc.com/social-media514/>

Due to the impact that the network site Facebook possesses globally, many companies, regardless of the activity they perform, begin their online marketing strategy precisely here. On the other hand, the presence of the world's largest companies that belong to the category B2C increases its attractiveness. According to Statista-the leading portal for online research-382 world brands include the social networks as an integral part of their marketing strategy with particular dominance of Facebook, Twitter and You Tube. It is expected that, in the future the impact of the social networks will further increase. The value of advertising by 2018 will climb to 15 billion dollars.

FACEBOOK

It is considered as the most popular and the most accepted social network worldwide. In order to gather all his colleagues in one place, the 19-year-old student Mark Zuckerberg, founded this network and in a short time it became available to all students from other universities. As a global phenomenon and a leading destination for socializing, entertainment, promotion and distribution of specific content, Facebook today is accessible to all. Despite the criticisms, the number of users of this network is growing rapidly. In December 2005, the number of users amounted to only 5 500 000 and in one year it increased twice, while in January 2013 it reached a figure of 950 000 000 users. According to the latest data the number of users in 2016 amounted to almost 2 billion of which 1.65 billion are estimated as active users on a monthly level. About 1 billion users log on to the network every day. On average, at least 20 minutes a day or 7 hours a week are spent on the social network. About 83% of parents are friends with their children on Facebook.

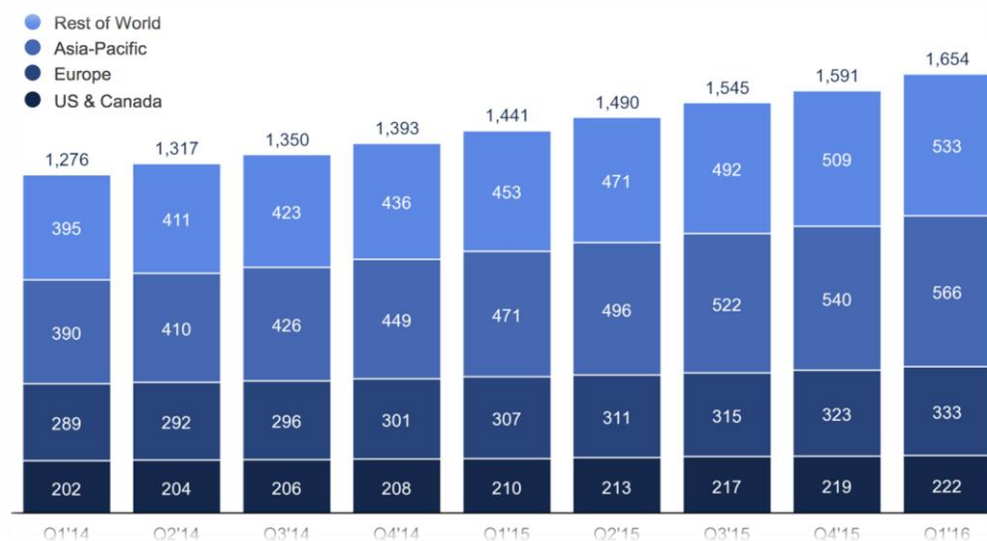


Figure 3 Number of monthly active Facebook users worldwide in 2016

SOURCE: <http://www.socialmediatoday.com/social-networks/facebook-now-165-billion-active-users-beats-expectations-revenue>

From demographic aspect 76% are female, 66% are male and in terms of age only 38% of users belong to the age group between 18 to 24 years of age and over 28% to the age

group 25-34 years old. The influence that this social network has among consumers in recent years, especially those belonging to Generation Y-born between 1980 and 2000-is amazing. Facebook has grown into a medium that consumers trust and they make their buying decisions based on the information placed and exchanged here. The results of an online survey of a representative sample of 5493 respondents has shown that more than 80% believe that the online presence is mandatory for companies because they constantly monitor their work on the social networks, especially Facebook. Equally important is the opinion of friends on Facebook when they are interested to try a new product or service.

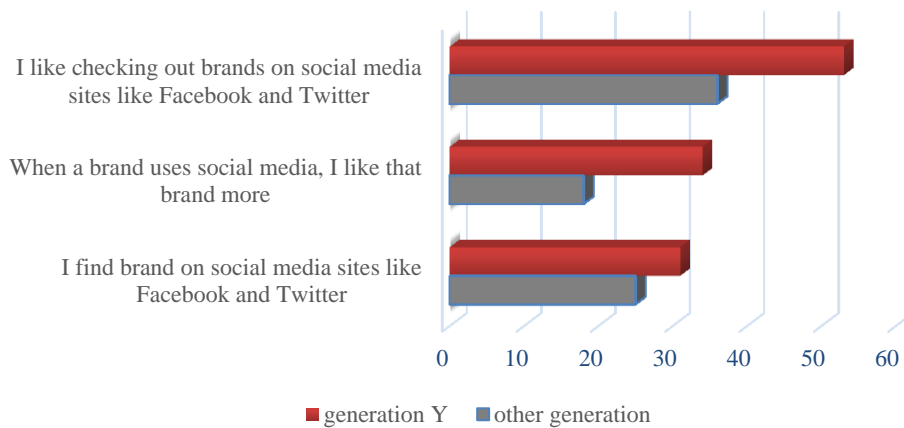


Figure 4. The need of companies' presence on social networks

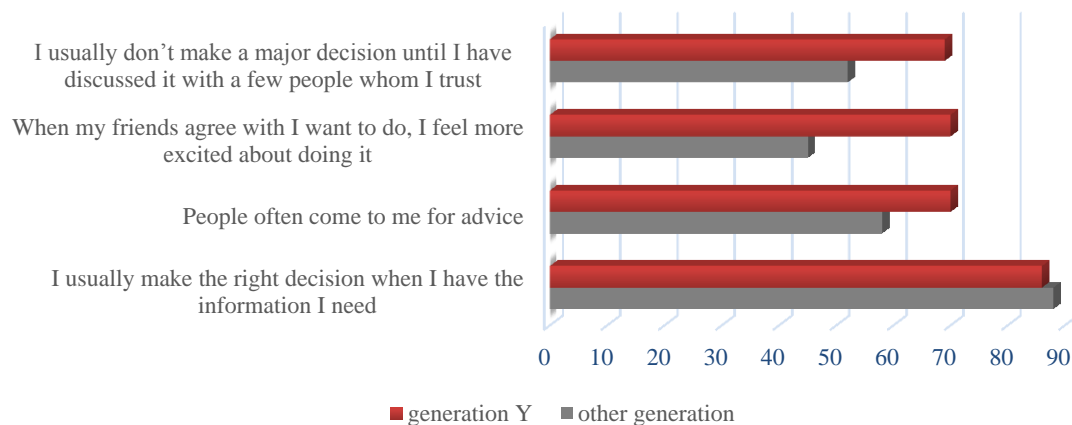


Figure 5. Role of information and recommendation in making decision process of purchase

Source: Research by the author

These statistics show that the social network Facebook is not only used as a medium through which users socialize and have fun but also as a powerful promotional tool that, if used in a proper way, can bring a great benefit to companies. Opening an account on Facebook by companies strengthens the trust that every company wants to build with its clients-current and potential. Furthermore, in a very simple, efficient and effective manner, by

placing photos or giving information about certain actions, consumers are introduced to the brand and the company as a whole. On the other hand, the platform facilitates constant interaction, answering the questions of customers meeting their needs, all this affecting creation of a positive company image to the public.

The most applied tools of this social network, for marketing purposes in particular, are:

FB account-normally used for personal purposes even though it may be used to promote some web pages, specific information, photo and video attachments and other content to the maximum number of friends which is limited to 5000.

FB group-this tool is the solution for collecting a large number of people when organizing an event or promoting something. Here, care must be taken not to exceed the number of group members since the administrator loses the right to control, so instead of a positive one gets a negative effect.

FB page-or the so-called fan page is the most widely used tool in marketing. The main advantage is that the fans of the page follow all novelties announced and placed on it. However, care should be taken with any posts and status updates to avoid saturation of the audience or end up in their black list. Using the option Insights an insight in the demographic data of all the users is provided - gender, age, interests, location and so on. The strength and importance of the fan page is not measured merely by the number of fans but by the number of fans who follow the statuses i.e. are active. To keep the attention of the fans the administrator needs to be at the same time an animator who knows how to raise interest among the audience i.e. target group at any time. To create an image that the fans interact with a person, not a machine.

Paid advertisements - this kind of advertising is directed at a specific target audience that is determined on the basis of data that can be obtained through the network. This kind of advertising is quite cheap because the ad is paid if someone clicks on it.

Events-used as a tool to promote events that indicate where the event will take place, who will take part, how will it be realized and confirmation of attendance. There is an opportunity for comments and suggestions that are additional assistance for the organization of the event.

Chat-allows direct communication with customers, answering specific questions, making suggestions, criticism and everything else that can be used in the further work of the companies.

Tag-through this option one can tag persons or objects in photos. The company IKEA uses this tool very creatively for marketing purposes. Namely, the general manager Gordon Gustavsson has put photos of the new line of furniture in his album on the social network and has invited friends to apply the option tag identifying themselves with a particular piece of furniture. The first who applied this option received free samples of furniture, and the action itself encountered positive attitudes among consumers.

The companies use this social network mostly to enhance the reputation and recognition of the brand, then as a marketing channel and as a tool through which to publish information and new content. It is also used in order to get feedback from customers, and it is least used as a sales channel. More than 150 brands have over 5 million viewers and Coca Cola is number one with over 90 million fans followed by McDonald's and Red Bull with almost half less.

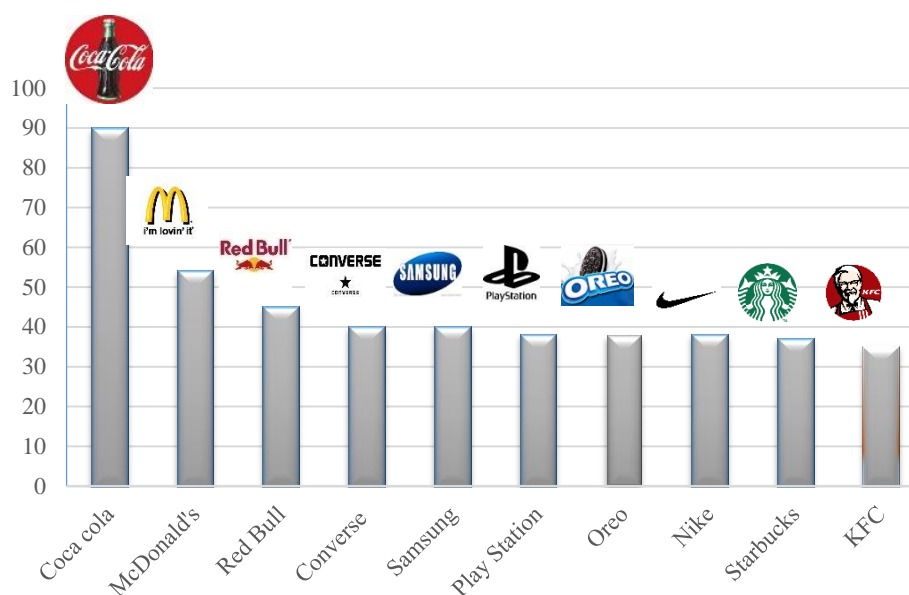


Figure 6. Top 10 brands on Facebook according to numbers of fans

Izbor: <http://www.snugsocial.com/2015/01/05/reach-free-social-media-statistics>

TWITTER

This social network, similar to Facebook, was started in 2006 and since then it has consistently been on the rise. It is simpler compared with Facebook and it is characterized by short status updates of 140 characters. It is commonly used in ordinary conversation and self-promotion. Nonetheless, given its popularity, the companies use it to promote websites, to promote what they do and to communicate with customers. Statistics show that the number of registered users amounts to 646 750 000 or 289 000 000 active users. The number of newly registered is constantly increasing. A daily average of tweets is 58 million. Nearly 40% of those who have an account only follow the tweets of others.

The limited number of characters of a tweet is the biggest advantage of this social network because it enables faster and more crucial communication. The tweets contain markings composed of terms with the prefix hashtag and this way the tweet search is facilitated by keyword subscription. By using the symbol @ before the username responses are given to one or more users.

In terms of marketing, through this tool the whole target group is gathered together in one place and it monitors all posts by the company. It is much more useful to have a smaller number of followers, however, it is better that they are potential and interested buyers than a vast number of followers who are of no benefit to the company. The content of the tweet should be well designed that will interest the potential buyers in a subtle way, not resembling the classic advertisements that will cause boredom and indifference in a short time. Combined with other promotional tools, Twitter can contribute much to improve the company's image.

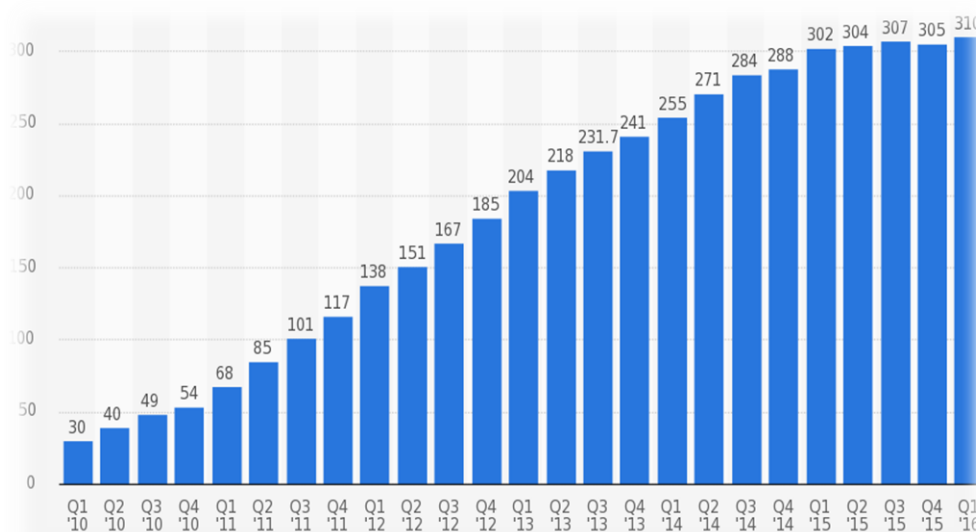


Figure 7. Number of monthly active Twitter users worldwide in 2016

Source: <http://www.statista.com/statistics/282087/number-of-monthly-active-twitter-users/>

The Twitter platform is an ideal solution for building a brand and increasing confidence among customers. Through the proper use of the tools Hashtagify and Rite Tag, the profile activity is increased. Twitshot is an online application that allows you to find an adequate picture of the tweet, and thus achieve greater effect on the audience. But, it is very important to send the tweets at the time when the audience is online. This information can be obtained through the tool Tweriod or Buffer.

From the many world brands that use this social network, the first place is occupied by the company Starbucks with as many as 11 million followers, Play Station with 9 million and the third place is held by Samsung with 5 million followers.

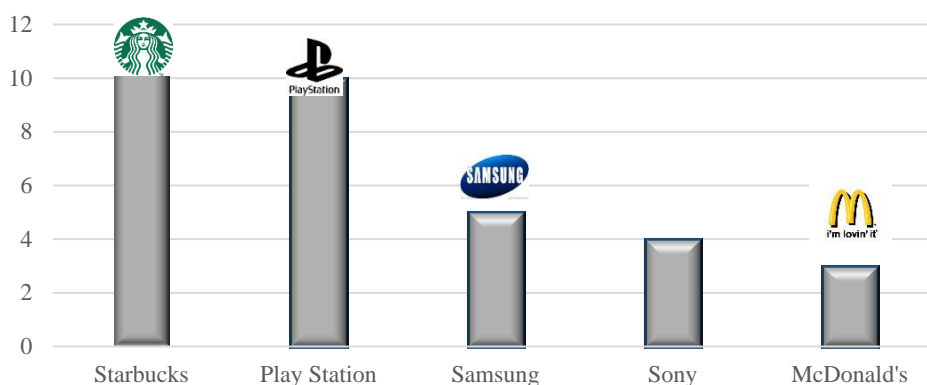


Figure 8 Top 10 brands on Twitter according to followers

Извор: <https://www.postplanner.com/blog/19-best-examples-of-how-top-brands-use-twitter/>

Twitter is a powerful marketing tool by which companies, if used properly, can create loyal customers for their products. An American research by Chadwick Martin Bailey

showed that 79% of the consumers, after following specific brands on Twitter, confirmed that they will recommend them to friends.

YOU TUBE

It is the greatest service for watching videos. Since 2006 it has been owned by Google. By creating a profile, the members of this network can constantly upload their videos, copy them and share them on other social networks and so on. It is used as a powerful promotional tool. Companies use it when promoting a product or service through a video, short documentary film or an advertising spot. It is a content placed completely free on this medium and has a great impact on the audience. Marketing managers in particular should be careful of the content quality and video length in order to cause interest and to share the video.

CONCLUSION

The emergence of the Internet and social networks have changed our lives and have become the epitome of the 21st century. Transforming themselves over the years, slowly but surely they developed into a global network that has imposed new rules of communication, created a platform for social networking and created envy and obsession in humans.

In recent years, social networks have become the most powerful marketing tool, although they do not guarantee success if not properly applied. This is confirmed by the numerous brands that occupy the networks daily, in order to position themselves firmly in the minds of consumers. From the many social networks, Facebook is convincingly in the first place by the number of active profiles, although we need to distinguish the purpose of the usage of these networks-B2B or B2C. But authenticity, relevance and transparency are prerequisites for creating online marketing strategy. Among others who belong to the group of popular social networks are: Twitter, You Tube, LinkedIn, Instagram, Google+ and Pinterest.

As a modern way of communicating, social networks are mostly used to improve the overall image of companies by allowing consumers to fully engage with their comments, criticisms, suggestions or questions in order to improve their performance and competitiveness. Although a number of studies show that these media are slowly but surely replacing traditional communication channels, companies should not completely rely on them. Namely, these media are mostly used by younger generations or members of the millennial generation. The major consumer force on the market are still the members of Generation X that pays more attention to traditional media. Therefore, companies generating market appearances should apply integrated marketing strategy that will include a combination of more promotional tools through which it will reach various target groups and will strengthen its market position.

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ANALYSIS OF THE IMPACT OF ENTREPRENEURIAL CREATIVITY AND SELF-EFFICACY ON THE INNOVATION AND PROFITABILITY OF SMES IN SOUTH AND SOUTHEAST SERBIA

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Abstract: This paper explores the entrepreneurial creativity and entrepreneurial self-efficacy and their impact on innovativeness and profitability of small and medium-sized enterprises SMEs in South and Southeast Serbia. The proposed conceptual model and set three hypotheses were tested on a sample of 669 entrepreneurs-owners of SMEs. For statistical data analysis we used the software programs SPSS 17.0 and LISREL 8.80. Hypothesis testing was done by using SEM (Structural Equation Modeling) methodology. The empirical results confirm the hypothesis, and suggests a positive correlation between them.

Keywords: Entrepreneurship; entrepreneur's creativity; entrepreneurial self-efficiency; innovativeness and profitability of SMEs; SEM methodology.

Apstrakt: U ovom radu se istražuje kakav uticaj preduzetnička kreativnost i samoeфикаsnost imaju na inovativnost i profitabilnost malih i srednjih preduzeća (MSP) u Južnoj i Jugoistočnoj Srbiji. Predloženi konceptualni model i postavljene tri hipoteze testirane su na uzorku od 669 preduzetnika-vlasnika MSP. Za statističku obradu podataka korišćeni su softverski programi SPSS 17.0 i LISREL 8.80. Testiranje hipoteza je urađeno korišćenjem SEM (Structural Equation Modeling) metodologije. Empirijski rezultati potvrđuju postavljene hipoteze, i ukazuju na postojanje pozitivne korelacije između njih.

Ključne reči: Preduzetništvo; kreativnost preduzetnika; samoeфикаsnost preduzetnika; inovativnost i profitabilnost MSP; SEM metodologija.

1. UVOD

U dostupnoj i poznatoj literaturi naglašava se da su važni pokretači ekonomskog razvoja svake privrede mala i srednja preduzeća (MSP). Važnu ulogu u ostvarivanju ovog zadatka imaju vlasnici MSP i njihova preduzetnička orijentisanost. Istraživanja su pokazala da preduzetnička orijentisanost ima pozitivan uticaj na poslovanje i profitabilnost organizacija. Takođe, organizacije sa visokim nivoom preduzetničkog duha konstantno istražuju i analiziraju okruženje u potrazi za novim idejama [1].

U prethodnim decenijama, politika razvoja MSP nije uvek bila integralni deo ukupnog društveno-ekonomskog razvoja Republike Srbije. Sektor MSP je često bio marginalizovan i smatran za manje značajnu dimenziju ekonomskog razvoja. Situacija je počela značajno da se menja od 2000. godine kada su započele društveno-ekonomske reforme u Republici Srbiji. Od tada sektor MSP je postao najefikasniji segment privrede Srbije, nosilac rasta i zapošljavanja,

te pored direktnih stranih investicija i privatizacije, prepoznat kao pokretač ekonomskog razvoja.

Cilj ovog istraživanja je da se, na nivou pojedinca, utvrde mehanizmi na osnovu kojih preduzetničke aktivnosti kao što su: kreativnost preduzetnika i preduzetnička samoeфикаsnost utiču posredno na inovativnost i neposredno na profitabilnost MSP u Južnoj i Jugoistočnoj Srbiji. Ovaj region Srbije je izabran za istraživanje zbog činjenice da spada u najnerazvijenije u zemlji. Rezultati dobijeni sa ovog područja se mogu analizirati i upoređivati sa rezultatima istraživanja dobijenih iz drugih regiona, i na taj način utvrditi univerzalno važeće veze koje bi mogle biti važne za razvoj preduzetništva u Srbiji. Autor Naude u svom radu [2] ističe, zbog relevantnosti otkrića, da se preduzetničko istraživanje treba ograničiti samo na napredne privrede. Međutim, autori Engelen et al. u radu [3] ističu da istraživanje u različitim kulturama može samo da unapredi preduzetništvo, jer se na taj način mogu istaknuti veze koje su univerzalno važeće u odnosu na veze koje važe u pojedinačnim kulturama. Takođe, autori Leskovar-Spacapan i Bastic u radu [4] naglašavaju važnost pitanja o prenosivosti zaključaka širom zemalja, i ističu da otkrića u istraživanjima u naprednim zemljama nisu neophodno relevantna za objašnjenje ponašanja u tranzicionim privredama.

Rad predstavlja istraživačko i naučno ispitivanje teorijskih pretpostavki i njihova međusobna povezanost, odnosno pretpostavke da preduzetnička kreativnost i samoeфикаsnost pozitivno utiču na inovativnost organizacije, kao i da inovativnost organizacije pozitivno utiče na profitabilnost organizacije. Proučavajući ovaj fenomen urađen je konceptualni model i postavljene su tri hipoteze.

2. ISTRAŽIVAČKE HIPOTEZE I KONCEPTUALNI MODEL

2.1. KREATIVNOST PREDUZETNIKA I INOVATIVNOST ORGANIZACIJE

Kreativnost predstavlja veoma složen fenomen. Proučavana je od strane socijalne psihologije, ekonomije, filozofije, istorije kao i psihometrije. Pripisivala se često čudu, kognitivnim procesima, društvenoj okolini, ličnim crtama i slučajnosti. Takođe, povezivana je s genijima, mentalnim poremećajima i humorom. Smatrana je osobinom sa kojom se rađamo, a ujedno se tvrdilo i da ju je moguće naučiti korišćenjem tehnika.

Na ključnu ulogu preduzetničke kreativnosti u pokretanju tehnoloških inovacija i privrednih promena ukazivao je Šumpeter u svojoj teoriji “kreatina destrukcija”. Pojam kreativnosti preduzetnika se od tada proučava u mnogim studijama. Neki istraživači, kao što je Maslow, naglašavaju da je kreativnost urođena osobina svih ljudi, ali da samo mali deo populacije deluje kreativno. Autor Nystrom u svom rada [5] ističe da je preduzetnička kreativnost “izum budućnosti”. Autori Baron i Tang u radu [6] ističu pozitivan uticaj kreativnosti preduzetnika na učinak organizacija. Autor Silvia i saradnici u radu [7] ističu da ljudi koji su kreativni u jednoj oblasti su, vrlo verovatno, kreativni i u drugim oblastima, baš kao što i ljudi koji su jako inteligentni imaju dobre rezultate pri mnoštvu kognitivnih zadataka. Autor Hall i saradnici u radu [8] ističu da je inovacija ključni element konkurencije i dinamičke efikasnosti tržišta. Posmatrano na duže staze, inovativne organizacije će rasti brže, biti efikasnije i profitabilnije u odnosu na neinovativne. Zbog svega navedenog, naša očekivanja su da preduzetnička kreativnost pozitivno utiče sa inovativnost organizacije, te

zbog toga predlažemo hipotezu H1: *Kreativnost preduzetnika pozitivno utiče na inovativnost organizacije.*

2.2. SAMOEFIKASNOST PREDUZETNIKA I INOVATIVNOST ORGANIZACIJE

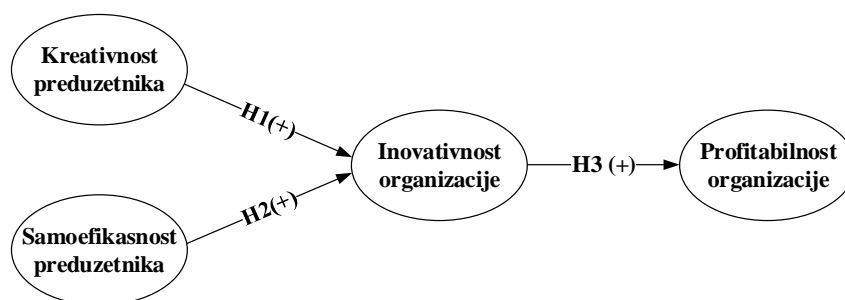
Preduzetnička samoeфикаsnost se odnosi na jačinu verovanja osobe da je ona sposobna da uspešno izvršava različite uloge i zadatke preduzetništva [9]. Preduzetnici sa istim veštinama mogu imati slab, adekvatan ili izvanredan učinak, zavisno od toga da li njihova sopstvena verovanja o ефикаsnosti jačaju ili umanjuju njihovu motivaciju i pokušaje rešavanja [10]. Postoje veće šanse da će pojedinci sa visokom samoeфикасношću za određeni zadatak više tragati i izdržati na tom zadatku, nego li pojedinci sa niskim verovanjima o samoeфикаsnosti [11]. Osoba može imati visoku samoeфикаsnost u jednoj oblasti, ali nisku samoeфикаsnost u drugoj oblasti, i to za određene, veoma specifične zadatke i/ili veštine [12]. Preduzetnici sa čvrstim uverenjima o preduzetničkoj samoeфикаsnosti teže da izazovne situacije dovode u vezu sa nagradama kao što je profit, priznanje zajednice i psihološka ispunjenost, zato što se samoeфикаsnost ne bavi prošloшću, već sudovima o tome šta bi se moglo postići u budićnosti [13]. Autor Tang u radu [14] ističe pozitivan efekat preduzetničke kreativnosti na inovativnost organizacije, koja stimuliše preduzetničku improvizaciju i sam poslovni učinak.

Na osnovu navedenog dolazi se do zaključka da je samoeфикаsnost preduzetnika veoma bitna kako bi organizacija bila inovativna, jer preduzetnik koji je samouveren u svoje sposobnosti da izvršava svoje zadatke, koji se ne boji izazova, koji je inovativan, može kao takav da organizaciji obezbeđuje inovativnost. Zbog toga su naša očekivanja da će samoeфикаsnost preduzetnika pozitivno uticati na inovativnost organizacije, a time i na bolji poslovni učinak, i predlažemo hipotezu H2: *Samoeфикаsnost preduzetnika pozitivno utiče na timski rad.*

2.3. INOVATIVNOST ORGANIZACIJE I PROFITABILNOST ORGANIZACIJE

Činjenica je da inovativnost predstavlja visoko rizičnu aktivnost. Imajući u vidu da je visok rizik u pozitivnoj korelaciji sa dobiti od inovacije organizacije u različitim industrijskim granama odlučuju da preuzmu rizik, znajući da uspešne inovacije mogu doneti konkurentsku prednost uz izuzetan rast [15]. Mala i srednja preduzeća koja imaju prethodno iskustvo inovacije imaju dvostruko veće šanse za uspešno poslovanje, za veći izvoz svojih proizvoda/usluga, povećan rast i razvoj organizacije nego neinovativne firme [16]. U mnogim studijama postoje brojni dokazi koji ukazuju na pozitivan odnos između inovacije i rezultata organizacija, kako kod proizvodne tako i kod uslužne delatnosti, npr. autori Love i Roper u radu [17]. U istom radu se ističe pozitivni uticaj inovacija na profitabilnost MSP, na njihov rast i povećanje izvoza. Takođe, autori Golovko i Valentini u radu [18] tvrde da kod MSP postoji jaka pozitivna veza između organizacionih inovacija, njene profitabilnosti, rasta izvoza, a time i rasta organizacije. Zbog svega istaknutog predlažemo hipotezu H3: *Inovativnost organizacije pozitivno utiče na profitabilnost organizacije.*

Na Slici 1 je prikazan konceptualni model pozitivnih uticaja, za predložene tri hipoteze.



Slika 1. Konceptualni model

3. METODOLOGIJA ISTRAŽIVANJA

Istraživački metod koji je korišćen u ovom radu je metod anketiranja. U tu svrhu formiran je upitnik, koji sadrži 4 grupe pitanja (latentne promenljive), koje su prikazane u Tabeli 1. U njima je raspoređeno 15 pitanja (promenljive). Upitnik sadrži i 8 kontrolnih pitanja (kontrolne promenljive), koja su prikazana u Tabeli 2.

3.1. UZORAK I PRIKUPLJANJE PODATAKA

Prikupljanje podataka se vršilo anonimnim anketiranjem vlasnika slučajno odabranih privrednih subjekata u Pčunjskom, Jablaničkom, Pirotskom i Zaječarskom okrugu. Istraživanje je obavljeno u periodu od septembra 2015. do aprila 2016. godine. Podaci su prikupljeni neposrednim anketiranjem preduzetnika, odnosno vlasnika MSP, koji su upitnik popunjavali zaokruživanjem ponuđenih odgovora. Od ukupno 712 anketiranih, validnih anketa je bilo 669 ili 93,96%. Odnos veličine uzorka (669 ispitanika) i broja pitanja (15 promenljive) iznosi 44,6, što je daleko veći od preporučenog nivoa 5, prema autorima Hair i saradnici u radu [19].

3.2. MERE I DEMOGRAFSKE KARAKTERISTIKE UZORKA

Ocenjivanje anketnih pitanja je urađeno korišćenjem Likertove petostepene skale (1-jako se ne slažem, ..., 5-jako se slažem). Konceptualni model sadrži dve nezavisne latentne promenljive: kreativnost preduzetnika (KP) i samoefikasnost preduzetnika (SP), kao i dve zavisne latentne promenljive: inovativnost organizacije (IO) i profitabilnost organizacije (PO). Za formiranje upitnika korišćena je relevantna literatura, odnosno radovima autora prikazanih u Tabeli 1.

Tabela 1. Stavke upitnika

Konstrukt	Oznaka	Pitanje	Izvor
Kreativnost preduzetnika (KP)	KP_1	Mogu da osmislim iznenadna rešenja	Hills et al. (1997)
	KP_2	Moje ideje su obično vrlo jedinstvene	
	KP_3	Kad predvidim moguće prepreke, sposoban sam da ih savladam	
	KP_4	Pokušavam da nadjem nova rešenja, čak i kad to nije potrebno	
	KP_5	Uvek imam u glavi veliki broj ideja	
Samoeфикаsnost preduzetnika (SP)	SP_1	Sposoban sam da postavim i ispunim poslovne ciljeve	Chen et al. (1998)
	SP_2	Sposoban sam da kontrolišem troškove	
	SP_3	Sposoban sam da sprovedem analizu tržišta	
	SP_4	Sposoban sam da razvijem nove ideje	
Inovativnost organizacije (IO)	IO_1	Broj proizvoda ili usluga koje je organizacija prva plasirala	Yung and Cheng (2009)
	IO_2	Broj proizvoda ili usluga koje je organizacija plasirala	
	IO_3	Brzina razvoja novih proizvoda ili usluga	
Profitabilnost organizacije (PO)	PO_1	Naša organizacija posluje mnogo bolje od konkurentskih	Anderson et al. (2002)
	PO_2	Naša prodaja raste brže od konkurentске	
	PO_3	Naš tržišni udeo je veći od konkurentskog	

Na osnovu odgovora ispitanika, u Tabeli 2 su prikazane demografske karakteristike testiranja.

Tabela 2. Demografske karakteristike uzorka

R.br.	Kontrolne promenljive	Kategorija	Frekvencija	Udeo (%)
1	Pol poslodavca-vlasnika	Muški	482	72,0
		Ženski	187	28,0
2	Godine starosti poslodavca-vlasnika	≤ 25	33	4,9
		26-35	160	23,9
		36-45	200	29,9
		46-55	197	29,5
		≥ 56	79	11,8
3	Broj zaposlenih u organizaciji	≤ 10	479	71,6
		11-50	125	18,7
		51-250	65	9,7
4	Hronološka starost organizacije (godine)	≤ 5	176	26,3
		6-10	170	25,4
		11-20	165	24,7
		21-30	85	12,7
		≥ 31	73	10,9
5	Prethodno poslovno iskustvo poslodavca-vlasnika	Ne	203	30,3
		Da	466	69,7
6	Prethodno poslovno iskustvo u struci poslodavca-vlasnika	Ne	288	43,0
		Da	381	57,0
7	Vlasnička struktura vaše organizacije	Domaće vlasništvo	631	94,3
		Strano vlasništvo	17	2,5
		Mešovito vlasništvo	21	3,2
8	Sektor privredne delatnosi	Poljoprivreda	35	5,2
		Proizvodni	137	20,5
		Neproizvodni	88	13,2
		Uslužni	409	61,1

Upitnik je popunilo 72% muških i 28% ženskih ispitanika, tj. vlasnika MSP. U idealnom starosnom dobu od 26 do 55 godina života nalazi se ukupno 83,3% ispitanika. Na osnovu broja zaposlenih 71,6% ispitanika poseduje organizaciju u kategoriji mikro preduzeća (<10 radnika). Hronoliški "mlade" organizacije, tj. ona MSP koja nemaju više od 10 godina postojanja i rada, zastupljene su u 51,7% slučajeva. U 69,7% slučajeva ispitanici su dali odgovor da su imali prethodno poslovno iskustvo, što znači da je 30,3% njih koji su po prvi put pokrenuli privatni biznis. Ukupno 81,76% ispitanika (381/466) je to poslovno iskustvo, u prethodnom periodu, steklo baveći se istim poslom koji i trenutno obavljaju. Takođe, uočava

se da je dominantna domaća vlasnička struktura organizacija i to u 94,3%, kao i to da se najveći broj ispitanika nalazi u uslužnom sektoru privredne delatnosti (61,1%).

4. REZULTATI ISTRAŽIVANJA I DISKUSIJA

4.1. DESKRIPTIVNA STATISTIKA

Deskriptivna statistika, kao grupa statističkih metoda istraživanja masovnih pojava, je urađena pomoću softverskog paketa SPSS 17.0, uz korišćenje relevantne literature [20]. U Tabeli 3 su prikazani standardni statistički parametri: srednja vrednost, standardna devijacija i varijansa.

Tabela 3. Deskriptivna statistika promenljivih

Prom.	Sred. vred.	SD	Var.	Prom.	Sred. vred.	SD	Var.	Prom.	Sred. vred.	SD	Var.
KP_1	3,949	0,851	0,725	SP_1	4,190	0,712	0,507	IO_2	3,363	0,955	0,732
KP_2	3,767	0,907	0,823	SP_2	3,927	0,974	0,948	IO_3	3,383	0,911	0,829
KP_3	4,055	0,775	0,600	SP_3	3,770	0,913	0,833	PO_1	3,425	0,957	0,915
KP_4	3,649	1,038	1,079	SP_4	4,012	0,793	0,629	PO_2	3,342	0,919	0,845
KP_5	4,036	0,856	0,732	IO_1	3,329	0,927	0,859	PO_3	3,287	0,924	0,855

Srednje vrednosti promenljivih se kreću u granicama od 3,287 do 4,190, standardna devijacija od 0,712 do 1,038, a varijansa od 0,507 do 1,079. Odgovori ispitanika su takvi da oni imaju pozitivno mišljenje na sva postavljena pitanja. Takođe, na osnovu datih odgovora se može zaključiti da ispitanici (vlasnici MSP) mogu zadovoljiti bitne pretpostavke preduzetničke aktivnosti, koje su definisane kroz 4 grupe pitanja.

4.2. KONTROLNI MODEL

Za statističku analizu podatka primenjena je SEM (*Structural Equation Modeling*) metodologija korišćenjem softverskih paketa SPSS 17.0 i LISREL 8.80.

4.2.1. Faktorska analiza

U cilju primene faktorske analize izvršeno je ispitivanje adekvatnosti uzorkovanja (MSAs - *Measures of sampling adequacy*) preko KMO indikatora (*Kaiser-Meyer-Olkin Measure of Sampling Adequacy*) i Bartlett-ovog testa sferičnosti (*Bartlett's Test of Sphericity*). Na osnovu literaturnih preporuka, minimalno prihvatljiva vrednost za KMO indikator je 0,6, a nivo značajnosti Bartlett-ovog testa iznosi $p \leq 0.05$ [21,22,23]. Rezultati testiranja formiranih grupa pitanja (latentne promenljive) i testiranje svih pitanja (promenljive) prikazani su u Tabeli 4.

Tabeli 4. Adekvatnost uzorkovanja

Latentne promenljive	KMO	Bartlett's Test of Sphericity	
		χ^2	<i>p</i>
KP	0,782	692	0,000
SP	0,684	644	0,000
IO	0,736	1.243	0,000
PO	0,748	1.346	0,000
Sve promenljive	0,881	4.927	0,000

Na osnovu dobijenih rezultata za KMO indikator može se zaključiti da su prikupljeni podaci pogodni za primenu faktorske analize. Takođe, na osnovu rezultata za Bartlett-ov test sferičnosti može se zaključiti da postoje korelacije među stavkama (pitanjima u okviru grupa) u okviru mernog instrumenta, odnosno da korelaciona matrica nije jedinična [19,24].

Eksploratorna Faktorska Analiza

Sa ciljem utvrđivanja jednodimenzionalnosti glavnih faktora (latentnih promenljivih) u predloženom modelu urađena je eksploratorna faktorska analiza (EFA – *Exploratory Factor Analysis*), odnosno analiza glavnih komponenata (PCA – *Principal Component Analysis*), koja je jedna od osnovnih metoda kod EFA analize.

PCA analizi je podvrgnut set od 15 pitanja raspoređenih u 4 grupe. Rezultati analize upućuju na zaključak da je potvrđena jednodimenzionalnost kod svih grupa pitanja koje su postavljene u konceptualnom modelu, jer su sve ispitivane stavke svrstane u po jedan faktorski skup sa sopstvenom vrednošću većom od 1,0 (KP=50,17%; SP=57,38%; IO=84,52%; PO=82,79%). Procenti varijabiliteta opisani svakim jednodimenzionalnim faktorom su prikazani u Tabeli 5.

Faktorsko opterećenje promenljivih se nalazi u granicama od 0,661 do 0,935, što je iznad preporučenih vrednosti od 0,6, na osnovu literalnih preporuka [25,26]. Autori Floyd i Widaman u svom radu [27] objašnjavaju koje su donje granice prihvatljivosti faktorskog opterećenja za različite veličine uzorka. Tako oni tvrde da je za uzorak veličine do 50 ispitanika donja granica prihvatljivosti faktorskog opterećenja 0,80, za uzorak do 150 ispitanika bi bila 0,60, a da za veće uzorke od 300 ispitanika granica od 0,40 bi dala veoma stabilna rešenja. To upućuje na zaključak da se formirane latentne grupe promenljivih mogu pouzdano opisati korišćenjem definisanih istraživačkih pitanja.

Konfirmatorna faktorska analiza

Za potvrdu pouzadanost i validnost razmatranog konceptualnog modela urađena je konfirmatorna faktorska analiza (CFA – *Confirmatory Factor Analysis*) nad kontrolnim modelom. Dobijene vrednosti su, takođe, prikazane u Tabeli 5. Za pouzdanost kontrolnog modela koristi se pokazatelj unutrašnje saglasnosti, koja je merena upotrebom Kronbahovog koeficijenta alfa (*Cronbach's Alpha*) i Spirman-Braun-ovog koeficijenta (*Spearman-Brown coefficient*). Ovi pokazatelji pokazuju prosečnu korelaciju između svih vrednosti na skali, i kreće se između 0 i 1. Zavisno od prirode i namene skale, zahtevaju se različiti nivoi pouzdanosti. Na osnovu preporuke, koja je data u literaturi [21], ističe se da bi koeficijenti trebalo biti veći od 0,7. Na osnovu dobijenih rezultata (Tabela 5) može se uočiti da su

vrednosti koeficijenata za sve grupe pitanja iznad preporučene vrednosti. Zato je zaključak da postoji unutrašnja saglasnost i da su istraživačka pitanja pouzdana za dalju analizu.

Tabela 5. Rezultati EFA i CFA statistike za kontrolni model

Grupa pitanja	Promenljiva	Eksploratorna Faktorska Analiza (EFA)		Konfirmatorna Faktorska Analiza (CFA)		
		PCA		Pouzdanost		Konvergentna validnost
		% varijanse koji se može opisati jednodimenzionim faktorom	Faktorsko opterećenje	Cronbach alpha (Spearman-Brown)	Faktorsko opterećenje	t-vrednost
KP		50,168		0,746 (0,704)		
	KP_1		0,749		0,60	18,73 *
	KP_2		0,661		0,50	14,13 *
	KP_3		0,715		0,50	17,08 *
	KP_4		0,697		0,58	14,10 *
	KP_5		0,717		0,51	15,49 *
SP		57,381		0,746 (0,720)		
	SP_1		0,769		0,49	18,22 *
	SP_2		0,754		0,55	14,42 *
	SP_3		0,771		0,57	16,20 *
	SP_4		0,735		0,57	19,31 *
IO		84,518		0,895 (0,866)		
	IO_1		0,907		0,83	28,32 *
	IO_2		0,935		0,76	30,55 *
	IO_3		0,916		0,73	26,21 *
PO		82,791		0,908 (0,904)		
	PO_1		0,919		0,81	29,32 *
	PO_2		0,928		0,84	29,79 *
	PO_3		0,882		0,81	28,30 *

Napomena: Nivo statističke značajnosti * $p < 0,05$

Konvergentna validnost kontrolnog modela potvrđuje se na osnovu dobijenih vrednosti CFA analize (Tabela 5) i potvrde fitovanja modela (Tabela 6). U Tabeli 5 (pedposlednja kolona) može se uočiti da je faktorsko opterećenje daleko iznad preporučene vrednosti od 0,4, prema datim preporukama u radu [27]. Takođe, u poslednjoj koloni Tabele 5 može se zapaziti da su sve vrednosti t -testa dostigle nivo značajnosti od $p < 0,05$. Na osnovu rezultata se može zaključiti da je svaka odrednica razmatranih grupa pitanja postigla konvergentnu validnost.

4.2.2. Mere fitovanja

Mere fitovanja (*goodness-of-fit measures*) kontrolnog modela utvrđene su na osnovu urađene CFA analize. Vrednosti pojedinih parametara prikazani su u Tabeli 6, na osnovu kojih se određuje da li kontrolni model zadovoljava fituje polazne podatke.

Tabela 6. Vrednosti indikatora fitovanja za kontrolni i strukturni model

Indikator fitovanja	Vrednosti za kontrolni (merni) model	Vrednosti za strukturni (PATH) model	Preporučene vrednosti
Chi-Square (χ^2)	220	217	-
Degree of freedom (d.f.)	82	86	-
Relative Chi-Square ($\chi^2/d.f.$)	2,68	2,52	< 3,0
Root Mean Square Error of Approximation (RMSEA)	0,072	0,076	< 0,08 – 0,10
Goodness-of-Fit Index (GFI)	0,91	0,92	> 0,9
Adjusted Goodness-of-Fit Index (AGFI)	0,85	0,89	> 0,9
Comparative Fit Index (CFI)	0,96	0,97	> 0,9
Incremental Fit Index (IFI)	0,97	0,97	> 0,9
Normed Fit Index (NFI)	0,95	0,96	> 0,9
Non-Normed Fit Index (NNFI)	0,95	0,96	> 0,9
Relative Fit Index (RFI)	0,94	0,95	> 0,9

U kontrolnom modelu, RMSEA indikator (zasniva se na aproksimativnoj grešci) ima vrednost 0,072 što ukazuje na dobru podudarnost, tj. model dobro fituje polazne podatke. Prihvatljiva podudarnost RMSEA indikatora je ispod 0,08, a neki autori navode vrednost manju od 0,10 [28]. GFI indikator predstavlja indeks podudarnih vrednosti, i meri koliko je model primenljiviji u poređenju sa situacijom kada uopšte nema modela. Rezultati merenja se kreću u intervalu [0,1], gde je 0 loša podudarnost (primenljivost), a 1 savršena podudarnost. Što je veća vrednost ovog indikatora veća je podudarnost, a prihvatljive vrednosti su iznad 0,8 [28]. U ovom slučaju, GFI indikator pokazuje dobru podudarnost kontrolnog modela, jer vrednost iznosi 0,91. Na osnovu dobijenih vrednosti za RMSEA i GFI indikator, može se zaključiti da postoji apsolutna podudarnost modela.

Takođe, na osnovu dobijenih vrednosti indikatora AGFI=0,85; CFI=0,96; IFI=0,97; NFI=0,95; NNFI=0,95 i RFI=0,94, čije vrednosti se smatraju prihvatljivim iznad 0,90, može se zaključiti da kontrolni model pokazuje solidno povećanje podudarnosti.

Štedljivost kontrolnog modela se obezbeđuje na osnovu prosečne *chi-square* vrednosti ($\chi^2/d.f.$). Ova vrednost mora biti veća od 1 a ispod vrednosti 3, kako bi se osiguralo fitovanje podataka, i kako bi bili zaista reprezentativni podaci. U konkretnom slučaju ova vrednost iznosi $\chi^2/d.f.=2,68$, što je u granicama preporučene vrednosti prema literaturnim preporukama [19,28].

U komparaciji sa preporučenim vrednostima indikatora fitovanja, može se dati generalni zaključak da je postignuto dobro fitovanje kontrolnog modela. To znači da svih 15 promenljivih (pitanja) mogu na pouzdan i validan način da opišu formirane 4 grupe latentnih promenljivih (grupe pitanja) na osnovu konceptualnog modela, koji je prikazan na Slici 1.

4.2.3. Korelaciona matrica

Korelaciona matrica kontrolnog modela je urađena korišćenjem softverskog programa LISREL 8.80, a rezultati su prikazani u Tabeli 7. Svi koeficijenti korelacije su pozitivni i iznad preporučene vrednosti od 0,33, što upućuje na zaključak da postoji pozitivna korelacija između latentnih promenljivih koji su od praktičnog značaja. Nivo statističke značajnosti korelacionih veza je označen zvezdicama.

Tabela 7. Korelaciona matrica latentnih promenljivih

Grupe pitanja	1	2	3	4
1. Kreativnost preduzetnika	1			
2. Samoefikasnost preduzetnika	0,84*	1		
3. Inovativnost organizacije	0,47*	0,44*	1	
4. Profitabilnost organizacije	0,31*	0,29*	0,66*	1

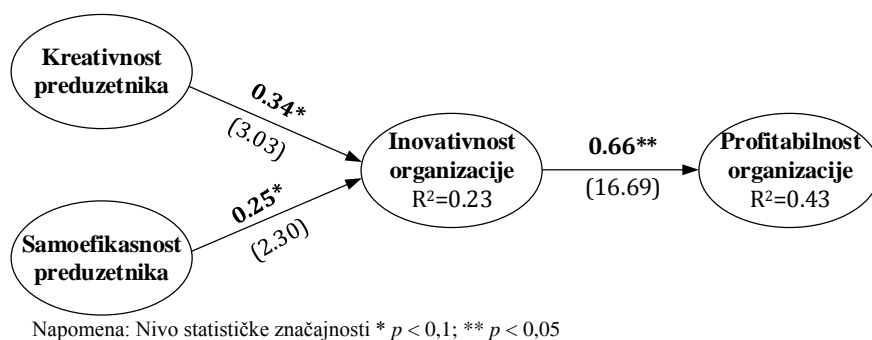
Napomena: Nivo statističke značajnosti * $p < 0,05$

4.3. TESTIRANJE STRUKTURNOG MODELA

Testiranje strukturnog modela, definisanog konceptualnim modelom na Slici 1, se sprovodi nakon urađene validacije kontrolnog modela i dobijenih zadovoljavajućih mera fitovanja. Analiza putanje (*Path Model Analysis*) je urađena korišćenjem softverskog paketa LISREL 8.80, pri čemu su utvrđene sekvencijalne relacije u definisanom konceptualnom modelu. Dobijene mere fitovanja za strukturni model prikazane su u Tabeli 6 gde je, zajedno sa merama fitovanja kontrolnog modela, urađena komparacija sa preporučenim vrednostima.

Dobijene vrednosti mera fitovanja za kontrolni i strukturni model, ukazuju na prihvatljivost postavljenog konceptualnog modela.

Rezultati analize strukturnog modela prikazani su na Slici 2. Iznad strelica su vrednosti koeficijena regresije (β -koeficijent putanje), koji objašnjavaju jačinu veza između zavisnih i nezavisnih promenljivih. Nivo statističke značajnosti je označen zvezdicama iznad koeficijena regresije, a njihova vrednost prikazana u napomeni ispod slike. Podaci u zagradama predstavljaju vrednosti t -testa. Koeficijenti determinacije (R^2) su prikazani u poljima zavisnih promenljivih, koje pokazuju učešće objašnjenog varijabiliteta u ukupnom, odnosno koliko je varijacija zavisne promenljive objašnjena prediktorskom promenljivom.



Slika 2. Strukturni model

Na osnovu dobijenih rezultata *path* analize, može se uočiti da svi koeficijenti putanje (regresije) imaju pozitivnu vrednost, što znači da su sve tri hipoteze potvrđene. Da bi se donela odluka o prihvatanju hipoteza urađen je odgovarajući t -test, i na taj način proverila statistička značajnost dobijenih rezultata. Na osnovu rezultata (Slika 2) može se zaključiti da su sve tri hipoteze prihvatljive, jer su koeficijenti t -testa iznad preporučene vrednosti od 1,96, prema preporukama autora [19,20].

Rezultati testiranja hipoteza ukazuju na činjenicu da su sve tri istraživačke hipoteze potvrđene, prihvatljive i statistički značajne, jer su dobijeni sledeći rezultati: H1 ($\beta=0,34$; $t=3,03$; $p<0,10$); H2 ($\beta=0,25$; $t=2,30$; $p<0,10$); H3 ($\beta=0,66$; $t=16,69$; $p<0,05$).

Koeficijent determinacije R^2 (*Squared Multiple Correlations*) je indeks proporcije varijanse endogene promenljive, koja se izračunava preko egzogenih ili prediktorskih promenljivih. Što je veća vrednost koeficijenta determinacije veća je moć objašnjenja strukturnog modela, kao i bolje (jače) predviđanje zavisne promenljive. Koeficijent determinacije, u ovom slučaju, ukazuje na to da se uticaji latentnih prediktora “Kreativnost preduzetnika” i “Samoefikasnost preduzetnika” na latentnu endogenu promenljivu “Inovativnost organizacije” može obračunati sa 23% varijanse. Takođe, latentna endogena promenljiva “Profitabilnost organizacije” se može obračunati sa 43% varijanse latentnog prediktora “Inovativnost organizacije”.

5. ZAKLJUČAK

Prelazak sa centralno planske na trzisno orjentisanu privredu podrazumevalo je određene promene kako unutar organizacije, tako i u spoljnom okruženju. Najveći naponi bili su usmereni na to da se stvore politički i ekonomski uslovi u zemlji koji bi privukli strani

kapital ali i omogućili ljudima sa kapitalom unutar zemlje da pokrenu sopstveni mali biznis. U svim tim naporima da se spoljno okruženje prilagodi nastaloj situaciji malo se pažnje posvetilo ljudima unutar organizacije i određenim karakteristikama ličnosti koje sa sobom nosi duh preduzetništva. Preduzetništvo zahteva visok nivo kerativnosti, inovativnosti i preuzimanje rizika, sve ono što srpskoj nacionalnoj kulturi nije svojstveno. Nastalo u zapadnoj kulturi preduzetništvo upravo odslikava zapadni način razmišljanja i poslovanja, koji se oslanja na kreativnost i inovativnost.

Ovo istraživanje predstavlja doprinos oblasti preduzetništva, koje se odnosi konkretno za kreativnost i inovativnost. Vrlo mali broj istraživanja urađen je u ovom području iz oblasti preduzetništva. Inače, Srbija, koju je do 2000. godine pretežno karakterisala planska i monostrukturalna privreda, ima veoma kratku istoriju preduzetništva. Kao i u svim zemljama u tranziciji, i u Srbiji je preduzetništvo još uvek u razvoju, kako zbog privrednih uslova tako i zbog nacionalne kulture, kojoj nije svojstveno preuzimanje rizika, a sa čime je pojam preduzetništva neraskidivo vezan.

Implikacije koje bi ovo istraživanje moglo imati na kreatore poslovne politike, a pre svega na one na koje se samo istraživanje odnosi, na preduzetnike, je to da se kreativnost i inovativnost moraju podsticati.

Kao i svakom istraživanju, postoje određena ograničenja. Pre svega, preduzetnici su sami ocenjivali svoju kreativnost i samoeфикаsnost, tako da je čitavo istraživanje bazirano na njihovim subjektivnim ocenama, koje se uvek moraju uzeti sa rezervom. Pokušali smo da ublažimo njihovu subjektivnost po pitanju stepena inovativnosti, nateravši ih da sebe ocene u odnosu na najvećeg konkurenta. Buduća istraživanja bi takođe mogla da smanje objektivnost koristeći neku drugu skalu, koja isključuje samoocenjivanje preduzetnika. Drugo ograničenje bila bi ta činjenica da je istraživanje sprovedeno u regionu koji važi za nerazvijeniji deo Srbije. Na taj način se dobijeni rezultati ne mogu generalizovati i odnositi za celu Srbiju, ali mogu biti dobra osnova za dalja istraživanja i u drugim regionima. Tako dobijeni rezultati se mogu upotrebiti za komparativnu analizu sa ciljem utvrđivanja univerzalno važećih veza koje bi mogle biti važne za razvoj preduzetništva u našoj zemlji.

Zbog toga su autori ovog rada želeli da, na nivou pojedinca, utvrde mehanizme na osnovu kojih preduzetničke aktivnosti utiču na profitabilnost MSP u Južnoj i Jugoistočnoj Srbiji. Na osnovu relevantnog istraživanja i adekvatne literature, postavljen je istraživački model i tri hipoteze. Dobijeni rezultati statističke analize su pokazali da su sve tri testirane hipoteze potvrđene, prihvatljive i statistički značajne. Generalni zaključak ovog istraživanja bi mogao biti da se sa povećanjem kreativnosti i samoeфикаsnosti preduzetnika neposredno povećava inovativnost, a posredno i profitabilnost MSP u Južnoj i Jugoistočnoj Srbiji.

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THE IMPACT OF OCCUPATIONAL SAFETY ELEMENTS ON THE ACHIEVEMENT OF PROJECT GOALS WITHIN PROJECT-BASED ORGANIZATIONS IN THE JABLANICA DISTRICT

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Abstract: The paper explores the effects of major elements of occupational safety concept in project-based organizations on successful realization of project goals. The paper aims at validating and testing the suggested conceptual model. Hence the SEM (*Structural Equation Modeling*) methodology was applied. The four-hypothesis model was developed and tested on a sample of 732 participants employed in 28 project-based organizations. Results of empirical research confirm formulated hypotheses and point to the existence of positive correlation among them. Finally, the results underscore the fact that successful realization of projects can be achieved through a higher level of occupational safety management.

Keywords: Occupational safety; SEM methodology; achieving of project goals; project-based organizations.

Izvod: U radu se istražuje uticaj glavnih elemenata koncepta bezbednosti na radu u projektno-orijentisanim organizacijama na uspešnu realizaciju projektnih ciljeva. Glavni cilj ovog rada je validacija i testiranje predloženog konceptualnog modela. U tu svrhu primenjena je SEM (*Structural Equation Modeling*) metodologija. Model sa četiri hipoteze je razvijen i testiran na uzorku od 732 ispitanika angažovanih u 28 projektno-orijentisanih organizacija. Rezultati empirijskog istraživanja potvrđuju postavljene hipoteze i ukazuju na postojanje pozitivne korelacije među njima. Konačno, dobijeni rezultati ukazuju na činjenicu da uspešnija realizacija projekata može biti ostvarena višim nivoom upravljanja znanjem.

Ključne reči: Bezbednost na radnom mestu; SEM metodologija; postizanje projektnih ciljeva; projektno-orijentisane organizacije.

1. UVOD

Bezbednost i zdravlje na radu (BZR) podrazumeva ostvarivanje uslova rada u kojima se preduzimaju određene mere i aktivnosti u cilju zaštite života i zdravlja zaposlenih i drugih lica koji na to imaju pravo. Interes društva, svih subjekata i svakog pojedinca je da se ostvari najviši nivo bezbednosti i zdravlja na radu, da se neželjene posledice kao što su povrede na radu, profesionalne bolesti i bolesti u vezi sa radom svedu na najmanju moguću meru, odnosno da se ostvare uslovi rada u kojima bi zaposleni imao osećaj zadovoljstva pri obavljanju svojih profesionalnih zadataka. Za ostvarivanje ovakvog cilja neophodan je sistematski pristup u preventivnom delovanju i povezivanje svih subjekata koji su nosioci određenih obaveza i aktivnosti na organizacionom nivou, i šire, na nacionalnom nivou, ali i

još šire, sa međunarodnim institucijama u ovoj oblasti. U ovim činjenicama se pronalazi glavni motiv našeg istraživanja.

U savremenom projekt menadžmentu, koje karakterišu dinamičnost i turbulencije, pitanju BZR se pristupa sa posebnom pažnjom. Značaj BZR se sagledava sa humanog (zadovoljstvo za svakog pojedinca), socijalnog (veliki broj zaposlenih koji se povrede) i ekonomskog (posledica povreda na radu) stanovišta. Iz tog razloga, ovoj problematici se treba pristupiti sistemski i njome upravljati sa jednakom, ako ne i sa većom pažnjom u odnosu na druge oblasti projekt menadžmenta.

Predmet istraživanja u ovom radu su projektne organizacije (*project-based organizations*) koje realizuju investicione projekte u Jablaničkom okrugu. Investicioni projekti, koje karakterišu veliki obim i kompleksnost poduhvata, ukazuju na angažovanje velikog broja radnika, uz korišćenje najrazličitije mehanizacije, mašina, opreme i alata [1]. Upravo iz tog razloga, u većini slučajeva, ova vrsta projekata predstavlja skup aktivnosti koje se odlikuju visokim stepenom rizika i stopom povređivanja angažovane radne snage [2]. Na brojne incidente i povređivanja radnika prilikom realizacije investicionih projekata ukazuju statistički podaci mnogih svetskih institucija za zaštitu zdravlja i bezbednosti zaposlenih na radu, kao i studije istraživača iz različitih delova sveta [2-7].

Međutim, broj povreda na radu je verovatno i znatno veći kada se ima u vidu praksa neprijavlivanja lakših povreda [8,9]. U takvim okolnostima, osim niskog nivoa bezbednosti radnika, ugrožavaju se i zadati projektni ciljevi. Svaki izgubljeni radni dan usled povrede radnika dodatno povećava troškove realizacije projekta i direktno ugrožava vremenske rokove realizacije aktivnosti. Iz tih razloga se kao imperativ u procesu realizacije investicionih projekata nameće upravljanje bezbednošću angažovane radne snage. U tom pravcu, osnovu čini otkrivanje organizacionih faktora (elementi koncepta bezbednosti na radu) koji utiču na bezbednost rada, što predstavlja i prvi cilj ovog istraživanja. Upravljanjem ovim faktorima postiže se viši stepen bezbednosti rada, a tok realizacije planiranih aktivnosti dobija stabilniju potporu [10,11]. Drugi cilj ovog istraživanja je da se sa nivoa pojedinaca angažovanih na realizaciji investicionih projekata, u projektno-orijentisanim organizacijama, utvrde mehanizmi na osnovu kojih elementi bezbednosti na radu (posvećenost menadžmenta bezbednosti na radu, podrška bezbednosti, sprovođenje bezbednosne prakse i organizaciono okruženje) utiču na ostvarivanje projektnih ciljeva.

Na osnovu motivacije, predmeta istraživanja i postavljenih ciljeva, formirana su istraživačka pitanja. Gde se nalazi projektni menadžment u Srbiji sa aspekta bezbednosti na radu kod projektno-orijentisanih organizacija? Da li projektno-orijentisane organizacije upotrebljavaju i razvijaju koncept bezbednosti na radu kako bi dostigle projektne ciljeve?

Rezultati dobijeni iz ovog istraživanja se mogu analizirati i upoređivati sa rezultatima istraživanja dobijenih iz drugih regiona, i na taj način utvrditi univerzalno važeće veze koje bi mogle biti važne za razvoj koncepta upravljanja projektima u Srbiji.

Na osnovu prthodno navedenog, autori ovog rada su predložili i testirali konceptualni model sa četiri istraživačke hipoteze.

2. LITERATURNI PREGLED I ISTRAŽIVAČKE HIPOTEZE

Kreiranje i negovanje pozitivne klime bezbednosti predstavlja ključ za postizanje zadovoljavajućih performansi bezbednosti radnika tokom realizacije investicionih projekata

[5]. Svesnost zaposlenih o bezbednosti, njihove kompetencije, vrednosti i stavovi o ovoj oblasti, predstavljaju sinonim za stanje bezbednosti na radu [12-16]. Na njih deluju određeni faktori koje je potrebno prepoznati i analizirati, kako bi njihovim punim razvojem bezbednost radnika na radnim mestima postala zadovoljavajuća.

2.1. POSVEĆENOST MENADŽMENTA BEZBEDNOSTI NA RADU I PROJEKTNII CILJEVI

Krajnja odgovornost za zaštitu zdravlja i bezbednost na radu ima najviše rukovodstvo [17]. Sve analize BZR u Srbiji pokazuju da su rukovodioci po nivoima rukovođenja najslabija karika u sistemu zaštite ljudi u procesima rada. Sa časnim izuzetkom nekih stranih kompanija, koje prema sopstvenim kompanijskim procedurama prepoznaju odlučujuću ulogu i odgovornost rukovodilaca za stanje BZR, kod većine ostalih poslodavaca teško prevladava svest o tome [18].

Mnogi strani istraživači su dali doprinos u pronalaženju načina poboljšanja klime bezbednosti kako u industriji uopšte, tako i kod investicionih projekata konkretno. Najčešći stav je da rukovodstvo (menadžment) ima ključnu ulogu pri kreiranju pozitivne klime bezbednosti u okviru organizacije ili prilikom dostizanja projektnih ciljeva [2,19]. Cox i Cheyne su u radu [20] sistemskom pristupu proučavali uticaj kulture bezbednosti, koristeći se kombinacijom metodologija: anketiranje, posmatranje ponašanja i situaciona proučavanja. Kao rezultat studije, Cox i Cheyne grupišu faktore uticaja bezbednosti na radu u grupe: uloga menadžmenta, posvećenost menadžmenta, prioriteta bezbednosti, komunikacija, bezbednosna pravila, uključenost u sistem bezbednosti, lični prioriteta i potrebe za bezbednošću.

U radovima [21,22] se ističe da menadžeri svojim delovanjem utiču na određena ponašanja zaposlenih, čime se protokom vremena vrši promena u percepcijama i stavovima, a što ishoduje popravljanjem klime bezbednosti u organizaciji, odnosno povoljnijim performansama bezbednosti na dostizanju projektnih ciljeva. Zbog toga predlažemo:

Hipoteza H1: *Posvećenost menadžmenta bezbednosti na radu pozitivno utiču na dostizanje projektnih ciljeva.*

2.2. PODRŠKA BEZBEDNOSTI I PROJEKTNII CILJEVI

Zakon o bezbednosti i zdravlju na radu Republike Srbije [17] nalaže da svaki zaposleni mora biti osposobljen za bezbedan i zdrav rad i to pre stupanja na posao, kod promene radnog mesta odnosno poslova, tehnološkog procesa ili procesa rada.

Autor Fang sa grupom svojih saradnika u radu [23] sprovodi empirijsko istraživanje u cilju merenja performansi bezbednosti na radnom mestu kod investicionih projekata. Kao zaključak, on iznosi listu faktora koji bitno utiču na bezbednost na radu među kojima su: obuka o bezbednosti, komunikacija o bezbednosti, sastanci posvećeni bezbednosti na radu, bezbednosne regulative, bezbednosna saradnja, korelacija menadžmenta i radnika na polju bezbednosti i dr. Na osnovu ovih faktora formira listu pitanja na osnovu kojih je moguće merenje performansi bezbednosti u kompanijama.

Mohamed se sa grupom saradnika u radu [24] bavio proučavanjem kulturoloških specifičnosti i njihovih uticaja na stavove i ponašanja koji se odnose na organizacionu bezbednost. On polazi od činjenice da su stavovi prema bezbednosti kod pojedinaca primarno

određeni percepcijom rizika, rukovođenjem, bezbedonosnim pravilima i procedurama. Koristeći istraživanje zasnovano na upitniku, on dolazi do rezultata da većina radnika ima izražen osećaj o postojanju rizika, kao i izražen stepen kompetencije u vezi bezbednosti. Takođe, zaključuje da na ponašanje radnika, po pitanju bezbednosti na radu, stav prema ličnim odgovornostima i odgovornostima menadžmenta ima isti uticaj kao i njihova percepcija rizika. Dodatno, kao specifičnost on navodi izražen osećaj kolektiviteta i potrebe za radom u bezbednijim okruženjima. Zbog svega navedenog predlažemo:

Hipoteza 2: Podrška bezbednosti pozitivno utiče na dostizanje projektnih ciljeva.

2.3. SPROVOĐENJE BEZBEDNOSNE PRAKSE I PROJEKTI CILJEVI

Za sprovođenje bezbednosti i zdravlja na radu odgovorni su poslodavac i zaposleni koji je odgovoran za sprovođenje bezbednosti i zdravlja na radu. Poslodavac je dužan da obezbedi zaposlenom rad na radnom mestu i u radnoj okolini u kojima su sprovedene mere bezbednosti i zdravlja na radu.

Sorensen i njegovi saradnici su u radu [25] proučavali uticaj veličine kompanije i vlasničkih odnosa na bezbednost na radu u uslovima Danske privrede. Istraživanje je zasnovano na činjenici da postoje organizacione razlike kod velikih i malih kompanija, odnosno javnih i privatnih kompanija, a tako i odnos prema bezbednosti na radu. Oni su došli do zaključka da je kod privatnih kompanija radno okruženje daleko bezbednije kod velikih nego kod malih kompanija. Takođe dolaze do zaključka da je bezbednost na radu kod kompanija koje su deo velikih sistema na daleko višem nivou nego kod tih sistema u celini. Autor Cadieux i saradnici u radu [26] ističu da je komunikacija presudan faktor za ostvarivanje pune bezbednosti radnika na radnim mestima. Izostanak adekvatne komunikacije na polju bezbednosti dovodi do nerazumevanja i nepoštovanja bezbednosnih pravila i procedura, što je veoma čest uzrok povređivanja na radu. Zbog toga predlažemo:

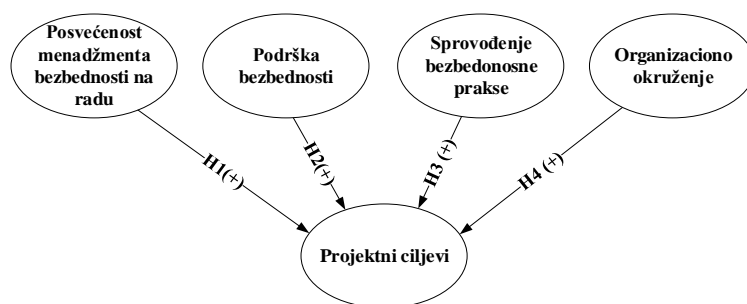
Hipoteza H3: Sprovođenje bezbednosne prakse pozitivno utiče na dostizanje projektnih ciljeva.

2.4. ORGANIZACIONO OKRUŽENJE I PROJEKTI CILJEVI

Poslovni pritisci i tempo rada uz postojeće rizike i vladajuću klimu bezbednosti opredeljuju bezbednosno ponašanje zaposlenih [27]. Postavljanje proizvodnih ciljeva ispred ciljeva bezbednosti čest su uzrok povreda na radu. Ovakva situacija je naročito izražena kod realizacije investicionih projekata [5]. U tom smislu, povoljne bezbednosne karakteristike radnog okruženja i usklađenost bezbednosnih procedura sa realnim zahtevima utiču na stavove i ponašanja zaposlenih, što konačno doprinosi umanjenju broja povreda na radu [28]. Zbog toga predlažemo:

Hipoteza H4: Organizaciona okolina pozitivno utiče na dostizanje projektnih ciljeva.

Na Slici 1 je prikazan konceptualni model pozitivnih uticaja, za predložene četiri hipoteze.



Slika 1. Konceptualni model

3. METODOLOGIJA ISTRAŽIVANJA

U sprovedenom empirijskom istraživanju primenjena je metodologija upitnika za prikupljanje podataka. Upitnik je razvijen na osnovu dostupne relevantne savremene literature [29-33] i pokušaja drugih istraživača da kreiraju podesan instrument za analizu i evaluaciju koncepta bezbednosti na radu u projektno orijentisanim organizacijama. Određen broj upitnika o bezbednosti na radu je razvijen za primenu u konkretnoj privrednoj delatnosti [34]. Takođe, kreiran je i veliki broj upitnika ovog tipa koji su univerzalno primenljivi, bez obzira na vrstu industrije ili projekata, a njihovom modifikacijom kreiran je i finalni upitnik, koji je prikazan u Tabeli 1. Upitnik sadrži 9 pitanja demografskog karakera, koja su prikazana u Tabeli 1 i 30 pitanja, raspoređenih u 5 grupa, koja opisuju elemente koncepta bezbednosti na radu: posvećenost menadžmenta bezbednosti na radu, podrška bezbednosti, sprovođenje bezbednosne prakse i organizaciono okruženje (Tabela 2).

3.1. UZORAK I PRIKUPLJANJE PODATAKA

Prikupljanje podataka je izvršeno anonimnim anketiranjem zaposlenih u 28 projektno-orijentisanih organizacija u Jablaničkom okrugu. Ispitanici su upitnik popunjavali zaokruživanjem ponuđenih odgovora. Za ocenu odgovora korišćena je Likertova petostepena skala, gde 1 predstavlja najmanji značaj (apsolutno se ne slažem), a 5 predstavlja najveći značaj (apsolutno se slažem). Anketirano je ukupno 815 zaposlenih, od čega je prikupljeno 732 ispravno popunjenih upitnika, što predstavlja 89.81 %. Odnos veličine uzorka (732 ispitanika) i broja pitanja (30 pitanja iz upitnika) iznosi 24.4, što je daleko više od preporučenog nivoa 5, prema Hair-u i saradnicima [35].

3.2. DEMOGRAFSKE KARAKTERISTIKE UZORKA

Demografski parametri ispitivanog uzorka prikazani su u Tabeli 1. Od ukupnog broja ispravno popunjenih upitnika 72.5% pripada muškim, a 27.5% ženskim ispitanicima. 74.1% ispitanika se nalazi u najpoduktivnijem starosnom dobu, od 26. do 55. godine starosti. Kada se posmatraju godine provedene u organizaciji, može se primetiti da 45.1% ispitanika radi manje od 5 godina u organizaciji u kojoj je trenutno zaposlen. To ukazuje na veliku fluktuaciju radne snage, ali i na činjenicu da u Srbiji egzistira veliki broj organizacija koje su osnovane u novijem periodu. Najveći broj anketiranih, njih 80.3%, ima završenu srednju

školu, dok je svega 5.3% fakultetski obrazovano. Ovakav podatak je očekivan jer je u istraživanju učestvovalo 93.8% radnika i svega 6.2% menadžera.

Tabela 1. Demografske karakteristike uzorka

R.br.	Kontrolne promenljive	Kategorija	Frekvencija	Udeo (%)
1	Pol	Muški	531	72.5
		Ženski	201	27.5
2	Godine starosti	≤25	96	13.1
		26-35	165	22.5
		36-45	183	25.0
		46-55	195	26.6
		≥56	93	12.7
3	Godine provedene u organizaciji	≤5	330	45.1
		6-10	195	26.6
		11-20	117	16.0
		21-30	57	7.8
		≥31	33	4.5
4	Školska sprema	Osnovna	15	2.0
		Srednja	588	80.3
		Viša	90	12.3
		Visoka	33	4.5
		Magistratura	6	0.8
5	Pozicija na projektu	Menadžer	45	6.2
		Radnik	678	92.6
		Pomoćno osoblje	9	1.2
6	Broj zaposlenih u organizaciji	≤10	126	17.2
		11-50	54	7.4
		51-250	552	75.4
		≥250	0	0
7	Starost organizacije (godine)	≤5	156	21.3
		6-10	180	24.6
		11-20	190	26.0
		21-30	126	17.2
		≥31	80	10.9
8	Vlasnička struktura organizacije	Domaće vlasništvo	642	87.7
		Strano vlasništvo	90	12.3
		Mešovito vlasništvo	0	0
9	Vrsta investicionog projekta	Građevinski objekti	9	1.2
		Infrastrukturni objekti	264	36.1
		Oprema	423	57.8
		Ostalo	36	4.9

U istraživanju su učestvovali zaposleni u mikro, malim i srednjim preduzećima, i može se uočiti da je najveći broj ispitanika, njih 75.4%, bio zastupljen kod srednjih preduzeća (51-250 radnika). Hronoliška starost organizacija je prilično ujednačena, ipak prednjače organizacije čija je hronološka starost od 11 do 20 godina, i to u 26.0% slučajeva. Takođe, uočava se da je dominantan broj ispitanika u organizacijama domaće vlasničke strukture, i to u 97.7%. Kod klasifikacije investicionih projekata prema tehničkoj strukturi, najveća zastupljenost ispitanika 57.8% se nalazi u grupi projekata gde se ulaže u opremu (mašine, uređaji, postrojenja, instalacije, ...).

4. REZULTATI ISTRAŽIVANJA I DISKUSIJA

Statistička analiza prikupljenih podataka je obavljena korišćenjem softverskih paketa SPSS 18.0 i LISREL 8.80.

4.1. MERE I DESKRIPTIVNA STATISTIKA

U Tabeli 2 su prikazana 30 pitanja (promenljive) koja su obuhvaćena upitnikom. Pitanja su raspoređena u pet grupa (latentne promenljive), i to: posvećenost menadžmenta bezbednosti na radu (PMB), podrška bezbednosti (PB), sprovođenje bezbednosne prakse (SBP), organizaciono okruženje (OO). U poslednje tri kolone je prikazana deskriptivna statistika ispitivanog uzorka, gde su prikazani standardni statistički parametri: srednja vrednost, standardna devijacija i varijansa.

Tabela 2. Stavke upitnika i rezultati deskriptivne statistike

Grupe pitanja	Stavke upitnika	Sred. vred.	Stan. dev.	Varijansa
PMB	1. Bezbednost je vidljiva na poslu koji obavljam	4.46	0.55	0.31
	2. Rukovodstvo smatra da je bezbednost na radnom mestu važnija od zadatka i postavljenih rokova	4.27	0.68	0.46
	3. Rukovodstvo smatra da je bezbednost na radnom mestu važnija od produktivnosti	4.26	0.69	0.47
	4. Osoba zadužena za bezbednost na radu uvek prekida nebezbedne aktivnosti	4.36	0.64	0.41
	5. Osoba za bezbednost prati pojavljivanje problema i rešava probleme	4.35	0.65	0.43
	6. Rukovodstvo često dobija izveštaje o bezbednosti na radu / povratne informacije od radnika	4.25	0.67	0.45
	7. Rukovodstvo brine o mojoj bezbednosti na poslu	4.28	0.69	0.48
PB	1. Uvek ima dovoljno opreme za zaštitu na radu potrebnih za bezbedno obavljanje poslova	4.30	0.75	0.56
	2. Posedujem potrebnu obuku o bezbednosti na radu	4.31	0.64	0.40
	3. Uvek dobijam dovoljno potrebnih informacija kako bih bezbedno obavljao svoj posao	4.34	0.59	0.35
	4. Usmena uputstva o bezbednosti na radu se redovno upućuju radnicima	4.32	0.61	0.38
	5. Moj poslovođa poseduje potrebno znanje za savladavanje rizika sa kojim se suočavam na poslu	4.19	0.67	0.44
	6. Moj poslovođa uvek osigurava sprovođenje sigurnosnih pravila i procedura	4.20	0.67	0.45
SBP	1. Moj poslovođa zahteva informisanje o bilo kom bezbednosnom problemu kako bi ga rešio	4.30	0.61	0.37
	2. Kada moj poslovođa ne može da reši neki bezbednosni problem on se uvek obraća licu zaduženom za bezbednosti na projektu	4.33	0.57	0.33
	3. Moj poslovođa smatra da je bezbednost na radnom mestu daleko važnija od produktivnosti	4.29	0.63	0.40
	4. Moj poslovođa obustavlja posao ako uslovi rada nisu bezbedni. čak i u uslovima kada imamo ograničene vremenske rokove	4.30	0.63	0.40
OO	1. Ponekad ne prijavljujem opasnost na radu jer je vreme obavljanja aktivnosti jako kratko, tako da radim i pored postojanja opasnosti	1.96	0.74	0.54
	2. Ponekad ignorišem bezbednosna pravila kako bi se ispoštovali plan i rokovi	1.93	0.68	0.47
	3. Ponekad moram da odstupim od zahteva bezbednosti zarad projektnih ciljeva	1.95	0.70	0.49
	4. Ponekad je ritam posla toliko brz da se ne sprovede bezbednosne procedure	1.94	0.72	0.52
	5. Ponekad ima puno poslova koji se moraju obaviti bez sprovođenja bezbednosnih procedura	1.94	0.71	0.51
	6. Akcidenti tokom realizacije projekta su retkost	3.96	0.73	0.54
	7. Povrede na radu tokom realizacije projekta su retkost	3.89	0.77	0.60
PC	1. Svi projektni zadaci se izvršavaju prema planu	4.44	0.67	0.45
	2. Projekat se može realizovati pre roka	4.08	0.80	0.64
	3. Projekat se realizuje prema zahtevima naručioca i u skladu sa ugovorenim uslovima	4.43	0.65	0.42
	4. Ciljevi vezani za kvalitet projekta se ostvaruju	4.46	0.59	0.35
	5. Projekat se realizuje u skladu sa budžetom	4.35	0.68	0.47
	6. Projekta se realizuje u skladu sa zahtevima zaštite životne sredine, zdravlja i bezbednosti na radu	4.51	0.56	0.31

Rezultati deskriptivne statistike (Table 2), kod latentnih promenljivih PMB, PB, SBP i PC, pokazuju da se srednja vrednost (x_{sr}) odgovora ispitanika kreće u granicama od 4.08 do 4.51, standardna devijacija (σ) od 0.55 do 0.80, a varijansa (σ^2) od 0.31 do 0.64. Odgovori ispitanika su takvi da oni imaju pozitivno mišljenje na ova pitanja. Takođe, na osnovu datih odgovora se može zaključiti da ispitanici mogu zadovoljiti bitne pretpostavke o bezbednosti na radu, koje su definisane kroz 4 pomenute grupe pitanja. Kod latentne promenljive OO ($x_{sr}=1.93\div 3.96$; $\sigma=0.68\div 0.77$; $\sigma^2=0.49\div 0.60$) dobijeni rezultati ukazuju na to da ispitanici (menadžeri i angažovani radnici na projektima) imaju izražen nepovoljan stav u odnosu na određena pitanja, kao što su pitanja od OO₁ do OO₅.

4.2. KONTROLNI MODEL

Statistička analiza podatka urađena je primenom SEM (*Structural Equation Modeling*) metodologije, korišćenjem softverskih paketa SPSS 17.0 i LISREL 8.80.

4.2.1. Faktorska analiza

U cilju primene faktorske analize izvršeno je ispitivanje adekvatnosti uzorkovanja (MSAs - *Measures of sampling adequacy*) preko KMO indikatora (*Kaiser-Meyer-Olkin Measure of Sampling Adequacy*) i Bartlett-ovog testa sferičnosti (*Bartlett's Test of Sphericity*). Minimalno prihvatljiva vrednost za KMO indikator je 0.6, a nivo značajnosti Bartlett-ovog testa iznosi $\text{Sig.} \leq 0.05$, prema literaturnim preporukama [36]. Rezultati testiranja prikazani su u Tabeli 3.

Tabeli 3. Adekvatnost uzorkovanja

Latentne promenljive	KMO	Bartlett's Test of Sphericity	
		χ^2	Sig.
PMB	0.808	2.085	0.000
PB	0.799	1.349	0.000
SBP	0.625	1.166	0.000
OO	0.840	2.215	0.000
PC	0.848	1.041	0.000
Sve promenljive	0.895	8.892	0.000

Dobijeni rezultati testiranja za KMO indikator upućuju na zaključak da su prikupljeni podaci pogodni za primenu faktorske analize. Takođe, podaci dobijeni za Bartlett-ov test sferičnosti upućuju na zaključak da postoje korelacije među stavkama (pitanjima u okviru grupa) u okviru mernog instrumenta, odnosno da korelaciona matrica nije jedinična [35,37].

Takođe, ispitane su korelacije između svih promenljivih koje su definisane upitnikom. Na razmatranom uzorku većina korelacionih koeficijenta u matrici ispunjava nivo prihvatljivosti 0.05. To ukazuje na značajnu korelaciju između svih promenljivih i zato je primena faktorske analize opravdana.

Eksploratorna Faktorska Analiza

Eksploratorna faktorska analiza (EFA–*Exploratory Factor Analysis*), odnosno analiza glavnih komponentata (PCA–*Principal Component Analysis*), koja je jedna od osnovnih metoda kod EFA analize, je urađena sa ciljem utvrđivanja jednodimenzionalnosti glavnih faktora (latentnih promenljivih) u predloženom modelu.

Set od 30 pitanja raspoređenih u 5 grupa je podvrgnut PCA analizi. Rezultati analize upućuju na zaključak da je potvrđena jednodimenzionalnost kod svih grupa pitanja koje su postavljene u konceptualnom modelu, jer su sve ispitivane stavke svrstane u po jedan faktorski skup sa sopstvenom vrednošću većom od 1.0. Procenti varijabiliteta opisani svakim jednodimenzionalnim faktorom su prikazani u Tabeli 4. Faktorsko opterećenje promenljivih se nalazi u granicama od 0.733 do 0.996, što je iznad preporučenih vrednosti od 0.6, na osnovu literalnih preporuka [38]. Autori Floyd i Widaman u svom radu [39] objašnjavaju koje su donje granice prihvatljivosti faktorskog opterećenja za različite veličine uzorka. Oni tvrde da je za uzorak veličine do 50 ispitanika donja granica prihvatljivosti faktorskog opterećenja 0.80, za uzorak do 150 ispitanika bi bila 0.60, a da za uzorke veće od 300 ispitanika granica

od 0.40 bi dala veoma stabilna rešenja. Na osnovu preporuka se može zaključiti da se formirane latentne grupe promenljivih mogu pouzdano opisati korišćenjem definisanih istraživačkih pitanja.

Tabela 4. Rezultati EFA i CFA statistike za kontrolni model

Grupa pitanja	Promenljiva	Eksploratorna Faktorska Analiza (EFA)		Konfirmatorna Faktorska Analiza (CFA)		
		PCA		Pouzdanost		Konvergentna validnost
		% varijanse koji se može opisati jednodimenzionim faktorom	Faktorsko opterećenje	Cronbach alpha	Faktorsko opterećenje	t-vrednost
		85.273		0.928		
PMB	PMB_1		0.733		0.59	18.70*
	PMB_2		0.983		0.66	20.93*
	PMB_3		0.939		0.66	20.51*
	PMB_4		0.996		0.57	19.91*
	PMB_5		0.973		0.60	20.43*
	PMB_6		0.955		0.59	17.59*
	PMB_7		0.911		0.63	18.26*
		68.999		0.908		
PB	PB_1		0.869		0.59	14.44*
	PB_2		0.853		0.50	14.42*
	PB_3		0.840		0.47	14.74*
	PB_4		0.822		0.48	14.39*
	PB_5		0.802		0.53	14.65*
	PB_6		0.795		0.53	14.58*
		84.539		0.939		
SBP	SBP_1		0.939		0.49	15.05*
	SBP_2		0.924		0.54	18.16*
	SBP_3		0.915		0.61	20.28*
	SBP_4		0.900		0.61	20.79*
		89.897		0.760		
OO	OO_1		0.967		0.64	16.92*
	OO_2		0.965		0.63	18.80*
	OO_3		0.963		0.68	20.94*
	OO_4		0.938		0.70	20.56*
	OO_5		0.931		0.69	20.89*
	OO_6		0.944		0.55	15.23*
	OO_7		0.915		0.51	14.23*
		68.036		0.897		
PC	PC_1		0.921		0.57	17.20*
	PC_2		0.897		0.57	17.96*
	PC_3		0.860		0.58	18.00*
	PC_4		0.783		0.56	19.52*
	PC_5		0.778		0.55	15.11*
	PC_6		0.686		0.51	15.02*

Napomena: Nivo statističke značajnosti * $p < 0.05$

Konfirmatorna faktorska analiza

Konfirmatorna faktorska analiza (CFA–*Confirmatory Factor Analysis*) je urađena nad kontrolnim modelom kako bi se potvrdila pouzdanost i validnost razmatranog konceptualnog modela, a vrednosti su prikazane u Tabeli 4. Za pouzdanost kontrolnog modela koristi se pokazatelj unutrašnje saglasnosti, koja je merena upotrebom Kronbahovog koeficijenta alfa (*Cronbach's Alpha*). Ovaj pokazatelj pokazuje prosečnu korelaciju između svih vrednosti na skali, i kreće se između 0 i 1. Na osnovu preporuke, koja je data u literaturi [40], ističe se da bi koeficijenti trebalo biti veći od 0.7. U našem slučaju može se uočiti da su vrednosti koeficijenata za sve grupe pitanja iznad preporučenih. Zato je zaključak da postoji unutrašnja

saglasnost i da su istraživačka pitanja pouzdana za dalju analizu. Konvergentna validnost kontrolnog modela potvrđuje se na osnovu dobijenih vrednosti CFA analize (Tabela 4) i potvrde fitovanja modela (Tabela 5). U Tabeli 4 (pedposlednja kolona) može se uočiti da je faktorsko opterećenje iznad preporučene vrednosti od 0.4, prema datim preporukama u radu [39]. Takođe, u poslednjoj koloni Tabele 4 može se zapaziti da su sve vrednosti *t*-testa dostigle nivo značajnosti od $p < 0,05$. Na osnovu rezultata se može zaključiti da je svaka odrednica razmatranih grupa pitanja postigla konvergentnu validnost.

4.2.2. Mere fitovanja

Na osnovu urađene CFA analize utvrđene su mere fitovanja kontrolnog modela, na osnovu kojih se određuje da li kontrolni model zadovoljavajuće fituje polazne podatke. Vrednosti pojedinih parametara prikazani su u Tabeli 5.

Tabela 5. Vrednosti indikatora fitovanja za kontrolni i strukturni model

Indikatori fitovanja	Vrednosti za kontrolni (merni) model	Vrednosti za strukturni (PATH) model	Preporučene vrednosti
Chi-Square (χ^2)	1286	1286	-
Degree of freedom (d.f.)	495	495	-
Relative Chi-Square ($\chi^2/d.f.$)	2.60	2.60	< 3,0
Root Mean Square Error of Approximation (RMSEA)	0.10	0.10	< 0,08 – 0,10
Goodness-of-Fit Index (GFI)	0.81	0.81	> 0,8
Adjusted Goodness-of-Fit Index (AGFI)	0.85	0.85	> 0,9
Comparative Fit Index (CFI)	0.90	0.90	> 0,9
Incremental Fit Index (IFI)	0.90	0.90	> 0,9
Normed Fit Index (NFI)	0.88	0.88	> 0,9
Non-Normed Fit Index (NNFI)	0.89	0.89	> 0,9
Relative Fit Index (RFI)	0.87	0.87	> 0,9

U kontrolnom modelu, RMSEA indikator ima vrednost 0.10, a GFI idikator 0.81, što je iznad vrednosti prema preporukama u radu [28]. Zato se može zaključiti da postoji apsolutna podudarnost kontrolnog modela. Rezultati za indikatore AGFI=0.85; CFI=0.90; IFI=0.90; NFI=0.88; NNFI=0.89 i RFI=0.87, čije vrednosti se smatraju prihvatljivim iznad 0.90, navode na zaključak da kontrolni model pokazuje solidno povećanje podudarnosti. Štedljivost kontrolnog modela se obezbeđuje na osnovu prosečne *chi-square* vrednosti ($\chi^2/d.f.$). U ovom slučaju vrednost iznosi $\chi^2/d.f.=2,60$, što je u granicama preporučene vrednosti prema literaturnim preporukama [28]. Može se zaključiti da je osigurano fitovanje podataka, i da su podaci zaista reprezentativni.

Nameće se generalni zaključak da je postignuto dobro fitovanje kontrolnog modela, a to znači da svih 30 promenljivih (pitanja) mogu na pouzdan i validan način da opišu formirane 5 grupe latentnih promenljivih (grupe pitanja) na osnovu konceptualnog modela, prikazanog na Slici 1.

4.2.3. Korelaciona matrica

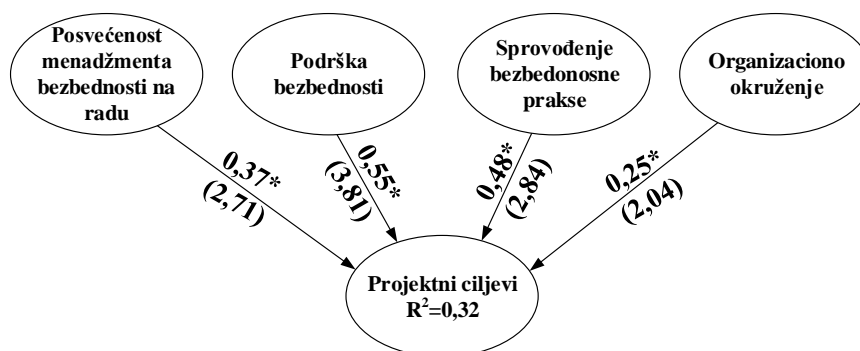
Svi koeficijenti korelacije su pozitivni i iznad preporučene vrednosti od 0.33, što upućuje na zaključak da postoji pozitivna korelacija između latentnih promenljivih koji su od praktičnog značaja. Nivo statističke značajnosti korelacionih veza je označen zvezdicama.

Tabela 6. Korelaciona matrica latentnih promenljivih

Grupe pitanja	1	2	3	4	5
1. PMB	1				
2. PB	0.76*	1			
3. SBP	0.60*	0.77*	1		
4. OO	0.41*	0.49*	0.34*	1	
5. PC	0.40*	0.56*	0.46*	0.27*	1

Napomena: Nivo statističke značajnosti * $p < 0.05$

Na Slici 2 prikazani su rezultati analize strukturnog modela. Iznad strelica su vrednosti koeficijenta regresije (β -koeficijent putanje), koji objašnjavaju jačinu veza između zavisnih i nezavisnih promenljivih. Nivo statističke značajnosti je označen zvezdicama iznad koeficijenta regresije, a njihova vrednost prikazana u napomeni ispod slike. Podaci u zagradama predstavljaju vrednosti t -testa. Koeficijent determinacije (R^2) je prikazan u polju zavisne promenljive, koja pokazuje učešće objašnjenog varijabiliteta u ukupnom, odnosno koliko je varijacija zavisne promenljive objašnjena prediktorskom promenljivom.



Napomena: Nivo statističke značajnosti * $p < 0.05$

Slika 2. Strukturni model

Svi koeficijenti putanje (regresije) imaju pozitivnu vrednost, što znači da su sve četiri hipoteze potvrđene. Takođe, može se zaključiti da su sve četiri hipoteze i prihvatljive, jer su koeficijenti t -testa iznad preporučene vrednosti od 1,96, prema preporukama autora [35,40]. Znači, rezultati testiranja hipoteza ukazuju na činjenicu da su sve četiri istraživačke hipoteze potvrđene, prihvatljive i statistički značajne, jer su dobijeni sledeći rezultati: H1($\beta=0.37$; $t=2.71$; $p<0.05$); H2($\beta=0.55$; $t=3.81$; $p<0.05$); H3($\beta=0.48$; $t=2.84$; $p<0.05$); H4($\beta=0.25$; $t=2.04$; $p<0.05$).

Koeficijent determinacije R^2 (*Squared Multiple Correlations*) je indeks proporcije varijanse endogene promenljive, koja se izračunava preko egzogenih ili prediktorskih promenljivih. Što je veća vrednost koeficijenta determinacije veća je moć objašnjenja strukturnog modela, kao i bolje (jače) predviđanje zavisne promenljive. Koeficijent determinacije, u ovom slučaju, ukazuje na to da se uticaji latentnih prediktora “Posvećenost menadžmenta bezbednosti na radu”, “Podrška bezbednosti”, “Sprovođenje bezbednosne prakse” i “Organizaciono okruženje” na latentnu endogenu promenljivu “Projektni ciljevi” može obračunati sa 32% varijanse.

5. ZAKLJUČAK

Na osnovu dobijenih rezultata može se generalno zaključiti da se primena koncepta bezbednosti i zdravlja na radu (BZR) u projektnim organizacijama može pouzdano opisati korišćenjem 30 pitanja (varijabli), podeljenih u 5 grupa (latentnih varijabli), što predstavlja predloženi konceptualni model. Proučavani kontrolni i strukturni model pokazuju zadovoljavajuću podudarnost i validnost, odnosno dobro fituju polzne podatke. Testiranjem hipoteza, formiranih na osnovu konceptualnog modela, odnosno njihovim dokazivanjem, ukazano je na faktore bezbednosti rada koji utiču na mišljenja, stavove i uverenja radnika koji se odnose na BZR. Posvećenost menadžmenta bezbednosti na radu, podrška bezbednosti, sprovođenje bezbednosne prakse i organizaciono okruženje pokazuju pozitivan efekat na ostvarivanje projektnih ciljeva.

Namera autora ovog rada je da se ukaže na odlučujuću ulogu menadžmenta u sistemu bezbednosti i zdravlja na radu (BZR) i na potrebu brzog menjanja loše prakse velikog broja poslodavaca u Srbiji kod kojih se ova funkcija poistovećuje sa službom za BZR. Takođe, formirani strukturni model sa svojim faktorima bezbednosti rada, projektnim menadžerima može poslužiti kao koristan alat za preduzimanje adekvatnih akcija u pravcu unapređenja bezbednosti radnika.

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ASPECTS OF URBAN AND ECOLOGICAL DEVELOPMENT AS A TOOL OF SUPPORTING ACTIVITY OF PERSONS WITH

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Abstract: Paper presents a definition of persons with disabilities according to Polish legislation and the selected international definitions WHO ICDH, ICDH-2, IFC as well as statistics from the World Report on Disability and the World Health Survey and the documents of the Central Statistical Office in Poland. Article specifies the concept of exclusion (as well as social exclusion) and its influence on the formation of barriers to persons with disabilities. Article presents definitions of barriers and types of barriers, particularly functional, personality, development, and financial regulatory, and determines their problems in terms of the urban construction in the context of the ecological awareness. Ensuring accessibility of buildings for persons with disabilities requires the elimination of obstacles already at the stage of planning of a building plot, as well as individual elements buildings. There are presented results of the survey "Blue questionnaire" carried out in 2010 by Czestochowa City in cooperation with the Municipal Social Welfare Centre. The objective of the study is to define existing barriers that restrict the functioning of persons with disabilities, barriers encountered in everyday life and the assessment of the availability of services: transport, medical care, utilities and others. It pointed out the need for identification and elimination of barriers to urban as well as architectural and transport in urban areas in the ecological development context.

Keywords: barriers, persons with disability, urban construction, ecological awareness

URBAN BARRIERS FOR PERSONS WITH DISABILITIES IN CZESTOCHOWA

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Abstract: Issues of urban barriers for people with disabilities in chosen community in Poland is analysed in the paper. The concept of exclusion has been analysed in the context of its influence on the formation of barriers to persons with disabilities as the basic issue of the urban barriers. Presented research results allows formulating conclusions on the existing barriers that influence on the existence of people with disabilities in the analysed city. As the result, proposals of the improvement within the architectural barriers have been presented in papers conclusion.

Keywords: barriers, persons with disability, urban construction

1. INTRODUCTION

According to Act on vocational and social rehabilitation and employment of persons with disabilities (Journal of Laws 2011 No. 127, item. 721, as amended), the definition of a persons with disabilities are persons whose physical, psychological or mental permanently or temporarily hinders, restricts or prevents the fulfillment of social roles, and in particular restricts the ability to do work [1].

Resolution of the Polish Parliament on 1 August 1997 - The Charter of Rights of Persons with Disabilities defines persons with their physical, psychological or mental permanently or temporarily hinders, restricts or prevents daily life, education, work and performing social roles in compliance with legal and customary, persons with disabilities have the right to an independent, autonomous and active life, and not be subject to discrimination [2]. The Act regulates the attitude in terms of access to goods and services, enabling full participation in social life, access to treatment and medical care, access to rehabilitation, education in schools, together with their non-disabled peers, special education or individual education, psychological, pedagogical and other specialist support for development, gaining or raising the general and vocational qualifications, employment in the open labor market and in conditions tailored to the needs of the disabled, social security live in an environment devoid of functional barriers, in particular, access to offices, polling stations and public facilities, freedom of movement and the general use of public transport, access to information, the possibility of interpersonal communication, have a self-governing representation of their environment and full participation in public life, social, cultural, artistic, sports and recreation and tourism, according to their interests and needs [2].

In 1980, The World Health Organization launched the International Classification of Impairments, Disabilities and Handicaps (ICIDH). This classification is a tool useful for statistical research, clinical, social and educational purposes. International Classification of

Impairments, Disabilities and Handicaps emphasizes the medical aspect of disability and the need for adaptation of persons with disabilities to the situation. The disadvantage of the definition is the lack of the need to adapt the environment to social and physical needs of persons affected by disability. Reaching for the definition of the World Health Organization (WHO) adopted in 1980. There are three dimensions of the phenomenon of disability: impairment, disability, handicap [3]. In 1993, the WHO agreed to begin a revision process of the ICIDH in 1980, across all three dimensions - Impairment, Disability and Handicap. The revised classification defines components of health and some health-related components of well-being (such as education and labour). The ICIDH-2 domains can, therefore, be seen as health domains and health-related domains: Body Functions and Structures and Activities and Participation [4].

The World Programme of Action for Disabled Persons and The Standard Rules on the Equalization of Opportunities for Persons with Disabilities emphasize that disability is a social problem and not limited to a specific person. Speaking about the disability should be kept in mind the relationship between human health (taking into account age, gender and education), and the society and the environment that surrounds it [5] [6].

According to the World Report on Disability there are more than one billion persons with disabilities in the world, of which 110-190 million facing serious difficulties in functioning. According to WHO estimates from the seventies of the twentieth century, 10% of people in the world were persons with disabilities. The *European Health Interview Survey* (EHIS) collects data on biologically persons with disabilities in the European Union, based on a unified definition of biological disability [8]. Representative surveys the state of health of the Polish population as carried out twice - in 1996 and 2004 by Central Statistical Office. They were prepared using the recommendations of international organizations dealing with health statistics. The *European Health Interview Survey* (EHIS) was completed in 2009 for the first time in Poland [9]. Data on persons with disabilities legally and biologically are collected as part of national population and housing censuses (in Poland, every 10 years) and sample surveys (questionnaire): health condition of the population questionnaire (in Poland, every 5 years since 2004) and The European Statistics on Income and Living Conditions (EU SILC – every year since 2005) [10]. In Poland, as part of the National Census of May 2002 data was collected on the number of persons with disabilities (legally and biologically). According to the results of the National Census of Population and Housing from 2011, the number of persons with disabilities in general was at the end of March 2011. approximately 4.7 million (exactly 4 697 thousand.). Thus, the number of persons with disabilities in Poland accounted for 12.2% of the population compared with 14.3% in 2002. In 2011 more than 3.1 million people (exactly 3 133.5 thousand.) had the legal confirmation of the disability. The size of the community of persons with disabilities legally and biologically (simultaneously) amounted to 2 652.0 thousand. The most common cause of the disability constitutes the cardiovascular and neurological disorders. The relatively lower percentage of persons with impaired eyesight and hearing, mental illness and mental retardation in the community of persons with disabilities, however, concerns thousands of people with reduced efficiency in everyday functioning, and therefore require a specific approach in education, the labor market and in everyday life [9] [11] [12] [13].

According to the National Census of 2002 a total of 31,764 people (13%) were persons with disabilities among the total population of Czestochowa. According to the

National Census of Population and Housing 2011 the number of persons with disabilities in the city of Czestochowa was 35,603 people, of which 15 263 were men and 20,340 were women. In comparison with the results of the National Census of 2002, the overall number of persons with disabilities has increased by 3.839 of a total number of 234,472 inhabitants of Czestochowa. Currently 15,18% of the inhabitants of Czestochowa are persons with disabilities [15].

2. THE BARRIERS OF PERSONS WITH DISABILITIES

One of the major problems that persons with disabilities have to face of everyday basis is the lack of social and professional integration. The evolution of social attitudes allowed perceive the needs and limitations of persons with disabilities in modern society. Participation in social and professional life allows a person with a disability partial or full integration and thus the development and self-fulfillment. Social exclusion pushes the person with a disability on the margin, so it is necessary to take preventive measures and proactive approach to the problem of exclusion. Process of exclusion is dynamic and multidimensional. It manifests a lack of or insufficient level of participation in social life, weakens social and family ties [16]. It can be presumed that social exclusion is the basis of all barriers to persons with disabilities. According to the Merriam-Webster dictionary a barrier is „something (such as a fence or natural obstacle) that prevents or blocks movement from one place to another; a law, rule, problem, etc., that makes something difficult or impossible; something that makes it difficult for people to understand each other” [17]. The use of the definition of the barriers to the problems of faced by persons with disabilities will address the obstacles hindering or preventing the movement in the environment and difficulties in the development of the phenomenon or situation. There is a direct correlation between the difficulties in movement (moving both individual as well as by means of transport vehicles) and the activity of persons with disabilities. Both social and professional activities are largely dependable on the ability to move and the ability to overcome the barriers.

In everyday life persons with disabilities face barriers (Figure 2), that hinder or prevent them from performing social and professional roles, meeting the needs and development. Barriers may exist on a global scale, national, local and individual level of persons with disabilities. Barriers may exist on a global scale, domestic, local and individual level of persons with disabilities.

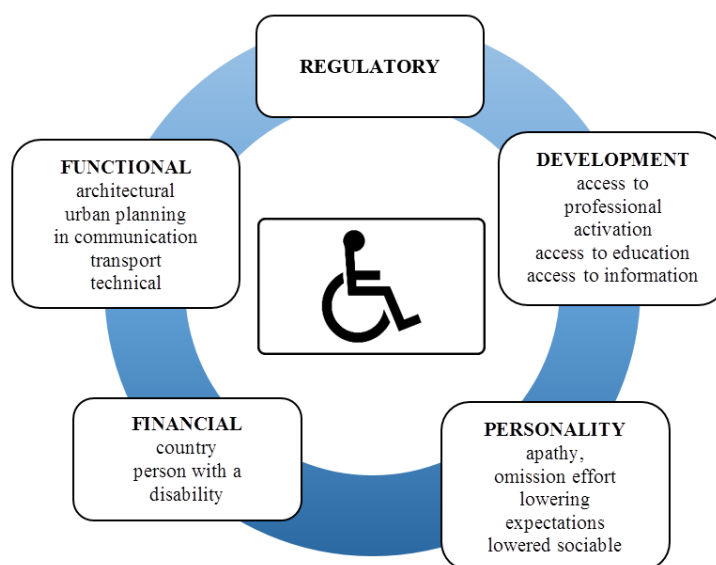


Figure 2. Types of barriers [own study based on: 19]

Functional barriers arise from a lack of availability or hindered possibility of using human living space. functional barriers are: architectural barriers (restrict physical access to buildings and their environment, e.g. staircases, elevators, curbs, doors and door handles); **urban barriers** (to prevent or limit its movement in urban areas, e.g. the unevenness sidewalk, proper labeling and color-billable paving, landscaping elements and the edges of buildings); **barriers to communicate** (difficulty or inability to communicate with the environment); **transport barriers** (restrictions on the use of public transport, that makes the participation in social life, occupational life, etc. difficult and sometimes even impossible). **technical barriers** (difficulty or inability to improve the quality of life, mainly from a lack of proper technical equipment adapted to the needs and limitations of persons with disabilities).

Overcoming the barriers of this nature involves building awareness that disability does not necessarily mean the degradation of person with disability to worse sorts of man. It is necessary to improve the self-esteem of that person. **Barriers in the development** have impact on predispositions, qualifications and skills of persons with disabilities. Barriers consequence of the development restrictions in access to professional activation, access to education, access to information and psychosocial development [19].

Persons with disabilities come into contact with public buildings in two situations: being its customers or employees. Due to a growing awareness of the size of the population of persons with disabilities in Polish society Persons with disabilities come into contact with public buildings in two situations: being its customers or employees. Due to a growing awareness of the size of the population of persons with disabilities in society Polish (approx. 15% of Polish citizens) it is well known that public buildings must be designed, built and maintained to ensure the necessary conditions for use by persons with reduced mobility. However, despite a number of actions taken, aimed to respect the principle of non-discrimination of persons with disabilities in public life, as well as the guarantee implementation of the right related to their full participation in social and professional life, including the right to a life free from functional barriers, in the general opinion many offices

and of public buildings are still not adapted to the needs of persons with disabilities [20]. "Equality of all citizens before the law is guaranteed in both the Polish Constitution and the Charter of the Rights of Persons with Disabilities. Both legal acts that no one, by any cause and therefore also because of physical or mental disability or old age can't be discriminated against [21]. Ensuring accessibility of buildings for persons with disabilities requires overcoming the barriers already at the stage of development of a building plot, as well as individual elements of buildings.

Persons with mobility disabilities encounter the difficulties associated with physical access to facilities. Overcoming the barriers requires providing hardened sidewalk (car access) to the building, wide gates and doors, lowering curbs and removal of stairs. The entrance to the buildings requires a wide doors and non-slip surface, removal of the thresholds and installation of adapted elevators, lifts, ramps, platform stair lift and the handrail. Similar solutions should be used inside buildings. **Persons with dysfunction of eyesight** (from weakened vision, debris eye, complete blindness) the role of the sense of sight take the sense of touch and the sense of hearing. The best help is a personal support of employees especially in moving in the building environment and at the entrance to its area. is recommended the lack of staircase, it is recommended to install the signaling the paging systems and varied structured surface at the entrance to the building. In addition, staircases should be marked with contrasting colors and modified texture staircase also with installed handrails at the stairs. Information boards of contrasting colors and large print should be place inside the building in the reception area. Corridors inside the building should be well lit. The use of Braille is becoming more common, same as acoustic signaling and a speech synthesizer. **Persons with hearing impairment**, who are deaf, hard of hearing or persons that are mute compensate their impairment with the sense of sight and the sense of touch. communicating with the officer or other employee of a public building can be difficult for them. A common problem turns out to be finding the right way or Obtaining any information. It is important to ensure that all types of written messages were clear, legible, simple and obvious.

The assistance provided by placing easily readable information boards in public buildings is far more widespread than communication using sign language. **Persons with intellectual disabilities** must be supported by an alternative form of communication, e.g. through the pictograms or graphic signs. Pictograms are the most primitive form of picture writing, which shows the characters of fixed content, thing, event, or signals. The main advantage of using them is the possibility of replacing the information, warnings, and teachings through logos, by memorizing and later restore the messages on the basis of association with this sign. Persons with mental disabilities should rely primarily on additional, personal support worker, both at the entrance to the building, as well as the movement in the building environment.

3. CITY ACCESSIBLE TO PERSONS WITH DISABILITIES

Overcoming the barriers of persons with disabilities requires taking action by local authorities broad action plan of urbanization, architectural and adapt ensure the transportation options. In 2010 Częstochowa City Hall in cooperation with the Municipal Centre for Social Welfare conducted a survey aimed at defining the existing barriers to persons with disabilities to function in everyday life as well as an assessment of the availability of services: transport,

medical care, of public buildings and others. The study involved 316 people, persons with disabilities and their caregivers participated in the research. A survey paper (51.6%) and mail (48.4%) were used as a research tool. "Blue survey" helped to identify barriers hindering the functioning of persons with disabilities. Everyday life barriers were identified especially in the field of access to communication and access to public buildings in Czestochowa (results in Table 1 and Table 2).

Table 1. Barriers in communication in Czestochowa [22]

Barriers in communication	bad		rather bad		average		rather good		good		no answer	
	n	%	n	%	n	%	n	%	n	%	n	%
access and seating at the bus stop	89	28,2	75	23,7	100	31,6	26	8,2	10	3,2	16	5,1
condition of the sidewalk	175	55,4	81	25,6	41	13	5	1,6	2	0,6	12	5,1
curbs	173	54,8	72	22,8	36	11,4	12	3,8	2	0,6	21	3,8
condition of the street	177	56	78	24,7	40	12,7	9	2,8	2	0,6	10	6,6
lighting	45	14,2	41	13	137	43,5	64	20,2	9	2,8	20	3,2
acoustic signaling	41	13	46	14,6	112	35,4	65	20,6	32	10,1	20	6,3
adapted transport	62	19,6	80	25,3	99	31,3	28	8,9	10	3,2	37	11,7

The survey revealed that the biggest barrier in communication is the condition of streets, sidewalks and curbs. Lighting, acoustic signaling and access and seating at the bus stop respondents assessed as the an average burdensome to functioning in everyday life. The results presented in the table 2 indicate that the communication capabilities of persons with disabilities are evaluated as bad.

Table 2. Access to public buildings in Czestochowa [22]

Access to public buildings	bad		rather bad		average		rather good		good		no answer	
	n	%	n	%	n	%	n	%	n	%	n	%
authorities	41	13	46	14,6	148	46,7	46	14,6	22	7	13	4,1
post offices	55	17,4	80	25,3	114	36	41	13	16	5,1	10	3,2
banks	41	13	60	19	109	34,5	68	21,5	25	7,9	13	4,1
cinemas	57	18	61	19,3	89	28,2	61	19,3	24	7,6	24	7,6
medical clinics, hospital, pharmacies	39	12,3	52	16,5	115	36,4	64	20,2	34	10,8	12	3,8
churches, cementarier	59	18,7	73	23,1	86	27,2	54	17,1	24	7,6	20	6,3
retailers	23	7,3	63	19,9	105	33,2	76	24,1	31	9,8	18	5,7
services: barber, tailor, catering etc.	55	17,4	70	22,1	117	37,1	32	10,1	16	5,1	26	8,2
services: access to the residential station	132	41,8	79	25	62	19,6	18	5,7	8	2,5	17	5,4
train station (PKP)	51	16,1	59	18,7	105	33,2	54	17,1	35	11,1	12	3,8
bus station (PKS)	51	16,1	64	20,3	106	33,5	51	16,1	28	8,9	16	5,1

The study shows that respondents evaluated accessibility of public buildings as an average. Only access to dwellings (66.8%) was negatively rated. Retailers, banks, medical clinics, hospitals and pharmacies received quite good rates. [22]

4. CONCLUSION

Supporting the activity of persons with disabilities is inextricably linked to the development of construction adapted to the needs and limitations of persons with disabilities.

The problem relates mainly to overcoming urban, architectural and transportation barriers. Creating urban structures without barriers is a challenge for both new and existing parts of the city. Freedom of movement in the urban space applies to persons with disabilities and non-disabled.

Identification of barriers preventing persons with disabilities from function in everyday life on the example of "Blue survey" conducted in Czestochowa in 2010 have shown that there are many offices and institutions that are not or only partially adapted to the needs of persons with disabilities.

The most frequent inconveniences are the lack of accessible toilets, too narrow doors, the lack of handles in toilets and corridors, lack of ramps and elevators to facilitate transport to the upper floors of buildings. Adaptation of public facilities to meet the needs and limitations of persons with disabilities, as well as the condition of Czestochowa streets and sidewalks leaves much to be desired.

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KEY INDUSTRIES AND INTELLECTUAL PROTECTION OF INNOVATIONS IN ROMANIA AND MOLDOVA – COMPARISON STUDY

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Abstract: Key indicator of the national industry is related to the main source of the national income. Industrial sector competitiveness depends largely on its ability to assimilate products and technologies, to diversify production and exports. This paper is aimed to analyze and compare key industries of Romania and Moldova to identify key national industry and innovations protected by the intellectual protection regulations. Paper presents data collected in Romanian and Moldavian databases for 2010-2014. Adoption of the industrial innovation and ways of intellectual protection in the chosen countries have been analyzed by authors.

Key words: industry, industrial innovations, legal protection

1. INTRODUCTION

The industry is generally defined as a being the most important branch of material production, including all enterprises (factories, plants, mines, power plants, workshops) that extract raw materials, fuels, processes both these products as well as those of agriculture, transforming them into means of production and consumer goods. It also refers to certain sectors and an area concentrated on manufacturing production, a process that involves large capital investments previously made to profits.

Industry, following the agrarian reforms which have changed and overturned the old feudal agrarian industry, has become the main production of European and North American countries. Industry is classified into:

- Heavy industry, which deals with the production of equipment for production;
- Light industry, dealing with consumer goods production.

Moldovan industry is growing steadily. According to the National Bureau of Statistics, industrial production index in 2014 compared to 2010 was 124.6%. It means that industrial production increased by 24.6% compared to 2010. Moldova's industry has registered a slightly increase in the first 11 months of 2015 compared to the same period in 2014. In relation to the structure of industry types activities, the production increase was recorded in the manufacturing industry (32.4%) followed by e mining and quarrying industry by 23.8%. It decreased production and supply of electricity, gas, steam and air conditioning supply by 5.3% [Biroul National de Statistica - Moldova in cifre, editiile 2010-2014; Indicii volumului producției industriale, pe tipuri de activități (2010 = 100) (2011-2014)].

A representation of the industrial production evolution in 2010-2014 is presented in Figure 1.

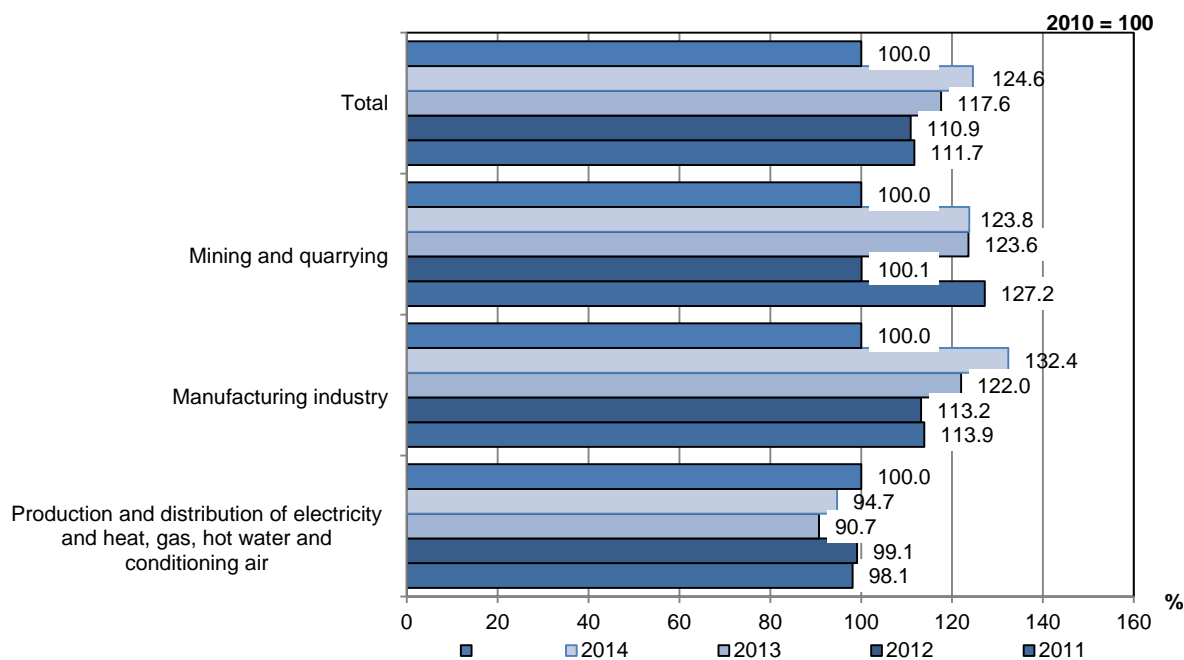


Figure 1. Evolution of industrial production by types of activities in Moldova in 2010 - 2014 [1]

According to database of the National Bureau of Statistics in Moldova, in the analysis of the study period January - November in 2015 the industrial production index compared to the study period January - November in 2014 obtained 102.0%. In November in 2015 the industrial production index obtained 89.7%. Mining and quarrying in the study period January - November in 2015 in comparison to the study period January – November in 2014 there was noted a decrease of the production volume (9.4%). The manufacturing industry in the study period January – November in 2015 compared to the same period in 2014 registered a growth of the production volume (3.6%), which resulted in the increase of overall production index by 2.9% in the country. The food industry has decreased production volume by 1.8% (which generated overall industry decrease index by 0.4% in the study period January - November in 2015 in comparison to the study period in January - November in 2014 [3].

In Romania, in 2011 compared to 2010, the industrial production index (gross series) increased by 5.6% due to the increase in all industrial sectors: the production and the supply of the electricity, gas, steam and air conditioning increased by 6.3%, the manufacturing by 5.6% and the mining and the quarrying by 4.5%. In 2012, the industrial production (gross series) noted the same index level as in 2011. The production and the supply of the electricity, gas, steam and the air conditioning, also the mining and quarrying was increased by 4.5% and 1.5% while the manufacturing industry was decreased by 0.7% in 2012. The industrial production (gross series) was higher by 7.8% in 2013 compared with 2012, what was supported by the manufacturing (+ 9.2%) and the mining and quarrying (+ 2.2%). The production and supply of electricity, gas, steam and the air conditioning supply was decreased by 1.4%. In 2014, compared to 2013, industrial production (gross series) was higher by 6.1% due to the increase of the manufacturing (+7.5%) and the mining and quarrying

(+1.0%). Production and supply of electricity, gas, steam and air conditioning supply decreased by 4.7% [2]

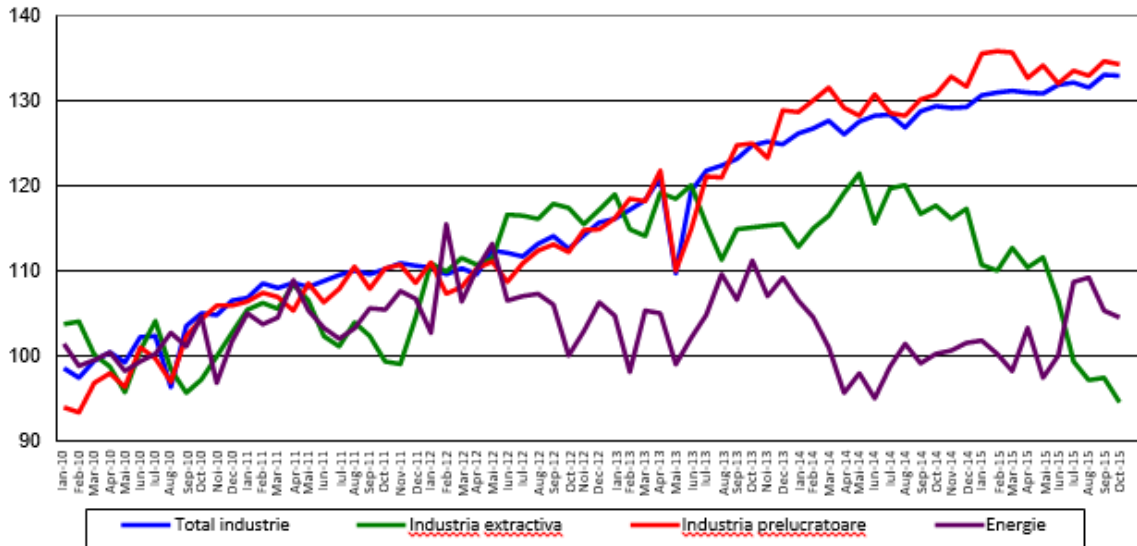


Figure 2. Monthly evolution of industrial production in the study period January 2010 - October 2015 [1]

2. KEY INDUSTRY IN ROMANIA

Romanian industry works in almost exact proportion of two thirds for national intake and one-third for the external market, precisely 66.63% to 33.37%.

Romanian industry is evolving, as evidenced by the results of industrial production indices according to INS. Comparing to December 2014, industrial production increased by 4%, supported by the evolution of the manufacturing industry by 6.7%. According to the press release of the National Bureau of Statistics Nr. 35/10 February 2016, 2014 compared with 2010 increased manufacturing production, namely capital goods industry with an increase of 11.4%. After statistics from 2015 that are compared with 2014, the industry of durables increased by 28% compared to 2014, then surpassed capital goods by 25%, the latter making an increase of only 3%. Analysis of the data confirms that Romania's key industry is capital goods, with an index of production in 2014 of 11.4%, i.e. manufacture of road transport motor vehicles.

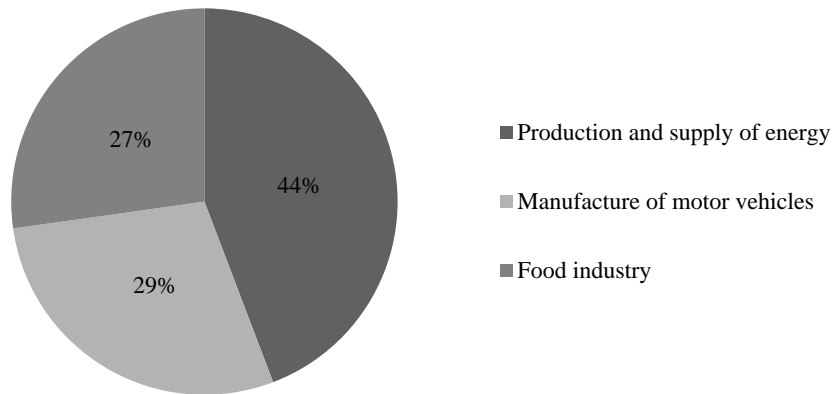


Figure 3. Top industrial branches in Romania for 2014 [1]

There are three industries across the threshold of 10% of the production: supply of the energy and the food industry were given positions on the specific needs and requirements of the population and only one, manufacture of motor vehicles gets the place for the most important branch.

3. KEY INDUSTRY IN MOLDOVA

Moldova has an industry focus more on the manufacturing (the food and beverages, clothing, textiles, etc.), production of machinery and appliances, production of non-metallic mineral products, mining and quarrying. According to the National Bureau of Statistics, the manufacturing industry has noted an increase of 3% in the period 2010-2014 with a share of 83.5% in production in 2014, lower by 0.5% compared to 2013. Statistical devaluation is in Fig. 4.

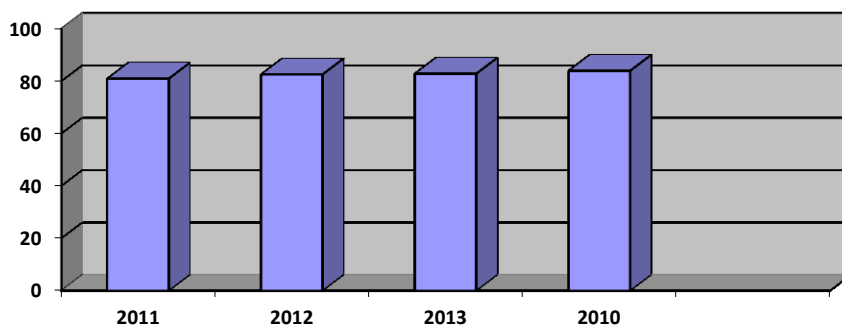


Figure 4. Evolution of the manufacturing industry in Moldova in 2010 - 2014 [1]

Source: based on data from National Bureau of Statistics

This increase is due to the application of innovative strategy of Moldova for the period 2013-2020 "Innovation for Competitiveness", namely by applying tools that would help industrial growth. A first instrument is the creation of industrial parks. There were 7 industrial parks established throughout the country with a total investment estimated at about 183 mln. Euro and over 7,400 jobs expected. Another instrument, clusters that are based on using

modern technology and science-intensive industrial integration represents centres (production) enterprises is predestined to solve the problem of less industrial activity due to low competitiveness of manufacturers in Moldova.

4. METHODS OF INTELLECTUAL PROPERTY PROTECTION IN ROMANIA AND MOLDOVA

Trademarks, product design, patents, copyrights or industrial secrets only allow the holder to control their use. Unless properly protected or registered they allow those who created them to benefit from the material and moral rights over them. Intellectual property includes two spheres: industrial property (inventions, utility models, plant varieties, models and industrial designs, trademarks and appellations of origin, topographies of integrated circuits) and copyrights (literature, musical and dramatic works, musical works, choreographic works, audiovisual works, works of painting, sculpture and graphic works of urban architecture and garden design, works of applied art, photographic works, maps, translations, software etc.).

In Romania, industrial property is protected by law (Law no. 84 of 1998 on trademarks and geographical indications; Law no. 129 of 29 December 1992 (republished) On the protection of industrial designs; ORDER no. 66 of August 17, 2000 (republished) on the organization and practice of the profession of industrial property; Law no. 11 of 1991 on combating unfair competition; Law no. 64 (r1) of 11 October 1991; Law no. 8 out of 14 March 1996 on copyright and related rights; Regulation (EU) No 1151/2012 of 21 November 2012) through its registration in order to obtain full entitlement and its material benefits. It means owning a registered trademark registration certificate issued by OSIM (Office of Romania), OHIM (European Office) or WIPO (International Office) available in Romania. This certificate gives the holder an exclusive legal right on the mark. Based on this certificate Law 84/1998 amended and supplemented by Law 66/2010 granted exclusive use of the name and the registered mark becomes the private property of the person who recorded it. Infringement actions offense of circulation, without the right of a product bearing a trademark identical or similar to a registered trademark and other actions are punishable by law by the High Court of Cassation and Justice, the supreme institution of law in Romania.

In Moldova the legal protection of industrial property objects are insured under their registration at the State Agency on Industrial Property Protection (AGEPI). Copyright protection is ensured under the Law on Copyright under no formalities. By registering, intellectual property is protected by a series of laws and normative acts adopted, such as Government Decision no. 489 of 29.03.2008 on the National Commission for intellectual property; Law on Protection of Industrial Designs No. 161-XVI; Law on Copyright and Related Rights No. 139; Law on the protection of inventions No. 50-XVI and others.

5. PROTECTION OF INTELLECTUAL INNOVATIONS IN MOLDOVA – INSTITUTIONS AND CHARACTERISTIC INNOVATIONS

In Moldova, the legal protection of intellectual property is provided by the National Office of Intellectual Property, in accordance with the legislation in intellectual property and international treaties to which Moldova is party. Legal protection of industrial property under

ensures their registration with the State Agency on Industrial Property Protection (AGEPI). State Agency for Intellectual Property (AGEPI) is a public institution subordinated to the Government, responsible for promoting and implementing activities in the field of legal protection of intellectual property rights industrial property, copyright and related rights. According to Law no. 114 of 07.03.2014, "If objects of industrial property right over them after registration object appears, granting title of protection by the national office of intellectual property or other conditions laid down by national law and under the Treaties by the Republic of Moldova". Intellectual properties protected are divided into two categories:

- a) industrial property objects (inventions, plant varieties, topographies of integrated circuits, trademarks, industrial designs, geographical indications, names of origin and traditional specialties guaranteed);
- b) objects of copyright (literary, artistic and scientific) and related rights (performances, phonograms, film and broadcasting programs of organizations).

Related intellectual property is other assets that have a separate regulatory system, such as:

- a) trade secrets (know-how)
- b) trade name.

6. PROTECTION OF INNOVATIONS IN ROMANIA - INSTITUTIONS AND CHARACTERISTIC OF INNOVATIONS

Industrial property objects are technical creations (inventions, utility models) and aesthetic (Marks and Designs), hallmarks associated products (trademark, trade name, geographical indication) and protection against unfair competition.

Typically, industrial property rights are acquired by registration only after examining an application to an industrial property office. In Romania, the State Office for Inventions and Trademarks (OSIM) operates as a specialized government body with sole authority in the protection of industrial property, in accordance with national legislation and the provisions of international conventions and treaties to which Romania is part.

In principle, intellectual property rights are monopoly rights. This gives the owner an exclusive right to use and the object of protection is to prohibit its use by third parties without the consent of the person entitled. Therefore, industrial property rights are instruments which prevent unauthorized adoption of specific industrial property objects. On the other hand, intellectual property rights are tools for marketing or managerial strategy.

7. CONCLUSIONS - STATISTICS DATA ANALYSIS AND DISCUSSION

In Moldova, there is only one statistical rapport on AGEPI activity for 2015. By that, in Moldova were only registered:

- patents (110);
- short-term patents (160);
- patents on plant varieties (30);

and were released titles of protection:

- patents (60);
- short-term patents (120);
- patents on plant varieties (30);
- industrial designs (50).

Actually there are the only information about innovations and patents registered. AGEPI has some problems with collection and transparency of statistical data but they are developing and applying a strategy called: „ SUBPROGRAM 2.1. Improvement in IT products information services in the field of Intellectual Protection”.

In Romania from 2009 to 2013 where issued a total of 2437 patents from a number of 5877 of Romanian applicants. An evaluation of the issued brevets is shown in Figure 5.

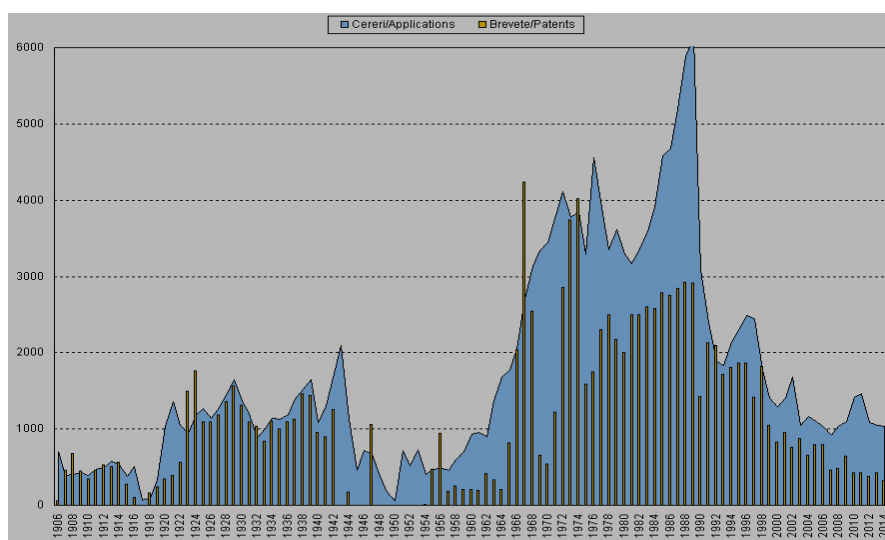


Figure 5. Applications for patents and patents issued on period 1906-2014 [5].

In 1990 there were registered 3081 applications for patents and 1,428 were approved, a decade later, their number fall to one third and in 2014 barely exceeded 1,000 applications and less than 300 granted patents.

Thus, it came as 2014, the total of 2981 patents applicable in Romania, 2661 were registered in the EU and only 320 in our country by OSIM. In 2002, the ratio was the opposite - only 755 497 registered at OSIM and the European Office.

Between 2014 - 2020, the European Union intends to allocate 80 billion Euros for research funding through the HORIZON2020 operated directly from Brussels, where they are supported mainly social innovation, stimulate new technological developments and patents including the protection of property intellectual results, the main objective being the development of a society and an economy based on knowledge and innovation in the EU.

According to experts, support innovation has the potential to correct the existing problems and also to increase the visibility of Romania on European innovation, which would attract donors willing to invest in the Romanian companies.

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DEVELOPMENT OF THE FUZZY HYBRID MCDM MODELS IN THE FRAMEWORK OF SWOT ANALYSIS FOR STRATEGIC DECISION

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Abstract: During recent years considerable number of research has been done in regard to strategic planning for different organizations by means of MCDM (Multi-Criteria Decision Making) methods in combination with the well-known SWOT analysis. The main goal of these hybrid models has been to obtain the analytical priorities for the SWOT factors and makes them commensurable, after which strategic options could be evaluated with respect to each SWOT factor. In the same manner, this paper introduces overview of developed fuzzy hybrid MCDM models in the SWOT framework for the prioritization of possible strategies for the development of the tourist destination Stara Planina, which is located in eastern Serbia. The comparative analysis of the applied models results was done in order to assess usability and advantages of the used MCDM techniques in the case of strategic decision making.

Keywords: SWOT, MCDM models, fuzzy logic, strategy prioritization, tourist destination Stara Planina

BUILDING SOCIAL CAPITAL ON ENTERPRISE SOCIAL NETWORKS

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Abstract: Today, in the globalized world, technology is continuously creating new ways for people to communicate. Multinational organizations have a constantly increasing need for improving communication and coordination between employees located around the world. One place to look for possible solutions is within social media, especially in Enterprise social networks (ESNs). Previous research has showed that using ESNs can help bridge distance between people in multinational companies as well as increase collaboration. The goal of this paper was to investigate how can organizations build social capital on ESNs. This paper shows that social capital is important for organizations, as it has a positive impact and promotes better coordination between people. An ESN can be beneficial to the organization, because it enables the employees to become part of a community, gather and share knowledge, solve problems, and build personal relationships and trust. Knowledge exchange is very important, because without it, ESNs would have limited value. This paper shows several ways of building social capital on ESNs as well as practical examples from several companies; Deloitte using Yammer, Fakta using Faktashare and IBM using IBM Connections. We argue that building social capital on ESNs is possible but it requires effort from both sides. ESNs can serve as a potent tool that with the right effort can enable the organization to build social capital.

Keywords: social capital, enterprise social networks, knowledge sharing, communication

1. INTRODUCTION

Today, in the globalized world, technology is continuously creating new ways for people to communicate. Multinational organizations have a constantly increasing need for improving communication and coordination between employees located around the world. One place to look for possible solutions is within social media. There are already plenty examples of how social networking is not only becoming more widely used, but also how it is changing the way individuals and organizations work. Some social networks are business oriented and may generate business opportunities, and a good example of this is LinkedIn. Facebook started out as a social network for students, and later gained popularity within the business sector. Many big corporations have started using Facebook, Twitter, LinkedIn and other social networks in order to expand their network, reach out to customers through new channels, and create profit. While these are primarily examples of how organizations use social media for external communication, the demand for enterprise social software is growing rapidly (McAfee, 2009). The global market for Enterprise Social Networking (ESN) is forecast to reach US\$4.8 billion by 2020, driven by the evolution of social networks as platforms that support enterprise-wide connectivity, communication and collaboration, and

offer improved business agility through superior employee and customer engagement (Yammer, 2013, Socialcast, 2013). ESN can also support knowledge creation inside the organization, which is beneficial for the organization's growth.

To explain why this is important to various organizations in today's globalized world, Olson & Olson argue that "with the invention of groupware people expect to communicate easily with each other and accomplish difficult work even though they are remotely located or rarely overlap in time."(Olson & Olson 2002:139). Groupware can be defined as a computer-based system that supports groups of people engaged in a common task (or goal) and provides an interface to a shared environment (Elis et. al., 1991). However, Olson & Olson (2002) believe that despite the new communication technologies, distance still affects the interpersonal communication. On the other hand, Cairncross believes that communication mediated through new communication technologies can bridge the perceived distance between people. Eventually locations, borders, and time zones are no longer relevant in our working and personal lives (Cairncross, 1997).

If multinational organizations want to stay competitive, they need to find ways to bridge the distance between their employees and build social capital. Social capital can be understood as: "the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor" (Adler and Kwon, 2002:23).

Using an ESN can be beneficial for the organization. Inside an organization, people are facing many community related challenges, such as how to keep up with activities of distant colleagues, how to get acquainted with others, or how to build more personal relationships with colleagues. Additionally, business related challenges could also emerge. For instance, how to find someone, who has the time and skills needed in order to help them with their current tasks. When using an ESN, people are able to see the information flow throughout the organization, which enable them to see what is happening within the organization, and actions can be taken accordingly (Lui, 2013). In addition, the social part of an ESN can help them gather the knowledge they need in order to collaborate efficiently with each other, solve problems, and build relationships and trust especially among people who do not work side by side (Keyes 2012).

McKinsey survey research suggested that organizations who use Web 2.0 technologies have more market share and get higher margins. The organizations use collaborative Web 2.0 technologies in order to connect their employees as well as to extend the organization's reach to its partners, customers and suppliers. The research also suggested that those organizations who use Web 2.0 technologies for management practices are more likely to be market leaders compared to those companies which use the Web in limited ways. The research suggested a few steps in order for organizations to become fully networked enterprises like (1) integrating the use of Web 2.0 in organization's employees' daily activities and work flow, (2) increasing fluid information flow, deploying talent more flexibly in order to deal with problems and allow employees lower in the corporate hierarchy to make decisions, and (3) apply Web 2.0 technologies to interact with employees, customers and business partners to gain more market share and increase organizational flexibility and collaboration. (Hayley, 2014).

2. AIM OF THE RESEARCH

As shown, the use of ESNs can help bridge the distance between people in multinational companies, and potentially be beneficial for the organization. This research is based on the following question: **How can organizations build social capital on enterprise social networks?**

In big organizations, especially the ones that are spread out across the globe, good collaboration is vital for the organization's work. Today, it is common to have 'virtual' teams working together. Building trust and shared understanding is very important for achieving their common goals (Hinds & Weisband, 2003).

ESNs are being widely used by major companies; more than 500,000 companies worldwide (like Rakuten, 7/11, ebay, DHL, xerox, Shell, Suncorp, tyco, Intuit, ABB, Unicef UK, SHARP and others) are using Yammer (Yammer, 2015), and therefore it is relevant to look at the way they are being used, and what effects they have on global organizations. Building social capital is highly important. It makes people achieve a feeling of community and that they are personally involved with their work and their colleagues, both of which obviously become harder as physical distance increases. Social capital is a very complex and broad subject and researchers have yet to fully embrace social capital as a multilevel theoretical perspective (Payne et. al, 2011), but we have chosen to focus only on a few authors, which we found are the most relevant to the study of virtual communities. The main focus will be on knowledge sharing in virtual communities, as well as building personal relationships among people, because they have been highlighted as being critical factors when building social capital.

3. HISTORY AND IMPORTANCE OF SOCIAL CAPITAL

Even though the notion of social capital appeared in the early 1920s in the works of Lyda Judson Hanifan, it was Robert Putnam who popularized the term in his research of civic traditions in modern Italy (Smith, 2009). In his study, he took a closer look at the differences in development of the northern and southern parts of Italy. He concluded, that the differences between the regions are a result of social capital, which was clearly more present in the northern parts of Italy. (Putnam, 1993). His study made a major impact on the scientific community.

There have been many conceptualizations of social capital. Throughout history, the concept of social capital has become more popular in many disciplinary fields, such as sociology, economy and politics. Adler & Kwon synthesized the various theories of social capital and developed their own definition of social capital. They refer to social capital as the goodwill available to individuals and groups. They connect social capital to various positive outcomes in society, such as more efficient financial markets, better public health, and lower crime rates Adler & Kwon (2002). Widén-Wulff & Ginman argue, that social capital affects the organizations in the way it promotes better coordination among the employees. People, who work in the company and collaborate together in an effective way, are capable of establishing deeper relationships with each other, and that can prove useful for future business projects Widén-Wulff & Ginman (2004). Nahapiet & Ghoshal define three dimensions of social capital: structural, relational and cognitive. The structural dimension is concerned with formation of relationships (ties) between people. The relational dimension explains social

dynamics like obligations and expectations between people, identification, and trust. The cognitive dimension refers to the shared vision and language. However, these three dimensions are not mutually exclusive but greatly interrelated (Nahapiet & Ghoshal, 1998). Furthermore, Tsai & Ghoshal argue, that through social interactions (structural dimension) people develop trust (relational dimension) and common goals and values (cognitive dimension) Tsai & Ghoshal (1998).

The theory of social capital is still developing, but many scholars acknowledge, that social capital not only influences development of human capital and intellectual capital, but it is also important within the areas of knowledge creation. Nahapiet & Ghoshal argue, that “network ties influence both access to parties for combining and exchanging knowledge and anticipation of value through such exchange” (Nahapiet & Ghoshal, 1998:252). Additionally, network ties provide opportunities in combining and exchanging knowledge, and the exchange of knowledge is important when building social capital.

4. SOCIAL CAPITAL ON ENTERPRISE SOCIAL NETWORKS

After theorizing about social capital and its importance, we must now explore the notion of distance. In the last decades, new communication technologies made interactions from a distance possible. Today people use various collaborative technologies, such as mobile phones, e-mails, social networks, audio and video conferencing, in their daily working lives. However, there is a difference between how people collaborate and build relationships with each other when they are co-located, and when they are working at a distance from each other. It is important to address these issues, in order to explore the potential of building social capital on ESNs.

Trust is important when building social capital. Olson & Olson argue, that “another drawback involved in working at a distance is the fact that we trust remote people less than those co-located with us, for a variety of reasons” (Olson & Olson, 2003:16). In order to collaborate effectively, people need to trust each other, especially if they cannot see each other. People trust other people who are honest, who fulfill their promises, and who will not take advantage of one another, when the opportunity arises (Olson & Olson, 2003). Rocco et al (2000) researched how trust between colleagues can be affected by distance. Their research shows, that people have higher levels of trust with their local colleagues than toward distant coworkers. However, non-work related interactions (especially over the phone) proved to have a positive impact on the level of trust. Talking on the phone with distant co-workers about non-work related issues made coworkers trust each other more, and it also increased familiarity with the distant site. Trust can generate common goals and shared understanding and those can evolve in social capital (Tsai & Ghoshal, 1998.). Additionally, the presence of social capital can stimulate the building of better and more trusting relationships between coworkers. When people trust each other, they are more willing to cooperate together. Achieving trust, common goals, and shared visions is very important when building social capital.

Olson & Olson (2003) argue, that face-to-face interactions are still highly valued no matter how advanced new technologies are. However, they believe that we will evolve our social practices in order to accommodate the characteristics of the new technologies, to revolutionize the way we work collaboratively at a distance. Therefore, “better social practice

will remind us to reveal more personal information to each other” for the purpose of building trust relationships (Olson & Olson, 2003:18).

In virtual communities, such as ESNs, social capital depends on the growth of social relationships that are built on social connections (Daniel et al, 2003.) He argues that understanding people’s socio-cultural and knowledge backgrounds is vital to the development of social capital in virtual communities. When putting it into the context of virtual communities like ESNs, Daniel et al define social capital as a: “common social resource that facilitates information exchange, knowledge sharing, and knowledge construction through continuous interaction, built on trust and maintained through shared understanding” (Daniel et al, 2003:04). In that manor, definition of social capital slightly changes, when it is put into the context of virtual communities, and knowledge sharing is specifically emphasized.

As previously mentioned, there are three dimensions of social capital proposed by Nahapiet & Ghoshal (1998): structural, relational, and cognitive. As proposed by Daniel et al, the structural dimension is about how communities can facilitate the development of networks. As such, the virtual community can function as a hub for connecting like-minded individuals as well as a way to assess the knowledge of other community members without being in direct contact with them. The relational dimension allows for checking the value and commitment of other individuals in the community, as well as examining the trustworthiness of these. The cognitive dimension is about the shared language and visions of the virtual community. In essence, the three dimensions all share the common goal of improving organizational performance. They each help the individuals to balance knowledge and participation in the organization and deliver on different key aspects of social capital (Daniel et al, 2003).

4.1. PREREQUISITES FOR BUILDING SOCIAL CAPITAL ON ENTERPRISE SOCIAL NETWORKS

Nahapiet & Ghoshal (1998) suggest, that social capital could further the development of knowledge capital through the exchange of information and knowledge sharing. They argue that there are four conditions that can facilitate combination and exchange of knowledge among people:

1. When people have the will to exchange knowledge with others.
2. When people believe that the interaction, exchange, and combination of knowledge with others will prove worthwhile (structural dimension).
3. When people have the ability to understand and apply knowledge (cognitive dimension).
4. When people have strong and positive relationships (relational dimension).

Without shared knowledge, ESNs would have limited value. If organizations want to build social capital on an ESN, knowledge sharing seems to be crucial. Chiu et al (2011) argue, that in a voluntary setting, for instance, when using an ESN, people who do not have confidence in their ability to share knowledge, will not engage in that behaviour. In order to share their knowledge, people must believe that their contribution will be useful to others and that new value will be created both for them and other colleagues using it (Nahapiet & Ghoshal, 1998). Therefore, expectations of personal gain can motivate people to participate more actively when it comes to sharing of knowledge on the ESN. Some researchers argue,

that there also is an intrinsic motivation that drives people when actively participating in knowledge sharing. They can perceive that sharing knowledge and helping others can be challenging and fun, and also, it feels good to help others (Wasko & Faraj, 2005). There will always be 'lurkers' (people who just read, without actively participating) on ESNs, but as we will later discover, there are certain things that organizations can do in order to avoid that behaviour.

In order to engage in knowledge exchange and actively participate in the ESN, people need to have some sense of shared language. Chiu et al (2011) argue that:

“Shared language not only helps share ideas but also enhances the efficiency of communication between people with similar background or practical experience. Accordingly, shared language will help motivate the participants to actively involve in knowledge exchange activities and enhance the quality of shared knowledge.” (Chiu et al 2011:142). Shared language helps people to access other people, and their information also helps in evaluating the benefits of knowledge exchange (Nahapiet & Ghoshal, 1998).

Having strong and positive relationships within the organization is vital for gaining social capital. Identification and shared vision with the collective are very important. Nahapiet & Ghoshal argue, that “identification is the process whereby individuals see themselves as one with another person or group of people” (Nahapiet & Ghoshal, 1998:256). They state, that identification can influence the motivation behind knowledge exchange. In order to actively participate in knowledge sharing within the ESN, people must recognize each other as part of the same collective. Rocco et al argue, that “geographically distributed workers benefit from the creation of shared group identities that extend beyond local boundaries” (Rocco et al, 2000:06). Creating shared identities can be difficult when people come from different sites. Individual sites have their own culture, history, and leaders, but that can possibly be bridged by having shared visions and goals (Rocco et al, 2000). Tsai & Ghoshal state, that having a shared vision “embodies the collective goals and aspirations of the members of an organization” (Tsai & Ghoshal, 1998:467). They view the shared vision as a bonding mechanism, that helps people with integrating and combining resources. People within the organization, who use ESNs, can benefit from having shared visions and goals, and that can facilitate the creation of social capital. Maznevski & Athanassiou argue, that social capital must be invested in and maintained in order to continue being useful. For virtual teams and colleagues, the biggest challenge is to build relationships. They suggest that virtual team members “must build social capital with quantity, transferability, flexibility built on trust, and power” (Maznevski & Athanassiou, 2003:211).

Technical and social affordances of ESNs enable people to communicate with each other when working from a distance. ESN is a work tool as well as a communication tool. They are used by organizations to further their communication and collaboration.

Craig points at many advantages of using the ESNs such as:

- a) Searchable knowledge base from which everyone can benefit, even people not involved in the original conversations
- b) Modern document management system that allows collaboration and sharing of documents, and allowing companies to connect with their employees.
- c) Possibility for companies to connect with their employees on a more personal level (Craig, 2013).

4.2. HOW TO ACHIEVE SOCIAL CAPITAL ON ENTERPRISE SOCIAL NETWORKS

If an ESN is going to be a success for an organization, critical mass is vital. People need to use it! There are differences in how different types of people use the ESN. For example, new employees, and employees who are about to leave the company, might use the network in a different way than people who are planning to stay in the company for a long time. New employees do not know the company's culture and they would often be afraid to say something 'wrong', so they would hesitate before posting on the ESN. On the other hand, employees who are ready to leave the company will probably not share that much information. Sometimes, employees could be too busy to participate in online sharing of knowledge. Young argue, that "creating clear guidelines for appropriate messages is key to ensuring strong content, as is encouraging and incenting valuable participation at all levels of the company" (Young, 2012). In her research about motives for online political participation, Samuel concludes, that the best way to get people to participate and contribute is to provide incentives to do so, e.g. offer them benefits from it. These benefits should only be available to the people, who are actively engaging in sharing behaviors (Samuel, 2004). This approach can help with engaging the previously mentioned 'lurkers'. It is also important that the community on the ESN is friendly and not intimidating, so people will be willing to contribute. In addition, people should be constantly encouraged to contribute to the network, and community designers should create activities that will facilitate sharing behaviors (Young, 2012). Young states, that "the more people and knowledge that users have in common, the more social capital is created" (Young, 2012a). Even 'lurking' can allow people to get to know each other and acquire shared knowledge. 'Lurkers' can also be valuable to the company, because they gather knowledge even without sharing it, but the community designers should strive for active participation of all the parties. "Enterprise social networks should be designed to be open and accessible to any member that chooses to participate actively for the first time or even just browse the topics being discussed" (Young, 2012a).

One way of making employees participate actively on the ESN is to find people, who are avid users and try to build a community around them. In every ESN, there are people and certain topics that can stimulate the discussions. Finding those catalysts can be of strategic importance to the company, and it can help to strengthen the network in general (Young, 2012).

There are many ways to build social capital on ESNs. ESNs should be used more than just for updating statuses. In order to build social capital, employees who are using the ESN, need to be able to help each other, work together on projects, and comment on each other's work. Even though sharing basic information (like status updates) is important, employees should also be able to get support in their daily work practices (Young, 2012). Face-to-face communication is still very important, and bringing people together face-to-face can facilitate the creation of social capital by making employees more comfortable with participation on the ESN (Olson & Olson, 2003).

As shown, identification inside the collective can be important, and therefore employees should be allowed to form informal groups inside the network. The groups can be formed by employee's personal interests, like music, sports, or cultural affinities. That can overall strengthen their ties to the network (Young, 2012).

5. THE CASE OF DELOITTE AND YAMMER

Deloitte is a professional service company, which provides services such as consulting, financial advising, risk management, auditing, and tax services. According to the study of Reimer et al (2012) and the Yammer's customer care study, Deloitte Australia has approximately 512 partners and 5700 employees located across the country. Deloitte Australia started using Yammer in 2008. Yammer is an ESN that provides private communication within the organization. Yammer allows users to communicate with each other, share messages, statuses, files, and collaborate together by creating 'pages', which basically are documents made for a group setting. In the beginning, Yammer was only used by a few individuals, who had an interest in social networking, but in 2009, the trend spread out throughout the company. The study shows, that within a short time, Yammer was used as an important tool for company-wide collaboration and decision making. Moreover, Yammer became a tool for people to share information and knowledge, as well as to develop new ideas. The research also showed that active participants on Yammer are less likely to leave the company, because they build personal relationships with the community. By reducing employee turnover, Deloitte saved money on the recruiting, interviewing, and hiring of new people. Deloitte called Yammer their 'personal Google' because of their exemplary knowledge sharing practices. Deloitte said: "When you have a question, chances are you can search Yammer and find a thread with the answer." (Yammer Customer Care Study, 2011). Sense of community was also heightened with the use of Yammer. People with similar interests connected with each other and created groups. For example, 'Deloitte Mums Group' was created and used by female employees, who discussed maternity leave and supported each other in general. Group ideas and tips were always welcomed. One managing partner posted sale tips on Yammer on a daily basis for two months, and that sparked enormous engagement across the whole company.

From this we see that Yammer helped Deloitte in building social capital by increasing the number of ways in which people can connect with each other, build personal relationships and trust. By participating in groups with others, who shared their interests, employees felt like part of the community. Having relationships with others and being a part of the community also facilitates knowledge sharing between the employees. Things like posting sale tips and working together on the same documents and projects made employees aware, that others also share their visions and goals, which in conclusion helped Deloitte to create social capital.

6. THE CASE OF FAKTA AND FAKTASHARE

Fakta is a Danish chain of supermarkets, which has around 400 stores in Denmark and about 7000 employees (Christensen, 2012). Fakta wanted to get a competitive advantage in the market, by introducing new knowledge sharing practices among employees spread across different stores. They created the ESN called Faktashare in May 2012. The main idea of Faktashare is to facilitate sharing of knowledge, where every employee is encouraged to write posts about solving their daily challenges and good ideas they come across. In order to prompt the participation on Faktashare, managers offered rewards for the employees with the best ideas. Another important aspect of Faktashare is the creation of informal dialogue between all levels of the organization in the hope of creating personal relationships between employees

and managers. The research shows, that there are approximately 1600 users of Faktashare and more than 150 unique daily visits. The users also created more than 120 personal groups.

Even though Faktashare was less than one year old when we received the report, it is obvious that Fakta has succeeded in the facilitation of knowledge sharing, and the existence of 120 groups shows that people are bonding and creating personal relationships with each other. In addition, competition and rewards for the best ideas, can help to create the environment, which can lead to achieving shared visions and goals between managers and employees.

7. THE CASE OF IBM AND IBM CONNECTIONS

International Business Machines Corporation (IBM) is an American multinational technology and consulting corporation from United States of America. It manufactures and markets computer hardware, middleware and software, and offers infrastructure, hosting and consulting services in areas ranging from mainframe computers to nanotechnology. In 2012, Fortune ranked IBM the second largest U.S. firm in terms of number of employees (435,000 worldwide), the fourth largest in terms of market capitalization, the ninth most profitable, and the nineteenth largest firm in terms of revenue. IBM Connections is a Web 2.0 enterprise social software application developed by IBM to provide online social networking tools for people associated with a company. It was first released in 2007 but it spurred in 2014. Žugaj (2016) states that in 2014. IBM launched an internal project “Knowledge management” in which they wanted to find the best way to generate, preserve and develop the company’s wisdom. It turned out that ESN IBM Connections was the best tool to achieve it. As he states, IBM Connections became mandatory environment for knowledge sharing between employees and teams. New processes and routines were established for better knowledge harvesting. Using IBM Connections also significantly reduced times (30-50%) to obtain needed information or documents (i.e. internal standards, recommendations, guidelines). It also significantly improved internal collaboration and networking (My Network), visibility of employee data (Profiles), and exchange and sharing of information and knowledge (tacit knowledge).

8. CONCLUSION

Distance is a deterrent factor when it comes to collaboration between people. Co-located colleagues are easier to trust and more trusted than distant colleagues. Trust is important because it can generate shared goals and shared understanding among people, and those can evolve into social capital. Social capital is important for organizations, as it has a positive impact and promotes better coordination between people. Multi-national organizations have a great need to improve the communication between distant colleagues in order to build social capital. One solution could be the implementation of an ESN. An ESN can be beneficial to the organization, because it enables the employees to become part of a community, gather and share knowledge, solve problems, and build personal relationships and trust. Knowledge exchange is very important, because without it, ESNs would have limited value.

There are several ways of building social capital on ESNs. First, people need to actively participate on the ESN, and it is crucial to reach critical mass. People engage in

active knowledge sharing behavior, when they know, that they will be rewarded for it (extrinsic motivation) and they see it as fun and rewarding (intrinsic motivation). Community designers should create activities, which will facilitate knowledge sharing behavior, like rewards for best ideas and most active members. Second, finding people that act like catalysts and building the community around them, could be vital for the success of the ESN. Third, it is important that people see themselves as part of the community. It is very important to let them build personal relationships by offering the possibility to build personal groups for people, who share common interests. That will also help to facilitate mutual trust between individuals. Building personal relationships is especially difficult when people cannot see each other. Offering them the opportunity to work together on projects and helping each other can make them aware, that others also share their visions and goals. Finally, if possible, people should meet with each other face-to-face to make them more comfortable with participating on the ESN. All these initiatives should help organizations create social capital on the ESNs.

The cases of Deloitte, Fakta and IBM showed us, that both companies from completely different sectors gained benefits from using ESNs. Yammer helped Deloitte to build social capital by enabling people to connect with each other, build personal relationships and trust. By being part of the community, people engaged in knowledge sharing activities and everyone involved benefitted from that. Fakta also succeeded in the facilitation of knowledge sharing practices and their monthly rewards for best ideas made people participate more actively. The employees were able to develop more personal relationships with each other, because Faktashare enabled them to create personal groups, where they connected with each other through mutual interests. IBM Connections proved to be a great tool for knowledge sharing between employees and teams.

Building social capital on an ESN is possible, but it requires effort from both sides. Setting up an ESN is not a simple, easy fix-it-all solution for improving the collaboration and communication within the organization. It is rather a potent tool, that with the right effort will enable the organization to build social capital.

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THE MANAGEMENT OF HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

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Abstract: The presence of significant quantities of waste from hygienic products in the environment has become a practice of modern society. Given the significant environmental effects caused by the use of hygienic supplies with the additional burden of the environment by this waste, it is a miracle that in the current literature and practice, little attention was paid to waste from hygienic products. Therefore, this paper suggests the new procedures proper management of hygiene and cleaning products packaging waste, as well as the methods used in solid waste management. In this paper can be determined by appropriate management of this waste, which is based on a model of the management of solid hygiene and cleaning products packaging waste. The correct management of hygiene and cleaning products packaging waste, fasts are known ecological, economic and social effects in terms of sustainable management of this type of waste.

Keywords: hygiene and cleaning products packaging waste, waste management, model of the management of solid hygiene and cleaning products packaging waste

1. INTRODUCTION

World production of various hygiene and cleaning products is estimated at several hundred million tons per year and is a significant component of the international economy. Today, this means bring many benefits to society and are a vital element of human development. Increased use of hygienic facilities in most of the developed society, had resulted, generating increasing amounts of waste from hygiene items generated daily and permanent impact on the environment and human health, while causing significant economic effects.

The negative impact on the environment is evident in the result of which is manifested in the global and local levels, starting from climate change to the degradation of nature and pollution of drinking water. There are also problems related to waste water, solid waste and gases, vapors and fumes of the components that make up the waste hygiene items. Negative environmental consequences of this waste are reflected through the process of anthropogenic eutrophication, increased consumption of water and energy and the creation of large quantities of packaging waste hygiene items [1].

Given the fact that the composition of hygiene items can be found substances which possess certain toxicological and ecotoxicological properties, it can occur and negative effects on the population. The direct impact of hygiene items to people's health is the result of handling operations with hygiene items in their production, and their use in the process of washing, cleaning and other aspects of hygiene. The indirect impact of hygiene items to

people's health is reflected in the reverse impact of polluted environment of hygiene items, such as for example the use of drinking water from eutrofical authorities.

Throughout the world a growing commitment to economic problems on the one hand, the protection of human health and the environment on the other hand, the catalyst is significant activities related to waste hygiene items, which will be presented in the sequel. Intentionally or accidentally, national and global impact of waste from hygiene items to the environment and human health, and economic effects caused by these influences, so far not been fully assessed. Although knowledge about the waste of hygiene items, are increasingly attracting the attention of the public, regulatory bodies and international scientific community[3].

2. HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

Production of hygienic products resulting by hygiene products, which are as consumer goods in shops and wholesale trade, where it is their traffic. Thereafter, hygiene products are distributed to end-users or consumers, whether they are legal or natural persons who are using hygienic products for different purposes. After previous methods leads to the generation of waste from hygiene items, as shown in Figure 1 [2].

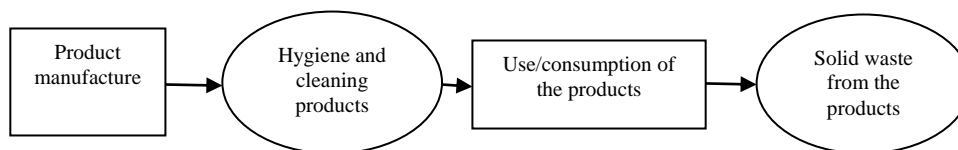


Figure 1. Generation of hygiene and cleaning products packaging waste

After completing function is expended, the expiration date, or due to wear and tear, hygienic products become waste. Once discarded, these substances become waste, that is no longer under the direct control of the user, which may represent a risk to the environment, population and economy [3].

Waste from hygiene items, makes the packaging in which they were packaged hygiene and chemicals that remain in it. This waste contains more or less the amount of chemical substances, in solid (powder, soap, contact, etc.), liquid (water softener, bath, shampoo, etc.) and gaseous (aerosol, deodorants, air fresheners, vapor in waste due to high temperature, etc.)(5].

2.1. ENVIRONMENTAL RISK FROM HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

Waste from hygiene items, can lead to severe forms of environmental degradation, poor health of the population, and even fatal outcome. Soil pollution can endanger people who live in the area, plants whose roots in it, as well as to animals whose habitat. The air becomes contaminated with direct emissions of chemicals from waste. Pollution of surface water and groundwater, is the biggest environmental risk waste hygiene items, as it can in a short time to destroy wildlife, and to endanger the health and life of humans [2].

As a result of the use of hygienic facilities, there are waste water rich in phosphates and nitrates. Because precipitation comes to leaching of chemicals from waste. Phosphates and nitrates in high concentrations can cause accelerated growth of algae in rivers or lakes. Under the influence of sunlight, algae produce oxygen, which due to accelerated growth (eutrophication) begin to consume even in the absence of light or during decomposition. Lack of oxygen suffocating aquatic life forms poisoned with toxins from algae, which can destroy life in rivers and lakes. Eutrophication is a contaminant of drinking water used by humans and domestic animals. It is believed that about 50% of cyanobacteria, challenger flowering water has the ability of toxin⁷⁴ production (cyanotoxin) that can be dangerous in small concentrations[1].

2.2. ECONOMIC RISK OF HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

Waste from hygiene items, initially required a certain economic assets that support the management of this type of waste, and to the costs of collection, transport, storage and treatment of this type of waste. In modern economies, packaging waste of hygiene items is treated as a potential resource, that is a raw material that has a certain value, which is constantly increasing. Seeing the value of packaging waste from the sanitary portfolio consists in determining its actual and hidden values [6].

The actual value of packaging waste of hygiene items is one that is recognized as a product of the amount of packaging waste, certain types of hygiene items and average prices of the material from which the packaging is made. Concealed value of packaging waste from the sanitary resources is expressed as the sum of the costs of inadequate management of this type of waste, that is due to his improper disposal costs of treating sick workers and the population and the cost of absence from work ill and injured workers (compensation of earnings, unrealized production, etc.).

Based on the comparison of the actual values with the amount of the negative economic consequences that have arisen as a result of inadequate management of this type of packaging waste, a decision is made as to whether the packaging waste hygiene items cause positive or negative economic effects. If the obtained amount of actual and hidden values greater than the costs incurred as a result of inadequate management of packaging waste, paying taxes, remediation and restoration of damage resulting from the generation of waste, we can talk about the positive effects otherwise occur negative effects⁷⁵.

3. CIRCULAR ECONOMY WITH HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

The materials, which are composed of waste from sanitary means, usually derived from its packaging, and have the most important role in reviewing the economic effects of this

⁷⁴ Some groups of cyanotoxin has classified the potential carcinogen for humans of the International Agency for Research on Cancer (IARC).

⁷⁵ European Commission estimates that the damage to human health or the missed profit was caused by waste from the sanitary resources is 157 billion euros per year, which is 1.2% of EU GDP.

type of waste. The economic value of this waste is closely linked with the increase of material flows in it, because the economic value is realized by increasing the transformation of materials. In modern urban environments, using large amounts of raw materials, which provide utility-hygienic living conditions and a housing that make the “urban metabolism” or “metabolism of cities” [8]. Abel Volman⁷⁶ has formed a concept of urban metabolism or metabolism of cities, using data on consumption and production of goods. Determine the input and output streams per capita, an imaginary American city of one million inhabitants, so that large amounts of waste generated in the city connected with the input streams [8].

Applying this concept to a waste of hygiene items to the calculation of the value of this waste on the market of secondary raw materials, can form an adequate model for the waste management of hygiene items that fits into both aspects of the circular economy, economically and ecologically. In this way there is a connection between the products after treatment and return of waste materials in the production flow, ie the transition from the concept of massive use and the rejection of the concept of returning to the use of.

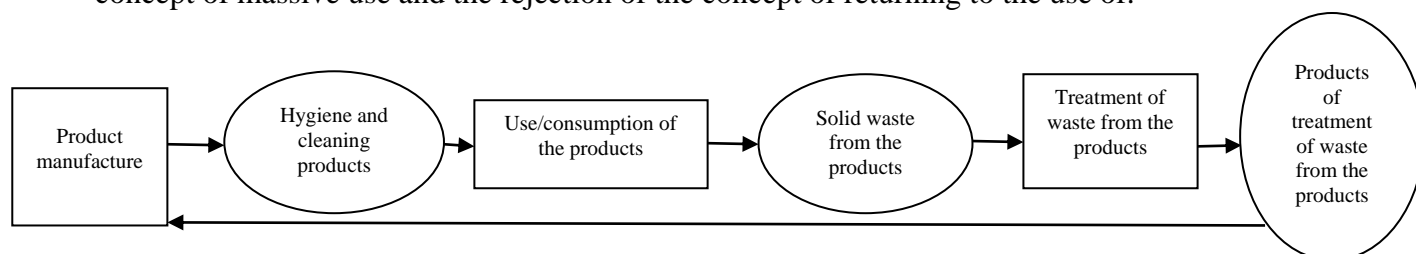


Figure 2. Returning materials from waste in production flow

3.1. ANALYSIS OF THE COMPOSITION HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

Composition of solid waste from hygiene and cleaning products obtained using indirect methods of analysis products after the primary packaging material recycling. Disposal of hygiene items from 600 households was collected over a period of one month. Then it is a waste of hygiene items brought to the recycling center "Mediana" Niš, with specialized vehicles - trucks, three wheelers that this company used to collect packaging waste. Households wishing to cooperate had a separating the waste that comes from the hygiene by all members of the household in plastic bags at an interval of one month. The values obtained on packaging waste from hygiene items, refer to:

- type of packaging depending on the material it is made of and
- weight of packaging.

⁷⁶ Abel Volman (10 June 1892 - 22 February 1989, Baltimore, Maryland) was an American scientist, professor and pioneer of modern sanitary engineering. The father of the term "metabolism of cities" or "urban metabolism" in 1965.

Table 1. Mass and volume of packaging according to the type of material in hygiene and cleaning products waste collected from 600 households [5]

Number	PACKAGING MATERIAL	MASS	
		[kg]	%
1.	Plastic	158.71	46
2.	Glass	118.72	34
3.	Aluminium	42.16	12
4.	Paper and cardboard	28.93	8
	TOTAL	348.52	100

Based on the results, it was concluded that the maximum mass occupies plastic packaging, with a share of 46%, followed by: glass packaging with a share of 34% of aluminum packaging with a share of 12% of waste containers of paper and board with a minimum accounting for 8% of the total weight of packaging waste.

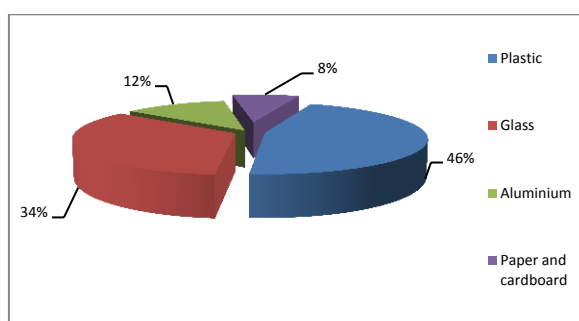


Chart 1. Proportional participation of waste mass of hygienic products according to the type of material it is made of [5]

4. SUSTAINABLE MANAGEMENT OF HYGIENE AND CLEANING PRODUCTS PACKAGING WASTE

Waste Management of hygiene items, the use of positive and minimize negative factors of hygienic waste of resources [4]. Waste from hygiene items, many characteristics, starting from the occurrence of the heterogeneity of waste, over different requirements in terms of transport, storage and treatment until final disposal. In current practice, and good reference, it outlines the waste hygiene items as a separate category, although there are elements of this approach. The contribution given in this part of the paper presented a model of solid waste management from hygiene items. In Serbia, the implementation of such a model has to represent a process that requires certain investments, qualified personal and public participation [7].

The advantages of this model are reflected in opening opportunities for new jobs, especially educated engineers for waste management, stopping the current trend of "brain drain" from the Republic of Serbia, as well as in the creation of certain material values. In this way exhibit the effects of which are in accordance with the principles of circular economy,

sustainable development and environmental protection, launching Serbia into the ranks of developed European countries when managing this type of waste in question. The objectives of solid waste management model of hygienic facilities are [3]:

- Reduction of waste of hygiene items;
- Reduced the amount of waste from hygiene items that are disposed of in landfills;
- encouragement of primary waste selection of hygiene items;
- reducing the negative impact of sanitary waste of resources on the environment and human health;
- use of sanitary waste of resources according to the principles of the hierarchy of waste management;
- energy recovery from waste hygiene items;
- cost-effective and sustainable waste management of hygiene items.

Model of Solid Waste Management from hygiene items must be accompanied by parallel construction of the infrastructure for the management of hazardous wastes. The infrastructure consists of a regional center for waste selection, transfer stations, plant for the utilization of the positive properties of waste and the building of regional centers for waste separation, which are equipped with recycling plants, within which there is a sanitary landfill. A special infrastructure is needed when it comes to hazardous waste in regions where they will be equipped with facilities for physical-chemical treatment of waste or incineration with specially constructed landfill for hazardous waste. Also, it is necessary to obtain adequate means of transport and specialized vehicles for the collection and transportation of waste from the sanitary resources [5].

4.1. MODEL OF SOLID WASTE MANAGEMENT FROM HYGIENE ITEMS

Figure 3, shown in solid waste management of hygienic means of production, transport, primary selection, through selection in a regional center for waste selection, further separation into transfer stations inert, non-hazardous and hazardous waste, utilization of the positive properties of inert and non-hazardous waste before and after treatment, the export of hazardous waste, the treatment of inert and non-hazardous waste in the Regional center for waste separation methods of recycling and composting through to final disposal in a landfill.

In parallel with that carried out the physical-chemical treatment of hazardous waste and incineration of hazardous waste to final disposal of hazardous waste in the landfill of hazardous waste while leaving options for recycling or utilization of the positive characteristics of hazardous waste after treatment [8]. The process of primary waste selection, today is a matter of culture and hygiene of housing. It is necessary that this waste is separated in special containers or bags for hygienic waste of resources [3]. The best recommendation is that waste hygiene items allocates another selective, ie according to the material it is made [4].

If it is impossible to separate special waste hygiene items to the packaging is sufficient to separate it in special containers or bags. So separate waste transported by specialized vehicles of this type of waste to the Regional Centre for the separation of waste, where the waste section of hygiene items still on separated and transported to the transfer station for

inert, non-hazardous and hazardous waste. From the transfer station waste hygiene items can be sent to a plant for utilization of the positive properties of the waste where it is used for reuse, energy recovery and the like.

Also, the waste of hygiene items can be sent to the regional center for waste separation, recycling where it should be, while the part of recyclable waste is disposed of at a regional landfill. Of course, after recycling the waste can be sent to a plant for utilization of the positive properties of waste which is conducted further processing. From the transfer station for hazardous waste that part of the waste for which there is no solution in the Republic of Serbia, is exported to the adequate care, while the remaining waste is transported in the physical-chemical treatment or to the incinerator for hazardous waste incineration and eventually disposed of in hazardous waste landfill. After treatment certain types of waste can be recycled or further consider the possibility of utilization in existing plants and installations (cement plants, thermal power plants, heating plants, steel mills, etc.). [4].

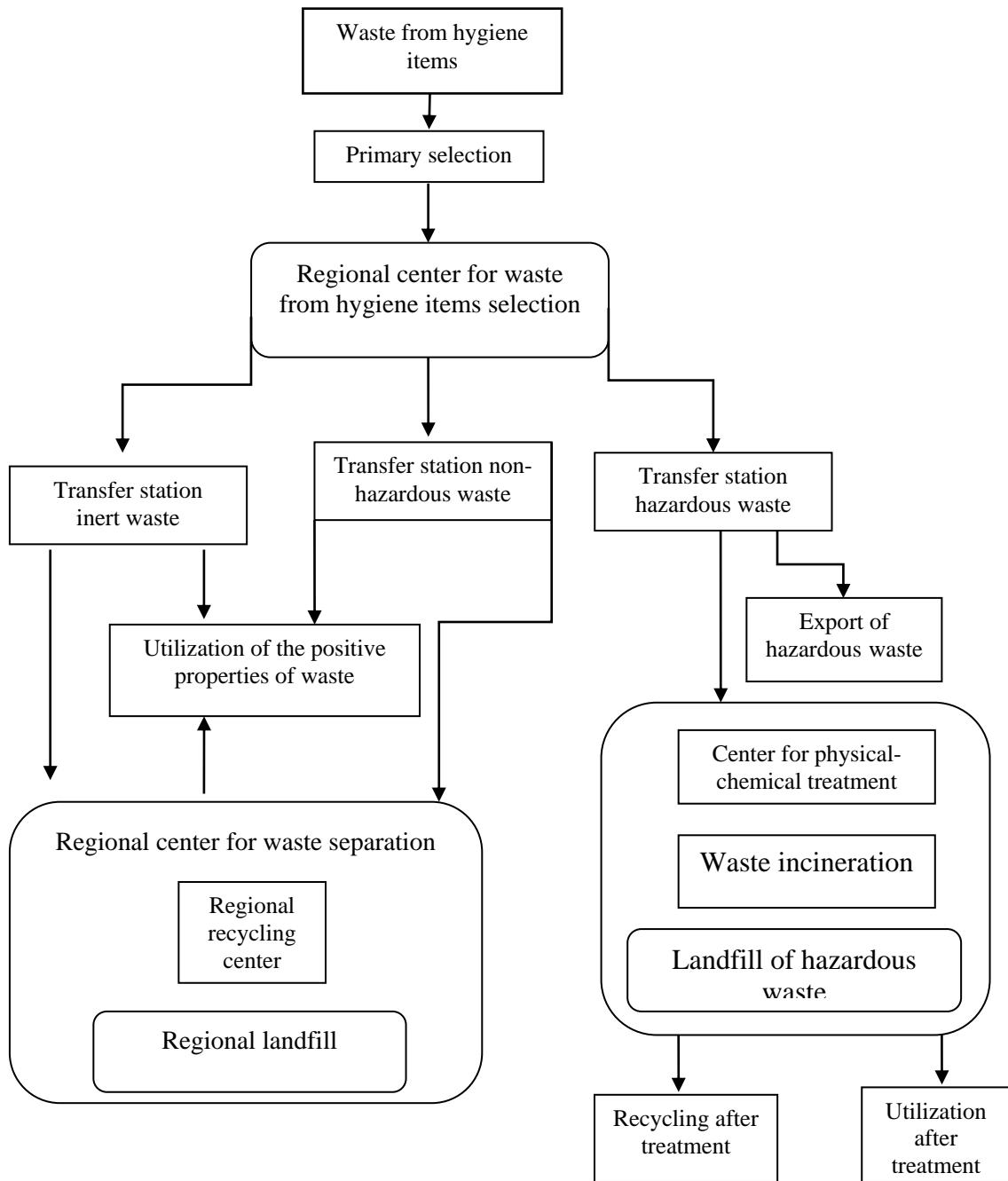


Figure 3. Model of solid waste management from hygiene items

5. CONCLUSION

Previously reported that inadequate treatment of waste hygiene items, may cause significant adverse effects that are manifested on health and the environment, creating a significant economic impact. Given the significant amount of waste, the content of hazardous components, as well as its value it is necessary to separate this waste as a separate category. It should take into account that the waste management of hygiene items is based on the

principles of circular economy and sustainable waste management. So it comes to meeting the requirements of environmental protection, public satisfaction and economic sustainability which ultimately is the essence of sustainable waste management of hygienic facilities in the function of the circular economy.

Waste Management of hygiene items, means that the largest amount of this type of waste is collected, transported, processed and finally returned to the production flow, while energy and material unusable waste is disposed of in a safe, efficient and cost-effective manner. To achieve this, it is necessary to carry out certain investments in [5]:

- Tools and equipment for the collection and transportation of waste,
- Funding and equipment for waste treatment,
- The construction of sanitary landfills for the disposal of such waste,
- Working strength and
- Tools and equipment to protect labor and the environment.

The existence of a model for management of this waste in Serbia, can be made from waste materials restoring the production and usage trends. The move from the concept of the use of i reject the concept of applying the circular economy in Serbia leads to savings in energy and resources, job creation and the creation of material goods. There are around and sees a chance for the implementation of the circular economy in Serbia, initiating production, economic activities and population satisfaction with the economic and environmental benefits.

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ECOTOURISM AS A STRATEGIC COMMITMENT TO SUSTAINABLE DEVELOPMENT OF THE NATIONAL PARK DJERDAP

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Abstract: This paper presents the results of SWOT analysis of the National Park Djerdap (Serbia), with aim to determine the current status of the ecosystem services as well as to define the potential for further development of ecotourism in this region. In order to determine the SWOT analysis, the data was collected during brainstorming sessions with main stakeholders, also the public documentation and database were analyzed regarding to this study topic. Furthermore, this study introduces model for generating development strategies of the National Park Djerdap, where the priority has been given to threats (T) and opportunities (O) (factors of the future), as well as to the strengths (S) and weaknesses (W) (factors of the past). By defining the appropriate strategies for the development of ecotourism in case of National Park Djerdap, it will be possible to gain a harmony between the resources exploitation, investments and institutional changes, on one side, and the current and future needs of environmental protection and development of the local communities in this region, on the other side.

Keywords: Ecotourism, sustainable development, SWOT analysis, TOWS matrix

IDENTIFICATION OF THE ENVIRONMENTAL RISKS ON THE EXAMPLE OF THE LOCAL COMMUNITY

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Abstract: The article presents the results of the study considering the identification of environmental risks in the chosen Polish local community. There was applied a method of direct interview addressed to the representatives of the various Polish villages. The identification of environmental risks was identified by the local community perception evaluation. The article presents an analysis of the activities of the local government in the field of environmental protection.

Keywords: local community, quality, environmental risk

1. INTRODUCTION

Contemporary environmental protection is a rapidly developing interdisciplinary science. The basic responsibility of the state (including local government) should be the protection and development of the environment including a rational use of natural resources, protection of special environmental values and environmental protection of human life from stress. The municipality as the basic unit of the local government must carry out the tasks related to the broadly understood the environmental protection. Typically, the municipality focuses on the following activities [1,2]:

- the environment protection in the form of local acts involving the implementation of the bans and warrants concerning the development and use of the space and natural resources and building a municipal sanitary,
- the development and implementation of individual ecological development programs,
- the implementation of environmental management municipality.

The problem of municipalities in the framework of the environmental protection concerns a very small competences to take decisions in the field of environmental activities. Municipal authorities have almost no rights for the protection of the water and the air pollution. In the case of the enterprise negative impacts on the environment, the municipality cannot suspend such activities. Competences of municipalities are limited to a local zoning plan, a protection of greenery and some issues of the protection of agricultural and forest species. Municipal authorities have competences of intervention to machines and technical equipment users that are harmful to the environment [3].

In rural areas, there are many functions to use the space. These functions co-create the diversity of use of these areas. The dominant role in the use structure is played by agriculture land, followed by forests, water, land transport, residential areas, utilities and fossil wasteland

[4]. There are some interactions that occur between ways of the mentioned areas use, which may affect the natural environment. It concerns in particular the impact on the environment, landscape and cultural assets.

2. THREATS OCCURRING IN AREAS OF RĘDZINY MUNICIPALITY

Threats according to the sources of their formation can be divided into: natural, social, technical and military. Natural risks are primarily: floods, fires, winds, earthquakes, avalanches, landslides, rain and a social pathology and mental disorders. Technical risks concern extraordinary environmental threats like: natural disasters, communication disasters, technology disasters, construction disasters, utilities disasters (concerning: an energy, a water, a heating, a gas, a telecommunications) and the military disasters. All the above types of threats can occur in areas of municipalities in a greater or lesser degree depending on their location.

The authors of the paper have been focused on the following categories of impacts of the following fields: an agriculture, a water management, an industrial activities and services, a transportation, a construction, a tourism and a recreation and other related mainly to the weather anomalies. Special attention was paid to the similarities and differences in the perception of threats by the municipal authorities and the local community. The study was conducted in the municipality of Rędziny (Silesian province).

2.1. THREATS IMPACT FROM THE AGRICULTURE

Abandonment of the agricultural use farmland, grasslands and pastures which as a consequence cause: decreasing of the surface of open ecosystems and regression typical species and habitats, an isolation of habitats and populations of animals living in the wild due to interruption of ecological networks. Burning of meadows, stubble and fallow causes a soil degradation, the depletion of a flora and a fauna, both living organisms on the surface and in the subsurface layer of soil. Burning of meadows can lead to serious fires.

2.2. THREATS IMPACT FROM THE WATER ECONOMY

Drainage dehydrating and the lack of the water facilities maintenance and operation cause the disappearance of the ponds, bogs, a wet meadows and in extreme cases it cause a complete disappearance of water bodies and water deficit areas adjacent to dehydrating fields, especially when insufficient rainfall. In the municipality there are closed excavations that adversely affect the level of groundwater intensifying shortage of water in the surrounding area.

2.3. THREATS IMPACT FROM THE INDUSTRIAL ACTIVITIES AND SERVICES

The industrial activities mainly causes an air pollution coming from the gas and dust emissions to the atmosphere and the discharge of wastewater, the waste disposal and the

noise, change in the structure of ecosystems as a result of changes in pH habitat and the emergence of specific pollutants [5]. In the municipality there are two large cement plants and Chemical Plant Rudniki. Both plants in different ways affect negatively on the environment and human habitat. A big threat is stored production waste in the form of the chromate.

Exploitation of minerals limestone and the sand and the gravel from the accompanying illegal dumping of the waste and pouring sewage into the pits, causing degradation of the following environmental elements: geomorphologic forms created with the sand and the gravel, landscape degradation as a result of the creation of dumps and pits, changes in habitat conditions, a degradation of plant communities on the sand as a result of mechanical destruction by vehicles exporting limestone and the gravel and the sand. There is also noted the construction of overhead transmission lines and creating a barrier to the migration of animals that causes the magnetic radiation.

2.4. THREATS IMPACT FROM THE TRANSPORTATION

The main threat to the air and environment pollution (gas emission) are noted along the roads and in the parking facilities. The emergence of additional sources of the noise, the vibration and the soil quality decreasing in the area of the road are another threats that come from the transportation. In the municipality Rędziny, presented problem can progress because of the plans for the reconstruction of the national road A1 and its change into toll motorway which can lead ultimately to increase the volume of the traffic on the national road No 91 which runs by the municipality Rędziny.

2.5. THREATS IMPACT FROM THE CONSTRUCTION

Increasing of the built-up areas decreases the surface of the biologically active area, the habitat conditions changes and as a result it causes the transformation of ecosystems and the depletion of their species composition, a ecosystems fragmentation, hindering the spread of the species as a result of creating new ecological barriers and creating conditions for the spread of alien species.

2.6. THREATS IMPACT FROM THE TOURSIM AND RECREATION

In the part of the Rędziny municipality called Rudniki, the Questing project was launched. The Questing is a method that in a fun, interesting way helps to discover the natural and historic site of the concerned area. The method involves the creation of so-called quests that explore other routes than traditional educational paths. The route runs through the area of the former pit limestone in Rudniki, where is located, among others, a football and a track cycling. Negative impact due to the tourism and the recreation concern: a disturbance of animals, the waste pollution, a surface erosion, a trampling, destroying the fleece through penetration, destruction of bryophytes, increased fire risk and excessive noise, especially during sporting events (football matches).

3. RESEARCH FINDINGS AND DISCUSSION

The method of direct interview was used in the presented research study. This method involves information obtaining from the respondents through its direct contact with the researcher or an interviewer. Direct contact had a form of a personal contact – a personal interview. In the case of respondent's absence, a telephone interview was applied [6] The study indicated 35 people from different villages of the municipality Rędziny.

As a result of the conducted study that have been compared with previously identified threats in the community Rędziny, it can be concluded that in the opinion of the local community all identified hazards are not well known and relevant. Analysis of the current environmental status of municipality environment shown that the priority in the field of environmental protection is the air quality improvement. However, in addition to the known threats in the form of large industrial facilities, 57% of respondents pointed to the problem of the air pollution occurring during the heating season which comes from domestic furnaces and boiler room. It concerns mainly exceeding the concentration of pollutants in the form of the airborne particulate matter (PM10).

Especially dangerous to the human health is the burning of plastic waste e.g. PET bottles, plastic bags, waste rubber or painted materials. As a result of the combustion of this waste type there is noted a carcinogenic dioxins emission, whose toxic effects on the human health can be revealed only after decades, e.g. in the form of cancer. According to the report of the European Commission, every year diseases resulted in the poor condition of the air cause death of 28 thousand Poles. During waste incineration in furnaces households there is emitted over 700 times more dioxins than the combustion of the professional waste incineration. The problem of the pollution from domestic boiler has not been identified at the commune level. It clearly indicates the growth of knowledge in this regard by the local community.

The second threat indicated by 37% of respondents concerns the waste water in particular its illegal dump. However, the contamination of soil and groundwater pollution is not a problem in the opinion of the inhabitants, but odour from emptying tanks.

A major threat in the villages where there are meadows cultivation is illegal burning of grass, which significantly affects the level of fire danger (70% of respondents).

Recently identified threat (37%) indicated the risks associated with the possibility of increasing traffic on the national road 91. In the main criterion hazards in the opinion of the residents is the noise and difficulties in local communications.

A major threat in the villages, where are meadows cultivation, is an illegal burning of the grass that significantly affects the level of fire danger (the opinion of 70% respondents). Recently identified threat (by 37% of respondents) indicated the risks associated with the possibility of increasing traffic on the national road No 91. In the main hazards criterion in the opinion of the residents is the noise and difficulties in local communications.

4. CONCLUSION

The state of the natural environment undergoes constantly unfavourable as well as favourable changes. In the case of municipalities Rędziny the favourable change is the post-mining land reclamation and the construction of the sewage system. However, there is a great

number of threats that cause an increase in the water, air and soil pollution. These phenomena affect the health of all organisms. Improper urbanization, industrial development and inadequate location of plants constitute a huge threat for the environment. As it was indicated by research findings, it is often identified threat at the municipal level that may not coincide with the risks identified by the local community.

A significant threat in the analyzed community is a pollution that comes from domestic heating systems. A large part of households using coal stoves which burn coal with a high degree of sulphating and other products that are not intended for combustion in boilers. Specific identification of issues relating to the environment and the resulting variety of threats is necessary to precisely determine tasks, demands, desiderata and recommendations for the purpose of construction of local environmental programs. This way of analytical approaches may ultimately lead to the improvement and efficiency of the natural environment and indirectly to the local residents life quality improvement.

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QUALITY MANAGEMENT IN THE WASTEWATER TREATMENT PLANT

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Abstract: The quality management system importance and its elements in the chosen Polish enterprise were identified and analyzed in the paper. Authors stated in the paper, that service quality ensuring in the wastewater treatment plant is best accomplished by enterprise' integration according to the Quality Management System compliant with ISO 9001 and Environmental Management System compliant with ISO 14001. Systems integration and its appropriate operating is ensured by human resources of the enterprises. The authors presents research results of the workers opinion on the enterprises development concept in the context of the systems that integrate enterprises in accordance to quality and environmental standards.

Keywords: quality, wastewater plant, Toyota principles, BOST

UTILIZATION OF CONTROL CHARTS AND SWQI FOR THE VISUALIZATION OF VARIATION IN WATER QUALITY

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Abstract: The assessment and the analysis of the surface water quality is a very complex processes. Therefore, numerous methods for classification, modeling and interpretation of monitoring data sets have been developed. One of them is the index method for water quality evaluation, which provides a comprehensive overview of surface water quality, expressed with a number. Water quality monitoring and control is required for implementation of efficient management. The visualization enables simpler insight into the temporal and spatial water quality changes, not only to the decision-makers, but also to scientific and general public.

The aim of this paper is to examine the possibility of integration of the univariate Shewhart control charts technique and the SWQI (Serbian Water Quality Index). The objectives are reflected through the identification of periods and locations with low water quality and detailed analysis of temporal and spatial changes. The data set, used in this study, is consisted from the annual values of water quality indices for South Morava river, in the period of 2005 to 2012. Water quality changes are presented by the variations of mean and standard deviation values of the SWQI.

Keywords: water quality changes, SWQI, control chart, South Morava river, visualization

Apstrakt: Određivanje i analiza kvaliteta vode predstavlja veoma složen proces. Stoga su razvijene brojne metode za klasifikaciju, modelovanje i interpretaciju skupa podataka dobijenih monitoringom. Jedna od njih je indeksna metoda određivanja kvaliteta vode koja, kroz numerički izraz, omogućuje sveobuhvatni prikaz stanja kvaliteta površinskih voda. Kontrola kvaliteta vode je neophodna radi uspostavljanja efikasnog menadžmenta. Vizuelizacija promena kvaliteta vode u funkciji prostora i vremena predstavlja jednostavan način kojim se pomenuta kretanja mogu približiti ne samo donosiocima odluka, već i naučnoj i široj javnosti.

U ovom radu se, na primeru toka Južne Morave, ispituje mogućnost integrisanja tehnike Šuhartovih kontrolnih karata i SWQI (Serbian Water Quality Index-a). Postavljeni ciljevi se ogledaju u identifikaciji perioda i lokacija sa niskim kvalitetom vode i detaljnijoj i preglednijoj analizi promena. U razmatranje su uzeti podaci o kvalitetu vode za period od 2005 – 2012. godine. Promene su prikazane kroz srednje godišnje vrednosti indeksa kvaliteta i vrednosti standardne devijacije, odnosno stepena variranja istog.

Ključne reči: promene kvaliteta vode, SWQI, kontrolne karte, Južna Morava, vizuelizacija

1. UVOD⁷⁷

Zahvaljujući svojoj dinamičnosti i mogućnosti za jednostavno odlaganje otpada, rečni sistemi se smatraju najugroženijim oblikom površinskih voda. S obzirom na to da predstavljaju najznačajniji kopneni vodni resurs, prevencija i kontrola zagađenosti reka i obezbeđivanje pouzdanih informacija o kvalitetu voda predstavljaju imperativ uspostavljanju efikasnog menadžmenta. Očuvanje i unapređenje kvaliteta voda rečnih sistema jedan od najvažnijih zadataka savremenog doba.

Monitoring kvaliteta je osnova integrisanog upravljanja vodama. Najvažniji ciljevi monitoringa svode se na interpretaciju i prezentovanje podataka, kao i predikciju dešavanja. Dobro isplaniran i sproveden sistem monitoringa je potreban radi signaliziranja, kontrole ili predviđanja promena i trendova kretanja kvaliteta određenih vodnih tela. Na osnovu toga, mogu se preduzeti preventivne mere u cilju ponovnog uspostavljanja i održavanja balansa ovih ekosistema. U mnogim zemljama uspostavljeni su sistemi redovnog monitoringa, koji omogućavaju dobijanje mnoštva analitičkih podataka dostupnih različitim korisnicima. Kao rezultat dugoročnog praćenja kvaliteta voda na velikom broju mernih mesta, dobijaju se obimni i nerazumljivi setovi podataka sačinjeni od različitih pokazatelja kvaliteta vode, koje je teško predstaviti u izvornom obliku i iz njih izvući jasne zaključke [1-5].

Tradicionalni izveštaji o stanju kvaliteta voda različitih vodnih resursa su zastareli i odnose se pretežno na tehničku i detaljnu interpretaciju pojedinačnih parametara, čime izostaje sveobuhvatna ocena stepena zagađenosti. U cilju prevazilaženja ovih problema i uspostavljanja kvalitetnog i efikasnog sistema monitoringa, a radi kreiranja uspešnog upravljanja vodnim telima, nametnula se potreba za primenom različitih alata i tehnika. Na ovaj način se mogu se redukovati kompleksni skupovi podataka koji nastaju višegodišnjim merenjima brojnih parametara na različitim mernim mestima. Dobijeni rezultati bi doprineli praćenju i blagovremenom prepoznavanju potencijalnih pretnji i, u skladu sa tim, preduzimanju adekvatnih mera zaštite vodnih resursa. Zbog značaja odluka koje se moraju doneti kako bi se zagađenje voda smanjilo i kontrolisalo, potrebno je eliminisati svaku nedoumicu.

Jednostavan vizuelni prikaz prostornih i vremenskih trendova kvaliteta pruža mogućnost lakše interpretacije i analize promena. U ovom radu, ispitana je i korisnost tehnike kontrolnih karata u te svrhe. U cilju prepoznavanja i identifikovanja lokacije i perioda monitoringa u kojima je kvalitet vode rečnog sistema Morava ispod poželjnog nivoa, primenjena je metodologija integralnog korišćenja indeksne metode određivanja kvaliteta voda i kontrolnih karata. Takođe, izvršena je i identifikacija lokacija i godine uzorkovanja sa najnižim, odnosno najvišim stepenom kvaliteta vode na primeru rečnog toka Velika Morava.

2. METODOLOGIJA

2.1. SKUP PODATAKA

⁷⁷ Pripremljeno u okviru projekta *Održivost identiteta Srba i nacionalnih manjina u pograničnim opštinama istočne i jugoistočne Srbije* (179013), koji se izvodi na Univerzitetu u Nišu – Mašinski fakultet, a finansira ga Ministarstvo za nauku i tehnološki razvoj RS.

Skup podataka, primenjen u realizaciji ciljeva istraživanja postavljenih u ovoj disertaciji, predstavlja deo baze podataka Republičkog hidrometeorološkog zavoda Srbije za period od 2005. do 2012. godine [6]. Za izračunavanje SWQI primenjen je on-line kalkulator sa sajta Agencije za zaštitu životne sredine RS [7]. Kalkulator funkcioniše tako što se u određena polja unose vrednosti parametara koji se razmatraju. Pri daljoj obradi dobijenih indeksa kvaliteta korišćen je softverski paket EXCEL 2007 koji svojim opcijama omogućuje realizaciju definisanih ciljeva istraživanja.

2.2. INDEKSNA METODA ODREĐIVANJA KVALITETA VODE

Standardne metode određivanja kvaliteta vode se baziraju na poređenju izmerenih vrednosti parametara sa utvrđenim graničnim vrednostima. Međutim, u cilju redukcije podataka i jednostavnije interpretacije statusa kvaliteta vode, razvijena je indeksna metoda. Indeks kvaliteta vode (*Water Quality Index - WQI*) je numerički parametar, koji se primenjuje radi transformisanja skupa velikog broja podataka u jedinstven broj, kojim je definisan stepen kvaliteta [8-9]. Jedinstvenost i složenost hemijskog sastava površinskih voda i pokazatelja kvaliteta (prikazuju uticaj različitih rastvorenih supstanci kao što su mineralne i organske komponente, gasovi, koloidi, suspendovane materije i mikroorganizmi prisutnih u vodi zahvaljujući prirodnim ili veštačkim procesima) naglašavaju značaj primene indeksnih metoda za određivanje kvaliteta vode identifikovanjem zajedničkih faktora, koji obuhvataju kvalitet vode u celini [10].

Postoje brojne metode izračunavanja indeksa kvaliteta površinskih voda prilagođene oblastima u kojima se monitoring vrši [11]. Unapređenjem i primenom ovog načina definisanja kvaliteta vode bavili su se brojni autori [12-18].

Agencija za zaštitu životne sredine Ministarstva životne sredine i prostornog planiranja razvila je indeks za određivanje kvaliteta vode – *Serbian Water Quality Index (SWQI)*. Primenom ovog indeksa, kao jednog od indikatora stanja životne sredine, olakšano je izveštavanje naučne i šire javnosti o kvalitetu voda. Dosadašnja istraživanja i objavljeni rezultati pokazuju da se primenom ove metode može dobiti sveobuhvatna predstava stanja kvaliteta površinskih voda sa analizom trenda [19-21].

Izračunavanje SWQI se zasniva na WQI metodi (Scottish Development Department, 1976). Deset parametara fizičko-hemijskog i mikrobiološkog kvaliteta (zasićenost kiseonikom, biološka potrošnja kiseonika, amonijum jon, pH vrednost, ukupni oksidi azota, ortofosfati, suspendovane materije, temperatura, elektroprovodljivost i koliformne bakterije) je ugrađeno u kompozitni indikator kvaliteta površinskih voda [22]. Svaki parametar ima vrednosti q_i (kvalitet parametra) i w_i (težinski koeficijent). Na osnovu različitog udela u ukupnom kvalitetu vode, parametrima se dodeljuje odgovarajući težinski koeficijent (w_i), pri čemu je zbir svih koeficijenata jednak broju 1. Zatim se izračunavaju proizvodi vrednosti q_i i w_i za svaki parametar pojedinačno.

Sumiranjem dobijenih proizvoda dobija se konačan indeks kvaliteta vode [21]. Postupak za izračunavanje SWQI predstavljen je sledećom formulom:

$$SWQI = \sum_{i=1}^n q_i w_i \quad (1)$$

Vode se, na osnovu dobijene vrednosti SWQI, prema nameni i stepenu kvaliteta mogu svrstati u jednu od pet kategorija prikazanih u Tabeli 1.

Tabela 1. Numerički i opisni indikator kvaliteta površinskih voda

Serbian Water Quality Index (SWQI)	
<i>Numerički indikator</i>	<i>Opisni indikator</i>
100 – 90	Odličan
84 – 89	Veoma dobar
72 – 83	Dobar
39 – 71	Loš
0 - 38	Veoma loš

2.3. TEHNIKA KONTROLNIH KARATA

U savremenom svetu, kontrola kvaliteta je nezaobilazna u industrijskim proizvodnim procesima. Kontrola kvaliteta procesa je metod kojim se sa pouzdanošću mogu prepoznati greške na proizvodu i, na osnovu toga, preduzeti aktivnosti u cilju njihove prevencije. Kontrolne karte se smatraju najreprezentativnijim alatom kontrole kvaliteta procesa. Rezultat njihove primene je, između ostalog, složeni grafički prikaz koji korisnici mogu konfigurisati uz minimalnu pomoć [22]. Tehnika kontrolnih karata predstavlja statističku kontrolu tekućih i završenih proizvodnih aktivnosti. Cilj je blagovremeno reagovati ukoliko se primeti kretanje procesa van propisanih kontrolnih granica. Statistička analiza uzoraka predstavlja osnovu za postavljanje upozoravajućih, graničnih vrednosti.

Međutim, poslednjih godina se tehnike kontrole kvaliteta sve češće primenjuju u drugim oblastima, naročito u oblasti zaštite i monitoringa životne sredine [23-27]. Statističke kontrolne karte su u literaturi predstavljene kao jednostavno i direktno sredstvo identifikovanja tačaka na kojima se javlja potreba za donošenjem odluka i preduzimanjem aktivnosti u oblasti ekološkog menadžmenta, uključujući i mogućnost intenzivnijeg monitoringa. S obzirom na to da na kvalitet različitih ekosistema, pored antropogenih, utiču i faktori prirodnog okruženja koji se ne mogu kontrolisati, kontrola kvaliteta u cilju zaštite životne sredine je složenija od njegove industrijske primene. Otklanjanju problema koji se mogu javiti pri korišćenju tehnika kontrole kvaliteta u ekološkom menadžmentu posvetili su se brojni autori [28-30]. Pri tome je istaknuta korisnost primene različitih kontrolnih karata i indeksa sposobnosti procesa u poboljšanju kvaliteta prirodnih resursa

Postoji mnogo vrsta kontrolnih karata, čiji izbor zavisi od strukture podataka i cilja istraživanja. U ovom istraživanju, na osnovu strukture podataka i veličine uzorka ($n > 10$), konstruisane su $\bar{X} - \sigma$ kontrolne karte koje služe za praćenje tehnološkog procesa putem aritmetičke sredine i standardne devijacije. Karte srednjih vrednosti imaju za cilj konstrukciju kritične oblasti testa značajnosti koji se odnosi na hipotezu o matematičkom očekivanju [31]. Kontrolne granice u slučaju ovih karata izračunavaju se na osnovu sledećih formula:

$$GKG(\bar{X}) = \bar{\bar{X}} + A_4(n) \cdot \sigma(n) \quad (2)$$

$$DKG(\bar{X}) = \bar{\bar{X}} - A_4(n) \cdot \sigma(n) \quad (3)$$

gde je sa $GKG(\bar{X})$ označena gornja kontrolna granica, a sa $DKG(\bar{X})$ donja kontrolna granica karte srednjih vrednosti.

Kako bi se prikazalo odstupanje od centralne vrednosti u slučaju $X - \sigma$ kontrolnih karata, kao mera rasipanja koristi se standardna devijacija. Kontrolne granice σ kontrolne karte određuju se formulama:

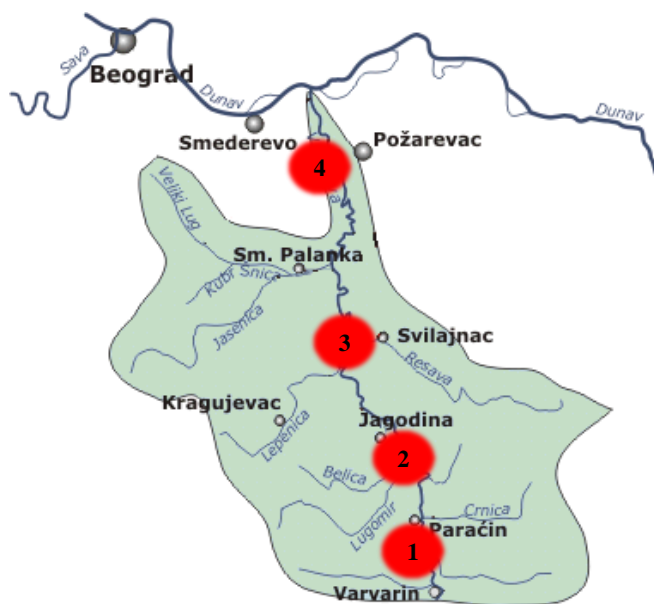
$$GKG(\bar{\sigma}) = D_4(n) \cdot \sigma(n) \quad (4)$$

$$DKG(\bar{\sigma}) = D_3(n) \cdot \sigma(n) \quad (5)$$

prilikom čega je $GKG(\bar{\sigma})$ gornja kontrolna granica, a $DKG(\bar{\sigma})$ donja kontrolna granica.

2.4. OBLAST ISTRAŽIVANJA

Oblast koja se razmatra u ovom istraživanju je rečni sistem Velike Morave (Slika 1). Ova reka nastaje spajanjem Južne i Zapadne Morave u blizini malog grada Stalaća. Njen tok dužine 185 km završava se ulivanjem u reku Dunav. Prosečna brzina protoka na ušću iznosi $255 \text{ m}^3/\text{s}$. Površina rečnog toka je $6.126 \text{ m}^3/\text{s}$, a smatra se tipičnim primerom meandrirajuće reke. Najduža pritoka Velike Morave je reka Jasenica dužine 79 km, dok su ostale uglavnom ispod 50 km dužine. Dolinu Velike Morave odlikuje snežno-kišni režim. Zahvaljujući otapanju snega i jesenjim kišama, u prolećnom periodu reka obiluje vodom. Stoga su prisutne ekstremne oscilacije režima toka.



Slika 1. Sliv Velike Morave sa mernim mestima

Na obalama ove reke, usled povećanog rizika od poplava, smešteno je samo jedno urbano naselje – Čuprija. Međutim, slivu gravitira veliki broj naseljenih mesta. Oblast oko Velike Morave karakteriše gusta naseljenost, razvijena industrijska i poljoprivredna delatnost. Otuda, zagađene pritoke V. Morave (Crnica, Lepenica, Resava, Jasenica) značajno narušavaju kvalitet vode ovog toka. Najzagađenijom pritokom smatra se reka Lepenica, čija se voda može svrstati u kvalitet IV klase [32]. Prema novijim istraživanjima Velika Morava ima tendenciju pogoršanja kvaliteta voda [32].

Na Slici 1 prikazane su merne stanice locirane na glavnom toku Velike Morave:

1. Varvarin – 237,2 km (ulazni profil);
2. Bagrdan – 154,1 km;
3. Trnovče – 72,2 km i
4. Ljubičevski most – 21,7 km (Slika 1).

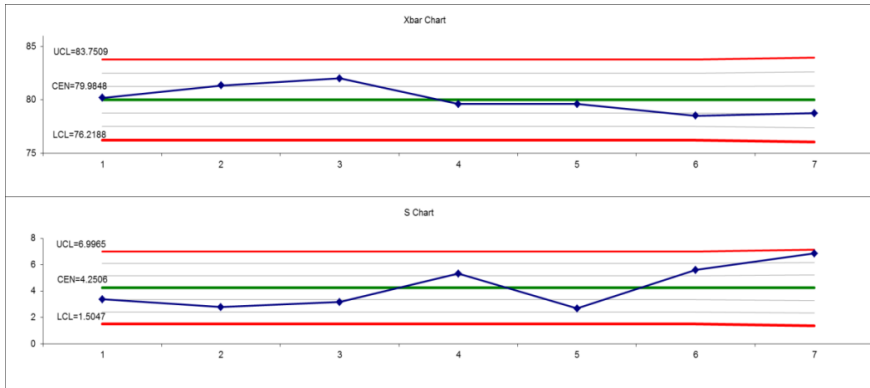
3. REZULTATI I DISKUSIJA

U narednom delu je ispitivana mogućnost primene kontrolnih karata u identifikaciji vremenskog perioda i lokacije gde je došlo do opadanja kvaliteta vode, ali i pružanju jednostavnijeg vizuelnog prikaza varijacije kvaliteta vode u funkciji SWQI indeksa. Kvalitet vode na svakom mernom mestu, prikazan je na godišnjem nivou $\bar{X} - \sigma$ kartama. Na x-osi su brojevima od 1 – 8 predstavljene godine monitoringa (2005 – 2012.), dok su na y-osi zabeležene vrednosti SWQI.

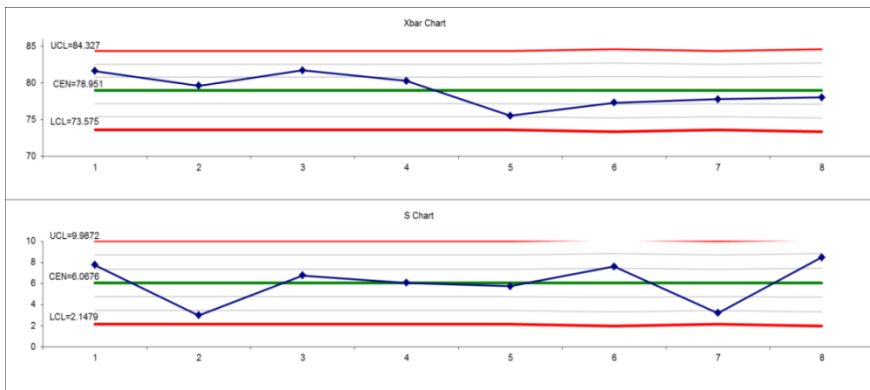
Na žalost struktura podataka ne dozvoljava detaljnu analizu kontrolnih karata u cilju utvrđivanja stabilnosti ovog ekološkog procesa monitoringa kvaliteta vode, s obzirom na nepotvrđen preduslov o normalnost ispitivanog skupa podataka, kao i o malom broju serija podataka na svakoj od konstruisanih karata (predstavljenih u vidu tačaka), što onemogućava analizu rasporeda tačaka na kontrolnoj karti u cilju utvrđivanja pojave pripisivih izvora varijacija.

Vizuelni pregled srednjih vrednosti SWQI na V. Moravi, za period od 2005. do 2012. godine (Slika 2), ukazuje na to da je kvalitet vode na analiziranim mernim stanicama približno jednak i da pripada III klasi. Na lokaciji Varvarin godišnje srednje vrednosti indeksa kvaliteta su približne srednjoj vrednosti za ceo posmatrani period, dok je najveća varijacija dostignuta 2011. godine. Najniža godišnja srednja vrednost kvaliteta vode uzorkovane na profilu Bagrdan, zabeležena je 2009. godine, pri čemu je SWQI iznosio 74. Na mernom mestu Trnovče, kvalitet vode je 2009. i 2010. godine opao iz II u III kategoriju. Pri tome je 2009. godine stepen varijacije bio mali, što znači da je kvalitet bio konstantno nizak, dok je u 2010. dolazilo do velikih promena vrednosti indeksa kvaliteta. Sa \bar{X} kontrolne karte koja se odnosi na merno mesto Lj. Most uočavaju se oscilacije između srednjih godišnjih vrednosti. Srednja vrednost SWQI za čitav period posmatranja iznosi 79. Primetan je značajan pad kvaliteta vode od 2008. godine. Tokom naredne dve godine (2009. i 2010.) kvalitet vode je dostigao najniži nivo, kada se primećuju i značajne varijacije indeksa kvaliteta.

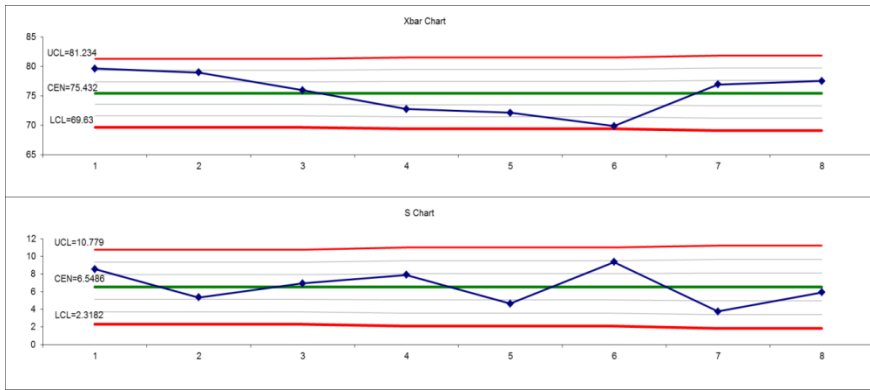
a)



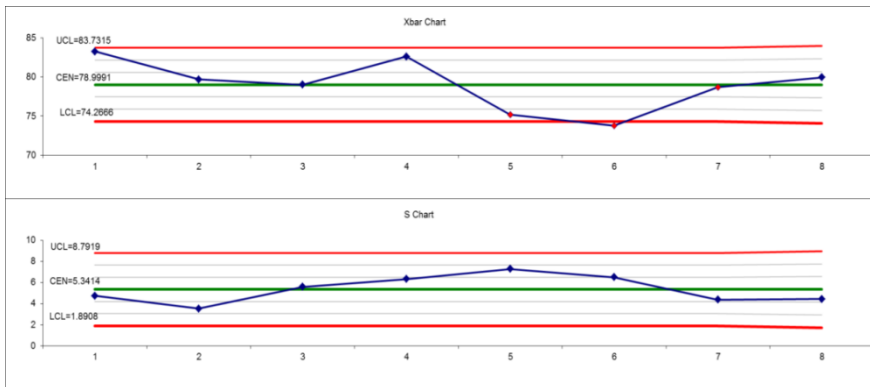
b)



c)



d)



Slika 2. Kontrolne karte za merna mesta na V. Moravi: a) Varvarin; b) Bagrdan; c) Trnovče; d) Lj. Most

4. ZAKLJUČAK

Identifikovanje lokacija i perioda monitoringa sa niskim stepenom kvaliteta vode ukazuje na potrebu preduzimanja preventivnih mera u cilju smanjenja i sprečavanja zagađenja u budućnosti. Grafičkim prikazom se pojednostavljuje proces praćenja i identifikacije prostornih i vremenskih promena kvaliteta površinskih voda.

Rezultati ovog istraživanja su pokazali da se integrisanjem SWQI i tehnike kontrolnih karata, na primeru Velike Morave, može uspešno izvršiti vizuelizacija promena kvaliteta vode površinskih tokova, u funkciji mesta i godine uzorkovanja. Time se omogućava da rezultati analize kvaliteta postaju pregledni, ne samo naučnoj, već i široj javnosti, a posebno donosiocima odluka u ovoj oblasti. Kontrolne karte, koje su primenjene u ovoj studiji, ukazuju na mogućnost detaljnijeg prikaza promena time što, pored kretanja srednjih vrednosti indeksa kvaliteta, prate i stepen variranja istog.

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INTRODUCING SMART GOVERNANCE PERSPECTIVES TO BELGRADE STRATEGIC PLANNING PROCESSES

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Abstract: The intensive natural, social, political and economic urban transformations call for the inevitable shift in Belgrade planning paradigm, stepping out from the conservative comprehensive planning, to strategic, process-based planning along with balancing the needs and priorities of a larger range of urban stakeholders. Its institutional design will be assiduously examined in the coming period as the City is in process of drafting new development strategy and new City Statute. These strategic/legal innovations present an opportunity to introduce smart governance concept which is determined by the following factors: political strategies and perspectives, participation in decision-making, transparent governance, and, finally public and social services, and by associated indicators. Taking into account specificities of local governance, this paper considers future links between the strategic planning framework design and different models of e-governance that could be applied to administrative development and effective service delivery processes in Belgrade. It will focus on smart governance innovations in management, policy making and technology, in a contextualized environment seeking new possibilities for citizen-to-government communication.

Keywords: strategic planning; smart governance; decision-making process; City of Belgrade

1. INTRODUCTION

Over the past quarter-century, the City of Belgrade has undergone serious fluctuations in terms of natural, social, political and economic urban environment. The political and economic transformation or “transition” meant embracing the concept of free market-oriented economies. These transformations impose inevitable adjustments also in the planning process, on one side forcing city planners and managers to step out from the conservative comprehensive planning toward process-based strategic planning.

Dealing with the above mentioned problems and other environmental, social and economic challenges, it necessary for City of Belgrade to examines smart governance model and explores innovative solutions and approaches within ICT technologies, applied to urban economy, energy, ecology, services, culture, infrastructure, mobility, etc.

In this paper, we introduce the key features of smart governance model, as an element of the smart city concept, and explain the potentials of its integration into the Belgrade strategic planning processes. Smart governance and its performance indicators are evaluated in this paper with the aim to investigate the prospects for governance upgrading.

2. OBJECTIVES AND METHODOLOGY

Objectives of this paper are improvements of overall Belgrade's governance by introducing smart governance model perspectives into Belgrade's strategic planning process. The research basis for this paper is the methodology of the European Smart Cities platform (ESC, 2007, 2015) that we have applied to assess the status of smart governance model within the strategic planning processes in the City of Belgrade. The research included data collection and processing of information, analyses of published documents and major plans and projects on the territory of the City of Belgrade. Smart governance indicators are defined in order to evaluate the existing mode of governance in Belgrade in terms of its "smartness". Some data used for the evaluation were collected through field research and interviews with relevant stakeholders. This approach did not include pondering the importance and impact of specific evaluation indicators. Constraints of this research paper were certain lack of local sources and available data regarding several indicators playing an important role in the evaluation process.

3. SMART GOVERNANCE CONCEPT AND INDICATORS

3.1 SMART GOVERNANCE CONCEPT AND DEFINITION

Before discussing the smart governance concept itself, it is important to understand its origins within the smart city concept. When trying to define the smart city concept it can be noticed that there are many definitions that abundantly use the term in various sectors (Scholl, H. J., Scholl, M. C., 2014). The term smart city itself was first used in the 1990s, and at that time, the focus was on the significance of new ICT with regard to modern infrastructure within cities. However, the concept of smart city is far from being limited to the application of technologies to cities, as it should be more focused on raising efficiency, competitiveness, attractiveness, safety and security, economic and environmental sustainability and by enhancing the quality of life for its people and community (Nam, Pardo, 2011). A smart city is characterized by these six key features: a) smart governance; b) smart economy; c) smart environment; d) smart living; e) smart people; and f) smart mobility (Tab. 1). Smart city and smart governance concepts work together in creating new social values by advancing individual and common needs and aspirations for attaining new social, economic and environmental objectives.

The concept of smart governance itself is based on governance and good governance concepts, and it can be defined as a set of choices and processes made to reflect social expectations. Furthermore, it reflects the genuine need for change and continuous improvement through innovation, by cooperation and coordination mechanisms of all stakeholders (political actors, business sector representatives, investors, non-governmental sector, academia and citizens). This means that smart governance actively involves all stakeholders by managing and implementing policies, using ICTs and institutions. The smart governance concept includes transparency in decision-making, increased responsibilities, improved stakeholders' participation and collaboration in service provision. Smart governance includes the use of e-government and system for measuring efficiency, quality of services and planning, effective implementation of legislation, human resources management, etc.

Table 1. Smart Governance within Smart City Concept

SMART CITY CONCEPT

		A	B	C	D	E	F
		Smart GOVERNANCE	Smart ECONOMY	Smart ENVIRONMENT	Smart LIVING	Smart PEOPLE	Smart MOBILITY
Aims and Goals		<i>Participation</i>	<i>Competitiveness</i>	<i>Natural resources</i>	<i>Quality of Life</i>	<i>Social and Human Capital</i>	<i>Transport and ICT</i>
		<i>Starting the processes for the involvement of citizens about the topics of public relevance; Use of ICT</i>	<i>Cooperation between public and private actors, development of social incubators and of small and medium enterprises</i>	<i>Reduction of Co2 emissions; Use of renewable energy sources, monitoring on energy consumptions</i>	<i>Co-working; Cultural Initiatives; Living-Lab; Crowdsourcing co-design</i>	<i>Sharing of data, security and protection of sources, networking and communication</i>	<i>Development of technologies to improve urban mobility; low environmental impact</i>
Factors	A.1 Political strategies and perspectives	B.1 Innovative spirit	C.1 Attractiveness of natural condition	D.1 Cultural facilities	E.1 Level of qualification	F.1 Local accessibility	
	A.2 Transparent governance	B.2 Entrepreneurship	C.2 Pollution	D.2 Health conditions	E.2 Affinity to life-long learning	F.2 Inter/national accessibility	
	A.3 Participation in decision making	B.3 Economic Image and Trademarks	C.3 Environmental protection	D.3 Individual safety	E.3 Social and ethnic plurality	F.3 Availabil. of ICT infrastructure	
	A.4 Public and social services (ICT and eGov)	B.4 Productivity	C.4 Sustainable resources management	D.4 Housing quality	E.4 Flexibility	F.4. Sustainable, innovative and safe transport system	
		B.5 Flexibility of Labour Market		D.5 Education facilities	E.5 Creativity Inclusive society		
		B.6 International embeddedness		D.6 Touristic attraction	E.6 Cosmopolitans Open-mindedness		
		B.7 Ability to transform		D.7 Social cohesion	E.7 Participation in public life		

Source: ESC, 2007, 2015.

3.2 SELECTED SMART GOVERNANCE FACTORS

Strategic and legal innovations should offer opportunities for introducing smart governance model, determined by some of the following factors (ESC, 2007, 2015): A.1) Political strategies and perspectives; A.2) Transparent governance; A.3) Participation and collaboration in decision-making; and A.4) Public and social services (ICT and e-Governance). However, these factors can change over time.

A.1 Political strategies and perspectives. This factor is part of visionary process and plans for future development. It relates to different levels of governance, to overall visions and strategic development plans, with the aim to improve institutional and administrative settings. In this way, it enables further policy development towards smart governance policies that have the characteristics of both sustainability and adaptability.

A.2 Transparent governance. The factor of transparency is crucial for effective administration, and the legislative process. It is important for providing accurate data, reliable information and transparency of data uses, and it understands proactive involvement of stakeholders in the public decision-making processes. Sharing of information is considered essential for cross-sector governmental coordination, together with government-to-citizen and government-to-business collaboration.

A.3 Participation in decision-making. This factor provides active and individual citizen involvement in decision-making processes mostly through *e-Participation service* that provides individual citizen contribution to relevant public topics. Participation in public service provision and direct involvement in decision-making is one of the crucial elements of smart governance and open government practices.

A.4 Public and social services (ICT and e-Government). This factor provides general and individual information services for different public services, through websites, social media, social networks, etc. ICT and e-Government open data are important smart governance tools as they technically facilitate the “smartness” component and help redefine traditional procedures and organizational structures. These tools changed paradigms and introduced completely fresh processes and structural formats to governance modes. However, there are some concerns about sustaining high standards regarding data security, safety and privacy, and about the fragility of the system in case of malfunctions or temporary system breakdowns.

4. DISCUSSION AND RESULTS

4.1 CITY GOVERNANCE AND BELGRADE STRATEGIC PLANNING PRACTICES AND CHALLENGES

Belgrade planning has reached its climax in the beginning of the 1970s before it began to gradually deteriorate following the decline of the state and of its institutions in the 1980s (General Plan of Belgrade 2021, 2003). This period was marked by political voluntarism at the city level and the transfer of competences of planning and decision-making to the level of urban municipalities. As a result, Belgrade planning experienced a complete lack of coordination which led Belgrade to urban chaos. The peak of this urban incoherence was reached in 1990s when the local authorities, for quite pragmatic and demagogic reasons, allowed and even encouraged intensive illegal construction, urban planning dysfunction and banalization of urban structure and, consequently, of Belgrade urban development.

Regarding the status and competencies of the City of Belgrade governance, its legal framework is delimited by the binding rules of international agreements, provisions of the Constitution of the Republic of Serbia and by provisions of relevant legal acts, e.g. Law on Local Self-Government (Official Gazette of RS, N^o 129/2007, 83/2014), Law on Territorial Organization Official Gazette of RS, N^o 129/2007, 18/2016), Law on Regional Development

(Official Gazette of RS, N° 51/2009, 30/2010, 89/2015), Law on the Capital City, (Official Gazette of RS, N° 129/2007, 83/2014), as well as sectorial laws which define areas such as planning, economy, environmental protection, public utilities, education, health care and construction, etc.

The adoption of the General Urban Plan and the Regional Spatial Plan – as the widest planning framework for the economic, social, environmental and physical, development of the City of Belgrade – along with a quantity of regulatory plans, did not eradicate some undesirable urban planning phenomena: massive illicit construction (ex-post planning); fragmentation of urban planning and non-systematic adoption of regulatory plans; weakening of the authority of urban planning professionals; poor scientific merits of urban planning and information base which does not contribute to Belgrade planning criteria and standards; etc. (General Plan of Belgrade 2021, 2003, 2009) These weaknesses are particularly reflected in the process of practicing and implementing of plans.

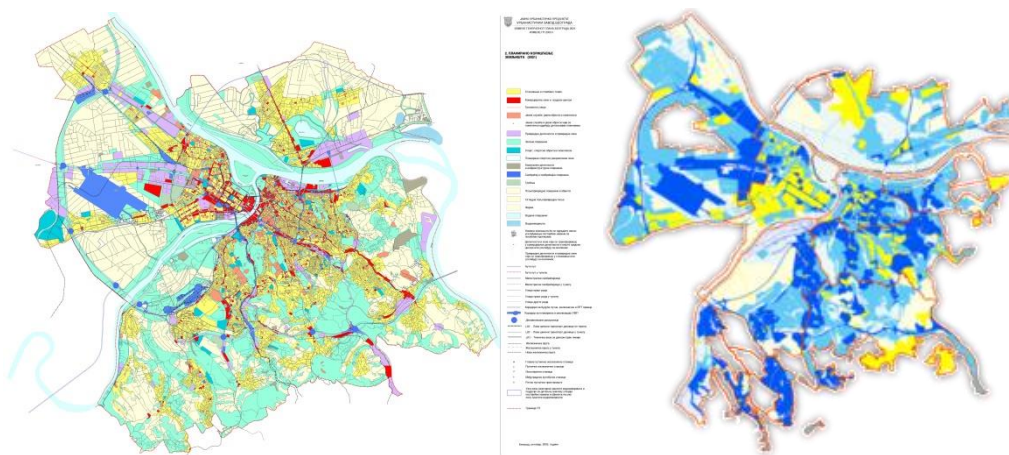


Figure 1, 2. - General plan of Belgrade 2021, (Ferenčak, Macura, 2003, revision Ferenčak, Gligorijević, 2009), General plan and Plan of general Regulation, in progress since 2010, (Joksić, Radovanović, Djordjević), Urban Planning Institute, Belgrade

Source: GPB 2021, Urban Planning Institute, Belgrade, 2003, 2009.

The Belgrade Governance of authorities, representatives and professionals needs to develop new skills, practice models and use new instruments to adjust faster to new local, regional, and global contexts, in order to be able to compete with major regional cities of similar size. With that in mind, the obsolete patterns of Belgrade's strategic planning are evidently no longer acceptable, appropriate, nor efficient for further urban development. Therefore, the introduction of smart governance model, factors, policies and technological platforms allows to systematize all complexities of strategic planning processes and give impetus to its development towards innovations (Gligorijevic, Z, 2008).

4.2 INTRODUCING SMART GOVERNANCE MODEL TO THE CITY OF BELGRADE STRATEGIC PLANNING PROCESSES

The first Development Strategy of the City of Belgrade (2011) (City of Belgrade Development Strategy, Official Gazette of the City of Belgrade No 21/2011) and the

subsequent revision of the Belgrade Regional Spatial Plan (originally from 2004, but amended in 2011) (Regional spatial plan, 2011) were the first strategic documents where the City specified its vision for future development. The main vision implied upgrading the City of Belgrade to a high ranking position among the metropolitans and capitals of Central, East and South-East Europe, in line with parameters of sustainable economy and advanced technology, greater territorial cohesion of the City, greater level of accessibility, established polycentricism and decentralization, and developed urban identity (Damjanovic, 2010, Vuja, Čolić Damjanović, 2013). Thus, the first smart governance initiative was introduced within the specific goals of the City of Belgrade Development Strategy for 2011-2016, through activities related to the information system and e-Governance. The introduction of smart governance model to the Development Strategy, sectorial strategies and action plans, was supposed to make City of Belgrade administration more efficient, and its projects more feasible and competitive, by forcing communication within all sectors in order to establish up-to-date, appropriate planning policies and projects (Milosavljević, B., Jerinić, J., Damjanović, D., 2014).

This strategic planning process included vision and future development directions in different fields: 1) economic development; 2) social development; 3) improving environmental sustainability; 4) urban development; 5) transport and traffic development; 6) infrastructure and energy sustainable development; and 7) institutional development (Fig. 3)

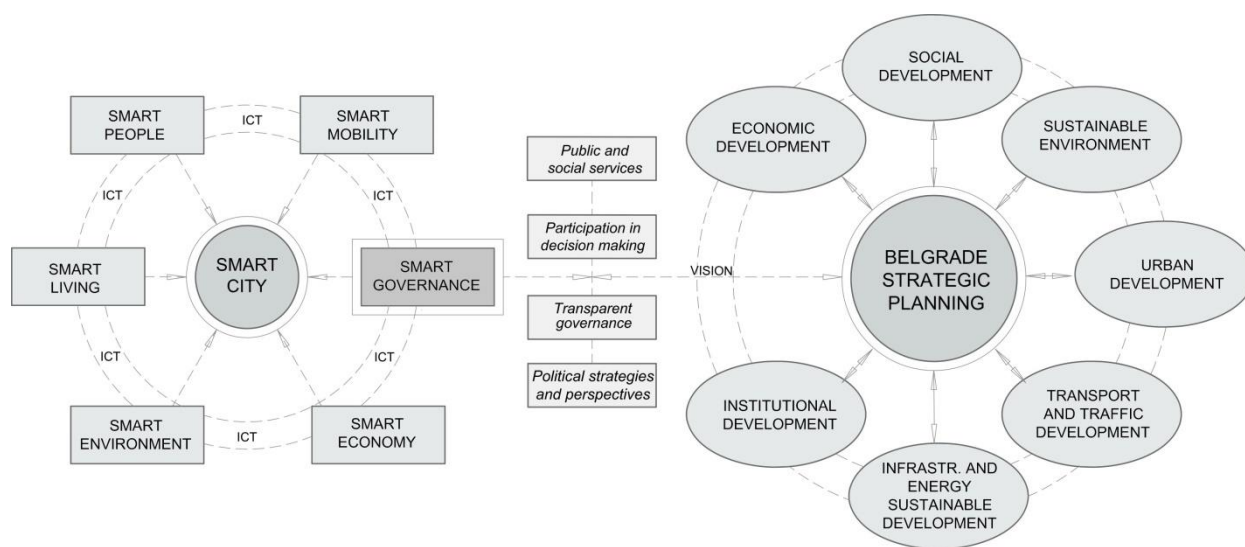


Figure 3. Model of smart governance within Belgrade strategic planning

Source: Own source, 2016.

Through the above mentioned strategic planning documents, City of Belgrade has taken initial steps in introducing principles of smart governance model by engaging the mechanisms for development and support to the citizen participation in the decision-making processes and transparent governance and efficient public and social services. This means that all major decisions at the level of the City of Belgrade should be made by taking into account the needs of the citizens (collected through surveys/questionnaires/public hearings/debates etc. and presented and structured in a simple way, with arguments, effects, alternatives and

financial costs provided). Open and transparent city government is a prerequisite for greater public control over their work, which leads to higher quality of services and increased citizens' trust in local government officials and public bodies.

In that sense, as parts of e-Government, the City of Belgrade has begun to develop e-Services and e-Participation, thus stimulating the communication between citizens and State/city administration, in line with the concept of new public management (City of Belgrade Development Strategy, 2011). Greater involvement of citizens in the decision-making process regarding planning and development issues of the City of Belgrade is the foundation of electronic participation, i.e. e-Participation or the use of information and communication technologies (ICT) in the processes of public administration and governance.

Since the City of Belgrade is currently in process of drafting new development strategy, links will be made between the strategic planning procedures and tools and different models of e-governance, with the aim to improve its administrative development and service delivery process. This new momentum in Belgrade strategic planning is an opportunity to focus on smart governance innovations in management, policy making and technology, in a contextualized environment seeking new possibilities for citizen-to-government communication.

4.3 EVALUATION OF SMART GOVERNANCE MODEL IN BELGRADE STRATEGIC PLANNING PROCESSES

Previous analysis shows that some elements of the smart governance model have already been introduced to the Belgrade strategic planning processes. The evaluation of their scope and impact needs to be verified through questionnaires and interviews with stakeholders, and through methodology established and explained in this paper.

For each smart governance factor, as previously defined in this paper, and for the associated strategic planning process characteristics, key indicators are proposed in order to perform quality rating. The quality rating (from 1 to 10) has been conducted for the previous mode of governance in Belgrade, and the introduced smart governance with the aim to quantify changes.

Table 2. Quality rating of smart governance model within Belgrade strategic planning

City of Belgrade					
Smart Governance Factors	Strategic Planning Process Characteristics	Key Indicators	Quality Rating (1-10)		Change (Up/Down)
			Governance (x/10)	Smart governance (x/10)	
A.1 Political strategies and perspectives	Formulating vision/comprehensive strategies/sector strategies/smart plans/action plans/projects for the future development of City of Belgrade and its services.	<i>Belgrade Regional Spatial Plan</i>	4	5	+1
		<i>City of Belgrade Development Strategy</i>	3	7	+4
		<i>General Urban Plan</i>	5	7	+2
		<i>Sectorial strategies and Action Plans</i>	4	5	+1
		<i>Average</i>	4	6	+2
A.2 Transparent governance	Well-integrated system of City governance;	<i>Openness</i>	3	5	+2
		<i>Transparency</i>	2	5	+3
		<i>Accountability</i>	4	4	0
		<i>Trust</i>	4	4	0
		<i>Anti-corruption plan and measures</i>	5	6	+1
		<i>Average</i>	3.6	4.8	+1.2
A.3 Participation in decision making	Citizen participation in public hearings; e-Participation (in processes concerning administration, service delivery, decision making and policy making)	<i>(e-)Participation in administration</i>	2	3	+1
		<i>(e-)Participation in service delivery</i>	2	4	+2
		<i>(e-)Participation in decision making</i>	3	4	+1
		<i>(e-)Participation in policy making</i>	3	4	+1
		<i>Average</i>	2.5	3.75	+1.25
A.4 Public and social services (ICT and e-Government)	Services concerning issuing of building permits, managing public lighting and open and green areas, property issues and status, public hearings, GIS, etc. (e-Government / e-Services)	<i>(e-)Services GIS</i>	3	6	+3
		<i>(e-)Services issuing of building permits</i>	1	4	+3
		<i>(e-)Services property issues and status</i>	4	5	+1
		<i>(e-)Services public hearings</i>	4	6	+2
		<i>(e-)Services open and green areas</i>	3	4	+1
		<i>(e-)Services managing public lighting</i>	3	4	+1
		<i>Average</i>	3	4.83	+1.83

Source: Own source, 2016

As shown in Tab. 2, within the factor A.1) Political strategies and perspectives, the highest upgrading is achieved in the City of Belgrade Development Strategy (+4) which is an indicator of the level of adjustment with the European Smart Cities Platform and of high expectations from this strategic development document. The Development Strategy includes all smart governance elements, such as e-governance, e-participation, e-services, anti-corruption procedures for greater accountability and transparency, etc. Other planning and

political documents show fewer smart governance qualities as they were adopted prior to the Development Strategy and in a different context.

Within the factor A.2) Transparent governance, the results based on interviews with stakeholders show that in terms of openness, transparency and anti-corruption measures, certain advancements are observable. Paradoxically these do not impact indicators of accountability nor trust which remain stagnant. These results can be explained with the fact that genuine improvements of indicators of transparency (+3), openness (+2), and anti-corruption (+1), have not produced anticipated effects in terms of citizens' trust and local government accountability perception.

Based on questionnaires addressed to citizens and interviews with decision-makers, the factor A.3) Participation in decision making has shown almost the same advancement rate as the previously described factor (A.2). The modest improvement (+1.25) is due to very cautious regain of citizens' trust in public sector and public services, as a consequence of extended social and political ruptures, but also to a lack of positive and inviting public campaigns.

Within the factor A.4) Public and social services (ICT and e-Government), the advancement rate is second best. As shown in Tab. 2, the greatest improvements are made in services/IT platforms/software dealing with GIS, issuing of building permits, property issues and public hearings, which increase the efficiency and effectiveness of public and social services. These characteristics are in focus of public opinion as they are among the most visible citizen-to-government communication instruments.

Overall, as given the results shown in Tab. 2, out of four identified factors, the factor A.1) Political strategies and perspectives shows the greatest improvements of implemented smart governance model (*Average* +2) which can be explained that is due to clear orientation of key strategic documents towards smart governance standards and practices. Other factors A.2-4) show lower results (*Average* +1.2, +1.25, +1.83) as these imply complex implementation procedures and rules that need more time to demonstrate substantial progress. This result can be described by the fact that these factors heavily depend on the one hand on raising awareness mechanisms and training of city/municipal employees and professionals and on the other hand on the knowledge, needs and motivation of citizens regarding transparency, participation and public services provision.

5. CONCLUSION

With global, regional and local contexts and priorities taken into account, the continual political and social changes are forcing planners and public authorities to adjust city strategies and make moves towards more efficient, more sustainable and transparent planning and urban management, by actively introducing smart governance elements.

The research has shown that Belgrade planning and political documents embrace comparable smart governance qualities, but to a different extent, thus presenting a formal stronghold for future improvement in city governance. Although some improvements in transparency, openness, and anti-corruption measures have been made, the awaited positive effects in terms of citizens' trust and local government accountability are difficult to perceive. As a consequence of this slow-moving recovering of citizens' trust in public sector and public services, the participation in decision making processes has only made shy progressions. This

unbiased assessment could evolve over time if positive, focused and inviting public campaigns should be planned.

By gradually applying smart governance model to Belgrade strategic planning, effectiveness and efficiency of overall management system can be increased and economic results improved.

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MULTI-CRITERIA ANALYSIS OF OCCUPATIONAL SAFETY IN PROJECT-BASED ORGANIZATIONS

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Abstract: Comparison of some specific elements in any field of management brings useful conclusions, most notably those related to the identification of weaknesses. It can also be applied to occupational safety in project-based organizations. This paper presents the results of the multi-criteria analysis of occupational safety for workers in project-based organizations. Research was based on the questionnaire methodology for collecting data, composed of 23 questions divided into the 8 groups, which was developed after several years of previous research. The survey was conducted on a sample of 507 employees from 19 project based organizations. Collected and processed data were analyzed using multi-criteria PROMETHEE method. In the conclusions, particular emphasis on those elements that most influence the decline in the level of occupational safety in the project-based organizations, as well as potential measures that can improve occupational safety of the workers, were placed.

Keywords: Multi-criteria analysis, occupational safety, project organization.

Apstrakt: Upoređivanje specifičnih elemenata u bilo kojoj oblasti menadžmenta donosi korisne zaključke, među kojima su najznačajniji oni vezani za identifikaciju nedostataka. To se odnosi i na bezbednost na radu u projektnim organizacijama. U ovom radu su prezentovani rezultati višekriterijumske analize stanja bezbednosti na radu kod radnika u projektnim organizacijama. U istraživanju je korišćena metodologija upitnika za sakupljanje podataka, sastavljenog od 23 pitanja raspoređenih u okviru 8 grupa, a koji je razvijen nakon prethodnih višegodišnjih istraživanja. Anketiranje je izvršeno na uzorku od 507 zaposlenih angažovanih u 19 projektnih organizacija. Prikupljeni i obrađeni podaci su analizirani primenom višekriterijumske PROMETHEE metode. U okviru zaključaka stavljen je poseban akcenat na one elemente koji najviše utiču na pad nivoa bezbednosti zaposlenih u projektnim organizacijama, kao i na potencijale mere kojima se može poboljšati stanje bezbednosti radnika na radu.

Ključne reči: Višekriterijumska analiza, bezbednost na radu, projektna organizacija.

1. UVOD

Merenje bezbednosti na radu u industrijskim sektorima koje se oslanja na klasične indikatore, poput dešavanja povreda na radu, daje značajne povratne informacije o nedostacima sistema bezbednosti na radu, kao i o samim incidentima. Međutim, ovakav način merenja bezbednosti na radu predstavlja reaktivni pristup upravljanju ovom oblasti i meri događaje i rezultate koji su se već desili. Najnovija istraživanja naglašavaju proaktivnu ocenu

bezbednosti na radu, korišćenjem adekvatnih indikatora bezbednosti koji omogućavaju identifikaciju svih potencijalnih nedostataka u sistemu bezbednosti organizacije, te se samim tim smanjuje verovatnoća dešavanja povreda na radu [1,2,3].

Kada se razmatra bezbednost na radu u projektnim organizacijama, situacija je još komoleksnija. Naime, ovaj vid organizacija svoje poslovanje obavlja putem različitih projekata, te je zastupljena stalna migracija zaposlenih ka projektima i nazad, po njihovom okončanju u matičnu organizaciju. Ta činjenica otežava utemeljenje kulture i klime bezbednosti kod zaposlenih, te je potrebno uložiti dodatne napore u pravcu popravljavanja performansi bezbednosti na radu [4]. U prilog tome govore brojne studije u kojima se naglašava izuzetno visok stepen povreda na radu tokom realizacije projekata različitih industrijskih sektora, kao što su niskogradnja, visokogradnja, metalurški sektor energetika i dr. [5,6,7,8,9,10].

Analiza bezbednosti na radu putem ključnih elemenata ove oblasti, kao i komparacija različitih privrednih delatnosti, može predstavljati veoma koristan alat u pravcu proaktivne ocene bezbednosti na radu u projektnim organizacijama. Cilj sprovedenog istraživanja je bio primena ovakve metodologije kod projektnih organizacija u Srbiji. U ovom radu su prezentovani rezultati višekriterijumske analize bezbednosti na radu u projektnim organizacijama različitih delatnosti, a kao nastavak započetih istraživanja [11,12].

2. METODOLOGIJA I REZULTATI ISTRAŽIVANJA

2.1. PRIKUPLJANJE PODATAKA I UČESNICI ANKETE

U okviru sprovedenog istraživanja, primenjena je metodologija upitnika za prikupljanje podataka. Upitnik je razvijen od strane dela autora ovog rada tokom prethodnih istraživanja problematike bezbednosti na radu u proizvodnim organizacijama [11,12], a na osnovu dostupne relevantne literature [13,14,15,16]. Njegova primena je univerzalna, što je slučaj i sa većinom upitnika ovog tipa (određen broj upitnika koji se može sresti u literaturi je dizajniran za primenu u konkretnoj privrednoj delatnosti). Anketni listić se sastoji iz dva dela. Prvi deo sadrži 8 pitanja demografskog karaktera, dok se drugi sastoji od 23 pitanja podeljenih u 8 grupa, a koja su vezana za oblast bezbednosti na radu. Anonimno anketiranje je obavljeno među zaposlenima u okviru 19 projektnih organizacija na teritoriji Srbije. Delatnosti organizacija su bile sledeće: niskogradnja (2 organizacije), visokogradnja (4 organizacije), proizvodnja elektro opreme (3 organizacije), energetski sektor (1 organizacija), mašinska industrija (4 organizacije), metalurški sektor (2 organizacije) i proizvodnja nameštaja (3 organizacije). Ispitanici su bili izvršioци projektnih aktivnosti (proizvodni radnici). Anketiranje je obavljeno na skupu od 576 zaposlenih, od čega je prikupljeno ispravno popunjenih anketnih listića 507, što predstavlja 88.02 %. Za gradaciju odgovora ispitanika je korišćena Likertova petostepena skala, sa vrednostima od 1 do 5, gde 1 predstavlja najmanji značaj (apsolutno se ne slažem sa datom konstatacijom), a 5 predstavlja najveći značaj (apsolutno se slažem sa datom konstatacijom). Skup prikupljenih podataka je analiziran statističkim alatima pomoću softverskog paketa SPSS 18.0, dok je višekriterijumska analiza (MCDA) obavljena primenom Decision Lab 2000 softverskog paketa. Demografske informacije o učesnicima ankete su prikazani u tabeli 1.

Tabela 1. Demografske informacije o učesnicima ankete

	Frekvencija	%
Vrsta delatnosti organizacije		
Niskogradnja	63	12.4
Visokogradnja	55	10.9
Proizvodnja elektro opreme	102	20.1
Energetski sektor	40	7.9
Mašinska industrija	81	16.0
Metallurški sektor	97	19.1
Proizvodnja nameštaja	69	13.6
Ukupno ispitanika	507	100.0
Broj zaposlenih u organizaciji		
≤50	105	20.7
51-100	88	17.4
101-300	69	13.6
≥301	245	48.3
Ukupno ispitanika	507	100.0
Pozicija u organizaciji		
Proizvodni radnici	507	100.0
Neproizvodno osoblje	0	0
Ukupno ispitanika	507	100.0
Pol		
Ženski	47	9.3
Muški	460	90.7
Ukupno ispitanika	507	100.0
Školska sprema		
Osnovna škola	47	9.3
Srednja stručna sprema	400	78.9
Viša stručna sprema	22	4.3
Visoka stručna sprema	38	7.5
Ukupno ispitanika	507	100.0
Godine starosti		
do 29 godina	97	19.1
30 – 44 godine	203	40.0
45 – 54 godine	135	26.6
55 i više godina	72	14.2
Ukupno ispitanika	507	100.0
Radni staž u organizaciji		
≤5	172	33.9
6-15	131	25.8
16-25	91	17.9
≥26	113	22.3
Ukupno ispitanika	507	100.0
Da li ste imali povrede na radu?		
Da	141	27.8
Ne	366	72.2
Ukupno ispitanika	507	100.0

2.2. ANALIZA POUZDANOSTI INDIKATORA BEZBEDNOSTI

Kvalitetna obrada podataka kao početnu aktivnost zahteva utvrđivanje pouzdanosti i validnosti mernih skala, odnosno dobijenih rezultata na osnovu prikupljenih i obrađenih

podataka [17,18]. U tu svrhu, obavljena je ocena interne konzistentnosti instrumenta za prikupljanje podataka korišćenjem Cronbach alpha testa [18,19,20]. Cronbach-ovom formulom se izračunavaju prosečne vrednosti korelacija među stavkama mernog instrumenta (alpha koeficijent) kada su odgovori na pitanja ocenjeni na osnovu stepena zadatih skala (npr. Likertova petostepena skala).

Prema ovom testu vrednosti koeficijenta α veće od 0.70 predstavljaju dobru mogućnost modelovanja rezultata ankete kod razmatrane populacije [21]. Na osnovu dobijenih Cronbach alpha koeficijenata interne konzistentnosti grupacija pitanja u okviru upitnika (G1 – G8), dokazana je validnost i pouzdanost upitnika o bezbednosti na radu, odnosno pravilnost formiranih grupa pitanja u okviru njega (Tabela 2.). Na taj način, mogu se očekivati pouzdani rezultati sprovedenog istraživanja.

Tabela 2. Koeficijenti interne konzistentnosti grupacija pitanja u upitniku

Grupa pitanja	Broj stavki u okviru grupe	Cronbach alpha koeficijent
G1 (Svesnost o bezbednosti i kompetencija)	5	0.816
G2 (Komunikacija o bezbednosti)	4	0.796
G3 (Organizaciona okolina)	3	0.899
G4 (Podrška rukovodstva)	2	0.815
G5 (Ocena rizika)	3	0.754
G6 (Mere bezbednosti)	2	0.702
G7 (Obuka o bezbednosti)	2	0.771
G8 (Nivo bezbednosti radnog mesta)	2	0.710

2.3. VIŠEKRITERIJUMSKA ANALIZA INDIKATORA BEZBEDNOSTI NA RADU

Podaci prikupljeni anketiranjem zaposlenih predstavljaju osnovu za višekriterijumsku analizu indikatora bezbednosti na radu u projektnim organizacijama. Proračunate su prosečne vrednosti ocena pitanja po grupama za svaku kompaniju, odnosno delatnost kompanije, čime su formirani polazni podaci za PROMETHEE kalkulacije (Tabela 3.).

Tabela 3. Polazni podaci za PROMETHEE proračun

Kriterijum \ Alternative	G1	G2	G3	G4	G5	G6	G7	G8
Niskogradnja	4.630	3.850	2.660	4.150	2.300	4.010	4.500	2.400
Visokogradnja	4.180	3.690	3.810	4.160	2.740	3.810	4.390	2.570
Proizvodnja elektro opreme	4.490	3.910	2.780	3.740	2.790	3.690	4.180	2.890
Energetski sektor	4.440	4.040	2.680	3.670	2.110	3.560	4.350	2.520
Mašinska industrija	4.700	3.970	3.510	3.950	3.080	3.730	4.430	3.460
Metalurški sektor	4.480	3.440	3.280	3.080	3.000	3.220	4.440	2.730
Proizvodnja nameštaja	4.580	4.080	2.010	4.230	2.120	4.210	4.530	3.120

Kao kriterijumi za evaluaciju, komparaciju i rangiranje delatnosti proučavanih projektnih organizacija korišćene su grupe pitanja, odnosno ključni indikatori bezbednosti na radu (Tabela 3). Obzirom da PROMETHEE metodologija uključuje težinske koeficijente za svaki odabrani kriterijum, potrebno ih je odrediti na osnovu raspoloživih podataka. Težinski

koeficijenti se mogu opisati kao indikatori relativne značajnosti svakog odabranog kriterijuma u sprovedenoj analizi. Pri određivanju vrednosti težinskih koeficijenata, korišćena je entropijska metoda [22]. Cilj entropijske metode za određivanje težinskih kriterijuma je dobijanje što manjih entropijskih vrednosti, kojima se sveobuhvatno opisuju alternative iz datog skupa. Kriterijum sa manjom vrednošću entropije omogućuje više informacija vezano za rezultat alternativa po datim kriterijumima. Na taj način, takav kriterijum ima veći značaj u modelu MCDA. Prilikom određivanja težinskih parametara polazi se od definisane matrice odlučivanja, na osnovu koje se vrši normalizacija podataka. U sledećem koraku se vrši proračun entropijske vrednosti za svaki kriterijum, koja dalje definiše stepen divergencije prosečne sopstvene informacije koju nosi svaki kriterijum. Stepem divergencije predstavlja značajnu snagu različitosti kriterijuma. Konačno, određuju se entropijske težine svih kriterijuma. [22,23].

Postoji šest potencijalnih funkcija preferencije koje omogućavaju korisniku da izrazi razlike na osnovu minimalnih razilaženja. U istraživanju predstavljenom u ovom radu korišćena je funkcija tip 4 (level). Funkcija preferencije level je odabrana kao najbolje rešenje za opis analiziranih podataka. Ovi podaci su u suštini kvalitativni, ali je u analizi korišćen njihov kvalitativni analog (petostepena skala od 1 “loše” do 5 “odlično”). Za vrednosne pragove (value thresholds) su odabrani $p=0.5$ and $q=1.5$, što odgovara faktorima od veoma loše do odličan [24]. Vrednosti Min/Max usmerenja su bazirane na osnovu konteksta pitanja i njihovog potencijalnog uticaja na istraživane faktore (Tabela 4.).

Nakon formiranja matrice evaluacije (Tabela 4.) pomoću softverskog paketa Decision Lab 2000, izvršena je višekriterijumska komparativna analiza indikatora bezbednosti na radu u projektnim organizacijama.

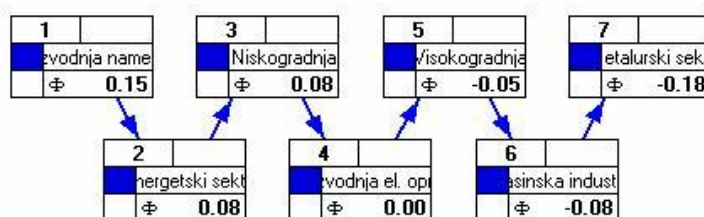
Table 4. Funkcije preferencije i težinski koeficijenti kriterijuma

Kriterijum	G1	G2	G3	G4	G5	G6	G7	G8
Težinski koeficijent	0.1246	0.1247	0.1259	0.1249	0.1254	0.1248	0.1246	0.1251
Funkcija preferencije	Level	Level	Level	Level	Level	Level	Level	Level
Min/Max	MAX	MAX	MIN	MAX	MIN	MAX	MAX	MIN

PROMETHEE metod se bazira na određivanju pozitivnog (ϕ^+) i negativnog toka (ϕ^-) za svaku od alternativa. Pozitivni tok preferencije pokazuje koliko određena alternativa dominira nad ostalim alternativama. Ako je vrednost veća ($\phi^+ \rightarrow 1$) alternativa je značajnija. Negativni tok preference pokazuje koliko je određena alternativa preferirana od drugih alternativa. Alternativa je značajnija ako je vrednost toka niža ($\phi^- \rightarrow 0$). Kompletno rangiranje prema PROMETHEE II se bazira na izračunavanju neto toka (ϕ), koji predstavlja razliku između pozitivnog i negativnog toka preferencije. Alternativa koja ima najveću vrednost neto toka je najbolje rangirana i tako redom do najlošije rangirane alternative [25,26]. Na osnovu rečenog i dodeljenih traženih parametara kriterijuma, kao i vrednosti alternativa (ocene pitanja po grupama za svaku proučavanu delatnost organizacija), izvršeno je kompletno rangiranje (PROMETHEE II) sedam delatnosti projektnih organizacija. Dobijeni rezultati su prikazani u tabeli 5 i na slici 1.

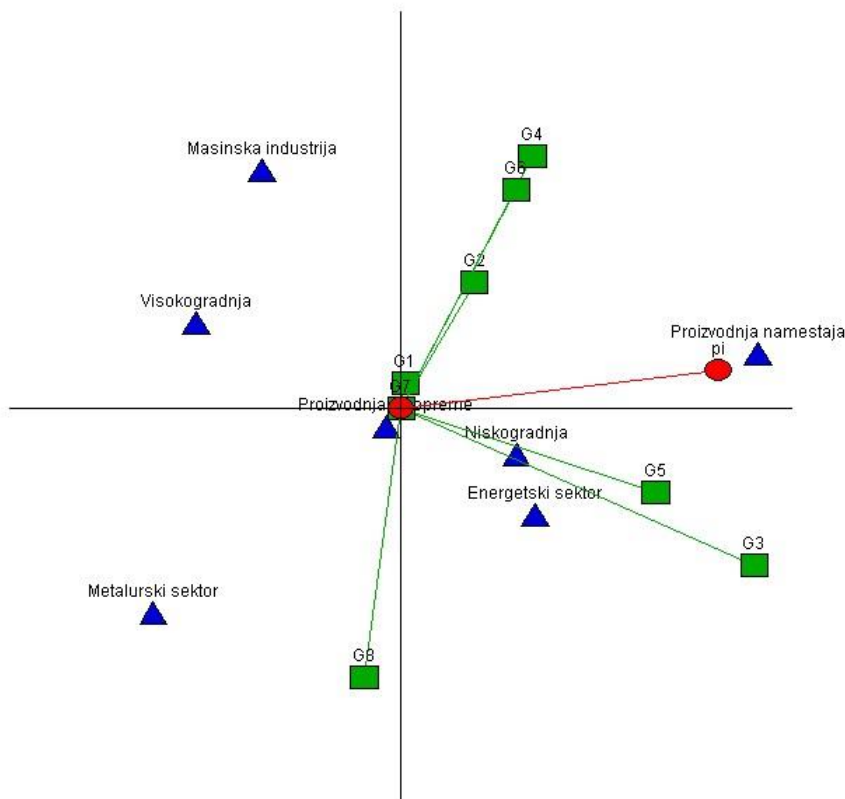
Tabela 5. Rezultati kompletnog rangiranja stanja bezbednosti na radu u projektnim organizacijama baziranog na mišljenju zaposlenih u različitim industrijskim sektorima

Rang	Alternative	Φ^+	Φ^-	Φ
1	Proizvodnja nameštaja	0.1777	0.0313	0.1464
2	Energetski sektor	0.1149	0.0313	0.0836
3	Niskogradnja	0.0940	0.0105	0.0835
4	Proizvodnja elektro opreme	0.0418	0.0418	0.0000
5	Visokogradnja	0.0417	0.0943	-0.0526
6	Mašinska industrija	0.0416	0.1255	-0.0839
7	Metalurški sektor	0.0209	0.1981	-0.1771



Slika 1. PROMETHEE II kompletno rangiranje alternativa (delatnosti projektno orijentisanih organizacija)

Veoma izraženu značajnu pogodnost prilikom primene PROMETHEE metodologije korišćenjem pomoću Decision Lab-a, predstavlja vizuelizacija dobijenih rezultata, odnosno rešenja odlučivanja - GAIA (Geometrical Analysis for Interactive Aid). GAIA ravan i dobijena rešenja na njoj olaksavaju evaluaciju dobijenih rešenja, kao i tumačenje značajnosti pojedinih varijabli. GAIA analiza obezbeđuje značajne informacije o rangiranju u dvodimenzionalnom prostoru, koje se dobija PCA ekstrakcijom. Na ovaj način, moguće je grafički prikazati problematiku sprovedenog rangiranja, odrediti specifične karakteristike odnosa među odabranim alternativama i konačno, dobiti veoma važne informacije o prirodi i značajnosti kriterijuma kao i uticaju težinskih parametara kriterijuma na finalne rezultate sprovedene analize. Pozicije razmatranih alternativa (trouglovi) determinišu snage ili slabosti svojstava akcija u pogledu odabranih kriterijuma, što zapravo i determiniše budući rezultat sprovedenog finalnog odlučivanja. Što je alternativa bliža pravcu vektora kriterijuma, to je ta alternativa bolja na osnovu tog kriterijuma [25]. Na slici 2. je prikazan položaj razmatranih alternativa na GAIA ravni.



Slika 2. GAIA ravan izbora najpovoljnije alternative (vrste delatnosti projektno orijentisane organizacije sa najvišim stepenom primene koncepta menadzmenta znanjem)

3. DISKUSIJA REZULTATA

Posmatrajući rezultate iz Tebele 1, može se uočiti da su u istraživanju učestvovali samo proizvodni radnici (izvršioi projektnih aktivnosti). Otuda je prisutan veći stepen povreda na radu (27.8%) u odnosu na rezultate prethodnih istraživanja koje su autori ovog rada sprovodili na teritoriji Srbije [12].

Na osnovu rezultata dobijenih anketiranjem ispitanika, očito je da je moguće izvršiti rangiranje odgovora zaposlenih u projektim organizacijama različitih delatnosti pomoću jednog elementa (kriterijuma) bezbednosti na radu na projektima, odnosno sveukupne bezbednosti na radu u projektim organizacijama. Međutim, odabirajući različite kriterijume, svaki put bi smo dobili različit rezultat. Sa druge strane, primena višekriterijumske analize omogućava rangiranje prema više kriterijuma istovremeno, čime se obezbeđuje lista prioriteta i iscrpna analiza predmetnog problema. Na taj način, podaci prikazani u Tabeli 3, analizirani su korišćenjem softvera Decision Lab 2000. Rezultati kompletnog rangiranja pomoću PROMETHEE II su prikazani u Tabeli 5 i na Slici 1. Vizuelna prezentacija obavljenog rangiranja je predstavljena na Slici 2, gde se uočljiva komparaciju svih alternativa po svakom kriterijumu – GAIA ravan. Procenat prikupljanja podataka na GAIA ravni, odnosno

pouzdanost date grafičke interpretacije je veća od 60 % (Δ :81.74%), što se smatra veoma prihvatljivim [25]. Posmatrajući ekscentričnost pozicija kriterijuma (ose koje se završavaju kvadratima), tj. njihovu udaljenost od koordinatnog početka, očigledno je da su kriterijumi G1 (svesnost o bezbednosti i kompetencija), G2 (komunikacija o bezbednosti) i G7 (obuka o bezbednosti) uticajni u odnosu na ostalih pet kriterijuma. Dodatno, oni su najbliži štapu odluke pi , što potvrđuje njihov najveći uticaj. Kvalitet odabranih kriterijuma rangiranja se može oceniti kao zadovoljavajući, jer se ne javlja postojanje konflikata među njima (ne postoje dva kriterijuma koja su pozicionirana jedan naspram drugom na GAIA ravni), sa izuzetkom kriterijuma G8 (nivo bezbednosti radnog mesta) koji predstavlja kontrolnu grupu pitanja.

Položaj alternative (trouglovi na GAIA ravni) određuje njenu snagu ili slabost u odnosu na kriterijume. Ukoliko je alternativa bliža usmerenju ose nekog kriterijuma, utoliko je ta alternativa bolja po tom kriterijumu. Bezbednost na radu u kompanijama čija je delatnost proizvodnja nameštaja proseduje najbolje performanse, pošto je ova alternativa najbliža usmerenju osa kriterijuma sa najvećim uticajem, a osim toga, za razliku od ostalih alternativa, veoma je blizu pozicionirana osama ostalih kriterijuma. Vektor pi (štap odluke) je prikazan osom koja se završava krugom i predstavlja optimalno rešenje u skladu sa datim težinskim kriterijumima. Najbolja je ona alternativa koja je najbliža štapu odluke (proizvodnja nameštaja), dok je najlošija alternativa metalurški sektor, koja nije dobra ni po jednom kriterijumu, a i nalazi se suprotno od pravca štapa odluke. Takođe, veoma slabe performanse bezbednosti na radu imaju kompanije iz oblasti mašinske industrije i visokogradnje (sve tri poslednje pomenute delatnosti projektnih porganizacija imaju negativne vrednosti neto toka Φ - Tabela 5 i Slika 1). Kod porojektnih organizacija iz oblasti niskogradnje i energetskog sektora stanje bezbednosti na radu je relativno zadovoljavajuće rangirano (pozitivne vrednosti neto toka Φ). Na osnovu odgovora ispitnika, bezbednost na radu u organizacijama ovih sektora je veoma dobro rangirana (pozicionirana) prema kriterijumima G3 (organizaciona okolina) i G5 (ocena rizika). To zapravo govori o zadovoljavajućem stanju ovih elemenata bezbednosti na radu u organizacija iz oblasti niskogradnje i energetike. Sa druge strane, prostor za unapređenje bezbednosti na radu u kompanijama ovih delatnosti se nalazi u oblastima komanikacije o bezbednosti (G2), podrške rukovodstva (G4) i merama bezbednosti (G6). Konačno, položaj alternative proizvodnja elektro opreme na GAIA ravni, ukazuje na to da je unapređenje bezbednosti na radu u organizacijama ovog sektora moguće postići sa jednakim uspehom delovanjem na bilo koji od elemenata bezbednosti na radu (G1 – G8).

4. ZAKLJUČAK

Projektne kompanije postaju sve zastupljeniji oblik organizovanja, kako u svetu, tako i kod nas. Projekti različitih privrednih delatnosti angažuju veliki broj radne snage. Stoga je bezbednost na radu veoma bitna u cilju adekvatnog ostvarivanja projektnih ciljeva i poslovanja projektnih organizacija uopšte. Neophodna je studiozna analiza i pristup upravljaju svakog elementa bezbednosti na radu. Kao koristan alat u tom smislu, u ovom radu je prezetovan merni instrument sastavljen od 23 pitanja iz 8 ključnih elemenata bezbednosti na radu. Višekriterijumska komparativna analiza podataka prikupljenih anketiranjem zaposlenih u 19 projektnih organizacija različitih privrednih delatnosti na teritoriji Srbije dala je značajne zaključke. Uočene su privredne delatnosti u kojima proizvodna radna mesta ne ispunjavaju

sve potrebne zahteve bezbednosti na radu, te je stoga ukupna bezbednost na radu kod tih organizacija nezadovoljavajuća. Dodatno, višekriterijumska analiza eksplicitno ističe sve ključne elemente bezbednosti na radu koji su nedovoljno razvijeni u organizaciji. Na taj način menadžmentu kompanija se daje jasni pravci u kojima treba delovati kako bi se unapredila bezbednost zaposlenih, a takođe i potencijalne konkretne mere koje bi se preduzele postaju lakše dostupne. Konačno, metodologija prezentovana u ovom radu, ljudima iz prakse može poslužiti kao koristan alat za komparaciju performansi bezbednosti na radu u njihovim kompanijama sa kompanijama kod kojih je bezbednost na radu na visokom nivou.

ZAHVALNOST

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CAPITAL MARKET DEVELOPMENT IN MONTENEGRO WITH THE PERSPECTIVE OF REGIONAL INTEGRATION

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Abstract: A number of researches indicate an importance of capital market for the development of a country. The predisposition of the Montenegrin capital market development throughout a regional integration is analysed. The findings leads to a conclusion that a small capital market, such as Montenegrin, could be faster further developed in this way, enhancing possibilities for investors both domestic and foreign.

Keywords: capital market, regional integration, financial system, economic growth

1. INTRODUCTION

Capital market development is the crucial factor for financial and economic growth of a country. The market economy model dominates worldwide and the question of capital market's development and its impact on economy focuses on regional integration more and more. This paper analysis the potential of the Montenegrin capital development from the regional integration point of view. Also a very short insight of the neighbourhood countries will be considered. What different theoretical approaches says is our starting point. Further, the most important economic indicators are reviewed and historically analyzed. This part will show us the base and potential disposed by Montenegro for further development throughout the integration process.

2. THEORETICAL APPROACHES

Insight into the theoretical research of the relationship between financial markets and growth shows a growing body of academic work that shows a positive relationship between the development of financial markets and growth. To the extent that regional capital market integration furthers the growth in financial markets, it may therefore spur on economic growth. Levine (1) studies the relationship between financial development and economic growth. Most of the theoretical reasoning and empirical evidence indicates that the development of the financial system plays an important role in the growth process. He also argues that there is even evidence that the level of financial development is a good predictor of future rates of economic growth, capital accumulation, and technological change.

However, there is contrast with this view that claim the financial system is essentially irrelevant to economic growth. But, it remains debatable and very questionable. Moreover, many analysis from different levels (cross-country, case-study, industry-level, and firm-level) documented extensive periods when financial development (or the lack of it) affects the speed and the pattern of economic development. Levine

notes that theory suggests that financial instruments, markets, and institutions arise to mitigate the effects of information and transaction costs. Differences in how well financial systems reduce information and transaction cost positively influence savings rates, investment decisions, technological innovation, and long-run growth rates. Levine, Loayza, and Beck (2) evaluate the nature of the effect of financial intermediary development on economic growth. Both the different econometric approaches confirm that the exogenous component of financial intermediary development is positively associated with economic growth. They also provide evidence that cross-country differences in the legal rights of creditors, the efficiency of contract enforcement, and accounting system standards help explain cross-country differences in the level of financial intermediary development, which in turn positively affects economic growth.

Levine and Zervos (3) investigate the empirical link between stock markets development and long-run growth. Their data suggest that stock market development is positively associated with economic growth. Moreover, instrumental variables procedures indicate a strong connection between the predetermined component of stock market and economic growth in the long run. Levine & Zervos investigate whether well-functioning stock markets promote long run economic growth. They study whether measures of stock market liquidity, including size, volatility, and integration with world capital markets, are correlated with current and future rates of economic growth, capital accumulation, productivity improvements, and saving rates. They find evidence that stock market liquidity, as measured both by the value of stock trading relative to the size of the market and by the value of trading relative to the size of the economy, is positively and significantly correlated with current and future rates of economic growth, capital accumulation and productivity growth. Rajan & Zingales (4) examine whether financial development facilitates economic growth by scrutinizing one rationale for such a relationship, namely that financial development reduces the costs of external finance to firms. They study whether industrial sectors that are relatively more in need of external finance develop disproportionately faster in countries with more developed financial markets, and find this to be true in a large sample of countries over the 1980s. The results suggest that financial development may play a beneficial role in the development of new firms, and that the existence of a well developed financial market may be a source of comparative advantage for a country or region with industries that are more dependent on external finance.

Karagoz and Ergun (5) investigate the relationship among five Balkans stock exchanges of Bulgaria, Croatia, Greece, Romania and Turkey. Results of the co-integration in the study reveal at least one co-integration equation between Balkan stock markets indices which verifies the stock market integration in the region.

Investigation of the globalization of returns between the US market and twelve Emerging European Countries (EEC) in the period of 2005-2013 was done (6) with the objective of the study to identify if there exists a significant relationship between co-movements of returns obtained in the US stock market and those obtained in the EEC markets. The results represent statistically significant coefficients for the model applied. Findings advocate that between the US developed and the emerging stock markets exists a statistically significant degree of interconnection in terms of obtained returns. Even though the results reveal a high degree of stock market globalization, although further, detailed information about stock market interconnection, should be investigated. In the paper of Kenourgios and Aristeidis Samitas is examined long-run relationships among five Balkan emerging stock

markets (Turkey, Romania, Bulgaria, Croatia, Serbia), the United States and three developed European markets (UK, Germany, Greece), during the period 2000-2009. The results show that stock market dependence is heightened, supporting the herding behaviour during the 2008 stock market crash period.

Another study investigates the stock markets of Greece, Turkey and Romania (8). The study describes Balkan markets as uncorrelated, uninfluenced each other and with unequal risk characteristics. For the two big markets in the region we found that they can be described as being in the beginning of process of integration.

3. MONTENEGRIN SELECTED SOCIO-ECONOMIC INDICATORS

A set of selected indicators will be analyzed over the past ten or so in order to notice which kind of trend has been appeared in the development of Montenegro.

GDP ANNUAL GROWTH RATE

Montenegro GDP expanded 4.2 percent year-on-year in the third quarter of 2015, following a 3.7 percent gain in the previous period. Gross fixed capital formation recorded the biggest rise (up 19.35 percent), followed by exports (up 15.65 percent), imports (up 7.43 percent) and government spending (up 1.16 percent) while household spending went down 2.97 percent. Montenegro GDP annual growth rate forecasts was projected using an autoregressive integrated moving average (ARIMA) model calibrated using our analysis expectations. The past behaviour of Montenegro GDP annual growth rate uses vast amounts of historical data and the coefficient is adjusted of the econometric model by taking into account the analysts assessments and future expectations. (<http://www.tradingeconomics.com/montenegro/gdp-growth-annual>). In the following chart (here and further, figures and comments are taken from the site <http://www.tradingeconomics.com/montenegro/gdp-growth-annual>), GDP Annual Growth Rate Forecast in Montenegro is showed longer than the last decade

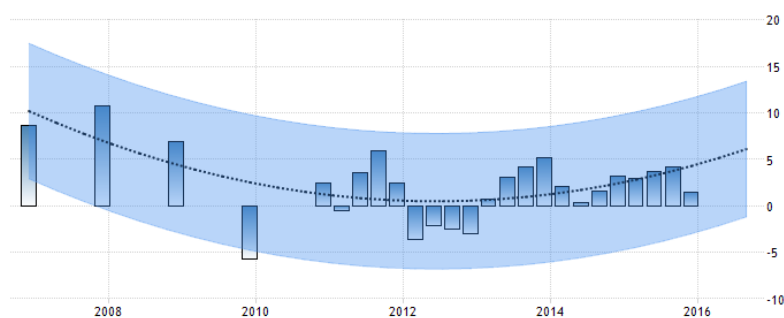


Figure 1. the Montenegro GDP Annual Growth Rate Forecast

The annual GDP rate averaged 2.37 percent from 2001 until 2015, reaching an all time high of 10.70 percent in the fourth quarter of 2007 and a record low of -5.70 percent in the fourth quarter of 2009 (GDP Annual Growth Rate in Montenegro is reported by the Statistical Office of Montenegro). The negative rate was recorded in the last quarter of 2013 after that it was positive reaching the highest value in the fourth quarter of 2014.

The structure of the GDP shows that the economy relies heavily on foreign tourism and the export of refined metals. On the expenditure side, however, household consumption is

the main component of GDP and accounts for 80 percent of its total use, followed by government expenditure (19 percent) and gross fixed capital formation (19 percent). Exports of goods and services account for 40 percent of GDP while imports account for 60 percent, subtracting 20 percent of total GDP. The forecast shows an upward trend of the GDP growth in the future.

GDP PER CAPITA

The Gross Domestic Product per capita in Montenegro was last recorded at 4757.32 US dollars in 2014. The GDP per Capita in Montenegro is equivalent to 38 percent of the world's average. GDP per capita in Montenegro averaged 3947.52 USD from 1997 until 2014, reaching an all time high of 4757.32 USD in 2014 and a record low of 3149.68 USD in 1999. GDP per capita in Montenegro is reported by the World Bank.

The Gross Domestic Product per capita in Montenegro was last recorded at 14357.74 US dollars in 2014, when adjusted by purchasing power parity (PPP). The GDP per Capita, in Montenegro, when adjusted by Purchasing Power Parity is equivalent to 81 percent of the world's average. GDP per capita PPP in Montenegro averaged 11913.73 USD from 1997 until 2014, reaching an all time high of 14357.74 USD in 2014 and a record low of 9505.84 USD in 1999. GDP per capita PPP in Montenegro is reported by the World Bank.

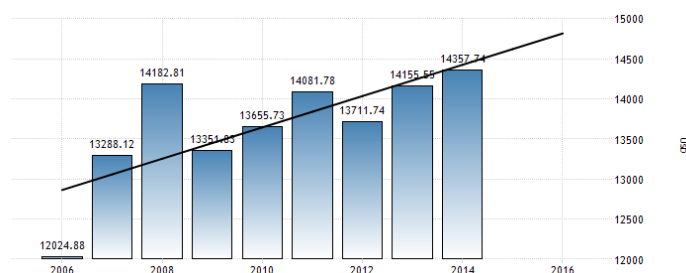


Figure 2. The Montenegro GDP per capita PPP

The GDP per capita is obtained by dividing the country's gross domestic product, adjusted by inflation, by the total population. The movement during entire period shows general trend of recovering after the crisis year of 2009 except in 2012.

INFLATION RATE

Consumer prices in Montenegro increased by 0.1 percent year-on-year in February of 2016, easing from a 0.8 percent growth in the previous month and hitting its lowest level since December 2014. The biggest upward impact came from prices of housing, water, electricity, gas and other fuels (+1.2 percent), clothing and footwear (+3.2 percent), alcoholic beverages and tobacco (+3.2 percent) and restaurants and hotels (+2.8 percent) went up. In contrast, downward pressure came from: food (-0.5 percent), transport (-4.6 percent), miscellaneous goods and services (-0.3 percent). On a monthly basis, prices fell 0.4 percent compared to a 0.9 percent drop in January. Inflation Rate in Montenegro averaged 5.24 percent from 2001 until 2016, reaching an all time high of 26.50 percent in December of 2001 and a record low of -1.40 percent in April of 2014. Inflation Rate in Montenegro is reported by the Statistical Office of Montenegro.



Figure 3. The Inflation Rate

Source: <http://www.tradingeconomics.com/montenegro/gdp-growth-annual>

Generally, trend suggests a downturn movement towards zero.

EMPLOYED PERSONS

The number of employed persons in Montenegro, according to the Statistical Office of Montenegro, decreased to 170434 in January of 2016 from 172517 in December of 2015. Employed Persons in Montenegro averaged 152578.86 from 2001 until 2016. Reaching an all observed time high of 182444 in July of 2015 and a record low of 109639 in December of 2003.



Figure 4. Employed persons

According to the definition, in Montenegro employed persons are those individuals with minimum required age who work during a certain time for a business. In the last ten years the highest number of employees was 182.4 thousands and the lowest 109.6 thousands, while the last record in the beginning of 2016 shows 170.4 thousands.

UNEMPLOYMENT RATE

The unemployment rate measures the number of people actively looking for a job as a percentage of the labour force. Unemployment Rate in Montenegro, according to the Statistical Office of Montenegro, increased to 17.75 percent in January from 17.24 percent in December of 2015. Unemployment Rate in Montenegro averaged 16.83 percent from 2002 until 2016, reaching an all time high of 31 percent in April of 2002 and a record low of 10.20 percent in August of 2009.



Figure 5. Unemployment Rate

Statistic average wage in Montenegro has varied in the last ten years from the lowest 288.05 per month to the highest 772.00 per month ending at the beginning of 2016 at 739 €/month.

GOVERNMENT DEBT TO GDP

Government debt in Montenegro (The Central Bank of Montenegro) is expected to rise to 61.4 percent of GDP in 2015 from 54.8 percent in 2014, according to European Commission's Winter 2016 Economic Forecast. Government Debt to GDP in Montenegro averaged 40.41 percent from 2005 until 2013, reaching an all time high of 56.84 percent in 2013 and a record low of 27.50 percent in 2007.



Figure 6. The Government Debt to GDP

The trend of raising the Government debt shows that the debt has become the main means of mitigating the effects of the global financial crisis in Montenegro. This means that there has not been an adequate reform of the economy, which would increase the added value and export, and thus lead to a healthy recovering from the impact of the external crisis.

FOREIGN DIRECT INVESTMENTS

Foreign direct investment in Montenegro (data provided by the Central Bank of Montenegro) increased by 498084.31 EUR thousand in 2014. Foreign Direct Investment in

Montenegro averaged 735886.40 EUR thousand from 2007 until 2014, reaching an all time high of 1223999.76 EUR thousand in 2009 and a record low of 479191.48 EUR thousand in 2013.

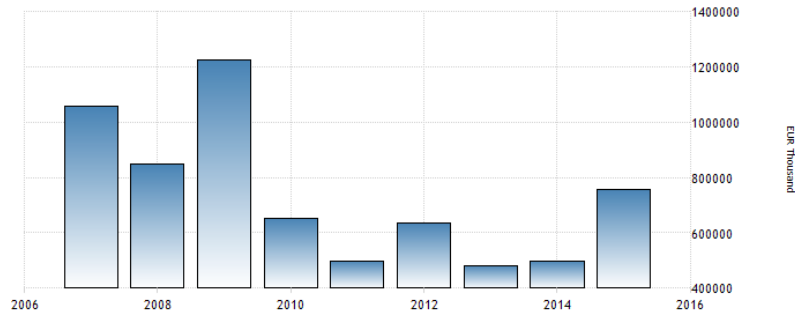


Figure 7..The Foreign Direct Investments

Foreign direct investments remain one of the most important factors for boosting economy and the positive wave of it is predicted to last at list in the next decade.

BALANCE OF TRADE

Montenegro recorded a trade deficit (Source: the Statistical Office of Montenegro) of 67186 EUR thousand in January of 2016. Balance of Trade in Montenegro averaged -119054.75 EUR Thousand from 2011 until 2016, reaching an all time high of -47948 EUR Thousand in January of 2011 and a record low of -74182 EUR Thousand in July of 2015.

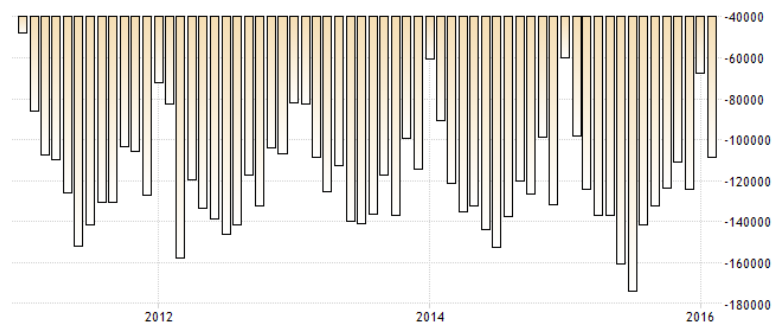


Figure 8. The Balance of Trade

Montenegro exports mainly manufactured goods, mineral fuels, lubricants, raw materials and food and beverages. Due to historical reasons, Montenegro has strong trade ties with its neighbours. Tourism, which represents 46 percent of Montenegrin exports, is already a crucial part of Montenegro's trade flows and is expected to keep growing in the future. Montenegro's ore deposits also play an important role in the country's exports, aided by a complementary manufacturing sector. Montenegro imports manufactured goods, food, beverages and tobacco, mineral fuels, lubricants and machinery and transport equipment. Montenegro's main trading partners are Serbia, Greece, Bosnia and Herzegovina, Germany, Italy and Croatia.

THE CORPORATE TAX RATE

In Montenegro, the corporate income tax rate (Source: Department of Public Revenues, Montenegro) is a tax collected from companies. Its amount is based on the net income companies obtain while exercising their business activity, normally during one business year. The benchmark used here refers to the highest rate for corporate income. Revenues from the corporate tax rate are an important source of income for the government of Montenegro.

The Corporate tax rate in Montenegro stands at 9 percent. Corporate Tax rate in Montenegro averaged 10.69 percent from 2003 until 2015, reaching an all time high of 20 percent in 2004 and a record low of 9 percent in 2005.

THE PERSONAL INCOME TAX RATE

In Montenegro, the personal income tax rate is a tax collected from individuals and is imposed on different sources of income like labour, pensions, interest and dividends. It stands at 9 percent. Revenues from the personal income tax rate are an important source of income for the government of Montenegro also as corporate tax.

SALES TAX RATE – VAT

The sales tax rate in Montenegro (Source: Department of Public Revenues, Montenegro) stands at 19 percent. Sales tax rate in Montenegro averaged 17.73 percent from 2006 until 2016, reaching an all time high of 19 percent in 2013 and a record low of 17 percent in 2007. The sales tax rate is a tax charged to consumers based on the purchase price of certain goods and services.

CONTRIBUTIONS

There are three types of contributions such as: social security rate 32.80 percent, social security rate for companies 9.30 and social security rate for employees 23.50. Accounting bases is net income for all those contributions.

EASY OF DOING BUSINESS

The index ranks countries against each other based on how the regulatory environment is conducive to business operation stronger protections of property rights. Economies with a high rank (1 to 20) have simpler and friendlier regulations for businesses. Ease of Doing Business Index in Montenegro, reported by the World Bank, improved to 46 in 2015 from 47 in 2014. Ease of Doing Business Index averaged 55.88 from 2008 until 2015, reaching an all time high of 77 in 2008 and a record low of 44 in 2013.

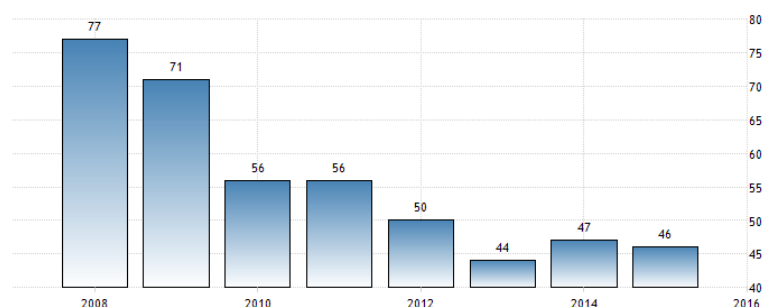


Figure 9. The Easy of Doing Business

CORRUPTION RANK

Montenegro is the 61 least corrupt nations out of 175 countries, according to the 2015 Corruption Perceptions Index reported by Transparency International. Corruption Rank in Montenegro averaged 79.33 from 2003 until 2015, reaching an all time high of 106 in 2003 and a record low of 61 in 2015.



Figure 10. The Corruption Rank

The Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be.

4. MONTENEGRIN CAPITAL MARKET

When it comes to the institutional framework of the Montenegrin capital market, the Commission for Securities, an umbrella institution, whose scope of activities and responsibilities defined by the Law on Securities, which also determines the terms of issuing and trading, and the rights and obligations of the market.

Stock change is a mirror of the situation in the economy of a country and a very efficient mechanism that allows the inflow of new capital to the market. But there are other very important functions of stock exchange attributed to market allocation of scarce funds, information on achieved performance of the companies and so on.

Montenegrin capital market, given the size of the country and its financial strength, which is a little in terms of alignment with European principles, is in the same time

disadvantage and advantage. The disadvantage is obvious in term of low level of trade, not allowing dynamic development, and limited professional human resource in financial sector, when it is a little present the practice of hiring foreign experts. On the other hand, the advantage of a small system is its ability for greater flexibility and faster changes.

The capital market in Montenegro laws are harmonized with the EU acquis but sometimes fully application has been missed. It makes difficult for full compliance with the principles of the European Union. The Montenegrin capital market is in needed of better implementation of the European Transparency Directive, particularly when it comes to information about companies, i.e. mandatory drawing up semi-annual and annual financial statements and mandatory external audit in accordance with International Standards on Auditing, as well as the Directive on shareholders' rights (EU), which defines the minimum standards for the exercise of their rights in corporations listed on the stock exchange.

Thanks to the many harmonized laws with the EU, a set of measures for the regulation of market activities, investment companies, ways to protect investors and the powers of the regulator have been determined. Compliance with European practice exists with companies in the fields of accounting, since the application of international standards was accepted.

5. MONTENEGRO STOCK MARKET (MONEX)

The turnover of securities in Montenegro takes place on, which allows trading on the stock exchange and free market through an electronic system. The involvement of minority shareholders and their interest in investing in the capital market enabled after the national program of mass voucher privatization in 2001, culminated in a time of economic boom period from 2006 to 2009. However, it calmed down under the impact of the economic crisis, and the collapse of big state-owned companies whose share capital lost value initiating bankruptcy.

The Montenegro MONEX 20 Index is a major stock market index which tracks the performance of 20 biggest companies listed on the Montenegro Stock Exchange (MSE). Montenegro Monex20 Index gained 116 points or 0.96 percent during the last 12 months from 12,131.19 points in March of 2015. Historically, the Montenegro Stock Market (Monex20) reached an all time high of 48617.88 in May of 2007 and a record low of 918.57 in April of 2003.

The following chart shows the movement MONEX index top 20 companies on the stock market.



Figure 11. The Montenegrin Stock Exchange Index MONEX

MARKET CAPITALIZATION

The market capitalization indicator is calculated monthly by multiplying the total number of shares traded on the stock market with their prices. As the relevant price for securities are used those traded. If they are not traded in the particular month, than the average price from the previous month is used. The total capitalization on the Montenegro stock exchange in April 2016 has been 2,837 million Euros.

STRUCTURE TURNOVER ON THE MONTENEGRO STOCK EXCHANGE

The key shift that is on the Montenegrin capital market in the aftermath of the crisis is bond trading, which is otherwise very developed in the EU. Placement of bonds on the domestic capital market succeeded to some extent returned the interest of investors due to the fact that the yield for a certain period of higher interest rates on bank deposits placed for a time.

In 2016 Montenegrin Government is on the international capital market successfully implemented the program of the new five-year bonds in the amount of 300 million Euros, with an interest rate of 5.75%. It is the fifth transaction so far, which has attracted the attention of more than 77 international investors from over 25 countries. Most of the bonds are allocated to investment funds (48%), followed by banks and small investors (37%), insurance companies and pension funds (11%) and hedge funds (4%). This newest emission does not represent new debt, but refinancing the maturity of previously issued bonds bought by foreign investors. The bond issue provided the funds for the repayment of liabilities arising from bonds issued in 2011, with an interest rate of 7.25%, falling due in April of this year, representing a decrease rate of about 25%.

CREDIT RATINGS

Credit ratings of the set of countries that are considered as the possible constituents of the future regional integrated capital market are shown in the following table.

Table 1 Credit Ratings

Countries	S&P	Grades	Moody's	Grades
Albania	B+ stable	Highly speculative	B1 stable	Highly speculative
Bosnia and Herzegovina	B stable	Highly speculative	B3 stable	Highly speculative
Bulgaria	BB+ stable	Non-investment grade speculative	Baa2 stable	Lower medium grade
Croatia	BB negative	Non-investment grade speculative	Ba2 negative	Non-investment grade speculative
Greece	B- stable	Highly speculative	Caa3 stable	In default with little prospect for recovery
Montenegro	B+ stable	Highly speculative	Ba3 stable	Non-investment grade speculative
Romania	BBB-stable	Lower medium grade	Baa3 positive	Lower medium grade
Serbia	BB-negative	Non-investment grade speculative	B1 stable	Highly speculative
Turkey	BB+ negative	Non-investment grade speculative	Baa1 negative	Lower medium grade
Macedonia	BB- stable	Non-investment grade speculative	-	-

In general, a credit rating is used by sovereign wealth funds, pension funds and other investors to gauge the credit worthiness of Montenegro thus having a big impact on the country's borrowing costs. The ratings include the government debt credit rating for Montenegro as reported by major credit rating agencies as of 3/17/2016. Standard & Poor's credit rating for Montenegro stands at 13+ (stable) and Moody's rating for Montenegro sovereign debt is 13a3 (negative).

All countries shows solid base for the wider regional integration of the local capital markets.

POTENTIAL OF THE REGIONAL COUNTRIES

The following data shows a huge potential of the region for capital market integration.

Table 2 Regional population, GDP per capita and GDP

Country	Population, total (in thousands)	GDP per capita (constant 2005 US\$)	GDP (constant \$ 2014, in millions)
Albania	2,894	3,897	11,280
Bosnia and Herzegovina	3,817	3,441	13,125
Serbia	7,129	4,246	30,268
Montenegro	622	4,770	2,966
Bulgaria	7,224	5,021	36,345
Romania	19,911	6,257	124,573
Turkey	75,932	8,865	673,121
Total	117,531		891,688

The total population indicate a possible significant number of potential participants as small investors. However, GDP per capita is mostly low and thus the future integrated capital markets could likely improve this indicator. Total GDP signalize that mutual impact could be positive in sense that regional integration could be fuelled with the SEE Link is a project started by the Bulgarian, Macedonian and Croatian stock exchanges with the objective of creating a regional infrastructure for the trading securities listed on the three markets. The idea behind this cross border initiative is to integrate regional equities markets without a merger or corporate integration, using technology that will enable participating stock exchanges to remain independent while still giving investors easier and more efficient access to those markets.

CONCLUSIONS

Mentioned theoretical base, chosen of various research, suggests that capital market is important institutional factor influencing the development of a market economy. Further, integrated capital market at regional level increase possibility for its faster development as well as prosperity of national capital markets in return. Montenegro experienced gradual recovering from the global financial crisis. GDP growth rate has growing tendency with a perspective to enter into zone of at least 4% annual growth rate. Similar trend is with GDP per capita. Inflation annual rate is low in the last several years with the perspective to stay low especially taking into account that the euro is national currency. The number of employed persons has slowly increased over the last several years although still at low level because unemployment rate is still very high. Government debt to GDP is high reaching the EU criteria as result of using debt as the main means of mitigating the effects of the global financial crisis in Montenegro. Foreign direct investments remain as the main leverage to boost the growth which means that economic reform has lagged and it should be speeded up. The balance of trade is for a long time negative without sign to obtain a reversed direction. The corporate tax rate in Montenegro is favourable low as well as personal income tax, sales tax rate (VAT) and, thus, attractive for business. Easy of doing business indicator shows how much simpler and friendlier regulations are for business. Corruption rank places Montenegro on a record low level at 2015. Montenegro capital market after boom in 2007 shows gradual recovering but still remaining at low level. It lost dynamic after mass privatization implemented just before the boom. Limited local capital market needs to be integrated with

the regional national markets in order to attract investors with inflow and outflow of their free flow of capital.

The short insight into selected data from the neighbour countries suggests that there is a potential for establishing direct ties for trading among countries in the region, Balkan and wider. All the countries struggle to improve economic and financial performance of their economies. Many factors suggest that there is a positive climate for capital market to be more linked among themselves. The region has population of 117 million. Some projects, such as SEE Link, confirm mentioned and encourages effort that regional capital market integration is inevitable for the benefits to all countries evolved.

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QUALITY ASPECT OF GEOMETRIC DEFORMATIONS AT PROCESS OF INJECTION MOLDING - CASE STUDY ON OPTICAL FIBER HUB PARTS

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Abstract: Paper surveys major factors that influence quality of plastic injection molding process, on case of real experiment created in aim to examine production of external elements of optical fiber hub - housing and lid. Experiment is conducted in plastic production plant, where optical fiber hub is their standard product. Examined factors included geometry, process, and material and all their interactions. Experiment was conducted using modified Taguchi method. Post analysis of experimental results included deployment of criteria for minimal geometric deformations and contribution ratio in order to obtain optimal geometric deformations. Obtained results indicate that influence of material is significant in most measurement points with recommendation of material usage for housing production. Geometry has significant influence in border measurement points and corresponds to housing. Process, as its set up has no influence, which is subjected as an issue for further research. Factor interactions also do not have influence on quality of plastic injection molding process and therefore they could be partially left out in further examinations.

Keywords: Injection plastic molding, geometric deformations, modified Taguchi's methodology, product quality, influential factors, housing, lid

1. INTRODUCTION

Advance in materials and technology in last decades resulted in increased usage of plastic parts in products. Processes that use injection molded thermoplastic are convenient due to freedom of geometry, low density and waste during production, as well as low production costs. Due high industrial demands those processes demand improved product quality. On other side design aspect of methodology still presents a problem comparing to metal production processes with main goal is to achieve adequate quality via monitoring and promptly processes [1, 2, 3, 4, 5].

In order to improve quality characteristics, especially geometric deformation during plastic injection molding production of products and their parts, authors in previous studies most frequently use simulation methods and computer packages such as MoldFlow Plastic Insight, Moldex 3D, PRO/Engineer, C-Mold [1, 2, 6, 7, 8]. Certain authors use experiments conducted in laboratory conditions [9, 10, 11], while experimentation in real conditions is extremely rare [4, 5, 6, 12]. In literature, some authors even do not specify method of experimentation that is used [13].

In that aim this study aims to use real experiment to examine major factors that influence quality of process of plastic injection molding, in production of external elements of optical fiber hub - housing and lid processes.

2. PROBLEM BACKGROUND

In previous studies most commonly examination refers to process parameters, that are expected to have major influence on product quality and geometric deformations (shrinkage and warpage) that influence quality of finished product or part [1, 2, 3, 4, 5, 6, 8, 9, 12]. Taguchi's methodology, Design of experiments, and ANOVA are frequently used for data analysis [2, 4, 6, 8, 13, 14]. Other methods in usage are response surface [4], artificial neural networks [2, 7], and generic algorithms for post analysis of experimental data in order to obtain optimal values of parameters [2, 4]. Some authors use basic offered program outputs [1].

This paper presents follow-up research on parts of the optical fiber hub produced by plastic injection molding. In the first phase process parameters such as temperature of molded plastic, injection time, holding pressure, holding pressure time and cooling time, were examined on three basic parts - housing, lid and hub. Experimentation was conducted via simulation using MoldFlow Plastic Insight and via real experiment conducted in plastic production plant. For analysis of data Taguchi's method were used.

Obtained results led to conclusion that simulation could lead to false results, since linear increase of geometric deformations from injection to boundary points of the parts, which is not the case in real production conditions [15]. Also as a influential factors in real experiment are identified holding pressure, injection time and temperature of molded plastic. Application of the same parameters on lid in real experimentation in most cases does not have significant influence on geometric deformations [16].

Busick et al. [1] showed that process defined by set points and variation, geometry of part and material, during injection molding of plastic can have influence on feasible tolerances of product, i.e. on geometric deformations. That further has influence on quality of the output [5].

Based on idea that process, material and geometry can all influence geometric deformation of produced part, experiment was conducted using above three parameters as an experimental factors. Goal of experimentation was to obtain such incipient results that would define the factor merits in order to obtain optimal values for geometric deformations.

3. EXPERIMENTAL SETUP

Experiment was conducted on two external parts of assembly of Optical fiber hub - housing and lid. Hub part is not taken in account, since it is inner part which is undependable of materials and it would have an influence on geometry, due far smaller measurements than the other two parts.

It was conducted as additional research on plastic injection molding of optical fiber hub, which is standard product at BMB Automatic manufacturing, Belgrade. Measurements of tools and parts were conducted on coordinate measuring machine at Mechanical Faculty in Zenica [15, 16].

Full factorial traditional two level 2^3 design was used. Analysis combine traditional and Taguchi's methodology leading to modified Taguchi method, with main goal to obtain optimal setup of factors [17, 18, 19].

Examined factors were geometry, process and material (Table 1).

Table 1. Experimental factors and factor levels

Factor	Abb.	Factor level 1	Factor level 2
Geometry	G	Housing	Lid
Process	P	Process 1	Process 2
Material	M	PC/ABC Grade C2800	Terluran, GP35

It should be noted that the first material is characteristic of production of housing, and the second is used for production of lid. Furthermore, process is defined by five parameters that are given in Table 2.

Table 2. Process parameters defining levels for Process as a factor

Process parameter	Maesure	Process 1	Process 2
Temperature of molded plastic	°C	220	240
Injection time	s	1	1.2
Holding pressure	bar	55	70
Holding pressure time	s	5	7
Cooling time	s	25	40

Experiment was conducted randomly, with tree replications.

After conducted experiment, geometric deformations (shrinkage or warpage) are measured in 5 representative points as presented in Fig. 1 (a), (b).

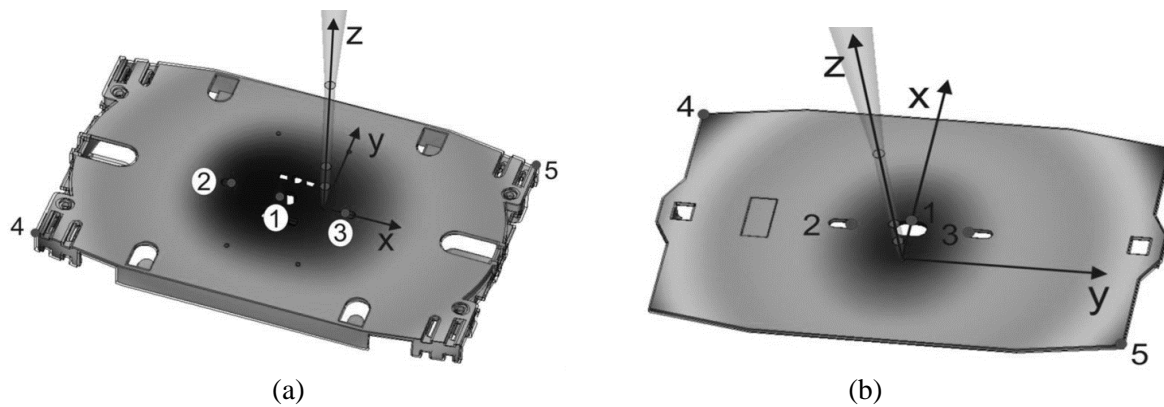


Figure 1. Measurement points of geometric deformations for (a) housing and (b) lid

4. ANALYSIS OF EXPERIMENTAL DATA

Analysis of experimental data is conducted in several phases:

- Preparing and analysis of experimental data for analysis for all five measurement points with addition of p -value calculation (Taguchi's approach);
- Deployment of criteria for minimal geometric deformations for overall experiment that include all measurement points;
- Obtaining of estimates of contribution ratios for all measurement points and their interpretation and
- Recommendations.

4.1. BASIC ANALYSIS OF EXPERIMENT

After conducted experiment, collected data were presented for all five measurement points. As an example for point 4 results were (Table 3):

Table 3. Experimental set-up and results of geometric deformations for measurement point 4

	<i>G</i>	<i>P</i>	<i>G-P</i>	<i>M</i>	<i>G-M</i>	<i>P-M</i>	<i>G-P-M</i>	y_1	y_2	y_3	Y_4
1	-1	-1	-1	-1	-1	-1	-1	0.579	0.549	0.588	1.716
2	1	-1	1	-1	1	-1	1	0.546	0.502	0.45	1.498
3	-1	1	1	-1	-1	1	1	0.573	0.599	0.595	1.767
4	1	1	-1	-1	1	1	-1	0.509	0.487	0.512	1.508
5	-1	-1	-1	1	1	1	1	0.615	0.589	0.667	1.871
6	1	-1	1	1	-1	1	-1	0.499	0.573	0.513	1.585
7	-1	1	1	1	1	-1	-1	0.614	0.708	0.697	2.019
8	1	1	-1	1	-1	-1	1	0.556	0.508	0.445	1.509
										<i>T</i>	13.47

Results of experiments for all measurement points are presented in corresponding ANOVA tables. As an example, for point 4 results are shown in Tab. 4.

Table 4. Analysis of experimental results of geometric deformations for measurement point 4

Source	<i>SS</i>	<i>f</i>	<i>MS</i>	<i>F</i>	<i>p-value</i>	remark
<i>G</i>	0.068	1	0.068	45.12	0	***
<i>P</i>	7E-04	1	7E-04	0.493		n.s.
<i>M</i>	0.01	1	0.01	6.823	0.019	*
<i>G-P</i>	0.003	1	0.003	1.955		n.s.
<i>G-M</i>	0.004	1	0.004	2.833		n.s.
<i>P-M</i>	5E-06	1	5E-06	0.003		n.s.
<i>G-P-M</i>	0.001	1	0.001	0.932		n.s.
<i>e</i>	0.024	16	0.001			
<i>T</i>	0.111	23				

Based on ANOVA tables and corresponding p -values influence of main effects of factors is presented in Table 5.

Table 5. Influence of main factorial effects in measurement points P_1 to P_5

	<i>G</i>	<i>P</i>	<i>M</i>
P_1	n.s.	n.s.	n.s.
P_2	n.s.	n.s.	**
P_3	n.s.	n.s.	*
P_4	***	n.s.	*
P_5	**	n.s.	**

4.2. DEPLOYMENT CRITERIA FOR MINIMAL GEOMETRIC DEFORMATIONS

Geometric deformations for all measurement points are given in Tab. 6.

Table 6. Experimental results for all rows of measurements points

	Y_{i1}	Y_{i2}	Y_{i3}	Y_{i4}	Y_{i5}	Y_{i6}	Y_{i7}	Y_{i8}
P_1	-0.297	-0.246	-0.268	-0.337	-0.272	-0.516	-0.343	-0.289
P_2	0.267	0.155	0.283	0.251	-0.567	-0.316	-0.294	-0.376
P_3	-0.181	-0.196	-0.25	-0.291	0.642	1.076	1.116	0.184
P_4	1.716	1.498	1.767	1.508	1.871	1.585	2.019	1.509
P_5	1.446	1.373	1.349	1.205	2.097	1.999	2.305	1.892

Based on experimental results (Tab. 6), for each point, minimal geometric deformations were chosen (1), i.e.

$$Y_{ij} = \min(|P_{1j}|, |P_{2j}|, |P_{3j}|, |P_{4j}|, |P_{5j}|), j = 1, \dots, 8, \quad (1)$$

that leads to:

$$Y_{ij} = \min(|-0.246|, |0.155|, |-0.181|, |1.498|, |1.205|)$$

Optimal deformation represents maximum of y_{ij} , thus is one of the parameters that define optimal factor levels (2)

$$Y_{opt} = \max(Y_{ij}), i = 1 \dots 5, j = 1 \dots 8, \quad (2)$$

that results with

$$Y_{opt} = \max(0.246, 0.155, 0.181, 1.498, 1.205) = 1.498 \text{ mm} \sim P_4$$

Maximal geometric deformation between minimal deformations in all measurement points is located at 4-th measurement point.

Based on chosen measurement point with optimal geometric deformation (P_4), optimal factor levels are in the second row (Tab. 3), with factor levels *G* - geometry 1 (lid), *P* -

Process 1 (Tab. 2) and M - material PC/ABC Grade C2800 (originally is in the use for injection molding of housing).

Looking at influence of factors there is in P_4 major influence of part geometry, as well as an influence of material. Process has no influence (Tab.5). Therefore optimal combination of factor levels is (3):

$$G_{-1} P_{-1,+1} M_{-1} \quad (3)$$

That means that conducted experiment leads to conclusion that geometry and material can be chosen on the base of experimental results, while process can be chosen according some other parameters such as costs.

4.3.POST-ANALYSIS WITH CONTRIBUTION RATIO

For all measurement points from corresponding ANOVA tables, contribution ratios were calculated [17], [18]. Graphic representation of contribution ratios is presented at Fig. 2.

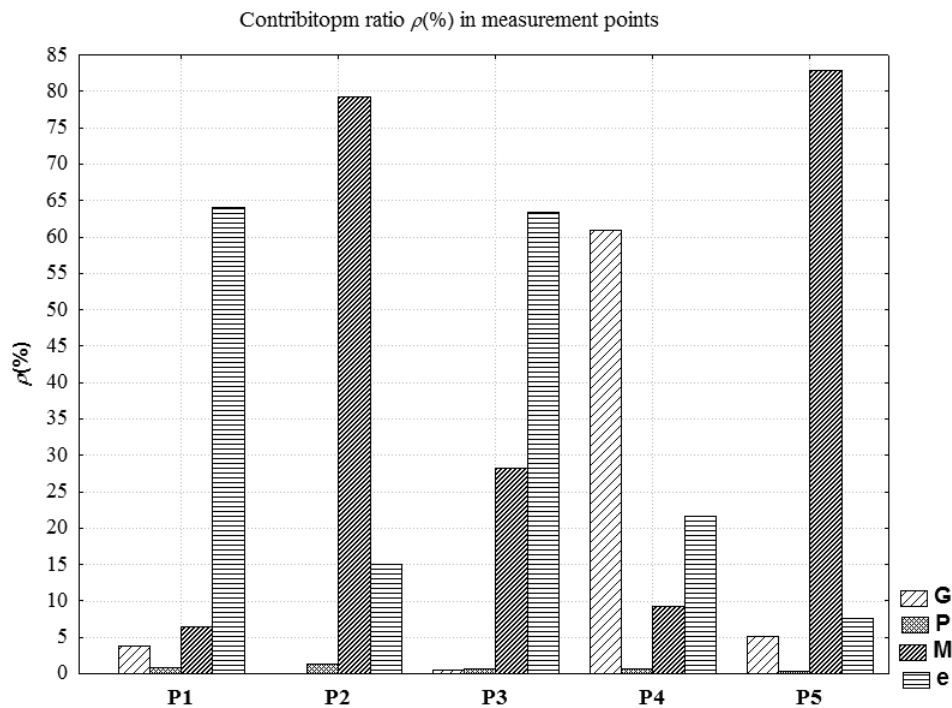


Figure 2. Contribution ratios for measurement points of geometric deformations in injection molding of plastic

Contribution ratios indicate that for measurement points P_1 and P_3 greatest contribution ratios are due to random error - about 64%. Therefore it can be concluded that in those points some other factors than examined have influence on geometric deformations.

Process, as an examined factor on plastic injection molding has no influence on geometric deformations, due to chosen parameter values or chosen parameters. Geometry, as

an examined factor has influence on geometric deformation in furthest measurements points from injection point with 60.84% for point 4 and 5.15% in point 5. For both points geometry is represented by lid of optical fiber hub.

Material as an examined factor has influence on geometric deformation in injection molding in all measurement points, except in the point nearest to injection. Thus in point 3 influence of material is 28.9%, which is significantly smaller than influence of error (63.37%). Also, influence in point with largest geometric deformation (P_4) is 9.2%. Contribution ratio in other two points where material has influence is significantly larger, i.e. 79.24% for P_2 and 82.25% at P_4 . Therefore, material is actually the major influential factor on geometric deformations in plastic injection molding. In all cases preferred material is PC/ABC Grade C2800, which is using for housing.

As to interactions, contribution ratios are small in range of 0 to 4.17% for two factor interaction, while for tree factor interaction is 15.31% (p -value is significant at level 0.07).

According above considerations of experimental results, in order to obtain minimal geometric deformations in external parts of optical fiber hub, two factors have influence, material in almost all points and geometry in points furthest from injection point of plastic.

Usage of contribution ratios leads to the same optimal values for factor levels for minimal geometric deformations in plastic injection molding as in utilization of criteria for minimal geometric deformations (3), i.e. (4).

$$G_{-1}, P_{-1,+1}, M_{-1} \quad (4)$$

4.4. RECOMMENDATIONS

Results of selection of the optimal factor levels that have minimal geometric deformations in plastic injection molding are the same using the criteria for minimal geometric deformation and based on contribution ratios. Therefore optimal factor levels are (5):

$$G_{\text{lid}}, P_{\text{Process1,Process2}}, M_{\text{PC/ABC Grade C2800}} \quad (5)$$

It should be noted also that application of contribution ratios leads to more concrete results, since with usage of contribution ratios is possible to actually determine percentages of influence for particular factorial effects.

5. CONCLUSION

Examining tree potentially major factors that have influence on quality expressed in obtaining minimal geometric deformations of production external parts of optical fiber hub - housing and lid, geometry, process and material the following conclusions can be drawn:

1. Geometry has influence on geometric deformations in boundary points of examined parts;
2. Geometry as a factor should be applied primary on lid of the hub;

3. Process as a factor, with chosen parameters and their values does not have influence on geometric deformations;
4. Material has influence on geometrical deformations in most measurement points, with exception of injection point, therefore is the major factor for obtaining desired quality of product;
5. Recommended material for external hub production is material using production of housing;
6. Interaction of examined factors, especially two factor interaction do not have influence on geometric deformations;
7. Tree factor interactions have some influence with contribution ratio of 15.31% only at injection point, with significance level near 0.05.

Based on obtained results further recommendations for research could be drawn:

- Since process parameters are considered as a major influence on product quality, they should be examined with different parameters or values;
- For different measurement points depending on distance of injection point different factors or values for examined factors should be considered; and
- Due lack of interaction influences for further research fractional factorial designs are recommended.

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NOMENCLATURE

Abbreviation	Context
G	geometry as an factor
P	process as an factor
M	material as an factor
p -value	significance level
G - P , G - M , P - M	two factor interactions
G - P - M	tree factor interaction
$y_1, y_2, y_3,$	replication measurements
Y_i	sum of replications in measurement point $i=1..5$
e	experimental error
T	total
SS	sum of squares
f	degree of freedom
MS	variance estimate
F	empirical value of F test
n.s.	not significant influence of the factor (effect)
*	significant at level $p<0.05$
**	significant at level $p<0.01$
***	significant at level $p<0.001$
P_1 - P_5	measurement points for geometric deformations
Y_{opt}	optimal geometric deformation
$\rho(\%)$	contribution ratio
ANOVA	analysis of variance

ENVIRONMENTAL STRATEGIC MANAGEMENT IN THE CASE OF CONTROL OF AIR POLLUTION IN PANCEVO (YEAR 2000-2010.) AND COMPARATIVE PRESENTATION OF CERTAIN PARAMETERS FOR THE PERIOD OF 2000-2010.

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Abstract: An important responsibility of environmental strategic management is the construction and maintenance of human resources so that the interests of people and the level of environmental awareness in the organization optimize the interests of the environment in which they work. A special form of strategic environmental management is aimed at controlling atmospheric conditions in the environment in which we live, this is the starting point of our work in the city of Pancevo just as synonymous with air pollution.

Keywords: Air pollution control, environmental strategic management, management of environmental change.

Apstrakt: Važna odgovornost ekološkog strategijskog menadžmenta je izgradnja i održavanje ljudskih resursa tako da se interesi ljudi i nivo ekološke svesti u organizaciji optimiziraju sa interesima sredine u kojoj rade. Poseban oblik ekološkog strategijskog menadžmenta usmeren je na kontrolu atmosferskih prilika u sredini u kojoj živimo, te je polazna tačka u našem radu upravo grad Pančevo, kao sinonim za zagađenost vazduha.

Ključne reči: Zagađenost vazduha, kontrola, ekološki strategijski menadžment, upravljanje ekološkim promenama;

UVOD

Od menadžera se u uslovima povećanja nivoa turbulentnosti i kompleksnosti sredine, u kojoj organizacija obavlja svoju poslovnu i širu društvenu misiju, sve više traži da imaju liderske osobine i preduzetnički duh. Sposobnost kreiranja vizije, misije, ciljeva i strategije, i njihove implementacije u život organizacije, upravljanje promenama, komunikativnost, sposobnost da stalno uči, intuitivnost, samouverenost, kreiranje novih vrednosti, i si., samo su neke od osobina savremenog menadžera koje zahteva nova konkurencija, nova tehnologija i novi stil života,

Kao rezultat povećanja nivoa turbulentnosti i kompleksnosti sredine preduzeća javlja se potreba za razvojem kompleksnijih menadžment sistema.

Strategijski ekološki menadžment prihvataju i praktikuju države suočene sa sve više promenljivom, turbulentnom i kompleksnom sredinom. Autori na ekološki strategijski menadžment gledaju kao na menadžment promena u životnoj sredini. On obuhvata sistem korporativnih ekoloških vrednosti, korporativnu ekološku kulturu, celi proces upravljanja promenama, takav kao vođenje, planiranje, kontrolu, i menadžment ljudskih resursa.

1. KVALITET VAZDUHA U PANČEVU ZA 2010. GODINU

Zavod za javno zdravlje Pančevo većim delom je vršio merenje aerozagadjenosti u Pančevu u toku 2010. godine i to na dva merna mesta. Dva merna mesta su se nalazila smeštena u Vatrogasnom domu i u Zavodu za javno zdravlje. Sve je radjeno prema Ugovoru sa Ministarstvom zaštite životne sredine prostornog planiranja.

Prema Ugovoru sa Gradskom upravom Grada Pančeva, Zavod za javno zdravlje Pančevo je vršio merenje aerozagadjenja u Pančevu na još dva dodatna mesta (takodje tokom 2010.god) a ta dva merna mesta su Zdravstvena stanica u Strelištu i u ulici Gornjačka 21 – Nova Misa.

Što se tiče mernih mesta Merna mesta, Zavod za javno zdravlje i Vatrogasni dom spadaju u lokalnu mrežu urbanih stanica za merenje imisija osnovnih i specifičnih zagađujućih materija, definisanu Uredbom o utvrđivanju Programa kontrole kvaliteta vazduha i odgovarajućim dvogodišnjim Programom. Merno mesto u samom Zavodu (nv 77m, N 440 52' 04,6" E 200 39' 11,1") reprezentuje središnju gradsku zonu (centar grada). Ovo mesto služi kao referentno, aktivno je više godina i na njemu se ispituju prosečne 24- časovne koncentracije zagađujućih materija u vazduhu.

Drugo merno mesto, Vatrogasni dom (nv 77m, N 440 51' 33,1" E 200 39' 00,1"), nalazi se na pravcu dominantnog vetra koji duva od industrijske zone prema naselju Sodara, odakle je, tokom proteklih godina, dolazilo najviše primedbi na kvalitet vazduha (ne računajući naselje Vojlovica, koje je, praktično u samoj industrijskoj zoni). Mesto je odabrano krajem 1990.godine, na predlog opštinskog Sekretarijata za zaštitu životne sredine.

Merno mesto u naselju Strelište (nv 77m, N 440 51' 50,1" E 200 40' 00,1") u zoni stanovanja. Merno mesto Nova Misa (nv 77m, N 440 53' 04,1" E 200 40' 09,1"), je u zoni stanovanja, ali su u blizini i zagađeni kanal Nadela i više industrijskih pogona i pogona male privrede, kao i intenzivan saobraćaj prema Vršcu.

Koordinate i nadmorska visina mernih mesta potvrđeni su merenjima pomoću modernih navigacionih uređaja, od strane odgovarajuće republičke agencije. Sve opisane lokacije su privremene , do konačnog definisanja mernih mesta, bilo izradom kvalitetnog katastra zagađivača i zagađenja, bilo na osnovu opsežnih ili kvalitetnih preliminarnih merenja kakva su sprovedena u Pančevu u okviru projekta "Industrial Air Pollution Management System in Pancevo", uz pomoć Ministarstva za zaštitu životne sredine, kopna i mora teritorije Italije, u kojima je ZJZ Pančevo aktivno učestvovao. Vezano za izbor lokacija i merenih parametara u okviru monitoring sistema u Pančevu, u zaključcima IAPMS je rečeno sledeće:

- Postojeća stanica u **ul. Cara Dušana** može se smatrati urbanom i saobraćajnom.
- Postojeća stanica na lok. **Vojlovica** pokazala se dosta dobrom kao industrijska i urbana;
- Postojeća stanica **Starčevo** predstavlja lokaciju tipa "suburbani bekgrund", pa se i dalje preporučuje korišćenje za te svrhe.
- Postojeće merno mesto **Vatrogasni dom** nije dobilo preporuku za dalje korišćenje, jer nije ni industrijska ni urbana lokacija.

Prisutan je uticaj saobraćaja i dve benzinske pumpe, kao i promet vatrogasnih vozila u neposrednoj blizini. Zbog svega ovoga predloženo je da se ova stanica preseli na povoljniju lokaciju u industrijskoj zoni, kao druga stanica tog tipa i dodatak postojećoj stanici Vojlovica.

Koncept buduće mreže monitoring sistema u Pančevu prema zaključcima IAPMS je sledeći:

- Uticaj industrije = 2 stanice. Sadašnja Vojlovica dobra je za fugalne emisije. Neophodna je još jedna. Predlaže se preseljenje postojeće stanice Vatrogasni dom.
- Suburbani background = 1 stanica. Dobra je sadašnja stanica Starčevo (i za praćenje ozona).
- Urbana zona - saobraćaj = 1 stanica. Dobra je sadašnja stanica u ul. Cara Dušana.
- Urbana zona - rezidencijalna = 1 stanica. Locirati je u velikom naselju gde nema većeg doprinosa saobraćaja. Agencija SEPA instalirala je, u međuvremenu ovakvu stanicu na lokaciji Sodara.
- Urbana zona - background = 1 stanica. Locirati je na području parka Narodna bašta.

Ovo bi sačinjavalo mrežu od ukupno 6 stanica. Prva tri zahteva ispunjava postojeća mreža stanica SO Pančevo, uz preseljenje jedne i redefiniciju merenih parametara na pojedinim mestima. Jedan zahtev ispunjava stanica agencije SEPA. Ako se ZJZ Pančevo dodeli lokacija Narodna bašta (samoinicijativno probna merenja se već vrše), kao zamena za postojeću lokaciju ZJZ, mreža od 6 fiksnih monitoring stanica bila bi kompletirana.

Uz ovih 6 fiksnih, projektom su predviđene i dve mobilne monitoring stanice, jedna za kontrolu emisija i druga za imisiona merenja u slučajevima hemijskog udesa ili izuzetno nepovoljnih meteoroloških prilika i povećanja aerozagađenja pri uobičajenim aktivnostima stanovništva i industrijskih postrojenja.

Uz odgovarajuću ukupnu organizaciju i adekvatnu i stabilnu finansijsku podršku, grad Pančevo bi na taj način obezbedio zadovoljavajući sistem za monitoring kvaliteta vazduha!

Tokom 2010. godine, Zavod za javno zdravlje Pančevo je vršio svakodnevna merenja osnovnih i specifičnih zagađujućih materija u vazduhu i to:

Osnovne zagađujuće materije:

- **Sumpordioksid**, svakodnevno, 24- časovno na dva merna mesta (Zavod i V. dom).
- **Azotdioksid**, svakodnevno, 24- časovno na dva merna mesta (Zavod i V. dom).
- **Čađ**, svakodnevno, 24- časovno, na četiri lokacije u gradu (Zavod, V. dom, Strelishte i N. Misa).
- **Ukupne suspendovane čestice (TSP)** – svaki treći dan, 24- časovno na mernom mestu Strelishte.
- **Ukupne taložne materije**, mesečno, na dve lokacije u gradu (Zavod i V. dom).

Specifične zagađujuće materije:

- **Amonijak**, svakodnevno, 24- časovno na dva merna mesta (Zavod i V. dom).
- **Benzen, toluen i ksilen**, svakodnevno, 24- časovno, na dva merna mesta (Zavod, V. dom).
- **6 teških metala (Pb, Cd, Zn, Hg, Ni, Cr)**, naknadnom obradom svakog trećeg uzorka TSP-a na mernom mestu Strelište (svakog devetog dana).
- **6 toksičnih metala** iz svakog uzorka taložnih materija.

2. KVALITET VAZDUHA U PANČEVU ZA 2010. GODINU

Zavod za javno zdravlje Pančevo je redovno vršio merenje aerozagadjenosti u Pančevu u toku 2010. godine i to na dva merna mesta. Dva merna mesta su se nalazila u Vatrogasnom domu i u Zavodu za javno zdravlje. Sve je radjeno prema Ugovoru sa Ministarstvom zaštite životne sredine prostornog planiranja.

Prema Ugovoru sa Gradskom upravom Grada Pančeva, Zavod za javno zdravlje Pančevo je vršio merenje aerozagadjenja u Pančevu na još dva dodatna mesta (takodje tokom 2010.god) a ta dva merna mesta su Zdravstvena stanica u Strelištu i u ulici Gornjačka 21 – Nova Misa.

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Indeks kvaliteta vazduha AQI (Air Quality Index) je relativna, bezdimenzionalna veličina kojom se ocenjuje štetnost uticaja zagađujućih materija iz vazduha na zdravlje i životnu sredinu. Indeks kvaliteta vazduha integriše uticaje koncentracija pojedinih polutanata.

U narednim tabelama⁷⁸ prikazani su indeksi kvaliteta vazduha za izmerene koncentracije čađi, TSP i amonijaka na mernim mestima u Pančevu, tokom 2010.godine.

Tabela 3. zdravstveni indeks kvaliteta vazduha za čađ u Zavodu

ČAĐ Zavod Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-25	Dobar	0-25	252
26-50	Umeren	26-50	77
51-75	nezdrav za senzitivne grupe	51-75	16
76-100	Nezdrav	76-100	5
101- 150150	vrlo nezdrav	101-150	6
151-250	Opasan	151-250	1

Tabela 4. zdravstveni indeks kvaliteta vazduha za čađ u vatrogasnom domu

ČAĐ Vatrogasni dom Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-50	Dobar	0-25	249
51-100	Umeren	26-50	75
101-150	nezdrav za senzitivne grupe	51-75	19
151-200	Nezdrav	76-100	5
201-300	vrlo nezdrav	101-150	5
301-500	Opasan	151-250	1

⁷⁸ ZZJZ Pančevo Izvod iz godišnjeg izveštaja o kvalitetu vazduha u Pančevu za 2010.g. i uporedni prikaz parametara za period 2000-2010.g

Tabela 5. zdravstveni indeks kvaliteta vazduha za čađ, Strelište

ČAĐ Strelište Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-25	Dobar	0-25	233
26-50	Umeren	26-50	89
51-75	nezdrav za senzitivne grupe	51-75	15
76-100	Nezdrav	76-100	11
101- 150150	vrlo nezdrav	101-150	3
151-250	Opasan	151-250	3

Tabela 6. zdravstveni indeks kvaliteta vazduha za čađ, Nova Misa

ČAĐ Nova Misa Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-25	Dobar	0-25	233
26-50	Umeren	26-50	92
51-75	nezdrav za senzitivne grupe	51-75	19
76-100	Nezdrav	76-100	7
101- 150150	vrlo nezdrav	101-150	4
151-250	Opasan	151-250	2

Tabela 7. zdravstveni indeks kvaliteta vazduha za čađ, Strelište

TSP Strelište Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-60	Dobar	0-60	63
61-120	Umeren	61-120	44
121-180	nezdrav za senzitivne grupe	121-180	10
181-240	Nezdrav	181-240	2
241- 360150	vrlo nezdrav	241-360	1
361-600	Opasan	361-609	0


Tabela 8. zdravstveni indeks kvaliteta vazduha za NH₃, Zavod

NH₃ Zavod Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m³	Broj Dana (od 365)
0-50	Dobar	0-50	363
51-100	Umeren	51-100	1
101-150	nezdrav za senzitivne grupe	101-150	0
151-200	Nezdrav	151-200	0
201- 300150	vrlo nezdrav	201-300	0
301-500	Opasan	301-500	0

Tabela 9. zdravstveni indeks kvaliteta vazduha za NH3, Vatrogasni dom

NH3 Vatrogasni dom Januar-Decembar 2010			
Zdravstveni indeks kvaliteta vazduha		Koncentracija µg/m3	Broj Dana (od 365)
0-50	Dobar	0-50	34
51-100	Umeren	51-100	1
101-150	nezdrav za senzitivne grupe	101-150	0
151-200	Nezdrav	151-200	0
201- 300150	vrlo nezdrav	201-300	0
301-500	Opasan	301-500	0

Tabela 10. Distribucija indeksa kvaliteta vazduha, lokacija Zavod 2010.godine

 ZAVOD ZA JAVNO ZDRAVLJE PANČEVO Centar za higijenu i humanu ekologiju Odeljenje higijene		AQI											
INDEKS KVALITETA VAZDUHA													
MERNO MESTO : PANCEVO, ZAVOD											GODINA : 2010.		
ZAGAĐ. MATERIJA:													
ČAĐ													
DAN \ MESEC	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AVG	SEP	OKT	NOV	DEC	
01	1	2	4	1	2	1	1	1	1	1	1	1	
02	1	5	1	1	1	1	1	1	1	1	1	1	
03	1	3	2	1	1	1	1	1	1	1	5	2	
04	2	3	1	1	1	1	1	1	1	1	5	2	
05	1	1	1	1	1	1	1	1	1	1	6	1	
06	3	1	3	1	1	1	1	1	1	1	5	1	
07	2	2	2	2	1	1	1	1	1	1	3	1	
08	1	3	1	2	1	1	1	1	1	3	1	2	
09	1	2	1	2	1	1	1	1	1	2	1	1	
10	1	1	1	1	1	1	1	1	1	4	2	1	
11	4		1	1	1	1	1	1	1	4	2	1	
12	5		2	1	1	1	1	1	1	3	5	2	
13	2		2	1	1	1	1	1	2	2	2	1	
14	2		2	1	1	1	1	1	1	1	2	1	
15	2		2	1	1	1	1	1	2	2	3	2	
16	1		1	2	1	1	1	1	1	2	2	1	
17	1		3	1	1	1	1	1	2	1	1	2	
18	2		2	1	1	1	1	1	1	1	1	2	
19	2	1	2	1	1	1	1	1	1	1	1	1	
20	3	1	2	2	1	1	1	1	2	1	2	1	
21	1	2	2	2	1	1	2	1	2	2	1	1	
22	1	1	1	1	1	1	2	1	2	1	1	1	
23	2	1	2	1	1	1	1	1	1	1	2	2	
24	2	2	3	1	2	1	1	1	1	2	3	1	
25	1	2	2	1	1	1	1	1	1	1	2	1	
26	1	1	2	1	2	1	1	1	1	1	1	1	
27	2	2	2	1	1	1	1	1	2	1	2	2	
28	3	1	2	1	1	1	1	1	1	3	1	3	
29	2		2	1	1	1	1	1	1	4	2	2	
30	1		2	2	1	1	1	1	2	1	1	2	
31	2		2		1		1	1		1		3	

LEGENDA:

1 dobar

2 umeren

3 nezdrav za senzitivne grupe

4 nezdrav

5 veoma nezdrav

6 opasan

Tabela 11. Distribucija indeksa kvaliteta vazduha, lokacija Vatrogasni dom, 2010.godine


 ZAVOD ZA JAVNO ZDRAVLJE PANČEVO	ZAVOD ZA JAVNO ZDRAVLJE PANČEVO Centar za higijenu i humanu ekologiju Odeljenje higijene										AQI	
INDEKS KVALITETA VAZDUHA												
MERNO MESTO :										GODINA :		
PANČEVO, VATROGASNI DOM										2010.		
ZAGAĐ. MATERIJA:												
ČAĐ												
DAN \ MESEC	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AVG	SEP	OKT	NOV	DEC
01	1	1	3	1	1	1	1	1	1	1	2	1
02	1	4	1	1	1	1	1	1	1	1	2	1
03	1	3	1	1	1	1	1	1	1	1	5	2
04	2	3	1	1	1	1	1	1	1	1	5	1
05	1	1	1	1	1	1	1	1	1	1	6	1
06	2	1	2	1	1	1	1	1	1	1	3	1
07	2	2	2	2	1	1	1	1	1	1	3	2
08	1	2	1	3	1	2	1	1	1	3	1	2
09	1	2	1	2	1	1	1	1	1	1		1
10	1	1	1	1	1	1	1	1	1	2	2	1
11	2		2	1	1	1	1	1	1	5	2	1
12	3		2	1	1	1	2	1	1	3	5	1
13	2		1	1	1	1	2	1	1	2	3	1
14	2		1	1	2	1	1	1	2	1	1	2
15	2		1	1	1	1	1	1	2	3	4	2
16	1		1	2	1	1	2	1	1	2	2	2
17	1			1	1	1	1	1	1	1	1	3
18	2		3	1	1	1	1	1	1	1	2	2
19	2	1	3	1	1	1	1	1	1	1	2	2
20	2	1	2	1	1	1		1	1	1	2	2
21	1	1	2	1	1	1	2	1	1	2	1	2
22	1	1	1	1	1	1	2	1	1	2	1	2
23	2	1	1	1	1	1	2	1	1	3	1	1
24	3	2	2	1	1	1	1	1	1	2	2	1
25	1	1	1	1	1	1	1	1	1	2	2	1
26	1	1	1	1	2	1	1	1	1	1	1	1
27	2	1	1	1	1	1	1	1	2	1	3	2
28	4	1	1	1	1	1	1	1	1	3	1	4
29	2		2	1	1	1	1	1	1	4	2	3
30	1		2	2	1	1	1	1	1	2	1	2
31	1		1		1		1	1		2		3

Tabela 12. Distribucija indeksa kvaliteta vazduha, lokacija Strelishte, 2010.godine



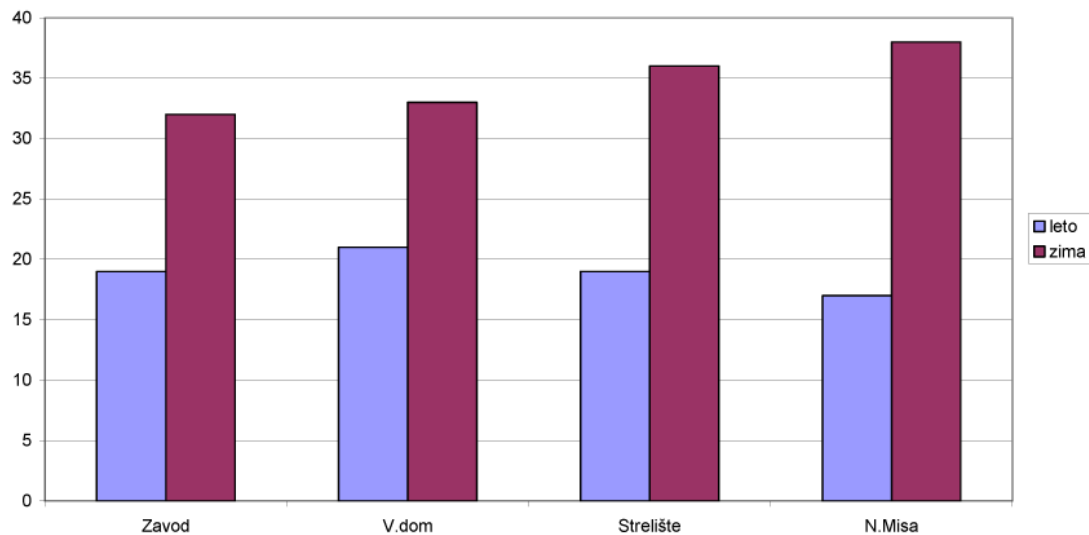
	ZAVOD ZA JAVNO ZDRAVLJE PANČEVO Centar za higijenu i humanu ekologiju Odeljenje higijene										AQI	
INDEKS KVALITETA VAZDUHA												
MERNO MESTO : PANCEVO, STRELISTE										GODINA : 2010.		
ZAGAD. MATERIJA:												
ČAĐ i TSP												
DAN \ MESEC	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AVG	SEP	OKT	NOV	DEC
01	2	2	3	1	1	1	1	1	1	2	2	1
02	1	4	1	1	1	1	1	2	1	1	2	2
03	1	3	2	1	1	1	1	1	1	1	5	2
04	2	3	1	1	1	1	1	1	1	1	5	2
05	1	1	2	1	1	1	1	1	1	1	6	2
06	2	1	4	1	1	1	1	1	1	1	6	1
07	2	2	2	2	1	1	1	1	1	1	3	2
08	1	2	1	3	1	1	1	1	1	4	1	2
09	1	2	1	2	1	1	1	1	1	2	1	1
10	1	1	1	1	1	1	1	1	1	4	1	1
11	4		2	1	1	1	1	2	1	6	2	1
12	4		2	1	1	1	1	1	1	4	5	2
13	2	1	2	1	1	1	1	1	1	2	3	1
14	2		2	1	1	1	1	1	1	1	2	1
15	2		1	1	1	1	1	1	1	2	4	2
16	1	1	1	2	1	1	1	1	2	2	2	2
17	2		3	1	1	1	1	1	2	1	1	2
18	2		3	1	1	1	1	1	1	1	2	2
19	2	1	2	1	1	1	1	1	1	1	2	2
20	2	1	3	2	1	1	1	1	2	1	2	1
21	1	2	2	2	1	1	1	1	2	3	1	2
22	2	1	1	1	1	1	1	1	2	1	1	2
23	2	1	1	1	1	1	1	1	1	2	2	1
24	2	2	3	1	1	1	1	1	1	2	4	1
25	2	2	1	1	1	1	1	1	1	2	2	1
26	2	1	1	1	2	1	1	1	1	1	1	1
27	2	2	1	1	1	1	1	1	2	1	3	2
28	3	1	1	1	1	1	1	1	1	4	1	3
29	2		1	1	1	1	1	1	1	4	2	2
30	1		1	2	1	1	1	1	2	2	1	2
31	2		1		1		1	1		2		3

Tabela 13. Distribucija indeksa kvaliteta vazduha, lokacija Nova Misa, 2010.godine

 ZAVOD ZA JAVNO ZDRAVLJE PANČEVO Centar za higijenu i humanu ekologiju Odeljenje higijene		AQI											
INDEKS KVALITETA VAZDUHA													
MERNO MESTO : PANČEVO, NOVA MISA											GODINA : 2010.		
ZAGAD. MATERIJA: ČAĐ													
DAN \ MESEC	JAN	FEB	MAR	APR	MAJ	JUN	JUL	AVG	SEP	OKT	NOV	DEC	
01	2	2	3	1	1	1	1	1	1	1	2	1	
02	1	4	2	1	1	1	1	2	1	1	2	2	
03	1	2	2	1	1	1	1	1	1	1	5	2	
04	2	3	1	1	1	1	1	1	1	1	5	2	
05	1	1	2	1	1	1	1	1	1	1	6	2	
06	3	1	4	1	1	1	1	1	1	1	6	1	
07	2	2	2	2	1	1	2	1	1	1	4	2	
08	1	2	1	2	1	1	1	1	1	3	1	2	
09	1	2	1	2	1	1	1	1	1	2	1	1	
10	1	1	1	1	1	1	1	1	1	2	2	1	
11	3		2	1	1	1	1	1	1	4	2	2	
12	4		2	1	1	1	1	1	1	3	5	3	
13	2		1	1	1	1	2	1	1	2	3	1	
14	2		2	1	1	1	1	1	1	1	3	2	
15	2		1	1	1	1	1	1	2	2	4	3	
16	1		1	2	1	1	1	1	1	2	2	2	
17	1		3	1	1	1	1	1	2	1	1	3	
18	2		3	1	1	1	1	1	1	1	2	2	
19	2	1	2	1	1	1	1	1	1	1	2	2	
20	2	1	2	2	1	1	1	1	1	2	2	2	
21	1	2	2	2	1	1	1	1	1	2	1	2	
22	2	1	1	1	1	1	1	1	2	1	1	2	
23	2	1	1	1	1	1	1	1	1	2	2	1	
24	2	2	2	1	1	1	1	1	1	2	5	1	
25	1	2	1	1	1	1	1	1	1	2	2	1	
26	1	1	1	1	2	1	1	1	1	1	2	1	
27	2	2	1	1	1	1	1	1	2	1	3	2	
28	3	1	1	1	1	1	1	1	1	2	1	3	
29	2		1	1	1	1	1	1	2	4	3	3	
30	1		1	2	1	1	1	1	1	2	2	2	
31	2		1		1		1	1		2		3	

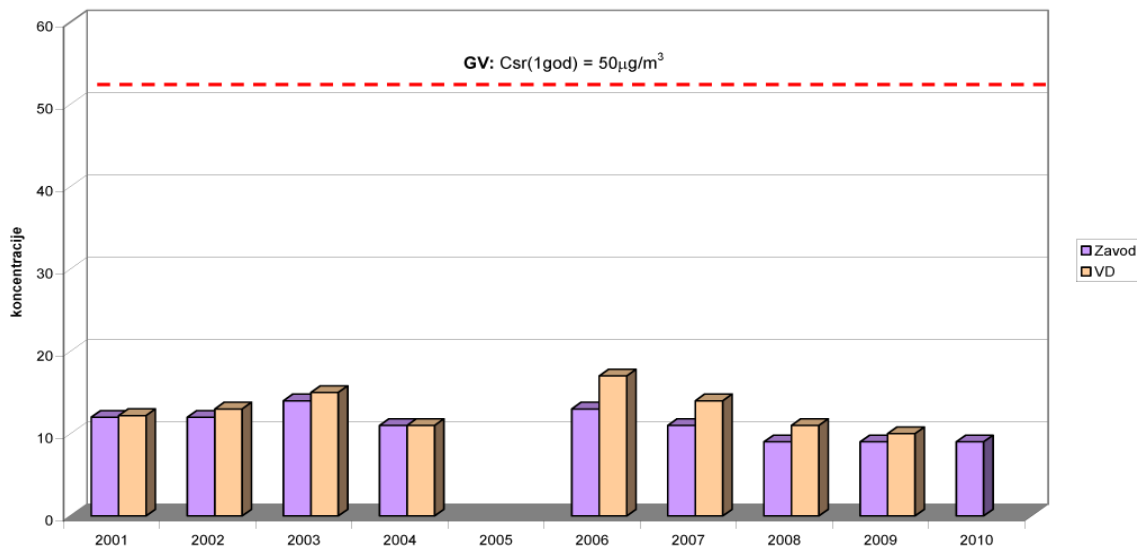
ČAĐ U VAZDUHU AMBIJENTA ($\mu\text{g}/\text{m}^3$)
Grad: Pančevo Lokacije: Zavod, V.dom, Strelishte i N.Misa 2010
Distribucija sezonskih koncentracij: leto - zima 2010



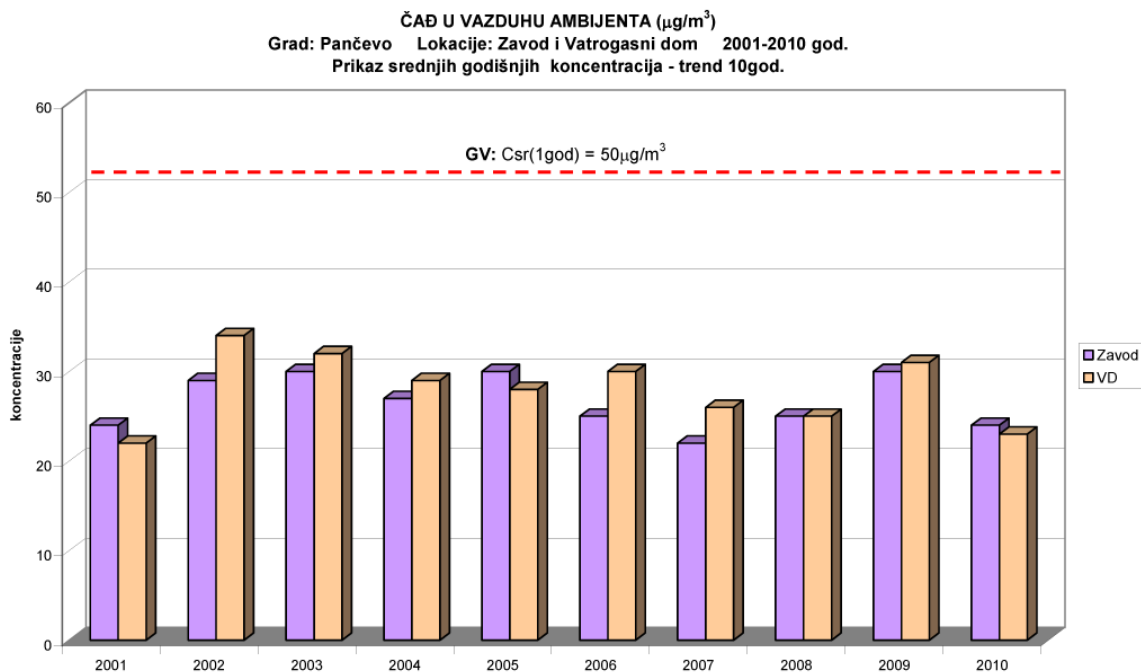
Grafikon 1. Čađ u vazduhu ambijenta

REZULTATI VIŠEGODIŠNJIH ISPITIVANJA GRAFIČKI PRIKAZI

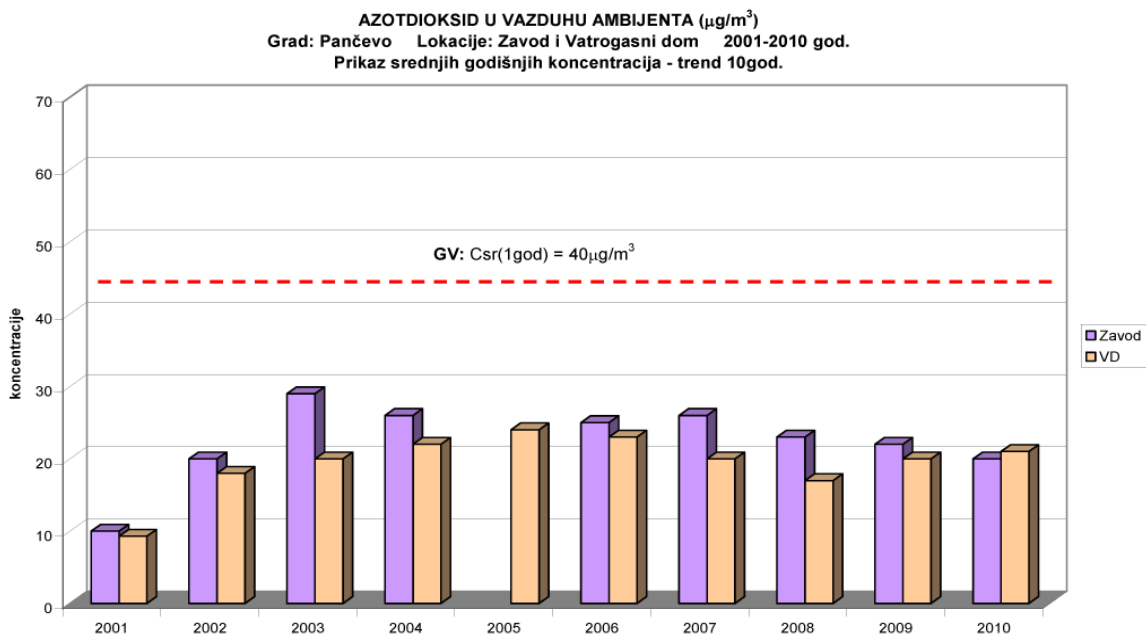
SUMPORDIOKSID U VAZDUHU AMBIJENTA ($\mu\text{g}/\text{m}^3$)
Grad: Pančevo Lokacije: Zavod i Vatrogasni dom 2001-2010 god.
Prikaz srednjih godišnjih koncentracija - trend 10god.



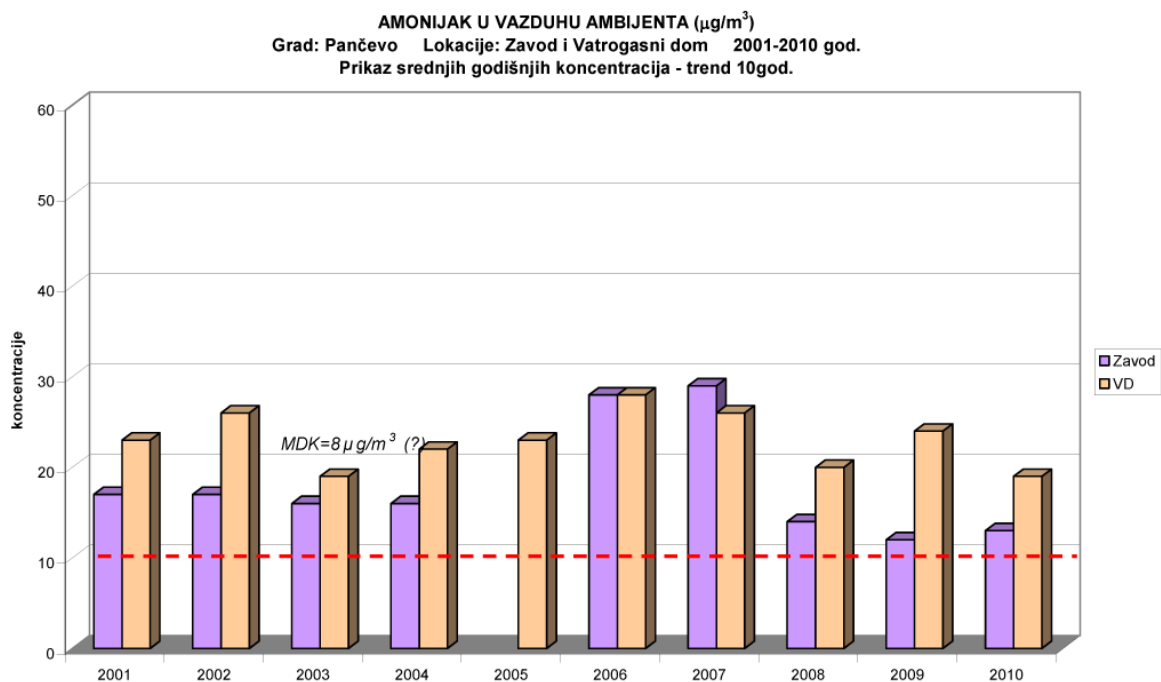
Grafikon 2. sumpordioksid u vazduhu ambijenta



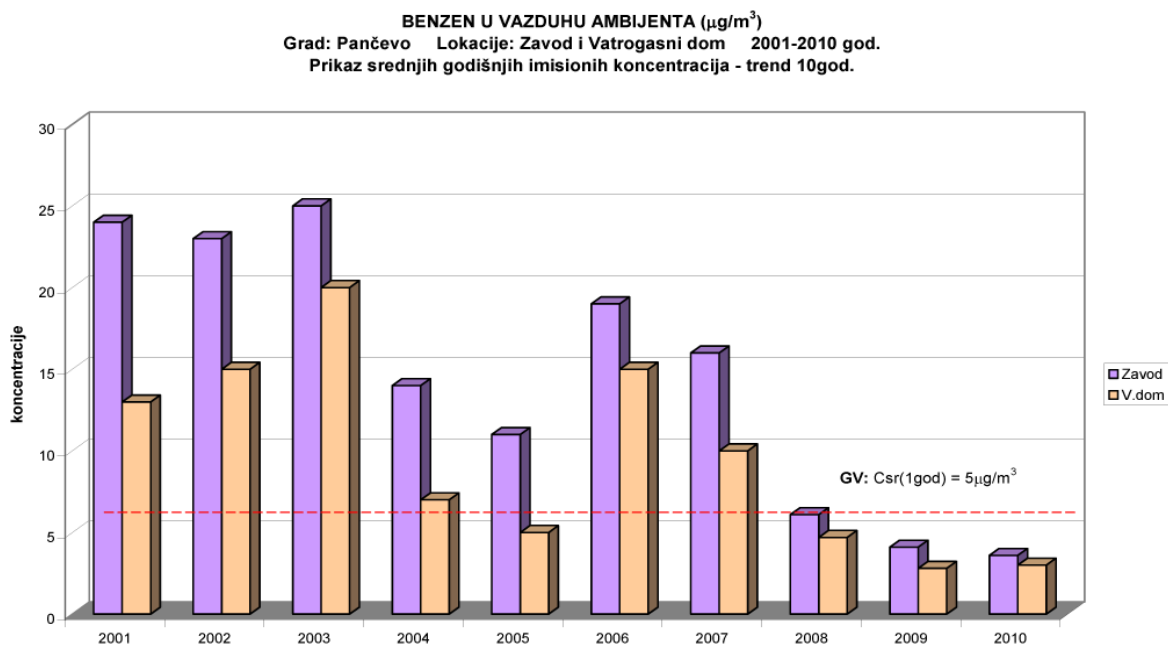
Grafikon 3. čađ u vazduhu ambijenta



Grafikon 4. azotdioksid u vazduhu ambijenta

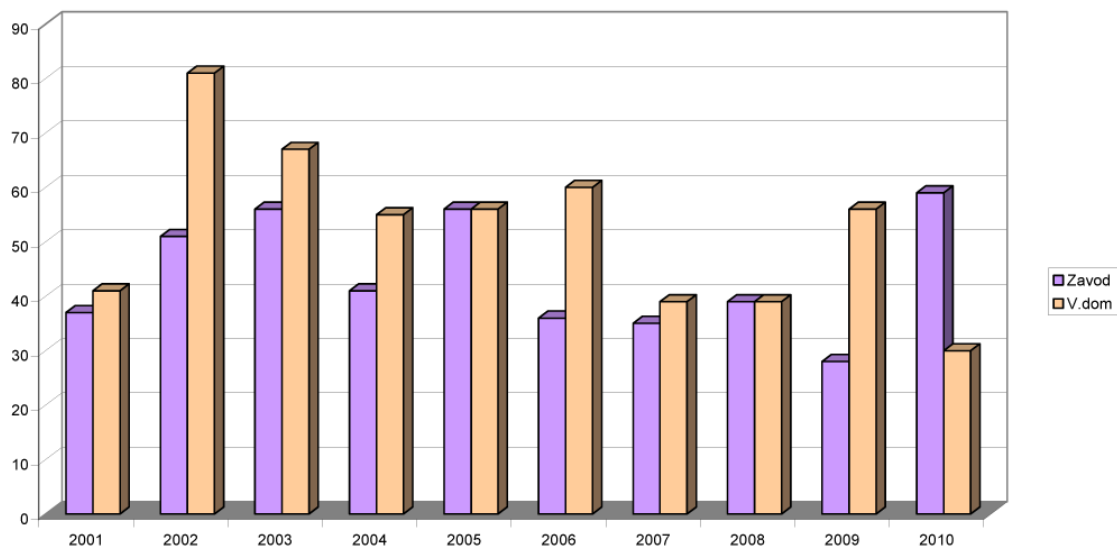


Grafikon 5. amonijak u vazduhu ambijenta



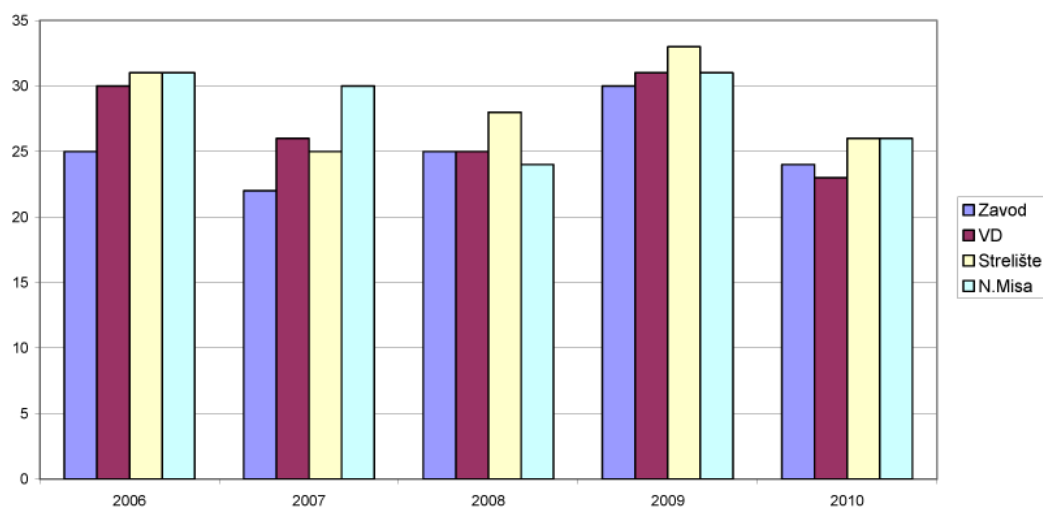
Grafikon 6. benzene u vazduhu ambijenta

SO₂, ČAĐ, NO₂ I NH₃ U VAZDUHU AMBIJENTA
 Grad: Pančevo Lok. Zavod i Vatrogasni dom 2001-2010 god.
 UKUPAN BROJ PREKORAČENJA GV (24h) PO GODINAMA - TREND 10god

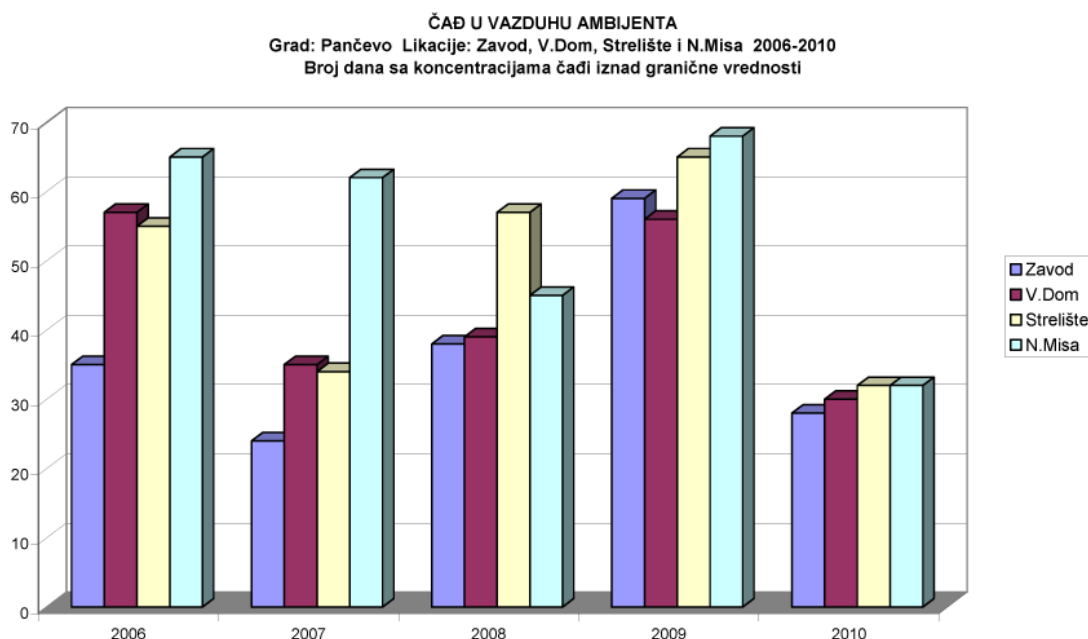


Grafikon 7. SO₂, čađ i NH₃ u vazduhu ambijenta

ČAĐ U VAZDUHU AMBIJENTA (μg/m³)
 Grad: Pančevo Lokacije: Zavod, V.dom, Strelište i N.Misa 2006-2010
 Prikaz srednjih godišnjih koncentracija - trend 5 godina



Grafikon 8. čađ u vazduhu ambijenta



Grafikon 9. čađ u vazduhu ambijenta

Benzen je na mernom mestu „Vatrogasni dom“ meren tokom 2009. godine u 362 uzoraka vazduha. Prosečna godišnja koncentracija na lokaciji „Vatrogasni dom“ iznosila je: $c_{sr} = 2,8 \mu\text{g}/\text{m}^3$ (srednja godišnja koncentracija), $c_{98} = 8 \mu\text{g}/\text{m}^3$ i $c_{max} = 19 \mu\text{g}/\text{m}^3$ (8. Januar 2009.).

Na mernom mestu „Vatrogasni dom“ tokom 2009. godine vrednosti izmerenih koncentracija benzena bile su 2,5 i 5 $\mu\text{g}/\text{m}^3$. Na mernom mestu „Zavod“ benzen je meren tokom 2009. godine u 363 uzoraka vazduha . Prosečna godišnja koncentracija na lokaciji „Zavod“ iznosila je: $c_{sr} = 4,1 \mu\text{g}/\text{m}^3$, a $c_{98} = 12 \mu\text{g}/\text{m}^3$, $c_{max} = 21 \mu\text{g}/\text{m}^3$ (26.novembar 2009.).

Na lokaciji „Zavod“ tokom 2009.godine izmerene koncentracije benzena kretale su se od 2,5 do 7,5 $\mu\text{g}/\text{m}^3$, a najčešće oko 5 $\mu\text{g}/\text{m}^3$.

Prosečne godišnje koncentracije benzena na oba lokaliteta manje su u odnosu na 2008. godinu; obe su u okviru norme koju za godišnji nivo predviđa Pravilnik (5 $\mu\text{g}/\text{m}^3$).

Tabela 14. Osnovne i specifične zagađujuće materije merene tokom 2009. godine na mernom mestu „Zavod“

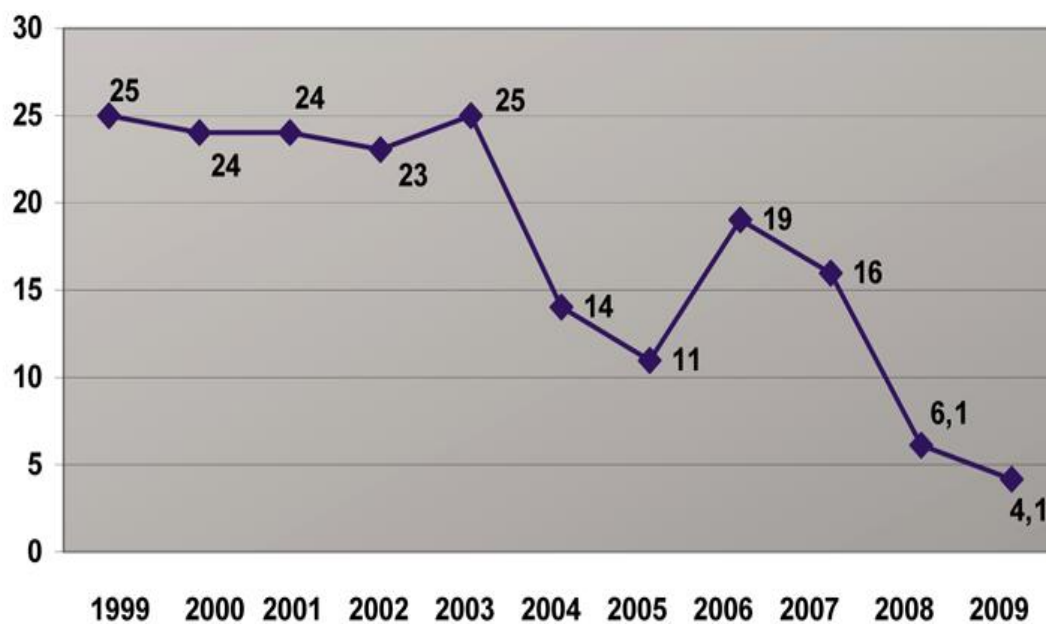
Parametar	Jed. mere	Statistički pokazatelj								
		N (broj merenja)	c_{sr} (srednja godišnja vrednost koncentracije)	c_{50} (medijana)	c_{98} (frekvencija visoke koncentracije)	c_{min} (minimalna vrednost koncentracije)	c_{max} (maksimalna vrednost koncentracije)	GVI_{24h} (granična vrednost imisije)	$>GVI_{24h}$ (broj dana $>$ od GVI)	
Osnovne	Sumpor-dioksid	$\mu\text{g}/\text{m}^3$	361	9,0	8,0	19	8	25	150	0
	Čađ		362	30	19	119	2	271	50	59
	Ukupne taložne materije	$\text{mg m}^{-2} \text{ dan}^{-1}$	12	86	86	–	19	152	–	–
	Azot-dioksid	$\mu\text{g}/\text{m}^3$	362	22	20	47	1	63	85	–
Specifične	Amonijak	$\mu\text{g}/\text{m}^3$	362	12	12	29	2,5	61	100	–
	Toluen		363	5,4	5	13	1	20	7500	–
	Benzen		363	4,1	4	12	1	21	8,5 ^a	–
	Ksilen		363	2,7	2	10	1	20	b	–

^aGranična vrednost imisije data je na godišnjem nivou za 2009.godinu; ^bgranična vrednost za ksilen nije normirana važećim Pravilnikom

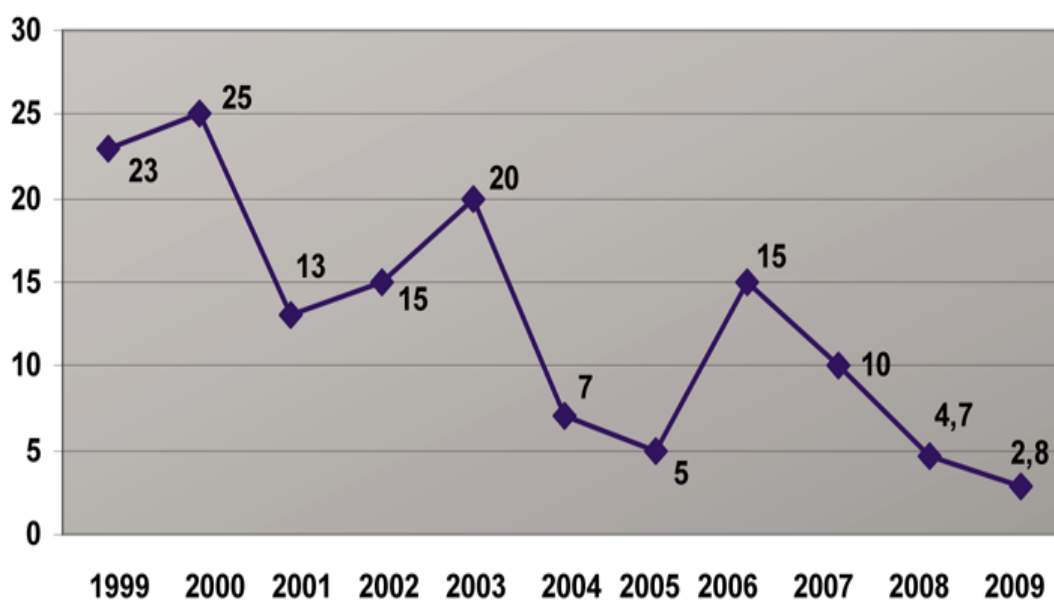
Tabela 15. Osnovne i specifične zagađujuće materije merene u 2009. God. na mernom mestu „Vatrogasni dom“

Parametar	Jed. mere	Statistički pokazatelj								
		N (broj merenja)	c_{sr} (srednja godišnja vrednost koncentracije)	c_{50} (medijana)	c_{98} (frekvencija visoke koncentracije)	c_{min} (minimalna vrednost koncentracije)	c_{max} (maksimalna vrednost koncentracije)	GVI_{24h} (granična vrednost imisije)	$>GVI_{24h}$ (broj dana $>$ od GVI)	
Osnovne	Sumpor-dioksid	$\mu\text{g}/\text{m}^3$	361	9,0	8,0	19	8	25	150	0
	Čađ		362	30	19	119	2	271	50	59
	Ukupne taložne materije	$\text{mg m}^{-2} \text{ dan}^{-1}$	12	86	86	–	19	152	–	–
	Azot-dioksid	$\mu\text{g}/\text{m}^3$	362	22	20	47	1	63	85	–
Specifične	Amonijak	$\mu\text{g}/\text{m}^3$	362	12	12	29	2,5	61	100	–
	Toluen		363	5,4	5	13	1	20	7500	–
	Benzen		363	4,1	4	12	1	21	8,5 ^a	–
	Ksilen		363	2,7	2	10	1	20	b	–

^aGranična vrednost imisije data je na godišnjem nivou za 2009.godinu; ^bgranična vrednost za ksilen nije normirana važećim Pravilnikom



Grafikon 10. Srednje godišnje koncentracije benzena u vazduhu ($\mu\text{g}/\text{m}^3$), na mernom mestu „Zavod“ za period 1999–2009. godina.



Grafikon 11. Srednje godišnje koncentracije benzena u vazduha ($\mu\text{g}/\text{m}^3$), na mernom mestu „Vatrogasni dom“ za period 1999–2009.godina.

Tabela 16. Desetogodišnji pregled rezultata merenja imisionih koncentracija benzena ($\mu\text{m}/\text{m}^3$) na mernim mestima „Zavod“ i „Vatrogasni dom“

Merno mesto „Zavod“						
Godina	Broj podataka	c_{sr}	c_{min}	c_{max}	$GV/_{24h}$	$>GV/$
1999	342	25	3	114	0	342
2000	330	24	4	103	0	330
2001	252	24	3	201	0	252
2002	224	23	3	99	0	224
2003	45	25	4	136	0	45
2004	114	14	0	84	0	109
2005	112	11	0	55	0	106
2006	137	19	1	88	$c_{sr}(1 \text{ god}) = 10 \mu\text{g}/\text{m}^3$	
2007	361	16	1	111	$c_{sr}(1 \text{ god}) = 9,5 \mu\text{g}/\text{m}^3$	
2008	364	6,1	1	47	$c_{sr}(1 \text{ god}) = 9 \mu\text{g}/\text{m}^3$	
2009	363	4,1	1	21	$c_{sr}(1 \text{ god}) = 8,5 \mu\text{g}/\text{m}^3$	
Merno mesto „Vatrogasni dom“						
Godina	Broj podataka	c_{sr}	c_{min}	c_{max}	$GV/_{24h}$	$>GV/$
1999	340	23	3	197	0	340
2000	332	25	5	155	0	332
2001	254	13	2	75	0	254
2002	224	15	0	87	0	223
2003	43	20	0	136	0	42
2004	115	7	0	34	0	106
2005	89	5	0	39	0	75
2006	137	15	1	72	$c_{sr}(1 \text{ god}) = 10 \mu\text{g}/\text{m}^3$	
2007	364	10	1	261	$c_{sr}(1 \text{ god}) = 9,5 \mu\text{g}/\text{m}^3$	
2008	361	4,7	1	42	$c_{sr}(1 \text{ god}) = 9 \mu\text{g}/\text{m}^3$	
2009	362	2,8	1	19	$c_{sr}(1 \text{ god}) = 8,5 \mu\text{g}/\text{m}^3$	

U poslednjih deset godina na lokaciji „Vatrogasni dom“ trend prosečnih godišnjih koncentracija u prve dve godine beleži rast, u narednoj godini opada, a zatim opet raste do 2003. nakon koje opada do 2006. godine, u 2006. beleži porast, dok od 2007. opada do normi predviđenih nacionalnim standardom.

Tendencija prosečnih godišnjih koncentracija benzene na lokaciji „Zavod“ u poslednjih deset godina je stagnantan do 2003. godine, zatim opada do 2006., u 2006. raste, a od 2007. opada i u zadnjoj, 2008. godini, dostiže normu predviđenu nacionalnim standardom.

IZRADA ZAKONA O STRATEŠKOJ PROCENI UTICAJA NA ŽIVOTNU SREDINU

Zakonom o strateškoj proceni uticaja na životnu sredinu („Službeni glasnik Republike Srbije”, broj 135/2004) utvrđena je obaveza da se strateška procena uticaja na životnu sredinu vrši i za planove u oblasti prostornog i urbanističkog planiranja. Zakonom su utvrđeni uslovi, način i postupak vršenja procene uticaja planova na životnu sredinu, u cilju obezbeđivanja zaštite životne sredine i unapređivanja održivog razvoja, integrisanjem osnovnih načela zaštite životne sredine u postupak pripreme i usvajanja plana⁷⁹.

⁷⁹ Izveštaj o strateškoj proceni uticaja na životnu sredinu Plana generalne regulacije kompleksa HIP Petrohemija, HIP Azotara i NIS Rafinerija nafte Pančevo u Pančevu

Odluku o izradi strateške procene donosi organ nadležan za pripremu plana, po prethodno pribavljenom mišljenju organa nadležnog za poslove zaštite životne sredine i drugih zainteresovanih organa i organizacija. Za nosioca izrade Izveštaja o strateškoj proceni uticaja Plana određeno je Javno preduzeće Direkcija za izgradnju i uređenje Pančeva, za izrađivača Izveštaja o Strateškoj proceni uticaja Fakultet tehničkih nauka, Univerziteta u Novom Sadu, Departman za inženjerstvo zaštite životne sredine i EnE⁸⁰ Centar.

Izveštajem o strateškoj proceni su, na osnovu multidisciplinarnog načina rada, vrednovani i procenjeni mogući značajni uticaji na životnu sredinu do kojih može doći implementacijom plana i dat je predlog mera za smanjenje negativnih uticaja na životnu sredinu. Kao osnovni problem treba navesti da su strateška procena uticaja JIZ⁸¹ i izveštaj o Strateškoj proceni uticaja plana generalne regulacije rađeni kao i plan generalne regulacije za industrijska postrojenja koja već postoje.

UMESTO ZAKLJUČKA

Strategijski ekološki menadžment prihvataju i praktikuju države, a posebno gradovi što smo videli na primeru Pančeva koje su suočene sa sve više promenljivim, turbulentnim i kompleksnim uslovima u životnoj sredini. Važna odgovornost ekološkog strategijskog menadžmenta je izgradnja i održavanje nivoa svesti građana Pančeva, tako da se interesi ljudi i nivo ekološke svesti optimiziraju sa interesima sredine u kojoj žive i rade.

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⁸⁰ skr. Centar za inženjerstvo zaštite životne sredine

⁸¹ skr.- Južna industrijska zona

**STUDENTS SYMPOSIUM ON
STRATEGIC MANAGEMENT**

STRATEGIC MARKETING MANAGEMENT IN ORDER TO ENTER INTERNATIONAL MARKETS

Mikhail Myltsev

Russian Academy of National Economy and Public Administration, Russia

Abstract: Article discusses problems faced by the company that goes to the international market. In example of foreign company studied a specific market segment. Described profile of the Dutch company «Fawic» and it's specific. Measured risks and possibilities of enter the Russian market. Evaluated competition of exhibition services in the central region of Russia. According all the information received from research was developed marketing strategy of integrated communications. Provides recommendations how to effectively communicate with potential clients at this market.

Keywords: company „Fawic”, integrated marketing communications, ATL, BTL, direct marketing, personal sales

1. INTRODUCTIONS

“Fawic” clientele consist of well-established national and international companies, municipalities and museums. At this point company looking for opportunities to expand their business on new markets. Russian market has unique specific, which must be taken into account. Communication with a potential client could be realized by integrated marketing communication. The best way of building an integrated marketing strategy is combining. *Above The Line and Below The Line communication in terms of direct marketing and personal sales.*

2. RESEARCH PROBLEM

The study was carried out in the framework of the 2nd International Autumn School and was intended to develop proposals for the Dutch company «Fawic» to enter the Russian market. In order to achieve the marketing goal's of the company a series of integrated communications were developed.

The Dutch company «Fawic» works in a highly specialized Business to Business (B2B) market sector. It is a specialist in returnable packaging: offering excellent protection for valuable goods. «Fawic» is a reliable partner in the development and production of industrial packaging since 2001. The company focuses on finding an optimal solution for the secure transportation of its client's products. Through years of experience and knowledge «Fawic» is capable of working with its clients and developing an optimal solution from design to delivery. A thorough product analysis, an accurate engineering process and a prototype and test phase ensure quality. Equipped with a unique and extraordinarily strong locking system, their boxes can be easily dismantled after delivery and sent back to be reused.

«Fawic» produces and offers exclusive products for the transportation of expensive goods. «Fawic»'s unique and extraordinarily strong mounting system ensures that products are well protected in their boxes.

For this reason we recommend finding a person, who knows Russian business, mentality and could effectively promote «Fawic» boxes in Russia.

A geographical manager is a person who knows the peculiarities of Russian business and is able to communicate locally and create a specific offer for each client.

3. OBJECTIVE/RESEARCH GOAL

Marketing communication in Russia.

Russian business is as specific as the Russian climate. To have successful contacts with Russian customers and entrepreneurs you should know some facts about Russian people and how to do business here.

Specifics of communication in Russia:

- Speaking fluent Russian on any topic. Specific structure of Russian society enjoys a good teller of anecdotes.
- Events rarely start at a specified time.
- Remember names, business cards may not be at all.
- Emotional and artistic conversations do not interfere with a clear statement of requirements
- Personal relationships can work wonders
- Unexpected new ideas displease

Nowadays Russia is experiencing not the best economic conditions. On the one hand, it's hard to imagine worse conditions for market entry. For instance, according to research by the world known research source "Doing Business" (<http://www.doingbusiness.org>) the Russian Federation is ranked 62nd in the ranking of ease of doing business. On the other hand, «Fawic» could take advantage of this situation and become a very popular foreign company because of its excellent service product and lack of overseas companies on the Russian market.

Communication with potential clients could be made through channels of integrated marketing communication such as:

- companies which organize art, science, motorcycle and other exhibitions
- multimedia art museum, GARAGE museum, VIN ZAVOD museum, laboratoria art and science space
- Tretyakovskaia museum
- Profi expo etc.

Nowadays about 200 companies operate in the central exhibition market (Moscow, St. Petersburg) and the number of art exhibitions has surpassed 5,000 exhibitions per year.

This statistic shows that demand for safe transportation of expensive goods is very high and is growing each year. It will not be hard for “Fawic” to find their customer as they come with a unique product offering.

These companies are strong competitors for «Fawic» on the Russian market. They serve many exhibitions in Moscow and Russia, as well as carry out transportation by water and air [3]. The site of the first company is equipped with a crate cost calculator, which certainly is their competitive advantage and greatly simplifies the task for clients.

The second company has provided a wide range of services (in addition to boxes they are engaged in transportation, provide storage facilities for works of art and have insurance systems) [4]. However, the quality of their boxes is much lower. Basically, they are made of plywood with padded cushioning inside.

To develop an entry strategy into the Russian market «Fawic» needs to conduct, in addition to an analysis of competitors, an analysis of the internal and external environment, as well as factors affecting the project directly or indirectly. «Fawic» production fully consists of up-market and custom-built items. As their selling policy is not dedicated to the Fast Moving Consumer Goods market, building a careful advertising strategy is essential. Using traditional marketing tools can incur higher expenses and may not give the right effect. The risk is greater because the level of prices for traditional advertising is very high. The best way of building an integrated marketing strategy is using a combination of Above The Line and Below The Line communication in terms of direct marketing and personal sales.

4. THE RESULTS

It is all about delivering a marketing message directly to the potential client and building strong relationships between «Fawic» and its partners. Therefore, advertising must be orientated towards targeted potential customers.

1. Nowadays Internet is the fastest growing advertising medium. The effect of using internet-marketing tools cannot be simply measured. There are several ways of using internet as the source of building public relations.
2. The Russian business community uses social networking as one of the most convenient means of communication. Working on networking brands is essential as a part of building customer relations. It is common when companies' representatives use Facebook or Linked.in facilities to communicate, to get-known to each other and create smooth working processes. Active networking can lead to new contacts and image enhancement.
3. The other way of using internet is through specialized forums and B2B portals. A lot of companies in Russia use forums to communicate with potential customers not only for advertising purposes but also in following targets and receiving feedback and working on positioning.
4. Tele-marketing is a type of marketing communication which uses telephone calling [2]. It is used to build the initial contact with potential customers and to arrange subsequent activities. “Fawic” comes with a commercial offer to make representatives interested. It is one of the cheapest ways of communicating.

Each call-manager can make several contacts every day and is able to make a custom-built offer following a dialogue with the potential customer. Initial contact is very important because in Russian business much depends on the reliability of partners. Hardly any representative will be pleased to speak at a meeting with a person totally unknown to him.

5. Networking in Russia is a very fragile question and demands a very careful strategy. Well-executed tele-marketing brings «Fawic» an ability to prove the fact that they know how to deal with that kind of issues.
6. Personal selling is the most important part of communication policy for “Fawic”. Personal selling allows the company to offer an unique solution for a client’s specific problem. As «Fawic» operates in the up-market segment, it is necessary for each customer to have maximum customization opportunities.

Tele-marketing and personal selling may be used together or separately. When used together they create a beneficial sequence of building relationships, creating long-term relations and improving customer loyalty.

These are mostly Below The Line communication tools [1]. In order to increase brand awareness especially at the start phase BTL can be used with ATL methods. An effective integrated marketing strategy can build up a synergy effect (1+1=3). Among lots of ATL tools there are some to be added.

Internet Advertising together with web monitoring can help “Fawic” to fix its brand in the minds of potential partners. The concept of advertising should be about the positioning of the brand. “When expensive goods bring you a deliver-headache, “Fawic” brings you a cure”.

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IMPLEMENTATION OF NEW MANAGING CONCEPTIONS

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Abstract: Development of retail trade concentration brought to further changes in its structure and accordingly to changes in economic subjects management in retail trade. In connection with it, the former paradigm of retail trade market also changes since industrial design assortment becomes more and more important due to being founded on the programme of category management and other forms of vertical marketing. The prerequisites of business success of contemporary retail economic subjects in new highly competitive environment hide in the implementation of new managing conceptions and new technologies. In relations of procedures and small traders, different forms of vertical marketing develop a long time. The basic hypothesis from which the authors start is the indispensability of vertical marketing application in the relations of contemporary retail economic subjects and producers in all market economics and the implementation of category management.

Keywords: category management, new technologies, marketing channels.

1. UVOD

Već se godinama ističe da znanje o trgovini dobija na značaju, a kao razlog za tu pojavu ističe se rastuća moć trgovinskih preduzeća u distribucijskom procesu, odnosno u distribucijskom kanalu između proizvodnje i potrošnje. S tim u vezi, već 1988. godine H. Liebmann usmerio je pažnju na koristi za kupce kao glavni zadatak menadžmenta trgovine [1]. To je u skladu s najnovijom fazom u razvoju marketinga posle 1980. godine (posebna orijentacija na tržište). Zato se ističe da u mnogim današnjim trgovinskim preduzećima najvažniji stratejski propusti nisu u nepoznavanju zakonitosti razvoja oblika poslovnih jedinica, novih tehnologija i znanja o radnicima i drugim saradnicima, nego u tome da se treba povezati s kupcima u trgovini na malo, vezano uz lokaciju maloprodajne poslovne jedinice. Sam marketing trgovine danas je više apstraktan model, jer je bitno oblikovanje asortimana vezano uz pojačano uvođenje programa upravljanja kategorijama proizvoda (*category management – CM*) i drugih oblika vertikalnog marketinga. Tu se radi o krupnim trgovinskim preduzećima i njihovoj saradnji sa dobavljačima. S druge strane, već se početkom osamdesetih godina ustanovilo da pojačana orijentacija na kupce može biti uspješna samo ako se nalaze prava logistička rješenja npr. upravljanje lancem snabdjevanja (*supply chain management – SCM*). S tim u vezi treba istaći da su danas *just in time (JIT)* – strategije dobile na značaju u trgovini, a vertikalna se kooperacija javlja kao postavka reinženjeringa. Radi se o optimiranju partnerstva u stvaranju vrednosti između trgovine i industrije. Zasnivajući savremenu praksu orijentacije na kupce i logistiku u trgovini na malo razvile su se nove koncepcije koje se odnose na saradnju učesnika u kanalu distribucije. Te su nove koncepcije, prije svega: efikasno prilagođavanje potrebama potrošača (*efficient consumer response – ECR*), koncept brzog odgovora (*quick response – QR*), kontinuirano popunjavanje zaliha

(*continuous replenishment*) – CR) i spomenuti CM. Vezano uz to može se prihvatiti da je JIT – orijentacija odredila prvu generaciju moderne logistike u trgovini na malo, a orijentacija na stvaranje vrijednosnih lanaca drugu generaciju trgovinske logistike. S rastućom veličinom mnogih trgovinskih preduzeća na malo intenzivirao se sukob različitih strategijskih pitanja u trgovinskom preduzeću. I u trgovinskim preduzećima na malo razlikuju se strategijske poslovne jedinice (posebno kategorije proizvoda i linije prodavnica, odnosno oblici poslovnih jedinica), čime se unapređuje razmišljanje o teoriji portfolia, tako da su se razvili obrasci za faze strategijskog planiranja koji su svakako usko vezani uz opšti obrazac faznog planiranja. Na bazi takvih razmišljanja nastali su i prilozi za strategijsko planiranje trgovinskog preduzeća na malo.

2. RAZLIČITI TEORIJSKI PRISTUPI STRATEGIJI TRGOVINSKOG PREDUZEĆA

- Kao strategijske odluke u trgovinskom preduzeću mogli bismo analizirati[2]:
- izbor oblika poslovne jedinice,
- odluke u okviru internacionalizacije,
- obim i pravac diversifikacije,
- obim saradnje između trgovine i industrije,
- odluke o izgradnji glavnih resursa, posebno informacionih i logističkih sistema, te o izgradnji informacionih struktura, posebno o centralizaciji i decentralizaciji.

Prilozi za izbor oblika poslovnih jedinica odnose se prema jednim na konkretne poslovne jedinice, npr. na discounting, na robne kuće i sl., a prema drugima na njihove kombinacije, tj. na tzv. višekanalne sisteme. U središtu pažnje često su teorije koje objašnjavaju izbor mjesta gdje kupuju potrošači. Tu se daju ekonomski modeli. Svakako, dominiraju razmišljanja koja se zasnivaju na teoriji stavova, koja polazi od toga da potrošač bira oblik poslovne jedinice na osnovu svojih stavova. Potrošačev izbor mesta za kupovanje može se objasniti i kroz koncepcije životnog ciklusa, postoji tzv. procesni model za izbor mesta kupovine. On potiče od Levy-a i Weitz-a [3]. Osim modela koji su orijentisani kognitivno, izvode se i teorijski pristupi koji se zasnivaju na pristupu emocijama. U ovome je kontekstu na značaju dobila orijentacija na doživljaj kao strategijski koncept. U raspravama o internacionalizaciji poslovnih aktivnosti distributivne trgovine nalazimo, prije svega, primjenu opštih stavova koji se odnose na distributivnu trgovinu u kojima se tematiziraju kako osnovne odluke o internacionalizaciji, tako i oblici internacionalizacije. Pri tome se povezuje niz teorija. Posebno značenje u tome dobiva postavka zasnovana na resursima i nova institucijska ekonomika. Pri razmatranju internacionalizacije distributivne trgovine posebno se velika pažnja poklanja pitanju oblika ulaska na tržište i time koordinacije između unutrašnjih i inostranih aktivnosti. Isto tako se kritički preispituje koliko teorijske postavke mogu razjasniti određene razvojne pravce internacionalizacije. Osim toga se tematiziraju i odluke o izboru ciljnih zemalja, o izboru vremena ulaska na tržište kao i pitanje treba li se standardizirati ili diferencirati tržišno-politički instrumentarij. Empirijski pristup trgovini obuhvata kako preduzeća koja svoju ponudu usluga ograničavaju na jedan jedinstven oblik poslovne jedinice, tako i na preduzeća koja obuhvataju cijelu paletu oblika poslovnih jedinica ili čak proširuju svoje aktivnosti na druge privredne aktivnosti. Iza ove odluke stoji pitanje

koncentracije ili diversifikacije preduzetničke aktivnosti. Naime, u trgovini postoje kako preduzeća koja svoju aktivnost koncentrišu na jedan oblik poslovne jedinice, tako i koncerni s mnoštvom oblika poslovnih jedinica. Oni se mogu usmjeriti na jednu ili na više struka, isključivo stacionarne ili pak nestacionarne, ili pak obuhvatiti oba oblika trgovine i pripadati samo veletrgovinskom ili maloprodajnom nivou, ali i obadva nivoa. Teza da se putem saradnje s kojom se prelaze privredni nivoi mogu otkriti mogućnosti racionalizacije dovodi do toga da se trgovinska preduzeća sve više moraju baviti pitanjem u kojoj je mjeri vrijedna pažnje jedna uža koordinacija ili čak kooperacija s proizvođačkim nivoima koji se nalaze uzvodno. Kao vidljiv rezultat takvih razmatranja u praksi postoje koncepti kao što su: ECR, CM ili pak tzv. saradničko planiranje, predviđanje i nadopunjavanje (*collaborative planning, forecasting and replenishment* – CPFR). Oni se odmah nadovezuju na pitanje, koliko je korisna koordinacija različitih funkcijskih područja, posebno marketinga i logistike. Obadve postavke – prelaženje privrednih nivoa i prelaženje granica pojedinih poslovnih funkcija u preduzeću-preslikavaju se upravo u konceptu SCM, pri čemu se taj koncept ne bi trebao svoditi na zadatke fizičke distribucije. Od 1994. godine idejom ECR-a podstaknute su mnoge aktivnosti između trgovine i industrije. Prema ECR ideji može se povisiti efikasnost ako se kod planiranja tržišno-političkih instrumenata dođe do određene saradnje industrije i trgovine. CPFR predstavlja postavku kod koje kooperiraju trgovinska i proizvođačka preduzeća, da bi zajednički pokrenula planske i prognostičke podatke o potražnji proizvoda koje prodaju ta preduzeća. Zajednički obrađeni podaci služe prvo tome da se zaliha proizvoda na terminalu u prodavnici tako oblikuje da se izbjegnju slučajevi kada nema proizvoda na zalihi (*out of stocks* - Oos), ukoliko je ekonomski svrsihodno, a zatim da se optimira cjelokupni lanac snabdjevanja. Osnovu za CPFR predstavlja razmjena informacija između sudjelujućih preduzeća pri čemu su posebno relevantni podaci iz prošlosti (iznosi prodaje) i posebno obrađeni planski podaci. U okviru ECR-a razvio se i koncept CM-a, kod kojeg se radi o tome da se asortiman treba podjeliti u kategorije koje odgovaraju željama i potrebama potrošača te da za te kategorije treba razviti odgovarajuće strategije i taktike. Kategorija se tu definiše kao grupa proizvoda koja se može izdvojiti i s kojom se može samostalno upravljati i koju potrošači prepoznaju kao različitu i/ili zamjenjivu u zadovoljavanju svojih potreba [4]. Rukovanje sa oblikovanim kategorijama proizvoda smješta se u jednu shemu procesa, CM procesa, koji osim analize kategorija obuhvata i stvaranje strategija i taktika kao i uvođenje plana i kontrole postupaka. ECR-ideja, odnosno ideja CM-a kasnije se prenijela na pojedine tržišno-političke, odnosno marketinške instrumente, npr. na unapređenje prodaje, na vođenje trgovinskih marki ili na cjenovnu strategiju. Može se utvrditi da se kod ECR-a i CPFR-a radi i o povezivanju marketinga i trgovinske logistike. Odluke u sklopu tih koncepcija odnose se na izgradnju mreže skladišta, strukturnih datosti jednog skladišta odnosno tranzitnog terminala i tekućih operacija s kojima se vode prognoze, narudžbe, zalihe i procesi. Svakako, djelotvorna logistika dobiva za trgovinsko preduzeće na značaju, prije svega, zbog konkurentskog pritiska. U cilju povišenja efikasnosti spajaju se pojedini stepeni stvaranja vrijednosti. Pri tome bi trebalo istaći stvaranje integrisanog menadžmenta nabave, na stvaranje prilagođenih skladišnih struktura, na upravljanje zalihama od strane dobavljača (*vendor managing inventory* – VDI) kao i na standardizaciju i automatizaciju daljeg prenošenja informacija, sve do koncentrisanih postupaka trgovine i industrije za primjenu tehnologije radiofrekventne identifikacije proizvoda (*Radio Frequency Identification* – RFID), kao na posljedice integrisanog SCM-a. Kroz užu saradnju između pojedinih stepeni stvaranja vrednosti ponovo se otvara rasprava o stvaranju određenog sistema nabavnih kondicija.

3. NOVI OBLICI KANALA DISTRIBUCIJE

Smatra se da su se na osnovu navedenih novih menadžerskih koncepcija poslednjih godina razvili, osim “klasičnih” oblika kanala distribucije, još i neki novi oblici, posebno u sektoru potrošne robe. Vezano uz navedene nove menadžerske koncepcije treba spomenuti nove oblike kanala distribucije [5]: pojavu novih oblika trgovinskih centara (npr. fabričkih trgovinskih centara, *factory outlet center-FOC*), koncept QR-a, koncept ECR-a, elektronsku maloprodaju u sklopu elektronske razmjene (e-commerce).

Fabrički trgovinski centri nastaju saradnjom više proizvođača. Njihova se roba nudi bez uključivanja trgovine. Često se aranžira “kupovina doživljaja”. Kupce trebaju privući ugostiteljski objekti, kina, kupališta ili održane zabavne manifestacije. Sistem QR razvio se u SAD-u kao strategijska koncepcija da bi se skratilo protočno vreme u ukupnom logističkom kanalu (lancu snabdevanja). Može se definisati kao partnerski sistem dostave, koji je usklađen s potražnjom, svih preduzeća koja sudjeluju u nekom logističkom kanalu, koji se zasniva na stalnoj razmjeni informacija [6].

Poznati su sistemi “brzog odgovora” u tekstilnoj industriji. Tu se radi o sistemima razmene informacija koje prelaze granice preduzeća i dovode do znatnog sniženja vremena reakcije i vremena dobave. Koncepcija se može sagledati kao specifičan oblik dostave za trgovinu na malo po sistemu just in time. I pored toga što je ECR-koncept uveden još 1992. godine do danas nema njegove jedinstvene definicije. Treba istaći da se ECR u praksi koncentriše pretežno na trgovinu na malo i trgovinu na veliko, tj. gotovo isključivo na potrošnu robu. Koncepcija ECR-a predstavlja nastavak “brzog odgovora” i može se prevesti kao “uspešna reakcija na potražnju kupca.” Kao strategijska koncepcija međuorganizacijske saradnje između proizvođača, trgovaca na veliko i trgovaca na malo u kanalu distribucije ECR je posebno značajan, jer se integriranim upravljanjem na nivou ukupnog lanca snabdevanja treba postići cilj povišenja sposobnosti reakcije na tržišne promene, tj. želje kupaca, uz istovremeno optimiranje troškova i efekata na području upravljanja asortimanom robe, nabavom robe, zalihama, oglašavanjem i uvođenjem proizvoda u ukupnom kanalu distribucije. S tim u vezi postavka ECR-a zasniva se na ideji CM-a za upravljanje potražnjom i SCMa, tj. međuorganizacijskog menadžmenta logističkog lanca za upravljanje snabdevanjem. U svakom slučaju ECR se može posmatrati i kao izraz SCM-a u struci potrošne robe. I kod SCM-a se korporacija između preduzeća pruža i preko snabdevanja (ponuđene) i preko potražne (prodajne) strane, tako da se koordiniraju marketing, proizvod i logistika. U svakom su slučaju za uvođenje ECR-a od posebnog značaja data *warehouse* (skladište podataka) i navedeni CM, a time i posmatranje lanca snabdevanja s marketinškog gledišta. To znači da je ponašanje kupaca pri kupovini impuls za procese proizvodnje i logistike. Prema tome, cjelovito posmatranje pretpostavlja da je za oživotvorenje ECR-koncepta potrebna saradnja svih stepeni distribucije da bi se optimirali tokovi roba i informacija. Osnova kooperacije preduzeća je brza razmjena informacija koja se omogućava putem elektroničke razmjene podataka (Electronic data Interchange-EDI). ECR je metoda za korisno oblikovanje vrijednosnog lanca (lanca stvaranja vrijednosti) koja se fokusira na koristi za potrošače. Vrijednosni je lanac analitički instrumentarij strategijskog planiranja (Porter), a počeo se uveliko upotrebljavati u mnogim priložima iz marketinga, računa troškova, kontrolinga i strategijskog menadžmenta. E-commerce mogao bi se smatrati daljim razvojnim stadijem trgovine pošiljkama. Bitno je da su sveukupni procesi nabavke, marketinga, promocije, službe kupaca i plaćanja podržani internetskom tehnologijom. Isporuka roba se

dopunjava kompletnim uslugama. Tržište u menadžmentu trgovinskog preduzeća u orijentaciji na kupce i logistiku uticalo je na upravljanje marketingom trgovinskog preduzeća na sledeći način: od anonimnog masovnog marketinga došlo se do „mikro-marketinga“, usmjerenog na pojedine segmente potrošača („rentabilne grupe kupaca“), razvila se ideja orijentacije na „rentabilnost kupaca“ umesto „orijentacije na obim“, marketinški napor trgovine počeli su se usmeravati na stalne kupce (prema njihovim individualnim zahtevima), oblici poslovnih jedinica profiliraju se kroz ciljno specifični „mikro-marketing“ (nasuprot konkurenciji), što se odnosi na oblikovanje komponenti „asortiman-usluga“ za pojedine ciljne grupe odnosno potrebe kupaca određenih maloprodajnih formata nekog preduzeća (oblik prodavnice nastupa kao marka dotičnog preduzeća).

4. NOVI VERTIKALNI MARKETING I UPRAVLJANJE KATEGORIJAMA PROIZVODA

Poslednjih je godina u tržišno razvijenim privredama kooperacija mnogo dobila na značaju te se smatra jednako vrednom opcijom kao i konkurencija. Kooperativnim se odnosima deluje načelno i na odnos s drugim akterima izvan partnerstva. Ti se odnosi uspostavljaju dinamički i podložni su promenama na osnovu elemenata unutrašnjeg i vanjskog razvoja oba partnera.

4.1. NOVI RAZVOJ KONCENTRACIJE

Bez obzira na mogućnosti koje je pružila vertikalna kooperacija, paralelno su se dalje razvijali i koncentracijski procesi kako na strani proizvođača, tako i na strani trgovine, a i na strani kupaca. To znači da se odnosi kooperacije razvijaju u uslovima intenziviranja konkurencije. Posebno je to uočljivo u *grocery sektoru* (sektor prehrambenih proizvoda i ostale robe koja se u istoj poslovnoj jedinici prodaje uz prehrambene proizvode). Osim toga, neprestano se razvija i tzv. vertikalizacija (skraćivanjem kanala distribucije) na osnovu spajanja trgovine na veliko i trgovine na malo, jer centrale trgovinskih sistema preuzimaju funkcije trgovine na veliko za priključene filijale. Sve to dešava se u uslovima globalizacije, tj. ulaska velikih svetskih inostranih trgovinskih preduzeća u pojedine zemlje. Moć potražnje razvija se tako što kooperativne grupe povezuju potražnju, smanjuju broj dispozicijskih mjesta i konkurentski nastupaju kao zatvorene jedinice. Takvom centralizacijom i postizanjem unutrašnje napetosti tih velikih sistema ugroženi su proizvođači koji jedva još mogu postići određene pomoći u prodajnim uslovima. Kao razlozi za rastuću koncentraciju trgovine navode se težnje racionalizacije proizvođača, jer proizvodnja koja je usmjerena na iskorištenje proizvodnih kapaciteta zahtjeva masovnu distribuciju, a to odgovara onim trgovinskim preduzećima koja svoje težnje prema racionalizaciji mogu ostvariti zahvaljujući ekonomiji obima. Aktivnijom cenovnom strategijom proizvođača (ukidanjem tzv. vertikalnog vezivanja cena) i time još oštrijom konkurencijom uticalo se na rastuću koncentraciju u trgovini. Isto tako, različite promene zakonskih propisa, npr. u Nemačkoj, delovale su i na to da je još porasla istiskujuća konkurencija u središtima gradova, a time se pojačala ekspanzija velikopovršinskih prodavnica izvan gradova. I to je uticalo na rastuću koncentraciju u trgovini.

Koncentraciju u trgovini usloville su i promene navika kupaca u potrošnji. Elementi koji su doveli do toga odnose se na povećanu mobilnost kupaca, zaposlenost žena i trend prema *one-stop-shoppingu*, što uslovljava velikopovršinske oblike prodavnica sa širokim i dubokim asortimanima. Konačno, koncentracija se zahteva i zbog daljeg razvoja novih tehnologija i ulaganja kapitala, te logistike. Takvim se razvojem koncentracije pojačala konkurencija kako na horizontalnom, tako i na vertikalnom nivou, jer je na taj način obadvema stranama ostalo manje mogućnosti zaobilaznja konkurencije, odnosno manje mogućnosti reakcije. Zbog toga su proizvodnja i trgovina danas više nego ikada upućena jedna na druge.

4.2. NOVI VERTIKALNI MARKETING

Novi odnosi i saradnja između proizvodnih i trgovinskih kompanija ogledaju u tome, što oba aktera kroz svoje kompanije neposredno kontrolišu samo po jedan deo stvaranja vrednosti na tržištu. Da bi se postiglo što potpunije usklađivanje unutar struktura stvaranja vrednosti u nekoj struci, obadve strane pojačano prelaze na to da svoje aktivnosti koordiniraju i usklađuju u kooperaciji. S obzirom na obim i intenzitet određene se funkcije obadva partnera različito zajednički obavljaju. Tipična podela zadataka između proizvođača i trgovine koja je nastala tokom vremena sada podleže preispitivanju i eventualnoj promjeni, jer rastući horizontalni i vertikalni konkurentski pritisci teraju obadve strane na promene. Kao što je već rečeno, sve do sedamdesetih godina proizvođač je dominirao u vrednosnom lancu i u mnogim slučajevima imao jedini prevlast na tržištu i u distribuciji. Tada je on vodio svoj marketing, a trgovina je delovala u funkciji njegovog marketinga. Međutim, posle toga došlo je do velikih kvantitativnih i kvalitativnih strukturnih promena: tržište proizvođača pretvorilo se u tržište kupca, trgovina se ojačala i stvorena su krupna preduzeća i kooperacijske tvorevine, konkurencija se zaoštrila, poraslo je značenje velikopovršinskih trgovinskih sistema, razvile su se trgovačke marke. Time je proizvođač izgubio moć u vrednosnom lancu. Proizvođač je u takvim uslovima bio prisiljen na vertikalni marketing i kooperacijsko partnerstvo s trgovinom, jer su mu se znatno smanjili izgledi za uspeh na osnovu njegovih dotadašnjih vertikalnih strategija moći. Razvijala se već navedena koncepcija vertikalnog marketinga proizvođača i trgovca kao ravnopravnih partnera, podjednake tržišne snage. S vremenom je došlo do obrnute situacije od one pre pojave vertikalnog marketinga. Naime, odnosi između proizvođača i trgovaca počeli su se razvijati od zamišljenih, ravnopravnih odnosa partnera podjednake tržišne snage u odnose dominacije trgovine (cene, kondicije i sl.). Razvijao se marketing trgovine, i za mnoge su proizvođače izgubile na značaju aktivnosti obrade tržišta usmerene na konačnog potrošača. Do izražaja je došla tzv. *gate-keeper* funkcija trgovine, te je došlo do nove podjele funkcija u kanalu marketinga. Ipak, osim konflikata počela se sve više razvijati i kooperacija (došlo je do tzv. polarizacije odnosa u kanalu marketinga, odnosno kombinacije konflikta i kooperacije). Sada se proizvođači moraju potruditi da prodajom trgovini i saradnjom s trgovinom izgrađuju svoje konkurentske prednosti (ne samo da ih osiguraju kao što je to ranije bio slučaj). Proizvođači moraju ponuditi svoju posebnost i prednosti kooperacije u kojima stvaraju aktivnosti podsticaja, želeći motivisati tržišnog posrednika na saradnju. Glavni doprinos u sagledavanju tih novih odnosa u vertikalnom marketingu predstavlja postavka tzv. kooperacije, kod koje saradnja između različitih preduzeća kao

konkurentnska opcija postoji sve više kao ravnopravni i istovremeni postupak pored direktne konkurencije. U središtu postavke koopedicije je analiza i ocena potencijala kooperacije s stanovišta subjektivnog položaja konkurenata u shvatanju kupaca. Pozicija konkurenata ili jednog komplementarnog ponuđača zavisi od ponašanja kupaca. Trgovinski poslovni subjekt treba ući u kooperaciju ako kao kupac kroz saradnju s dotičnim proizvođačem dobija veću vrednost koju ne bi nikako mogao ostvariti samo s dosadašnjim učincima ponuđača. Time veću vrednost dobija i stvoreni celi vrijednosni lanac [7]. U slučajevima ovakve kooperacije s različitim poslovnim partnerima sprovodi se delotvorna strategija kojom se omogućuje povratak na iskorišćenje oskudnih resursa kod partnera, a time se postiže i osiguranje prednosti nasuprot trećima putem konkurentskog ponašanja u tzv. *win-win* situacijama.

4.3. PROIZVOĐAČKE I TRGOVINSKE KOMPANIJE U KONCEPCIJI PRILAGĐAVANJA POTREBAMA POTROŠAČA

Postoje različite opcije kojima se oblikuju odnosi proizvođač-trgovina. Na osnovu istraživanja u različitim oblastima mogu se utvrditi sledeće opcije:

- strategije trgovinski orijentisanog vođenja (proizvođačkih) marki,
- partnerstva u stvaranju vrednosti i partnerski sistemi između proizvođača i trgovine (ravnopravni),
- strategije dobave kao inovativnog oblika saradnje (trgovinske marke).

Kod trgovinski orijentisanog vođenja marki proizvođač usmerava svoje marketinške aktivnosti i na trgovinu i na potrošača. On sledi osnovni obrazac pull-strategije i pri oblikovanju svojih odnosa s trgovinom. Zbog pojačane konkurencije među strukama kao i zbog horizontalne konkurencije ponuđača za mesto u trgovini, otežava se pozicioniranje proizvođačkih marki u trgovini, tako da kooperativni postupci kojima bi se ponovo podstakle proidračke marke, dobijaju na značaju. Partnerski odnosi u stvaranju vrednosti između proizvođača i trgovine označavaju promenu ranije paradigme konfrontacije u partnerstvu. Radi se o užoj saradnji na projektima koje proizvođač nudi trgovini. Cilj je da se putem integracije proizvođačkih i trgovinskih aktivnosti iskoriste sinergije za obadve strane i da se otkriju mogućnosti povišenja korisnosti i sniženja troškova te postigne jedinstveno rešenje problema za konačne kupce. U ovu grupu vertikalnog marketinga spadaju i zajednički projekti koji se odnose na zajedničko optimiranje upravljanja zalihama i logistiku, dakle sve inicijative u području koncepcije efikasnog prilagođavanja potrebama potrošača (*Efficient Consumer Response – ECR*). Cilj proizvođača pri tome mora biti da se tako kombinuju vlastiti podsticaji kako bi se diferencirao od svojih konkurenata i izgradio konkurentsku prednost. Koncepcija navedene efikasne prilagodbe potrebama potrošača služi za korisno oblikovanje vrednosnog lanca (lanca stvaranja vrednosti) koja se fokusira na koristi za potrošače. Vrednosni se lanac može najbolje shvatiti kada se analizira stvaranje nekog proizvoda. Stvorena se vrednost u nekom procesu dobiva kao razlika između vrednosti proizvoda posle obrade po odbitku njegove vrednosti pre obrade. U suštini marketinški su kanali kombinacija različitih aktivnosti koje stvaraju vjednost. Dakle, ukupni se distribicioni zadatak odnosi na oblikovanje celokupnog vrijednosnog lanca. U koncepciji efikasnog prilagođavanja potrebama potrošača se vertikalna kooperacija između proizvođača i trgovca može podeliti na dve velike grupe: na

procesno orijentisanu kooperaciju, na programski (relacijski) orijentisanu kooperaciju. Kod procesne se kooperacije radi o zajedničkom rešenju problema kod transakcija vezanim uz tokove roba, upravljanje, logistiku ili druga područja upravljanja lancem snabdevanja (*supply chain management* - *SCM*). Kod programski orijentisane kooperacije, radi se o uskom, ekskluzivnom odnosu aktera. Radi se o odnosu s potrošačima, kojim se treba optimirati njegov sadržaj putem zajedničkog oblikovanja asortimana, postupaka unapređenja prodaje kao i učinkovitog uvođenja i razvoja proizvoda. Takvi kooperacijski programi pokazuju zato visoku tržišnu orijentaciju i delotvornost. Primer za to je navedena koncepcija upravljanja kategorijama proizvoda. Upravljanje kategorijama proizvoda obuhvata sve strategijske postupke kojim treba povećati promet i stvaranje vrednosti na osnovu optimiranja marketinških aktivnosti koje se odnose na robne grupe – kategorije proizvoda. Osim toga, mogu se naći i takvi oblici kooperacije koji proizilaze iz logističkih i procesa upravljanja zalihama. Takve kooperacije zasnivaju se na postavkama partnerstva, kojim se saradnja između proizvođača i trgovine proširuje do jedne dugoročne, vertikalne poslovne zajednice, u kojoj se utvrđuju i ponovo raspodeljuju obostrani učinci. Delomično može se sresti poseban ugovor (dogovor) i dugoročno utvrđivanje saradnje. Da bi se razvili sistemi partnerstva, potrebno je ne samo spajanje pojedinačnih učinaka u paket usluga, već treba integrisati i potencijalne podsticaje koji se nude kupcu direktno i indirektno (proizvodi, usluge, novac i nematerijalne vrijednosti) u zaokruženo rešenje problema koje treba tako dugo proširivati odnosno smanjivati, koliko se odgovarajući učinak druge strane može dugoročno ostvarivati. Navedene strategije, metode i tehnike odnose se na upotrebu određenih softverskih rešenja, računarske i telekomunikacijske opreme. Strategije dobave kao inovativni oblici saradnje proizvođača s trgovinom idu još dalje nego do sada opisane mogućnosti saradnje. Kod njih proizvođači trgovinu više ne posmatraju kao izričito „izvršavajućeg“ tržišnog posrednika koji proizvode proizvođača donosi do konačnog potrošača, nego se shvata samo kao sudobavljač potrošača. U ovim su procesima važne strategije trgovačkih marki. Trgovačke marke proizvođači poslednjih godina posmatraju kao instrument iskorištenja kapaciteta. Međutim, one u okviru strategije dobave predstavljaju istaknutu mogućnost aktivnog delovanja proizvođača u tržišnoj i konkurentskoj poziciji u kojoj prevladava marketing trgovine. Ukupni se marketinški instrumentarij trgovine može gotovo neograničeno oblikovati prema vlastitim predstavama i u konkurenciji koristiti za diferenciranje, čemu se znatno pomaže i proizvodnjom trgovačkih marki pomoću kojih trgovina kontroliše procese stvaranja vrijednosti. Time se mogu otkriti dodatne mogućnosti uspeha.

5. ZAKLJUČAK

Koncentracijski procesi u privredi doveli su do novih promena u marketingu, tako da je već i samostalni trgovinski marketing prevaziđena kategorija, a razvijaju se različiti oblici partnerstva i kooperacije između trgovinskih preduzeća i proizvodnih preduzeća, uključujući tu i lance snabdevanja. U takvim se uslovima od samostalnog marketinga trgovine došlo do novih koncepcija u menadžmentu krupnih trgovinskih preduzeća, kod kojih su porednako važni marketinški i logistički elementi. S obzirom na otvorenost srpske privrede, domaća preduzeća i grupacije trgovine na malo trebaju koristiti prednosti partnerstva i kooperacije kako s trgovinskim i proizvodnim preduzećima na domaćem tržištu, tako i s proizvodnim i trgovinskim preduzećima na međunarodnom tržištu. Savremeno vertikalno partnerstvo

proizvođačkih i trgovinskih kompanija ogleda se, prije svega, u koncepciji upravljanja kategorijama proizvoda. U odnosu na ranije koncepcije vertikalnog marketinga u koncepciji upravljanja kategorijama proizvoda partneri (maloprodaja i proizvođači), više nego ikada, dijele informacije i resurse kako bi povećali prodaju, snizili troškove distribucije i povećali marže. U pronalaženju novih oblika saradnje u sklopu vertikalnog marketinga vrednost *category managementa* se ne smanjuje, samo se pojavljuje u sklopu drugih koncepcija. Naime, *category management* je i nastao na osnovu boljeg zadovoljavanja potreba kupaca i pružanja veće dodatne vrednosti te će se njegov razvoj i dalje kretati u istom smeru.

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IMPLEMENTATION OF THE BOSTON CONSULTING GROUP PORTFOLIO MATRIX IN DEPARTMENT ANALYSIS OF TECHNICAL FACULTY IN BOR

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Abstract: BCG portfolio matrix is the simplest form of the portfolio, still it is very useful in the evaluation strategy. This paper extends the concepts of the BCG portfolio matrix model, applying model to several divisions of one faculty. The subject for this analysis is Technical Faculty in Bor, University in Belgrade which gives the students opportunity to graduate in one of four courses of basic academic studies: Mining Engineering, Metallurgical Engineering, Chemical Engineering and Engineering Management. Engineering Management department was opened in 2002. while other departments exist since the foundation of the faculty. Considering that faculty experienced a considerable decrease of students' interest for studies of metallurgy and mining in the last decade, new strategy was developed with the newly established section and there was an increased number of students enrolled to study Engineering Management. This paper extends the idea of the strategic business unit and subsequent strategic analysis of the BCG model to an academic institution. The paper defines the strategic business units at the department and program levels, focusing on the Engineering Management department. The key is that strategies should be made to differ widely from business unit to business unit, as a function of the growth and relative competitive position of each business unit and the company's overall resource position.

Keywords: BCG portfolio matrix, faculty, Engineering Management, enrollment, business unit, strategy.

NATURAL RESOURCES - POTENTIAL PCINJA DISTRICTS AND REGULATORY INFORMATION PROTECTION OF NATURAL RESOURCES

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Abstract: Under natural resources, we can define all the various natural bodies of matter and phenomena that man exploit to meet their needs. "Natural resources potential of Pcinja district" include geology (mountains, valleys, gorges, river valleys) such as Besna mares with the highest peak of 1,923 m above sea level, then hidrogafski resources (basin of South Morava, Vlasina Lake), climatic features, biodiversity, protected areas such as Mountain, the valley of the river's mouth, zemljište and others. Focusing on natural resources Pcinj, we can talk about the legal regulations of the Republic of Serbia which they protect. On the territory Pcinja districts, a relatively small number of natural values was placed under state protection.

Keywords: natural resources, resources, natural resources, legal regulations.

1. PRIRODNI RESURSI - POTENCIJALI PČINJSKOG OKRUGA

„Prirodni resursi i potencijali Pčinjskog okruga“ sadrže geologiju (planine, kotline, klisure, rečne doline) kao na primer Besna kobila sa najvišim vrhom od 1.923 m nadmorske visine, zatim hidrogafski resursi (sliv Južne morave, Vlasinsko jezero), klimatske odlike, biodiverzitet, zaštićena prirodna dobra kao što su Vlasina, dolina reke Pčinje, zemljište i dr. Postoje izvanredni potencijali i za razvoj energetskog sektora.

Na ovom području izgrađena prva mini hidrocentrala. Vranje na mapi Srbije podrazumeva moderan grad sa jakom industrijom, prirodnim resursima, razvijenim svim oblicima turizma posebno zbog blizine Vranjske Banje, najtoplije banje u Evropi, planinskog bisera „Besne kobile“, ali i evropski grad specifičnog senzibiliteta, koji neguje svoje ogromno kulturno-istorijsko nasleđe.

Kompleksna geološka građa uslovljava pojavljivanje različitih metalnih i nemetalnih mineralnih sirovina koje se veoma malo koriste. Metalne mineralne sirovine (ruda olova i cinka), eksploatišu se na lokalitetu „Besna Kobila“ - „Blagodat“ (Vranje, Bosilegrad). Nemetalične mineralne sirovine eksploatišu se na više lokaliteta i to u opštinama: Bujanovac - gline na lokalitetu „Golemo jezero“ i granati na lokalitetu „Somoljica“; Vranje - tufovi na lokalitetima „Korbevac“ i „kat. list 195“ i Preševo - mermeri na lokalitetu „Duškina mahala“, dok je lokalitet „Strezovci“ zatvoren. Pored navedenih lokaliteta, na terenu su prisutne i pojave nekontrolisanog korišćenja mineralnih sirovina (manjim delom za zadovoljenje potreba lokalnog stanovništva), najčešće rečnog geološkog građevinskog materijala.

1.1. GEOLOGIJA

Geologija Pčinjskog okruga ukazuje na njegovu pozicioniranost unutar dveju geotektonskih jedinica, Srpsko- makedonske mase na zapadu i Karpatobalkanida na istoku. Srpsko makedonske mase čine najstariji deo kopna u Srbiji u kojem su vertikalnim tektonskim pokretima nastale gromadne planine i kotline.⁸²Osnovu ovog reljefa, pa time i reljefa Pčinjskog okruga čine planine, kotline, klisure i rečne doline. Ove planine protežu se i sa desne i sa leve strane Južne Morave. Od planina koje čine deo Srpsko makedonske mase a prostiru se na području Pčinjskog okruga jedna od najznačajnijih je Besna kobilica sa najvišim vrhom od 1.923 m nadmorske visine. Planina Besna kobilica nalazi se na oko 35 km od grada Vranja. Sastavljena je uglavnom od granita, a ima i olovnih ruda. Doline u podnožju su pod šumom, a viši delovi su pod pašnjacima. Severnim podnožjem prolazi put koji povezuje Bosilegrad sa dolinom Južne Morave. Na južnoj padini nalazi se rudnik galenita. Pored planine Besna Kobilica, na teritoriji Pčinjskog okruga prostiru se i planine Vardenik, koja se nalazi jugozapadno od Vlasinskog jezera sa najvišim vrhom 1.875 m, i Čemernik, koja se nalazi na desnoj strani južne Morave prema Grdeličkoj klisuri, sa najvišim vrhom, Veliki Čemernik, nadmorske visine 1.638 m. Takođe sa desne strane Južne Morave prema granici sa Bugarskom nalazi se i planina Dukat na tromedi Srbije, Makedonije i Bugarske sa najvišim vrhom 1.881 m nadmorske visine.

Na levoj obali Južne Morave ističe se planina Kukavica sa naj višim vrhom od 1.442 m. Kukavica se nalazi severno od Vranja i južno od Leskovca, a padine joj se protežu do ovih gradova. Na južnom delu planine, iznad Vranja, uzdižu se dva vrha Oblik (1.310 m) i Grot (1.327 m). Zbog svojih pravilnih, kupastih, oblika ova dva vrha planine Kukavice se ponekad navode kao zasebne planine. Više od 25 % površine planskog područja ima nadmorske visine do 500 m, oko 30 % je između 500 i 1.000 m, dok je gotovo polovina planinskog područja, oko 45 %, na visinama većim od 1.000 m. Tereni sa nagibima do 5 stepeni, ravnice i blago nagnuti tereni, zauzimaju oko 10 % planskog područja, dok nagnuti tereni sa nagibima 6-12 stepeni zahvataju oko 18 % područja. Značajno nagnuti tereni, sa nagibima 12-32 stepeni, koji pripadaju grupi terena potencijalno ugroženih jakom erozijom, spiranjem i kliženjem zemljišta, često nepodesni za izgradnju i ratarstvo, zahvataju oko 60 % područja, a vrlo strmi tereni, 32-55°, koji su izrazito ugroženi erozionim procesima i odnošenjem/kretanjem materijala, nepodesni za ratarstvo i izgradnju, obuhvataju oko 12 % područja. Litice, odnosno tereni sa nagibima preko 55 stepeni, svedeni su na manje od 1 %. Pored planina predeo Pčinjskog okruga karakterišu i Vranjska kotlina koja se prostire od Bujanovca do Vladičinog Hana i izduženog je oblika i Grdelička klisura koja se proteže između Vranjske i Leskovačke kotline. Grdelička klisura je duboka 550 m, a duga 30 km.

1.2. HIDROLOGIJA

U hidrografskom pogledu najveći deo površinskih voda u Pčinjskom okrugu čini sliv Južne Morave. Sama reka Južna Morava je i najveća i najznačajnija reka koja protiče Pčinjskim okrugom. Reka Južna Morava nastaje na Skopskoj Crnoj Gori, u današnjoj

⁸² http://www.vranje.org.rs/dokumenti/sr/3_5545_regionalni_plan_120925_final.pdf

Republici Makedoniji, severno od njene prestonice Skoplje. Tokovi Ključevske i Slatinske reke stvaraju reku Golema, koja, kada pređe makedonsko-srpsku granicu, iznad sela Binač, na Kosovu, postaje poznata kao Binačka Morava. Nakon 49 km Binačka Morava se sastaje sa Preševskom Moravicom kod Bujanovca i preostalih 246 km kroz Srbiju teče kao Južna Morava. Južna Morava ima značajan potencijal za proizvodnju električne energije, ali se ona uopšte ne koristi. Veliki energetska sistem je sagrađen u njenom slivu, na Vlasini (elektrane Vrla I-IV). Najvažniju ulogu dolina reke ima u saobraćaju. Ona je prirodni put za železnicu i autoput Beograd-Skoplje-Solun.⁸³ Južna Morava ima 157 pritoka od kojih su u Pčinjskom okrugu najvažnije: desne pritoke Vrla i Vlasina i leva pritoka Veternica. Reka Vlasina jedna je od najvećih desnih pritoka Južne Morave u Pčinjskom okrugu. Izvor je ispod brane Vlasinskog jezera, a najvažnije pritoke su joj: Lužnica, Tegošnica i Pusta reka. Dužina Vlasine je oko 70 km posle kojih se ona kao desna pritoka uliva u Južnu Moravu, 10 km nizvodno od Vlasotinca. Zbog svog planinskog okruženja, a i zbog manjka industrijskih zagađivača Vlasina se računa u jednu od najčistijih reka Srbije. Na proleće, usled otapanja snega u planinskom predelu, koji okružuje korito reke Vlasine, dolazi češće do povećanog vodostaja. U kišnim periodima tokom cele godine događa se da se Vlasina na nekim mestima izlije. Reka Vrla takođe spada u veće desne pritoke reke Južne Morave u Pčinjskom okrugu. Izvori joj se nalaze na planinama Vardeniku i Čemerniku. U podnožju, u klisuri između Vardenika i Čemernika, sagrađene su četiri hidroelektrane (Vrla I-IV), koje koriste vodu Vlasinskog jezera za pokretanje turbina. Vrla I se nalazi ispod zemlje, u unutrašnjosti Čemernika, a Vrla IV u naselju Suva Morava, iznad Vladičinog Hana. Reka Vrla protiče kroz Surdulicu i uliva se u Južnu Moravu u Vladičinom Hanu. Zbog blizine svojih izvora Vlasini i Vlasinskom jezeru računa se često u Hidroenergetski sistem "Vlasina" koji čine akumulacije Vlasinsko jezero i Lisina, sa sistemom kanala i tunela kojima se dovodi voda u Vlasinsko jezero, i četiri hidrocentrale "Vrla (I - IV)". Vlasinsko jezero je najviše i jedno od najvećih veštačkih jezera u Srbiji. Nalazi se na nadmorskoj visini od 1.213 m na teritoriji opštine Surdulica okruženo planinama Plana (Gramada), Vardenik i Čemernik.

Vodni resursi u Pčinjskom okrugu su vremenski vrlo neravnomerni, što se očituje velikim razlikama između malih i velikih voda. Pored nepovoljnih vodnih režima većina vodotoka ima bujični karakter (posebno leve pritoke Južne Morave, koje često leti i presušuju), sa izraženim kratkotrajnim povodnjima tokom kojih protekne preko 50 % ukupnog godišnjeg protoka, nakon čega nastupe dugi periodi malovođa, sa izrazito malim protocima, koji nisu dovoljni za vodoprivredno korišćenje i osnovne ekološke funkcije vodotoka. Koeficijenti varijacije godišnjih protoka i autokorelacije ukazuju na fenomen uzastopnog nagomilavanja vodnih i sušnih godina. Stanje kvaliteta voda je u gornjim tokovima Banjske reke, Veternice, Vrle, Pčinje (kao izvorištima republičkog ranga) većim delom dobro (I/II klasa). Kvalitet ostalih voda je u znatno lošijim klasama (posebno Južne Morave, na potezu od Ristovca do Vladičinog Hana i Grdelice, kao i Veternice, Dragovišnice i dr., nizvodno od većih naselja koja nemaju postrojenja za prečišćavanje otpadnih voda). Hidrološke pojave od važnosti sa medicinskog, rekreativno-turističkog i privrednog aspekta predstavljaju izvorišta mineralnih i termomineralnih voda Vranjske banje (74-96 °C, 80 l/s) i Bujanovačke banje (18-43 °C, 10 l/s).

⁸³ http://www.vranje.org.rs/dokumenti/sr/3_5545_regionalni_plan_120925_final.pdf

1.3. KLIMA

Na području Pčinjskog okruga zastupljena je umereno kontinentalna klima sa izvesnim specifičnostima. Prosečna godišnja temperatura je 12,4 °C, prosečan vazdušni pritisak 966,2, a relativna vlažnost vazduha 68 %. Odlike klime u velikoj meri uslovljene su opštim geografskim položajem planskog područja. Srednje godišnje temperature vazduha u dolini Južne Morave (osmatrane na meteorološkoj stanici u Vranju - 458 m n.v.) iznose 10,7 odnosno 10,8 °S, u Bosilegradu (830 m) 8,6 °S, na Vlasini (1.190 m) 5,6 °S, a na Kukavici (1.250 m) 6,5 °S. Najhladniji mesec je januar, a najtopliji jul na svim stanicama, osim na Kukavici gde je srednji mesečni maksimum u avgustu. Prosečne godišnje sume padavina kreću se od 610-630 mm u dolini Morave, preko 840 mm na Vlasini do 940 mm na Kukavici. Maksimum padavina je u periodu maj - jun, a minimum u periodu septembar - oktobar.⁸⁴ Prosečno trajanje snežnog pokrivača većeg od 1 cm je u dolini Morave 38-43 dana, na Kukavici 97 dana, dok je na Vlasini 111 dana. Područje vlasinske visoravni ima oštriju klimu nego što je to karakteristično za terene te nadmorske visine, kao i veće količine padavina i duže trajanje snežnog pokrivača, bez obzira na jugoistočni položaj u odnosu na teritoriju Republike Srbije. Glavne odlike klime Vranja su nejednako trajanje godišnjih doba, umereno hladne zime, uglavnom topla proleća, duga i topla leta i toplije jeseni od proleća. Reljef urbanog Vranja glavni je klimatski faktor koji određuje glavna mikroklimatska svojstva. Tako, proleće u nižim - južnim, jugoistočnim i istočnim delovima počinje ranije u odnosu na više perifernije delove. U planinskom zaleđu proleće se skoro ne javlja, jer se iz zime prelazi u leto. Osnovni klimatski pokazatelji menjaju se sa promenom reljefa - sa porastom visine temperatura opada, raste vlažnost, oblačnost, padavine, pritisak je niži, uopšteno uslovi postaju lošiji za život ljudi.

Temperatura vazduha u Vranju menja se sporije od zime ka letu u odnosu na period leto-zima. Srednja godišnja temperatura vazduha je 10,9°S. Najhladniji mesec je januar sa prosečnom temperaturom vazduha od -0,7°S, a najtopliji avgust sa 21,6°S. Srednja temperatura u proleće iznosi 13,5°S, u leto 20,4°S, u jesen 11,6°S i u zimu 0,5°S. **Vlažnost vazduha** ima najveću prosečnu vrednost u januaru (86,1%), a najmanju u avgustu (60,3%). Ovaj prikaz ukazuje na vlažnost koja je usklađena sa godišnjim temperaturnim tokovima. Po karakteristikama godišnjeg kretanja relativne vlažnosti vazduha klima Vranja je umereno vlažna. Prosečna vlažnost vazduha je 71,7(%). **Oblačnost** je pokrivenost neba oblacima. Ona ima najveću vrednost u januaru kada iznosi 7,7 desetina, a najmanju u avgustu 3 desetine pokrivenosti neba. Zima ima najveću oblačnost a leto najmanju. Prosečan broj oblačnih dana je 118,7. **Padavine**, njihova godišnja suma i raspored, predstavljaju značajan meteorološki element. Godišnja količina padavina iznosi 614 mm ili 614 L na m² površine. Najviše padavina izluči se u novembru i junu, a najmanje u avgustu i januaru. **Magla i sumaglica** se u Vranju javljaju sa većom ili manjom učestalošću tokom cele godine. Učestalost magle veća je u nižim u odnosu na delove urbanog areala sa većom apsolutnom visinom. Najveća učestalost je u decembru, a najmanja u septembru, aprilu i junu. Od godišnjih doba najveća učestalost dana sa maglom je zimi, znatno manja tokom jeseni, a najmanja leti i u proleće. Prosečan broj dana sa maglom godišnje je 50,3. **Vetrovi** u Vranju javljaju se kao rezultat vertikalnih temperaturnih razlika, reljefnog sklopa i razlika u vazdušnom pritisku šire teritorije grada. Učestalost tišina iznosi 222 promila. Najveću frekvenciju imaju severoistočni (NE), istočni

⁸⁴ http://www.vranje.org.rs/dokumenti/sr/3_5545_regionalni_plan_120925_final.pdf

(E), zapadni (W) i jugozapadni (SW) vetar, a najmanju jugoistočni (SE) i južni (S) vetar. **Insolacija** je suma sunčanih sati (2221 h/god). Najsunčaniji mesec je juli a najmanje sunčan decembar. Sume godišnjih temperatura iznose oko 3350°S, što je dovoljno čak i za gajenje suptropskih i mediteranskih kultura, duvan, smokva, limun, badem, kesten i dr. **Vazdušni pritisak** je u okvirima normale 722 mm/hg za ovu geografsku širinu i nadmorsku visinu. Normalno opada sa porastom visine.

1.4. BIODIVERZITET

Područje Pčinjskog okruga karakteriše izuzetan biodiverzitet i autohtoni biosistemi. Ukupna površina Pčinjskog šumskog područja iznosi 1.363,66 ha što predstavlja oko 39 % od ukupne površine okruga. Šumsko područje se sastoji od: državnih šuma i šumskih zemljišta u 21 gazdinskoj jedinici, zatim državnih šuma kojima gazduju preduzeća za gazdovanje šumama i opštine, a koje nisu obuhvaćene gazdinskim jedinicama, i od privatnih šuma.⁸⁵

⁸⁵ http://www.vranje.org.rs/dokumenti/sr/3_5545_regionalni_plan_120925_final.pdf

Tabela 1. Struktura Šumskog područja Pčinjskog okruga

Šumsko područje Pčinjskog okruga	Struktura	Subjekt upravljanja	Subjekt gazdovanja	Šumske uprave
Odnos obraslih i neobraslih površina 85,5% - 14,5% - očuvane Sastojine 58,8%, razređene 19,3%, devastirane 21,9%	21 GJ (državne šume i šumsko zemljište), prosečna V 140 m ³ /ha, prosečna tekući V prirasta 3,2 m ³ /ha (dominantno bukva 81,2%)	JP „Srbijašume“	Šumsko gazdinstvo „Vranje“ Vranje (org. jedinica „Srbijašume“)	Vranje, Vladičin Han, Surdulica, Bosilegrad, Bujanovac i Preševo
	Neuređene državne šume van Gazdinskih jedinica (GJ)		Preduzeća za gazdovanje šumama i lokalne samouprave	
	Privatne šume van GJ		Preduzeća za gazdovanje šumama i privatnici	

Izvor: Regionalni prostorni plan opština Južnog Pomoravlja do 2021. godine.

2. ZAŠTIĆENA PRIRODNA DOBRA

Na teritoriji Pčinjskog okruga, relativno mali broj prirodnih vrednosti je stavljen pod zaštitu države. Zaštićeno je svega pet prirodnih dobara ukupne površine 14.794 ha, što iznosi tek oko 4 % od ukupne površine regiona, dok je pod prvim stepenom zaštite oko 0,03 % teritorije okruga.⁸⁶

⁸⁶ http://www.vranje.org.rs/dokumenti/sr/3_5545_regionalni_plan_120925_final.pdf

Tabela 2. Pregled zaštićenih prirodnih dobara na teritoriji Pčinjskog okruga

Naziv i vrsta zaštićenog prirodnog dobra	Opština i površina u ha	Kategorija	Stepen zaštite i površina u ha	Godina zaštite	Zakonski osnov i vrsta akta
Rezervat prirode „Jarešnik“	Bosilegrad 3 ha	Treća kategorija (značajno prirodno dobro)	I stepen 3 ha	1961.	Zakon o zaštiti prirode, Rešenje zavoda za zaštitu prirode
Rezervat prirode „Kukavica“	Vladičin Han 78 ha	Treća kategorija (značajno prirodno dobro)	Istepen 78 ha	1980.	Zakon o zaštiti prirode, Rešenje Opštine
Dolina reke Pčinje	Bujanovac 2.485 ha	Prva kategorija od izuzetnog značaja	II stepen 2.485 ha	1996. 2003.	Zakon o zaštiti prirode, Uredba Vlade
Vlasina	Crna Trava 513 ha, Surdulica 12.228 ha, Ukupno 12.741 ha	Prva kategorija od izuzetnog značaja	I stepen- 10 ha II stepen - 4.354 ha III stepen- 8.387 ha	2006.	Zakon o zaštiti prirode, Uredba Vlade
Stablo crnog bora u Petkovskoj mahali sela Crnoštica, Bosilegrad	Bosilegrad	Treća kategorija (značajno prirodno dobro)	II stepen	1961.	Zakon o zaštiti prirode, Rešenje Zavoda za zaštitu prirode

Izvor: Republički zavod za zaštitu prirode, Registar zaštićenih prirodnih dobara.

2.1. PRAVNA ZAŠTITA PRIRODNIH DOBARA

Prirodni resursi, prirodni potencijali kao i prirodna dobra čine jedan sveobuhvatan segment, koja se može definisati i sa aspekta zaštite životna sredina. Po etimološkom određenju, vidimo, da je životna sredina, sve oko nas, odnosno sve ono oko čega i u čemu se život odvija, pa shodno tome, možemo zaključiti da u nju ulaze i prirodni resursi, potencijali i prirodna dobra. Sredina čini bitan faktor čovekovog života, a prirodni resursi, potencijali i prirodna dobra, kao važan deo životne sredine, predstavljaju i elementarni segment ljudskog života. Zbog toga, država biva prinuđena da reaguje, i svojim delovanjem zaštititi životnu sredinu a samim tim i prirodna dobra, te da usmeri i ograniči rad i aktivnosti čoveka .

Država svojom strategijom kroz donošenje određenih zakona, pravnih odredbi i pravnih akata, a značaj ove zaštite se ogleda i u tome što se, pored zaštite na nivou određene države (donošenjem zakona koji važi na teritoriji jedne države), javlja i zaštita na globalnom planu i to evropskom, odnosno svetskom nivou, i preko instrumenata Međunarodnog prava. Odluke donešene na nivou određene države, moraju biti u skladu sa odredbama Međunarodnog prava.

Fokusirajući se na prirodna dobra Pčinjskog okruga, možemo govoriti o Zakonskim odredbama Republike Srbije kojima se ona štite.

2.2. ZAKON O ZAŠTITI PRIRODE – ZAŠTITE PRIRODNIH DOBARA

Zakon o zaštiti prirode donet je 2009. godine. Priroda se u njemu određuje najpre kao deo životne sredine, ali i kao dobro od opšteg interesa za Republiku Srbiju, koje uživa posebnu zaštitu propisanu zakonom. Po njemu, priroda je jedinstvo geosfere i biosfere, izloženo atmosferskim promena i različitim uticajima, i obuhvata prirodna dobra i prirodne vrednosti koje se iskazuju biološkom, geološkom i predeonom raznovrsnošću.

Kao ciljevi Zakona o zaštiti prirode normirani su: zaštita, očuvanje i unapređenje biološke, geološke i predeone raznovrsnosti; usklađivanje ljudskih aktivnosti, planova, programa, osnova i projekata sa održivim korišćenjem prirodnih resursa i dugoročnim očuvanjem prirodnih ekosistema i prirodne ravnoteže, održivo korišćenje i upravljanje prirodnim resursima i dobrima, obezbeđivanje njihove funkcije uz očuvanje prirodnih vrednosti i ravnoteže prirodnih ekosistema, blagovremeno sprečavanje ljudskih aktivnosti i delatnosti koje mogu dovesti do negativnih posledica u prirodi, utvrđivanje i praćenje stanja u prirodi, unapređenje stanja narušenih delova prirode i predela.

Kako je propisano da se odredbe zakona ne primenjuju u slučaju suzbijanja i sprečavanja neposredne opasnosti po život ili zdravlje ljudi ili imovinu, spašavanja ljudi i imovine i to samo dok traju navedene okolnosti koje se utvrđuju posebnim aktom nadležnog organa, navedenim vrednostima daje se primat u odnosu na one koje su inkorporisane u ciljeve Zakona.

U našoj zemlji pod zaštitom države se nalazi 460 zaštićenih područja:

- 5 nacionalnih parkova,
- 17 parkova prirode,
- 18 predela izuzetnih odlika,
- 67 rezervata prirode,
- 3 zaštićena staništa,
- 311 spomenika prirode,
- 39 područja od kulturnog i istorijskog značaja koja su zaštićena na osnovu ranijeg Zakona o zaštiti životne sredine i Zakona o zaštiti spomenika kulture.

Celokupna oblast o zaštiti prirode se reguliše Zakonom o zaštiti prirode i drugim zakonskim i podzakonskim aktima koji se ulgavnom odnose na prirodna dobra. Pored primene zakona, gde je donošenje Zakona o zaštiti prirode (*"Službeni glasnik Republike Srbije" br. 36/09 i 88/2010*) kojim se uređuju zaštita i očuvanje prirode, biološka, geološka i predeona raznovrsnost bilo od izuzetnog značaja, za normativno regulisanje ove oblasti

značajna su i mnoga podzakonska akta. Usklađivanje pravnih naših pravnih propisa it ovog segmenta, sa propisima Evropske unije koje je u toku, u ovoj oblasti se uzimaju u obzir i primenjuju se evropski i svetski standardi. Veliki značaj ima i primena odredbi i principa Konvencija, čijih je naša zemlja potpisnik.

Neki od zakona o zaštiti prirode: Zakon o zaštiti prirode, Zakon o nacionalnim parkovima, Zakon o zaštiti životne sredine, Zakon o strateškoj proceni uticaja na životnu sredinu, Zakon o Prostornom planu Republike Srbije od 2010. do 2020. godine.

2.3. NAČIN I POSTUPAK STAVLJANJA PRIRODNIH DOBARA POD ZAŠTITU DRŽAVE

Stavljanje određenog područja pod zaštitu države se ne vrši tako jednostavno, već se pokreće postupak zaštite područja i to na osnovu jednogodišnjeg i srednjoročnog programa zaštite prirodnih dobara (utvrđuje ga Zavod), na predlog nadležnog ministarstva, a na kraju ga usvaja Vlada Republike Srbije. Zakonom o zaštiti prirode („Službeni glasnik RS“ br. 36/2009, 88/2010 i 91/2010-ispisanka- pogledaj i čl. 55-59) propisano je da zaštitu nekog područja, odnosno prirodnog dobra, mogu predložiti i pokrenuti i fizička i pravna lica. Ako se utvrdi da bilo koja kategorija prirodnih dobara (predviđenih Zakonom) , ispunjavaj određene i normativno utvrđene kriterijume, onda se Zavodu za zaštitu prirode Srbije upućuje dopis uz predlog da se pokrene postupak zakonske zaštite. Predlog akta o proglašenju zaštićenog područja zasniva se na naučnoj ili stručnoj osnovi – studiji zaštite, kojom se utvrđuju vrednosti područja koje se predlaže za zaštitu i način upravljanja područjem . Zavod za zaštitu prirode izrađuje studiju zaštite. Budžet Republike Srbije, budžet autonomne pokrajine, odnosno budžet jedinice lokalne samouprave obezbeđuje sredstva za izradu studije zaštite. Postupak zaštite prirodnog područja se smatra pokrenutim, onda kada se nadležnom organu dostavi predlog akta za zaštitu. Međunarodno značajna područja imaju takođe status zaštite i, a to im obezbeđuju međunarodne konvencije i razni međunarodni programi.

3. ZAKLJUČAK

Svaka država se razvija na osnovu prirodnih resursa , potencijala, prirodnih dobara koji postoje u njoj. Međutim, određeni resursi se neplaniskim korišćenjem mogu iscrpiti, pa država mora voditi računa da ih racionalno koristi. Država i društvo su u obavezi da podižu ekološku svest kod ljudi kao i da upućuju i edukuju ljude o značaju prirode i prirodnih resursa za prosperitet kao i o značaju njihovog pravilnog i racionalnog korišćenja. U našoj državi, ekološka svest nije na zavidnom nivou. Iako društvo napreduje u mnogim segmentima, u ovim, možemo slobodno reći, za prosperitet egzistencijalnim još uvek stagniramo. Država pokušava da zaštiti prirodna dobra ali bez edukacije i podizanja svesti, to je beznačajno. Sistemom stavljanja područja pod državnu zaštitu mi pokušavamo da zaštitimo određeno prirodno dobro ali efikasnost zaštite kao i svest ljudi o tome zašto je određeno dobro stavljeno pod zaštitu je jedno, mnogo složenije pitanje. Karakteristični za našu zemlju jesu povoljni prirodni uslovi i raznovrsnost resursa. Neracionalno korišćenje resursa. Naša teritorija može se sagledati sa stanovišta raspoloživosti poljoprivrednog zemljišta i obradive površine. Srbija ima ukupnu površinu pod šumama od 2.313 ha. Vodni potencijal Srbije čine površinske i podzemne vode. Naša zemlja ima bogatu bioraznovrsnost, kao i energetske izvore.

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KNOWLEDGE AS A BASIS FOR GROWTH AND DEVELOPMENT IN THE CONTEXT OF CONFLICT OF SOCIAL AND CULTURAL CAPITAL

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Abstract: Structural reforms, which Serbia passes through, are aimed, inter alia, to open space for the introduction of the knowledge society in regular life. Many social processes are animated for achieving the goal which outcome should have been a democratization of the educational system and opening of the social structure for intergenerational and intergenerational vertical mobility. The inertia of the old social relations greatly inhibits these processes. Serbia is in a gap because the activity of a large number of internal social contradictions. One of the main contradictions that hinder establishing a knowledge society is a problem of harmonization of relations of social and cultural capital. Disadvantages of social structures, especially unequal distribution of social power, and inaccessibility of channels of social promotion for members of lower social strata, still favor the survived forms of social behavior which give priority in the recruitment on important social positions to the owners of social capital (those who have social connection and belonging to social networks built within the institutional system) rather than those who possess cultural capital which is materialized through the possession of specialized technical knowledge and skills. The result is that a quality human capital is distanced from jobs that require high expertise. The previous has a multiple negative impacts on global functionality of the social system and especially of the economic functionality. Therefore, it is set for the creators of the development strategy as an important task to develop the (market) mechanisms which will favor the cultural capital (proven knowledge and quality) rather than their social capital.

Key words: Knowledge, social capital, cultural capital, social structure, social power, development

IMPACT OF SOCIAL NETWORKS ON THE MARKETING AND OPERATIONS OF BUSINESS ENTITIES

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Abstract: This paper presents the ways in which we can use social networks in order to improve the operations of a company. Today's business world pays a lot of attention to the customer opinion, that is the ultimate consumer. This may contribute to a better understanding of their needs, and thus can improve a particular product. Social networks offer the possibility of direct communication with customers, so you can get information directly from the users of the particular product. Also, social networks promote brand building, they create publicity and in some cases entire business is reduced to the use of certain social networks. It's obvious that great attention is given to this type of communication, so it would be absurd to ignore the opportunities that social networks provide.

Keywords: marketing, social networks, Facebook, Twitter, Instagram

1. UVOD

Sa napretkom u tehnologiji, napredovao je i način komuniciranja. Ne samo što je lakše, nego je i jeftinije povezivati se i komunicirati sa ljudima širom sveta, tako da udaljenost više nije izgovor za nedostatak komunikacije. Komunikacioni sistemi su sa žičanih prešli na bežične, i time dodatno olakšali proces povezivanja. Razvitkom ovakve tehnologije razvili su se i novi oblici komuniciranja, što je uslovalo nastanak društvenih mreža. Uz pomoć njih možete lakše deliti svoja mišljenja, kao i zajedničke interese sa većom grupom ljudi u isto vreme. To je olakšalo način na koji se mogu podeliti razni sadržaji, poput slika, video sadržaja, tekstualnih poruka i razni reklamni sadržaji. Za mnoge to se doživljava kao vid zabave, ali u modernim uslovima poslovanja to se može upotrebiti i u marketinške svrhe.

Sam pojam društvene mreže se odnosi na mrežu odnosa između ljudi, odnosno, prijatelja, kolega i druge odnose koji pojedinci stvaraju. Kada se ovaj pojam sagleda sa tehnološke strane, on predstavlja zajednicu ljudi sa istim ili sličnim interesovanjima, koji uz pomoć određenih sajtova ili platformi komuniciraju, dele određeni sadržaj i pružaju niz informacija. [1]

Praksa društvenih mreža odnosi se na povećanje broja, kako poslovnih, tako i socijalnih konekcija putem povezivanja određenih individua. Stupanje u kontakt sa drugim ljudima, kao i stvaranje komunikacionih mreža jeste poduhvat u koji se ulaže napor kroz vekove. Stvaranjem „Web 2.0“⁸⁷ tehnologije, uspostavljanje komunikacionih mreža je mnogo jednostavnije, a pritom pruža mnogo više mogućnosti. [2]

⁸⁷ Predstavlja trenutnu internet tehnologiju ili mrežu, bazirana na prvoj verziji Web 1.0 (WWW), karakterišu je bolja interaktivnost i saradnja među korisnicima, šira mreža povezivanja i poboljšani kanali komunikacije.

Pod društvenim mrežama podrazumevamo grupe koje se formiraju na internetu i koje povezuju zajednički interesi i interesovanja, prijateljstvo, potreba da objavljuju i prate objave drugih i razmenjuju uzajamno korisne informacije, kao i da se međusobno pomažu savetima i na drugi način, odgovorima na pitanja drugih članova mreže itd. Veoma blizak ovome je i pojam društvenih ili novih medija. Često je u stvari reč o istom entitetu (skupu ljudi), a razlika je u uglu posmatranja: u slučaju društvenih mreža akcenat je upravo na povezanosti i odnosima među članovima, kao i prirodni veza među njima, od poslovnih do ljubavnih, dok je kod novih medija naglasak na objavljivanju i praćenju različitih sadržaja. Vrlo uslovno govoreći, društvene mreže su socijalna „infrastruktura“ novih medija, dok mediji predstavljaju dinamičnu, interaktivnu razmenu ideja, znanja, utisaka, mišljenja i stavova. [3]

Upravo taj novi način komunikacije daje mogućnost boljeg razumevanja šta potrošači ili klijenti misle, koje su njihove potrebe i na koje ciljane grupe obratiti pažnju. Ukoliko kompanije počnu aktivnije da učestvuju u stvaranju internet zajednica, moći će da pristupe njihovim potrošačima, i na taj način preskoče tradicionalne vidove marketinga i direktno se obrate krajnjim potrošačima. U nastavku rada biće predstavljene društvene mreže koje se mogu upotrebiti za ovaj način marketinga.

2. RAZVOJ DRUŠTVENIH MREŽA

Da bi se u potpunosti mogao razumeti način na koji društvene mreže utiču na marketing i na samo poslovanje privrednih subjekata, neophodno je dobro poznavanje samih društvenih mreža, kako su one nastale i šta one pružaju. Na osnovu broja korisnika sajt „eBizMBA“ je sastavio listu od 10 najkorišćenijih društvenih mreža [4]:

- „Facebook“ - mreža koja se koristi za konekciju pojedinaca, porodica i grupacija kao i za poslovnu promociju;
- „Twitter“ - sajt koji radi uglavnom na principu bloga⁸⁸;
- „LinkedIn“ - platforma koja se uglavnom koristi u poslovne svrhe;
- „Pinterest“ - sajt gde korisnici postavljaju neke svoje ideje i sadržaj povezan sa određenom temom;
- „Google Plus+“ - ovaj sajt je razvio „Google“⁸⁹ i on ima slične osobine kao „Facebook“ i „Twitter“;
- „Tumblr“ - platforma koja ima sličnu funkciju kao „Twitter“;
- „Instagram“ - aplikacija za razmenu fotografija i video zapisa;
- „Vkontakte“ - ili samo „VK“ predstavlja evropsku verziju „Facebook“-a, najčešće korišćen u Rusiji;
- „Flickr“ - predstavlja platformu koja omogućuje „host“⁹⁰ fotografija i video zapisa;
- „Vine“ - primarno predstavlja aplikaciju za razmenu video zapisa.

Najviše pažnje treba obratiti naravno na „Facebook“ i „Twitter“, pošto oni predstavljaju mreže sa najvećim brojem korisnika. Međutim, još jedna mreža može se

⁸⁸ Skup nečijih mišljenja i iskustva koji su dostupni drugim osobama preko interneta.

⁸⁹ Brend, odnosno naziv za internet pretraživač

⁹⁰ Predstavlja takozvani „node“, tj. tačka konekcije.

smatrati zvezdom u usponu, a to je „Instagram“. Sve je popularniji, a samim tim broj korisnika vrtoglavo raste, kao i pažnja koja mu se posvećuje.

2.1. „FACEBOOK“

„Facebook“ je naziv za istoimenu korporaciju i za jednu od vodećih društvenih mreža u svetu. Sedište ove korporacije je u Kaliforniji, tačnije u „Menio Park“-u, osnovan je 2004. god., a osnovali su ga studenti „Harvard“-a. Pre svega, najpoznatiji je Mark Zuckerberg koji je i pokrenuo taj projekat zajedno sa kolegama sa koledža: Eduardo Saverin, Andrew McCollum, Dustin Moskovitz i Chris Hughes. U početku, sajt je bio ograničen samo na studente sa koledža, ali 2006. god. se proširio i mogao se koristiti u celom svetu.

Upotreba sajta je jednostavna i sastoji se iz kreiranja korisničkog naloga, nakon čega se mogu dodavati tzv. „prijatelji“ i pritom kreirati, deliti, preuzimati, diskutovati razne sadržaji ponuđene na sajtu. Takođe, moguće je kreirati ili se pridružiti nekoj grupi koja deli iste ili slične interese, i komunicirati međusobno sa drugim članovima. Prosečna posećenost sajta je 1.100.000.000 posetilaca u vremenskom razdoblju od mesec dana. [5]

„Facebook“ ima veliki uticaj, i to na celokupnu zajednicu, kako sa aspekta komunikacije, tako i sa ekonomskog i političkog aspekta. *„Facebook je konstruisan na takav način da je postao nezamenljiv“* (David Kickpatrick, The Facebook Effect). [6]

2.2. „TWITTER“

Društvena mreža pokrenuta jula 2006. god., a pokretači tog projekta su Jack Dorsey, Evan Williams, Biz Stone i Noah Glass. Ono što je „Twitter“ učinilo posebnim jeste njegova struktura koja je pratila tok i razvoj kratkih poruka na mobilnim uređajima. Ubrzo se broj korisnika povećao na milion njih, a u roku od dve godine poslato je bilo preko milijardu poruka na toj mreži, ili kako se drugačije nazivaju „tweet-ovi“.

„Tweet“ je sličan SMS poruci, ali ono što je stvarno zanimljivo jeste da je „Twitter“ među prvima kreirao aplikaciju za mobilni telefon, tj. postojala je mogućnost da se pristupi sajtu sa mobilnog telefona, čime je ovaj sajt postao „mobilan“. Intrigantan podatak je da se ova kompanija odlučila na taj korak pre nastanka prvog „iPhone“-a. Time se smatra da je „Twitter“ na neki način predvodnik revolucionarnih promena u načinu upotrebe društvenih mreža. [5]

„Twitter je kao soba u kojoj je svako osoba mogla da se pojavi i da započne razgovor. Uvek sam ga nazivao „koktel žurka na internetu“. Ukoliko bi vaš razgovor pružao nekakvu vrednost, onda biste bili prihvaćeni od strane drugih korisnika bez ikakvih predrasuda, ili odbacivanja na bilo koji način. U vreme nastanka i razvoja interneta mali broj platformi je pružalo takvu mogućnost, štaviše ni danas ne postoji veliki broj takvih platformi“ (Gary Vaynerchuk, VaynerMedia). [7]

2.3. „INSTAGRAM“

„Instagram“ je mobilna društvena mreža za razmenu fotografija, video zapisa i usluge socijalizacije između korisnika. Ova društvena mreža omogućava korisnicima da kreiraju

fotografije i kratke video zapise koje mogu da dele javno ili privatno u okviru mobilne aplikacije. Takođe, može se povezati sa drugim mrežama, poput „Facebook“-a i „Twitter“-a i na taj način deliti isti sadržaj i na tim platformama. Originalna verzija je predviđala deljenja fotografija male rezolucije, međutim zadnja verzija omogućuje da se dele fotografije svih rezolucija, kao i video zapisi u trajanju od 15 sekundi.

Ovu društvenu mrežu su osnovali Kevin Systrom i Mike Kreiger, a osnovana je oktobra 2010. godine, i prvobitno je formirana kao besplatna aplikacija za mobilne telefone. Brzo je stekla popularnost, i već aprila 2012. godine je imala preko 100 miliona korisnika, a decembra 2014. godine broj korisnika je bio preko 300 miliona.

Distribucija aplikacije se sprovodi preko „Apple App Store“ i „Google play“ koji predstavljaju najveće distributere aplikativnih softvera. Aplikacija je podržana od „iPhone“, „iPad“, „iPod Touch“, i „Android“ operativnih sistema, mada je kasnije aplikacija prilagođena i za „BlackBerry 10“ i „Nokia – Symbian“ uređaje. Sada se „Instagram“ može instalirati i na kućne računare i povezati sa mobilnim uređajima, čime dodatno poprima oblik potpune društvene mreže. [5]

3. ZNAČAJ DRUŠTVENIH MREŽA ZA POSLOVANJE I MARKETING PRIVREDNIH SUBJEKATA

S obzirom da društvene mreže privlače ogromnu pažnju i konstantno imaju sve više korisnika, privrednici iz svih zemalja su uočili veliki marketinški potencijal koje imaju društvene mreže. Prethodno navedene mreže se najčešće koriste u marketinške svrhe, pre svega zbog broja korisnika, kao i same funkcije mreža. Ali na koji način se mogu iskoristiti kako bi se plasirao određeni brend? U nastavku su predstavljeni određeni načini za marketiranje, kao i šta se njima postiže, i to pojedinačno kroz sve tri navedene mreže, a to su: „Facebook“, „Twitter“ i „Instagram“.

3.1. ZNAČAJ „FACEBOOK“-A ZA POSLOVANJE I MARKETING PRIVREDNIH SUBJEKATA

Marketing na „Facebook“-u predstavlja efikasan način da se poveća prodaja u okviru „online“ poslovanja. Olakšava pristup ciljnoj grupi kupaca i takođe vrši reklamiranje koje je vidljivo na svim uređajima za pristup internetu. Korisnici platforme mogu pronaći određeni sajt na „Facebook“-u, i na taj način će pristupiti sajtu, pregledati sadržaj ili čak kupiti proizvod ili uslugu koju sajt nudi. Sa druge strane, vlasnik sajta može preko analiza na „Facebook“-u pratiti koji su to reklamni sadržaji najviše uticali na prodaju.

Može takođe unaprediti i lokalnu prodaju, tako što se uz pomoć „Facebook“-a može direktno pristupiti kupcima. Pre svega potrebno je kreirati reklamu kojom će se izvršiti segmentacija kupaca na osnovu godina, pola interesovanja, i naravno lokacije. Tako će se privući kupci da lično dođu do prodajnog mesta.

Preko „Facebook“-a se mogu predstaviti sve nove aplikacije. Potrebno je opet kreirati reklamne postove i na taj način pristupiti kako novim, tako i već postojećim korisnicima.

Zadnja mogućnost je možda i najkorisnija jer je na neki način univerzalna i primenjiva na sve tipove privrednih subjekata, ali i pojedinačno koji žele da predstavljaju svoj brend kupcima. Preko milijardu korisnika koristi „Facebook“ da pristupi temi koja je u njihovom

interesu, od toga 64% njih koristi ovu platformu svaki dan. Stvaranjem sadržaja koji će privući pažnju drugim korisnicima platforme, privrednici mogu uputiti potencijalne kupce na njihov brend. Razlika između ove mogućnosti i „online“ prodaje jeste u tome što se kupcu ne plasira odmah određeni sajt na kom može kupiti određeni proizvod, već se samo povećava popularnost brenda. Na taj način ne mora da postoji „online“ prodaja, jer će kupac prepoznati određeni proizvod bilo gde da se nalazi. [8]

Kako bi se uspešno sprovela neka marketing strategija, sama kompanija „Facebook“-a preporučuje sledeće korake [8]:

1. *Postavite vašu „Facebook“ stranicu.* – Stvorite čvorište za vaše poslovanje na „Facebook“-u, time poslovanje ima mogućnost da: pre svega bude vidljivo, povezano sa korisnicima, blagovremeno održava kontakt i pronicljivo analizira poslovne aktivnosti.
2. *Identifikujte vašu „publiku“.* – Razmislite o tome koga biste hteli da upoznate, i predstavite se. Ne samo što „Facebook“ pruža mogućnost da doprete do pojedinca, već pruža mogućnost i da izdvojite određenu ciljnu grupu korisnika koji će najverovatnije postati vaši kupci. Da bi se lakše povezali sa ciljnom grupom treba razmisliti o sledećim faktorima: šta vaši idealni korisnici imaju zajedničko, koliko imaju godina i gde žive, kako vaš biznis može tom pojedincu pomoći i da li je „Facebook“ grupa zainteresovana za specifične poruke, proizvode i usluge ili uobičajnu ponudu.
3. *Stvorite zanimljiv sadržaj.* – Oživite vaše poslovanje, kako sve više postavljate novi sadržaj na vašu stranicu, razmislite šta vaše korisnike inspiriše da prati vaše objave. Eksperimentišite sa različitim postovima (eng. „post“). Da li vaši korisnici više obraćaju pažnju na objavljene fotografije ili neku vrstu korisne informacije. Takozvano oživljavanje poslovanja postiže se narednim koracima: budite pre svega autentični, interaktivni, konstantni, držite se onoga što funkcioniše i trudite se da uspešan „post“⁹¹ pretvorite u uspešnu promociju.
4. *Reklamirajte.* – Koristite „Facebook“ reklame u vidu objava vezane za vaše poslovanje. Reklame se mogu kreirati na samom „Facebook“ nalogu.
5. *Pratite i prilagodite.* – Pronađite koji segment maksimizira vaše poslovanje na „Facebook“-u, da biste pronašli šta vaši korisnici najviše prate u okviru vaše stranice, koristite raznovrsne analize koje sajt pruža. Adekvatnom analizom vašeg sadržaja kao i stepena pažnje koji mu se posvećuje možete izvesti prave zaključke o trenutnom stanju.

3.2. ZNAČAJ „TWITTER“-A ZA POSLOVANJE I MARKETING PRIVREDNIH SUBJEKATA

Pojedinci koriste „Twitter“ kako bi ispratili aktuelnosti koje se dešavaju širom sveta, razmenili informacije i povezali se sa drugim osobama i kompanijama na celom svetu. Sa preko 300 miliona korisnika, i preko 500 miliona „tweet“-ova poslatih svaki dan, postoji velika mogućnost da svaki privredni subjekat dopre do svog kupca i to na globalnom nivou.

⁹¹ Naziv za objavu na sajtu ili bilo kojoj drugoj platformi

Bez obzira koja je delatnost u pitanju ili veličina privrednog subjekta, svi imaju priliku da dopru do njihove publike na „Twitter“-u i da stvore sebi verne kupce. [9]

Privredni subjekti mogu da iskoriste „Twitter“ da prošire svoj domet i povežu se sa novim i postojećim kupcima. Postoje 4 načina na koje privredni subjekti mogu da iskoriste ovu platformu [9]:

1. *Otkrijte šta se trenutno dešava.* – „Twitter“ vam pruža informacije o vašoj delatnosti, zajednici kao i druge informacije iz sveta, pretražite platformu, i pronađite relevantne diskusije koje se mogu povezati sa vašim poslovanjem i pridružite se diskusiji.
2. *Povećajte svest o vašem brendu.* – Poboljšajte profil vašeg poslovanja i unapredite marketing funkciju komunikacijom preko „Twitter“-a sa vašim pratiocima na platformi. Proširite još više uticaj upotrebom „Twitter“ reklama na platformi.
3. *Obezbedite blagovremeni korisnički servis.* – Ljudi često govore o proizvodima koje koriste na „Twitter“-u, tako da je to „prirodno“ nastalo mesto za usluge korisničkog servisa. Upotrebom ovakvih podataka može se brzo odgovoriti na nedostatke koje neki proizvod ima, i otkloniti ih, ili čak i unaprediti određeni proizvod.
4. *Povežite se sa uticajnim kompanijama ili pojedincima.* – „Twitter“ vam omogućuje da se povežete sa ekspertima iz celog sveta, i na taj način upotpunite vaš profil poslovanja, ali i da stvorite konekciju sa uticajnim kompanijama i drugim brendovima.

3.3. ZNAČAJ „INSTAGRAM“-A ZA POSLOVANJE I MARKETING PREDUZEĆA

„Instagram“ predstavlja zajednicu izgrađenu na snazi vizualnog pripovedanja. Privredni subjekti su članovi ove zajednice od njenog nastanka, koristeći platformu da prikažu njihove proizvode i usluge uz što bogatiji vizualni kontekst. Najuspešniji privredni subjekti na „Instagram“-u su oni koji imaju najkvalitetniji sadržaj, koji je usko povezan sa njihovim brendom i vođeni su jasnim objektivom. [10]

Da bi se formirala uspešna strategija sadržaja, potrebno je ispuniti sledeće kriterijume [10]:

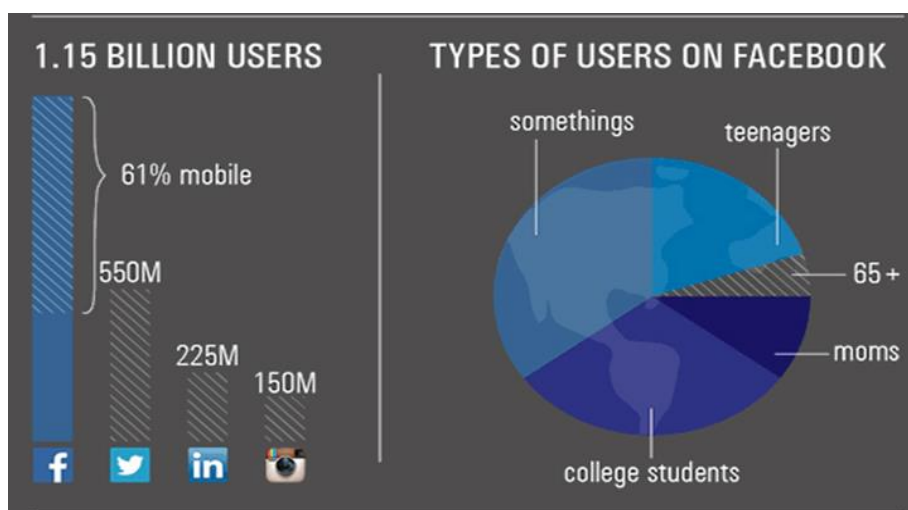
1. *Početi sa jasnim ciljem i kreativnim konceptom.* – Formirajte oglase na „Instagram“-u sa jakim konceptom vezan za jasan cilj, bez obzira da li se radi o privlačenju pažnje na određeni brend, direktnog reklamiranja sajta ili instalacije aplikacija, kreiranja koncepta koji je u skladu sa kampanjom privrednog subjekta je od izuzetnog značaja.
2. *Istaći izgled brenda.* – Formirati reklamni sadržaj na osnovu brenda, i zadržati isti koncept povezanosti brenda i oglasa. Uspostaviti autentične elemente vezane za sadržaj kao što su: prepoznatljive kompozicije boja i elemenata ili fotografski stil, kako bi brend bio lako prepoznatljiv.
3. *Fokus na izradi sadržaja.* – Kvalitetno kreiran sadržaj privlači najveću pažnju, reklamni sadržaji imaju najbolji uticaj kada su u pitanju fotografije i video zapisi visokog kvaliteta, intrigantni i na neki način „umetnički“. Kreirani sadržaj treba da

privuče pažnju korisnika, ali i da zadrži njegovu pažnju na duže vreme, kao i da stvori potrebu za novim sadržajima.

4. RAST I RAZVOJ POSLOVANJA PREKO DRUŠTVENIH MREŽA

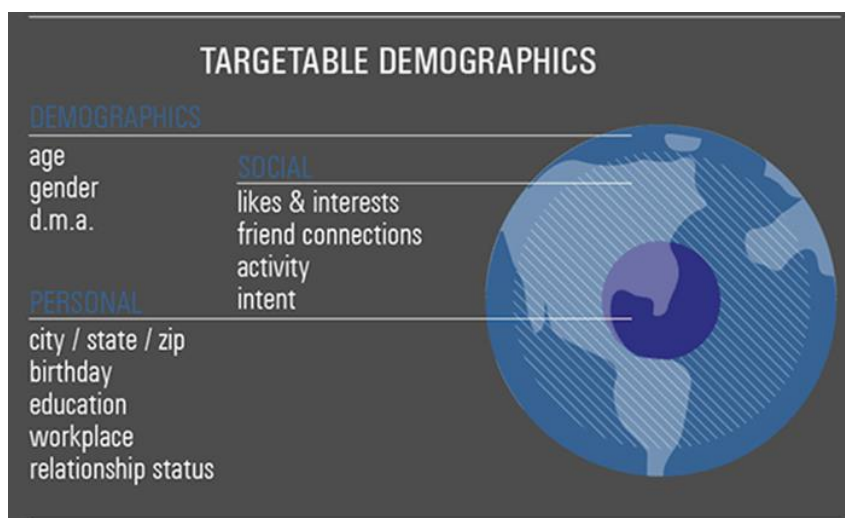
4.1. IZRADA „FACEBOOK“ OBJAVE

Kako bi se kreirala uspešna objava na „Facebook“-u, i u potpunosti iskoristila mogućnost segmentiranja kupaca, potrebno je obratiti pažnju na nekoliko faktora. Potrebno je poznavati strukturu samih korisnika platforme, znati broj korisnika, kao i tipove korisnika koji se javljaju. Treba uzeti u obzir da „Facebook“ ima 1.15 milijardi korisnika, a od tog broja 61% koristi platformu uglavnom preko mobilnih uređaja. Tipovi korisnika koji se javljaju u najvećem broju se klasifikuju kao mešoviti ili „neki“, obzirom da je to kategorija koja nema jasno definisano interesovanje ili sadrži puno korisnika sa različitim interesima. Sledeća grupa su studenti na fakultetima i univerzitetima, nakon njih slede tinejdžeri. Zanimljiv podatak jeste da se kao posebna grupa mogu izdvojiti majke, odnosno domaćice kao korisnici „Facebook“-a, i na kraju postoji manja grupa korisnika koji imaju preko 65 godina (Slika 1).



Slika 1. Prikaz strukture „Facebook“ korisnika [7]

Zatim, potrebno je demografski klasifikovati stanovništvo i na osnovu toga bazirati objave (Slika 2). Prvi korak je segmentiranje na osnovu starosti i pola korisnika. Naredni kriterijum koji treba uzeti u obzir jeste interesovanje korisnika, njihove lične potrebe, konekcija sa drugim pojedincima, aktivnost i namere. Zadnji korak se odnosi na personalne detalje koje korisnici prilažu. Ovi podaci su korisni prilikom izdvajanja konkretnog pojedinca ili grupe na platformi. Podaci se odnose na: grad, odnosno državu, datum rođenja, edukaciju, radno mesto, čak i na status veze.



Slika 2. Demografsko segmentiranje [7]

I na kraju, dobra objava (Slika 3) bi trebalo da sadrži sledeće elemente: kratak naslov, odnosno objašnjenje datog priloga, kao i poziv na nekakvu akciju, bilo da je to kupovina nečeg ili nešto drugo. Zatim, potrebno je postaviti zanimljiv sadržaj, fotografiju ili video zapis. Neki postovi nemaju ovakav sadržaj, ali su često neuspešni, pa se preporučuje neki vizualni sadržaj, i kao dodatak svemu tome postaviti logo kompanije, kako bi objava bila lako uočljiva i prepoznatljiva.



Slika 3. Primer dobro formirane objave [7]

4.2. IZGRADNJA BREND NA „TWITTER“-U

Prilikom izgradnje brenda uz pomoć „Twitter“-a, posebna pažnja se mora posvetiti samoj komunikaciji, kao i reakciji na određene sadržaje. U osnovi, jedan princip se može upotrebiti, bez obzira o kom privrednom subjektu je reč:

Stranica na „Twitter“ nalogu mora sadržati trenutni logo kompanije, prigodne slike kao i kontakt informacije, jasan i relevantan sadržaj je ključan. Na neki način ovo predstavlja poslovnu karticu kompanije.

Potrebno je zatim pronaći debatu vezanu na neki način za proizvod ili uslugu koje data kompanija nudi, i aktivno učestvovati u razgovoru. Uz pomoć opcije pretraživanja na platformi, moguće je: pronaći teme za razgovor; prilikom razgovora pružiti neku vrednost, ne samo početi debatu bez ikakve svrhe; davati potrebne informacije ili postavljati relevantna pitanja, pre svega pitanja koja se odnose na ponudeni proizvod; zatim dobijene odgovore pravilno klasifikovati, i na taj način prikupiti potrebne informacije za dalje poslovanje. Na osnovu prethodno postavljene debate, drugi pojedinci će moći da pronađu informacije o proizvodu, ali ujedno time će i porasti svest o određenom brendu, jer će kvalitetan razgovor biti intrigantan za druge korisnike. [7]

4.3. PRODAJA PROIZVODA NA „INSTAGRAM“-U

Pre nego što se od krajnjeg potrošača zatraži bilo kakva aktivnost, potrebno je prvo ponuditi neku vrednost. Društveni mediji su izvanredno mesto za pružanje interaktivne vrednosti, jer se oslanjaju na komunikaciju između pojedinaca. Koji god oblik izražavanja da se koristi, društveni mediji će osigurati transparentnost tog sadržaja.

„Instagram“, međutim, ima drugačiji kontekst od ostalih društvenih mreža kada je u pitanju kreiranje sadržaja i marketing. Način na koji „Instagram“ funkcioniše može dovesti do zaključka da se on svodi samo na prost prikaz sadržaja, i da ne omogućava direktnu komunikaciju sa korisnicima. Ova društvena mreža se u osnovi svodi na objavljivanje fotografija sa dodatim naslovom i lokacijom. Nasuprot „Facebook“-u i „Twitter“-u koji pružaju veće mogućnosti, poput deljenja tuđeg sadržaja ili reklama u okviru platforme. Nameću se pitanja: Do koga privredni subjekat tačno dopire? Ko su potencijalni klijenti ili kupci kome se on obraća?

Ono što se ne uzima u obzir jeste činjenica da većina pratilaca na „Instagram“-u su ujedno i pratioci na „Facebook“-u ili „Twitter“-u, gde se segmentacija kupaca može lakše izvršiti, kao i sama prodaja proizvoda. Međutim, postoji način na koji se direktno utiče na prodaju nekog proizvoda i to bez posredstva drugih društvenih mreža. U okviru profila postoji mogućnost postavljanja linka koji će korisnika odvesti na određeni sajt. Ako bi se postavio link koji će biti povezan sa objavljenim sadržajem, odnosno link koji će direktno odvesti korisnika do opcije za kupovinu proizvoda, onda se preskaču svi posrednici, i na taj način se „Instagram“ može upotrebiti za direktnu kupoprodaju proizvoda. [7]

5. ZAKLJUČAK

Očigledan je značaj koji društvene mreže imaju, ne samo u komunikaciji, već se taj uticaj širi i na poslovanje kompanija. Ali, društvene mreže su u osnovi novi vidovi komunikacije, postoje tek desetak godina, i stalno se unapređuju. Da li je ovde kraj napretka

društvenih mreža? Naravno da nije, njihov uspon je tek počeo. Automobilska industrija postoji dugi niz decenija, i još uvek se razvija i napreduje. Isti je slučaj i sa društvenim mrežama, one se svakodnevno unapređuju, ali i pojavljuju se nove.

Ono što se nameće jeste činjenica da i korisnici moraju da nastave sa promenama, moraju da isprate nove tokove i da se prilagođavaju. Moraju praktično pristupiti društvenim mrežama, improvizovati i usaglasiti se sa novim postavkama.

Ono čemu bi se trebalo posvetiti u nekim daljim istraživanjima, jeste mobilnost društvenih mreža. Korišćenje mobilnih uređaja je sve veće, to industrija mobilnih telefona uviđa, pa se konstantno unapređuju takvi uređaji. Dalji razvoj je usko povezan sa razvojem mobilnih telefona, tablet računara i drugih prenosivih uređaja, tako da je neminovno da će se i društvene mreže razvijati u tom pravcu.

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THE IMPACT OF PERSONAL CHARACTERISTICS OF INDIVIDUALS ON THEIR TENDENCY TO CONFLICTS

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Abstract: The impact of different personality types on the emergence of conflicts in the team has been a subject of a large number of theorists and practitioners of management for ages. In one study, managers said that about 20% of their time, they spend on resolving conflicts in and working on the harmonization between duties and tasks and different personality types. The aim of this study was to examine which types of personalities are more prone to conflict situations and whether there is a difference in thinking between the respondents in relation to socio-demographic parameters.

Keywords: *socio-demographic parameters, conflict, management, personality types, research.*

PROMOTION OF TOURIST DESTINATIONS AND ANALYSIS OF THE CAMPAIGN „MOJA SRBIJA”

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Abstract: This paper presents theoretical and practical aspects of promotion, which represents one of the instrument of marketing mix. Promotional activities are connected with each other, and they represent the promotional or communicational mix in tourism. The aim of communicational mix in tourism is to form the reasonable level and quality of tourist demand which is being sent to the market. Because of that, it is very important to scope all characteristics of destinations, to direct their development strategy and ensure the placement of their offer on the tourist market. We will pay a special attention to the analysis of advantages and disadvantages of the campaign "My Serbia".

Keywords: promotion, tourist destination, tourist offer, Serbia, marketing mix.

IMPLEMENTATION OF PUBLIC RELATIONS IN EDUCATIONAL INSTITUTIONS: A CASE STUDY

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Abstract: Public relations represent a unique communication form which has a particular application in society. This function is consisted of set of activities and it is widely used in all aspects of life and work in contemporary society. Public relations involve focusing on a public aspect of organisation with the aim to create a positive attitude and image. The aim of this article is the analysis of public relations elements, as well as their practical implementation. In recent years, more and more attention is directed towards the development of public relations strategy in the nonprofit sector. Considering this, the subject of this paper is to explore the ways of managing public relations in the educational institutions from Serbia. In order to explain the current situation in this area, it is presented example of the public relations action plan, defined for the primary school "Vuk Karadzic" in Bor.

Keywords: public relations, elements, strategy, implementation, practice, education, primary school.

ANALYSE OF CONFLICT BEHAVIOUR - CONFLICT MANAGEMENT STYLES

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Abstract: Conflict is a natural and very typical phenomenon in every type of human relationships, at every level: from intra-personal to global. Conflict can be destructive, leading people to develop negative feelings for each other and spend energy that could be better spent elsewhere. However, well-managed conflict can also be constructive, helping to ‘clear the air’, releasing emotion and stress, and resolving tension, especially if those involved use it as an opportunity to increase understanding and find a way forward together out of the conflict situation. This paper presents a detailed analysis of the importance of conflict resolution. The study is based on a survey that included students at Technical faculty in Bor, Serbia and students at Kelety Faculty in Budapest, Hungary. Participants were asked to fill questionnaire developed for purpose of evaluating participants ability to respond to a conflict situation, create mutually beneficial conflict resolution. The survey was conducted in April, 2016. and responses were statistically analysed.

Keywords: Conflict, conflict management styles, conflict behavior

1. INTRODUCTION

Conflicts between individuals or even groups of people are part of everyday social life.

Most people occasionally finds themselves in conflict situations. Usually conflicts are the result of agreements with different personal beliefs and values, conflicting interests, and unmet needs or inability to express their own feelings and opinions. Issues of conflict that are not resolved peacefully can lead to arguments and resentment. You can not "win" in a conflict situation, because a victory in this case mean that the outcome of the whole situation is satisfactory for only one of the opposing side. And that is not a compromise in any case. So, the conflict should be resolved.

Conflict is a natural and very typical phenomenon in every type of human relationships, at every level: from intra-personal to global. Conflicts at every level have very significant common characteristics, dynamics and therefore it makes sense to examine them together and comparatively. People get involved in conflicts because their interests or their values are challenged, or because their needs are not met. It is easy to resolve or help resolve a conflict stemming from a clash of interests. It is more difficult to deal with a conflict that emanates from a clash of values. And it is even more difficult to handle a conflict in which at least one party's basic human needs are not satisfied. That is why such conflicts usually are deep-rooted and intractable. There are several basic human needs that are especially pertinent to conflict and conflict resolution -the needs for: recognition, development (and self-actualization), security, identity, bonding and finally for targets to project hate.

2. CONFLICT: GENERAL OVERVIEW

Organizations tend to be dominated by task forces, project teams, or work groups. These groups often comprise experts from varying disciplines and national cultures. As individuals, group members interact, they are interdependent and occasionally their goals appear incompatible. In these circumstances, conflict is inevitable. But conflict isn't necessarily a bad thing. There are both constructive and destructive elements to conflict in an organizational setting. For example, conflict may stimulate innovation, new ideas, and information gathering.

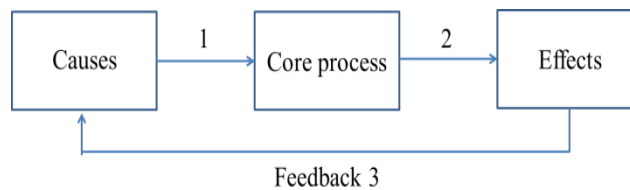


Figure 1. Conflict Cycle [1]

The conflicts at each level share a generic format (Figure 1). As with any social process, there are causes; also, there is a core process which has results or effects. These effects feedback to affect the causes. Such a conflict cycle takes place within a context (environment) and the cycle will flow through numerous iterations. The model provided here is a general one that indicates how the major pieces in the conflict puzzle fit together. It is selected because knowledge cumulates systematically when particular conflicts are described and analyzed in a reasonably common framework. Such a tack is preferable to maintaining that every conflict contains so many idiosyncratic features that it must be studied individually or grouped solely with others of its type. [1]

2.1. CONFLICT DEFINITION

In everyday life there are various situations, where the interests of two or more parties collide. These conditions are usually labeled as conflict situations. Conflicts are issues, where not only rational facts, but psychological features, such as values, attitudes and beliefs and emotional characteristics collide. Usually, conflict occurs when there are incompatible goals, thoughts or emotions among individuals, resulting in opposition and disagreements.

While no single definition of conflicts exists, most definitions seem to involve the following factors: that there are at least two independent groups, the groups perceive some incompatibility between themselves and the groups interact with each other in some way [2]. Two example definitions are: "Process in which one party perceives that its interests are being opposed or negatively affected by another party" [1], and "the interactive process manifested in compatibility, disagreement or dissimilarity within or between social entities" [3].

Conflict has the potential for either a great deal of destruction or much creativity and positive social change [4]. Therefore, it is essential to understand the basic processes of conflict so that we can work to maximize productive outcomes and minimize destructive ones.

2.2. TYPES OF CONFLICT

Conflict is classified into the following four types:

- a) *Interpersonal conflict* refers to a conflict between two individuals. This occurs typically due to how people are different from one another.
- b) *Intrapersonal conflict* occurs within an individual. The experience takes place in the person's mind. Hence, it is a type of conflict that is psychological involving the individual's thoughts, values, principles and emotions.
- c) *Intra-group conflict* is a type of conflict that happens among individuals within a team. The incompatibilities and misunderstandings among these individuals lead to an intra-group conflict.
- d) *Inter-group conflict* takes place when a misunderstanding arises among different teams within an organization.

In addition, competition also contributes for intergroup conflict to arise. There are other factors which fuel this type of conflict. Some of these factors may include a rivalry in resources or the boundaries set by a group to others which establishes their own identity as a team.[5]

Conflict may seem to be a problem to some, but this isn't how conflict should be perceived. On the other hand, it is an opportunity for growth and can be an effective means of opening up among groups or individuals. However, when conflict begins to draw back productivity and give way to more conflicts, then conflict management would be needed to come up with a resolution.

2.3. CAUSES OF CONFLICT

Conflict occurs between people in all kinds of human relationships and in all social settings. Because of the wide range of potential differences among people, the absence of conflict usually signals the absence of meaningful interaction. Conflict by itself is neither good nor bad. However, the manner in which conflict is handled determines whether it is constructive or destructive.[6]

The three general characteristics of conflict are: interaction, interdependence and incompatible goals [2]. If you reflect on this definition of conflict, it seems to indicate several logical groupings of causes. Because a party and other are involved in the conflict, some of the causes would stem from the characteristics of each.

Given that conflict has causes, what is the core process itself? Most researchers agree it is the interpersonal behavior in which one or both disputants oppose the counterpart's interests/goals.[1]

Conflict can be destructive, leading people to develop negative feelings for each other and spend energy on conflict that could be better spent elsewhere. It can also deepen differences, and lead groups to polarize into either/or positions. However, well-managed conflict can also be constructive, helping to 'clear the air', releasing emotion and stress, and

resolving tension, especially if those involved use it as an opportunity to increase understanding and find together a way out of the conflict situation.

Conflict has many positive outcomes like better quality of group decisions, increased innovation and creativity, team effectiveness, while destructive conflict results bad quality of group decisions, reduce creativity and undermine team effectiveness. This constructive controversy leads to learning, development of deep understanding of issue, creative teamwork and strong customer relationships.[7]

Among the numerous types of conflict in cognitive negotiation that have been considered useful to predict consequent performance, the concepts of functional and dysfunctional conflict are frequently mentioned as a result of their extensive applicability to conflict from cognitive and emotional perspectives. Conflict can result in destructive outcomes or creative ones depending on the approach that is taken. If we can manage conflict creatively, we can often find new solutions that are mutually satisfactory to both parties. Sometimes this will involve a distribution of resources or power that is more equitable than before, or in creating a larger pool of resources or forms of influence than before. Creative outcomes are more probable when the parties are interdependent, i.e., each having some degree of independence and autonomy from which to influence the other, rather than one party being primarily dependent on the other.

Functional conflict involves a conflict among organizational members who have a constructive attitude toward challenging ideas and beliefs, respect for the perspective of others even in the midst of disagreement and involves useful give-and-take processes. Researchers show that individuals engaged in functional conflict are usually task oriented and tend to focus on overcoming differences among members to achieve common objectives in the most effective way.

Dysfunctional conflict in contrast refers to a conflict that includes personal attacks and undermines team effectiveness, these conflicts tend to reduce efficiency and increase organizational costs. Although such conflicts are always difficult to prevent, existing research suggests four major cognitive principles useful in overcoming dysfunctional conflict, including the clarification of conflicts of interest, an emphasis on interpersonal and intergroup levels of analysis, an emphasis on process interventions, and a collaborative managerial perspective. In functional conflict, an individual's attitude toward conflict is generally positive, proactive and constructive, whereas dysfunctional conflict involves an attitude that is negative, reserved and withdrawn. In accordance with recent research, negative emotions, including anxiety and perceived uncertainty, are the main factors that destroy the communication process and lead to conflict that is even worse than at the beginning of negotiation. [8]

3. CONFLICT MANAGEMENT STYLES

The Thomas-Kilmann Conflict Mode Instrument (TKI) assesses an individual's behavior in conflict situations - that is, situations in which the concerns of two people appear to be incompatible. In conflict situations, we can describe a person's behavior along two basic dimensions: (1) assertiveness, the extent to which the individual attempts to satisfy his or her own concerns, and (2) cooperativeness, the extent to which the individual attempts to satisfy

the other person's concerns. These two dimensions of behavior can be used to define five methods of dealing with conflict. These five conflict-handling modes are shown below:

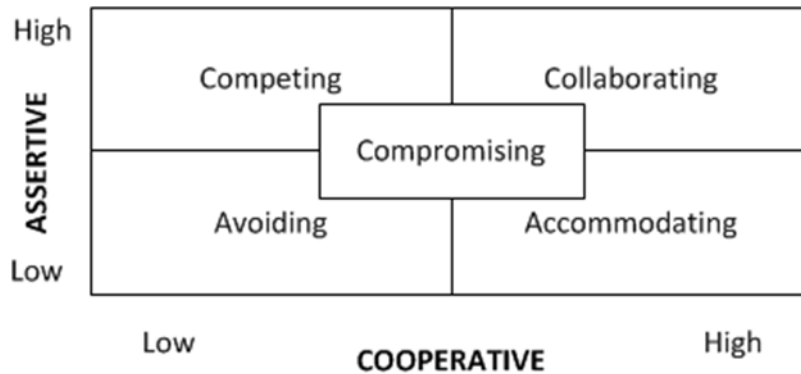


Figure 2. Two-dimensional model of conflict-handling behavior[9]

These two basic dimensions of behavior define five different modes for responding to conflict situations, *five conflict management styles*:

Competing is assertive and uncooperative, a power-oriented mode. When competing, an individual pursues his or her own concerns at the other person's expense, using whatever power seems appropriate to win his or her position. Competing might mean standing up for your rights, defending a position you believe is correct, or simply trying to win.

Collaborating is both assertive and cooperative. When collaborating, an individual attempts to work with the other person to find a solution that fully satisfies the concerns of both. It involves digging into an issue to identify the underlying concerns of the two individuals and to find an alternative that meets both sets of concerns. Collaborating between two persons might take the form of exploring a disagreement to learn from each other's insights, resolving some condition that would otherwise have them competing for resources, or confronting and trying to find a creative solution to an interpersonal problem.

Compromising is intermediate in both assertiveness and cooperativeness. When compromising, the objective is to find an expedient, mutually acceptable solution that partially satisfies both parties. Compromising falls on a middle ground between competing and accommodating, giving up more than competing but less than accommodating. Likewise, it addresses an issue more directly than avoiding but doesn't explore it in as much depth as collaborating. Compromising might mean splitting the difference, exchanging concessions, or seeking a quick middle-ground position.

Avoiding is unassertive and uncooperative. When avoiding, an individual does not immediately pursue his or her own concerns or those of the other person. He or she does not address the conflict. Avoiding might take the form of diplomatically sidestepping an issue, postponing an issue until a better time, or simply withdrawing from a threatening situation.

Accommodating is unassertive and cooperative - the opposite of competing. When accommodating, an individual neglects his or her own concerns to satisfy the concerns of the other person; there is an element of self-sacrifice in this mode. Accommodating might take the form of selfless generosity or charity, obeying another person's order when you would prefer not to, or yielding to another's point of view.

Each of us is capable of using all five conflict-handling modes. None of us can be characterized as having a single style of dealing with conflict. But certain people use some modes better than others and, therefore, tend to rely on those modes more heavily than others - whether because of temperament or practice.[9]

4. RESEARCH METHOD

Conflict has great potential but we are far from fully realizing it. Resolving conflict cooperatively requires considerable intellectual, logical, emotional and interpersonal capabilities; executives, professionals and workers have all expressed that they can discuss their differences openly and constructively.[10]

Conflict is an inevitable part of life. Each of us possesses our own opinions, ideas and sets of beliefs. We have our own ways of looking at things and we act according to what we think is proper. Hence, we often find ourselves in conflict in different scenarios; may it involve other individuals, groups of people, or a struggle within our own selves. Consequently, conflict influences our actions and decisions in one way or another.

In this part of the paper we will introduce research objectives, research sample, data collection methods and measurement properties.

The aim of this article is to present results of our research. Aim of the research was to analyze the occurrence of conflicts behavior among students and find out how students think about conflicts and their awareness about styles to manage conflicts. Knowing how to manage and resolve conflict is essential for having a productive work life, and it is important for community and family life as well.

The research sample was N=102 participants. The study is based on a survey that included students at Technical faculty in Bor, Serbia (56%) and students at Kelety Faculty in Budapest, Hungary (44%).

Participants age ranges from 18 to 26 years, both bachelor and master level of studies.

From a representative sample, 48% of students are female and 52% are male.

Participants were asked to fill questionnaire consisting of five groups of questions, developed for purpose of evaluating participants ability to respond to a conflict situation, create mutually beneficial conflict resolution. For each item the respondent stated level of experience with behavior on the Likert scale ranging from 1 – definitely not true, 6 – definitely true.

The survey was conducted in April, 2016. and responses were statistically analysed. Collected data is analyzed based on descriptive statistics analysis in Excel and SPSS program.

SPSS (Statistical Package for the Social Sciences) is a statistical software package in which are implemented almost all conventional statistical methods. The main advantage of this software package is the way is designed realization of statistical analysis.[11]

4.1. RESULTS AND DISCUSSIONS

According Vallaster the ways how people interpret their environment, how they think, feel and act, are often too divergent and create barriers to the smooth cooperation. If people of different cultural backgrounds are more likely to achieve the objectives in different ways, the

more this diversity can cause conflicts, which hampers the efficient development of a "shared understanding". [12]

The impact of conflict on student achieve academic success - from the performance of a task to the work ethic - is undeniable and interests of professors to teach students effective and nonviolent methods of conflict resolution increases.

The results of research are shown for 2 groups of conflict style resolution, group B that is collaborating style and group A that is competing style of conflict resolution. The reason for this is its highest result in conducted survey.

4.2. B GROUP OF STATEMENTS – COLLABORATING STYLE OF CONFLICT RESOLUTION

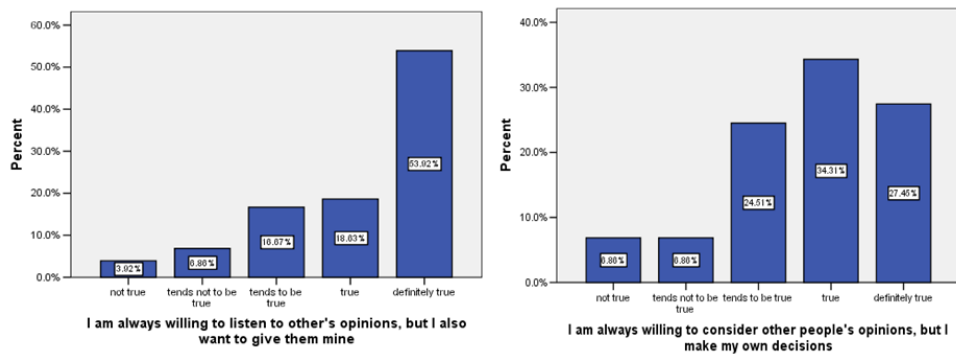


Figure 3. Statement 1 (left side) and statement 2 (right side) from B group of statements

Figure 3 depicts results for first and second statement from B group of statements. As you can see, for the first statement most of the students responded with definitely true or 53,92% and we can conclude that private opinion is very important in comparison with other people’s opinions. Second statement refers to independence when students are making decisions and the result show us that students are independent in decision making process.

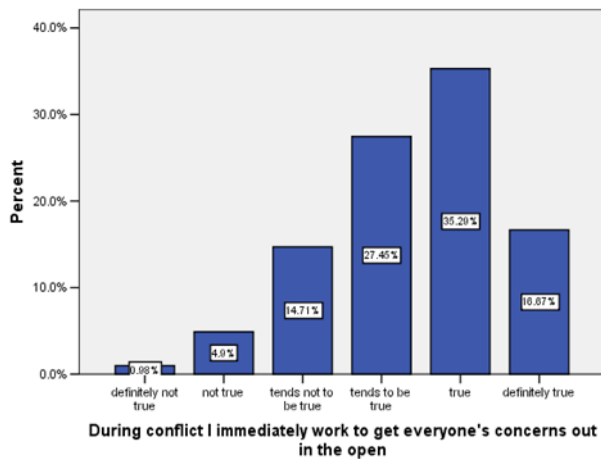


Figure 4. Statement 3 from B group of statements

Statement 3 is related to ability to express concerns of all conflict participants. 35,29% of students answered that is true, opposing sides must express their attitude about present conflict so it can be resolved in the most convenient way.

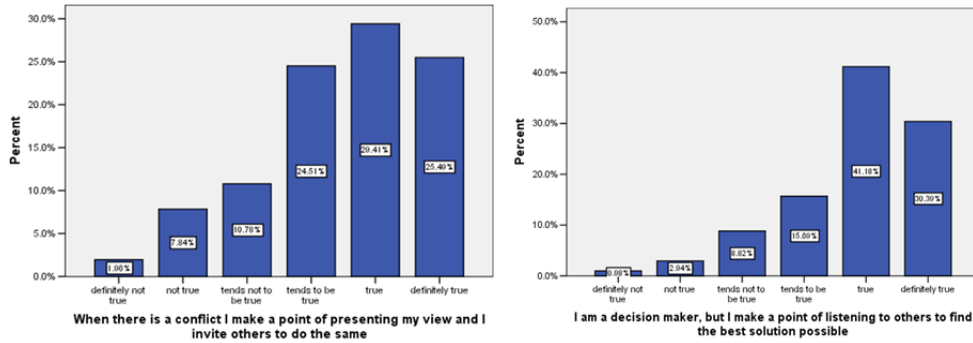


Figure 5. Statement 4 (left side) and statement 5 (right side) from B group of statements

Statements 4 and 5 are related to the idea of common resolution. And both of them (statement 4 - 29,41% and statement 5 – 41,18%) highlight importance of finding best solution for each of the opposing sides.

4.3. A GROUP OF STATEMENTS – COMPETING STYLE OF CONFLICT RESOLUTION

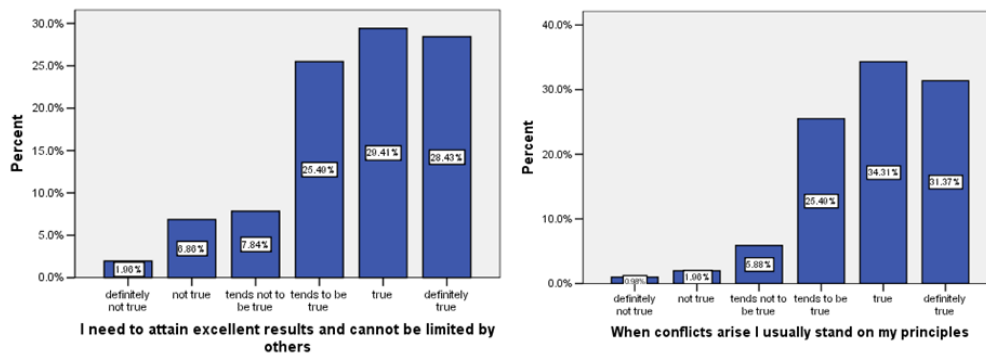


Figure 6. Statement 1 (left side) and statement 2 (right side) from A group of statements

Statement 1 and statement 2 represent A group of statements and their purpose is to express students opinion about competing. As we can see, both of the statements are supported by most of the students as true or definitely true. So we can conclude that, in conflict situations students are competitive minded.

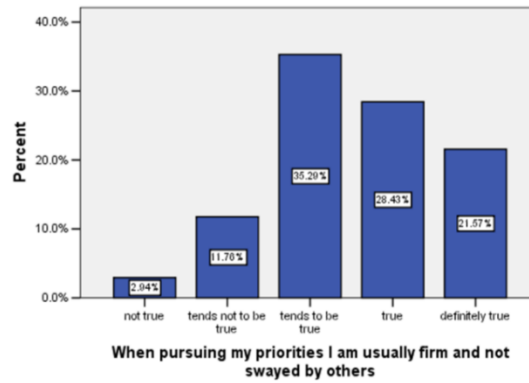


Figure 7. Statement 3 from A group of statements

Highest result for statement 3 is neutral, 35,29% but we can notice that almost total number of participants agree about putting own priorities in the first plan. Small percentage of participants about 14,7% have negative opinion about this statement.

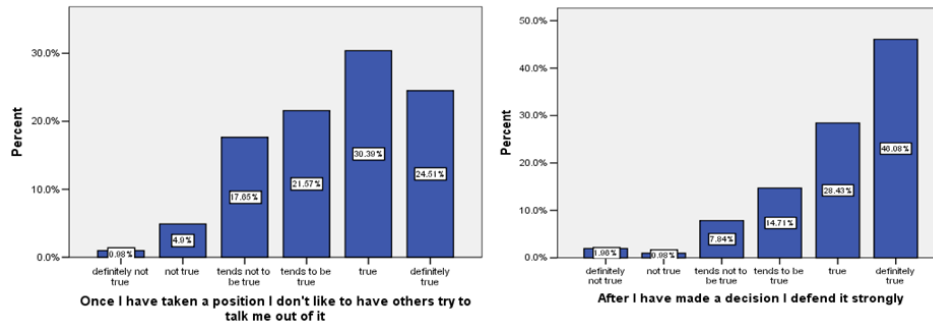


Figure 8. Statement 4 (left side) and statement 5 (right side) from A group of statements

Figure 8 show us opinions of students about their determination after decision making process. The result is that students are strongly determined after making a decision, we can see that in both graphs. Statement 5 has majority participants 40,08% responded with definitely true.

4.4. COMPARATION OF GROUPS

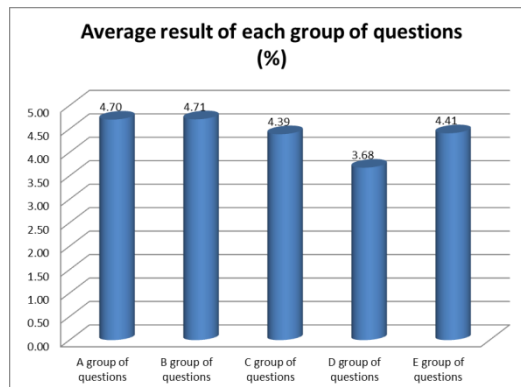


Figure 9. Average results of each group of statements

Figure 9 depicts comparison of 5 groups of conflict style resolution. We can see that group A and group B have similar percentage, difference is only 0,01%. Participants evaluated styles A - competing and B - collaborating as primary respond to a conflict situation. Further, we have E group of statements that reflect accommodating style of dealing with conflicts with average value 4,41. Last two positions are C group - compromising with average value of respons 4,39 and D group – avoiding with average value of 3,68.

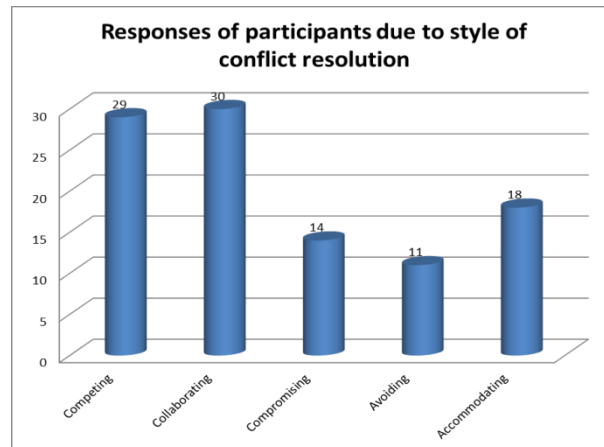


Figure 10. Responses of participants due to style of conflict resolution

Final conclusion is that collaborating style of conflict resolution is used by the highest number of participants, 30. Collaborating style corresponds to solving problems in a way for all involved to get what they want and negative feelings are minimized. But we can also notice that competing style of conflict resolution has also high score, 29. Competing style depicts authoritarian approach of resolving conflict. Accommodating is on the third position with 18 participants using this style of conflict resolution that is based on cooperating to a high degree where you may have to give in to maintain relationships. 14 participants of total number are using compromising style of conflict resolution which is middle ground approach when we talk about conflicts. Only 11 participants are using avoiding style of conflict resolution, non-confrontational approach. Obviously, this style is only appropriate when the issues are of low importance, or it is clear to both parties that the consequences of delay in making a decision will be minimal.

5. CONCLUSION

The primary objective of the research, which result from the relationships and connections between conflicts and conflict behavior, was to determine whether students have experience with conflict management styles.

Research on conflict management styles has found that each of us tends to use one or two of the above five strategies more than the others. For instance, some students predominantly use collaborating. In other words, although there are five different ways to handle conflicts, such a student is more likely to collaborate than to compete, accommodate, avoid or compromise. There are many advantages of using a collaborating strategy to handle

interpersonal conflict situations. Collaborating with other party promotes creative problem solving, and it's a way of fostering mutual respect. It creates mutual trust, maintains positive relationships and builds commitments. The collaborating style is an excellent way to merge insights from people with different perspectives on a problem, and the result can be a strong commitment to the solution from each side.

A competing style is one in which the concerns and the position of the opposition are completely ignored. The conflict can be won by any means necessary: argument, rank (position or authority) or a political exercise of power. The competing style can be appropriately used when the goal is quick action, or when there is little hope of consensus ever being reached. It is goal-oriented style and provides quick decisions. The disadvantage of the competing style is that it may cause the other side not to voice important concerns because they will be ignored anyway.

Conflict resolution is the process of resolving a dispute or a conflict by meeting at least some of each side's needs and addressing their interests. Conflict resolution sometimes requires both a power-based and an interest-based approach, such as the simultaneous pursuit of litigation (the use of legal power) and negotiation (attempts to reconcile each party's interests). There are a number of powerful strategies for conflict resolution.

All things considered, it is important to understand how conflict or conflict avoidance can affect the relationships and the parties involved. Those who are trained to identify the antecedents of conflict and understand the value of utilizing negotiation tools will effectively circumvent conflict leading to overall success in conflict solving; whereas, those who choose to avoid conflict, or more importantly conflict that leads to dysfunctional or destructive forms of conflict can stifle or hinder relationships.

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DESCRIPTIVE ANALYSIS OF THE M-BANKING IN THE EAST AND SOUTH-EAST SERBIA

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Abstract: Nowadays, m-banking is becoming more widespread representing almost indispensable part of any banking organization. In this paper, m-banking advantages and disadvantages are listed. The most popular applications are described, too. Also, its importance and application in East and South-East Serbia is analyzed by descriptive, comparative analysis of m-banking among five different bank services. The obtained results show the reasons for using or not using this service in the wider population.

Keywords: M-banking, Consumer, Internet.

CORPORATE SOCIAL RESPONSIBILITY

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Abstract: All successful companies in the world have been implementing the concept of Corporate Social Responsibility (CSR) for decades. For Serbian companies, it is still a new issue which has just begun to develop. Many companies have started to invest money in order to help at least some problems in the community to be solved. Most often the aid is directed to education, health, culture, sport and art. This way, companies are being integrated into the local community, through an enormous support of media. Generally speaking, the concept of corporate social responsibility refers to the commitment of companies to the ethical behavior and contribution to economic development, while showing respect for people, communities, societies and environment. By investing in the society, companies create a healthy environment that will help them in their growth and development. The size of a company is reflected in its responsibility towards the society in which it operates and makes profit, improves business reputation, increases productivity and provides greater loyalty and motivation of employees. Communities need the support of corporations and their partnership. The most important issue for ensuring that support is the need the corporations to recognize and understand the possible benefits of the final results. Worldwide companies are aware that such investments will bring them benefits because this way they become more familiar with their customers and build a positive self-image. Therefore, more money is invested in corporate social responsibility, even though more profit is made through advertising. Being socially responsible means not only fulfilling the obligations stipulated by laws, but investing in human resources, environment and relations with all stakeholders.

Keywords: Corporate social responsibility (CSR), Communities, Economic development, Worldwide companies, Stakeholders, Benefits, Investments

1. POJAM KORPORATIVNE DRUŠTVENE ODGOVORNOSTI

Pojam korporativne društvene odgovornosti je veoma širok. Ne postoji jedinstveno shvatanje korporativne društvene odgovornosti, niti postoji spisak aktivnosti i oblasti koje on sadrži. Uopšteno govoreći, korporativna društvena odgovornost podrazumeva da za profit koji ostvaruju, preduzeća nisu odgovorna samo akcionarima nego i pojedincima i grupama (tj. svim stejkholderima) na koje se profit na bilo koji način odražava. Društvena odgovornost podrazumeva obavezu menadžmenta da preduzme one akcije koje će doprineti blagostanju i interesima društva ali i organizacija. Korporativna društvena odgovornost obuhvata odgovoran odnos kompanija prema društvu, pri čemu se taj odnos zasniva na ukupnosti društvenih, etičkih, ekoloških i ekonomskih vrednosti značajnih za proces odlučivanja. Prema tome, korporativna društvena odgovornost se odnosi na ponašanje organizacija prema društvu, a ponašanje organizacija prema društvu se zasniva na vrednostima koje društvo isti čeka kao dominantne i značajne za njegov dalji razvoj. Da bi bila uspešna, organizacija mora da

definiše želje ili očekivanja potrošača, vlade i konkurenata, kao i društva u celini u pogledu društvene odgovornosti. Koncept društvene odgovornosti poslovanja preduzeća u zemljama razvijene tržišne privrede, zasniva se na poslovnoj politici koja uvažava nužnost odgovornog učešća u zajednici, a koja nije u suprotnosti sa osnovnim ciljevima preduzeća - sticanje dobiti (profita). [1]

Društveno odgovorno poslovanje obuhvata različite oblasti:

- poslovne aktivnosti preduzeća, kao što su edukacija zaposlenih,
- za kvalitet i sigurnost proizvoda, dobri poslovni običaji ili interna i eksterna kontrola poslovanja;
- -uključenost i davanje za zajednicu u različitim oblastima, kao što je ulaganje u zdravstvenu zaštitu, obrazovanje, nauku ili zalaganje za ljudska prava;
- iniciranje i vođenje dijaloga sa državom i ključnim grupama u zajednici o politikama razvoja zajednice, kao što su stvaranje povoljnog okruženja, preduzetništvo ili investiranje, poboljšanje kvaliteta upravljanja, unapređivanje poslovnih, društvenih ili ekoloških politika.

Prihvatanjem koncepta društveno odgovornog poslovanja i informisanjem okruženja o tome, kroz različite vidove komunikacije, preduzeće počinje da se razlikuje od konkurenata, što može omogućiti bolje pozicioniranje na tržištu, veću lojalnost kupaca usled njihove pozitivne predstave koju stiču o preduzeću, a kao posledicu imaju veću prodaju proizvoda i usluga. Grupa stejkholdera koju je veoma važno informisati o aktivnostima kompanije na polju korporativne društvene odgovornosti, su kupci. Da bi kompanija ostavila dobar utisak i imala koristi od ulaganja u društveno odgovorne poslovne prakse, veoma je važan način njenog komuniciranja sa kupcima i drugim ciljnim grupama i partnerima. Kompanija nastoji da proceni značaj koji koncept korporativne odgovornosti ima za kupce, kako bi se na osnovu toga kreirao koncept adekvatnog komuniciranja. Cilj je da se sazna da li kupci žele i očekuju da ih kompanije u kontinuitetu i na prihvatljiv način informišu o svom društvenom angažovanju i šta za njihove stavove i ponašanje u procesu kupovine mogu značiti te informacije.[2]

1.1. TRENDVI U DRUŠTVENO ODGOVORNOM POSLOVANJU

Tokom prethodnih godina uočeni su signali koji ukazuju na sve veća davanja od strane korporacija, intenzivnije izveštavanje o korporativnim inicijativama iz domena društvene odgovornosti, uspostavljanje činjenja dobrog kao korporativne društvene norme i prelaska sa davanja kao obaveze na davanje kao strategiju.

Trendovi u društveno odgovornom poslovanju:

- *Povećana davanja*
Kon-Ropersova izvršna studija objavljena 2000. godine, utvrdila je da 69 procenata kompanija planira da u budućnosti poveća svoje društvene obaveze.
- *Inenzivnije izveštavanje*
Istraživanja 250 vodećih svetskih kompanija, koje je 2002. godine objavila američka agencija KPMG, ukazalo je na stalno povećanje broja američkih kompanija koje izveštavaju o korporativnoj odgovornosti. Ovakvi izveštaji

uglavnom su uključeni u godišnje izveštaje korporacija, koji imaju posebne odeljke posvećene davanjima zajednici, a sve više se obavljaju i posebno.

- *Činjenje dobra kao korporativna društvena norma*
U okviru godišnjih izveštaja i na odgovarajućim internet stranama, javljaju se poruke najviših rukovodilaca, kojima se signalizira da je opredeljenje za korporativnu društvenu odgovornost postalo jedna od obaveznih i glavnih tema. Dell: „Del je svetska kompanija čiji se proizvodi i usluge prodaju u više od 190 zemalja. Mi imamo preko 40.000 zaposlenih koji žive i rade na šest kontinenata. Zbog toga je važno da svim zajednicama koje nazivamo svojim domom obezbedimo tehnologiju”. Fabrika automobila Ford: „Postoji razlika između dobre kompanije i velike kompanije. Dobra kompanija nudi odlične proizvode i usluge. Velika kompanija takođe nudi odlične proizvode i usluge, ali se trudi i da poboljša svet”.
- *Od obaveza ka strategiji*
U članku objavljenom 1994. godine, Krejg Smit je ukazao na „novu korporativnu filantropiju“. Jedna od prekretnica koju je Smit indentifikovao, bila je odluka Vrhovnog suda iz pedesetih godina prošlog veka o ukidanju zakonskih ograničenja, ali i nepisanih pravila o zabrani ili bar ograničavanju korporativnih priloga i uplitanja korporacije u društvena pitanja.[3]

1.2. ZAŠTO ČINITI DOBRO

„Biznis za društvenu odgovornost”, jedna od vodećih neprofitnih organizacija u svetu, koja pruža firmama informacije, instrumente, obuku i savetodavne usluge u vezi sa povezivanjem korporativne društvene odgovornosti i relativnog poslovanja i strategije, i koja je došla do zaključka da su društveno odgovorne kompanije ostvarile niz koristi:

- *Povećanje prodaje i udela u tržištu*
Kon- Roperova istraživanja pokazuju da kompanije mogu da imaju značajne koristi od vezivanja za neki društveni cilj. Analiza istraživanja potrošača dala je sledeće rezultate. 84% ispitanika je reklo da ima pozitivniju sliku o kompaniji koja čini nešto kako bi popravila svet. 78% odraslih ispitanika je reklo da će pre kupiti proizvod koji je povezan sa društvenim ciljem do kojeg im je stalo. 64% je reklo da bi se preorjentisalo na brend koji podržava društveni cilj do kojeg im je stalo. 62% je reklo da bi se preorjentisali na maloprodajni lanac koji podržava neki društveni cilj. Marketing aktivnosti povezane sa nekim društvenim ciljem imaju najjači uticaj na ljude sa višim obrazovanjem i većim prihodima. Jedan od najboljih primera korporativne društvene inicijative koja je povećala prodaju i udeo u tržištu bila je kompanija *American Express* za restauraciju Statue slobode, početkom 80-tih godina prošlog veka.
- *Jačanje pozicije brenda*
Kompanije nisu svesne da sprovodeći društveno odgovornu politiku imaju zapravo veće koristi. Na taj način se povećava prodaja. Potrošači se pre opredeljuju da kupuju brendove kompanija koje podržavaju društvene ciljeve.

Takođe, to je metod za jačanje pozicije brenda. Sa strateški osmišljenim društvenim inicijativama može da se postigne isticanje brenda u odnosu na konkurenciju. Kompanije koje usvajaju ekološke inicijative, čiji je cilj smanjenje otpada, ponovna upotreba materijala, reciklaža, štednja vode i električne energije, smanjuju i svoje troškove. Potrošači prevazilaze pitanja koja se odnose na funkcionalnost i racionalne koristi od proizvoda, i sve više pažnje poklanjaju emocionalnim i psihološkim aspektima i imidžu brenda. Cilj kompanije je da proizvod „smesti” u svest potrošača i da se postigne emocionalna veza sa određenim proizvodima. Strateški osmišljenim društvenim inicijativama može da se postigne diferenciranje brenda u odnosu na konkurenciju. Ukoliko potrošači i kupci percipiraju preduzeće kao etično i društveno odgovorno, verovatnije će biti lojalni njegovom brendu.

- *Jačanje korporativnog imidža i uticaj*
Kompanije koje osim poštovanja zakona, dobrovoljno usklade svoje poslovanje sa nekim od standarda društveno odgovornog ponašanja u poslovanju ne samo da zadovoljavaju propisane zahteve, već time stiču poverenje i naklonost državnih i lokalnih organa vlasti.
- *Jačanje mogućnosti za privlačenje, motivisanje i zadržavanje zaposlenih*
Osim visine plate, opisa radnog mesta i mogućnosti napredovanje, zaposleni sve više procenjuju preduzeća i na osnovu njihove korporativne kulture, dominantnih vrednosti i spremnosti da se angažuju u društveno korisnim inicijativama.
- *Smanjenje troškova poslovanja*
Preduzeća koja usvajaju ekološke inicijative, čiji je cilj smanjenje otpada, ponovna upotreba materijala, reciklaža, štednja vode i električne energije, smanjuju operativne troškove i povećavaju prihod od bespovratne pomoći i olakšica, koje dobijaju kao ekološki odgovorni poslovni subjekti.
- *Povećanje privlačnosti za investitore i finansijske analitičare*
Pozitivan društveni imidž može da poveća vrednost akcija preduzeća, jer će tržište više da ceni kompanije koje su manje izložene društvenim, ekološkim i etičkim rizicima. Javno se prati tj. publikuje odgovornost prema životnoj i društvenoj sredini prilikom investiranja. Veliki ulagači poput penzijskih fondova imaju obavezu da ulažu u firme koje se smatraju društveno odgovornim.[4]
- *Društveno odgovorne poslovne prakse: recikliranje:*
Početkom 90-tih godina prošlog veka Mekdonalds je promenio kese u koje je pakovao hranu; izbeljen nov papir zamenjen je recikliranim. Kupio je proizvode za više od 4 miliona dolara od recikliranog materijala koji su iskorišćeni za izgradnju i rad restorana širom sveta.[5]

2. KORPORATIVNO PROMOVISANJE DRUŠTVENIH CILJEVA

Promovisanje društvenih ciljeva podrazumeva obezbeđivanje sredstava, priloga ili drugih korporativnih resursa potrebnih za jačanje svesti i brige o nekom društvenom cilju, kao

i zainteresovanost za njega, a kako bi se pomoglo u prikupljanju priloga ili podstaklo učešće i regrutovanje volontera. Promovisanje društvenih ciljeva razlikuje se od ostalih korporativnih društvenih inicijativa po tome što se naglasak stavlja na promotivne strategije.

2.1. TIPIČNE PROMOCIJE DRUŠTVENIH CILJEVA

Korporativne promocije društvenih ciljeva najčešće se fokusiraju na:

Izgradnju svesti o nekom društvenom cilju i izazivanje interesovanja za njega. Ubeđivanje ljudi da se bolje upoznaju sa nekim društvenim ciljem tako što će posetiti neku internet stranicu ili zatražiti brošuru sa informacijama. Ubeđivanje ljudi da nađu vremena za pružanje pomoći siromašnima kao npr. organizovanje besplatne podele naočara u prodavnicama. Ubeđivanje ljudi da poklanjaju novac koji će se iskoristiti za ostvarivanje nekog društvenog cilja, da daju nematerijalne priloge kao što su stari mobilni telefoni i polovna odeća, da se uključe u manifestacije kao što su posete izložbama radova profesionalnih fotografa pripadnika manjinskih grupa, i drugo. U promovisanju društvenih ciljeva učestvuju različite korporacije, a različite su i teme u okviru kojih se obezbeđuje podrška. Korporacije najčešće stupaju u partnerske odnose s neprofitnim organizacijama čija je misija povezana sa nekim društvenim ciljem kao i sa medijskim kućama.

2.2. IZRADA PLANA KOMPANIJE ZA PROMOVISANJE DRUŠTVENOG CILJA

Planovi kompanije treba zajedno da se pripremaju, pošto podrazumevaju donošenje važnih odluka o ciljnim grupama, osnovnim porukama, elementima i glavnim medijskim kanalima. Jedan od najefikasnijih načina za donošenje odluka je izrada dokumenata koji će pružiti smernice za osmišljavanje poruka, dizajniranje elemenata kampanje i izbor medijskih kanala. Koristeći kreativni podsetnik koji sadrži jednu do dve strane, članovi tima i spoljni partneri, moći će da usaglasavaju stavove u pogledu ciljnih grupa, ciljeva komunikacije, i osnovnih pretpostavki.

Kreativni podsetnik se sastoji iz sledećih odeljaka:

- Ciljna grupa: kratak opis ciljne grupe, podaci kao što su demografski, geografski, varijabile ponašanja, pol.
- Ciljevi komunikacije: izjava šta želimo da naša ciljna grupa, zahvaljujuću našim komunikacijama, zna, veruje, oseća, i možda čini.
- Koristi koje će biti obećane: utvrđivanje ključnih faktora koji će podstaći ciljne grupe da se uključe u volonterski rad ili da daju donaciju.
- Započinjanje akcije: određivanje vremena, mesta, situacije kada će ciljna grupa obratiti najveću pažnju na poruku i biti sposobna da u skladu sa njom deluje.
- Pozicioniranje i zahtevi: željeni ton kampanje (npr. ozbiljan ili šaljiv), ali i zahtevi kao što je korišćenje korporativnog loga
- Ciljevi kompanije: ovaj odeljak treba razmotriti prilikom izbora medijskih kanala, pošto se u njemu navode merljivi ciljevi kampanje.

3. KORPORATIVNI DRUŠTVENI MARKETING - PODRŠKA KOMPANIJAMA ZA PROMENU PONAŠANJA

Radi unapređenja javnog zdravlja, sigurnosti, životne okoline i dobrobiti društva, organizacije preduzimaju aktivnosti vezane za društveni marketing koji za cilj ima dobrovoljnu promenu ili modifikaciju ponašanja od strane potrošača i članova društva. Zbog toga se bave pitanjima od najšireg društvenog interesa poput zdravstva i ekologije. Organizacije su često podržane od strane državnih tela i institucija. Promena ponašanja je dug proces tako da su i detaljan marketinški plan i plan aktivnosti bazirani na analizi situacije i odabiru ciljnih grupa te unapred postavljenim ciljevima. Kompanije iz domena društvenog marketinga, obično razvijaju i sprovode odgovarajući stručnjaci u saradnji sa federalnim, državnim i lokalnim organima, kao što su komunalne službe, zdravstvene institucije, transportna preduzeća, ekološke i neprofitne organizacije.

3.1. TIPIČNE KOMPANIJE U OBLASTI KORPORATIVNOG DRUŠTVENOG MARKETINGA

Kompanije se najčešće fokusiraju na promovisanje ponašanja koje može da utiče na: **Zdravstvena pitanja** kao što su sprečavanje pušenja, pasivnog pušenja, raka dojke i alkoholizma u trudnoći.

Pitanje u vezi sa sprečavanjem nesreće, obuhvata bezbednost u saobraćaju i bezbedno čuvanje oružja.

Ekološka pitanja podrazumevaju očuvanje vode, štednju električne energije, korišćenje pesticida, sprečavanje bacanja otpadaka.

Pitanja u vezi sa društvenim angažmanima, kao što su volonterski rad, izlazak na izbore, zaštita prava životinja, borba protiv kriminala.

Na izbor cilja najčešće utiču prirodne veze sa osnovnom delatnošću korporacija. U društvenom marketingu učestvuje veliki broj različitih firmi. Glavni elementi kampanja uključuju uspostavljanje partnerskih odnosa, određivanje ciljeva ponašanja, izbor ciljnih grupa i sprovođenje strategije kompanije. Kompanije uspostavljaju odnose sa javnim sektorom ili neprofitnim organizacijama koje obezbeđuju stručno znanje o određenim društvenim problemima i povećavaju mogućnost da se uspostave odnosi sa zajednicom. Segmentacija tržišta je uobičajena, uz poželjan fokus na ciljne grupe do kojih se lako može dopreti preko dostupnih medijskih kanala, a koji će imati najviše koristi od promene ponašanja i najverovatnije su za promenu stavova.

3.2. POTENCIJALNI PROBLEMI

Problemi koje se javljaju tokom kampanje društvenog marketinga su sledeći:

Neki društveni ciljevi nisu u domenu korporacije: Potrošači mogu da budu skeptični u odnosu na motive zbog koji se neka korporacija uključuje u rešavanje određenog društvenog problema. Npr. McDonalds koristi inicijativu društvenog marketinga kako bi podstakao na blagovremeno vakcinisanje dece.

Za mnoge ciljeve i inicijative potrebno je stručno znanje, posebno iz oblasti medicine: ponašanje koje podstiče kampanja društvenog marketinga, često mora da se zasniva na stručnom mišljenju i da uživa njegovu podršku.

Do promene ponašanja, a time i njegovih posledica, obično ne dolazi preko noći: Direktni učesnici u ovakvim kampanjama moraju na samom početku da se upozore na to da će kampanja imati posebne repere, kao i da će morati da se uspostave i prate privremene mere koje će ukazivati na napredak. Npr., kampanja usmerena na propisno odlaganje otpadaka, prve godine može da se fokusira na upoznavanje sa novčanim kaznama, a druge na ubeđivanje građana da će se te kazne primenjivati, dok stvarna promena u ponašanju ne može da se očekuje pre treće godine.

Budite spemni da izdržite kritiku onih koji smatraju da kampanja iz oblasti društvenog marketinga nije vaš posao: neke grupe građana čvrsto veruju da kampanje u vezi sa pitanjima koja, kao što se čini, utiču isključivo na pojedinca, predstavljaju mešanje u individualna prava i da uopšte nisu u domenu državnih agencija ili korporacija. Npr., u nekim saveznim državama u kojim je usvojen zakon o obaveznom korišćenju pojasa u vožnji, grupe građana su se zalagale za njegovo povlačenje, tvrdeći da ako neko želi da se ubije tako što ne vezuje pojas, to predstavlja njegov lični izbor, ali i pravo. Najbolja priprema za ovakve situacije jeste davanje na uvid činjenica u vezi sa potencijalnom štetom za druge i uticajem na novac poreskih obveznika (troškovi lečenja od povreda koje su se mogle izbeći vezivanjem pojasa).

Budite svesni da osmišljavanje neke kampanje iz oblasti društvenog marketinga, ili čak samo podrška takvoj kampanji, podrazumevaju mnogo više od ispisivanja čeka: da bi funkcionisale, ovakve kampanje moraju da uključe više vremena zaposlenih, koje je potrebno za planiranje, sprovođenje, i usklađivanje sa partnerima, bolju integraciju sa postojećim medijskim i distributivnim kanalima, obraćanje veće pažnje na kontrolu i praćenje rezultata i trud da se stalno bude u toku sa tendencijama i događajima važnim za određeno društveno pitanje i odgovajuće ponašanje.

3.3. IZRADA KORPORATIVNOG PLANA ZA KAMPANJU DRUŠTVENOG MARKETINGA

Planiranje je od presudnog značaja za uspeh, pa se preporučuje da se pre zvaničnog započinjanja izrade plana izaberu partneri koji će se uključiti u svaki korak.

Obaviti analizu situacije: ona započinje izjavom o cilju i fokusu kampanje, kao i analizom internih prednosti i nedostataka, eksternih mogućnosti i opasnosti.

Odabir ciljne grupe: započinje sa onim čija je potreba najveća, do kojih se najlakše može dopreti i koje najbolje odgovaraju organizacijama.

Odrediti ciljeve ponašanja i kljeve promene ponašanja: utvrditi ciljeve ponašanja koji moraju da budu konkretni, jedinstveni i izvodljivi.

Utvrđiti prepreke i motive za promenu ponašanja: u ovoj fazi treba da se identifikuje konkurencija, ponašanje kojim je ciljna grupa trenutno sklonija.

Razvijanje marketing-miksa: miks podrazumeva proizvod, cenu, mesto i promotivne strategije.

➤ Proizvod uključuje u kampanju neki konkretan cilj ili uslugu, nešto što će olakšati željeno ponašanje (minimarketima mogu da dele kese za otpatke u okviru kampanje za sprečavanje bacanja otpadaka)

➤ Cena - nenovčani način nagrađivanja koji bi povećao vrednost razmene.

➤ Mesto pružanja određenih usluga u pokretnim ordinacijama.

➤ Promocija - priprema poruke pre nego što se opredeli za medijski kanal.

Fokusiranje na poruke koje su jasne, dinamične i konkretne.

Utvrđiti budžet i pronaći izvor finansiranja. Ispitati mogućnosti za uspostavljanje partnerskih odnosa korporacije sa svim sektorima.

Izraditi plan primene - idealan je trogodišnji plan jer do promena u ponašanju dolazi veoma sporo.

Studentska društvena odgovornost - Studenti, učenici i sva njihova udruženja i organizacije, takođe su bitan faktor društvenog delovanja. Akcije koje se u njihovoj organizaciji odvijaju, uglavnom su u vezi sa direktnim poboljšavanjem njihove okoline, kao što su sanacija i restauracija raznih objekata, organizovanje mnogobrojnih manifestacija i seminara sa ciljem edukacije i većeg angažovanja mladih, prikupljanja raznih vidova materijalne i novčane pomoći i slično. U ovome im, naravno, često pomažu i razne kompanije, kako kadrovski, tako i materijalno.[6]

4. ZAKLJUČAK

Društveno odgovorno poslovanje, kao što smo videli, predstavlja veliki potencijal za prikupljanje sredstava i za uspostavljanje partnerstva. Uloga privatnog poslovnog sektora je naročito važna, jer upravo ovaj sektor nudi inovacije, investicije i stručnost. Saradujući sa organima vlasti, nevladinim organizacijama, poslovni sektor može pomoći u prevazilaženju izazova sa kojima se svi suočavamo. U procesu stvaranja adekvatnog ambijenta za primenu korporativne društvene odgovornosti, jedan od ključnih elemenata predstavljaju institucije. Primena koncepta korporativne društvene odgovornosti u domaćim preduzećima treba da omogući formiranje uslova za uspešniji tržišni nastup i za postizanje konkurentne sposobnosti domaćih preduzeća.

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ECOLOGICAL SYSTEM OF SOKO BANJA AND BOR

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Abstract: This paper aims to make a paralell between the two opposites In terms of environmental protection. Soko Banja as the "Green Heart of Serbia", a popular domestic tourist destination, health resort ... and Bor as the "City of Miners ' industrial center, "City of smoke." With the usage of the correct system. We want to collect the necessary parameters and use them in our further work and research.

Keywords: Ecology, Industry, Preservation of the enviroment

1. UVOD

Evolucijom ljudske vrste u kontekstu geološke istorije i evolucije Zemlje, predstavlja veoma mali vremenski period, koji je, čini se međutim, bio od velikog značaja za razvoj čoveka kao vrste, ali i za planetu kao globalni ekosistem koga je čovek menjao. Od samog postanka Zemlje i postanka živih bića na njoj dešavale su se interakcije, fenomeni i procesi, prilikom kojih se menjala Zemlja i živa bića zajedno sa njom. Te se promene dešavaju i danas, sa tom razlikom što je poslednjih nekoliko decenija, pa i stoleća, antropogeni uticaj izraženiji nego ikad. Životna sredina je skup prirodnih i stvorenih vrednosti, i njihovih kompleksnih odnosa u prostoru i vremenu, koji čine uslove za život, bilo da je taj prostor reda veličine ćelije ili veličine svetskog okeana na primer⁹². Razmere i posledice raznovrsnih čovekovih aktivnosti su takve i tolike, da on, za razliku od svih ostalih živih bića, predstavlja ne samo značajan geografski i geološki, već istovremeno i jedan od najznačajnijih ekoloških (biotičkih) faktora. Čovek, u pokušaju da „ukroti“ prirodu, poremetio je osnovne funkcije ekosistema, poremetio je regulatorne mehanizme koji u prirodi vladaju, i time destruktivno delovao na biosferu čiji je, i on sam, deo. Možda su ključni momenti u konfrontaciji čoveka sa prirodom bili su izum i razvoj poljoprivrede, pronalazak vatre, otkriće parne mašine, industrijalizacija, razvoj saobraćaja, fisija, pronalazak atomske energije, tj. oni momenti koji su bili od vrlo velikog značaja za porast proizvodnje, nagli porast ljudske populacije, urbanizaciju, i dr. što je za posledicu imalo vidnu destabilizaciju ekosistema i osiromašenje njegove raznovrsnosti⁹³. S obzirom da su evolucija čoveka, razvoj ljudskih civilizacija i progresija kulture imale za posledicu „otuđenje“ čoveka od prirode, a veoma često i njenu degradaciju, sada se kao problem naročito razmatra sposobnost i mogućnost prirode da podnese sve brojnije negativne uticaje antropogenog karaktera. Ti negativni uticaji su

⁹² Zakon o zaštiti životne sredine, Službeni glasnik Republike Srbije, 2004, p. 139

⁹³ M. Jablanović, P. Jakšić, K. Kosanović, Uvod u ekotoksikologiju, Prirodno matematički fakultet univerziteta u Prištini, Kosovska Mitrovica, 2003, p. 110

mnogobrojni i raznovrsni, počev od degradacije i devastacije zemljišta, isušivanja močvara i kopnenih voda, seča šuma, izgradnje infrastrukture, veštačkih akumulacija i velikih saobraćajnica, do izlova, trgovine divljim vrstama i introdukcije alohtonih i invazivnih vrsta, jednom rečju – iskorišćavanje prirodnih (neobnovljivih) resursa u ogromnoj meri. Pod zagađenjem se podrazumevaju kvalitativne i kvantitativne izmene fizičkih, hemijskih i bioloških karakteristika osnovnih komponenti životne sredine (vazduh, voda, zemljište, hrana..) koje vode ka narušavanju ekosistema. Početak industrijske ere uslovljava ubrzanje povećanja stepena zagađenja i to pretežno kao kontaminacija radne sredine, znači lokalnog karaktera.

Kriterijuma za klasifikaciju zagađenja ima puno, pa se dele prema: fizickom stanju, komponentama sredine, hemijskoj prirodi, svojstvima, efektima, izvoru i tako dalje. U ovom radu dali smo kratak pregled osnovnih supstanci koje imaju bitan uticaj na zagađenje vazduha u Opštinama Sokobanja i Bor sa ciljem primene sistemske analize na izolovane parameter u nekom daljem istraživanju.

2. ZAGADJENJE VAZDUHA

Vazduh se definiše kao smesa gasova ciji je odnos konstantan I samo u manjoj meri varijabilan I u kome krace ili duze vreme mogu biti prisutne cvrste ili tecne cestice. Uzroci i posledice Atmosfera je vazdušni omotač Zemlje, debljine oko 1000 km na ekvatoru i oko 800 km na polovima, a sastoji se iz više slojeva različite debljine i temperaturnog gradijenta. Sloj najbliži Zemljinoj površini je troposfera, debljine oko 15 km. Sa stanovišta zagađivanja vazduha ovo je i najvažniji segment atmosfere. U ovom sloju, ili preciznije njegovom prizemnom delu od nekoliko stotina metara, ostaje najveći deo emisije otpadnih gasova i čestica. Ovde se neprekidno odvijaju hemijske reakcije, odnosno interakcije između različitih zagađujućih supstanci i sa „normalnim“ sastojcima vazduha, pa se s pravom može nazvati „atmosferskom laboratorijom“⁹⁴. Koncentracija vodene pare je varijabilna, ali može dostići i do 4%. Koncentracije ostalih gasova izražavaju se u ppm i ppb jedinicama, a od njih je najzastupljeniji ugljen-dioksid (360 ppm) sa tendencijom stalnog porasta. Ako se u vazduh upuste specifične supstance koje inače nisu njegov sastavni deo govorimo o zagađenju vazduha. Ono može biti prirodno i veštačko. Dok se na prirodno (povremeno i lokalizovano) zagađivanje vazduha priroda milenijumima prilagođavala, veštačko tj. antropogeno zagađivanje (trajno i globalno) nastalo je I eskaliralo u kratkom vremenu Zemljine istorije i ima velike posledice po živi svet uopšte.

3. VAZDUH I ZAGADJUJUĆE MATERIJU U NJEMU

Četiri su glavne komponente vazduha: azot (78,084%), kiseonik (20,946%), argon (0,934%), i vodena para (do 4%). Koncentracije ostalih gasova se izražavaju u ppm (part per million) i ppb (part per billion), a od njih je najzastupljeniji CO₂ (360ppm). Javljaju se još kripton, ksenon, neon, helijum, ozon, radon i dr. Svi ovi gasovi čine smešu koja je manje – više konstantna i predstavlja stalan sastav vazduha. Ako se njihova koncentracija poveća iznad gornje granice amplitude variranja, ili u vazduh dođu supstance koje nisu u njegovom

⁹⁴ M. Jablanović, P. Jakšić, K. Kosanović, Uvod u ekotoksikologiju, Prirodno matematički fakultet univerziteta u Prištini, Kosovska Mitrovica, 2003, p. 153

stalnom sastavu, onda govorimo o zagađivanju vazduha. Polutanti atmosfere se javljaju u sva tri agregatna stanja. Prema poreklu zagađujuće supstance atmosfere možemo grupisati u dve velike kategorije: prirodne i veštačke (antropogene). U prirodne spadaju polutanti biološkog porekla (biljni, životinjski, mikrobijalni) ali i neorganski polutanti nebiološkog porekla (prirodne prašine, naročito u sušnim predelima, dimovi požara, neki gasovi termalnih izvora, vulkanski gasovi, gasovi mora, zemljišta i dr.). Antropogene polutante prema nastanku, kvalitativnim svojstvima i efektima možemo razvrstati u dve kategorije: primarne i sekundarne. Primarni polutanti potiču iz poznatih izvora, poznatih kvantitativnih i kvalitativnih osobina a emituju se direktno iz izvora zagađenja u atmosferu. Najvažniji primarni polutanti vazduha su: jedinjenja 6 sumpora, ugljenika, azota (pretežno oksidi), teški metali, halogena jedinjenja, čestice (čvrste i tečne) i radioaktivne materije⁹⁵. Sekundarni polutanti se formiraju u atmosferi interakcijama primarnih polutanata ili njihovom reakcijom sa prirodnim komponentama vazduha, a često su razorniji od polaznih supstanci koje stupaju u reakciju.

4. UZROCI I IZVORI KOJI UTICU NA ZAGADJENJE VAZDUHA

Izvori zagađujućih supstanci (gasova i čestica) predstavljaju početnu kariku u procesu zagađivanja vazduha jer se iz njih direktno u vazduh oslobađaju otpadne štetne emisije koje menjaju sastav, a ponekad i svojstva atmosfere. Najvažniji izvori zagađujućih gasova su procesi sagorevanja, pre svega fosilnih goriva (nafta i uglj), u saobraćaju, industriji, termoelektranama, domaćinstvima, a kad su čestice čađi i sl. u pitanju i drugi izvori (građevinarstvo, industrija građevinskih materijala kao što je mlevenje i drobljenje kamena, cementa i drugo). Neke zagađujuće supstance vazduha izazivaju promene u ekosistemu, kao što su kisele kiše i klimatske promene. Povećanjem koncentracije ugljen-dioksida povećava se efekat staklene bašte, što utiče na povećanje globalne temperature. Klimatske promene su ubrzane, a naša planeta se konstantno zagreva. Evidentno je i narušavanje ozonskog omotača usled oslobađanja jedinjenja hlora u atmosferu.

Posledice zagađenja vazduha su dva do tri puta veće na zdravlje ljudi nego što se to ranije smatralo. Za svako povećanje od 10 mikrograma sitnih čestica u vazduhu rizik od prerane smrti raste sa 11% na 17%. Studije su pokazale da se zbog zagađenja vazduha povećava broj infarkta, moždanih udara, raka pluća, a deca koja žive u blizini autoputeva imaju veći rizik da obole od astme⁹⁶. Radi smanjenja navedenih negativnih uticaja zagađenja vazduha na prirodne ekosisteme i ljudsko zdravlje potrebna je pravovremena detekcija zagađenja.

Prema poreklu zagađujućih supstanci, izvore zagađenja, kao što je pomenuto, delimo na prirodne i antropogene. Izvori zagađenja prirodnog porekla su procesi raspadanja organskih materija, produkti metabolizma živih organizama, geoloških i geohemijskih procesa u zemljištu i atmosferi. Zagađujuće supstance vazduha i agensi iz antropogenih izvora su rezultat različitih oblika ljudske aktivnosti u industriji, tehnologiji, saobraćaju, proizvodnji električne energije i zadovoljavanja drugih potreba savremenog društva. Prema fizičkim i prostornim karakteristikama izvori zagađenja mogu biti: 1) tačkasti (dimnjaci) – kod kojih

⁹⁵ M. Jablanović, P. Jakšić, K. Kosanović, Uvod u ekotoksikologiju, Prirodno matematički fakultet univerziteta u Prištini, Kosovska Mitrovica, 2003, p. 105

⁹⁶ S. Besermenji, Zagađivanje vazduha u Srbiji, 2007, p. 87

emisije dostižu veće visine, i iznad troposfere, i koji kontaminiraju širi prostor, 2) površinski (ložišta domaćinstava, automobili i dr.) – gde otpadne emisije pretežno ostaju u prizemnom sloju, kakvi su naročito polutanti sa kratkim rezidencionim vremenom i koji izazivaju lokalno zagađenje i 3) linijski – kakve su na pr. saobraćajnice duž magistralnih puteva ili ulice, naročito sa visokim zgradama (poluotvoreni tuneli – „kanjon efekt“).⁹⁷

Najveće zagađivanje vazduha je u gradovima i industrijskim naseljima. Izvori zagađivanja su toplane, saobraćaj – koji obuhvata sve vrste vozila na tečna goriva, livnice, metaloprerađivačku i hemijsku industriju, ložišta u domaćinstvima, komunalni otpaci i dr. Drumski saobraćaj je najveći uzročnik zagađivanja vazduha u urbanim regionima. Oko 60% od ukupnog sadržaja svih zagađujućih materija vazduha u gradovima potiče od motora sa unutrašnjim sagorevanjem. Emisija izduvnih gasova doprinosi visokim atmosferskim koncentracijama CO₂, HO₂, O₃, aldehida, organske kiseline, taložnih materija i olova. Zbog lošeg kvaliteta goriva, odnosno benzina sa dodacima olova i dizel goriva, sa visokim sadržajem sumpora, postoji visoka koncentracija sumpora i olova u vazduhu.⁹⁸ Industrija je jedan od važnijih veštačkih izvora zagađenja. Prema fizičkim i prostornim karakteristikama industrija se ubraja u tačkasti izvor zagađenja. U industriji primarne emisije SO₂ potiču iz procesa sagorevanja fosilnih goriva, a tu posebno mesto zauzimaju termoelektrane. Zatim slede prerada sulfidnih ruda, ruda olova, cinka i bakra, proizvodnja sumporne kiseline i papira, rafinerije nafte.⁹⁹

5. KVALITET VAZDUHA U REALNOM VREMENU

U skladu sa Zakonom o zaštiti vazduha nadležnost nad Državnom mrežom za praćenje kvaliteta vazduha na nivou Republike Srbije ima Agencija za zaštitu životne sredine. Operativnim monitoringom primenom automatskih, referentnih, metoda se realizuje doniranom opremom na 28 automatskih stanica za praćenje kvaliteta vazduha, AMSKV kao i na 12 AMSKV nabavljenih i postavljenih uz pomoć Fonda za zaštitu životne sredine Republike Srbije i pojedinih velikih operatera kao što su (RTB BOR, udruženje CIS) .

Ispunjavajući obaveze obaveštenja javnosti o kvalitetu vazduha, Agencija za zaštitu životne sredine prezentuje rezultate automatskog monitoring kvaliteta vazduha u realnom vremenu. Prezentuju se preliminarne, neverifikovane, vrednosti parametara kvaliteta vazduha. Verifikovne vrednosti i ocean kvaliteta vazduha u aglomeracijama i zonama date su u Godišnjem izveštaju o stanju kvaliteta vazduha u Republici Srbiji.

5.1. KVALITET VAZDUHA U SOKOBANJI

Opština Sokobanja ubraja se u područja koja se odlikuju čistim vazduhom. Naime i sam dvojni epitet termalna i vazдушna banja govori o relativno dobrom kvalitetu sokobanjskog vazduha. Tome doprinosi i povoljan odnos jonizacije u atmosferi, odnosno prisustvo

⁹⁷ M. Jablanović, P. Jakšić, K. Kosanović, Uvod u ekotoksikologiju, Prirodno matematički fakultet univerziteta u Prištini, Kosovska Mitrovica, 2003, p. 194

⁹⁸ S. Besermenji, Zagađivanje vazduha u Srbiji, 2007, p. 77

⁹⁹ Lj. Trumbulović-Bujić, Z. Aćimović-Pavlović, Uticaj zagađenja vazduha na kvalitet vazduha u industrijskom okruženju, 2008, p. 229-231

pozitivnih i negativnih jona u odgovarajućoj srazmeri, koji deluju osvežavajuće i okrepljujuće na organizam čoveka. Međutim i pored relativno dobrog kvaliteta vazduha u sokobanjskoj kotlini prisutni su i zagađivači vazduha koji su naročito zastupljeni u zimskim mesecima. Najznačajniji zagađivači su sledeći:

Intenzivni transportni saobraćaj na relaciji RMU „Soko“ iz Čitluka-Sokobanja-Aleksinac, jer saobraćajnica vodi kroz sam centar Sokobanje, gde veliki kamion intenzivno prevoze ugalj, naročito u periodu septembar-mart I obavljaju veliko zagađenje svojim izduvnim gasovima;

Individualna domaćinstva i stambene zgrade sa teritorije cele opštine jer se u 95% slučajeva greju na čvrsto gorivo, ugalj i drvo;

Gradska deponija koja se nalazi 3 km zapadno od Sokobanje i predstavlja veliki izvor zagađenja vazduha i to naročito u zimskim mesecima, kada se zbog dovoženja vrućeg pepela sa ostalim smećem često pali i zagađuje širu okolinu.

Vazduh koji ispunjava Sokobanju definiše ruza vetrova i harmonija prirode i reljefa. Bogat je kiseonikom i ozonom što je odlično za zdrav život. Sokobanja nema jakih vetrova dok suma ima u izobilju. Vazdusni pritisak je povoljan za život jer je bez naglih promena što je bitno za kardiovaskularna i plućna oboljenja. Sa planine Ozren, danju striji čista i sveža azdusna struja koja leti rashlađuje rosa, re se skoro nikada ne oseca vrućina. Prisustvo pozitivnih i negativnih jona u etru, odnosno povoljna jonizacija, osvežava čovekom organizam. U okolini u precniku od 30 km nema fabričkih dimnjaka.¹⁰⁰

5.2. KVALITET VAZDUHA U BORU

Tim za praćenje zagađenja saopštio da se u vazduhu u Boru, pored velike količine sumpora i arsena, pojavio i nikl. Najnoviji izveštaji o aerozagađenju u Boru govore da su, sem sumpora i arsena, instrumenti registrovali i značajno povećanje nikla u vazduhu, što je element koji spada u grupu najopasnijih, on je opasan kao i svi drugi metali samo što je i kancerogen. Najlošiji kvalitet vazduha u Srbiji je u Boru zbog prisustva sumpor-dioksida, a najčistiji vazduh se nalazi na mestima iznad 600 metara nadmorske visine, navodi se u Godišnjem izveštaju o stanju kvaliteta vazduha u Srbiji.¹⁰¹

¹⁰⁰ Lokalni akcioni plan opštine Sokobanja, 2006, p. 34

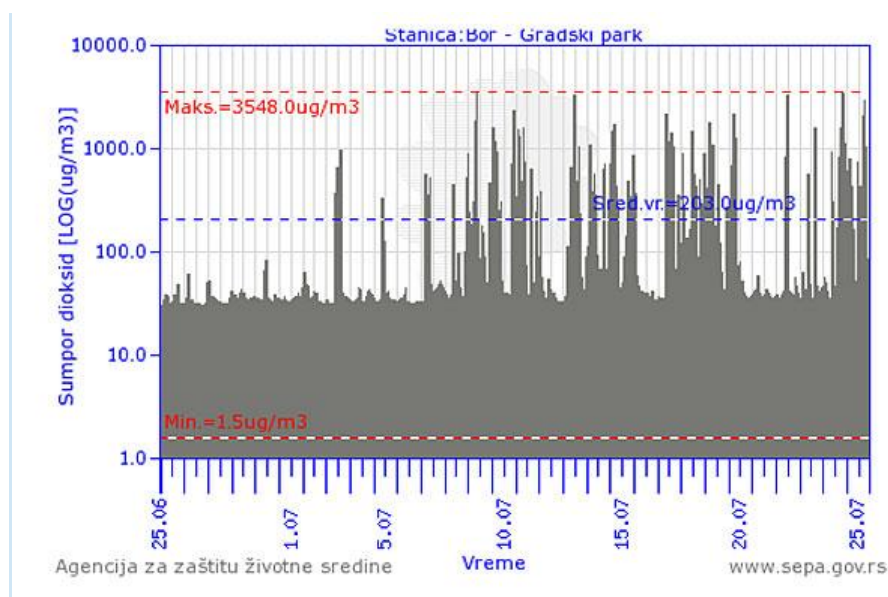
¹⁰¹ Zakon o zaštiti životne sredine, Službeni glasnik Republike Srbije, 2004, p. 100

Tabela 1. Podaci o zagadjenju vazduha μg :

DOZVOLJENO GODISNJE	50
DNEVNO	125
U BORU	246

Gradjani Bora i obliznjih mesta konstantno su izloženi stetnom dejstu topionickog dima koji narusava zdravlje gradjana, unistava floru i faunu nanoseci direktnu stetnu poljoprivrednim kulturama i uopste celoj ekoloskoj sredini.

Najlosiji kvalitet vazduha je u Boru, Smederevu i Uzicu. Ucestalost prekoracenja zagadjenog vazduha (sumpor-dioksiodom) najveca je u Boru, cak 68.8 %. Podaci resornoj Agenciji stizu iz lokalnih i gradskih samopurava. Posebno zabrinjava i pali alarm je podatak tacnije izvestaj o zagadjenju vazduha teskim metalima (pre svega arsenom). Pokazuje da je najlosije stanje u Boru i Smederevu i na potezu Obrenovac.



Slika 1. Grafik koncentracije sumpor-dioksida od 25.juna do 25. jula 2015. god

Najveće zagađenje zabeleženo 9. jula kada je merni uređaj pokazao preko **3548 mikrograma** po metru kubnom (**10 puta više** od dozvoljenih vrednosti).

5.3. POSLEDICE ZAGADJENJA VAZDUHA

Kao posledica zagađivanja vazduha za gradove i druga naseljena mesta karakteristična je pojava smoga, koji nastaje pri pojavi temperaturne inverzije i u odsustvu horizontalnih kretanja vazduha. Smog koji nastaje u uslovima visoke relativne vlažnosti i visokom nivou zagađenja naziva se kiseli ili „londonski“ smog (sin. zimski, industrijski smog). Obično se

javlja zimi, jer se zbog povećanog loženja povećava koncentracija SO₂ i drugih kiselih oksida, koji sa vlagom u vazduhu grade kiseline. Drugi tip smoga je fotohemijski (letnji) ili „losanđeleski“ smog, koji se javlja leti zbog povećane emisije izduvnih gasova automobila u čijem sastavu se nalaze NO_x i ugljovodonici koji reaguju pod dejstvom UV zraka. Smog sadrži visokotoksične supstance koje kod sisara izazivaju iritaciju sluzokože respiratornih organa, konjuktivitis, hronični bronhitis, bronhijalnu astmu, emfizem pluća i karcinom pluća.¹⁰²

Zagađujuće supstance utiču na promene fizičkih karakteristika atmosfere, svetlosni režim, klimu i atmosferske procese. Osim na neživu prirodu aerozagađenje ima štetne posledice i po žive sisteme, od nivoa ćelije do ekosistema. Negativno utiče na anatomsko-morfološke strukture, razviće, metabolizam, rast, disanje, gensku strukturu, diverzitet vrsta, kruženje materija i ravnotežu u ekosistemu. Ti efekti mogu biti direktni i indirektni, akutni i hronični, kancerogeni, somatski i genotoksični. Kod životinja i čoveka zagađujuće materije u vazduhu utiču na kožu, oči i respiratorni sistem. Respiratorni sistem je veoma osetljiv na zagađenje jer ima veoma slabe mehanizme zaštite (gotovo nikakve), direktno je izložen štetnim dejstvima, podložan oštećenjima i može sprovesti neke štetne supstance direktno u krvotok, što predstavlja opasnost za ostale organske sisteme. U Velikoj Britaniji od ukupnog broja smrtnih slučajeva u 10% uzrok su respiratorna oboljenja. Zagađujući agensi oštećuju i tkiva biljaka ili remete njihove fiziološke funkcije. Polutanti deluju na morfo-anatomskom nivou oštećujući fotosintetički aparat i tako remete njegovu osnovnu funkciju – fotosintezu, izazivaju lezije, hloroze i nekroze, a mogu se udružiti i sa biljnim patogenima. Dovode do inhibicije razvića, odnosno formiranja semena i cveta, i klijanja semena, zatim, pored fotosinteze, remete disanje biljke, funkcije enzima i uopšte metabolizam. Indirektni uticaj na biljne organizme dešava se kada polutanti dođu u zemljište i snižavaju kapacitet izmenljivosti katjona, pa tako i dostupnost minerala iz zemljišta. Krajnji rezultat štetnih efekata polutanata vazduha na biljke jeste smanjenje biološke raznovrsnosti i stabilnosti ekosistema.

5.4. ZDRAVSTVENI EFEKTI

Stetno delovanje zagađujućih materija pristunih u vazduhu dovodi do promene kvaliteta vazduha i na taj način do porasta potencijalno negativnih uticaja na zdravlje i to na više načina:

- Intenzivna izloženost toksičnim materijama može uzrokovati akutne zdravstvene efekte,
- Izloženost nizim koncentracijama (nizim od dozvoljenih) štetnih materija kroz duži vremenski period može dovesti do hroničnih oboljenja,
- Izloženost pojedinim štetnim materijama može izazvati genetske promene,
- Štetni efekti izazvani suspendovanim česticama do 10 mikrona, u velikoj meru su udruženi sa još finijim česticama, kiselim aerosolom ili sulfatima ili oksidima metala,
- Dugotrajna izloženost niskim koncentracijama mikročestica udružena je sa mortalitetom i doprinosi pojavi povećane stope bronhitisa i smanjenja funkcije pluća, studije pokazuju da životni vek može biti smanjen za čak godinu dana,

¹⁰² Agencija za zaštitu životne sredine, <http://www.sepa.gov.rs/>

- Smanjenje imunoloske sposobnosti organizma,
- Izazivanje subklinickih iritacija i neprijatnih osecanja,
- Uticao na pogorsanje postojećih bolesti.¹⁰³

6. ALERGENI POLEN U VAZDUHU

Prvi put na teritoriji Srbije osmatranje alergnog polena je počelo još 2002. Godine u Saveznom hidrometeoroloskom zavodu na dva merna mesta u Beogradu, Danas Agencija za zastitu zivotne sredine uspostavlja nacionalnu mrezu stanica radi pracenja koncentracija alergnog polena na teritoriji prilično dobrog dela Srbije.¹⁰⁴

Koncentracija alergnih plena u vazduhu se meri više od dvadesetak godina u citavoj Evropi uređajima tzv. “klopkama” za polen. Jedno merno mesto reprezentuje teritoriju od 30 do 50km u precniku u zavisnosti od orfografije terena. Danas u zemljama Evropske unije postoje veoma razgranate mreze stanica za pracenje koncentracije polena.

6.1. MERNA STANICA U SOKOBANJI

U Republici Srbiji, klopke za polen se nalaze u sledecim gradovima: Beograd, Krusevac, Zajecar, Vrsac, Kula, Vranje, Kraljevo, Nis, Pozarevac i Cacak, a od 2015. Ukljucena je i Sokobanja.

Agencija za zastitu zivotne sredine je 14.8.2015. godine u saradnji sa Opstinom Sokobanja i GZJZ “Timok” iz Zajecara uspostavila novo merno mesto za pracenje alergnog polena.

Klopka, uređaj za uzorkovanje alergnog polena u vazduhu je postavljena na platou zgrade Specijalne bolnice za plucne bolesti u Sokobanji. Uz navedenu saradnju Sokobanja je postal 19. Merno mesto u Republici Srbiji za pracenje vrste i koncentracije alergnog polena, a druga, pored Zlatibora, turisticka destinacija gde ce se pratiti pristustvo alergnog polena u vazduhu. Time se izlazi u susret sve vecem broju ahteva gradjana za ovom vrstom inforamcija.

7. POREĐENJE KVALITETA VAZDUHA U SOKOBANJI I BORU

Kako bi smo mogli u potpunosti da poredimo vazduh Sokobanje u narodu poznate kao Zeleno srce Srbije, i Bora koga nazivaju gradom dima potrebni su nam isti parametri, koji za vreme našeg istraživanja nije bilo moguće dobiti. Takva merenja trenutno ne postoje. Merenja sa istim parametrima očekujemo da ćemo imati već do godine u našem sledecem radu. Imamo za cilj da nastavimo istraživanje, kako bi smo dobili što releveantnije podatke o kvalitetu vazduha izmedju ova dva mesta jer nam je fascinantna činjenica, da je po svemu sudeci razlika u kvalitetu vazduha ova dva mesta frapantna i zabrinjavajuća i ako se nalaze na oko 80 km udaljenosti.

¹⁰³ Sokobanja-Master plan turističke organizacije, Ministarstv trgovine, turizma i usluga, 2007, p. 41

¹⁰⁴ Agencija za zastitu zivotne sredine, <http://www.sepa.gov.rs/>

8. ZAKLJUČAK

Korišćenjem sistema monitoring ostvaruje se kontrola kvaliteta vazduha, na državnom i lokanom nivou, tako što se merne stanice postavljaju na najpovoljnija moguća mesta.

Sam vazduh i njegov kvalitet bi smo mogli da zaštitimo kada bi uspostavili redovno održavanje i unapređivanje sistema jedinstvenog upravljanja kvalitetom vazduha na čitavoj teritoriji Republike Srbije. Samim poboljšanjem i očuvanjem kvaliteta vazduha kroz utvrđivanje i ostvarivanje mera u oblasti zaštite kako bi se sprečile ili smanjile na minimum šterne posledice po zdravlje ljudi, i uopšte celu životnu sredinu.

Zaštitu vazduha bi smo uslepi da ostvarimo praćenjem, pribavljanjem i procenjivanjem odgovarajućih podataka o kvalitetu vazduha na osnovu merenja i standardizovanih metoda. Onda obezbeđivanjem dostupnih podataka o kvalitetu vazduha, izvrsavanjem obaveza koje su u skladu sa potvrđenim međunarodnim ugovorima. U narodu poznata izreka o Sokobanji glasi *Dodjes star, odeš mlad*. Želimo da se i o Boru tako u budućnosti govori, da ne bi bilo dodjes star odeš još stariji, moramo pokšati svim ljudskim faktorima i resursima koje imamo da poboljšamo ovu ekološku katastrofu, stvarajući u budućnosti jedan zdrav ekosistem.

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SYSTEM ANALYSIS

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Abstract: System appears as need to meet the real world, relationships in real world and objects. Object has a certain movement that the system should achieve. The system is a set of elements that are connected to some routes in order to achieve certain goals. On any system can operate a large number of inputs, but in the analysis we consider only those that have a significant impact on the system. Input variables of the system is that the external size which significantly affects the operation and behavior of the system, Impacts that are transmitted via the outputs are called output variables that affect the state change of environment. Aggregate in the theory of system they call set of elements subsystem that can be physical or temporally close to each other, but they are not directly nor indirectly in connection with each other. Loop is implemented some active relationship (fact) between systems. The interface is implemented by means of exchange of energy, matter and information. The system analysis can explain all essential characteristics of any system which are made from a number of parameters to be considered.

Keywords: environment, input and output variables, aggregate, loops, objects

1. UVOD

Sistem predstavlja skup elemenata koji su povezani nekim relacijama da bi se ostvarili određeni ciljevi. [1]

Pod sistemom se danas podrazumeva veliki broj pojava i fenomena koji se ispoljavaju u društvu, privredi, tehnologiji i dr. U tom smislu, govori se o društvenim, ekonomskim, političkim, upravljačkim, informacionim, biološkim, filozofskim i drugim sistemima. [2]

Sistem predstavlja jasno izdvojen skup, na određeni način međusobno povezanih elemenata koji, po nekoj zajedničkoj odrednici, čine sa svojim okruženjem skladnu celinu. [3]

Osnovni objekat istraživanja opšte teorije sistema jeste sistem. [4]

Analiza predstavlja postupak izučavanja neke pojave u cilju njenog boljeg razumevanja, odnosno nekog problema u cilju njenog rešavanja. [5]

Kao rezultat analize bilo kog sistema dobija se jasna slika o sistemu koji se posmatra. Jasna slika o sistemu, odnosno znanje o sistemu se može predstaviti modelom sistema. [5]

Model predstavlja subjektivnu, uprošćenu sliku sistema, opisujući elemente tog sistema i njegove veze. Model je uvek subjektivna slika sistema sagledana iz ugla gledanja posmatrača. [5]

Modeli služe za bolje razumevanje, analizu, izgradnju novog sistema ili poboljšanje postojećeg. [2]

Modelovanje sistema predstavlja postupak kreiranja modela sistema. [5]

U istraživanju sistema često je potrebno pažnju usmeriti samo na neki deo sistema, što se postiže jednim postupkom koji se naziva dekompozicija sistema. [4]

Pod dekompozicijom sistema se podrazumeva razlaganje sistema na njegove delove. Ako su identifikovane sve relacije nekog dela sa ostatkom sistem, a tada se takav deo zaista može izolovano posmatrati uz puno uvažavanje njegovih relacija sa ostatkom sistema. Međutim, ako ostane neidentifikovana makar i jedna relacija nekog dela sa ostatkom, takav se sistem ne može dekomponovati na taj deo i na njegov ostatak. [4]

Veoma je čest slučaj, kada se sistem ne može neposredno dekomponovati na deo, koji je predmet interesovanja, i na ostatak sistema. To iz razloga što se ne mogu, detaljno fino, prepoznati ni takav deo ni njegove relacije sa ostatkom. Zbog toga se dekompozicija najčešće primenjuje postupno, hijerarhijski sa stanovišta pripadnosti. [4]

Posmatrani sistem može biti raščlanjen na konačan broj delova, koje nazivamo podsystemima složenog sistema. Svaki od ovih podsystema sa svoje strane može se raščlaniti na više manjih podsystema itd., dok se nakon konačnog broja koraka ne dođe do takvih delova koje nazivamo elementima složenog sistema i koji se za posmatrani sistem u datom momentu istraživanja više ne raščlanjuje na manje delove. [6]

Elementi su ustvari delovi ili komponente sistema, pri čemu može biti konačno mnogo takvih delova. Većina sistema koji su predmet našeg interesovanja sastoji se iz materijalnih, odnosno fizičkih delova, kao što su: atomi, preklopnici, masa, električni provodnici, nervi, mišići, tehnološki procesi, proizvodna odeljenja, itd. [6]

Veze postoje kako između elemenata sistema, tako i između podsystema posmatranog sistema i delova drugih sistema iz okoline. [6]

Subsystem predstavlja veliki sistem, koji se sastoji od više podsystema koji se ponašaju uniformno ili različito. [7]

2. SISTEM I OKRUŽENJE

Sistem predstavlja skup elemenata i njihovih međusobnih veza. Skup elemenata sistema ne može biti neograničen skup, jer bi se, u suprotnom, svaka diskusija o bilo kom sistemu završavala sa zaključkom da je svaki sistem univerzum. [5]

Okruženje je sve ono što se nalazi van sistema. [3]

Pod okruženjem jednog sistema treba podrazumevati celokupnost svih susednih sistema koji imaju najmanje jedan element čija je ulazna veličina istovremeno i izlazna veličina razmatranog sistema, i obrnuto. [1]

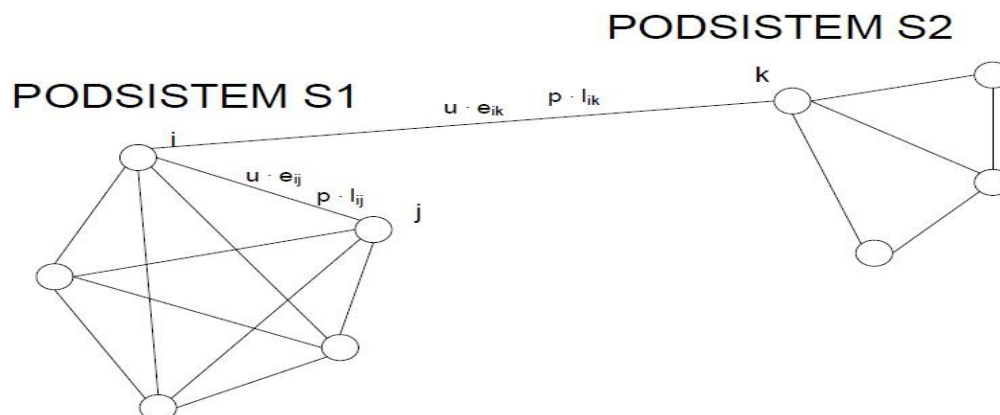
O okruženju možemo govoriti samo kod aktivnih, otvorenih sistema, tj. kod sistema gde postoje povezanosti i uzajamno aktivno dejstvo između njih samih i njihovog okruženja. [3]

Tokom istraživanja granice između sistema i okruženja mogu se pomerati, tako što će se u jednom slučaju obuhvatiti sistemom i neki element okruženja, a drugom smatrati okruženjem i neki elementi koji su prethodno tretirani kao delovi sistema. [3]

3. GRANICE I RAST SISTEMA

Granice sistema služe da fizički ili uslovno razdvoje sistem od okruženja. One su neophodne zbog toga što je ljudskom umu teško da shvati pojam beskonačnosti, već neke sisteme je lakše da razume i analizira ako ga izdvoji iz okolnog prostora.

Rast sistema je vrlo važna osobina sistema da bi se procenila mogućnost daljeg rasta sistema koji se dešava grananjem sistema. To se meri intenzitetom i efektom veze. Oni mogu biti direktni i indirektni.



Slika 1. Efekat direktnog ili indirektnog povezivanja elemenata sistema [1]

Na slici 1 su prikazana dva podsistema sistema višeg reda, sa indirektnim vezama između elemenata koji pripadaju različitim podsistemima. [1]

$G_{ij} = u \cdot e_{ij} + p \cdot l_{ij}$, gde su:

U i p efekti veza elemenata u sistemu. Mogu se kretati u granicama od -1 do +1. Ako je granica od -1 onda predstavlja negativnu vezu, a +1 pozitivnu vezu.

4. PRIKAZIVANJE SISTEMA

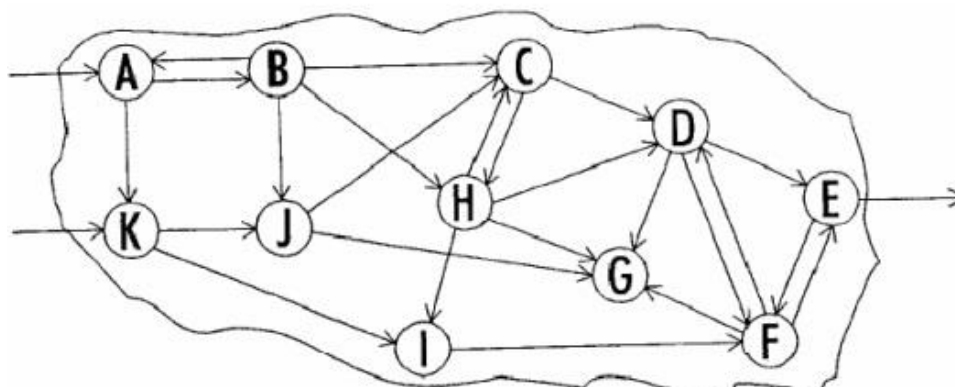
Pojam sistema se uvodi u svojstvu postojećeg ili planiranog uzajmnog povezivanja ili različitih procesa koje treba proučiti. [1]

Mogući načini prikazivanja sistema su:

- 1) Grafičko prikazivanje (strukturna šema, organizaciona šema);
- 2) Prikazivanje sistema strukturnim (blok) dijagramima;
- 3) Prikazivanje (transformacija) sistema matricom prelaza;
- 4) Kinematski prikaz sistema. [1]

4.1. GRAFIČKO PRIKAZIVANJE SISTEMA

Grafičko prikazivanje sistema je najjednostavniji ali i najrazumljiviji način prikaza. Sistem se može predstaviti u obliku strukturne šeme sa naznačenim međusobnim vezama i uticajima pojedinih elemenata. [1]



Slika 2. Strukturni šematski prikaz sistema [1]

Na slici 2, čvorovi sa ispisanim slovima predstavljaju elemente sistema, strelice veze sistema, a struktura granice sistema.

4.2. STRUKTURNI BLOK DIJAGRAM SISTEMA

U postupku analize sistema se sistem najpre posmatra kao „crna kutija“. [2]

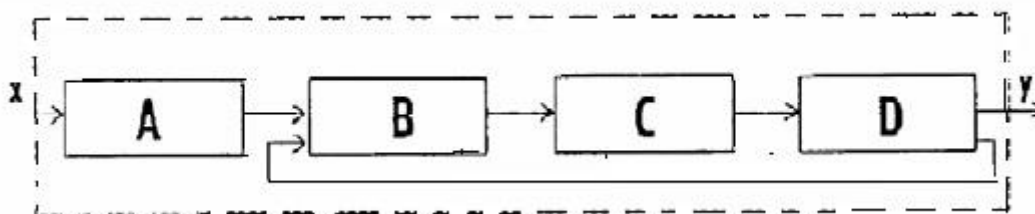


Slika 3. Sistem kao „crna kutija”

Pod „crnom kutijom“ se podrazumeva sistem, za koji su spoljnjem posmatraču dostupne samo ulazne i izlazne veličine, a njegovo unutrašnje uređenje mu je nepoznato. [8]

To je ujedno i najjednostavniji oblik strukturnog - blok - dijagrama sistema. [1]

Svi bitni uticaji se uzimaju kao ulazne veličine, dok se sve bitne reakcije sistema na ulazne veličine registruju kao izlazne veličine. [1]



Slika 4. Opšti oblik strukturnog blok dijagrama („Bela kutija“) [1]

Strukturni blok dijagram „bela kutija“ se primenjuje za prikazivanje sistema onda kada nam je poznata struktura sistema, tj. svi elementi, njihov raspored i međusobne veze.

4.3. PRIKAZIVANJE (TRANSFORMACIJA) SISTEMA MATRICOM PRELAZA

Sistem se može prikazati i transformacijom kao:

$$T: \begin{bmatrix} x_u & A & B & C & D & D \\ A & B & C & D & B & X_i \end{bmatrix} \quad [1]$$

gde su:

x_u – ulazna veličina, element koji deluje – operator, element na koji se deluje – operand;
 X_i - izlazna veličina (rezultat transformacije sistema) – transfer ili lik

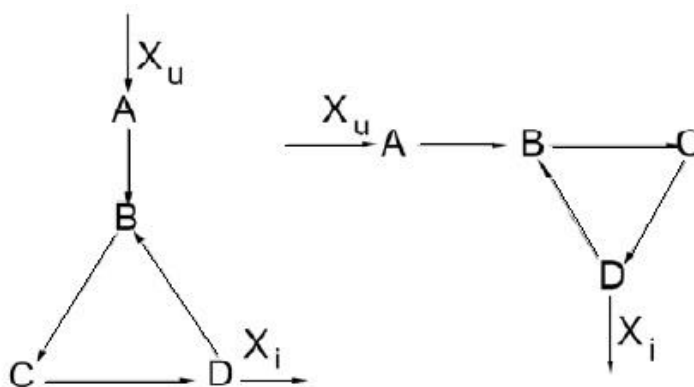
U matrici su dejstva između pojedinih elemenata sistema označena jedinicom. Tamo gde nema dejstva piše se 0 ili se ostavlja prazno polje u matrici. [1]

Tabela 1. Matrica prelaza sistema [1]

Operator Operand	A	B	C	D
A	0	0	0	0
B	1	0	0	1
C	0	1	0	0
D	0	0	1	0

4.4. KINEMATSKI PRIKAZ SISTEMA

Za kinematski prikaz sistema se koriste usmereni grafovi stanja. [1]



Slika 5. Kinematski prikaz sistema [1]

5. UPROŠĆAVANJE SISTEMA

Sistem se definiše uprošćavanjem. Razlikujemo dva načina uprošćavanja: redukciju i agregaciju. [3]

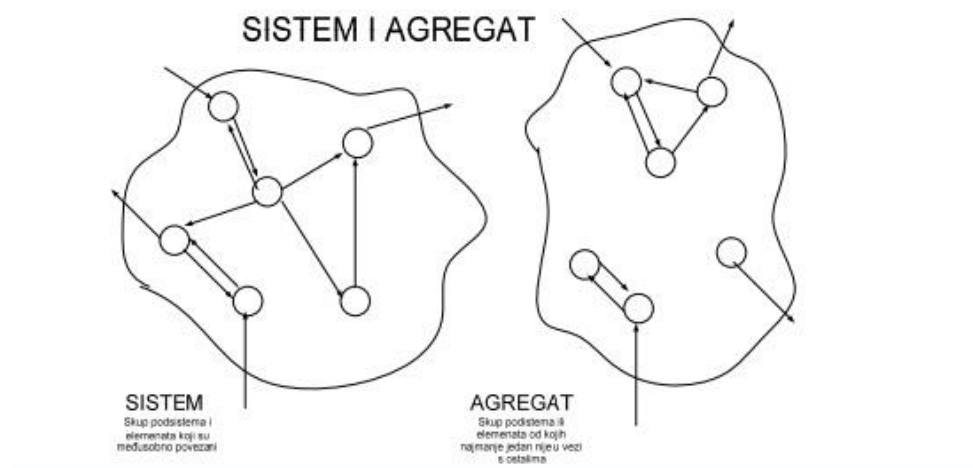
Redukcija je takav način uprošćavanja pri kojem se eliminišu ili delimično izostavljaju neke promenljive i/ili njihovi odnosi. [3]

Pri tome se mora voditi računa da određeno uprošćavanje ne dovede do iskrivljavanja rezultata istraživanja, s obzirom da je sam pojam sistema uveden kao jedno od sredstava istraživanja. [3]

Ako se na primer, ispituje čovek kao sastavni deo ekonomskog sistema, ne mora se obraćati pažnja na boju očiju ili kose, pošto ti faktori nisu bitni za ekonomsko ponašanje. [3]

Agregacija je uprošćavanje koje se karakteriše vezivanjem ili spajanjem posebnih komponenata u jedan opštiji sastavni deo. Ovde se radi o spajanju nekih delova sistema i njihovih osobina, kao i njihovih uzajamnih odnos, u šire, opštije grupe. [3]

Agregatom se u teoriji sistema nazivaju oni skupovi podsistema koje mogu biti prostorno ili vremenski bliske jedna drugoj ali nisu ni u direktnoj ni u indirektnoj međusobnoj vezi. [1]



Slika 6. Sistem i agregat [1]

Primer 1:

Majka govori svom detetu o obavezama koje treba da izvrši, a dete to čuje jer majka proizvodi vibraciju u obliku izgovorenih reči koje stižu do audio sistema deteta i ulazi u njihovu memoriju ukoliko čuje svoju majku. (sistem)

S druge strane, ako dete radi nešto drugo koncentrirano, npr. gleda televiziju, a fizički i vremenski je u blizini majke, u tom slučaju ne čine sistem već agregat.

6. SVOJSTVA SISTEMA

Svojstva sistema su one osobine elemenata pomoću kojih se oni identifikuju i međusobno razlikuju. [3]

Kao što ne možemo iscrpeti sve elemente jednog sistema i sve sprege koje među njima postoje, isto tako ne možemo uzeti u obzir ni sve njihove osobine, već samo one koje su relevantne za istraživanje. [3]

Jedan sistem može da ima sledeća svojstva:

- 1) Nebesko telo: masu, temperaturu, razdaljinu od drugih nebeskih tela, magnetno polje, boju, gravitaciju, itd;
- 2) Materijal: čvrstoću, tvrdoću, kristalnu strukturu, specifičnu težinu, boju, toplotnu provodljivost, električni otpor, itd;
- 3) Gasovi: zapreminu, gustinu, pritisak, temperaturu itd. [3]

Svojstva predmeta su izražena fizičkim, hemijskim, vrednosnim i drugim veličinama. [3]

Pomoću osobina se opisuju predmeti i procesi u njima, tj. ponašanje sistema. [3]

Obično se razlikuju veličine sistema kojima se karakteriše sam sistem od onih veličina kojima se opisuju procesi u sistemu, odnosno promene stanja sistema u prostoru i vremenu. [3]

Prvu vrstu veličina nazivamo parametri sistema. To su one veličine koje su karakteristične za sistem i koje se ne menjaju tokom procesa u sistemu za vreme proučavanog vremenskog intervala, ili, ako se i menjaju, čine to sporo u odnosu na brzinu promene stanja sistema. [3]

Parametri su konstante, ali ako se se one tokom vremena menjaju, za takav sistem kažemo da je sa vremenski promenljivim parametrima. [3]

Drugom vrstom veličina se opisuje proces u sistemu, tj. ponašanje sistema u posmatranom intervalu vremena. Te veličine nazivamo atributi sistema. [3]

Atribute sistema možemo obeležiti simbolima:

$$L_1, L_2, L_3, \dots, L_n,$$

a ponašanje sistema onda možemo definisati kao skup atributa sistema i obeležiti sa B. Tada ćemo imati:

$$B = \{L_1, L_2, L_3, \dots, L_n\}. \quad [3]$$

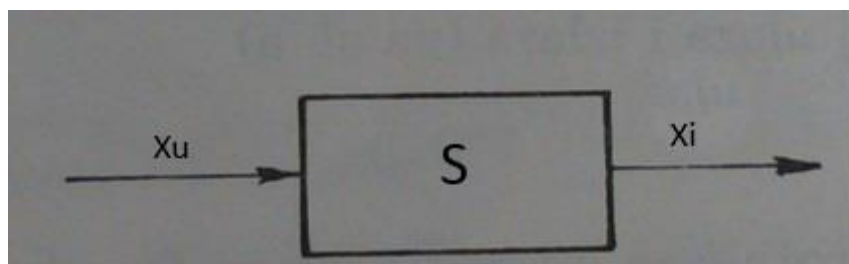
7. ULAZNE I IZLAZNE VELIČINE SISTEMA

Na bilo koji sistem mogu delovati veliki broj ulaznih veličina, ali pri analizi uzimamo u obzir samo one koje imaju bitan uticaj na ponašanje sistema, na njegove karakteristike i postizanje ciljeva tj. Biramo uticajne faktore posmatranog sistema.

Ulazna veličina sistema je ona spoljna veličina koja bitno utiče na rad i ponašanje sistema. [1]

Označava se sa X_u , a njeno dejstvo na sistem se označava strelicom usmerenom ka sistemu. Vrednost ove veličine u trenutku t se označava sa $X_{u(t)}$. [1]

Ulazna veličina nije veličina koja fizički ulazi u sistem, već je veličina koja utiče na dinamičko ponašanje sistema.



Slika 7. Blok šema ulaza/izlaza sistema [3]

Blok označen simbolom S predstavlja neki dati sistem, usmerena linija X_u označava ulaz u sistem, a usmerena linija X_i izlaz iz sistema. [3]

Na bilo koji sistem istovremeno može delovati veliki broj ulaznih veličina. Međutim, pri analizi sistema izdvajaju se one ulazne veličine koje imaju bitan uticaj na ponašanje sistema, na njegove karakteristike i postizanje ciljeva.

Uticaji koji se prenose preko izlaza nazivaju se izlazne veličine koje utiču na promene stanja okruženja. Dakle, skup izlaznih veličina i njihovih promena prikazuju ponašanje sistema. [3]

Ukoliko sistem ima veći broj ulaznih veličina ($q > 1$), onda one predstavljaju komponente vektora ulaza X_u , tako da je:

$$X_u = \begin{bmatrix} Xu1 \\ Xu2 \\ \vdots \\ Xun \end{bmatrix} \quad [1]$$

A ukoliko sistema ima veći broj izlaznih veličina ($s > 1$), onda one predstavljaju komponente vektora izlaza X_i tako da je:

$$X_i = \begin{bmatrix} Xi1 \\ Xi2 \\ \vdots \\ Xin \end{bmatrix} \quad [1]$$

Promena izlazne veličine X_i nastale usled dejstva ulazne veličine X_u , na sistem, zove se odziv sistema na ulaznu veličinu X_u . [1]

Sva dejstva kojima se utiče na stanje sistema - kretanje sistema, možemo podeliti u dve grupe:

- 1) upravljačka dejstva;
- 2) poremećajna dejstva. [6]

Pod spoljašnjim upravljačkim dejstvima se podrazumevaju signali, koji se dovode na ulaz sistema, posredstvom regulacionih ili drugih uređaja, čime se deluje na izlaznu veličinu sistema. [6]

Upravljačka dejstva u sistemu automatskog upravljanja menjaju se sve dotle dok upravljana (izlazna) veličina ne bude odgovarala zadanoj (željenog) veličini. Svako upravljačko dejstvo može da vrši uticaj na jednu ili više izlaznih veličina. [6]

Unutrašnja upravljačka dejstva imaju istu ulogu i značaj u odnosu na sistem, samo s tom razlikom što se ta dejstva stvaraju i realizuju unutar samog sistema. [6]

Pod spoljašnjim poremećajnim dejstvima podrazumevamo sva ona dejstva iz okoline koja bitno utiču na funkcionisanje sistema, odnosno dejstva iz okoline koja se bitno suprotstavljaju ostvarivanju ciljeva sistema. [6]

U grupu unutrašnjih poremećajnih dejstava spadaju sva ona dejstva koja se javljaju unutar samog sistema i suprotstavljaju se funkcionisanju sistema. [6]

8. SPREGE U SISTEMU

Pod strukturom sistema se podrazumeva određeni sistem veza među delovima kroz koje se ostvaruje uzajamno delovanje. Najčešće se govori o različitim vrstama veza, tj. sprega. [2]

Spregom se realizuje neki aktivan odnos (dejstvo) među elementima (sistemima). Sprege se realizuju putem razmene: energije, materije i informacije. [3]

Dva elementa sistema su povezana ako jedan od njih deluje na drugi tako da ovaj prima kao svoje ulaze stanje jednog ili više (ili svih) izlaza prvog elementa. [3]

Kao posledica spajanja komponenta vektora izlaza/ulaza među njima se stvara „prelaz“ koji predstavlja dejstvo jednog elementa na drugi. Taj „prelaz“ ostvaruje primanje stanja izlaza jednog elementa kao stanje ulaza drugog i na taj način obrazuje vezu, spregu. [3]

Dejstvo elemenata jednih na druge, ostvareno putem sprega, ne menja ništa u njihovoj samostalnosti. Spajanjem dva elementa, prema tome, ne nastaje treći elemenat kao što je slučaj u hemijskim jedinjenjima. [3]

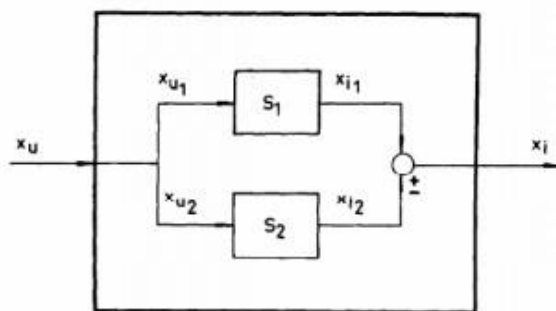
Putem sprega se prenose i upravljačka i poremećajna dejstva, a impulse koje ta dejstva prenose nazivamo protočnim veličinama (strujne veličine). [3]

Ako protočne veličine nisu jednake nuli, imamo aktivnu spregu, a ako su jednake nuli – neaktivnu (pasivnu) spregu. [3]

Osnovne sprege u sistemu su:

- 1) Paralelna sprega
- 2) Redna sprega
- 3) Povratna sprega

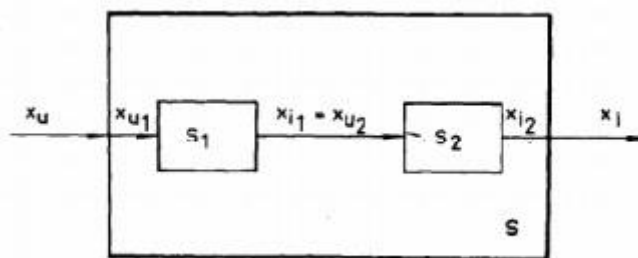
8.1. PARALELNA SPREGA



Slika 8. Paralelna sprega podsistema u sistem [1]

Ukoliko se sistem S sastoji od dva podsistema (S1 i S2) čije su ulazne veličine X_{u1} i X_{u2} jednake ulaznoj veličini X_u celog sistema ($X_u = X_{u1} = X_{u2}$), a algebarski zbir njihovih izlaznih veličina predstavlja izlaznu veličinu sistema ($X_i = X_{i1} + X_{i2}$), tada su podsistemi S1 i S2 paralelno spregnuti (vezani) u sistem S. [1]

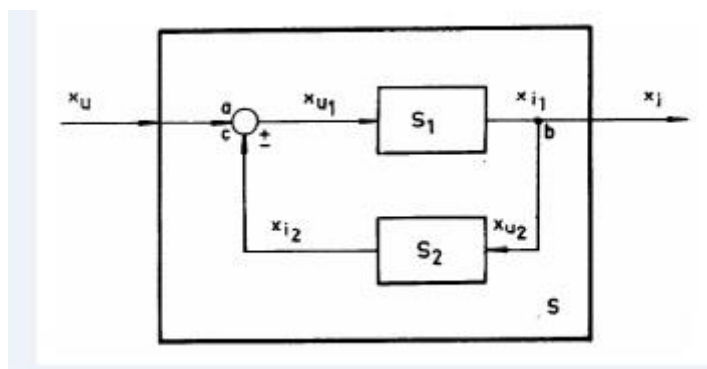
8.2. REDNA SPREGA



Slika 9. Redna sprega podsistema u sistem [1]

Ukoliko se sistem sastoji od dva podsistema (S1 i S2) koji su povezani tako da je ulazna veličina X_u celog sistema S istovremeno i jedina ulazna veličina X_{u1} podsistema S1, čija je izlazna veličina X_{i1} jedina ulazna veličina podsistema S2, čija je izlazna veličina X_{i2} istovremeno izlazna veličina i celog sistema S, onda su podsistemi S1 i S2 redno spregnuti, a sistem S predstavlja njihovu rednu spregu. [1]

8.3. POVROTNA SPREGA

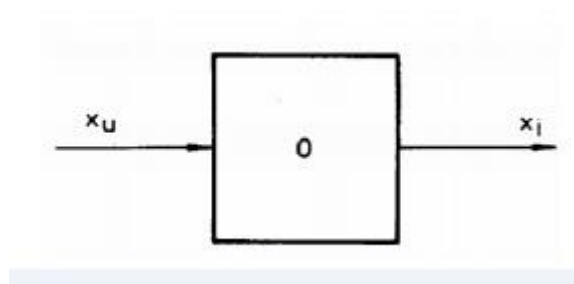


Slika 10. Strukturni dijagram sistema sa povratnom spregom [1]

Ukoliko se sistem sastoji od dva podsistema S1 i S2, pri čemu je jedina ulazna veličina X_{u1} , podsistema S1 jednaka algebarskom zbiru ulazne veličine celog sistema X_u i izlazne veličine X_{i2} podsistema S2: $X_{u1} = X_u + X_{i2}$, a izlazna veličina X_{i1} podsistema S1 jednaka izlaznoj veličini celog sistema X_i i jedina ulazna veličina podsistema S2, onda se podsistem S2 nalazi u povratnoj sprezi sistema S. [1]

9. OBJEKAT

Sistem koji treba da ostvari određeno kretanje (ponašanje, rad, proces, podešavanje) je objekat. Obzirom da se njima upravlja u cilju datog kretanja, poznat je kao i termin objekat upravljanja. Samo kretanje je njegovo željeno kretanje. Na strukturnom dijagramu se objekat označava slovom O. [1]



Slika 11. Objekat u strukturnom dijagramu Sistema [1]

Objekti u sistemu se opisuju preko svojih svojstava koja se nazivaju atributima. Granice sistema definišu skup objekata koji će se u tom sistemu posmatrati. [7]

10. ZAKLJUČAK

Sistem se javlja kao potreba kako bi se spoznao realni svet, odnosno odnose u realnom svetu, kao i objekte. On ima određenu strukturu, daje ili prerađuje informacije i vrši određenu funkciju.

Kod sistema nije dovoljno samo da postoje međusobne veze sistema i okruženja, već te veze moraju dovesti do promena u budućem ponašanju sistema i okruženja.

Sistem sa svojim okruženjem čini jednu celinu interesantnu za istraživača koji se menjaju zavisno od cilja istraživanja.

Analizom sistema se objašnjavaju sve bitne karakteristike bilo kog sistema koje su sastavljene iz većeg broja parametara koji se razmatraju.

Sistem mora da bude pouzdan, tj. da pruža kvalitetne informacije posmatraču.

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