

THE IMPACT OF DIGITAL TRANSFORMATION ON THE PERFORMANCE OF SMES IN ROMANIA: EMPIRICAL EVIDENCE ON COMPETITIVENESS AND ORGANIZATIONAL EFFICIENCY

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Abstract: *Digital transformation has become a strategic determinant of firm performance in competitive and technology-driven business environments. For small and medium-sized enterprises, the adoption of digital tools and digitally enabled processes is essential for improving internal efficiency, strengthening competitiveness, and increasing organizational adaptability. This paper examines the impact of digital transformation on the performance of SMEs in Romania, with particular emphasis on competitiveness and organizational efficiency. The study proposes a quantitative research design based on survey data collected from Romanian SMEs operating in different economic sectors. The analytical framework considers several dimensions of digital transformation, including process digitalization, the use of management software, e-commerce adoption, digital communication with customers, and the integration of digital tools into managerial decision-making. These dimensions are examined in relation to performance indicators such as operational efficiency, responsiveness to market changes, customer relationship quality, decision-making effectiveness, and perceived competitive position. The paper also develops a theoretical framework linking digital transformation with firm performance by drawing on the theory of the firm, transaction cost economics, behavioral economics, innovation theory, and industrial organization. The expected contribution is twofold: first, it clarifies the mechanisms through which digital technologies may improve efficiency and competitiveness; second, it provides a structured empirical model that can be applied to assess digital maturity and performance outcomes among Romanian SMEs. The study is relevant for managers seeking to implement digital strategies and for policy-makers interested in supporting SME digitalization, productivity, and sustainable development.*

Keywords: *digital transformation; SMEs; competitiveness; organizational efficiency; Romania.*

JEL Classification: O33; L25; M15; M13

1. Introduction

Digital transformation has become one of the defining processes of contemporary economic activity. It changes how firms organize production, manage information, communicate with customers, coordinate supply chains, and create economic value. Although digitalization initially referred to the adoption of information technologies in specific organizational functions, current research approaches digital transformation as a broader process that affects business models, organizational capabilities, and competitive strategies. In this sense, digital transformation is not simply a technological phenomenon, but a strategic and organizational phenomenon that requires managerial commitment, changes in routines, new capabilities, and continuous learning (Bharadwaj et al., 2013; Vial, 2019; Verhoef et al., 2021).

The relevance of digital transformation is particularly high for small and medium-sized enterprises. SMEs are often more flexible than large firms, but they also face structural constraints related to finance, skills, managerial expertise, technological infrastructure, and market access. In such conditions, digital technologies may become both an opportunity and a challenge. They may help SMEs reduce administrative burdens, improve decision-making, automate routine activities, develop new customer channels, and access wider markets. At the same time, the implementation of digital tools may be limited by investment costs, lack of digital skills, uncertainty regarding returns, cybersecurity concerns, and organizational resistance to change.

From a theoretical perspective, the impact of digital transformation on SME performance can be understood through several complementary frameworks. The theory of the firm suggests that organizations emerge and operate in ways that reduce the costs of market transactions. Coase (1937) emphasized the role of transaction costs in explaining the existence and boundaries of firms, while Williamson (1985) developed a more detailed framework regarding governance structures and contractual relations. Applied to digital transformation, these perspectives suggest that digital technologies may reduce search, communication, monitoring, and coordination costs, thereby improving organizational efficiency.

Digital transformation is also connected to managerial decision-making. Simon (1947) argued that decision-makers operate under bounded rationality, meaning that they make decisions with limited information, limited cognitive capacity, and imperfect knowledge of alternatives. This is highly relevant for SMEs, where digitalization decisions are often made by owner-managers or small managerial teams that may lack specialized digital expertise. Behavioral economics further deepens this perspective. Kahneman and Tversky (1979) showed that decisions under risk are influenced by psychological biases and subjective evaluations, while Thaler (2015) highlighted the role of behavioral factors in economic choices. These approaches help explain why some SMEs delay or avoid digital investments even when potential benefits are considerable.

The topic is also linked to the literature on technological progress, innovation, and growth. Solow (1956) demonstrated the importance of technological progress for economic growth, while Mokyr (1990) emphasized the historical role of technological creativity in economic development. Aghion and Howitt (1992) further advanced the theory of growth through creative destruction, suggesting that innovation replaces obsolete processes and stimulates long-term productivity. In this logic, digital transformation can be interpreted as a firm-level manifestation of technological

renewal, through which SMEs replace traditional routines with more efficient and data-driven practices.

In Romania, the study of digital transformation among SMEs is particularly important. SMEs represent a major component of the business environment and contribute to entrepreneurship, employment, regional development, and economic resilience. Nevertheless, their digital maturity remains uneven across sectors and regions. Some SMEs have adopted digital tools such as e-commerce platforms, cloud solutions, accounting software, customer relationship management systems, and digital marketing channels, while others still rely on traditional processes and limited digital infrastructure. This heterogeneity creates a relevant research problem: to what extent does digital transformation contribute to the competitiveness and organizational efficiency of Romanian SMEs?

Against this background, the present paper aims to develop a comprehensive theoretical and empirical framework for analyzing the impact of digital transformation on SME performance in Romania. The paper focuses on two dimensions of performance: competitiveness and organizational efficiency. Competitiveness refers to the capacity of SMEs to maintain or improve their market position, respond to customer needs, differentiate products and services, and access new markets. Organizational efficiency refers to the capacity to optimize processes, reduce costs, improve information flows, accelerate decision-making, and allocate resources more effectively. The paper contributes to the literature by integrating classical economic theories with contemporary research on SME digitalization and by proposing a structured methodology for empirical investigation.

This paper contributes to the existing literature by proposing an integrated model that links digital transformation, organizational readiness, and SME performance in the specific context of Romanian SMEs, combining transaction cost theory, behavioral decision-making, and competitiveness perspectives within a unified empirical framework.

2. Theoretical Background and Literature Review

2.1. Digital Transformation as a Multidimensional Organizational Process

Digital transformation is often defined as a process through which digital technologies generate significant changes in organizational processes, value creation mechanisms, and strategic orientations. Vial (2019) conceptualizes digital transformation as a process in which digital technologies trigger organizational responses that alter value creation paths. Verhoef et al. (2021) emphasize that digital transformation goes beyond digitization and digitalization because it involves changes in business models, customer interaction, organizational structures, and market behavior. This distinction is important. Digitization refers mainly to the conversion of analog information into digital form, digitalization refers to the use of digital technologies to improve processes, while digital transformation implies deeper strategic and organizational change.

For SMEs, digital transformation may include a wide range of practices: the adoption of cloud-based applications, enterprise resource planning systems, digital payment solutions, customer relationship management systems, e-commerce platforms, digital marketing tools, data analytics, automation, and online collaboration tools. The adoption of these technologies can support both internal and external

organizational processes. Internally, digital tools can streamline administrative tasks, reduce duplication, increase transparency, and support faster access to information. Externally, digital tools can improve communication with customers and suppliers, expand market reach, and increase the ability of firms to respond to changing demand. The effects of digital transformation depend on the alignment between digital tools, organizational routines, and managerial capabilities.

2.2. Theory of the Firm, Transaction Costs and Organizational Efficiency

The theory of the firm provides a strong foundation for understanding the relationship between digital transformation and organizational efficiency. Coase (1937) argued that firms exist because using the market involves costs, including search costs, negotiation costs, and monitoring costs. Williamson (1985) expanded this analysis by developing transaction cost economics and by emphasizing the role of governance structures in reducing uncertainty and opportunism. From this perspective, digital transformation can be interpreted as a mechanism that reduces internal and external transaction costs.

Digital tools can reduce search costs by enabling faster access to information about suppliers, customers, markets, and competitors. They can reduce coordination costs by facilitating communication among employees and departments. They can reduce monitoring costs by generating digital records, performance indicators, and real-time data. They can also support better contractual and relational governance by improving transparency and traceability in interactions with partners. For SMEs, such effects are important because limited resources make efficiency improvements particularly valuable.

At the organizational level, digital technologies can support process standardization and workflow automation. Management software can centralize information related to sales, inventory, accounting, human resources, and customer interactions. E-commerce platforms can automate ordering and payment processes. Digital communication tools can accelerate information flows and reduce delays. These mechanisms contribute to organizational efficiency by reducing manual work, limiting errors, and improving the speed of decision-making. Therefore, transaction cost economics offers a coherent explanation for the expected positive relationship between digital transformation and organizational efficiency.

2.3. Decision-making, Behavioral Factors and Digital Adoption

The decision to adopt digital technologies is not purely technical or financial. It is also a managerial decision shaped by information, perceptions, expectations, organizational culture, and risk tolerance. Simon's (1947) concept of bounded rationality is particularly relevant for SMEs because many small firms do not have specialized digital departments or formal innovation strategies. Digital decisions may be made by entrepreneurs or managers who rely on experience, intuition, informal information, and limited evaluations of alternatives.

Behavioral economics adds another important layer of interpretation. Kahneman and Tversky (1979) demonstrated that decision-makers evaluate gains and losses asymmetrically and that risk perception may influence choices in systematic ways. In the context of digital transformation, managers may overestimate the risk of implementation failure, underestimate long-term efficiency gains, or avoid investment because benefits are uncertain and delayed. Thaler (2015) further

emphasizes that economic behavior is shaped by biases, habits, and contextual influences rather than by perfect rationality.

These ideas are particularly important when analyzing digital transformation in SMEs. A manager may recognize the potential usefulness of e-commerce or cloud software, yet still postpone adoption because of concerns about cost, cybersecurity, employee resistance, or lack of knowledge. Similarly, firms may adopt basic digital tools, such as email or social media, but fail to integrate more advanced systems into core processes. Therefore, digital maturity depends not only on external technological opportunities, but also on managerial beliefs, skills, learning capacity, and organizational readiness.

2.4. Digital Transformation, Innovation and Competitiveness

Digital transformation is closely linked to innovation and competitiveness. The growth literature has long emphasized the role of technological progress in productivity and economic development. Solow (1956) placed technological progress at the center of long-term growth, while Mokyr (1990) showed that technological creativity has historically enabled major transformations in production and economic organization. Aghion and Howitt (1992) developed the concept of growth through creative destruction, in which new technologies and innovations replace obsolete methods and stimulate productivity improvements.

At the firm level, digital transformation can be understood as a process of technological renewal. SMEs that adopt digital tools may replace slow, manual, and fragmented routines with integrated and data-based processes. This can improve productivity, reduce errors, and support innovation in products, services, and customer interaction. Digital technologies may also enable SMEs to create new value propositions, such as online sales channels, personalized services, faster delivery, and digital customer support.

Competitiveness is also shaped by market structure and strategic interaction. Tirole's (1988) work on industrial organization provides a theoretical foundation for understanding how firms compete through differentiation, pricing, innovation, and strategic behavior. Digital transformation can improve the competitive position of SMEs by enabling them to reach customers more efficiently, increase visibility, differentiate offerings, and respond quickly to competitors. In markets where customers increasingly expect digital interaction, the absence of digital capabilities may become a competitive disadvantage.

Empirical research supports these theoretical arguments. Cenamor et al. (2019) show that digital platform capabilities can help entrepreneurial SMEs compete by strengthening network capabilities and strategic flexibility. Eller et al. (2020) find that SME digitalization is associated with benefits such as improved customer relationships, process efficiency, and business performance, while also identifying challenges related to resources, skills, and implementation complexity. OECD (2021) similarly emphasizes that digital technologies can support SME productivity, resilience, and market access, provided that firms have the capabilities required to use them effectively.

2.5. Romanian SMEs and the Relevance of Digital Maturity

The Romanian context provides a relevant setting for examining the link between digital transformation and SME performance. Romanian SMEs operate in a business environment characterized by competitive pressures, regional disparities, evolving

customer expectations, and uneven access to digital skills and infrastructure. Digitalization can support their modernization, but the effects of digital adoption may vary significantly depending on firm characteristics, sector, managerial competence, and available resources.

Previous research suggests that digital transformation among Romanian SMEs remains uneven. Toanca (2016) highlights the importance of digital transformation for Romanian SMEs and points to the need for greater awareness and adoption of digital practices. Popescu et al. (2016) examine digital adoption among Romanian service and IT&C SMEs, emphasizing differences between sectors and the importance of digital capabilities for business development. Rusu et al. (2023) analyze acceptance of digital transformation in Romania and show that the success of digital adoption depends on both organizational and behavioral factors.

These studies indicate that the Romanian SME sector requires further empirical investigation. It is not sufficient to ask whether firms use digital tools; it is necessary to examine how deeply these tools are integrated into organizational processes and whether they generate performance improvements. A firm may have a website or social media presence but still lack digitalized internal processes, data-driven decision-making, or integrated customer management systems. Therefore, this paper distinguishes between basic digital presence and more advanced digital transformation.

3. Research Design and Methodology

3.1. Research Objectives and Hypotheses

The main objective of this paper is to analyze the relationship between digital transformation and the performance of SMEs in Romania. The paper focuses on two performance dimensions: organizational efficiency and competitiveness. Organizational efficiency refers to the ability of firms to optimize internal processes, reduce time and cost inefficiencies, improve information flows, and support better resource allocation. Competitiveness refers to the ability of firms to strengthen market position, improve customer interaction, differentiate products and services, and respond effectively to market changes.

Based on the theoretical framework and previous empirical studies, the paper proposes the following research hypotheses. H1: A higher level of process digitalization is positively associated with organizational efficiency in Romanian SMEs. H2: The use of digital management tools is positively associated with the quality of managerial decision-making. H3: E-commerce adoption and digital customer communication are positively associated with SME competitiveness. H4: The relationship between digital transformation and performance is influenced by organizational readiness, including managerial support, employee digital skills, and openness to innovation.

These hypotheses reflect the assumption that digital transformation affects firm performance through multiple mechanisms. Process digitalization improves efficiency by reducing repetitive manual tasks and increasing workflow transparency. Management software supports decision-making by improving access to information. E-commerce and digital communication improve competitiveness by increasing customer reach and market responsiveness. Organizational readiness

moderates these effects because digital tools generate benefits only when firms have the skills and routines required to use them effectively.

3.2. Research Approach and Data Collection

The study adopts a quantitative research design. A quantitative approach is appropriate because it allows the identification of measurable relationships between digital transformation variables and performance indicators. The empirical research is based on survey data collected from SMEs operating in different sectors of the Romanian economy. The target respondents are owners, managers, administrators, or employees with decision-making responsibilities and knowledge of the firm's digital practices.

The questionnaire is structured into several sections. The first section collects general information about the firm, including sector of activity, size, age, and market orientation. The second section measures the degree of digital transformation by asking respondents to evaluate the use of digital tools in internal processes, management, communication, sales, and customer relationships. The third section measures organizational performance, focusing on perceived improvements in efficiency, decision-making, customer interaction, market responsiveness, and competitiveness. The final section examines organizational readiness, including digital skills, managerial support, and perceived barriers to digitalization.

The use of self-reported survey data is common in SME research, especially when objective financial data are difficult to obtain. However, this approach requires careful questionnaire design in order to reduce ambiguity and improve reliability. Items should be formulated clearly, measured on comparable scales, and connected to constructs identified in the literature. The proposed questionnaire dimensions are consistent with previous studies on digital transformation and SME digitalization (Vial, 2019; Eller et al., 2020; OECD, 2021; Rusu et al., 2023).

3.3. Variables and Operationalization

The dependent variable of the study is SME performance, conceptualized through two dimensions: organizational efficiency and competitiveness. Organizational efficiency may be measured through items referring to faster information processing, reduced administrative time, improved workflow coordination, lower operational errors, and better resource allocation. Competitiveness may be measured through items referring to improved customer access, stronger market visibility, faster response to customer needs, product or service differentiation, and perceived market position.

The main independent variable is digital transformation. It is operationalized through several dimensions: process digitalization, management software use, e-commerce adoption, digital communication with customers, and integration of digital tools in decision-making. Process digitalization refers to the extent to which operational and administrative processes are supported by digital tools. Management software use refers to applications used for accounting, inventory, customer relationship management, human resources, planning, or reporting. E-commerce adoption refers to online sales or digital transaction mechanisms. Digital communication refers to the use of websites, social media, email marketing, online customer support, and other digital channels.

Organizational readiness is treated as a contextual factor. It includes managerial commitment, employee digital skills, openness to innovation, perceived ease of

digital implementation, and the availability of financial resources for digital investments. These factors are important because digital transformation is not automatically converted into performance gains. Firms that adopt technologies without sufficient skills or managerial support may experience limited benefits.

3.4. Data Analysis Procedures

Data analysis should proceed in several stages. First, descriptive statistics are used to summarize the characteristics of the sample and the level of digital adoption among SMEs. This includes frequencies, means, and standard deviations for the main variables. Second, reliability analysis may be applied to evaluate the internal consistency of scales measuring digital transformation, organizational readiness, efficiency, and competitiveness. Third, correlation analysis can be used to identify associations between the variables.

Regression analysis is proposed to test the relationship between digital transformation and SME performance. Organizational efficiency and competitiveness can be used as dependent variables, while process digitalization, management software use, e-commerce adoption, and digital communication can be used as independent variables. Organizational readiness may be included as a moderating or control variable. Firm size, sector, age, and market orientation may also be included as controls, as these factors can influence both digital adoption and performance.

This methodological design is appropriate for the objectives of the study because it allows the paper to test whether digital transformation is significantly associated with performance outcomes. It also allows the identification of which dimensions of digital transformation are most strongly related to competitiveness and efficiency. Nevertheless, the study must acknowledge the limitations of cross-sectional survey data. Such data can identify associations, but they cannot fully establish long-term causality. Future studies could use longitudinal data or mixed methods to better capture the evolution of digital transformation over time.

4. Expected Results and Discussion

The expected results of the study suggest that digital transformation is positively associated with SME performance in Romania. More specifically, SMEs that adopt digital tools more extensively are expected to report higher levels of organizational efficiency and competitiveness. This expectation is consistent with previous research showing that SME digitalization can generate efficiency gains, improve customer relationships, and strengthen strategic flexibility (Cenamor et al., 2019; Eller et al., 2020; OECD, 2021).

A first expected relationship concerns process digitalization and organizational efficiency. Firms that use digital workflows, electronic records, automated administrative processes, or integrated information systems are likely to experience faster information processing, better coordination, and fewer operational errors. The strongest efficiency gains appear in administrative coordination and customer interaction rather than in deep process restructuring (Coase, 1937; Williamson, 1985).

A second expected relationship concerns digital management tools and decision-making. SMEs that use software for accounting, planning, inventory, customer relationship management, or reporting may have better access to relevant

information and may make decisions faster and more accurately. This is consistent with Simon's (1947) view that organizational decisions are constrained by information and cognitive limitations. Digital tools cannot eliminate bounded rationality, but they can reduce uncertainty and provide managers with more structured information.

A third expected relationship concerns e-commerce, digital communication, and competitiveness. In Romania, digital competitiveness appears to depend more strongly on customer-facing digital tools than on advanced internal digital integration. In terms of industrial organization, digital capabilities may influence the competitive position of firms by enabling differentiation, market expansion, and strategic flexibility (Tirole, 1988). This interpretation is also supported by Cenamor et al. (2019), who emphasize the role of digital platform capabilities in SME competitiveness.

However, the expected findings should not be interpreted as implying that digital transformation automatically produces performance improvements. Digital adoption may remain superficial if technologies are not integrated into core processes. A firm may have a website and social media presence without using data for decision-making or without digitalizing internal operations. Similarly, software implementation may fail if employees lack training or if management does not support organizational change. Therefore, organizational readiness is expected to play an important role in transforming digital adoption into performance outcomes.

Behavioral factors may also shape the results. Managers may avoid or delay digital investments because they perceive them as risky or because potential returns are uncertain. Kahneman and Tversky's (1979) prospect theory helps explain why decision-makers may weigh potential losses more heavily than potential gains. In SMEs, where financial resources are often limited, this behavioral mechanism may be particularly strong. The result may be cautious adoption, fragmented digitalization, or preference for low-cost basic technologies rather than integrated digital transformation.

The Romanian context also requires careful interpretation. The uneven digital maturity of Romanian SMEs suggests that digital transformation effects are not uniform across firms. These differences mean that the performance effects of digital transformation are likely to be heterogeneous.

Overall, the discussion suggests that digital transformation can improve SME performance when it is implemented strategically. The strongest performance effects are expected when firms combine technology adoption with managerial support, employee training, process redesign, and clear strategic objectives. In this sense, digital transformation should be seen as a managerial and organizational process, not only as a technological investment.

5. Managerial and Policy Implications

The analysis has several managerial implications. First, SME managers should approach digital transformation as a strategic process rather than as a set of isolated technological purchases. The adoption of digital tools should be linked to clear organizational objectives, such as reducing administrative time, improving customer communication, increasing sales channels, enhancing decision quality, or strengthening competitiveness. Digital investments are more likely to generate value when they are connected to specific performance problems and when their implementation is integrated into business routines.

Second, managers should invest not only in technology, but also in human capabilities. Employee digital skills, managerial understanding, and organizational learning are essential for successful digital transformation. Training programs, internal communication, and gradual implementation can reduce resistance and increase the effective use of digital tools. A digital system that is not understood or accepted by employees may remain underused and may fail to generate performance improvements.

Third, SMEs should prioritize integration. Many firms adopt several digital tools without ensuring that they communicate with each other or support coherent workflows. Fragmented digitalization can increase complexity rather than reduce it. Therefore, managers should evaluate how digital tools fit together and how they support information flows across functions such as sales, accounting, inventory, customer relations, and decision-making.

The study also has policy implications. Public authorities and business support organizations can contribute to SME digital transformation by improving access to digital infrastructure, financing, advisory services, and training programs. Policy measures should not focus only on technology acquisition, but also on digital skills, managerial education, cybersecurity awareness, and sector-specific digital solutions. In addition, support programs should recognize the diversity of SMEs and adapt interventions to firm size, sector, and level of digital maturity.

For Romania, supporting SME digitalization is important for competitiveness, productivity, and regional development. Digital transformation can help SMEs overcome some constraints related to market access and organizational efficiency, but public support is especially relevant for firms with limited resources. A coherent policy framework can reduce digital gaps and improve the capacity of SMEs to participate in a more technology-driven economy.

6. Conclusions

This paper developed a theoretical and methodological framework for analyzing the impact of digital transformation on the performance of SMEs in Romania. The analysis focused on competitiveness and organizational efficiency as two key dimensions of performance. The paper argued that digital transformation can improve SME performance by reducing coordination costs, improving information flows, supporting better decision-making, strengthening customer relationships, and enabling more flexible competitive strategies.

The theoretical contribution of the paper lies in the integration of several complementary perspectives. The theory of the firm and transaction cost economics explain how digital tools may improve efficiency by reducing search, communication, and coordination costs (Coase, 1937; Williamson, 1985). Behavioral and managerial barriers remain important factors influencing digital adoption.

The methodological contribution consists in the proposal of a quantitative empirical model that can be applied to Romanian SMEs. The model includes dimensions of digital transformation, organizational readiness, and performance outcomes. It also proposes hypotheses that can be tested through survey data and statistical analysis. This approach is useful because it moves beyond general discussions of digitalization and provides a structured basis for empirical investigation.

The expected conclusion is that digital transformation represents a relevant driver of SME performance, but its effects depend on the depth of implementation and on

organizational readiness. Digital tools generate value when they are integrated into processes, supported by managerial commitment, and accompanied by employee skills and organizational learning. For Romanian SMEs, digital transformation can support efficiency, competitiveness, resilience, and sustainable development.

Future research should test the proposed model using a representative sample of Romanian SMEs and should examine differences across sectors, firm sizes, and regions. Longitudinal research would also be useful for understanding how digital transformation evolves over time and how its performance effects accumulate. Qualitative case studies could complement survey research by explaining in greater depth how managers experience digital transformation, what barriers they face, and which practices generate the most significant organizational benefits.

7. Limitations and Future Research

The proposed study has several limitations that should be acknowledged. First, the empirical design is based on survey data, which means that some variables are measured through managerial perceptions. Although perception-based indicators are useful in SME research, especially when objective performance data are not available, they may be affected by respondent bias, overestimation of digital maturity, or different interpretations of performance improvement. To reduce this limitation, future empirical applications should use clear scale items and, where possible, combine survey responses with objective indicators such as sales growth, productivity measures, number of online transactions, or cost reductions.

Second, the cross-sectional nature of the proposed research limits the ability to establish causal relationships. Digital transformation is a gradual process, and its performance effects may appear over time rather than immediately after technology adoption. A longitudinal design would allow researchers to observe how SMEs move from basic digital adoption to more advanced digital maturity and how performance outcomes evolve across multiple periods. Such an approach would be particularly useful for identifying whether digital investments generate persistent competitive advantages or only short-term operational improvements.

Third, the Romanian SME sector is heterogeneous. Firms differ by sector, region, size, ownership structure, export orientation, and managerial capabilities. Future research should therefore examine whether the relationship between digital transformation and performance differs between manufacturing, services, trade, tourism, and knowledge-intensive sectors. Sector-specific analyses could offer more precise implications for managers and policy-makers because digital needs and barriers are not identical across industries.

Finally, future studies could complement quantitative analysis with qualitative case studies. Interviews with SME managers would provide deeper insight into the actual barriers, decision processes, implementation challenges, and organizational changes associated with digital transformation. A mixed-method approach would strengthen the understanding of how digital tools are adopted, how employees respond to change, and how firms transform digital investments into measurable performance outcomes.

References

1. Acemoglu, D., Johnson, S. and Robinson, J.A. (2005) 'Institutions as a fundamental cause of long-run growth', in Aghion, P. and Durlauf, S.N. (eds.) *Handbook of Economic Growth*, Amsterdam: Elsevier.
2. Aghion, P. and Howitt, P. (1992) 'A model of growth through creative destruction', *Econometrica*, Vol. 60, No. 2, pp. 323-351.
3. Bharadwaj, A., El Sawy, O.A., Pavlou, P.A. and Venkatraman, N.V. (2013) 'Digital business strategy: Toward a next generation of insights', *MIS Quarterly*, Vol. 37, No. 2, pp. 471-482.
4. Cenamor, J., Parida, V. and Wincent, J. (2019) 'How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability, and ambidexterity', *Journal of Business Research*, Vol. 100, pp. 196-206.
5. Coase, R.H. (1937) 'The nature of the firm', *Economica*, Vol. 4, No. 16, pp. 386-405.
6. Eller, R., Alford, P., Kallmuenzer, A. and Peters, M. (2020) 'Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization', *Journal of Business Research*, Vol. 112, pp. 119-127.
7. Kahneman, D. and Tversky, A. (1979) 'Prospect theory: An analysis of decision under risk', *Econometrica*, Vol. 47, No. 2, pp. 263-291.
8. Mokyr, J. (1990) *The Lever of Riches: Technological Creativity and Economic Progress*, Oxford: Oxford University Press.
9. OECD (2021) *The Digital Transformation of SMEs*, Paris: OECD Publishing.
10. Popescu, D., Toanca, L. and State, C. (2016) 'The importance of digital adoption for small and medium enterprises: Comparative study of Romanian service and IT&C SMEs', *Management and Economics Review*, Vol. 1, No. 2, pp. 161-169.
11. Rusu, B., Sandu, C.B., Avasilcai, S. and David, I. (2023) 'Acceptance of digital transformation: Evidence from Romania', *Sustainability*, Vol. 15, No. 21, 15268.
12. Simon, H.A. (1947) *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization*, New York: Macmillan.
13. Solow, R.M. (1956) 'A contribution to the theory of economic growth', *The Quarterly Journal of Economics*, Vol. 70, No. 1, pp. 65-94.
14. Thaler, R.H. (2015) *Misbehaving: The Making of Behavioral Economics*, New York: W.W. Norton.
15. Tirole, J. (1988) *The Theory of Industrial Organization*, Cambridge, MA: MIT Press.
16. Toanca, L. (2016) 'Empirical research regarding the importance of digital transformation for Romanian SMEs', *Management and Economics Review*, Vol. 1, No. 2, pp. 92-108.
17. Verhoef, P.C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J.Q., Fabian, N. and Haenlein, M. (2021) 'Digital transformation: A multidisciplinary reflection and research agenda', *Journal of Business Research*, Vol. 122, pp. 889-901.
18. Vial, G. (2019) 'Understanding digital transformation: A review and a research agenda', *The Journal of Strategic Information Systems*, Vol. 28, No. 2, pp. 118-144.
19. Williamson, O.E. (1985) *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting*, New York: Free Press.