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Impact of digital transformation on business competitiveness

Abstract. The rapid development of digital technologies fundamentally transforms business models, management practices, and competitive mechanisms of enterprises in the digital economy. Digital transformation creates new opportunities for enhancing operational efficiency, innovation capacity, and adaptability of enterprises operating under conditions of market volatility and economic uncertainty. In contemporary economic environments, digital transformation becomes a key driver of sustainable competitiveness and long-term business development.

Problem statement. Despite the widespread adoption of digital technologies, enterprises often face significant challenges in implementing comprehensive digital transformation strategies. Fragmentary use of digital tools, limited resources, resistance to organizational change, and insufficient understanding of how digital technologies influence business models and competitiveness reduce the effectiveness of transformation initiatives.

Unresolved aspects of the problem. Although digital transformation is actively studied in academic literature, there is still a lack of integrated approaches to assessing its impact on enterprise competitiveness. Insufficiently explored remain the interrelations between digital technologies, digital maturity, managerial practices, and sustainable competitive advantages, particularly in the context of emerging and transition economies.

Purpose of the article. The purpose of the study is to substantiate the impact of digital transformation on business competitiveness and to identify key technological and managerial factors that contribute to increasing enterprise efficiency in the digital environment.

Presentation of the main material. The research is based on a comprehensive approach combining the analysis of scientific sources, comparative analysis, and systematic generalization. The article examines the role of digital technologies, digital maturity, business model transformation, and human capital in shaping enterprise competitiveness. The study systematizes key components of digital transformation and identifies their influence on operational performance, innovation activity, and competitive positioning of enterprises.

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Conclusions. Digital transformation is confirmed as a complex and multidimensional process that generates competitive advantages through cumulative effects, including improved efficiency, enhanced decision-making quality, increased customer orientation, and accelerated innovation processes. The research results can be used to improve strategic management practices, develop effective digital transformation strategies, and strengthen enterprise competitiveness in dynamic economic conditions.

Keywords: *digital transformation, enterprise competitiveness, digital technologies, digital maturity, innovation, business models, management efficiency.*

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JEL Classification: M21, O33, L25, M15.

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Introduction. The accelerating development of digital technologies has become one of the defining features of contemporary economic systems, fundamentally transforming the ways enterprises operate, compete, and create value. Digital solutions such as big data analytics, artificial intelligence, cloud computing, platform technologies, and automation tools increasingly determine the strategic positioning of firms in both global and national markets. As a result, digital transformation has evolved from a technological trend into a critical factor of long-term business sustainability and competitiveness.

In modern economic conditions characterized by high uncertainty, rapid market changes, and intensified competition, enterprises are forced to continuously adapt their business models and management practices. Traditional sources of competitive advantage, including cost leadership, scale effects, and access to resources, are gradually losing their dominant role. Instead, the ability to effectively integrate digital technologies into core business processes, decision-making systems, and customer interactions is becoming a decisive determinant of competitive success. Digital transformation enables enterprises to increase operational efficiency, enhance innovation capacity, improve responsiveness to market dynamics, and create new forms of customer value.

At the same time, despite the widespread adoption of digital technologies, enterprises often face significant challenges in implementing digital transformation initiatives. These challenges include difficulties in selecting appropriate technologies, limited financial and human resources, resistance to organizational change, and insufficient strategic understanding of how digitalization reshapes business models and competitive mechanisms. As a consequence, many enterprises implement digital tools in a fragmented manner, without achieving the expected competitiveness gains.

The academic discourse reflects a growing interest in digital transformation; however, existing studies demonstrate a high degree of conceptual diversity and methodological fragmentation. While numerous researchers emphasize the strategic nature of digital transformation, there remains a lack of consensus regarding the mechanisms through which digital technologies translate into sustainable competitive advantages. Moreover, empirical evidence on the quantitative and qualitative impact of digital transformation on enterprise competitiveness remains uneven, particularly in the context of emerging and transition economies.

This issue is especially relevant for Ukrainian enterprises operating under conditions of economic instability, structural transformations, and limited access to investment resources. In such an environment, digital transformation is not only a tool for efficiency improvement but also a potential mechanism for strengthening market positions, increasing resilience, and integrating into global value chains. However, the specific technological and managerial factors that most significantly influence competitiveness in the digital environment require further systematic investigation.

Against this background, the present study focuses on analyzing digital transformation as a comprehensive driver of business competitiveness. The research aims to bridge the gap between

theoretical conceptualizations and practical implementation by identifying key digital technologies, organizational factors, and management approaches that determine the effectiveness of digital transformation initiatives. By synthesizing international and domestic research findings and analyzing practical business experience, the study contributes to a deeper understanding of how digital transformation shapes enterprise competitiveness in the contemporary digital economy.

Literature review. Digital transformation has become one of the most extensively discussed phenomena in contemporary economic and management research, reflecting profound changes in business models, competitive dynamics, and value creation mechanisms. Scientific discourse emphasizes that digital transformation goes far beyond the mere adoption of digital tools and technologies, representing a comprehensive strategic shift that affects organizational structures, managerial practices, corporate culture, and interactions with stakeholders.

A significant body of research conceptualizes digital transformation as a systemic and long-term process aimed at integrating digital technologies into all areas of business activity in order to enhance efficiency, adaptability, and competitiveness. Digital transformation is defined as a fundamental rethinking of how organizations use technology to create value and respond to rapidly changing market conditions [19]. Similar approaches highlight that transformation requires the reconfiguration of organizational capabilities, processes, and strategies rather than the implementation of isolated technological solutions [8].

Several scholars underline the multidimensional nature of digital transformation, combining technological, organizational, and strategic components. A multidisciplinary perspective emphasizes the need for alignment between digital technologies, business strategy, and organizational culture to ensure sustainable transformation outcomes [22]. Systematic reviews of existing research further identify digital transformation as a key driver of organizational renewal and competitive positioning in the digital economy [23].

An important strand of the literature focuses on the relationship between digital transformation and enterprise competitiveness. Empirical studies demonstrate that firms actively implementing digital technologies tend to achieve higher productivity, improved operational efficiency, and stronger market performance. Evidence from Chinese listed companies indicates that digital transformation positively affects firm performance through enhanced innovation capacity and organizational efficiency [2]. Similar conclusions are drawn from studies of European enterprises, which confirm that digital transformation strengthens adaptability and resilience in competitive environments [24].

Research also highlights that digital transformation enables the emergence of new business models and new sources of competitive advantage. The adoption of technologies such as big data analytics, artificial intelligence, cloud computing, and digital platforms facilitates the transition from traditional production-oriented models to platform-based and data-driven models of value creation [18, 23]. These transformations allow enterprises to personalize customer offerings, optimize internal processes, and respond more effectively to market volatility.

In the context of competitiveness assessment, traditional approaches based primarily on financial indicators are increasingly complemented by digital metrics. Scholars argue that classical methods do not fully capture the technological and innovative potential of enterprises operating in digital environments [1]. As a result, researchers propose the use of digital indicators, digital maturity models, and innovation-related metrics to provide a more comprehensive assessment of enterprise competitiveness [17, 20].

Ukrainian researchers actively contribute to the analysis of digital transformation processes at both enterprise and sectoral levels. Studies emphasize that digitalization significantly improves management efficiency, reduces operational costs, and enhances customer experience under conditions of economic instability and market turbulence [3, 11]. Empirical evidence confirms that digital transformation acts as a key factor in strengthening the competitiveness of Ukrainian enterprises through automation, platform solutions, and data-driven decision-making [5, 6].

Another important aspect emphasized in the literature is the role of digital culture and human capital in ensuring successful digital transformation. Researchers note that technological investments alone are insufficient without the development of digital competencies, openness to innovation, and a data-oriented management mindset among employees [14, 15]. Enterprises characterized by a strong digital culture demonstrate higher adaptability, accelerated innovation processes, and more effective use of digital resources.

Despite the growing number of empirical and conceptual studies, several unresolved issues remain. In particular, there is a lack of integrated approaches that simultaneously consider technological, managerial, and organizational factors influencing enterprise competitiveness in the digital environment. Moreover, the mechanisms through which digital transformation generates sustainable competitive advantages, especially in transition economies, remain insufficiently explored. These gaps indicate the need for further systematic research on digital transformation as a comprehensive driver of business competitiveness.

Purpose, objectives and research methods. Despite the widespread adoption of digital technologies in business practice, the quantitative and qualitative impact of digital transformation on enterprise competitiveness remains insufficiently systematized and empirically substantiated. Enterprises face a number of challenges related to the selection of appropriate digital technologies, limited financial and human resources, resistance to organizational change, and an incomplete understanding of how digitalization reshapes business models and value creation processes. These circumstances determine the need for a comprehensive analysis of existing approaches and for identifying the technological and managerial factors that most significantly influence the formation of competitive advantages in the digital environment.

The purpose of this article is to substantiate the impact of digital transformation on business competitiveness and to identify key technological and managerial factors that contribute to increasing enterprise efficiency in the digital economy.

To achieve this purpose, the following research objectives are defined:

- to analyze the essence of the concept of digital transformation and its role in modern business development;
- to examine current approaches to assessing enterprise competitiveness in the context of digitalization;
- to identify key digital technologies that influence the formation and development of competitive advantages;
- to analyze practical experience in the implementation of digital solutions in enterprise business processes;
- to determine prospects for further digital transformation of enterprises and its impact on competitiveness.

The research methodology is based on a combination of general scientific and special research methods. Methods of analysis and synthesis are applied to systematize existing theoretical approaches to digital transformation and enterprise competitiveness. Comparative analysis is used to assess the impact of digital technologies on business activities and competitive performance. Logical generalization is employed to formulate grounded conclusions and recommendations. A systematic approach makes it possible to consider digital transformation as a complex, multidimensional process encompassing key areas of enterprise activity, including technology, management, organizational structure, and business processes.

Research results. In scientific literature, the concept of “digital transformation” is interpreted as a strategic and comprehensive process of changing a company's activities under the influence of digital technologies in order to increase its efficiency, innovation, and competitiveness. Researchers emphasize that digital transformation is not limited to the introduction of individual digital tools, but involves a review of business processes, management models, corporate culture, and interaction with stakeholders [18, 20].

Digital transformation is defined as a profound change in the logic of value creation through the integration of cloud services, big data, AI, and digital platforms [24]. It contributes to increased productivity, technological renewal, and the creation of new opportunities for the development of small and medium-sized businesses in the face of global competition. In contemporary scientific discourse, digital transformation is seen as a strategy for adapting a company to the digital economy [13].

Digital transformation differs from both digitalization and automation in terms of content, scale, and implementation results.

Automation involves replacing or optimizing individual operational functions using technical means and software, focusing primarily on increasing the speed and accuracy of routine processes [9].

Digitalization involves the gradual introduction of digital technologies into various aspects of a company's activities, document flow, communications, marketing, and accounting, and provides improved access to data and increased operational efficiency. Digital transformation, on the other hand, encompasses strategic changes that alter the business model, management structure, value propositions, customer interaction channels, and production organization principles. It involves the formation of a new logic for enterprise development based on data, innovation, and the digital competencies of personnel. Digital transformation is a more profound and comprehensive process compared to digitization and automation [23].

The main differences between automation, digitization, and digital transformation are presented in Table 1, which allows us to clearly understand the scale and strategic importance of each process [9, 23].

Table 1. The difference between digital transformation and digitization and automation

Parameter	Automation	Digitalization	Digital transformation
Goal	Optimization of routine processes	Introduction of digital technologies into business processes	Strategic changes in business model and management
Scale of implementation	Local, individual operations	Broader, individual functions or departments	Comprehensive, covering all areas of the enterprise's activities
Result	Improved accuracy and speed of processes	Improved efficiency and access to data	Formation of competitive advantages and new sources of value
Technological tools	Software, robots, sensors	Accounting systems, CRM, ERP, electronic documents	Cloud services, big data, AI, digital platforms
Impact on organizational culture	Minimal	Moderate	Profound, requiring the development of digital competencies and a culture of innovation

Source: complied by the authors

As can be seen from the comparison, automation focuses on optimizing individual routine operations, digitization extends the use of technology to individual functions or departments, while digital transformation covers all areas of a company's activities and involves comprehensive changes to the business model, management structure, and corporate culture. In addition, digital transformation has a significant impact on the formation of new sources of value and competitive advantages, requiring the development of digital competencies of personnel and a culture of innovation, while automation and digitalization have a limited impact on organizational culture.

A comparative analysis shows that digital transformation is a strategic, complex, and long-term process that goes beyond the technical implementation of technologies.

Digital transformation has a significant impact on the formation of new business models based on the use of technologies to generate added value and increase the adaptability of an

enterprise. The use of big data analytics, the Internet of Things, artificial intelligence, and digital platforms allows companies to move from traditional models to service-oriented, platform-based, product-service, or subscription-based business models. As a result, sources of revenue, cost structures, customer engagement methods, and ways of creating competitive advantages are changing. Enterprises gain the ability to create personalized offers, optimize supply chains, implement flexible management models, and make operational decisions based on data [11].

Digital transformation creates conditions for innovative business development, accelerates its response to market changes, and ensures a stable competitive position.

Digital culture and digital competencies of personnel are key factors for the successful implementation of digital transformation. Digital culture implies the readiness of employees for innovation, openness to technological changes, support for flexible working methods, and a data-driven approach to management decisions [15].

A high level of digital competencies, such as working with information systems, data analytics, cyber hygiene, and the use of communication tools, ensures the effective use of a company's digital resources [4].

Scientific research shows that enterprises with a developed digital culture demonstrate higher adaptability, implement innovations faster, and use technological opportunities more effectively to increase productivity. On the other hand, insufficient digital skills among staff often become a barrier to successful transformation, limiting the scale of digital solutions implementation and reducing the economic return on investment in digitalization. The development of digital culture and competencies is a strategic condition for the formation of a digitally mature enterprise [16].

The competitiveness of a company is traditionally assessed using indicators that reflect economic efficiency, market position, and the ability to generate added value. The most common methods include financial and economic analysis, market share comparison, resource productivity and efficiency assessment, SWOT analysis, Porter's value chain analysis, and benchmarking methods. These approaches allow identifying the strengths and weaknesses of an enterprise, determining competitive advantages, and assessing risks, but they are mainly based on historical data and do not take into account the digital potential of the enterprise, innovative resources, and the dynamics of market changes in the digital environment [1].

In the context of digitalization, traditional assessment methods are complemented by modern digital indicators that allow measuring the level of digital technology use and its impact on business processes. These indicators include: the level of integration of digital platforms, the effectiveness of big data analytics, presence on digital communication and marketing channels, the level of process automation, cyber resilience and data security indicators, as well as innovation and digital maturity indices. The use of these indicators allows assessing the competitiveness of an enterprise not only through financial results, but also through its ability to adapt to the digital environment, respond quickly to market changes, and create new sources of value [18].

The main differences between traditional and digital approaches to assessing a company's competitiveness are presented in Table 2, which shows that traditional methods focus on financial and market indicators, use historical data, and take limited account of technological and innovation potential. In contrast, digital methods allow for a comprehensive assessment of a company, including its level of digital maturity, the effectiveness of its use of digital platforms and innovative technologies, and its ability to adapt to a rapidly changing digital environment. This makes it possible to more objectively determine development priorities, predict competitive advantages, and shape a company's strategy in the digital age [14].

Digital maturity models are widely used to comprehensively assess an enterprise's readiness for digital transformation and determine its competitive capabilities. These models serve as a systematic tool for diagnosing an organization's level of digital development. The most well-known and methodologically refined models are those developed by Gartner, Deloitte, MIT CISR,

Capgemini, and PwC. They provide a multidimensional and multilevel assessment of an enterprise's degree of digitalization based on key criteria, including: the state of technological infrastructure, the degree of integration of digital technologies into business processes, the level of development of digital competencies of personnel, the flexibility and innovativeness of the organizational culture, the quality of management practices, as well as the company's ability to strategically adapt and innovate [21].

Table 2. Comparison of traditional and digital approaches to assessing competitiveness

Assessment parameter	Traditional methods	Digital methods
Assessment focus	Financial indicators, market share, resource productivity	Use of digital technologies, digital maturity, innovation potential
Data sources	Historical financial reports, statistics, market research	Big data, analytics, digital platform metrics, internal digital systems
Analysis methods	SWOT, benchmarking, value chain analysis, comparative analysis	Digital maturity indices, digital transformation KPIs, analytical models, digital dashboards
Assessment scale	Often individual divisions or the company as a whole	Comprehensive, covering technologies, processes, personnel, culture, and business models
Assessment results	Identification of strengths and weaknesses, strategic recommendations	Assessment of digital potential, development priorities, competitiveness forecast in the digital environment
Impact on strategy	Limited, mainly financial and operational	Strategic, forming new business models, innovative solutions, and flexible management approaches

Source: complied by the authors

Digital maturity models are usually structured in several levels – from the initial level, characterized by fragmented use of digital solutions, to the high or transformational level, where digital technologies become the basis for all business processes and strategic decisions. This gradation allows companies not only to assess their current state, but also to identify gaps in digital competencies, infrastructure, and organizational processes. In addition, the use of digital maturity models makes it possible to develop a well-founded roadmap for digital transformation, focused on priority areas of development and the most effective use of technological potential [17].

It is important to note that the assessment of digital maturity is directly related to the level of competitiveness of an enterprise. The higher the level of digital maturity, the greater the company's ability to respond quickly to changes in the market environment, implement innovations, increase productivity, and ensure high-quality customer service. That is why digital maturity models are becoming a key strategic management tool in today's environment, allowing organizations to assess their potential for using digital technologies to strengthen their market position, develop new business models, and achieve long-term competitive advantages.

Innovative technologies such as artificial intelligence, the Internet of Things, blockchain, cloud services, and big data analytics play a key role in shaping the competitive advantages of modern enterprises. Their application allows optimizing operational processes, improving the quality of products and services, increasing the accuracy of management decisions, and reducing costs. In addition, innovative technologies contribute to the development of new business models, in particular platform-based, service-oriented, and subscription-based models, which ensure more flexible interaction with customers and partners [3].

The experience of foreign companies in Germany shows that companies that actively integrate innovative digital solutions demonstrate a higher level of adaptability, innovation, and resilience in a competitive environment. In particular, numerous empirical studies have found that digital transformation significantly enhances organizational resilience and the ability of companies to withstand external shocks by optimizing innovation potential and increasing the speed of response to market changes. This is confirmed by empirical analysis, in which digital

transformation significantly enhances the adaptive and innovative capabilities of organizational systems, contributing to resilience to uncertainty and complexity in the external environment [25].

Similar results are shown in a study of digital transformation strategies using the example of Chinese public companies, where the authors emphasize that a well-thought-out digital strategy contributes to increased innovation and organizational efficiency, which is directly related to the competitiveness of the enterprise [2].

Ukrainian scientific works also confirm the relationship between digital solutions and competitive advantages: the introduction of digital technologies contributes to reducing operating costs, accelerating decision-making, and improving customer experience, which are important factors in increasing competitiveness in the digital economy [5, 22].

An analysis of current scientific literature shows that the integration of digital tools can not only transform internal business processes, but also create a basis for long-term strategic advantages in the market [6, 12].

Modern enterprises form their competitive advantages largely through the introduction of digital technologies, which are transforming from an auxiliary tool into a fundamental element of strategic development. Digital solutions not only optimize operational processes but also transform business models, providing new sources of value creation. Empirical studies show that the effective integration of innovative technologies increases labor productivity, reduces transaction costs, and ensures management flexibility and the ability to quickly adapt to market changes. In addition, digitalization contributes to improving customer service quality through service personalization, omnichannel communications, and accelerated request processing, which in turn has a positive impact on consumer loyalty. The combination of these factors strengthens the company's market position, increases its strategic stability, and enables it to compete effectively in a dynamic and high-tech business environment [7].

A set of digital solutions enables companies to respond quickly to market changes, personalize customer interactions, increase productivity, and reduce costs. With this in mind, it is advisable to systematically identify the key digital transformation technologies that have the greatest impact on the formation of competitive advantages for enterprises in the current environment (Table 3).

Table 3. Identification of key technologies that influence the development of competitive advantages

Technology	Essence	Key competitive advantages
Big Data and analytics	Processing large arrays of structured and unstructured data	Decision support, personalization, demand forecasting
Artificial intelligence (AI) and machine learning (ML)	Automatic model training and execution of complex analytical operations	Automation, cost reduction, increased accuracy
Cloud technologies and XaaS	Provision of software and infrastructure resources as a service	Flexibility, scalability, cost savings
Internet of Things (IoT)	Data exchange between connected devices	Real-time monitoring, production and logistics optimization
Robotics and RPA	Use of robots and software to automate operations	Productivity, minimization of human error
Digital platforms and ecosystems	Unified digital environments for market participants to interact	Synergy, scalability, new revenue models
Blockchain	Distributed data registries with a high level of protection	Transparency, trust, cybersecurity

Source: complied by the authors

Big Data and data analytics enable the collection, storage, processing, and analysis of large amounts of information from internal and external sources. The use of these technologies allows companies to predict customer behavior, identify market trends, and respond to changes in the market environment in a timely manner. Thanks to analytics, companies can make more informed

management decisions, improve the accuracy of strategic planning, and identify new opportunities for developing competitive advantages [7].

Artificial intelligence (AI) and machine learning enable the automation of complex analytical and operational processes, demand forecasting, personalization of customer offers, and optimization of internal business processes. The use of AI increases the speed of decision-making, reduces the likelihood of errors, and contributes to increasing the level of innovation in a company. Research confirms that the integration of machine learning provides strategic advantages, especially in highly competitive and rapidly changing markets [8].

Cloud technologies and the concept of "Everything as a Service" (XaaS) allow enterprises to access IT resources without the need for significant capital investments, ensuring infrastructure flexibility and scalability. They facilitate the rapid deployment of new products and services, support innovative business models, and reduce operating costs. Cloud solutions are especially important for companies seeking to adapt to the digital environment and interact effectively with customers and partners.

IoT connects manufacturing, logistics, and service devices to a single network for real-time monitoring and process management. IoT integration reduces downtime, optimizes supply chains, cuts equipment maintenance costs, and improves production efficiency. Companies that use IoT gain competitive advantages through rapid data analytics and improved resource management [7].

Robotic process automation (RPA) allows routine, repetitive operations to be automated, freeing up human resources for strategic work and innovation. Implementing RPA increases productivity, reduces costs, and improves customer service quality. This directly affects the competitiveness of the enterprise, allowing it to focus its resources on creating added value and developing new products.

Digital platforms bring customers, partners, and suppliers together in a single ecosystem, enabling more efficient management of business processes, creation of new markets, and expansion of market opportunities. The use of such platforms creates network effects, increases customer loyalty, and promotes rapid adaptation to market changes, making the company more flexible and competitive.

Blockchain ensures transparency and security of transactions, automation of contracts, and protection of data from unauthorized interference. The integration of blockchain technologies increases trust in business processes, reduces the risk of fraud, and optimizes supply chain management. This creates strategic competitive advantages by increasing the reliability and efficiency of operations, which is especially important in a globalized market.

Digital transformation is becoming a key factor in improving the efficiency and competitiveness of enterprises. Analysis of practical experience allows us to identify successful models of digital technology integration, problems that arise during implementation, and the economic and managerial effects of such changes.

Global corporations demonstrate different approaches to digital transformation. For example, Amazon has integrated artificial intelligence and data analytics to personalize offers and optimize logistics, which has reduced delivery times and increased customer satisfaction.

General Electric (GE) uses Industrial IoT to monitor production equipment, reducing downtime and increasing the efficiency of production processes.

Starbucks uses mobile platforms and consumer behavior analytics to personalize marketing offers, which helps increase sales and build a loyal customer base.

These examples confirm that an effective digital strategy not only ensures internal optimization of business processes, but also creates new sources of revenue and competitive advantages.

In Ukraine, the digital transformation of business is in a phase of active development, and although the overall level of digitalization of the economy is still fragmented, a number of

successful practices have already emerged that demonstrate the potential of innovative technologies to increase the competitiveness of enterprises [12].

One of the most striking examples is the activities of the logistics company Nova Poshta, which systematically implements robotic process automation (RPA) solutions, Internet of Things (IoT) technologies, computer vision systems, and automated sorting lines. This has made it possible to significantly reduce cargo processing time, increase the accuracy of logistics operations, and minimize the human factor [7].

Another notable example is PrivatBank, which was one of the first in Ukraine to implement a full-scale digital service model, introducing internet banking, mobile services, automated customer identification solutions, digital cash registers, and payment platforms. This allowed the bank to significantly reduce operating costs, optimize branch operations, increase the accessibility of banking services, and ensure a high level of customer experience [26].

Another example of successful digital transformation is the activities of the telecommunications company Kyivstar, which actively uses Big Data, artificial intelligence, and machine learning technologies. These solutions are used to forecast demand for telecom services, segment the customer base, optimize marketing campaigns, and create personalized offers. This allows the company to improve the effectiveness of its interactions with consumers and strengthen its market position.

Summarizing the above examples, it can be said that Ukrainian enterprises demonstrate a sufficient level of readiness to implement digital technologies and the ability to use them to improve operational efficiency, service quality, and develop new business models. At the same time, the digitization of the national economy as a whole is asynchronous, which indicates the need for further support for digital initiatives at the level of state policy, inter-sectoral integration, and investment in digital infrastructure.

Ukrainian companies are integrating digital technologies into various areas of their activities. Data analytics and AI improve the efficiency of operations and strategic decisions, IoT optimizes production and logistics, RPA automates routine processes, and digital platforms and mobile services increase customer loyalty and open up new sources of revenue. The comprehensive application of digital solutions ensures the simultaneous achievement of economic, managerial, and organizational effects, which strengthens the competitive position of enterprises.

The implementation of digital solutions in business processes is often accompanied by a number of complex problems that can slow down or complicate digital transformation:

1) Financial barriers are among the most significant. High capital investments in software, hardware, digital infrastructure development, and staff training can place a significant burden on a company's budget, especially for small and medium-sized companies.

2) Organizational barriers are related to internal resistance to change among employees, low levels of digital culture, and insufficient digital skills among staff. Distrust of new technologies, lack of motivation to learn them, and resistance to process reorganization can significantly slow down the integration of digital solutions and reduce the effectiveness of transformation.

3) Technical barriers include the complexity of integrating new systems with existing ones, the incompatibility of different software solutions, insufficient infrastructure scalability, as well as cybersecurity, data protection, and data integrity issues. The lack of standardized data exchange protocols and difficulties in managing digital infrastructure can lead to disruptions in business processes.

4) Regulatory barriers arise due to the lack of clear rules and standards for the digital economy, as well as a legal framework for data processing and storage, electronic document management, and interaction with government services. Imperfect legislative regulation creates risks for business and requires additional costs for legal support of digital processes [5, 12].

Effective implementation of digital solutions requires a comprehensive approach that takes into account financial, organizational, technical, and regulatory aspects, as well as includes

systematic planning, staff training, and cybersecurity. Overcoming these barriers is a key factor in the successful digital transformation of an enterprise and increasing its competitiveness.

Research confirms that overcoming these barriers requires a comprehensive approach that combines technological, organizational, and managerial solutions [22].

The implementation of digital solutions in business processes affects a wide range of aspects of enterprise activities, shaping comprehensive economic, managerial, and organizational results:

1) Economic effects manifest themselves in reduced operating costs through the automation of routine processes, optimization of material and labor resources, minimization of errors, and faster data processing. The introduction of digital systems allows companies to increase margins and overall profitability, as technologies accelerate customer service, improve service quality, and facilitate the opening of new monetization channels.

2) The management effects of digitalization are associated with increased transparency of management decisions and the ability of management to respond quickly to changes in the external environment. Digital tools provide access to real-time analytics, ensure data integration between departments, and reduce the time required to prepare and make strategic decisions. This enables companies to plan their activities more accurately, predict risks, and improve the quality of corporate governance.

3) The organizational effects of digital transformation include the formation of a digital culture focused on innovation, openness to change, and continuous development. Companies invest in improving the digital skills of their staff, which contributes to the development of skills in working with new technologies, analytical thinking, and flexible approaches to task completion. As a result, organizational structures are improved, and adaptive and flexible business models are implemented, allowing companies to respond more effectively to market challenges, accelerate internal processes, and maintain a high level of competitiveness.

The comprehensive effect of digitalization allows companies not only to strengthen their current competitive positions, but also to create fundamentally new opportunities for business development. By integrating digital solutions, companies expand access to data, increase the level of automation, accelerate management decision-making, and reduce dependence on external market fluctuations. The practical experience of leading global corporations that actively implement innovative technologies demonstrates the growth in efficiency, scalability, and flexibility of business models. At the same time, examples from Ukrainian enterprises show that digitalization is becoming a key tool for overcoming economic, logistical, and operational challenges caused by the turbulence of the national market. A set of empirical results confirms that digital transformation generates sustainable strategic advantages, accelerates innovative development, and opens up access to new segments and forms of competition for enterprises [10].

Discussion. The results of the study confirm that digital transformation acts as a systemic and multidimensional driver of business competitiveness rather than a purely technological upgrade. The findings are consistent with the dominant approaches in contemporary research, which interpret digital transformation as a strategic process encompassing technological, organizational, and managerial changes [20; 23; 24]. Unlike automation and digitalization, which primarily focus on efficiency gains within existing processes, digital transformation reshapes business models, value creation mechanisms, and competitive positioning, as demonstrated by the comparative analysis presented in this study.

The discussion of research results highlights a strong convergence between theoretical propositions and empirical evidence. In line with international studies [2; 19; 25], the analysis confirms that enterprises actively integrating digital technologies achieve higher adaptability, innovation capacity, and resilience under conditions of market volatility. At the same time, the findings expand existing research by demonstrating that competitiveness gains arise not from the isolated implementation of individual technologies, but from their coordinated and strategic combination. Big data analytics, artificial intelligence, cloud solutions, digital platforms, and IoT

technologies generate the greatest effect when embedded into an integrated digital transformation strategy rather than applied fragmentarily.

An important contribution of this research lies in the comparative assessment of traditional and digital approaches to measuring enterprise competitiveness. While classical methods remain relevant for evaluating financial stability and market position, the study supports the argument that they are insufficient in the digital economy [1; 18]. The inclusion of digital maturity indicators, innovation metrics, and technology integration levels provides a more comprehensive understanding of an enterprise's competitive potential. This finding aligns with the conclusions of studies emphasizing the growing role of digital indicators and maturity models in strategic management [17; 21].

The discussion also confirms the critical role of human capital and digital culture in achieving sustainable transformation outcomes. Consistent with prior research [4; 15; 16], the results demonstrate that technological investments alone do not guarantee competitiveness gains. Enterprises with developed digital competencies, openness to innovation, and a data-driven management mindset are significantly more successful in leveraging digital tools. This reinforces the view that digital transformation should be regarded as a socio-technical process, where organizational readiness and cultural factors are as important as technological infrastructure.

The analysis of international and Ukrainian business practices provides additional insights into contextual differences in digital transformation outcomes. While global corporations benefit from scale effects, advanced infrastructure, and access to investment capital, Ukrainian enterprises demonstrate adaptive and flexible transformation models under resource constraints [5; 12; 22]. These findings contribute to the discussion on digital transformation in transition economies, where competitiveness is often shaped by the ability to creatively combine limited resources with targeted digital solutions.

At the same time, the discussion reveals a number of persistent barriers that limit the effectiveness of digital transformation. Financial constraints, organizational resistance, technological integration challenges, and regulatory uncertainties remain significant obstacles, particularly for small and medium-sized enterprises. These barriers correspond with those identified in previous studies [5; 12; 22], confirming that digital transformation requires not only corporate-level initiatives but also supportive institutional and regulatory frameworks.

Overall, the discussion underscores that digital transformation generates competitive advantages through cumulative and reinforcing effects: improved operational efficiency, enhanced decision-making quality, increased customer orientation, and accelerated innovation cycles. The findings suggest that enterprises achieving higher levels of digital maturity are better positioned to sustain competitiveness in dynamic and uncertain environments. This supports the broader conclusion that digital transformation should be treated as a long-term strategic priority rather than a short-term technological project.

Conclusions. The study showed that digital transformation is becoming a key factor in improving the efficiency, adaptability, and competitiveness of enterprises. Analysis of scientific sources and practical experience indicates the significant role of digital technologies in shaping new business models, optimizing internal processes, increasing productivity, and developing an innovative culture in companies.

A summary of the research results allows us to conclude that the effective integration of digital solutions into business processes contributes to the simultaneous achievement of economic, managerial, and organizational effects. Global and Ukrainian companies demonstrate different models of digital transformation, including the use of Big Data, AI, IoT, RPA, cloud services, digital platforms, and blockchain technologies. The greatest effect is achieved through a comprehensive combination of these technologies, which allows for the optimization of resources, increased accuracy of management decisions, increased profitability, and strengthened market positions.

The prospects for the development of digital technologies in business are determined by a number of key trends that are radically changing the ways of creating value, managing resources, and interacting with the market. The use of artificial intelligence (AI) and machine learning is expected to expand further to automate routine and complex analytical processes, forecast demand, personalize offers, and optimize strategic decisions.

The spread of the Internet of Things (IoT) and smart devices creates conditions for continuous monitoring of production and logistics processes, increasing productivity, reducing downtime, and rational use of resources.

The development of cloud services and the "Everything as a Service" (XaaS) model provides enterprises with scalable infrastructure and flexible digital tools, enabling them to quickly introduce new products and services, reduce capital expenditures, and adapt to changing market conditions. The integration of digital platforms and ecosystems contributes to the formation of network effects, bringing customers, partners, and suppliers together into a single interactive structure that stimulates the development of new business models, ensures synergy, and enables rapid scaling.

The coming years are expected to be characterized by accelerated digitization of key business processes, the introduction of intelligent management systems, the expansion of real-time analytics, and increased transparency of corporate operations. At the same time, technological developments will help strengthen the competitive position of companies, create new sources of revenue, and improve the effectiveness of strategic management in a rapidly changing market.

The forecast of the impact of digital transformation on the competitiveness of enterprises indicates that companies that actively integrate digital solutions will gain strategic advantages: increased adaptability to market changes, accelerated innovation cycles, improved interaction with customers and partners, and reduced costs and risks associated with operational activities. At the same time, ignoring digital trends can lead to a loss of market position and reduced competitiveness.

Recommendations for improving the digital strategy of enterprises involve a comprehensive approach that combines technological, organizational, and managerial aspects:

1) It is advisable to conduct a systematic audit of existing business processes in order to identify weaknesses, duplicate operations, and areas where digital optimization is possible. This allows priorities for technology implementation to be identified and ensures the efficient use of resources.

2) It is necessary to develop a comprehensive digital transformation strategy that integrates technological innovations, changes in organizational structure, and improvements in management practices. Such a strategy should take into account the specifics of the industry, the size of the enterprise, and the level of digital maturity, as well as ensure the interconnection between short-term and long-term goals.

3) A key task is to improve the digital competencies of staff and shape a corporate digital culture. This includes training employees to work with new technologies, developing analytical thinking skills, critical data evaluation, and digital process management. Involving staff in change increases the organization's adaptability and reduces resistance to transformation.

4) Innovative technologies should be introduced gradually, testing their effectiveness in pilot projects and scaling up successful solutions. This approach reduces risks, allows tools to be adapted to the specifics of the business, and ensures operational stability during transformation.

5) The use of digital platforms, data analytics, and monitoring tools ensures greater transparency in management decisions, timely identification of problems, and rapid response to market changes. This allows for informed strategic decisions, forecasting of market trends, and strengthening of the company's competitive position.

Overall, the implementation of these recommendations forms the basis for systematic digital transformation, which ensures the sustainable development of the enterprise, increases its

efficiency, and enables it to successfully adapt to a rapidly changing business environment. Digital transformation is not only a tool for optimizing business processes, but also a key factor in strategic development and ensuring the sustainable competitiveness of enterprises in the current global economy.

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