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FEATURES OF THE DEVELOPMENT OF DIGITAL TRANSFORMATION STRATEGIES FOR IMPROVING THE EFFECTIVENESS OF BUSINESS PROCESSES OF COMMERCIAL ENTERPRISES IN UKRAINE

The article analyzes digital transformation strategies, defining their essence, features, advantages, and disadvantages. It examines strategies related to the integration of digital technologies, the use of data analytics, customer orientation, the implementation of IoT, cloud computing, and business process automation. International practices of implementing digital transformation strategies by commercial enterprises are explored, with examples from Walmart, Starbucks, Zappos, John Deere, Airbnb, and AXA Group. Based on the study's results, steps and recommendations are formulated for implementing the synergy of digital transformation strategies by commercial enterprises, which involve the use of data analytics, cloud computing, and robotic process automation (RPA) in business processes. It is determined that a systematic approach to digital transformation ensures control at each stage, avoiding chaotic changes and being key to the successful development of enterprises, improving business process efficiency, customer interaction, and competitiveness.

Key words: *digital transformation, business enterprises, strategy, business processes, synergy.*

JEL classification: *A11, L10, L11, O30, O32*

ОСОБЛИВОСТІ РОЗРОБКИ СТРАТЕГІЙ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ ДЛЯ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ БІЗНЕС-ПРОЦЕСІВ КОМЕРЦІЙНИХ ПІДПРИЄМСТВ УКРАЇНИ

Мета статті полягає у дослідженні особливостей розробки стратегій цифрової трансформації для підвищення ефективності бізнес-процесів комерційних підприємств України. Актуальність теми обумовлена тим, що розробка ефективних стратегій цифрової трансформації є непростим завданням, що потребує глибокого аналізу та всебічного підходу. Тож необхідним є визначення основних проблем, з якими стикаються українські комерційні підприємства на шляху до цифрової еволюції та розробка рекомендацій для підвищення ефективності бізнес-процесів за допомогою сучасних технологій. За результатами проведеного дослідження: проаналізовано стратегії цифрової трансформації, визначено їх сутність, особливості, переваги, недоліки. Розглянуто стратегії цифрової трансформації щодо інтеграції цифрових технологій, використання аналітики даних, орієнтації на клієнта, впровадження IoT, хмарних обчисленнь та роботизації бізнес-процесів. Досліджено міжнародні практики впровадження стратегій цифрової трансформації комерційними підприємствами, на прикладі Walmart, Starbuck, Zappos, John Deere, Airbnb та AXA Group. За результатами проведеного дослідження сформовано кроки, які включать в себе заходи планування, оцінки, проектування, підготовки, впровадження, тестування, оптимізації, підтримки, розвитку та надано рекомендації щодо впровадження синергії стратегій цифрової трансформації комерційними підприємствами, які передбачають використання технологій аналітики даних, хмарних обчислень та роботизації у бізнес-процесах (RPA). Акцентовано увагу на тому, що синергія стратегій цифрової трансформації є вкрай ефективним для українських підприємств. Системний і поетапний підхід до цифрової трансформації дозволяє уникнути хаотичних змін і забезпечує контроль на кожному етапі. Таким чином, правильне впровадження стратегій цифрової трансформації є ключовим для успішного розвитку комерційних підприємств в сучасних умовах. Це дозволяє підвищити ефективність бізнес-процесів, покращити взаємодію з клієнтами та забезпечити довгострокову конкурентоспроможність на ринку.

Ключові слова: *цифрова трансформація, комерційні підприємства, стратегія, бізнес-процеси, синергія.*

Statement of the problem. In the era of rapid digital technology development, commercial enterprises in Ukraine face new challenges and opportunities that require immediate response and strategic approaches. In the context of globalization and the digital revolution, business success increasingly depends on the ability to adapt to new realities by utilizing digital tools and platforms. However, developing effective digital transformation strategies is a complex task that requires deep analysis and a comprehensive approach. Therefore, let's identify the main problems that Ukrainian commercial enterprises encounter on their path to digital evolution and propose practical solutions to enhance business process efficiency through modern technologies.

Analysis of recent research and publications. The essence, challenges, and prospects of developing digital transformation strategies have been studied in the works of the following foreign experts: Rogers D. [1] explored strategies for rethinking business models for the digital age. Davenport T.H., Harris J.G. [2] Analyzed the use of analytics as a new science for achieving competitive advantage. Peppers D., Rogers M. [3] described the future of marketing with a focus on building individualized customer relationships. Greengard S. [4] investigated the

concept of the Internet of Things and its impact on society and business. Erl T., Puttini R., Mahmood Z. [5] studied the concepts, technologies, and architecture of cloud computing. Willcocks L., Hindle J., and Lacity M. [6] examined service automation and the future of work in the context of robotics. However, more than one of the experts did not consider the following issues that were covered in this work: determination of the essence of digital transformation strategies for commercial enterprises, features of digital transformation strategies for commercial enterprises, advantages and disadvantages of digital transformation strategies for commercial enterprises, expected improvements in business processes following the implementation of digital transformation strategies by commercial enterprises, an overview of software platforms and practices of synergistic interaction between strategies of digital transformation, international practices of implementation of digital transformation strategies by commercial enterprises, steps and recommendations for implementing the synergy of digital transformation strategies by commercial enterprises in Ukraine.

Objectives of the article the research focuses on exploring the features of developing digital transformation strategies to enhance the efficiency of business processes for commercial enterprises in Ukraine, identifying detailed steps, and developing recommendations for implementing the synergy of digital transformation strategies by Ukrainian commercial enterprises.

Summary of the main results of the study. Before delving into the specifics of developing digital transformation strategies to enhance the efficiency of business processes for commercial enterprises in Ukraine, let's define the essence of these strategies.

Table 1 presents the opinions of expert researchers on the essence of digital transformation strategies for commercial enterprises.

The data presented in Table 1 indicate that the digital transformation of commercial enterprises opens up numerous opportunities for enhancing efficiency and competitiveness. Implementing these strategies helps commercial enterprises effectively adapt to rapid market changes, optimize processes, and improve customer interactions.

Figure 1 shows the features of digital transformation strategies for commercial enterprises.

Considering the data presented in Figure 1, it can be concluded that the features of digital transformation strategies for commercial enterprises lie in their ability to adapt to a rapidly changing market using modern technologies. Therefore, a strategy for integrating digital technologies helps optimize business processes by implementing CRM and ERP systems for better coordination between departments and increased productivity. The use of data analytics allows enterprises to collect, process, and analyze large volumes of data, facilitating informed decision-making and accurate forecasting. A customer-centric approach and focus on customer values become the foundation for service personalization, enhancing customer loyalty and increasing enterprise revenue.

The Internet of Things (IoT) enables enterprises to monitor and manage production processes in real-time, optimizing operational processes and reducing costs. Cloud computing provides flexibility and scalability to IT infrastructure, easing data storage, processing, and analysis. Robotic Process Automation (RPA) automates routine tasks, reducing errors and alleviating the burden on human resources, allowing them to focus on more important strategic work. These strategies not only improve overall efficiency and productivity but also enable enterprises to better respond to market changes, manage risks, and ensure sustainable development of their commercial activities.

Figure 2 illustrates the advantages of digital transformation strategies for commercial enterprises.

According to the data in Figure 2, it can be concluded that the advantages of digital transformation strategies for commercial enterprises become evident when analyzing their impact on various aspects of business. The integration of digital technologies not only enhances the efficiency and accuracy of business processes but also improves customer interactions and reduces operational costs.

Table 1

Determination of the essence of digital transformation strategies for commercial enterprises

№	Author	The name of the digital transformation strategy	Determination of the essence of the digital transformation strategy
1	D.Rogers	Strategy for the integration of digital technologies	It is aimed at the implementation of the latest digital tools and platforms in all aspects of the organization's activities to improve efficiency, innovation and competitiveness [1].
2	T.H.Davenport, J.G. Harris	Strategy for using data analytics technologies	It consists in the collection, processing, analysis and application of data for making informed decisions, improving business processes and achieving strategic goals [2].
3	D. Peppers, M. Rogers	Strategy of orientation towards the client and his values	Aimed at building a business model that puts the needs and expectations of customers in the first place, providing a high level of service and creating long-term loyalty [3].
4	S. Greengard	Strategy for using Internet of Things (IoT) technologies	It consists in implementing and using IoT technologies to connect physical devices to the Internet, which allows collecting and analyzing data in real time, improving performance and efficiency [4].
5	T. Erl, R. Puttini, Z. Mahmood	Strategy for using cloud computing technologies	It involves the use of cloud services and infrastructure for data storage, information processing, and providing access to IT resources, which increases the flexibility and scalability of business [5].
6	L. Willcocks, J. Hindle and M. Lacity	Strategy for the application of robotics in business processes (RPA)	It consists in implementing software robots to automate repetitive tasks and processes, which allows to reduce costs, reduce the number of errors and increase efficiency [6].

Source: formed on the basis of [1–6]

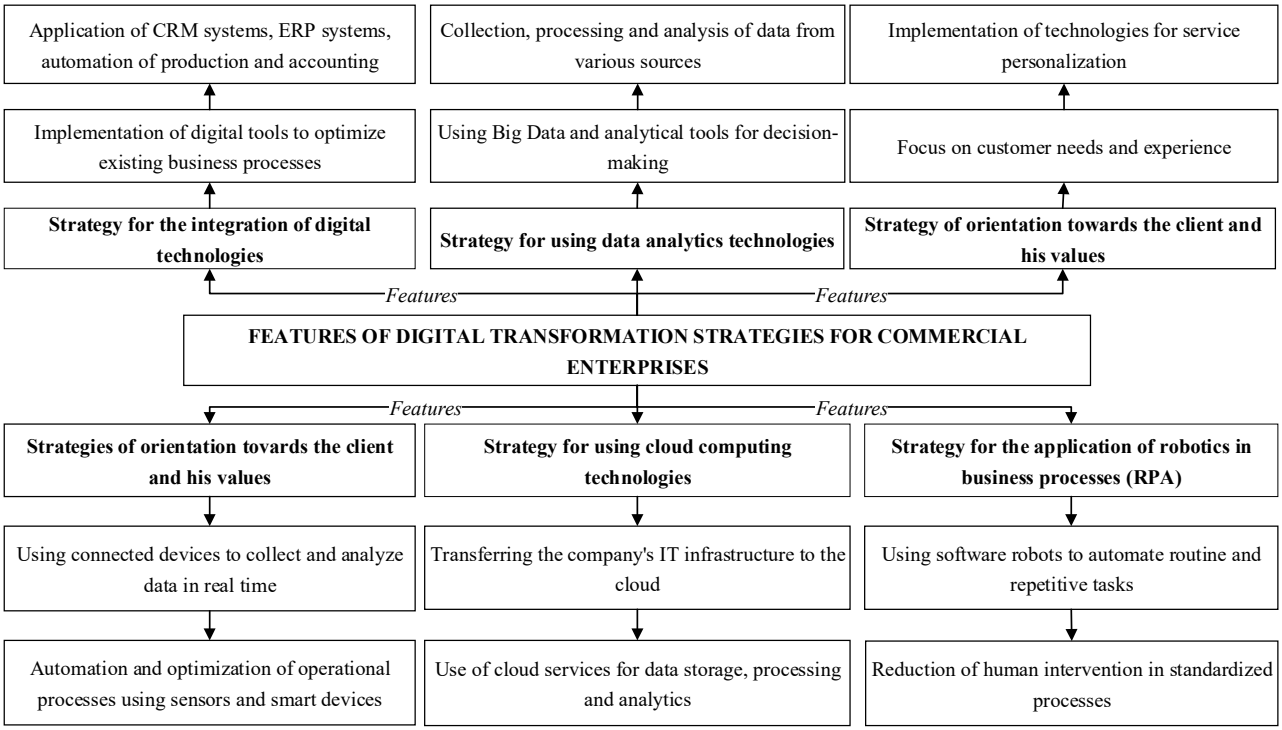

Figure 1. Features of digital transformation strategies for commercial enterprises

Source: formed on the basis of [1–6]

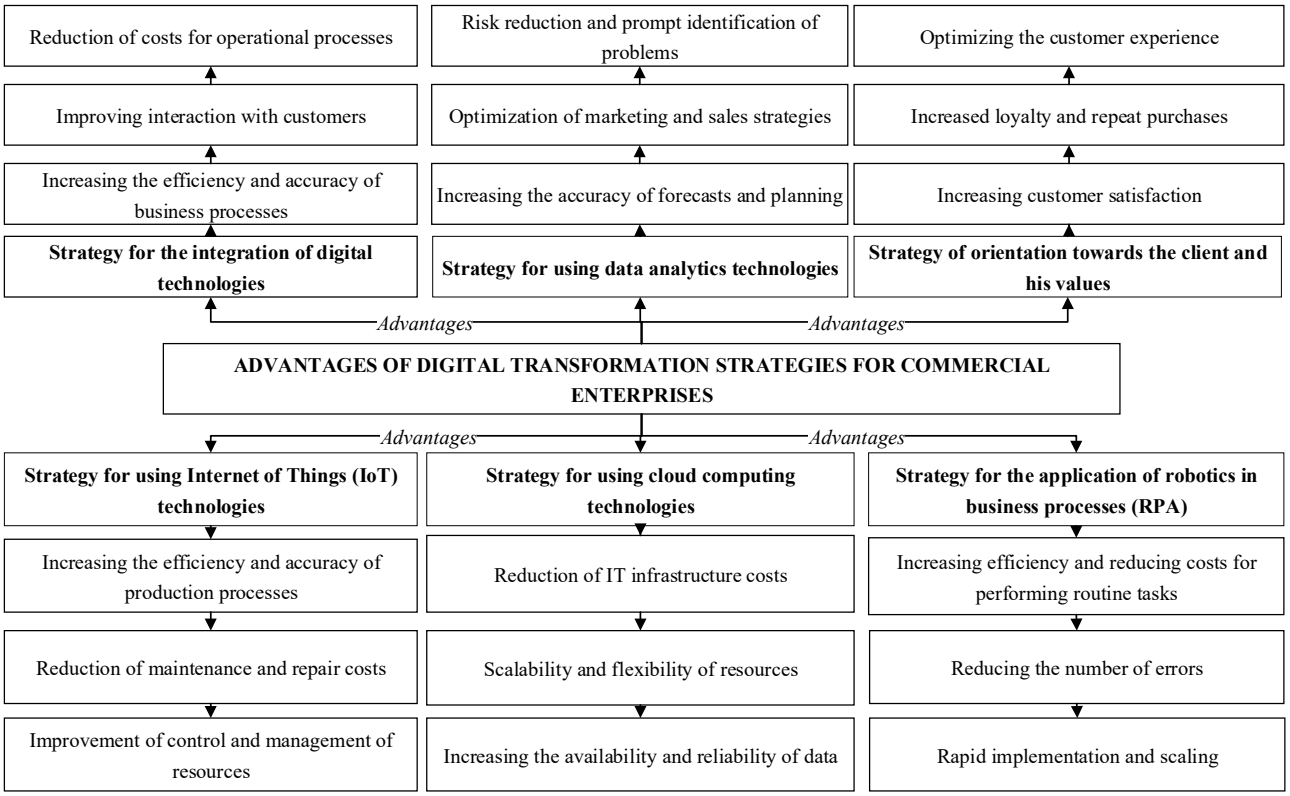

Figure 2. Advantages of digital transformation strategies for commercial enterprises

Source: formed on the basis of [1–6]

Data analytics allows enterprises to make more accurate forecasts and planning, optimize marketing and sales strategies, and quickly identify and mitigate risks. A customer-centric focus increases satisfaction, fosters loyalty, and encourages repeat purchases, optimizing the overall customer experience. Internet of Things (IoT) technologies help improve the efficiency of production processes, reduce maintenance costs, and enhance resource control and management. Cloud computing enables businesses to reduce IT infrastructure costs, providing flexibility and scalability of resources, increasing data availability and reliability. Robotic Process Automation (RPA) allows the automation of routine tasks, reducing costs and errors, facilitating the rapid implementation and scaling of new processes. Ultimately, these strategies not only improve specific aspects of the business but also create a more adaptive, efficient, and customer-oriented business model, which is crucial for success in today's business environment.

Figure 3 illustrates the drawbacks of digital transformation strategies for commercial enterprises.

As shown in Figure 3, despite its numerous advantages, the digital transformation of commercial enterprises also has certain drawbacks. The integration of digital technologies often comes with high implementation and personnel training costs, as well as requiring constant support and system updates. The use of data analytics technologies demands significant investments in infrastructure and the involvement of highly qualified specialists to work with the data. A customer-centric approach requires continuous monitoring and analysis of customer behavior, placing high demands on the speed of business process adaptation.

The implementation of Internet of Things (IoT) technologies is associated with high initial costs and raises issues of data security and privacy. Cloud computing, while providing flexibility, makes enterprises dependent on cloud service providers and carries potential data security risks. Lastly, Robotic Process Automation (RPA) is limited in its ability to perform complex tasks and requires ongoing costs for the maintenance and updating of robots. These identified drawbacks require careful planning and management to minimize risks and ensure successful digital transformation.

Figure 4 presents the expected improvements in business processes following the implementation of digital transformation strategies by commercial enterprises.

The data presented in Figure 4 indicate that the expected improvements in business processes following the implementation of digital transformation strategies by commercial enterprises are significant and multifaceted. The integration of digital technologies enhances coordination between departments, provides quick access to information for decision-making, and reduces the time required to complete routine tasks.

The use of data analytics technologies increases process transparency and control, enables data-driven decision-making, and allows for continuous improvement of business strategies. A customer-centric approach enhances the effectiveness of marketing campaigns, improves customer interactions at all stages of the lifecycle, and allows for a swift response to changing customer needs. Internet of Things (IoT) technologies automate the monitoring and management of production lines, optimize logistics and inventory management, and enable real-time problem detection and resolution. Cloud computing ensures rapid deployment and scaling of IT resources, business continuity through backups and disaster recovery, and improves collaboration and information sharing between departments. Robotic Process Automation (RPA) automates administrative and financial tasks, improves the accuracy and speed of data processing, and reduces the need for human resources to perform more important tasks.

Table 2 provides a list of software platforms and practices for synergistic interaction between digital transformation strategies.

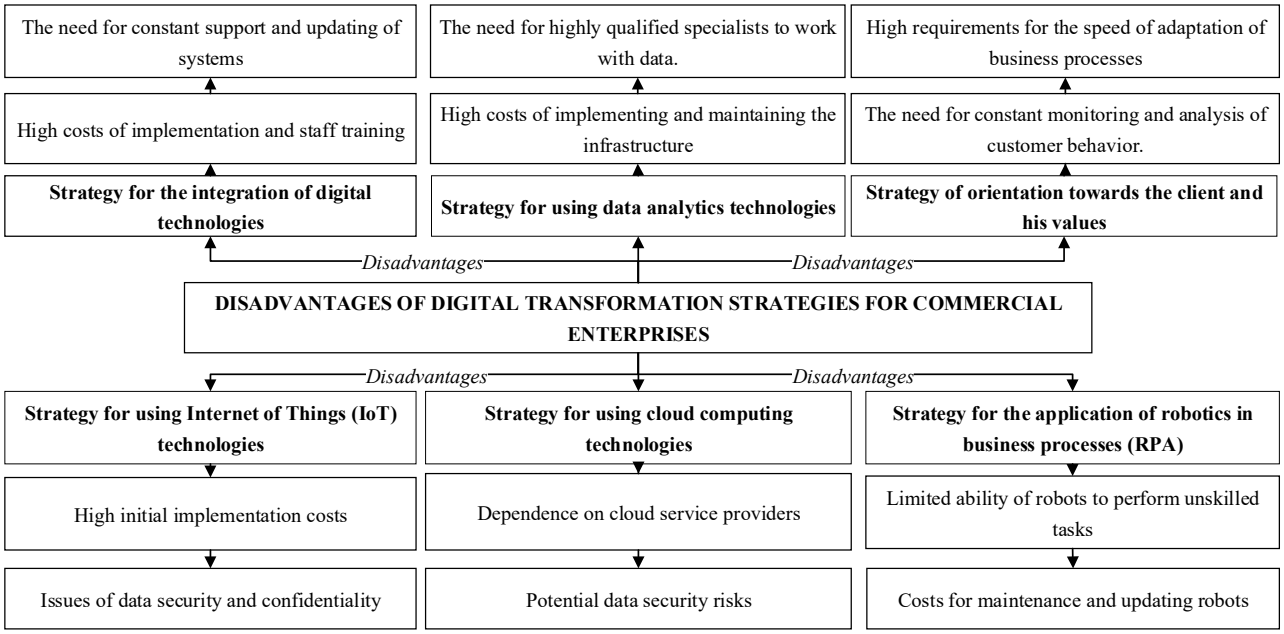

Figure 3. Disadvantages of digital transformation strategies for commercial enterprises

Source: formed on the basis of [1–6]

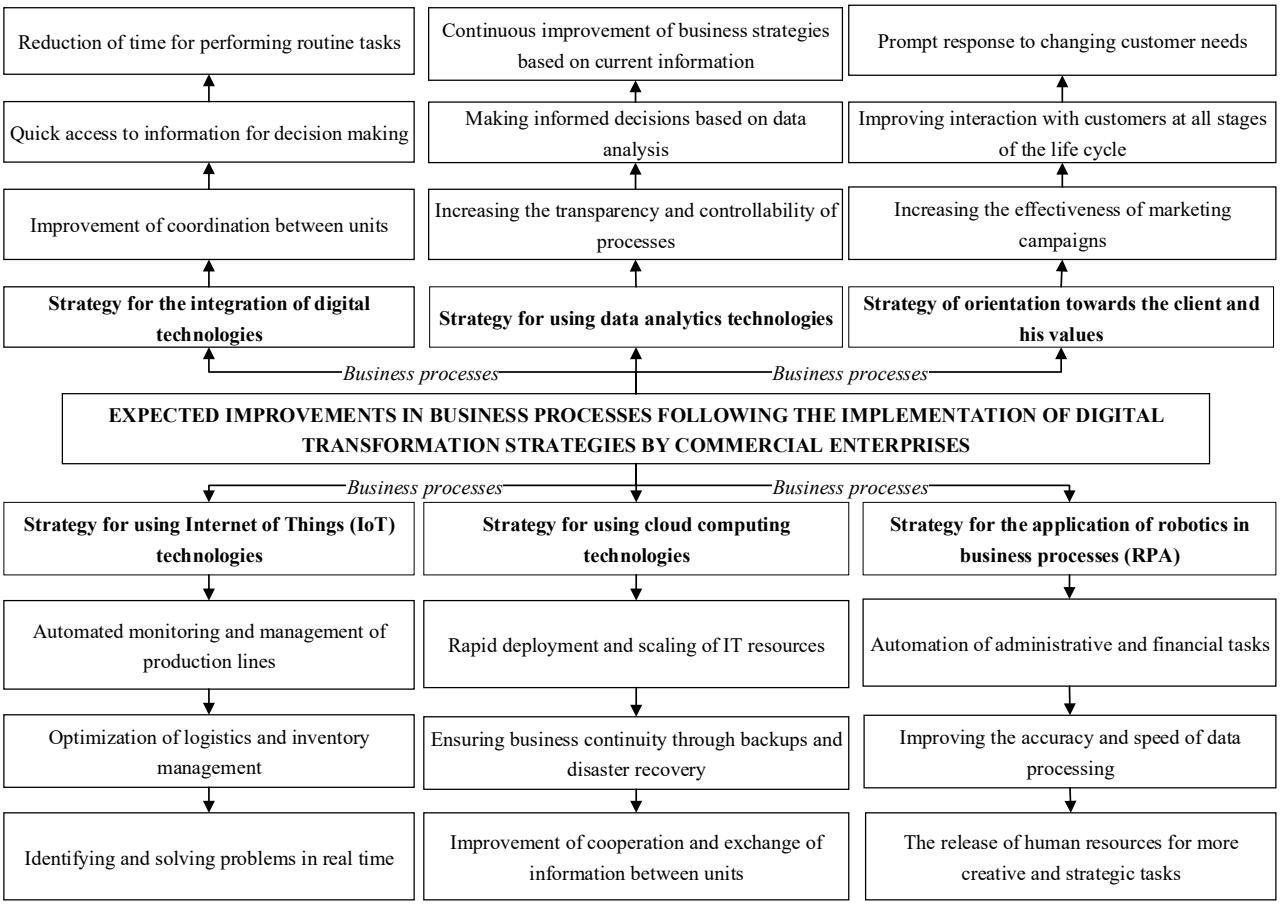

Figure 4. Expected improvements in business processes following the implementation of digital transformation strategies by commercial enterprises

Source: formed on the basis of [1–6]

Table 2

Software platforms and practices of synergistic interaction between strategies of digital transformation

№	The name of the strategy of digital transformation	The name of the software platforms	Use of practices
1	Strategy for the integration of digital technologies	1. Middleware 2. API Management. 3. Enterprise Service Bus (ESB)	Using APIs to connect different systems and applications. Development of applications in the form of a set of independent services. Integration of development and operations to accelerate deployment and improve software quality.
2	Strategy for using data analytics technologies	1. BI platforms. 2. Big Data platforms. 3. Analytical databases.	Centralization of data. Establishing data quality and security management policies. Using algorithms to predict trends and automate decisions.
3	Strategy of orientation towards the client and his values	1. CRM systems. 2. Feedback systems. 3. Omnichannel communication platforms	Visualization and analysis of customer journeys. Use of data to personalize services and offers. Regular collection and analysis of customer feedback to improve the service.
4	Strategy for using Internet of Things (IoT) technologies	1. IoT platforms. 2. Sensors and devices. 3. Communication protocols.	Continuous collection and analysis of data from IoT devices. Identifying potential problems before they occur. Using IoT to automate routine operations.
5	Strategy for using cloud computing technologies	1. Cloud platforms. 2. Container management tools. 3. Backup systems.	Transferring existing systems to cloud environments. Using cloud-based tools to ensure data security. Planning and implementation of disaster recovery strategies.
6	Strategy for the application of robotics in business processes (RPA)	1. RPA platforms. 2. Integration tools. 3. RPA analytics.	Identification of routine and repetitive tasks for robotization. Creation and configuration of software robots to perform tasks. Continuous monitoring of robots and optimization of processes.

Source: formed by the author on the basis of his own research

According to the data in Table 2, it can be asserted that the integration of digital technologies is critically important for enhancing efficiency and competitiveness. The identified strategies, which encompass the integration of digital systems through APIs, the use of Middleware platforms like MuleSoft and Dell Boomi, and the development of applications as independent services, allow for accelerated deployment and improved software quality. Data analytics relies on the use of BI platforms such as Tableau and Power BI, and analytical databases like Google BigQuery, which provide data centralization for easier analysis, quality management policies, and the use of algorithms for trend forecasting. Customer orientation includes the use of CRM systems like Salesforce and omnichannel communication platforms such as Zendesk for service personalization and feedback collection. IoT technologies involve the continuous collection and analysis of data from IoT devices using platforms like AWS IoT and sensors like Raspberry Pi, enabling early problem detection and automation of routine operations. The use of cloud computing is based on platforms like AWS and Google Cloud, where migrating systems to the cloud ensures data security and disaster recovery strategies.

Robotic Process Automation (RPA) includes platforms like UiPath and integration tools such as Zapier, which help identify routine tasks for automation and continuously monitor robot performance to optimize processes. Implementing these strategies promotes more effective use of technologies, improves customer interactions, provides reliable analytics and automation, leading to business growth and successful adaptation to the rapidly changing digital environment.

Figure 5 illustrates international practices of implementing digital transformation strategies by commercial enterprises.

The data presented in Figure 5 indicates that international practices of digital transformation implementation in commercial enterprises demonstrate how companies achieve success through the latest digital transformation technologies.

Walmart has effectively integrated its supply chain, logistics, inventory management, and retail operations. This not only reduced operational costs but also sped up customer service, making processes more streamlined and efficient. Starbucks, using data analytics, optimized its product assortment, inventory management, and marketing campaigns. This approach increased sales through personalized offers, reduced storage costs, and attracted more customers. Zappos, through CRM systems, achieved high customer satisfaction, increased loyalty, and boosted the number of repeat purchases, positively impacting the brand's reputation. John Deere implemented IoT technologies in agricultural machinery, allowing farmers to monitor equipment status in real time and receive analytics to improve yields. This increased productivity, reduced maintenance costs, and optimized yields through precision farming. Airbnb utilizes AWS cloud services to scale its platform, ensuring stable site operation during peak loads and rapid implementation of new features while reducing infrastructure costs. AXA Group has automated the processing of insurance claims and document management through robotics, reducing claim processing time from several days to a few hours, decreasing errors, and increasing customer satisfaction.

The identified examples of implementing digital technologies radically transform business processes of commercial enterprises, making them more efficient, flexible, and customer-oriented. The success of international companies indicates that digital and physical innovations are key factors in achieving competitive advantages.

Figure 6 presents the steps and recommendations for implementing the synergy of digital transformation strategies by commercial enterprises in Ukraine, taking into account data analytics technologies, cloud computing, and business process robotics (RPA), which have the most effective potential.

As shown in Figure 6, the implementation of the synergy of digital transformation strategies by commercial enterprises in Ukraine includes several key stages. Initially, it is necessary to thoroughly assess the current state of the IT infrastructure through an audit and identify the main problems and business needs. Based on this, clear transformation goals and key performance indicators (KPIs) are established.

An important step is the market analysis of cloud platforms and the selection of the one that best meets the enterprise's needs. During the design and preparation phase, migration strategies for systems and data are developed, and the infrastructure and personnel are prepared.

The migration execution starts with less critical systems and gradually moves to key ones, using automated tools to configure cloud environments. The integration of analytical tools and the implementation of robotics process automation (RPA) ensure efficient data collection and analysis, as well as the automation of routine tasks. During testing, a comprehensive check of the new infrastructure is conducted, with an emphasis on ensuring business continuity.

Optimization includes identifying and addressing performance and security issues. The final stage involves continuous monitoring and maintenance of the systems, with the implementation of new technologies and features for ongoing improvement based on feedback and data analytics.

This approach is highly effective for Ukrainian enterprises for several reasons. First, a systematic and phased approach to digital transformation avoids chaotic changes and ensures control at each stage.

This is especially important in conditions of limited resources and the need to minimize risks. Second, the implementation of cloud technologies and RPA significantly increases business process efficiency and reduces operational costs, which is critical in a competitive environment. Third, the integration of analytical tools provides valuable insights from data, helping to make informed decisions and respond quickly to market changes. Thus, continuous monitoring and optimization maintain high system performance and security, which are key factors for stable growth and business development. This comprehensive approach promotes the creation of a flexible and adaptive business model capable of withstanding the challenges of the modern digital world.

Conclusions. Summarizing the results of the study, the current challenges faced by enterprises in the context of the digital revolution and globalization were analyzed, and ways to overcome them through the implementation of digital technologies were proposed. Definitions of

Figure 5. International practices of implementation of digital transformation strategies by commercial enterprises

Source: formed on the basis of [7–12]

digital transformation strategies by leading foreign experts were provided, including the integration of digital technologies, the use of data analytics, customer orientation, IoT implementation, cloud computing, and business process automation. It was determined that these strategies enhance the innovation and competitiveness of commercial enterprises, reduce overall operational costs, and improve customer interactions. However, drawbacks were also identified, such as high implementation costs, the need for personnel training, and the demand for qualified specialists. Despite these challenges, digital transformation significantly improves business processes, such as better coordination between departments, efficient resource management, and increased customer satisfaction. Therefore, the proper implementation of digital transformation strategies is crucial for the successful development of commercial enterprises in modern conditions.

The first stage	**Planning and evaluation**	
1.1 Assess the current state of the IT infrastructure	1.2. Define goals and KPIs	1.3. Analyze the market of modern technologies and choose a cloud platform
1.1.1 Conducting an audit of the existing IT infrastructure and current business processes	1.2.1 Establish clear goals for digital transformation	1.3.1 Explore the cloud platform market
1.1.2 Determination of the main needs and problems that need to be solved	1.2.2 Define key performance indicators (KPIs) to measure success	1.3.2 Choose the platform that best meets the needs and budget of the enterprise
The second stage	**Design and preparation**	
2.1 Develop systems and data migration strategies	2.2 Prepare infrastructure and personnel for implementation	
2.1.1 Create a detailed migration plan to the cloud infrastructure	2.2.1 Implement the necessary changes in the network infrastructure	
2.1.2 Determine the priority of system and data migration	2.2.2 Conduct staff training on the use of new tools and technologies	
The third stage	**Implementation**	
3.1 Perform data and systems migration	3.2 Integrate analytical tools	3.3 Implement RPA
3.1.1 Carry out migration of less critical systems, gradually moving to key ones	3.2.1 Install and configure business analytics tools	3.3.1 Choose processes that can be automated with the help of robots
3.1.2 Use automated tools for data migration and configuration of cloud environments	3.2.2 Integrate them with existing systems for data collection and analysis	3.3.2 Configure software robots to perform routine tasks
The fourth stage	**Testing and optimization**	
4.1 Perform functionality testing	4.2 Optimize and adjust implemented technologies	
4.1.1 Conduct comprehensive testing of new infrastructure and systems	4.2.1 Identify and resolve performance and security issues	
4.1.2 Ensure business continuity and minimize downtime during testing	4.2.2 Configure systems to achieve optimal performance	
The fifth stage	**Support and development**	
5.1 Performing system support and monitoring	5.2 Apply new technologies for continuous improvement	
5.1.1 Insert monitoring systems to track the state of the cloud infrastructure	5.2.1 Conduct regular performance evaluations and make necessary changes	
5.1.2 Provide constant user support and quick resolution of technical problems	5.2.2 Implement new features and innovations based on feedback and data analytics	

Figure 6. Steps and recommendations for implementing the synergy of digital transformation strategies by commercial enterprises in Ukraine

Source: formed by the author on the basis of his own research

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