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DIGITAL TRANSFORMATION OF SME BUSINESS PROCESSES IN THE CONTEXT OF POST-WAR RECONSTRUCTION

Abstract

The article examines the features of digital transformation of business processes of small and medium-sized enterprises (SMEs) in the context of post-war economic reconstruction. The relevance of the introduction of digital technologies as a key factor in ensuring the sustainability, adaptability and competitiveness of the business sector in conditions of increased uncertainty is substantiated. The essence of digital transformation is determined as a complex process that involves not only the automation of individual operations, but also a systemic change in business models, management approaches and organizational culture of enterprises.

The impact of post-war conditions on the functioning of SMEs is analyzed, in particular, the destruction of infrastructure, limited financial resources, the transformation of sales markets, disruption of logistics chains and personnel challenges. It is proven that these factors determine the need to transition to more flexible and digitally oriented business models. The main directions of digital transformation of SME business processes are identified, among which the development of e-commerce, the implementation of CRM and ERP systems, the use of digital marketing tools, as well as the automation of operational activities are of particular importance.

Special attention is paid to the identification of key barriers to digital transformation, including financial constraints, insufficient level of digital competence of personnel, cyber threats and the lack of a strategic approach to digitalization. It is emphasized that overcoming these obstacles requires a comprehensive approach that combines the development of human capital, attracting investments, the introduction of modern technologies and the formation of an effective state policy to support SMEs.

The study concluded that digital transformation is not only a tool for increasing the efficiency of enterprises, but also an important prerequisite for their restoration and sustainable development in the post-war period. The practical significance of the results obtained lies in the possibility of their use for the formation of strategies for the digital development of SMEs, as well as the improvement of mechanisms for state and international support for the business sector.

Key words: digital transformation, SMEs, business processes, post-war reconstruction, digitalization, competitiveness.

Problem statement. In the current conditions of post-war reconstruction of the Ukrainian economy, ensuring the sustainable functioning and development of small and medium-sized enterprises (SMEs) is of particular importance, as they form the basis of the national economy, contribute to employment and the restoration of business activity in the regions. As a result of military actions, a significant part of enterprises was destroyed, lost production facilities, logistical connections and sales markets, which significantly complicated their economic activities.

Under such conditions, the digital transformation of business processes appears not only as a tool for increasing efficiency, but also as a necessary prerequisite for the adaptation of SMEs to new economic realities. The

introduction of digital technologies allows enterprises to optimize operational processes, ensure business continuity, improve the level of management decisions and expand access to domestic and foreign markets. At the same time, the level of digital maturity of a significant part of SMEs remains insufficient, which is due to limited financial resources, a shortage of qualified personnel, a low level of digital literacy and the lack of a systematic approach to the implementation of innovations. The post-war period is characterized by increased risks related to cybersecurity, infrastructure instability, and the need to quickly restore business processes in new economic conditions. This requires the development of effective digital transformation mechanisms adapted to the specifics of SMEs, as well as coordination with the state policy of economic reconstruction.

Research analysis. The issue of digital transformation of business processes of enterprises, in particular small and medium-sized ones, is the subject of active scientific research in the works of foreign scientists and international organizations. In modern scientific literature, digital transformation is considered as a complex process of profound changes in the activities of enterprises, covering both technological and organizational aspects.

In particular, in the study of Verhoef P. C. and co-authors, digital transformation is defined as a multidimensional process that includes changes in business models, customer experience and operational activities of enterprises, and also forms new directions of scientific research in this area [1]. In the work of Kraus S., attention is focused on the cross-sectoral nature of digital transformation and its importance for increasing the efficiency of the functioning of organizations, in particular through the integration of innovative technologies [2].

A significant contribution to the study of digital transformation in crisis and post-war economies has been made by international organizations. In particular, the OECD emphasizes the role of digital technologies in increasing business resilience and restoring the Ukrainian economy, emphasizing the need to support

SMEs in the process of digitalization [3]. The World Bank focuses on the opportunities of digital development as an important tool for the post-war reconstruction of economies that have suffered significant losses [4]. In turn, the European Commission identifies digital transformation as one of the key priorities for the development of SMEs in Europe [5].

Analytical reports by the International Monetary Fund and McKinsey & Company emphasize the importance of digitalization as a factor in economic recovery, increasing productivity and ensuring the competitiveness of enterprises in modern conditions [6; 7].

The theoretical aspects of digital transformation are thoroughly disclosed in the work of Vial G., which systematizes approaches to understanding this phenomenon and identifies key areas for further research [8]. The study by Li L. et al. focuses on the role of entrepreneurial abilities and organizational competencies in the process of digital transformation of SMEs [9]. At the same time, Nambisan S. emphasizes the impact of digital technologies on the development of innovation and entrepreneurship in general [10].

The purpose of the article is to study the features of digital transformation of business processes of small and medium-sized enterprises in the conditions of post-war economic reconstruction, determine key areas of its implementation, identify major barriers, and substantiate effective mechanisms for supporting the digitalization of SMEs in order to ensure their sustainable development and increase competitiveness.

Presentation of results. Digital transformation of business processes of small and medium-sized enterprises in modern conditions is gaining decisive importance, especially in the context of post-war economic reconstruction. It acts as a key tool for increasing the efficiency of enterprises, ensuring their flexibility, adaptability and competitiveness in conditions of dynamic changes in the external environment. Due to the need for rapid restoration of economic activity and

integration into global markets, the introduction of digital technologies into the business processes of SMEs is becoming a leading condition for their sustainable development. This necessitates a detailed analysis of current trends, tools and results of digital transformation in this area.

The essence of digital transformation of small and medium-sized enterprises lies in a comprehensive rethinking of business processes, management models and interaction with the external environment based on the widespread introduction of modern digital technologies. Unlike digitalization, which involves converting information into digital form, and automation aimed at optimizing individual operations using technical means, digital transformation encompasses systemic changes in the functioning of an enterprise, including the transformation of the organizational structure, corporate culture and strategic approaches to doing business. For SMEs, digital transformation is an important factor in increasing competitiveness, as it contributes to reducing costs, increasing labor productivity, improving the quality of management decisions and expanding opportunities for entering new markets. The use of digital tools allows enterprises to respond more flexibly to changes in the external environment, adapt to crisis conditions and ensure the sustainability of economic activity, which is especially relevant in the context of post-war economic reconstruction [1;2].

In the post-war period, the functioning of small and medium-sized enterprises takes place in conditions of increased uncertainty and systemic economic transformations. The destruction of production, transport and energy infrastructure, the loss of part of sales markets, disruption of logistics chains and limited access to financial resources significantly complicate the economic activities of SMEs. At the same time, the structure of demand is changing, the importance of business flexibility and the ability to quickly adapt to new conditions is increasing. In such circumstances, enterprises are forced not only to

restore lost positions, but also to reorient their activities, which strengthens the role of innovative and digital solutions (Table 1).

Table 1

The main challenges of SME functioning in post-war conditions

Challenge	Nature of the Problem	Impact on SMEs	Possible Adaptation Strategies
Infrastructure destruction	Damage to production facilities, energy systems, and transport networks	Decrease in production capacity, operational disruptions	Business relocation, use of cloud technologies
Limited financial resources	Loss of capital, restricted access to financing	Reduced investments, risk of bankruptcy	Grants, state support, international funding programs
Market transformation	Loss of traditional customers and partners	Decline in revenues, need to find new markets	Entry into online markets, export orientation
Disrupted logistics	Complicated transportation and supply chains	Delivery delays, increased costs	Supplier diversification, localization of production
Workforce challenges	Migration, shortage of skilled labor	Decreased productivity	Remote work, staff retraining and upskilling

Source: compiled by the author based on [3;4]

The main feature of the functioning of SMEs in post-war conditions is the need to transition from traditional business models to more flexible and adaptive ones. In conditions of limited resources, it is the speed of decision-making and the ability to integrate digital tools that become the determining factors for the survival of enterprises. Post-war reconstruction creates new opportunities for the development of SMEs, in particular through the attraction of international assistance, participation in recovery programs and integration into global economic processes. This creates the prerequisites not only for recovery, but also for the qualitative modernization of the business sector. The challenges of the post-war period simultaneously act as a catalyst for change, stimulating SMEs to introduce innovations and digital transformation as the basis for long-term competitiveness. In modern conditions of economic development and post-war reconstruction, digital transformation acts as a tool for increasing the efficiency of

small and medium-sized enterprises. The introduction of modern digital technologies allows you to optimize business processes, reduce operating costs, improve the quality of customer service and ensure competitiveness in domestic and foreign markets. For SMEs, the gradual implementation of digital solutions that cover both operational activities and management processes, marketing and customer interaction is especially valuable. The main areas of such transformation are the development of e-commerce, the use of CRM and ERP systems, the implementation of digital marketing tools and the automation of operational processes (Table 2).

Table 2

Key Directions of Digital Transformation of SME Business Processes

Direction	Description	Benefits for SMEs	Examples of Application
E-commerce	Digital channels for online sales and customer interaction	Entry into new markets, increased sales flexibility	Online stores, international marketplaces
CRM systems	Tools for managing customer data and interactions	Improved customer retention, data-driven decision-making	Sales tracking, customer analytics
ERP systems	Systems integrating core business functions into a unified platform	Process transparency, efficient resource allocation	Financial planning, supply chain management
Digital marketing	Use of online tools for brand promotion and communication	Targeted audience reach, measurable performance	Social media campaigns, search engine marketing
Process automation	Implementation of technologies to streamline routine operations	Cost reduction, increased operational speed	Workflow automation, electronic document management

Source: compiled by the author based on [5;6]

In our opinion, the digital transformation of SME business processes should be carried out comprehensively and in stages, taking into account the specifics of the enterprise's activities and available resources. The most accessible and fastest direction for implementation is e-commerce and digital marketing, which allow you to quickly enter new markets without significant capital investments. At the

same time, the implementation of CRM and ERP systems provides a long-term effect, contributing to improving the quality of management and transparency of business processes. Special attention is required for the automation of operational processes, which allows you to significantly reduce costs and increase labor productivity in conditions of a shortage of human resources. At the same time, the effectiveness of digital transformation largely depends on the level of digital competence of personnel and the readiness of management to implement innovations.

In the process of digital transformation, small and medium-sized enterprises face a number of systemic obstacles that significantly slow down or make it impossible to effectively implement modern technologies. In the context of post-war reconstruction, these barriers are exacerbated by general economic instability, limited resources, and the need to quickly resume economic activity. Despite the obvious advantages of digitalization, a significant part of SMEs does not have sufficient potential for its full implementation, which causes uneven digital development of the business sector. One of the key problems is financial constraints, since the implementation of digital solutions requires investments in software, infrastructure, and personnel training. For many SMEs, such costs are critical, especially in conditions of declining incomes. At the same time, an insufficient level of digital competence of employees and managers remains a significant barrier, which complicates the effective use of even available technologies. An equally important problem is the growth of cyber threats that accompany the digitalization of business. The lack of proper cyber protection mechanisms increases the risks of data loss, financial resources and reputational damage. In addition, a significant part of enterprises does not have a clearly formulated digital transformation strategy, which leads to fragmented implementation of technologies without a systemic effect (Table 3).

Table 3

Key Barriers to Digital Transformation of SMEs

Barrier	Description	Impact on SMEs	Possible Solutions
Financial constraints	High costs of digital technologies and implementation	Delayed or limited adoption of digital solutions	Grants, government support, phased implementation
Low digital competence	Insufficient digital skills among employees and managers	Inefficient use of technologies	Training programs, upskilling and reskilling
Cybersecurity risks	Threats of cyberattacks, data breaches, and fraud	Financial losses, reputational damage	Implementation of cybersecurity systems and policies
Lack of strategy	Absence of a clear digital transformation roadmap	Fragmented and ineffective digital initiatives	Development of a comprehensive digital strategy
Technological limitations	Limited access to modern IT infrastructure	Difficulties in adopting advanced technologies	Use of cloud solutions and digital platforms

Source: compiled by the author based on [7;8]

In our opinion, the main problem of digital transformation of SMEs is not only limited resources, but also the lack of a holistic vision of its implementation. Many enterprises perceive digitalization as a one-time implementation of individual technologies, rather than as a strategic process that requires a comprehensive approach. This leads to fragmentation of changes and failure to obtain potential benefits. In post-war conditions, the role of human capital is significantly increasing. It is the level of personnel training that determines the effectiveness of using digital tools. Investments in training and development of digital competencies should be considered a priority area of SME development. Separately, it is necessary to emphasize the importance of cybersecurity, which is often underestimated by small businesses. In the modern digital environment, data protection becomes a critically necessary element of business stability, especially in conditions of increased risks.

In the post-war period of economic recovery in Ukraine, the formation of effective mechanisms to support the digital transformation of small and medium-

sized enterprises is of particular importance. SMEs are the most flexible segment of the economy, capable of quickly adapting to new business conditions, but at the same time they remain the most vulnerable to financial, technological and institutional constraints. In this context, digitalization is not only a tool for increasing efficiency, but also a key factor in ensuring business sustainability, its integration into global economic processes and accelerating post-war reconstruction. Effective digital transformation of SMEs requires comprehensive support, including state policy, attracting international assistance, investment mechanisms, as well as the development of educational initiatives. The interaction of these elements forms the basis for creating a favorable digital environment capable of ensuring the long-term development of the business sector (Table 4).

Table 4

Main mechanisms to support the digital transformation of SMEs

Support Area	Mechanism Description	Expected Impact
Government Policy	Development of digitalization strategies, tax incentives, grant programs, digital platforms	Increase in the digital maturity of SMEs, stimulation of innovation
International Assistance	Grants, technical support, participation in international programs	Access to resources, advanced technologies, and expertise
Investment	Attraction of private capital, venture financing, public-private partnerships	Expansion of opportunities for implementing digital solutions
Educational Programs	Training in digital skills, professional development of personnel	Growth of digital competencies and management efficiency
Infrastructure Support	Development of internet networks, cloud services, cybersecurity systems	Ensuring stable functioning of digital processes

Source: compiled by the author based on [9;10]

Analysis of current trends shows that the key prerequisite for successful digital transformation of SMEs is the coordination of actions between the state, business and international partners. In the conditions of post-war reconstruction, it is the state that must fulfill the role of coordinator of digital changes, forming a favorable regulatory environment and ensuring access to financial resources. At

the same time, excessive regulation or fragmentation of policies can significantly slow down digitalization processes.

One of the most promising areas is the development of digital ecosystems that unite business, government services and educational platforms into a single environment. This will allow SMEs to receive comprehensive support - from training to the implementation of specific technological solutions. The development of e-government and the integration of business into digital government services is especially important, which significantly reduces administrative barriers. International assistance plays a significant role, which not only provides financial support, but also promotes the transfer of knowledge and technology. However, the effectiveness of using such resources depends on the ability of SMEs to adapt to them, which once again emphasizes the importance of educational programs.

Separate attention should be paid to the investment component. In the post-war period, investors will focus on projects with a high level of digitalization, since it is such businesses that demonstrate greater stability and scalability potential. This means that digital transformation actually becomes not only a development tool, but also a condition for attracting capital.

At the same time, there are significant risks, including digital inequality between enterprises, insufficient cybersecurity, and dependence on external technologies. In this regard, it is advisable to form a national strategy for the development of digital independence, which will provide for support for our own technological solutions and innovations.

Conclusions. As a result of the study, it was found that the digital transformation of business processes of small and medium-sized enterprises is a key factor in their sustainability, adaptability and competitiveness in the conditions of post-war economic reconstruction. It was determined that the introduction of digital technologies contributes to the optimization of operational

activities, increasing management efficiency, expanding sales markets and ensuring business flexibility in conditions of uncertainty. It is substantiated that the functioning of SMEs in the post-war period is accompanied by significant challenges, in particular, the destruction of infrastructure, limited financial resources, the transformation of markets, disruption of logistical connections and a shortage of labor resources. In these conditions, digitalization is not only a development tool, but also a necessary prerequisite for the restoration of economic activity.

It is proven that the key areas of digital transformation of SMEs are the development of e-commerce, the implementation of CRM and ERP systems, the use of digital marketing and automation of business processes. At the same time, it was found that the effectiveness of digitalization is constrained by a number of barriers, the main of which are financial constraints, insufficient level of digital competencies, cybersecurity risks and the lack of a systematic approach to the implementation of innovations. It was determined that ensuring effective digital transformation of SMEs requires comprehensive support, which includes the formation of effective state policy, attracting international assistance, development of investment mechanisms and implementation of educational programs. Of particular importance is the development of digital ecosystems and the integration of enterprises into digital platforms, which contributes to the reduction of administrative barriers and increasing the efficiency of business processes.

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