

**O. O. Kavun**<sup>\*1</sup>,  
orcid.org/0000-0002-4282-5663,  
**Y. M. Umantsiv**<sup>1</sup>,  
orcid.org/0000-0003-0788-7110,  
**V. L. Osetskyi**<sup>2</sup>,  
orcid.org/0000-0001-5104-1070,  
**I. P. Sokolovska**<sup>2</sup>,  
orcid.org/0000-0003-4833-8337,  
**H. V. Umantsiv**<sup>1</sup>,  
orcid.org/0000-0002-5410-1363

1 – State University of Trade and Economics, Kyiv, Ukraine  
2 – Taras Shevchenko National University of Kyiv, Kyiv, Ukraine  
<sup>\*</sup> Corresponding author e-mail: [o.kavun@knute.edu.ua](mailto:o.kavun@knute.edu.ua)

## STRATEGIC MANAGEMENT OF THE ENTERPRISE DIGITAL POTENTIAL: TOWARDS INDUSTRY 5.0

**Purpose.** To substantiate theoretical and methodological aspects of forming a strategic management system for the enterprise digital potential in the context of a gradual transition to Industry 5.0.

**Methodology.** The study used general scientific methods: analysis and synthesis, system analysis, grouping, comparison, scientific abstraction, graphical display and matrix modeling methods.

**Findings.** A comprehensive view on the strategic management system for the enterprise digital potential as a complex and multifaceted process has been presented. It involves making innovative management decisions that are not limited to the implementation of information (digital) technologies. Instead, it influences changes in corporate culture, contributes to the revision of business models, reengineering of business processes, and adaptation of management approaches and processes to new realities.

**Originality.** The structure of the elements of the strategic management system for the enterprise digital potential has been developed. The sequence of the stages of implementing the digitalization of the enterprise's business processes within the scope of management functions has been established and the principles of developing a digital transformation strategy for these processes have been formulated. The main motives for digitalization of the enterprise's business processes have been identified. Matrix for monitoring qualitative indicators of the business process digitalization strategy effectiveness has been proposed.

**Practical value.** Adherence to the proposed sequence of the stages implementation of business processes digitalization within the framework of management functions and ensuring the availability of all key components will contribute to the implementation of a systematic approach to improving the formation of enterprise digital potential. The developed matrix for monitoring qualitative indicators of the business process digitalization strategy effectiveness will help managers adjust the focus of strategies to ensure sustainable, inclusive development and increase the profitability of the company's activities in the perspective of the transition to Industry 5.0.

**Keywords:** *strategic management, digital potential, Industry 5.0, digitalization strategy, business processes*

**Introduction.** The process of economy digitalization is objective, long-term and inevitable, which implies an evolutionary transition from Industry 4.0 to Industry 5.0. The penetration of digital technologies is general and ubiquitous, which can be associated with tangible progress in information and communication technologies, as well as microelectronics.

Enterprises must inevitably adapt to the ongoing digital transformation in order to maintain competitive advantages and acquire new (primarily digital) competencies. The penetration of digital transformation into the management of the enterprise's business processes leads to a revision of all strategies: corporate, competitive and functional strategies (marketing, logistics, financial, human resources, innovation, etc.).

Digital transformation involves obtaining fundamentally new business models, making innovative management decisions in risk conditions and modifying applied technologies. Technologies provide a significant reduction in time and costs for transactions, increase the speed of data transfer, the quality of customer service and its individualization, provide the opportunity to manage

processes in real time to maximize operational efficiency of enterprises. All these moments are critically important for enterprises in the trade industry (wholesale trade, traditional retail trade through physical objects, as well as e-commerce), logistics companies and actually lead to the creation of a new transformed economic reality.

**Literature review.** The digital age is characterized by rapid development, growth, innovation, and disruptive change. Organizations that want to survive must be ready to adapt to the new digital landscape. The process of digital transformation is more than simply implementing new technologies, investing in tools, or modernizing existing systems [1].

The spread of innovation during the Fourth Industrial Revolution has transformed economic systems and led to structural changes in various industries [2]. These innovations have become the of society's modern digital infrastructure [2].

As the authors of the article [3] note, digital transformation has become a decisive factor in business development, creating opportunities for innovation and new business models, allowing companies to remain competitive in a rapidly changing market.

We fully share the views of the authors [4] that digital transformation is one of the key challenges facing mod-

ern business. The need to use digital technologies to develop and implement new business models forces companies to reassess existing capabilities, structures and culture. As a result, digital transformation should be a management priority and a defining feature of corporate business strategy. By adhering to digital consciousness, companies can gain an advantage on the path to transformation [4].

The study [5] examines digital transformation from the perspective of highlighting various aspects of its manifestation, revealing the essence of the concept and the goals of implementation. Examples of digital transformation using artificial intelligence, machine learning, deep learning, blockchain, cloud computing, data analytics at enterprises in various industries and fields of activity are given [5].

In the article [6], digital transformation is considered as a process within which the implementation of digital technologies has destructive effects that initiate strategic responses of organizations aimed at changing the mechanisms of value creation and simultaneously managing structural changes and organizational barriers.

The view of scientists on digital transformation is multifaceted and diverse.

In particular, the authors [7] considered digital transformation in the context of interaction between business, society and technology.

The scientific work [8] notes that in recent years there has been a revival of interest in artificial intelligence (AI) among both managers and scientists. At the same time, the authors of the article emphasize that some consider AI to be an unprecedented revolutionary technology with the potential to transform humanity. But AI is usually implemented and used together with other advanced digital technologies in digital transformation projects of companies. So digital transformation projects in which AI is used are mostly aimed at supporting the existing business of companies. Therefore, the authors debunk some claims about the exaggerated and exclusive role of AI [8].

In the study [9], the authors focused their efforts on developing a toolkit designed for early identification of radical transformations in social processes under the influence of Industry 4.0 technologies, as well as the formation of business models of companies and directions of state economic policy adapted to them.

Methodological approach to identify disruptive technologies that contribute to the acceleration of social change and ensure the formation of a new technological vision is proposed. New generation technologies include blockchain, digital twin, cybersecurity, additive manufacturing, drones, 5G network, edge computing [9].

In a number of publications, in particular, [3], [10–14] the role of digital technologies in shaping a new dimension of customer experience is considered.

As the authors of the article [10] rightly emphasized, digital transformation has revolutionized the way businesses interact with customers, prompting organizations to apply new approaches to managing relationships with them. Using digital technologies, organizations can create personalized and seamless customer experiences across multiple touchpoints, thereby strengthening relationships with consumers. The article considers personalization, omnichannel integration, and interaction with

social networks as key initiatives of digital CRM, and also emphasizes the need to address issues related to privacy, data security, and organizational resistance to change.

Companies are increasingly adopting digital technologies such as cloud computing, artificial intelligence, the Internet of Things, and BigData analytics to streamline operations and improve customer service [3].

The authors of the article [11] have a similar opinion: the use of new digital technologies such as mobile, artificial intelligence, cloud, blockchain, and Internet of Things (IoT) technologies improves customer experience, streamlines operations, or creates new business models.

As researchers [12] point out, firms are increasingly turning to emerging technologies such as artificial intelligence (AI), the Internet of Things (IoT), blockchain, and drones to help them engage with customers. Furthermore, given the importance of personalization and consumer engagement as core customer management strategies, it is important for firms to understand how to integrate emerging technologies to seamlessly facilitate the generation of actionable insights [12].

In the paper [13], it is emphasized that new technologies such as the Internet of Things (IoT), augmented reality (AR), virtual reality (VR), mixed reality (MR), virtual assistants, chatbots and robots, usually powered by artificial intelligence (AI), are radically changing the customer experience. The impact and consequences of applying these technologies at each broad stage of the purchase process (pre-transaction, transaction and post-transaction) are considered and a new conceptualization of managing these new AI technologies, taking into account customer experience dimensions to create empirical value is proposed.

The role of digital leadership in the development of customer experience-oriented business model innovations in Industry 4.0. became the object of attention in the article [14].

Separately, it is necessary to highlight publications that focus on the importance of developing digital literacy of employees and teamwork in implementing digitalization projects.

In particular, the scientists in their work [15] focused on digital transformation using blockchain technology, artificial intelligence, machine and deep learning, and its impact on reducing the level of errors and the manifestation of the human factor.

We fully agree with the authors [1] that to protect against digital disruptions, companies need to develop three core competencies related to awareness, making informed decisions and their rapid implementation.

The authors of the article [2] emphasize that the modernization of enterprises by combining digital technologies, physical resources and creativity of individuals is an important step in the innovative transformation of business, which can constitute a competitive advantage.

In [16], the authors concluded that, in addition to technological implementation, the key determinants of successful digital transformation are the organization's adaptability to change and operational excellence in the process of integrating external digital services with internal IT infrastructure. Among the cofactors of digital transformation, the following can be distinguished: 1) an overall organizational structure that supports digital culture and related changes; 2) excellence of opera-

tional processes with effective integrated information systems. Particular attention in digital transformation should be paid to change management, innovation management and talent development.

The problem of insufficient research on the importance of teamwork for the successful implementation of digital transformation projects is emphasized by researchers in the paper [17]. The authors identified four main levers which base on teamwork and contribute to digital transformation: a diverse and purposeful team composition, iterative goal setting, continuous learning and talent management.

We agree with the authors of the article [18] that companies should be ready for change, experiment with new ideas and develop a culture of innovation. Strategic management of company development in the context of Industry 4.0 involves the use of modern digital space and digital tools for operational activities as a result of the implementation of innovative projects [18].

To support their efforts for digital transformation, companies should ensure the availability of the necessary infrastructure and resources, which involves investing in new technologies. Digitalization is a multifaceted and complex process that can cause resentment among employees, therefore it involves measures to overcome resistance, increase the level of involvement, awareness and the formation of stakeholders desire to actively participate in the implementation of broad transformation initiatives [19].

**Unsolved aspects of the problem.** Despite a significant number of scientific publications on the researched issues, it can be noted that there is a lack of attention to a systemic approach to the formation of the strategic management system for the enterprise digital potential in the context of a gradual transition to Industry 5.0, and the definition of a clear sequence of stages for implementing the process of digital transformation of trade enterprises business processes.

**Purpose.** The purpose of the study is to substantiate the formation of a strategic management system for the enterprise digital potential in the context of the gradual transition to Industry 5.0.

In accordance with the goal, the tasks set include: consideration of modern technological solutions implemented by leading retail companies; development of the elements of the strategic management system for the enterprise digital potential and detailing the components for ensuring its formation; description of management functions and stages of implementing the digitalization of the enterprise's business processes; formulation of the principles of the enterprise digital potential strategic management; identification of motives that determine the need for digitalization of the enterprise's business processes; visualization of the matrix for monitoring qualitative effectiveness indicators of the business process digitalization strategy.

**Methodology.** To generalize existing and form new theoretical and methodological provisions on enterprise management in the context of digital transformation, as well as to consider technological solutions implemented by leading retail companies, methods of analysis and synthesis, system analysis, and scientific abstraction were used.

To develop the content of the strategic management system for the enterprise digital potential, components

for ensuring its formation, and elements of the digital environment, methods of grouping and graphical display were chosen.

When developing recommendations for monitoring qualitative indicators of the effectiveness of the business process digitalization strategy, methods of grouping, comparison, and matrix modeling were used.

**Results.** The activities of enterprises in the context of Industry 4.0 are undergoing radical changes due to the implementation of an innovative approach to management focused on taking into account modern trends and achievements in the field of digital technologies, in particular, such as cloud technologies and computing, data analysis and analytics systems, blockchain, artificial intelligence, neural networks, neural interface systems, the Internet of Things, Location Analytics technologies, etc. Let us consider the areas of their use by leading players in the global retail trade market.

The retail technology market reached \$19.1 billion in 2022 [20]. It is expected that its volume will increase to \$47.8 billion by 2030, demonstrating an average annual growth rate of 12.2 %, which is due to the rapid development of digital technologies and automation, which are transforming various aspects of retail in physical and online stores [20]. The use of neural network technologies will ensure the automation of operational activities, the development of more personalized offers of goods and services for consumers, focusing on their individual needs and interests.

Neural interface systems will enable bidirectional communication between the human brain and digital devices. The integration of blockchain solutions will support the development of secure and trustworthy platforms for data storage and information exchange. Artificial intelligence has fundamentally transformed established models of customer and seller interaction, supply chain coordination, and internal organizational workflows, marking a significant shift in contemporary business practices [21].

The use of artificial intelligence and machine learning allows you to create hyper-personalized experiences based on the analysis of huge amounts of data on purchasing habits, motivations, preferences and needs of consumers.

The research has indicated that bringing in new customers can be significantly more expensive often ranging from five to twenty-five times the cost compared to maintaining relationships with existing loyal clients [20]. For this reason, many leading retailers are investing heavily in advanced data-driven tools to enhance personalization and strengthen customer loyalty. Companies such as Amazon, Nordstrom, and Sephora actively employ sophisticated analytics to better understand consumer behavior and to tailor their services accordingly [20]. Amazon analyzes browsing patterns, past purchases, and real-time behavior in order to present individualized product suggestions. The platform also utilizes dynamic pricing mechanisms, adjusting prices based on demand, user preferences, and market conditions. Nordstrom similarly prioritizes customer-centric service by examining detailed purchase histories and aligning product offerings with the specific tastes and behavioral tendencies of individual shoppers. Sephora integrated facial recognition technology into its digital

tools, enabling the company to give recommend personal style recommendations [20].

AI-based demand forecasting improves customer engagement by demonstrating the benefits of real-time data. A 2023 study found that AI-based demand forecasting reduces stockouts by 15 % and increases inventory optimization by 20 % [20].

Walmart uses AI to forecast demand and strategically allocate inventory in its stores. Well-known retailers such as Amazon, Walmart, Stop & Shop, and Home Depot use AI and machine learning (ML) to detect anomalies in current payment activity by evaluating historical data over a period of time, thereby improving the effectiveness of fraud detection and prevention on their platforms. Fraud takes many forms, including payment fraud, returns, theft by store employees, price tag manipulation, and gift card fraud [20]. Machine learning algorithms can improve supply chain resilience, demand modeling, adjust inventory levels by reducing excess or shortages, optimize operating costs, and reduce delivery times and losses [21].

Companies use AI/ML solutions to address issues such as real-time demand forecasting, Zero Waste predictive modeling to reduce waste and improve overall operational efficiency [20]. Amazon uses AI software to process returns, thereby optimizing reverse logistics and warehouse process management through automation and standardization.

Artificial intelligence (AI) technologies provide organizations with the ability to access meaningful insights instantly, allowing them to monitor processes in real time. AI significantly reduces employees' operational workload and minimizes the volume of manual activities they need to perform [21]. A related and rapidly developing area of using AI-based systems is conversation intelligence (CI). The goal of CI is to enhance personalization and improve the overall shopping experience by better understanding customer needs, emotional tone, and behavioral signals [20]. A practical example of this technological shift can be seen at Walmart, which introduced the "Ask Sam" digital assistant. By simplifying routine inquiries and improving planning processes, this AI-driven tool supports higher staff productivity and contributes to more effective customer service [20].

As e-commerce continues to grow exponentially, chatbots are becoming key tools for improving customer interactions, driving user acquisition and retention. Chatbots and AI-based virtual assistants can handle a variety of requests, from product information to after-sales service, providing effective real-time customer support not only online but also in-store using conversational voice commands [21].

Achievements in the field of artificial intelligence and Natural Language Processing (NLP) are expanding the possibilities of using chatbots in e-commerce. As a result, chatbots accurately understand the content of the data entered by the user and personalize the interaction with him, offer relevant recommendations and meaningful support for purchasing decisions, and therefore increase the effectiveness of conversations [21].

H&M, a fashion retailer, employs an AI-driven chatbot on the Kik messaging platform to engage consumers and enable direct purchases within the chat, minimizing human involvement and boosting total customer satisfac-

tion [20]. Sephora, a cosmetics retailer, uses its Virtual Artist chatbot to deliver a highly personalized and interactive shopping experience by offering quick product suggestions and makeup guidance [20].

Voice payments are gaining traction with the introduction of smart speakers and virtual assistants, giving customers the ability to make purchases through voice commands. Using NLP and AI, these tools process requests and navigate users to the most relevant products [20]. To complete a purchase, customers may be required to authenticate a stored payment card or initiate a voice payment, providing both convenience and security to the process [20].

Companies such as Adobe, Microsoft, SAP, Salesforce, Oracle, and Neustar are leading developers of retail analytics software products, offering a variety of services ranging from predictive modeling to behavioral analytics [20].

BigData allows you to create an infrastructure of large data sets not only for their analysis using Google Analytics, but also for organizing intelligent data analysis (data mining, DM) in real time in order to predict new data as a result of constant changes in the consumer market, as well as reduce possible risks in supply chains [20].

In addition, BigData technology is also promising for analyzing data on the process of storing and selling goods and can be used by retailers in logistics activities for quality control and product safety, optimizing logistics costs, as well as in marketing activities for market analysis and segmentation, forecasting product sales, and activating advertising activities [20].

In recent years, there has been a growing use of virtual and augmented reality (AR/VR) for virtual shopping. With AR/VR, customers can visualize and evaluate how products will look in their homes before making a purchase. For example, Amazon's augmented reality viewing system allows customers to visualize products in their apartments using their smartphone cameras. IKEA's AR app allows customers to place virtual furniture in their homes, helping them make more informed purchasing decisions. Another IKEA solution, the VR Kitchen Experience, allows customers to design and walk through their kitchen in a virtual environment before making a purchase. These products also help IKEA be a socially and environmentally responsible company by eliminating the need to visit physical stores, reducing the risk of product returns, and minimizing carbon emissions from transportation [20].

Augmented reality (AR) makes shopping in stores more comfortable and accessible for all categories of consumers, in particular, it helps to solve the problems of inclusive shoppers with visual or hearing impairments by providing voice translation and subtitles [22]. Retail platforms using VR/AR and 3D technologies have been created to provide interactive and immersive shopping experiences that allow customers to explore products and make purchases remotely. In particular, Obsess, a leading e-commerce platform, uses 3D technologies to create immersive virtual shopping experiences [20].

A comparable set of features is provided by the Emperia platform, which enables retailers to offer customers virtual reality tours of their stores. The system can be connected to existing online retail and inventory management solutions. Emperia has created virtual bou-

tiques and galleries for prominent brands such as Bloomingdale's, Dior, Lacoste and Tatcha. In addition, the company offers an application that lets businesses host exhibitions in a virtual environment, present products using 3D models and images, and organize online events where presenters guide visitors through the virtual space [20].

Top retailers rely on Bloomreach, a cloud-based e-commerce platform using AI-enhanced search tools which consolidates real-time data on customers and products, enabling companies to react swiftly to market shifts and display flexible, adaptive behavior [20].

Social commerce engages customers on platforms where they already communicate and buy to bridge the physical and digital realms. Nike uses Instagram and TikTok to drive direct sales through Instagram Checkout and watch ads on TikTok, and this is an example of the integration of social media and e-commerce [20].

A new trend in the social commerce sector is Livestream Shopping, which has gained popularity in Asian countries during the COVID-19 pandemic. The Livestream Shopping social commerce market is forecast to reach \$68 billion by 2026 [23]. Live videos, hosted on social media or on companies' own websites, led by brand representatives and retail partners, create a sense of presence at events, build a community of brand ambassadors, and increase customer loyalty and their engagement throughout the purchase process. This approach combines entertainment with commerce, allowing consumers to interact with products in real time, ask questions, and make purchases directly during the live broadcast. Store employees also become brand influencers, leveraging their product knowledge and building strong personal connections with customers.

McKinsey predicts that by 2026, real-time sales could account for 10 to 20 % of all e-commerce, underscoring the importance of these new shopping methods [24].

Another innovative technology is image recognition. The StyleSnap visual search feature in the Amazon Alexa app allows users to upload and recognize images (photos) using artificial intelligence, significantly increasing the relevance of search results, simplifying the online shopping process and improving consumer experience. Using this technology, brands offer hyper-personalized product recommendations based on individual preferences and consumer browsing behavior [20].

Special attention should be paid to the consideration of the Internet of Things (IoT) and its application by leading companies in the world. The Internet of Things market can be divided into segments of Internet of Things devices, Internet of Things equipment, Internet of Things platforms and Internet of Things services. The objects of the Internet of Things in trade are a security system with surveillance cameras in warehouses and in the sales floor of stores, an air conditioning system in a store, vehicles with GPS, equipment equipped with sensors, and payment terminals in shopping centers.

IoT sensors can track inventory levels in real time, monitor product quality. IoT-enabled virtual assistants like Amazon Alexa and Google Home are transforming

the shopping experience. Consumers can use these devices to place orders, track deliveries, and receive real-time updates about their purchases [20].

In 2022, CARTO introduced CARTO for Retail 2, combining location analytics with BigQuery machine learning BigQuery to analyze real-time customer behavior based on geographic patterns of demand, socio-demographic characteristics of consumers, traffic patterns, and determining the location of regular customers. This enables retailers to leverage geospatial data to better understand customer behavior, studying regional market dynamics, establishing a connection between store location and indicators of the sale process effectiveness, adjusting business strategy and providing a personalized shopping experience [20]. Retailer Target leverages location-based technologies, including Wi-Fi, BLE beacons, mobile sensors, VLC, and BOPIS to offer customers tailored in-store suggestions, enhancing the conventional shopping experience [20].

These examples given confirm the active use of technological innovations by the world's leading companies and outline the directions of transformational changes in the conducting competitive struggle, interaction with consumers and influence on their purchasing behavior. Observing the impact of digital technologies on the transformation of the retail market and understanding the objective necessity of their use in the conditions of the relentless movement from Industry 4.0 to Industry 5.0, it becomes obvious that ensuring formation of a strategic management system for the enterprise digital potential becomes particularly relevant.

Digital transformation is reflected in the adoption of innovative technologies and the implementation of strategies aimed at driving fundamental change and optimization multiple facets of enterprise operations. The introduction of innovative technologies is carried out within the framework of digitalization, but if we are talking about a reassessment of existing business models and processes, then we can talk about digital transformation, within which companies adjust their strategic goals, justifying digital initiatives which encompass automating business processes, developing digital products, and building online platforms to engage with customers.

Digital transformation is reflected in the adoption of innovative technologies and the implementation of strategies aimed at driving fundamental change and optimization multiple facets of enterprise operations.

The result of this activity should be the creation of substantiated models of business processes digital adaptation. Therefore, business entities should constantly monitor modern levers of influence on business efficiency, involve the latest technologies, and also theoretically and methodologically substantiate the implementation directions of business processes digitalization strategies in the short and long term. The determining factors of effective adaptation in the conditions of digital transformation are proactive response to real and potential changes and opportunities caused by the development of digital technologies, as well as concentration of efforts and resources on the implementation and further use of the most promising of them.

Digital transformation of an organization is a long and complex process that requires detailed study to ensure a positive impact on the key performance indicators

of the company at each stage of its implementation. The use of digital technologies has contributed to the emergence and development of a new phenomenon – the digital potential of economic systems [25]. Continuing the previous study, we can talk about the formation of the strategic management system for the enterprise digital potential (Fig. 1).

Achieving the overall goal provides for the formation of a stable organizational paradigm focused on digital technologies and aimed at the ensuring sustainable and inclusive enterprise development. In the context of digital potential management, it is recommended to use a combinatorial approach, which involves optimizing the combination of all necessary resources to implement of action plan for the development of a certain type of digital technologies.

In the context of digitalization, digital reengineering emerges as a core concept, involving the complete rethinking and redesign of business processes using information and communication technologies to drive radical change and enhance key performance metrics. The main motives determining the need for digitalization of the trade enterprise's business processes:

- increasing the efficiency of implementing management decisions due to the automation of typical operations;
- reducing the likelihood of errors due to the reduction of time for manual operations and their number, increasing the accuracy of the results obtained;
- optimizing costs associated with the organization of paper document flow;
- increasing the efficiency of coordinating efforts in solving problems within one subdivision and interaction between employees of different departments and divisions of the enterprise;
- improving communication with counterparties (suppliers of goods, marketing and logistics partners);
- increasing the level of customer satisfaction by providing personalized service;
- promptly responding to changes in the internal and external environment of the enterprise due to instant access to relevant information and timely decision-making;
- implementing tools for monitoring and quality control of business processes to minimize risks and ensure the continuity of operational activities.

Digitalization involves a dual focus on upgrading both internal and external interfaces concurrently. Such

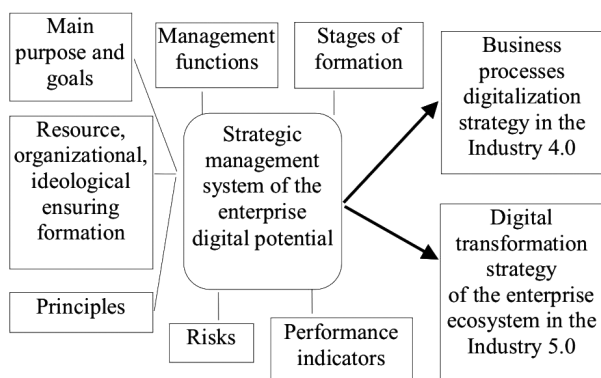


Fig. 1. Elements of the strategic management system for the enterprise digital potential

conditions are essential for achieving better customer service through improved operational efficiency. Nonetheless, adopting this approach entails allocating major financial and supplementary resources, the development of thorough business projects, and the implementation of large-scale organizational transformations. A detailed review of the management functions and stages of implementing enterprises business processes digitalization is presented in Table 1.

The principles of forming a strategic management system for the trading enterprise digital potential include:

1. The principle of strategic priorities: subordination of operational and tactical goals to the achievement of key strategic indicators which characterize the key parameters of the enterprise's operations.
2. The principle of process-functional orientation: the construction of a strategic digitalization management system should be based on the fact that the enterprise's activities are a complex of interrelated processes and functions, the effectiveness of which is characterized by various parameters. Digital projects should meet the needs and functional characteristics of each structural unit of the enterprise in which their implementation is envisaged.
3. The principle of consistency and multi-stage implementation of the strategy: long-term tasks are solved by implementing medium-term and short-term initiatives.
4. The principle of cause and effect relationships: understanding the hierarchy of digitalization strategy implementation at all levels of management and the consequences of decision-making.
5. The principle of objectivity in assessing the obtained results and calculated indicators involves the use of clearly defined, standardized metrics to assess the adequacy of decisions made. This ensures a common understanding of the values of the indicators and their consistent interpretation by all participants in the process, contributes to the objectivity of the analysis and the adoption of justified management decisions.
6. The principle of criteria unity (units of measurement, calculation methods, etc.) and consistency of indicators used to assess the effectiveness of business processes digitalization.

7. The principle of effectiveness is to achieve the highest possible results in the selected areas of activity and enterprise management functions, within which digital projects were implemented.

Digital transformation requires a holistic approach that combines technologies, resources, strategy and ideology of expected changes perception.

The multifaceted characteristics of an enterprise's business processes digitalization determine the breadth of the target guidelines list for its functioning, which assumes the presence of appropriate ideological, organizational and resource provision (Fig. 2).

The formation of information technology support involves solving the following issues:

- full integration of new digital projects with information systems of all management levels;
- the ability to solve the tasks set in full and within the given time frame;
- ensuring information protection from unauthorized actions and external interference;

Management functions of enterprises business processes digitalization

Management function	Stages (characteristics of decisions and types of work)
Analysis and justification of the need for digitalization	<ul style="list-style-type: none"> <li>- identification of business processes;</li> <li>- division of business processes into main and auxiliary ones;</li> <li>- formation of business processes that generate added value, establishment of their construction principles;</li> <li>- determination of indicators characterizing the effectiveness of each business process;</li> <li>- analysis of technological infrastructure, organizational workflows and existing digital competencies of employees;</li> <li>- identification of key parameters of business processes' safe state;</li> <li>- identification of all factors (potential hazards and sources of their occurrence);</li> <li>- selection of business processes for digital reengineering;</li> <li>- conducting a comprehensive assessment of potential risks, hazards, sources of their occurrence and problems that may lead to changes in business process parameters and interfere implementation of the digitalization strategy</li> </ul>
Planning	<ul style="list-style-type: none"> <li>- development of indicators system for assessing digitalization;</li> <li>- assessment of alternative digitalization projects;</li> <li>- calculation of resources required for the implementation of the project, forms and mechanisms of their attraction and use;</li> <li>- formation of a working team for the implementation of the planned digitalization strategy;</li> <li>- assessment of investment costs for the implementation of the digitalization project and sources of their financing;</li> <li>- forecasting of income and financial result (profit) from the implementation of the digitalization project;</li> <li>- modeling of preparation process (formation of appropriate support) and project implementation (timing of the project)</li> </ul>
Organizing	<ul style="list-style-type: none"> <li>- determination of key priorities, allocation of resources;</li> <li>- formation of a new organizational structure (centers of responsibility for individual business processes);</li> <li>- integration of necessary technologies and software;</li> <li>- development and coordination of work stages;</li> <li>- construction of a calendar plan for the digital reengineering of the company's business processes</li> </ul>
Motivation	<ul style="list-style-type: none"> <li>- recommendations and initiatives development for employee training to improve their digital knowledge and skills;</li> <li>- development of an effective staff motivation system focused on achieving specific goals of the digitalization project</li> </ul>
Realization	<ul style="list-style-type: none"> <li>- development of recommendations for the introduction of business processes' new model;</li> <li>- implementation of business processes' new model</li> </ul>
Coordination	<ul style="list-style-type: none"> <li>- development of a risk reduction and cyber security strategy for the proactive solution of unforeseen situations and increasing the stability of strategic management system of the enterprise digital potential</li> </ul>
Control	<ul style="list-style-type: none"> <li>- calculation of the effect and efficiency of the development project implementation from the perspective of invested resources;</li> <li>- assessment of the project implementation effectiveness in achieving the set goals, its consistency with the strategic guidelines for the enterprise development</li> </ul>

- systematic and timely software updates, implementation of cybersecurity measures, use of anti-virus protection systems and deep analysis of network traffic, creation of backup copies, compliance with password policies, etc.;

- overcoming the problem of information noise: information overload and inefficient information processing can lead to confusion and uncertainty in the digital space.

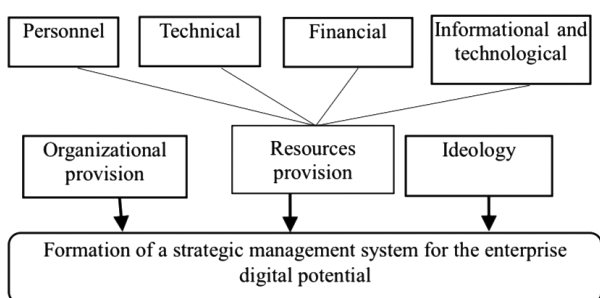


Fig. 2. Components for ensuring the formation of a strategic management system for the enterprise digital potential

There is a decline in traditional retail jobs and a sharp increase in demand for positions related to automation, digital platforms and customer-centric technical solutions, which emphasizes the growing value of digital literacy and technological expertise in the retail sector.

For these processes to be successful, it is absolutely necessary to form a risk-oriented mindset among owners and managers, which will allow not only to cope with modern challenges, but also to effectively adapt to the rapidly changing digital landscape.

Digital transformation involves increasing the digital competencies, the level of digital literacy of employees, so that they can successfully adapt to new working conditions and use all the opportunities provided by digital technologies. A big mistake is to focus only on the technological aspects of transformation and not on staff training. Technologies require a certain set of skills, and the application of technologies without the necessary training will not be useful.

As part of the development of a strategy for business processes digital transformation, close attention should be paid to the readiness of the organization's employees

to integrate innovative technologies. The main goal is to eliminate the shortage of employees and create an appropriate personnel reserve in the long term.

Its achievement will be facilitated by diagnosing employees' knowledge levels and organizing a personnel training system based on a reverse-engineering principle, which involves developing a skills map that identifies competencies relevant in the medium and long term, and moving in the opposite direction according to a plan to ensure their acquisition in the short and medium term. Ultimately, a knowledge-management program should be developed to enhance employees' capabilities in working with modern digital technologies.

This, in turn, involves conducting training and education of employees, forming cross-functional teams, reviewing the organizational structure and hiring employees with appropriate skills, as well as partnering with external experts and suppliers based on crowd-sourcing, organizing remote and virtual work. The creation of cross-functional teams will promote a culture of collaboration between its members, continuous learning and professional development, easier acceptance of change, rapid exchange of ideas and knowledge, identification of new opportunities and adoption of innovative solutions.

The modern dynamics of business processes, driven by the rapid pace of digitalization, raises the question of the need to develop not only technical competence among personnel, but also a culture of digital thinking, which will create ideological support for the formation of the enterprise's digital potential strategic management system.

The use of digital technologies requires companies to maintain their digital infrastructure in a modern state, which, in turn, requires additional financial costs. Managing the financial support for the enterprise's business processes digitalization involves the development of a system of principles and methods for developing and implementing solutions related to the organization of the financial resources circulation, which involves their accumulation and borrowing, distribution and use.

Managing the financial support for the enterprise's business processes digitalization should be aimed at solving the following issues:

- determining the overall need for financial resources for the implementation of planned business process digitalization projects;
- ensuring maximum attraction of their own financial resources from internal sources;
- justification of the feasibility of forming their own financial resources from external sources;
- ensuring the maximum level of self-financing of business process digitalization projects;
- engagement management of borrowing capital;
- formation of the optimal structure of capital and assets, determination of the financial resource proportionality formation from various sources;
- ensuring opportunities for rapid reinvestment of capital in the most highly profitable digitalization projects;
- optimization of the asset liquidity level for the digitalization projects implementation.

Managing the financial support for the enterprise's business processes digitalization is carried out as a result of an appropriate financial policy development or

amendments to the existing one. Depending on the level of accompanying financial risks, three types of the enterprise's financial policy are usually distinguished – aggressive, moderate and conservative ones. We believe that this approach is also relevant for the financial support for the enterprise's business processes digitalization.

The aggressive nature of the financial support policy for the business processes digitalization is manifested in the adoption of management decisions aimed at maximizing the financing of digitalization projects and the willingness to take the highest levels of financial risks.

The moderate type of the financial support policy for the business processes digitalization characterizes the adoption of management decisions aimed at achieving average industry efficiency indicators in financing of digital projects at average levels of financial risks.

The conservative type of the financial support policy for the business processes digitalization involves the adoption of management decisions aimed at reducing risks and increasing the level of financial security of the enterprise. Such a restrained nature of the enterprise's behavior may not lead to the achievement of the expected high performance.

The type of financial support policy for the business processes digitalization directly affects the development of the enterprise, which, accordingly, can have three different manifestations:

- accelerated growth of digital potential;
- stable (gradual) increase in digital potential;
- survival and preservation of its positions in the market.

The detailing of the financial support policy implementation for the enterprise's business processes digitalization is the development of a program for financing of appropriate projects. Such a program should synchronize priority projects according to the terms of individual interdependent management decisions implementation.

Elements of the digital environment and types of strategies for managing the digital potential of an enterprise are shown in Fig. 3.

One of the key performance criteria is the state of

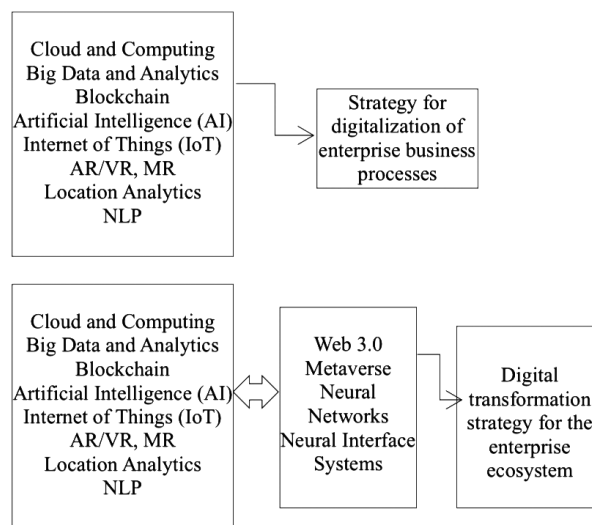


Fig. 3. Elements of the digital environment and types of strategies for managing the digital potential of an enterprise

Table 2

Matrix for monitoring qualitative effectiveness indicators of the business process digitalization strategy

Financial resources	Results		
	optimistic	realistic	pessimistic
Surplus	1 AS/HP/LR	2 MS/AP/LR	3 CS/ZP/LR
Balance	4 AS/AP/AR	5 MS/AP/AR	6 CS/LR/AR
Deficit	7 AS/HP/HR	8 MS/AP/HR	9 CS/LR/LR

Conventional symbols are: *AS* – aggressive strategy; *MS* – moderate strategy; *CS* – conservative strategy; *HP* – high performance; *AP* – average performance; *LP* – low performance; *ZP* – zero performance; *HR* – high risk; *AR* – justified (acceptable) risk; *LR* – low risk.

business processes digitalization and the level of digital potential development. The monitored information is provided in the form of a matrix (Table 2).

The horizontal axis displays the possible results of implementing the business process digitalization strategy, and the vertical axis displays the financial resources that ensure the achievement of the set goals (surplus characterizes the maximum level of use of own financial resources, balance characterizes the optimal combination of their own sources and loan capital, deficit assumes maximum attraction of loan capital).

Realistic results correspond to the maximum approximation of the obtained effectiveness indicators of the business process digitalization projects implementation to the forecasted calculations made by experts, optimistic and pessimistic results characterize, respectively, the excess or lag of actual values from the expected ones.

The letters located in the quadrants of the matrix indicate the options for management actions and the level of the desired result achievement. So, 9 types of business process digitalization strategies can be distinguished:

- aggressive strategy with high performance in the low-risk zone (quadrant 1);
- aggressive strategy with average performance with justified (acceptable) risk (quadrant 4);
- aggressive strategy with high performance in the high-risk zone (quadrant 7);
- moderate strategy with average performance in the low-risk zone (quadrant 2);
- moderate strategy with average performance with justified (acceptable) risk (quadrant 5);
- moderate strategy with average performance in the high-risk zone (quadrant 8);
- conservative strategy with zero performance in the low-risk zone (quadrant 3);
- conservative strategy with low performance with justified (acceptable) risk (quadrant 6);
- conservative low-performance strategy in the low-risk zone (quadrant 9).

Accordingly, based on the results of the analysis, it is possible to determine the directions of making management decisions regarding:

- saving the selected strategy (quadrants 1, 2, 5);
- replacement of the existing strategy (quadrants 3, 6, 9);
- adjustment of the directions of the selected strategy implementation (quadrants 4, 7, 8).

**Conclusions.** Thus, the digital transformation of organizations is a complex and multifaceted process that is not limited to the implementation of information (digital) technologies. It affects changes in corporate culture, contributes to the revision of business models, reengineering of business processes, adaptation of management approaches to new market realities. Such transformations are aimed at increasing the efficiency of activities, flexibility of the company's competitive behavior and increasing its ability to quickly adapt to changing conditions and the emergence of technological innovations.

Digital transformation should be considered an integral part of companies' strategic development. Successful implementation of digital transformation requires strategic planning and readiness for change.

Potential key problems in this process may include the need to change the business model, the lack of a clear digitalization strategy and underestimating the importance of forming digital ecosystems, the complexity of integration and synergy between subdivisions within the organizational management structure, insufficiently developed digital competence of employees, and, finally, the need to choose between gradual and abrupt transformation. In both last cases it is associated with tangible risks and requires significant resources to quickly build technological capabilities.

The proposed stages of business processes digitalization, the highlighted components for ensuring the formation of a system for strategic management of the trade enterprise digital potential, and the developed matrix for monitoring the effectiveness of the digitalization strategy implementation will help managers adjust the focus of strategies to ensure sustainable, inclusive development and increase the profitability of the company's activities.

The subject of further scientific research in this direction may be the empirical verification of the presented algorithm, for example, through an expert survey conducted at trade enterprises.

#### References.

1. Albukhitan, S. (2020). Developing digital transformation strategy for manufacturing. *Procedia computer science*, 170, 664-671. <https://doi.org/10.1016/j.procs.2020.03.173>
2. Berawi, M. A., Suwartha, N., Asvial, M., Harwahyu, R., Suryanegara, M., Setiawan, ..., & Maknun, I. J. (2020). Digital Innovation: Creating Competitive Advantages. *International Journal of Technology*, 11(6). <https://doi.org/10.14716/ijtech.v11i6.4581>
3. Olorunyomi, St. J., Adedoyin, T. O., Olusegun, G. O., & Oluwatobi, T. S. (2024). The impact of digital transformation on business development strategies: Trends, challenges, and opportunities analyzed. *World Journal of Advanced Research and Reviews*, 21(03), 617-624. <https://doi.org/10.30574/wjarr.2024.21.3.0706>
4. Saarikko, T., Westergren, U. H., & Blomquist, T. (2020). Digital transformation: Five recommendations for the digitally conscious firm. *Business Horizons*, 63(6), 825-839. <https://doi.org/10.1016/j.bushor.2020.07.005>
5. Akter, S., Michael, K., Uddin, M. R., McCarthy, G., & Rahman, M. (2022). Transforming business using digital innovations: The application of AI, blockchain, cloud and data analytics. *Annals of Operations Research*, 1-33. <https://doi.org/10.1007/s10479-020-03620-w>
6. Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28(2), 118-144. <https://doi.org/10.1016/j.jsis.2019.01.003>
7. Van Veldhoven, Z., & Vanthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. *Electronic Markets*, 32(2), 629-644. <https://doi.org/10.1007/s12525-021-00464-5>

8. Brock, J. K. U., & Von Wangenheim, F. (2019). Demystifying AI: What digital transformation leaders can teach you about realistic artificial intelligence. *California management review*, 61(4), 110-134. <https://doi.org/10.1177/1536504219865226>
9. Pylypenko, H., Fedorova, N., Lytvynenko, N., & Pylypenko, Y. (2025). Breakthrough technologies of social transformations: devising an identification methodology. *Eastern-European Journal of Enterprise Technologies*, 2(13(134)), 15-26. <https://doi.org/10.15587/1729-4061.2025.32655>
10. Auttri, B., Chaitanya, K., Daida, S., & Jain, S. K. (2023). Digital Transformation in Customer Relationship Management: Enhancing Engagement and Loyalty. *European Economic Letters (EEL)*, 13(3), 1140-1149. <https://doi.org/10.52783/eel.v13i3.410>
11. Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326-349. <https://doi.org/10.1016/j.lrp.2018.12.001>
12. Gupta, S., Leszkiewicz, A., Kumar, V., Bijmolt, T., & Potapov, D. (2020). Digital analytics: Modeling for insights and new methods. *Journal of Interactive Marketing*, 51(1), 26-43. <https://doi.org/10.1016/j.intmar.2020.04.003>
13. Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the customer experience through new technologies. *Journal of Interactive Marketing*, 51(1), 57-71. <https://doi.org/10.1016/j.intmar.2020.04.001>
14. Mihardjo, L., Sasmoko, S., Alamsjah, F., & Elidjen, E. (2019). Digital leadership role in developing business model innovation and customer experience orientation in industry 4.0. *Management Science Letters*, 9(11), 1749-1762. <https://doi.org/10.5267/j.msl.2019.6.015>
15. Chandrasekaran, N., Somanah, R., Rughoo, D., Dreepaul, R. K., Cunden, T. S. M., & Demkah, M. (2019). Digital transformation from leveraging blockchain technology, artificial intelligence, machine learning and deep learning. *Information Systems Design and Intelligent Applications: Proceedings of Fifth International Conference INDIA*, 2, 271-283. [https://doi.org/10.1007/978-981-13-3338-5\\_25](https://doi.org/10.1007/978-981-13-3338-5_25)
16. Ivančić, L., Vukšić, V. B., & Spremić, M. (2019). Mastering the digital transformation process: Business practices and lessons learned. *Technology Innovation Management Review*, 9(2), 36-50. <https://doi.org/10.22215/timreview/1217>
17. Guinan, P. J., Parise, S., & Langowitz, N. (2019). Creating an innovative digital project team: Levers to enable digital transformation. *Business Horizons*, 62(6), 717-727. <https://doi.org/10.1016/j.bushor.2019.07.005>
18. Osiyevskyy, O., Shevchenko, L., Marchenko, O., & Umantsiv, Y. (2022). Hybrid firm: the future of organizing for Industry 4.0. *Rutgers Business Review*, 7(3), 289-308. Retrieved from <https://rbr.business.rutgers.edu/sites/default/files/documents/rbr-070306.pdf>
19. Biliavskiy, V., Biliavska, Y., Umantsiv, Y., Shestack, Y., Zhurba, O., & Khavanov, A. (2024). Digital Technologies in the Financial Sector of the Economy. *Financial and Credit Activity Problems of Theory and Practice*, 4(57), 171-183. <https://doi.org/10.55643/fcaptop.4.57.2024.444>
20. *Retail Technology Industry Report* (2024). Retrieved from <https://www.cascadiacapital.com/wp-content/uploads/Retail-Tech-Industry-Report-1H-2024-REVISED.pdf>
21. *Retail Technology Trends for 2024 and Beyond* (2025) Retrieved from [https://business.comcast.com/community/docs/default-source/default-document-library/ccb\\_report\\_retailtrends-r8.pdf?sfvrsn=d4a2ec6\\_3](https://business.comcast.com/community/docs/default-source/default-document-library/ccb_report_retailtrends-r8.pdf?sfvrsn=d4a2ec6_3)
22. *What the Future of Retail Looks Like* (2024). Retrieved from <https://www.mintel.com/insights/retail/what-the-future-of-retail-looks-like/>
23. *How Immersive Technologies Blend Physical and Digital Retail* (2025). Retrieved from <https://business.comcast.com/community/browse-all/details/blending-in-person-and-digital-experiences-in-retail>
24. *Fluid Retail* (2023). Retrieved from <https://vivaldigroup.com/wp-content/uploads/2023/07/Fluid-Retail-The-future-of-shopping-Vivaldi-2023.pdf>
25. Osiyevskyy, O., Umantsiv, Y., & Biliavska, Y. (2023). Digital Ecosystem: A Mechanism of Economic Organization of Enterprises of the Future. *Rutgers Business Review*, 8(2), 175-194. Retrieved from [https://www.researchgate.net/publication/379078926\\_Digital\\_Ecosystem\\_A\\_Mechanism\\_of\\_Economic\\_Organization\\_of\\_Enterprises\\_of\\_the\\_Future](https://www.researchgate.net/publication/379078926_Digital_Ecosystem_A_Mechanism_of_Economic_Organization_of_Enterprises_of_the_Future)

## Стратегічне управління цифровим потенціалом підприємства: на шляху до Індустрії 5.0

О. О. Кавун<sup>\*1</sup>, Ю. М. Уманців<sup>1</sup>, В. Л. Осецький<sup>2</sup>,  
І. П. Соколовська<sup>2</sup>, Г. В. Уманців<sup>1</sup>

1 – Державний торговельно-економічний університет, м. Київ, Україна

2 – Київський національний університет імені Тараса Шевченка, м. Київ, Україна

\* Автор-кореспондент e-mail: [o.kavun@knu.edu.ua](mailto:o.kavun@knu.edu.ua)

**Мета.** Обґрунтування теоретичних і методологічних засад формування системи стратегічного управління цифровим потенціалом підприємства в контексті поступового переходу до Індустрії 5.0.

**Методика.** У процесі дослідження використовувалися загальнонаукові методи: аналіз і синтез, системний аналіз, групування, порівняння, наукова абстракція, методи графічного відображення й матричного моделювання.

**Результати.** Представлено комплексний погляд на стратегічне управління цифровим потенціалом підприємства як складний і багатогранний процес, що передбачає прийняття інноваційних управлінських рішень, які не обмежуються лише впровадженням інформаційних (цифрових) технологій. Натомість, він впливає на зміни корпоративної культури, сприяє перегляду бізнес-моделей, реінжинірингу бізнес-процесів, адаптації управлінських підходів і процесів до нових реалій.

**Наукова новизна.** Розроблена структура елементів системи стратегічного управління цифровим потенціалом підприємства. Встановлена послідовність реалізації етапів упровадження цифровізації бізнес-процесів підприємства в межах управлінських функцій та сформульовані принципи розробки стратегії цифрової трансформації цих процесів. Визначені основні мотиви, що обумовлюють необхідність цифровізації бізнес-процесів підприємства. Запропонована матриця для моніторингу якісних показників ефективності реалізації стратегії цифровізації бізнес-процесів.

**Практична значимість.** Дотримання запропонованої послідовності реалізації етапів цифровізації бізнес-процесів у межах функцій управління й забезпечення наявності всіх ключових компонентів сприятиме впровадженню системного підходу до удосконалення формування цифрового потенціалу підприємства. Розроблена матриця для моніторингу ефективності реалізації стратегії цифровізації допоможе менеджерам перенести фокус стратегій на забезпечення сталого, інклюзивного розвитку й підвищення прибутковості діяльності компанії в перспективі переходу до Індустрії 5.0.

**Ключові слова:** стратегічне управління, цифровий потенціал, Індустрія 5.0, стратегія цифровізації, бізнес-процеси

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