

SYSTEMIC RESOURCE CONSTRAINTS IN SMALL MANUFACTURING ENTERPRISES: TOWARD A CONCEPTUAL MODEL OF STRUCTURAL INTERDEPENDENCIES*

Violeta Yankolova-Ali

University of Ruse “Angel Kanchev”, Faculty of Business and Management, Bulgaria

Abstract

This study investigates the nature and strategic significance of resource constraints encountered by small manufacturing enterprises. Drawing on the Resource-Based View (RBV) of the firm, five categories of constraints: financial, human, technological, managerial, and logistical are identified and analyzed as structurally interrelated factors that collectively shape the strategic capacity of the enterprise. The study argues that these constraints do not function as independent variables but constitute a self-reinforcing configuration that impedes the development of valuable and inimitable organizational capabilities. This configuration is theorized as a structural „resource trap“ that generates path dependence and constrains the formation of sustained competitive advantage. The theoretical contribution of the study lies in reframing resource constraints as a systemic strategic phenomenon rather than isolated operational challenges, offering a conceptual foundation for empirical inquiry and evidence-based managerial intervention.

Keywords: *small enterprises, manufacturing sector, Resource-Based View, structural constraints, competitive advantage, strategic capability, path dependence*

1. INTRODUCTION

Small manufacturing enterprises occupy a significant position within the structure of national economies, contributing to employment, regional development, and industrial diversification. Nevertheless, they operate in an environment characterized by intensified competition, accelerated digitalization, and limited access to strategic resources. International studies and institutional reports consistently emphasize that resource constraints represent a key obstacle to the growth and competitiveness of small and medium-sized enterprises (European Commission, 2022; OECD, 2023).

The relevance of the study stems from the need to consider resource constraints not merely as operational difficulties, but as factors of strategic significance that determine the long-term development prospects of small manufacturing enterprises.

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The research problem lies in the fact that the existing literature predominantly examines individual resource deficits in isolation, without analyzing their mutual interaction and cumulative effect on the strategic position of enterprises.

The aim of the article is to systematize the main groups of resource constraints in small manufacturing enterprises and to interpret them as an interconnected system with strategic implications.

To achieve this aim, the following objectives are set: to analyze the Resource-Based View as a theoretical framework; to identify the main groups of resource constraints; to clarify the interrelationships among them; and to conceptually integrate these constraints into a systemic framework.

The main thesis of the study is that resource constraints in small manufacturing enterprises do not operate independently, but form a mutually reinforcing configuration that limits the accumulation of strategic resources and capabilities and thereby defines the boundaries of their competitive development.

The research methodology is based on a conceptual analysis, including a review of seminal works in the field of strategic management and resource theory, as well as an examination of international institutional reports and empirical studies. No primary empirical research is conducted; instead, the study provides an analytical synthesis and theoretical interpretation of existing academic sources.

The contribution of the article lies in expanding the theoretical understanding of resource constraints as a systemic strategic phenomenon and in establishing a conceptual foundation for future empirical research and managerial decisions aimed at overcoming the structural constraints faced by small manufacturing enterprises.

2. LITERATURE REVIEW

2.1. Theoretical framework: the resource-based view of the firm

The Resource-Based View (RBV) conceptualizes the firm as a bundle of resources and capabilities that determine its competitiveness and sustainability. According to this theory, long-term competitive advantage arises when a firm possesses resources that are valuable, rare, inimitable, and organizationally embedded the so-called VRIO logic (Barney, 1991).

Within this framework, a distinction is made between resources and capabilities. Resources refer to the assets and factors available to the firm, whereas capabilities reflect the organization's ability to combine and coordinate these resources into stable managerial and production routines. Teece, Pisano, and Shuen (1997) argue that dynamic capabilities the capacity to adapt and reconfigure the resource base are critical for long-term competitiveness in a changing environment.

From this perspective, resource constraints in small manufacturing enterprises extend beyond a mere quantitative shortage of assets; they lead to limitations in organizational capabilities and reduced strategic adaptability. When a firm lacks a sufficient resource base, it cannot develop sustainable VRIO combinations, thereby establishing a structural boundary to the formation of competitive advantage.

Within this approach, resources may be categorized as tangible (financial capital, equipment, infrastructure), human (skills, knowledge, managerial competencies), and organizational (procedures, systems, corporate culture). Constraints in any of these resource components diminish the firm's capacity to build sustained competitive advantage.

For small manufacturing enterprises, resource constraints do not represent a temporary deviation but rather a structural characteristic stemming from the scale of operations, limited capitalization, and dependence on the external environment. In this sense, the analysis of resource deficits should be treated as a strategic issue rather than merely an operational problem.

2.2. Financial constraints

Within the RBV framework, financial capital constitutes a fundamental strategic resource that determines a firm's ability to invest, modernize, and build competitive advantages. According to Barney (1991), resources that generate sustained competitive advantage must be valuable and difficult to imitate, and financial capacity plays a key role in ensuring access to other strategic resources—technologies, human capital, and organizational capabilities.

In small manufacturing enterprises, financial constraints manifest in several main directions: limited access to external financing, restricted internal funds, and a relatively higher cost of capital. International studies indicate that small and medium-sized enterprises more frequently face credit rejections and are subject to stricter collateral requirements compared to large firms (Beck & Demirgüç-Kunt, 2006; OECD, 2023b).

Insufficient capitalization limits opportunities for investment in modern production assets, the implementation of quality management systems, and process digitalization. According to the Survey on the Access to Finance of Enterprises (SAFE), small enterprises significantly more often identify the cost of financing as a major barrier to their investment activity (European Central Bank, 2023).

From a strategic perspective, financial constraints cannot be reduced solely to liquidity problems; rather, they represent a structural limitation on development. The absence of stable financial resources reduces the firm's capacity to assume risk, implement innovations, and engage in long-term planning. This results in an orientation toward short-term survival, which contradicts the logic of sustained competitive advantage formulated within the RBV framework.

Under conditions of restricted access to formal financing, small enterprises frequently rely on informal mechanisms for resource mobilization. As noted by Pavlov et al. (2017) and Bakracheva et al. (2020), kinship networks and close social ties play a significant role in securing start-up and working capital in family and small firms. However, such dependence does not compensate for the systemic financial deficit; rather, it confirms its structural nature.

In this sense, financial deficit acts as a “primary constraint” that reinforces other resource deficiencies, as access to human, technological, and organizational resources is directly dependent on the availability of capital.

2.3. Human resource constraints

Within the RBV framework, human capital is regarded as a key strategic resource encompassing knowledge, skills, managerial competencies, and organizational experience. Barney (1991) emphasizes that intangible resources including human competencies more frequently meet the criteria for sustained competitive advantage, as they are difficult to imitate and replicate.

In small manufacturing enterprises, human resource constraints manifest both quantitatively and qualitatively. In several European countries, including Bulgaria, demographic processes and external migration have led to a persistent labor shortage, particularly outside major economic centers (European Commission, 2023). This shortage is especially acute in the manufacturing sector, where specific technical skills and technological discipline are required. As established by Poór, Slavić, Nikolić, and Berber (2021), “one of the main business problems in Central and Eastern Europe is labor shortage driven by emigration and unfavorable demographic trends.”

Beyond quantitative deficits, small enterprises also encounter difficulties in attracting and retaining qualified specialists. Limited financial capacity reduces their ability to offer competitive remuneration, while the absence of formalized career structures constrains opportunities for professional development. According to OECD (2023a), small and medium-sized enterprises invest significantly less in systematic employee training compared to large firms, resulting in a long-term competence deficit.

A characteristic feature of small manufacturing enterprises is the high degree of workforce multifunctionality. The limited scale of operations often requires a single employee to perform production, control, and administrative functions simultaneously. Although this model provides flexibility, it increases the risk of overload, errors, and merely formal compliance with procedures. Strategically, this reduces organizational resilience and makes the enterprise more dependent on specific individuals.

From the RBV perspective, constraints in human capital constitute a limitation on the strategic capabilities of the enterprise. The lack of specialized knowledge and managerial competencies hampers the implementation of new technologies, quality standards, and innovations. Thus, the personnel deficit becomes not merely an operational issue but a factor limiting strategic flexibility and long-term development potential.

2.4. Technological constraints

Within the Resource-Based View framework, technological resources constitute a substantial component of the firm's tangible asset base and a prerequisite for the development of organizational capabilities. Production equipment, the level of automation, and the degree of digitalization directly influence productivity, quality, and the potential for scaling operations.

In small manufacturing enterprises, technological constraints often manifest through the use of depreciated equipment, low levels of automation, and limited integration of digital systems. According to OECD (2023), there is a clearly pronounced gap between small and large enterprises in terms of digital technology adoption, with SMEs significantly lagging behind in the use of integrated management systems.

Insufficient digitalization complicates production planning, inventory management, and process control. Eurostat data indicate that the use of ERP systems is considerably more widespread among large enterprises than among small ones, creating a structural disparity in organizational capacity (Eurostat, 2023).

From a strategic perspective, technological constraints limit the firm's ability to build effective organizational routines and ensure process repeatability. Teece, Pisano, and Shuen (1997) argue that competitive advantage is based not only on the resources possessed but also on the firm's capacity to combine and adapt them through dynamic capabilities. The absence of modern technological infrastructure restricts precisely this adaptability.

Therefore, technological deficit should not be viewed solely as a production-related issue but as a structural limitation on the organizational capabilities and innovation potential of small manufacturing enterprises.

2.5. Informational and managerial constraints

Beyond tangible and human resources, the Resource-Based View emphasizes the importance of organizational capabilities structured processes, managerial practices, and control systems through which the firm coordinates and utilizes its available resources (Barney, 1991; Teece et al., 1997). These capabilities represent an intangible yet strategically critical resource.

In small manufacturing enterprises, informational and managerial constraints often manifest through a low degree of process formalization, limited strategic planning, and dependence on the personal experience of the owner (Banabakova and Georgiev, 2018). International research indicates that managerial practices in SMEs are less structured compared to those in large enterprises, lacking systematic mechanisms for performance monitoring and evaluation (OECD, 2023).

Management “by intuition,” without the use of integrated information systems and clearly defined procedures, increases the risk of operational inconsistencies, planning inaccuracies, and coordination difficulties. In a production environment, this may result in quality instability, challenges in cost control, and limited process traceability. According to Kunev et al. (2024), “the integration of stakeholder representatives in defining problems and developing solutions is essential for enhancing organizational effectiveness.”

From the RBV perspective, organizational capabilities are decisive in transforming resources into competitive advantage. Even when a firm possesses tangible assets and qualified personnel, the absence of managerial structure may hinder their effective utilization. In this sense, informational and managerial constraints act as a secondary but strategically significant limitation on development.

2.6. Logistical constraints

Logistical resources, transportation, warehousing infrastructure, supply control, and coordination of material flows constitute an essential element of the tangible and organizational base of manufacturing enterprises. Within the RBV framework, they may be considered part of physical resources and as a foundation for building operational capabilities.

In small manufacturing enterprises, logistical constraints often manifest through the lack of proprietary transportation, limited storage capacity, and dependence on external logistics operators. This model increases the relative cost per unit of output and reduces flexibility in delivery planning. According to OECD (2023), small enterprises face greater difficulties in supply chain optimization due to limited scale and the absence of specialized logistics units.

In manufacturing sectors, the management of storage and transportation conditions is of particular importance, requiring adequate infrastructure and coordination. The European Commission emphasizes that small enterprises more frequently encounter difficulties in complying with technical and hygiene requirements along the supply chain due to limited resource capacity (European Commission, 2022).

From a strategic perspective, logistical constraints limit the firm's ability to ensure regularity, predictability, and operational stability. Within the RBV framework, this implies that limited material infrastructure reduces the capacity to develop reliable operational capabilities. Logistical deficit may increase operational risk, reduce flexibility in responding to market changes, and heighten dependence on external partners. Additionally, Deneva et al. (2022) highlight the importance of the geographical location of suppliers and customers, which implies the need for the development of specific logistical systems.

Therefore, logistical constraints should be considered not merely as technical or infrastructural issues, but as structural factors influencing the strategic stability of small manufacturing enterprises.

3. DATA AND METHODOLOGY

The present study has a theoretical-analytical character and is based on a systematic review and conceptual interpretation of academic literature and institutional sources related to the resource constraints of small manufacturing enterprises. The analysis is grounded in the Resource-Based View (RBV) of the firm, which serves as the theoretical framework for interpreting the identified constraints.

The methodological approach includes:

- 1) a review of seminal works in the field of strategic management and resource theory (Barney, 1991; Wernerfelt, 1984; Teece et al., 1997);
- 2) an analysis of international institutional reports and studies concerning access to finance, digitalization, managerial practices, and supply chains in small and medium-sized enterprises (OECD, European Commission, ECB);
- 3) the systematization and conceptual grouping of resource constraints into five main categories: financial, human, technological, informational-managerial, and logistical.

The study does not involve primary empirical data collection but aims at an analytical synthesis and theoretical interpretation of existing academic and institutional sources. The principal method applied is conceptual analysis, focused on clarifying the interrelationships among the different resource constraints and their strategic significance for the sustainability of small manufacturing enterprises.

4. RESULTS AND DISCUSSION

4.1. Systemic nature of resource constraints

The analysis of the five groups of resource constraints demonstrates that they do not represent separate, independent problem areas, but rather form an interconnected structure of deficits. Financial constraints limit opportunities for technological upgrading and investment in human capital. Technological deficits, in turn, reduce productivity and increase costs, thereby generating additional financial pressure. Human resource constraints hinder the implementation of managerial and digital systems, reducing the efficiency of organizational processes.

This interdependence indicates that resource constraints possess a systemic character. They form a configuration of mutually dependent elements in which weakness in one area generates tension in others. As a result, the enterprise operates in a mode of continuous adaptation to constraints rather than in a mode of strategic development.

4.2. Mechanism of mutual reinforcement and the “Resource trap”

Beyond systemic interdependence, the analysis reveals a mechanism of mutual reinforcement among the individual constraints. Limited financial resources reduce investments in modern equipment and qualification. Low productivity and higher costs restrict the generation of internal capital, thereby reproducing the initial financial deficit. A cycle of resource limitation is thus formed.

Simultaneously, personnel shortages hinder the effective utilization of technological resources and the introduction of formalized managerial practices. The absence of a managerial structure increases the risk of inefficiency, further diminishing financial performance. This process can be interpreted as a “resource trap,” in which a limited resource base obstructs the accumulation of strategic capabilities.

Within the RBV framework, such a trap implies the inability to accumulate valuable and difficult-to-imitate resources. The enterprise remains in a state of operational functioning without the capacity to build sustained competitive advantage.

4.3. Strategic implications

The systemic nature and mutual reinforcement of resource constraints have a clear strategic dimension. First, they limit strategic flexibility the firm’s ability to respond to changes in the external environment. Second, they reduce opportunities for scaling and diversification, as any new investment requires a resource base that is often insufficient.

Moreover, resource constraints direct managerial attention toward short-term decisions aimed at stabilizing current operations rather than toward strategic planning and innovation. This creates a development trajectory characterized by low investment capacity and limited ability to build sustainable organizational capabilities.

Therefore, resource constraints should be regarded as a structural strategic factor defining the boundaries of growth and competitiveness of small manufacturing enterprises.

Based on the conducted analysis, a conceptual model of mutually reinforcing resource constraints can be formulated, in which financial, human, technological, managerial, and logistical deficits form a system of interdependencies. This system constitutes a “resource trap” that restricts the ability of small manufacturing enterprises to accumulate strategic resources and build sustained competitive advantage.

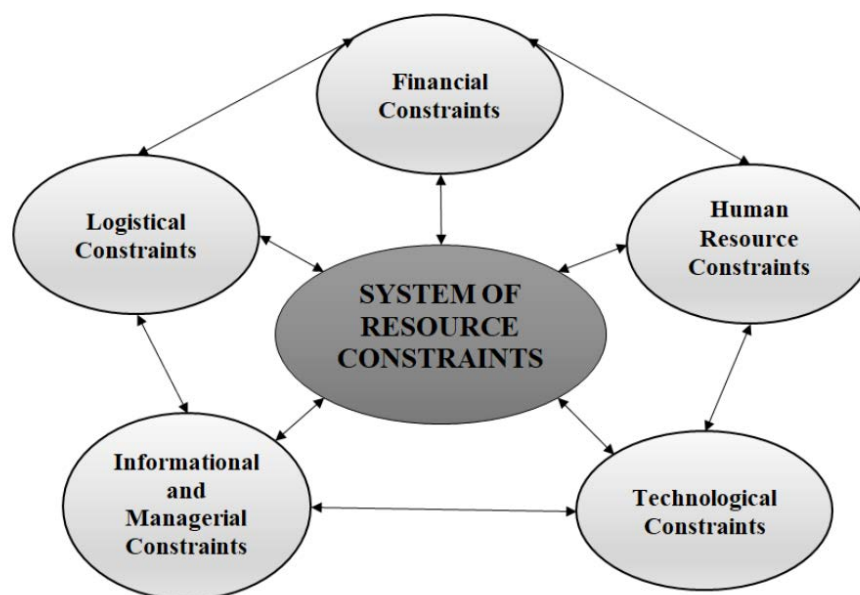


Figure 1. Conceptual framework of mutually reinforcing resource constraints

The arrows in Figure 1 denote the bidirectional interrelationships among the identified resource constraints. Financial constraints affect opportunities for technological investment and human capital development, while technological and managerial deficits reduce productivity and financial performance. Human resource shortages limit the effective implementation of digital and organizational systems, further reinforcing operational inefficiencies. The model illustrates how these interdependencies create a self-reinforcing structural mechanism, interpreted as a “resource trap,” that constrains the accumulation of strategic capabilities.

In this sense, the resource trap should be considered a structural limiter of strategic development that obstructs the accumulation of sustained competitive advantages. Overcoming such a configuration of mutually reinforcing deficits requires an integrated managerial approach aimed at simultaneously addressing key resource constraints.

Furthermore, the resource trap can also be interpreted through the lens of development trajectories, in which accumulated constraints predetermine the future strategic opportunities of the enterprise. When a small manufacturing enterprise operates over a prolonged period under conditions of resource limitation, managerial decisions become oriented toward short-term survival rather than the development of strategic capabilities. This creates a self-sustaining trajectory in which limited investment, low technological modernization, and insufficient organizational formalization become stable characteristics of development.

As a result, the enterprise's strategic flexibility is reduced, and opportunities for transformation and scaling become constrained. In this way, the resource trap not only hinders the accumulation of VRIO resources but also generates path dependence on an established mode of functioning that is difficult to overcome without structural change or an external impulse.

5. CONCLUSION

The present study examines the resource constraints of small manufacturing enterprises through the lens of the Resource-Based View of the firm. The analysis demonstrates that financial, human, technological, managerial, and logistical deficits do not constitute isolated problems, but rather form an interconnected system of constraints with a cumulative effect. Their simultaneous manifestation creates a structural configuration that limits the accumulation of strategic resources and capabilities.

Within the proposed conceptual interpretation, resource constraints can be regarded as a "resource trap," in which mutually reinforcing deficits hinder the development of sustained competitive advantage. In this way, resource limitation becomes a structural strategic factor that defines the boundaries of growth, flexibility, and long-term development of small manufacturing enterprises.

The scientific contribution of the article lies in the systematization of the main groups of resource constraints and their conceptual integration into a framework of mutually reinforcing interdependencies. Such an interpretation expands the understanding of constraints faced by small enterprises by positioning them not merely as operational difficulties, but as a systemic strategic phenomenon requiring an integrated managerial approach. The proposed conceptual framework provides a foundation for future empirical research and for the development of managerial mechanisms aimed at overcoming systemic resource limitations.

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SISTEMSKA OGRANIČENJA RESURSA U MALIM PROIZVODNIM PREDUZEĆIMA: KA KONCEPTUALNOM MODELU STRUKTURNIH MEĐUZAVISNOSTI

Violeta Yankolova-Ali

Univerzitet u Ruseu „Angel Kančev“, Fakultet za biznis i menadžment, Bugarska

Izvod

Ova studija istražuje prirodu i strateški značaj ograničenja resursa sa kojima se suočavaju mala proizvodna preduzeća. Polazeći od teorije resursno zasnovanog pristupa preduzeću (Resource-Based View - RBV), identifikovano je i analizirano pet kategorija ograničenja: finansijska, ljudska, tehnološka, menadžerska i logistička, kao strukturno međusobno povezani faktori koji zajedno oblikuju strateški kapacitet preduzeća. U radu se tvrdi da ova ograničenja ne funkcionišu kao nezavisne varijable, već čine samoodrživu konfiguraciju koja otežava razvoj vrednih i teško imitabilnih organizacionih sposobnosti. Ova konfiguracija teorijski je predstavljena kao strukturna „zamka resursa“, koja stvara zavisnost od prethodno izabranog razvojnog puta (path dependence) i ograničava formiranje održive konkurentske prednosti. Teorijski doprinos studije ogleda se u redefinisavanju ograničenja resursa kao sistemskog strateškog fenomena, a ne kao izolovanih operativnih izazova, čime se pruža konceptualna osnova za empirijska istraživanja i menadžerske intervencije zasnovane na dokazima.

Ključne reči: mala preduzeća, proizvodni sektor, resursno zasnovani pristup (RBV), strukturna ograničenja, konkurentska prednost, strateški kapacitet, zavisnost od razvojnog puta

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