Management (Montevideo). 2025; 3:264
doi: 10.62486/agma2025264
ISSN: 3046-4048

ORIGINAL

Adapting Management Strategies in SMEs to the Era of Digital Transformation

Adaptar las estrategias de gestión de las PYME a la era de la transformación digital

Andriy Kruhlyanko[1], Svitlana Korobka[2], Rostyslav Soroka[3], Tetiana Kravchenko[4], Nadiia Vasylieva[5]

[1]Chernivtsi Institute of Trade and Economics of State University of Trade and Economics, Department of Management, Marketing and International Logistics. Kyiv, Ukraine.
[2]Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies, Faculty of Management, Business and Public Administration, Department of Management. Lviv, Ukraine.
[3]The Institute of Economics and Management, Lviv Polytechnic National University, Department of Management of Organizations. Lviv, Ukraine.
[4]Taras Shevchenko National University of Kyiv, Faculty of Economics, Department of Business Economics. Kyiv, Ukraine.
[5]MIT Sloan School of Management, Massachusetts Institute of Technology, Cambridge, United States of America; Ukrainian Catholic University, Lviv Business School, Management and Organization Development Department. Lviv, Ukraine.

Cite as: Kruhlyanko A, Korobka S, Soroka R, Kravchenko T, Vasylieva N. Adapting Management Strategies in SMEs to the Era of Digital Transformation. Management (Montevideo). 2025; 3:264. https://doi.org/10.62486/agma2025264

Submitted: 11-07-2024 **Revised:** 12-01-2025 **Accepted:** 22-06-2025 **Published:** 23-06-2025

Editor: Ing. Misael Ron

ABSTRACT

Introduction: given the benefits of digitalisation, including optimisation of internal processes, increased productivity, better stakeholder engagement, and adaptation to rapidly changing market conditions, the analysis of digital transformation and its role in shaping enterprise management strategies is particularly relevant.
Objective: the article aims to analyse the impact of digital transformation on the formation and implementation of management strategies for SMEs'.
Method: the article uses general scientific methods of cognition, in particular, methods of synthesis, systematisation and generalisation, to determine the status and current trends in the development of SMEs. Quantitative analysis includes statistical data analysis to collect, process and group the initial data; forecasting to identify trends in SME performance; and correlation analysis to determine the impact of digitalisation on SMEs' economic activities.
Results: strong positive correlations between EGDI (r = 0,965, p = 0,002), OSI (r = 0,955, p = 0,03), TII (r = 0,934, p = 0,006) and medium-sized enterprise performance show digital transformation significantly boosts management efficiency and stability. Conversely, digitalisation weakly or negatively affects small individual entrepreneurs, highlighting the need for tailored strategies amid ongoing global challenges and war escalation.
Conclusion: the results of the quantitative study confirm that digital transformation has a positive impact on the activities of small and medium-sized enterprises while requiring the adaptation of digitalisation strategies for individual entrepreneurs, as the analysis did not reveal a significant correlation between the performance of this group and the digital development indices.

Keywords: Adaptation; Business Environment; Competitiveness; Digitalisation; Innovative Technologies; Small and Medium-Sized Enterprises.

RESUMEN

Introducción: dados los beneficios de la digitalización, entre los que se incluyen la optimización de los procesos internos, el aumento de la productividad, la mejora de la participación de las partes interesadas y la adaptación a unas condiciones de mercado que cambian rápidamente, el análisis de la transformación

digital y su papel en la configuración de las estrategias de gestión empresarial es especialmente relevante.
Objetivo: el artículo pretende analizar el impacto de la transformación digital en la formación y aplicación de estrategias de gestión para pequeñas y medianas empresas.
Método: el artículo utiliza métodos científicos generales de cognición, en particular, métodos de síntesis, sistematización y generalización, para determinar el estado y las tendencias actuales en el desarrollo de las PYME. Para el análisis cuantitativo, el artículo utiliza el análisis estadístico de datos para recopilar, procesar y agrupar los datos iniciales; la previsión para identificar las tendencias en el rendimiento de las PYME; y el análisis de correlación para determinar el impacto de la digitalización en las actividades económicas de las PYME.
Resultados: la alta correlación positiva entre los índices EGDI (r = 0,965 a p = 0,002), OSI (r = 0,955 a p = 0,03), TII (r = 0,934 a p = 0,006), y los indicadores de rendimiento de las medianas empresas indica un impacto significativo de la transformación digital en la eficiencia de la gestión y la estabilidad operativa de las PYME. Sin embargo, en el caso de los pequeños empresarios individuales, la digitalización demuestra una relación débil o incluso negativa con su rendimiento, por lo que, en el contexto de los desafíos globales y la nueva escalada de la guerra, es necesario desarrollar estrategias de gestión y desarrollo más adaptadas en el marco de la transformación digital.
Conclusiones: los resultados del estudio cuantitativo confirman que la transformación digital tiene un impacto positivo en las actividades de las pequeñas y medianas empresas, al tiempo que requiere la adaptación de las estrategias de digitalización para los empresarios individuales, ya que el análisis no reveló una correlación significativa entre el rendimiento de este grupo y los índices de desarrollo digital.

Palabras clave: Digitalización; Pequeñas y Medianas Empresas; Tecnologías Innovadoras; Entorno Empresarial; Adaptación; Competitividad.

INTRODUCTION

Today, digital transformation drives global progress and defines a new reality where innovation, digital technologies and research are key factors in shaping competitiveness and sustainability at the government and business levels. In the context of increasing globalisation and the spread of technological progress, traditional approaches to management are changing, and digital innovations are becoming an integral part of business development strategies, particularly in small and medium-sized enterprises (SMEs).

Given the opportunities to introduce the latest digital technologies, which allows to optimise internal processes, increase productivity, improve interaction with stakeholders, and adapt to rapid changes in market conditions, it is important to explore the current state of digital transformation at the global level.[1,2]

To represent global trends in digitalisation, the Global Digitalisation Index (GDI) data on the digital development of 77 countries (which collectively represent 93 % of global GDP and cover 80 % of the world's population) was analysed. When considering these indicators, it is important to emphasise the level of digitalisation of the European Union (EU) member states, in particular, Sweden (74,5), Finland (73,0), and Denmark (71,8), which are part of the Frontrunners group. In contrast, the Adopters group includes Portugal (54,4), Spain (54,3), and Estonia (54,1). Another significant fact is that no European country is in the Starters group, which means there is no significant variation in the development of digital technologies in the European region.[3]

Although Ukraine was not represented in this year's GDI study, the country's digital transformation is relatively fast, as evidenced by the high scores of other global indices; in particular, in 2024, Ukraine ranks 1st in terms of e-participation (EPART = 1,0), 5th place in terms of the quality of online services (OSI = 0,98), 30th place in terms of e-government development (EGDI = 0,88) and 78th place in terms of the quality of telecommunications infrastructure (TII = 0,84) in the global ranking.[4]

Therefore, it is advisable to analyse the role of digital transformation in shaping the management strategies of small and medium-sized businesses, as well as the impact of digital technologies on the activities of these entities in Ukraine, given the priority of European integration and the growing challenges for this sector of the country's economy in the context of Russia's ongoing armed aggression.

This article aims to study the role of digital technologies in implementing management strategies for SMEs and the impact of the main factors of digital transformation on the economic activities of entities in this sector of the economy.

The intensification of the digital transformation process is significantly changing approaches to managing small and medium-sized enterprises (SMEs), requiring a rethinking of traditional management strategies and introducing new innovative approaches. The current scientific literature emphasises that digitalisation contributes to the creation of competitive advantages through the integration of technologies such as CRM systems,[5] ERP platforms,[6] big data analytical tools[7] and automation of production and business processes.[8,9]

By applying these innovative technologies, business representatives, in particular small and medium-sized businesses, can obtain helpful information, automate routine tasks, facilitate informed decision-making,[10] promote e-commerce,[11] improve e-governance,[12] as well as optimise key processes, reduce costs and adapt to rapid market changes.[13] In addition, Dziukevych[1] and Kyshakevych et al.[14] note that digital technologies allow businesses to gain competitive advantages, improve their products and services, and expand their markets.

In Ukraine, the consequences of Russia's ongoing armed aggression on the territory of Ukraine pose additional challenges to the implementation of management strategies for SMEs.[20,21] According to Gonchar et al.,[22] SMEs in wartime face serious challenges, including the unpredictability and volatility of the business environment, which makes it difficult to adapt to new conditions. Instead, Benmessaoud et al.[23] focus on problems such as reduced demand for goods, services or work and the suspension of contractors, suppliers and customers, destabilising SMEs. Gibadullin et al.[24] emphasise the negative impact of refugee mobilisation and migration abroad, which leads to the loss of skilled personnel and creates additional difficulties for businesses.

Mallett et al.[25] note that high regulatory pressure leads to an unfavourable regulatory climate that significantly hinders the functioning of SMEs. Instead, Breitkreutz et al.[26] draw attention to the rising cost of energy, in particular petroleum-based fuels, and the need to use more expensive fuels with improved environmental properties, which increases the financial burden on enterprises. Kryshtal[27] highlights the loss or damage to supply chains, leading to a lack of financial resources to support operations.

Thomas and Douglas[13] and Winanto[14] emphasise introducing new technologies and intensifying innovation to simplify routine operations in the digitalised world. However, this requires high-quality training of personnel capable of working with digital tools and, as noted by Semenets-Orlova et al.,[28] implies continuous improvement of educational services even in extreme conditions.

METHOD

Research Design

This study applies a mixed-method approach that combines qualitative and quantitative techniques to investigate the relationship between digital transformation and the performance of small and medium-sized enterprises (SMEs) in Ukraine.

Data Collection and Variables

Based on the statistical data analysis results, the impact of digital transformation on the functioning of small and medium-sized businesses was characterised. To form a comprehensive view of the problem under study, data were collected from open sources, including official statistics from the State Statistics Service of Ukraine (Ukrstat) and United Nations (UN) reports, which include several global indices that characterise the level of digitalisation of countries around the world. The analysis methodology is based on the use of correlation analysis to identify relationships between dependent and independent variables:

- The dependent variable (Y) of this analysis is the volume of products (goods and services) sold by medium-sized enterprises, small enterprises and individual entrepreneurs (table 1), which reflects the level of economic activity of enterprises in the small and medium-sized business sector.

Table 1. The initial data of the dependent variable of the correlation analysis

Period	Enterprises		Individual entrepreneurs	
	Medium	Small	Medium	Small
2014	1723151,5	705000,5	12742,7	276299,6
2015	2168764,8	937112,8	15612,0	381861,3
2016	2668695,7	1177385,2	14607,8	474596,8
2017	3296418	1482001	18538,2	585798,5
2018	3924059,6	1766150,4	29957,8	730797,2
2019	4168439,4	1839875,9	26044,7	858337,5
2020	4359362,1	2064120,7	25314,1	987112,2
2021	5900055,0	2576371,4	31795,7	1341223,0
2022	4906839,0	2101912,0	31774,5	55083,0
2023	5990514,3	2668866,3	42150,0	76377,8
2024*	6405834	2858992	41770,45	157784

Source: Ukrstat[29]
Note: * is the author's forecast

Conceptual and Exploratory Methods

In the course of the study, the following general scientific methods of cognition were employed: synthesis of literature sources was used to determine the optimal strategies for the development of small and medium-sized businesses in the context of digital transformation; the method of generalisation was applied to assess global trends in digital transformation; the method of systematisation was used to study the key aspects of the development of small and medium-sized enterprises in Ukraine in the context of digitalisation and internal uncertainty.

The FORECAST.ETS function of the analysis package in the Excel spreadsheet processor was used to forecast the sales volumes of SMEs (i.e., the dependent variable) for the next period.

- Independent changes (X) were selected by researching UN reports and searching for global data characterising the level of digitalisation. Based on the data processing results, the quantitative characteristics of Ukraine's progress in implementing digital technologies are the e-government development index, the e-participation index, the online services index, and the telecommunications infrastructure index, as shown in table 2.

Table 2. Initial data of independent variables of correlation analysis

Period	E-government development index	E-participation index	Online services index	Telecommunications infrastructure index
2014	0,50316	0,43137	0,26771	0,38016
2016	0,60756	0,74576	0,58696	0,39677
2018	0,6165	0,6854	0,5694	0,4364
2020	0,7119	0,8095	0,6824	0,5942
2022	0,8029	0,6023	0,8148	0,727
2024	0,88407	1	0,98536	0,84278

Source: United Nations[4]

Analytical Procedures

These indicators were selected because they are important for assessing the level of digital transformation in Ukraine's national context. The data were grouped and analysed using Pearson's Correlations function of the JASP statistical software to conduct a correlation analysis. The correlation analysis helpshelps establish the degree of correlation between digitalisation indicators and the quantitative characteristics of Ukrainian SMEs. The results allow for assessing digitalisation's impact on business entities' economic activity.

RESULTS

Today's business environment is characterised by the spread of globalisation and the intensification of digital transformation, which creates benefits, new challenges, and constraints for the development of the business sector, including SMEs. Given the growing competition, globalisation of markets, and rapid development of digital technologies, businesses in this segment are forced to adapt their management strategies to ensure competitiveness and sustainability.

The adoption of innovative digital technologies empowers small and medium-sized enterprises to access valuable analytical insights, automate routine operations, and enhance the quality of strategic decision-making. These tools also contribute to the development of e-commerce, strengthen digital governance frameworks, and enable the optimisation of core business processes.

It should be noted that these strategies are also highly effective in the face of uncertainty in the SME environment. Among the most pressing global challenges for SMEs are regulatory constraints, access to finance, market competition, and infrastructure deficit ,[15]; the impact of economic competition, lack of resources, low innovation potential,[16,17] outdated traditional business strategies,[18] as well as barriers to internationalisation of such enterprises and limited opportunities for implementing international strategies of SMEs as opposed to larger enterprises.[19]

In digitalisation, traditional management models cannot effectively respond to the challenges of a dynamic market environment, which requires rethinking approaches to strategic planning, optimising business processes and creating new sources of value.[18] In addition, introducing digital technologies into core business processes allows modern enterprises to improve products and services and increase competitiveness.[14]

As a result, enterprises can reduce operational costs, improve efficiency, and respond more effectively to dynamic market conditions. Additionally, digital transformation facilitates the creation of competitive advantages, improves product and service quality, and supports market expansion. Based on the analysis of the scientific literature, figure 1 presents the leading strategies and their key tasks for SME development in the

context of the spread of digital transformation.

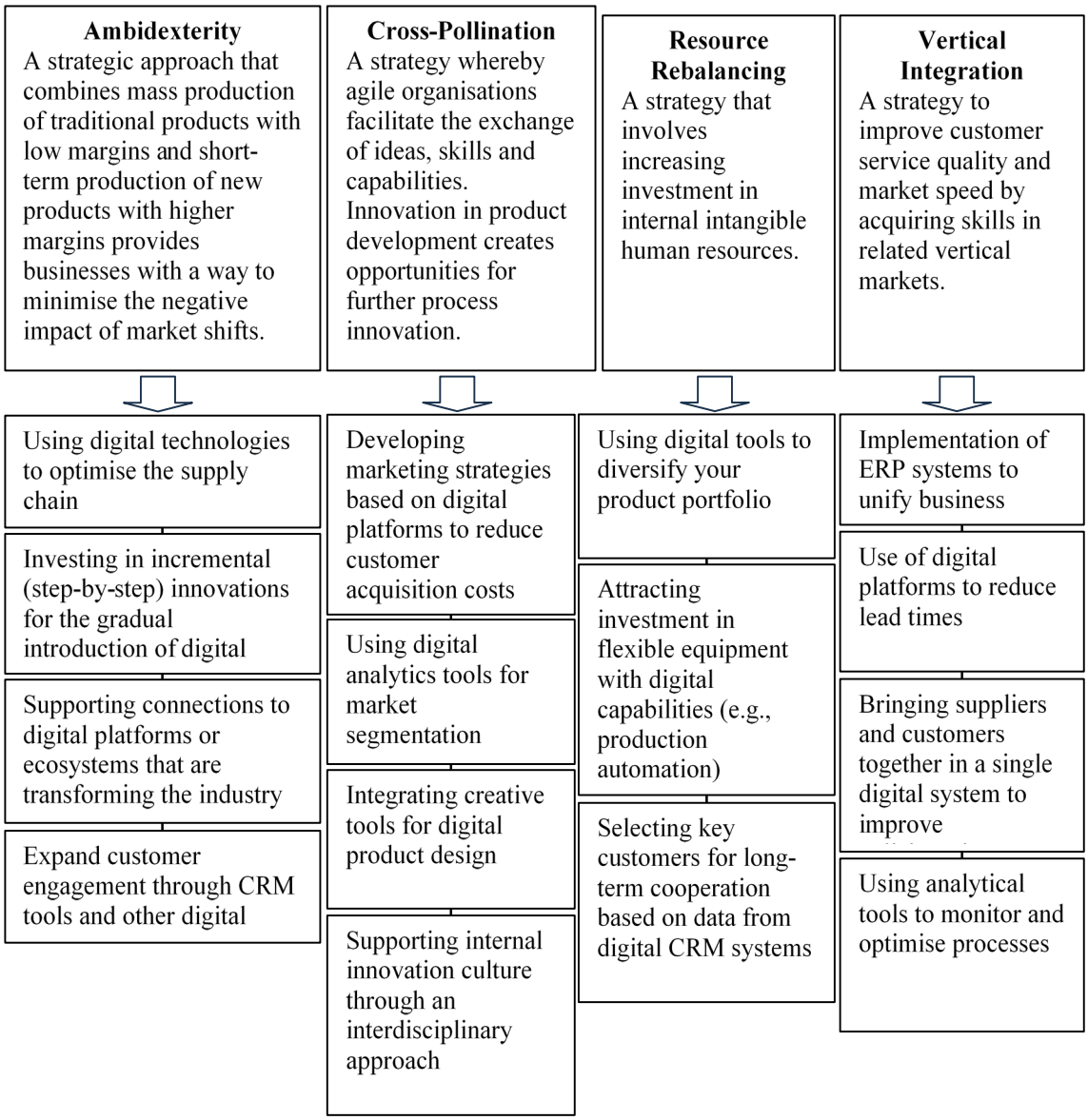


Figure 1. Optimal strategies for SME development in the context of digital transformation
Source: compiled by the author based on Chabalala et al.,[7] Stanislavyk et al.,[5] Thomas and Douglas,[13] Winanto[10] and Xuan et al.[8]

However, in Ukraine, which is experiencing both global challenges and the consequences of the external influence of hostilities on the part of Russia, the relevance of this transformation has become apparent. According to modern scholars, the current problems of digital transformation are the unpredictability of the business environment,[22] a decrease in demand for goods and services, [23] loss of qualified personnel,[24] unfavourable regulatory support,[25] rising energy costs,[26] damaged supply chains,[27] the need to introduce new technologies and train personnel to work with digital tools.[28]

During the COVID-19 pandemic, which has significantly intensified digitalisation on a global scale, a significant shift in the TII index by 26,56 % was recorded, while others showed a moderate upward trend (EGDI by 13,4 %; EPART by 15,33 %; OSI by 16,56 %). At the same time, Russia's further escalation of the war in Ukraine has become an additional factor for the introduction of innovative digital solutions aimed at ensuring business sustainability and adaptation to new conditions. In this context, the rapid growth of OSI during 2020-2024 (by 16,25 % and 17,31 %, respectively) indicates the importance of digital transformation as a tool for overcoming crises.

Agreeing with the importance of the above issues, it should also be noted that digital transformation is a key

element of the development of the modern economy, especially for small and medium-sized enterprises (SMEs), which make up a significant share of the national economy of Ukraine. The existing challenges and the dynamics of indicators characterising Ukraine's digitalisation level were analysed and shown in figure 2.

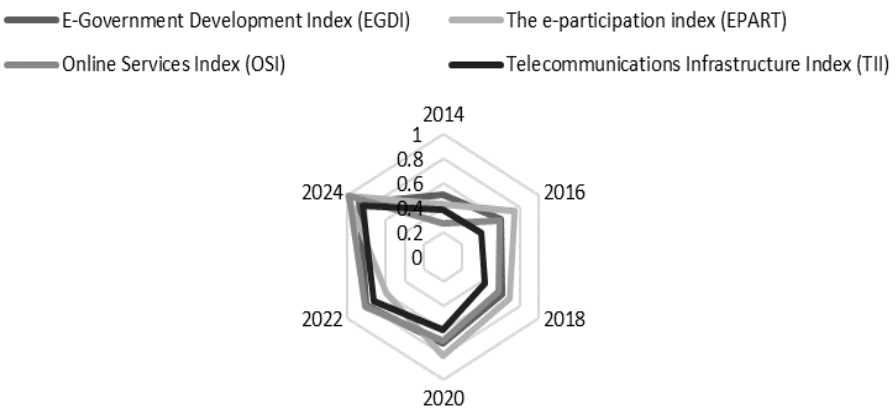
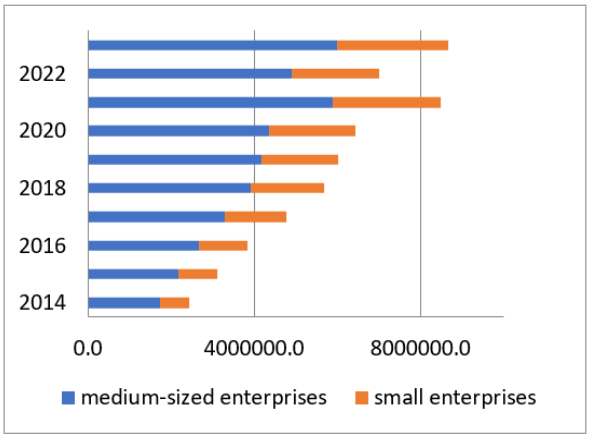
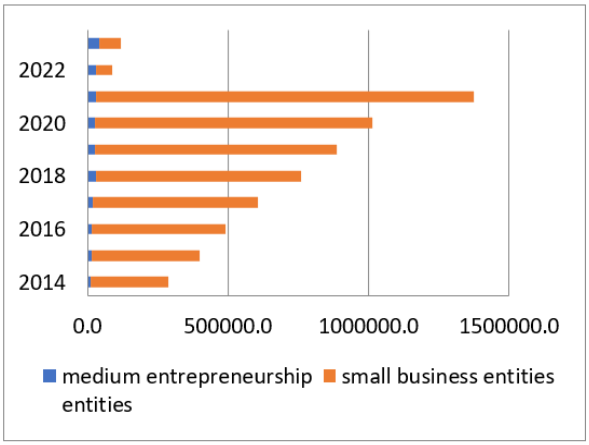


Figure 2. Indicators characterising the level of digitalisation in Ukraine
Source: United Nations[4]

Given the contradictory assumptions about the consequences of the spread and impact of digital transformation on the management strategies of SMEs, it is necessary to analyse the functioning of SMEs in Ukraine. For this purpose, we analysed trends in the volume of products (goods and services) SMEs sell. The data shown in figure 3 will be used to correlate further the impact of digital transformation on the performance of SMEs.



a) Volume of products sold by individual entrepreneurs, UAH million.



b) The volume of sales of the companies' products, UAH million.

Figure 3. Volume of products (goods and services) sold by SMEs in Ukraine in 2014-2023
Source: Ukrstat[29]

An analysis of the sales volume of small and medium-sized businesses in Ukraine over the past 10 years shows significant fluctuations caused by internal economic factors and external challenges to the country's economy. According to the table, until 2021, there was an upward trend in indicators, reflecting the gradual stabilisation of the economy, improvement of the business climate and active implementation of digital technologies.

As a result of Russia's full-scale war in 2022, the volume of sales of Ukrainian SMEs decreased significantly, especially among individual entrepreneurs. However, in 2023, there is a tendency for the indicator to recover, driven by strengthening business adaptation strategies, government support for SMEs, international financial assistance, and digital transformation. In particular, the government's practical measures to increase the development of e-government (↑ 9,18 %), e-participation (↑ 39,77 %), and online services (↑ 17,31 %) have become crucial to ensuring the resilience of businesses in the face of uncertainty.

To determine the degree of digital transformation's impact on SMEs' performance, a correlation analysis based on the above data is necessary. The correlation analysis presented in table 3 was conducted using the

JASP statistical software (Pearson's Correlations function).

Table 3. Results of the correlation analysis of the impact of digital transformation on the performance of SMEs

Correlation Pearson's Correlations Variable		e-Government Development Index (EGDI)	e-Participation index (EPART)	Online Services Index (OSI)	Telecommunications Infrastructure Index (TII)
Medium-sized enterprises (E1)	Pearson's r	0,965**	0,769	0,955**	0,934**
	p-value	0,002	0,074	0,003	0,006
Small enterprises (E2)	Pearson's r	0,950**	0,803	0,947**	0,913*
	p-value	0,004	0,055	0,004	0,011
Medium-sized individual entrepreneurs (E3)	Pearson's r	0,887*	0,669	0,872*	0,870*
	p-value	0,018	0,146	0,023	0,024
Small individual entrepreneurs (E4)	Pearson's r	-0,319	0,156	-0,237	-0,402
	p-value	0,538	0,768	0,651	0,429

Notes: * p < 0,05, ** p < 0,01, *** p < 0,001

The correlation analysis shows a high positive correlation between the development of digital infrastructure and SMEs' performance, confirming the importance of digital transformation for their development. In particular, the correlation between the e-governance index and the performance of medium-sized enterprises (r = 0,965 at p = 0,02) indicates that investments in digital governance contribute to more efficient management of enterprises.

These findings are consistent with the study by Soong et al., who also concluded that e-government transparency reduces operational risks for enterprises, including SMEs. In addition, a similar correlation (r = 0,950 at p= 0,04) highlights the importance of access to electronic services and digital infrastructure for small enterprises.

The correlation with the telecommunications infrastructure index is particularly significant for medium-sized enterprises (r = 0,934 at p= 0,006) and small enterprises (r = 0,913 at p= 0,011), indicating the importance of fast internet access and modern communications. In contrast, the weak or negative correlation observed among individual micro-entrepreneurs suggests a misalignment between existing digital frameworks and the specific needs or capacities of this segment.

DISCUSSION

The COVID-19 pandemic served as a powerful accelerator of global digital transformation, prompting a marked surge in digital infrastructure expansion, particularly reflected in the substantial increase of the TII indicator. In contrast, other indices demonstrated a more gradual but consistent upward movement, indicating broad-based digital progress. These results align with Klein and Todesco,[13] who argue that the COVID-19 pandemic has catalysed digital innovation, accelerating the transition of businesses, including SMEs, to online business, process automation, and e-commerce integration.

Simultaneously, the intensification of Russia's military aggression against Ukraine has further underscored the necessity for resilient digital strategies, pushing enterprises to adopt adaptive technologies capable of sustaining business continuity in highly volatile environments. In this regard, the notable upward shift in the OSI index between 2020 and 2024 highlights the strategic role of digital governance and open data systems in crisis mitigation and adaptive capacity building. Studies by other authors confirm that digitalisation ensures the resilience of SMEs in times of crisis and opens up new development opportunities. For example, according to Dziukevych,[1] Kyshakevych et al.,[14] Thomas and Douglas[13] and Xuan et al.,[8] the use of digital technologies allows SMEs to achieve higher levels of productivity, adapt more effectively to market changes, and integrate into global value chains.

The analysis of interdependencies reveals a strong and statistically significant association between the advancement of digital infrastructure and the operational effectiveness of small and medium-sized enterprises. This underscores the strategic relevance of digital transformation as a key enabler of enterprise development. Notably, the link between the e-governance index and the performance of medium-sized businesses suggests that enhancements in digital public administration facilitate more agile and transparent corporate governance. These findings are consistent with the study by Soong et al., who also concluded that e-government transparency reduces operational risks for enterprises, including SMEs. In addition, a similar correlation (r = 0,950 at p= 0,04) highlights the importance of access to electronic services and digital infrastructure for small enterprises. Tokmazashvili[20] also argues that digital services stimulate the development of small enterprises by reducing

administrative barriers.

The relationship is particularly pronounced with regard to telecommunications infrastructure, which appears to be a decisive factor for both medium (r = 0,934 at p= 0,006) and small (r = 0,913 at p= 0,011) enterprises in ensuring effective communication, cloud integration, and digital service adoption. Volkova et al. (2021) add that telecommunications infrastructure is critical for adopting cloud services and e-commerce. In contrast, the weak or adverse relationship with the indicators of small individual entrepreneurs (e.g., insignificant r = -0,319 for EGDI) indicates that digitalisation is not fully adapted to the specific needs of SMEs. In this context, Hansen-Addy et al.[18] also note that SMEs often face difficulties accessing digital tools due to limited financial resources.

CONCLUSIONS

In the current digital transformation environment, the efficacy of small and medium-sized enterprise management is directly influenced by the extent to which innovative technologies are integrated into strategic and operational processes. A new architecture of management models is established through the utilization of digital tools, including resource management platforms, customer analytics systems, and automated business process control modules. This architecture guarantees improved adaptability of enterprises to environmental changes, cost optimization, and the reinforcement of competitive positions.

In this context, the differentiation of digital integration strategies based on the scale of the business, industry specifics, and the degree of organizational maturity is of particular importance. This necessitates flexible approaches to building management solutions based on digital competencies and technological readiness.

In this context, the vertical integration strategy is particularly relevant for medium-sized enterprises, given their ability to quickly integrate telecommunications innovations into management processes. At the same time, small enterprises are more suited to resource rebalancing approaches that meet the identified challenges, particularly resource shortages and rising costs.

Thus, the results of the quantitative and qualitative analysis of the factors and aspects of the development of SME management strategies in the context of digital transformation emphasise the importance of adapting strategies to the specific conditions and capabilities of each segment of enterprises, especially in the face of uncertainty and economic competition.

REFERENCES

1. Dziukevych K. Current State of Digitalisation in EU Member States. Economic Space. 2024;189:91-97. https://doi.org/10.32782/2224-6282/189-17

2. Kormakova I, Kruhlyanko A, Peniuk V, Ursakii Y, Verstiak O. Actual Strategies for Businesses Penetrating Foreign Markets in the Modern Economy: Globalisation Aspect. International Journal of Professional Business Review. 2023;8(5):e02148. https://doi.org/10.26668/businessreview/2023.v8i5.2148

3. IDC (2024). Global Digitalization Index (GDI) 2024. Huawei Technologies Co., LTD, 1-52. https://www-file.huawei.com/-/media/corp2020/gdi/pdf/gdi-2024-en.pdf?la=en

4. United Nations. UN E-Government Survey 2024. UN E-Government Knoledgebase, 2024. https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/180-Ukraine.

5. Stanislavyk O, Kovalenko O, Badiul V. Management Tools for Information-Analytical Support of Digitisation of Innovative Development of Industrial Enterprises under Conditions of Global Transformations. Scientific Perspectives. Series: Economics. 2024;10(52):354-372. https://doi.org/10.52058/2708-7530-2024-10(52)-354-372

6. Tariq MU. Strategic Integration of Technological Advances in Modern Business Practices. Building Business Knowledge for Complex Modern Business Environments. 2025;95-120. https://doi.org/10.4018/979-8-3693-6447-5.ch004

7. Chabalala K, Boyana S, Kolisi L, Thango B, Lerato M. Digital technologies and channels for competitive advantage in SMEs: A systematic review. Preprints.org. 2024;1-61. http://doi.org/10.2139/ssrn.4977280

8. Xuan TG, Yanova O, Khaliev M. Digital business transformation: Impact of IT solutions on business processes and ecology. In BIO Web of Conferences. EDP Sciences. 2024;138:03015. https://doi.org/10.1051/bioconf/202413803015

9. Volkova N, Kuzmuk I, Oliinyk N, Klymenko I, Dankanych A. Development trends of the digital economy:

E-business, e-commerce. IJCSNS International Journal of Computer Science and Network Security. 2021;21(4):186-198. https://doi.org/10.22937/IJCSNS.2021.21.4.23

10. Winanto S. Synergising Information Technology and Business Management: Unlocking the Power of Integration. International Journal of Education, Information Technology, and Others. 2024;7(2):24-34. https://doi.org/10.5281/zenodo.10963411

11. Klein VB, Todesco JL. COVID-19 crisis and SMEs responses: The role of digital transformation. Knowledge and process management. 2021;28(2):117-133. https://doi.org/10.1002/kpm.1660

12. Soong KK, Ahmed EM, Tan KS. Factors influencing Malaysian small and medium enterprises' adoption of e-government procurement. Journal of Public Procurement. 2020;20(1):38-61. https://doi.org/10.1108/JOPP-09-2019-0066

13. Thomas GH, Douglas EJ. Small Firm Survival and Growth Strategies in a Disrupted Declining Industry. Journal of Small Business Strategy. 2021;31(5):22-37. https://doi.org/10.53703/001c.29814

14. Kyshakevych BYu, Demediuk BT, Sysiuk VI. Digitalisation of Small and Medium Businesses: Challenges and Prospects. Investments: Practice and Experience. 2024;2:82-87. https://doi.org/10.32702/2306-6814.2024.2.82

15. Hansen-Addy AE, Parrilli MD, Tingbani I. The impact of the regulatory business environment on SMEs' financing choices in developing countries: Evidence from Africa. International Journal of Finance Economics. 2024;1-20. https://doi.org/10.1002/ijfe.2951

16. Mer A, Virdi AS. Decoding the challenges and skill gaps in small and medium-sized enterprises in emerging economies: A review and research agenda. Contemporary Challenges in Social Science Management: Skills Gaps and Shortages in the Labour Market. 2024;112:115-134. https://doi.org/10.1108/S1569-37592024000112B007

17. Tokmazashvili M. Barriers to Digital Business and Challenges of Social Innovations in Georgia. In Digital Management in Covid-19 Pandemic and Post-Pandemic Times: Proceedings of the International Scientific-Practical Conference (ISPC 2021). Springer International Publishing. 2023;3-11. https://doi.org/10.1007/978-3-031-20148-6_1

18. Kuzmuk IYa, Osipova AA, Vyshniuk VV. Adaptation of business models to the requirements of the digital economy. Academic Visions. 2024;32:1-13. http://orcid.org/10.5281/zenodo.11447985

19. Owoade O, Oladimeji R. Empowering SMEs: Unveiling business analysis tactics in adapting to the digital era. Journal of Scientific and Engineering Research. 2024;11(5):113-123. http://surl.li/hqidot

20. Kruhlyanko A. Management of the hotel and restaurant business in wartime. Management of the development of the hospitality sector: regional aspect. In Proceedings of the International Scientific and Practical Online Conference, Chernivtsi, 5 May 2022 (pp. 62-65). Technodruk, 2022.

21. Kruhlyanko A. Adaptation of business strategies of Ukrainian business in the conditions of war: international experience. Bulletin of Chernivtsi Institute of Trade and Economics. 2024;1:51-64. http://doi.org/10.34025/2310-8185-2024-1.93.05

22. Gonchar O, Brych V, Moroz S, Bohatchyk L. Factors that Shape Business Efficiency in the Conditions of the War. In 2024 14th International Conference on Advanced Computer Information Technologies (ACIT). IEEE. 2024;365-369. https://doi.org/10.1109/ACIT62333.2024.10712593

23. Benmessaoud A, Saidat N, Elfekair A. Adopting environmental responsibility among Algerian SMEs in light of the challenges of sustainable development. International journal of economic perspectives. 2024;18(2):454-476. https://ijeponline.lingcure.org/index.php/journal/article/view/571.

24. Gibadullin O, Latynin M, Kosenko A, Fesak S. Analysis of Crisis Management Measures in the War Period as a Prerequisite for the Sustainable Development of Ukraine's Industry. Pressing Problems of Public Administration. 2024;1(64):125-150. https://doi.org/10.26565/1684-8489-2024-1-08

25. Mallett O, Wapshott R, Vorley T. How do regulations affect SMEs? A review of the qualitative evidence

and a research agenda. International Journal of Management Reviews. 2019;21(3):294-316. https://doi.org/10.1111/ijmr.12191

26. Breitkreutz F, Najmaei M, Fuchs O, Mansori S. Navigating Turbulence: Analysing Energy Prices, and Enterprise Value Dynamics in European SMEs. Journal of Insurance and Financial Management. 2023;7(7):69-95. http://surl.li/ryiflq

27. Kryshtal H. Role of Logistics in the Development of Agriculture of Ukraine in the War Conditions. Science and Innovation. 2024;19(2):73-82. https://doi.org/10.15407/scine19.02.073

28. Semenets-Orlova I, Kushnir V, Rodchenko L, Chernenko I, Druz O, Rudenko M. Organisational Development and Educational Changes Management in Public Sector (Case of Public Administration During War Time). International Journal of Professional Business Review. 2023;8(4):e01699. https://doi.org/10.26668/businessreview/2023.v8i4.1699

29. Ukrstat. Performance indicators of large, medium, small and micro-enterprises (2010-2023). State Statistics Service of Ukraine, 2023. https://www.ukrstat.gov.ua/operativ/menu/menu_u/sze_20.htm.

FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Andriy Kruhlyanko.
Data curation: Rostyslav Soroka.
Formal analysis: Tetiana Kravchenko.
Research: Rostyslav Soroka, Nadiia Vasylieva.
Methodology: Svitlana Korobka.
Project management: Tetiana Kravchenko.
Resources: Tetiana Kravchenko, Nadiia Vasylieva.
Software: Nadiia Vasylieva.
Supervision: Rostyslav Soroka.
Validation: Tetiana Kravchenko.
Display: Nadiia Vasylieva.
Drafting - original draft: Andriy Kruhlyanko, Svitlana Korobka.
Writing - proofreading and editing: Andriy Kruhlyanko, Svitlana Korobka.