International Journal of Latest Engineering and Management Research (IJLEMR)
ISSN: 2455-4847
www.ijlemr.com || Volume 10 – Issue 06 || June 2025 || PP. 15-21

Digitalization of Business Processes as a Strategic Factor in Enhancing Competitiveness in International Markets

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Abstract: The role of business process digitalization as a competitive driving force in foreign markets is being examined in this article. It explores the influence of new information technologies on various areas of organizational activity, from manufacturing processes to planning and logistics. The impact of digitalization on increasing speed and flexibility and making decisions faster, reducing expenses, and easier access to international markets is analyzed. Transnational large firms and small and medium-sized enterprises struggling to occupy competitive niches in the international market are contrasted. Emphasis is given to cross-country digital transformation experience and its impact on international competitiveness.
Keywords: digitalization of business processes, competitiveness, international markets, digital technologies.

I. INTRODUCTION

The contemporary era of world economic evolution is characterized by the rapid spread of digital technologies, which have a revolutionary impact on business models, production chains, and global competition. It goes beyond the automation of individual functions and represents a systemic remodeling of the whole management, interaction, and decision-making framework. It is against the backdrop of globalization and increasing market integration that it remains an increasingly important way of building firm resilience, cutting costs, increasing productivity, and reacting to worsening external environment. Those organizations capable of implementing such solutions display higher growth rates, resilience when handling crises, as well as potential expansion abroad.

In the context of growing technological competition between countries and companies, new approaches to assessing competitiveness are emerging, in which digital capabilities play an important role. Aspects such as digital maturity, innovation activity, scalability speed, and the level of integration into global digital platforms become decisive success factors. The aim of this article is to analyze the digitalization of business processes as a strategic factor in enhancing international competitiveness.

II. THEORETICAL FOUNDATIONS OF BUSINESS PROCESS DIGITALIZATION

The process of adopting new information technologies in one or another part of an organization's business with a view to its further development, productivity growth, and adaptation to changes in the environment is known as digitalization. It addresses not only technological transformations, but also structural, management policy variations, and strategy development. It should be noted that although it, like automation, is part of the implementation of modern technologies, there are significant differences between them in terms of scale and goals (table 1).

Table 1: Comparison of business process digitalization and automation

Criteria	Digitalization	Automation
The main goal	Comprehensive transformation of the organization.	Improve the efficiency of specific operations and tasks, especially routine and repetitive ones.
Scope of application	Covers all aspects of the organization: production, management, marketing, sales, finance.	It is applied to individual processes such as data processing, production line management.
Changing business processes	Complete transformation of business processes, including changes in the company's structure and culture.	Limited improvement of processes without changes in the organizational structure.
Flexibility	High flexibility and adaptability to changes in the market environment and the external environment.	Limited flexibility in adapting to changes, focused on optimizing current tasks.

According to the author, digitalization covers a much broader range of a company's activities. Its implementation not only improves internal efficiency but also enables adaptation to market changes and rapid response to external challenges.

The process of such transformation has a significant impact on various components of the business. These, in turn, can be conditionally divided into several categories (fig. 1).

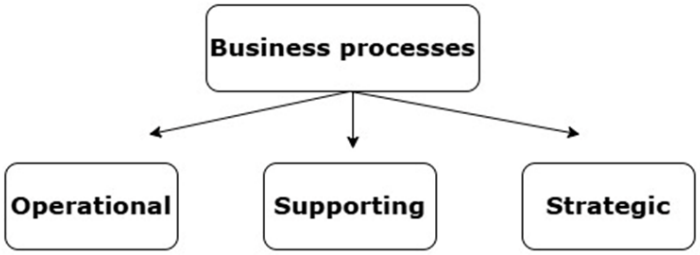

Fig. 1: Components of business processes

Operational procedures are specifically related with production of goods or delivery of service to fulfill the fundamental functions of the company. They are directly affected by digitalization in terms of increased productivity, simplicity of operation, and cost reduction. Integration of information technologies into operations maintains automation of administrative procedures, improves management of resources, and improves flexibility in responding to external changes. This results in improved efficiency and reduced risk of error.

Support processes play an important role in enabling the smooth operation of an organization, for example, in logistics, human resource management, and information technology support. Digitalization is a crucial tool in all these for increasing efficiency and simplifying the management of external and internal resources.

The strategic level involves more higher-level features of activity, including planning, risk management, innovation development, and long-term decision-making. The impact of digitalization is that new technologies enable companies to react more quickly to external environment changes, make decisions that are better informed through analytics and data, and develop new business models.

Business process transformation is a complex and multidimensional process. It is impossible without the use of advanced digital technologies, which become the basis for achieving the goals set (fig. 2).

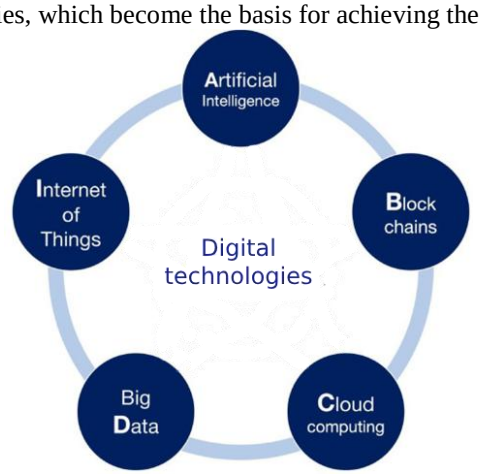

Fig. 2: Digital technologies

One of those is artificial intelligence (AI) that even further expands the horizons of automation, forecasting, and decision-making based on big data analysis. It goes beyond simple information handling algorithms and enables companies to make improved and well-considered decisions, for example, in demand planning, supply chain management, or customer engagement.

Cloud solutions are also an important feature. They allow organizations to manage their information assets effectively by providing them with the capability to access information and applications at any time and from any location on the globe. Their implementation makes the business more flexible, reduces infrastructure costs, and enhances information security.

Blockchain is yet another foundational technology, particularly in industries where a great degree of trust between process stakeholders is required. It is used in financial processes, supply chain management systems, as

well as systems of data safeguarding and transactional transparency. Its advantage lies in the fact that it is able to assure immutability and security without the presence of a central decision-making authority.

No less important is analytics of big data, which enables companies to capture, process, and analyze masses of data extracted from various sources. Leveraging such information provides companies the opportunity to learn more about customers' requirements, forecast changes in the surrounding market, and modify their strategy in real-time.

Another important technology in digitalization is the Internet of Things (IoT). It is a collection of physically connected to the Internet devices from which one can send and receive information. On a business level, it provides opportunities for optimized process execution, quality enhancement of customer service, as well as the facilitation of cooperation with suppliers.

Thus, digitalization is a multi-faceted and multi-dimensional process embracing all the activities of an organization's operations. Adoption of technologies not only improves business process effectiveness but also creates new models of interaction with customers, suppliers, and partners and thereby offers new possibilities for the formation of competitiveness in foreign markets.

III. ECONOMIC ASPECTS OF DIGITALIZATION

The transformation of business processes brings significant impact to the economy of an enterprise, resulting in the improvement of its bottom line and competitiveness. First and foremost, it affects the productivity of labor. According to McKinsey research, companies that have incorporated advanced digital technologies can improve their productivity by 20-30% [1]. This is due to the optimization of processes, automation of routine functions, as well as the implementation of innovative data handling systems.

A critical economic impact is also the decreasing of transaction costs. According to research conducted in the field of financial technologies, the transition from traditional forms of transaction processing to digital interfaces will reduce the above costs by 15-20%, which is especially important for companies operating in the global economy [2].

Digitalization also has a great impact on creating added value in business. New technologies installed enable companies to create new products and services, their value to the end consumer greatly increasing as a consequence. For example, using AI to monitor consumer behavior and customize services can greatly increase margins by offering more valuable and customer-oriented goods. This leads to revenue growth and enhances competitive edges in worldwide markets. As Accenture discovered in a study, companies that have embraced digital technologies have a higher revenue and net profit rate compared to their counterparts that are not [3].

From the point of view of the economic efficiency of implementation of digital technology, important indicators are return on investment (ROI), total cost of ownership (TCO), and key performance indicators (KPI). Table 2 provides a detailed description of these indicators and their impact on business.

Table 2: Economic efficiency of digital technology implementation [4, 5]

Indicator	Description	Business impact
ROI	Evaluation of the effectiveness of investments in digitalization.	A positive impact on the company's financial results, increased profitability and improved profitability indicators.
TCO	Accounting for all costs of technology implementation and maintenance, including hardware, software, and employee training.	It allows you to effectively plan a budget and take into account all long-term costs of digitalization.
KPI	It helps to track the effectiveness of implemented solutions, including order processing time and forecasting accuracy.	Increase the efficiency of operational processes, improve the quality of services and goods, reduce costs and task completion time.

As a result, the use of digital technologies creates improved financial performance, improved profitability, and increased efficiency of the business operation. They are also critical in global supply chains and international logistics. In a market environment where businesses operate all over the world, it is necessary to maintain continuous and efficient movement of goods, information, and financial flows. Digitalization affects supply chain management directly by using tracking and monitoring technologies in real-time. Technologies like blockchain improve transaction transparency, reduce the time required for processing and verification of contracts, and lower fraud and error risks. Next-generation supply chain management systems integrated with cloud and AI systems enable demand change to be forecasted and delivery time and cost to be predicted more accurately.

Utilization of the IoT in logistics allows monitoring of goods and transportation status in real time. This improves logistics activities' precision, reduces delivery time, and lowers costs. Thus, digitalization has profound economic impacts on all aspects of business to allow enterprises to achieve more performance in world markets.

IV. ORGANIZATIONAL ASPECTS OF DIGITAL TRANSFORMATION

Business transformation is not merely a technological shift but fundamental organizational changes that affect corporate culture, management hierarchy, and work processes. Successful implementation requires the use of change management models that effectively adapt to rapidly changing market conditions and provide flexibility when introducing new technologies into the process.

The agile methodology is a method of project management focusing on steady completion of activities within cyclical periods, constant collaboration with the client, and ultimate flexibility along the path of product creation and delivery. Unlike traditional waterfall methods, it demonstrates cyclicity, rapid adaptation, and continuous improvement at each phase of work. Such a procedure makes enterprises able to orient themselves easily in accordance with changing outside surroundings and clients' demands, particularly when these factors alter rapidly against a backdrop of advancing technologies and business conditions (fig. 3).

Fig. 3: Agile model

In turn, digital governance provides strategic leadership and oversight of digital initiatives at all levels, taking into account risks related to information security and regulatory compliance. This approach helps integrate solutions into the overall business strategy, ensuring not only innovation but also security, legal compliance, and effective risk management (fig. 4).

Fig. 4: Digital governance model

Despite the obvious advantages, companies are generally faced with organizational resistance, one of the major obstacles to digital transformation. It is associated with various factors including fear of new technologies, fear of job loss, and employees' unreadiness to deal with new systems. From statistical information, 70% of corporate transformations fail through poor implementation of organizational changes and

resistance from employees [6]. To overcome the difficulties, it is necessary to introduce the practice of involving staff in the process of change, as well as in training and developing new skills.

The formation of corporate culture and the improvement of employees' skills become part of effective change. It not only involves technological introduction but also creating conditions for continuous learning and sharing information within the company. Employees should know how new technologies can enhance their work to be more productive and of better quality. It is required that experts at every organizational level possess the necessary competencies, i.e., working with large volumes of data, AI, cloud technology, and analytical tools. Digital literacy companies can significantly improve their competitiveness and become able to adapt quickly to market changes.

Hence, organizational aspects of digital transformation mean not only the provision of cutting-edge technologies but also the provision of a governance regime ensuring smooth and effective implementation of reforms. That includes organizations becoming management adaptable, settling issues on resistance, and creating conditions for developing competencies and corporate culture to ensure development and innovation.

V. DIGITALIZATION AS A FACTOR IN ENHANCING COMPETITIVENESS IN INTERNATIONAL MARKETS

Business process digitalization is not only a technological shift but also a strategic tool that fundamentally enhances the competitiveness of companies in the global market. Among the drivers of business expansion into new markets is that it can improve the pace of adaptation. It enables companies to significantly simplify decision-making processes, production and logistic processes, and respond swiftly to changes in demand or consumer requirements. This, in turn, ensures the rapid penetration of goods into new markets and their prompt adaptation to local conditions. An example of technology utilization is the VisionLink Productivity platform developed by Caterpillar. It leverages data from onboard cellular Product Link™ units within a mixed fleet of equipment, which are then transmitted to a web platform where machine learning-based analysis occurs. From this information, the company can monitor machine performance. The platform helps to reduce downtime, rebalance the fleet on an utilization basis, and optimize production processes [7].

The scalability of digital solutions is also a great competitive advantage. Traditional business models are slow and expensive to expand, while digital platforms allow firms to grow businesses quickly and efficiently and gain access to more customers at virtually no additional cost.

Digitalization also presents new markets for firms to tap into, so that they can cover geographical and temporal gaps. Electronic commerce websites, mobile applications, and internet-based services offer the platforms for firms to sell their products to anywhere in the world, and introduce the world of international customers to them. The use of electronic payments and electronic commerce, particularly, can minimize the expenses of traditional distribution networks by a considerable margin and extend the firm's reach to global markets.

For the purpose of explaining the impact of digitalization on international competitiveness, it is pertinent to examine transformation practices employed across nations. Figure 5 presents a digitalization index reflecting its level in 2024 across the world's leading economies.

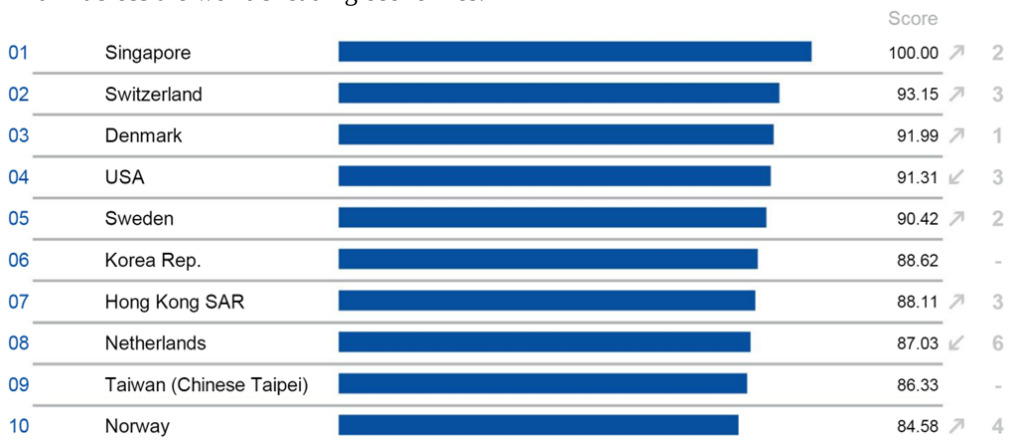

Fig. 5: Digitalization index [8]

It is characterized by high performance of a number of countries actively using digital technologies to improve their global competitiveness. Singapore, taking the first position, is a leader in this field due to the successful introduction of innovative solutions in different sectors. Switzerland, taking the second position, also occupies a leading position in digital technologies, particularly in the financial sector, where innovative

solutions are being actively used. Denmark, which is in the third position, demonstrates steady growth, enabling efficient introduction of new technologies into public administration and other social areas [9].

Among the countries that have taken high positions, special attention should be paid to the USA. The widespread use of new digital platforms in most industries allows the country to have a high level of technological maturity. Leading American companies such as Amazon, Google, and Apple are perfect examples of how digitalization can lead to global growth and enhance customer engagement around the world [10]. The country continues to apply digital technologies in its growing business models, improving customer service and competitiveness in global markets. Advances in areas such as AI and big data allow businesses to learn how to change fast in response to changes in the market environment, redefining their positions in the global economy.

One of the reasons for the high position of such countries as South Korea, Hong Kong, the Netherlands, and Taiwan is that they are able to effectively embed advanced digital technologies in most spheres of activity – industry and finance, education, and public services. They actively develop digital infrastructure and ensure high process automation, thus becoming more competitive on foreign markets [11].

Computer platforms play a central role in providing international reach to small and medium-sized enterprises. They provide unique opportunities to enter international markets without significant investments in stationary infrastructure. They can use them to promote their products and services worldwide, increasing customer numbers and profitability. Research has shown that more than 60% of small and medium-sized enterprises using digital sales solutions reported that their export levels increased by 15-20% during the first two years of implementation[12].

Thus, digitalization has a three-dimensional impact on the competitiveness of companies in the foreign market. It makes quick adaptation to change possible, scaling business effectively and expanding geographically [13]. At the same time, successful use of platforms of technology empowers companies to break through obstacles and enter new markets, giving their growth expectations and possibilities of international expansion an enormous boost.

VI. CONCLUSION

Digitalization of business processes is now an integral part of the strategic development of companies and a success factor in the global competition. Transformation itself involves not only the implementation of advanced technologies but also large-scale changes in organizations that contribute to improved operational efficiency, productivity, and responsiveness to changing external conditions. The implementation of analytics, AI, cloud computing, and the IoT as solutions presents organizations with unique opportunities for rapid response to shifts in the marketplace, allowing geographic expansion.

Global practices have been examined to illustrate that successful countries proactively adopt digital solutions in order to enhance innovation and growth, making the world more efficient in spreading new technologies across industries. These solutions also greatly impact small and medium-sized businesses by giving them the opportunity to access global markets at minimal capital expenditure on physical infrastructure. The use of e-commerce sites enables these companies to compete at a level footing with the titans, enlarge the scale of customers, and expand profitability. Therefore, digitalization is an excellent strategic tool that not only enables greater internal business efficiency but also enhances its global competitiveness by a significant margin.

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