

# The role of digital technologies in the management of international companies in the era of digital transformation

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**Abstract.** The article discusses trends, problems and prospects of rapid implementation and active use of digital technologies in all management processes of international companies. It analyzes the impact of digital transformation on changes in the overall organization of management of international companies, identifies the main trends in the digital transformation of specific business processes. The role of the ongoing digital transformation in the organization of international business management at the micro level, i.e., at the level of international companies themselves, is defined. The paper identifies the main advantages that increase the efficiency of their functioning and the ability to ensure competitiveness in the global market, as well as the challenges that international companies face in implementing digital technologies in their business processes and in the overall business management model.

## 1 Introduction

The rapid digital transformation in the last few years has covered all economy levels (micro-level, meso-level, macro-level, mega-level). When considering digital technologies, scientists and researchers are no longer limited to those companies that directly produce them (fintech companies, bigtech companies) [1-8]. Experts consider digital transformation to be a key factor for further business success [3].

Today, digital transformation is relevant to all companies operating in the economy, as there is an introduction and use of various information and analytical and information technologies in all business processes, as well as a rethinking of the supply chain. At the same time, digital transformation is closely related to globalization, because digital technologies increase the ability of companies to enter the international market due to the fact that digitalization is able to ensure the free flow of goods, services, capital and information between nations. Thus, it can be determined that digital technologies accelerate and enhance globalization processes by connecting companies from different countries (thereby increasing international cooperation) and enabling them to enter the international market (establishing international companies).

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## 2 Materials and Methods

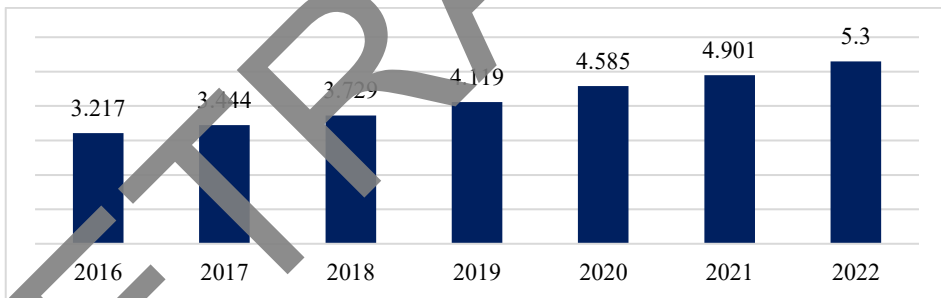
The authors of the research aim to analyze the impact of digital transformation on changes in the overall organization of management of international companies, to identify and study the main trends in the digital transformation of specific business processes in international companies, to determine the role of the ongoing digital transformation in the organization of management at the level of international companies themselves, as well as to study the main advantages and challenges of the introduction of digital technologies in the activities of international companies.

## 3 Results and discussion

Today, a company can interact with consumers regardless of geographical location through the Internet space, mobile applications, social networks, organization of electronic trading platforms and platforms. Digital technologies make it possible to erase such barriers as borders for communication and trade, make it possible to find new partners and customers almost anywhere in the world, accelerate online transactions, organize the delivery of goods, manage logistics chains, etc.

In general, such dynamics of digital transformation of the economy at all its levels is spurred by the fact that digital innovations have penetrated all spheres of people's lives and covered all forms of social relations. Communication through the Internet space has become an everyday norm for a huge number of our planet's inhabitants.

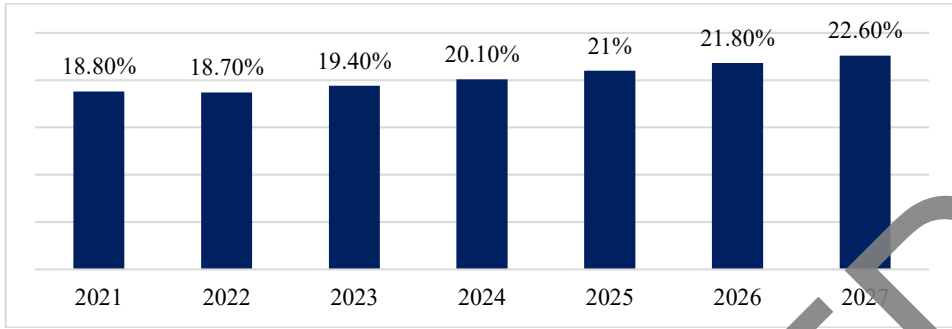
The number of Internet users is growing every year. If in 2017 their number was 3.4 billion people (including 2.8 billion social network users), in 2023 it will be 5.3 billion people (including 4.8 billion social network users), i.e. 64.2% of the total world population [5].



**Fig. 1.** Dynamics of the level of Internet users, billion people. [5]

This process of the global community Internetization has forced businesses at the national and international level to completely change their communications with the consumer, to switch to electronic form of trade, to improve all internal business processes to accelerate and improve their quality, to increase the coverage of the target audience. Without digital transformation of all stages and areas of management in a company, it is currently unable to ensure its competitiveness.

The process of digital transformation is most dynamic in companies in the retail sector. In 2023, e-commerce accounted for about 19.4% of all global retail trade, e-commerce accounted for \$6.5 trillion in online purchases; for comparison, in 2017, this indicator was 12.6% and \$1.8 trillion, respectively [5]. In 2023, recorded in the world statistics: 24 million online stores, 205 million daily online shoppers [5].



**Fig. 2.** E-commerce in total global retail trade (forecast), % [5]

The increase in global trade turnover in the electronic space contributes to a rapid increase in trade turnover in general, which requires high speed of order processing and transactions, increasing the production of goods for sale, increasing the speed of all business processes in companies as a whole to ensure their smooth and painless functioning as a large organism. For international companies a specific issue of increasing the speed and quality of management processes arises, as the communication system in transnational corporations is much more complex: it has many separate structural units (for instance, branded retail chains), subsidiaries, branches and representative offices, which are not located in one country, but may be present in a large number of different countries. In addition to communications, management in international companies faces a huge challenge - the need for high-speed exchange, processing and analyzing of colossal arrays of data, as well as ensuring their safe storage. All these aspects of modern management with the specifics of international business cannot be ensured without the introduction of digital technologies that can provide such companies with communication and analytical power in a highly competitive business environment.

Therefore, we can define the concept of digital transformation for international business as follows: digital transformation for international business is a complete transformation of the entire management system by revising the development strategy (competitive strategy), choosing a management model, organizational structure of management [1], organization of operations within each business process, marketing approaches and tools that will be based on digital technologies.

If we take a comprehensive approach to determining the role of digital technologies in the organization of management of international companies, we can identify a number of advantages that increase the efficiency of their functioning and the ability to ensure competitiveness in the global market. The main such advantages are:

1. Expansion of the market geography.

Digital technologies in the field of information and communication innovations allow companies not only to find new customers and markets within the market geography of one region or country, but also, overcoming geographical and cultural barriers, to ensure the development of the international market. The use of Internet technologies, mobile technologies, integrated technologies (marketplaces, ecosystems, international electronic trading platforms, electronic exchanges) makes it possible to sell manufactured products, resold goods, rendered services, invest free funds in investments, and manage their capital.

On a global scale, these same technologies allow bolder companies to enter the international market, and already established international companies can expand their geography in different countries. Everything depends only on how much the offered product (service) is in demand in the country of the company's planned expansion, and how strong the company's international economic ties are in the country to which it belongs, with the

country to which the company seeks to expand. The importance of the second aspect has been greatly emphasized in the context of unprecedented sanctions pressure on Russia starting from 2022. At the same time, not only our country found itself in conditions of disruption of economic ties and supply channels with many countries, but also the countries friendly to Russia were exposed to high foreign economic risks, which could not but affect the complexity of functioning of international companies of these countries. However, the results of 2022-2023 show that the problems have largely been overcome, the directions of economic business cooperation have been shifted to new geographical areas, and the world economy is adapting to new realities [8].

In other words, digital technologies in communications today erase borders for international companies, allowing them to ensure their production and trade presence in several countries at once, even in conditions of geopolitical instability. All this contributes to the increase in foreign economic activity of international companies and, accordingly, to the increase in sales (revenue volumes).

### 2. Increasing the business process efficiency.

Digital technologies can be divided into three types: information and communication (the main goal is to simplify and accelerate the exchange of information), information and analytical (the main goal is to simplify and accelerate the processing and analyzing of information), integrated (complex technologies that allow to solve simultaneously many different coherent and unrelated tasks). [3]. The integrated use of all types of digital technologies in all their diversity allows companies to automate and optimize all business processes, which increases their productivity and efficiency. For instance, international companies need to process huge information arrays, so without big data technology, a modern international company cannot accelerate business processes and manage them remotely. Cloud technologies are also important to ensure remote management and collaboration (and this is one of the most important issues for an international company). In general, digital technologies allow companies to save time and resources while optimizing business processes and rethink the supply chain to improve operations [4].

Speaking about such a business process as product manufacturing, the implementation of high technologies (3D, 4D, 5D printing, robotization, artificial intelligence, digital prototyping, virtual and augmented reality, industrial internet of things) is a necessity for successful competition in the international market. There is a high level of competition in the international market, which is largely maintained and increased by digitalization, which allows companies from all countries to erase borders and enter the global market. If we consider such a business process as sales organization, international companies cannot do without social networks, mobile applications, marketplaces, international electronic trading platforms. Sales management through digital communications is the most important area of digital transformation of the entire business model of an international company. Simply put, you can produce as many high-quality products as you want, but they are meaningless if there is no one to sell them to, and the domestic national market has such a peculiarity as limited capacity in a particular product segment. Therefore, today it is often easier to enter the international market than to diversify production.

Digital technologies, even in difficult geopolitical conditions, are not only an opportunity to reach new international markets, but also an opportunity to significantly improve the management level of international companies, providing them with the necessary level of competitiveness in the dynamically changing external environment and consumer demands of the global community.

### 3. Improving the operational efficiency.

This benefit is related to two aspects. First, it follows from the previous ones: the productivity of all business process efficiency of the company increases and, accordingly, the sales volume increases. Secondly, the introduction of digital technologies significantly

optimizes business processes, which allows international companies to significantly reduce their costs. Of course, the implementation of digital technologies itself requires some investment. Especially if non-standard solutions (i.e., not ready-made solutions) are required, which the modern digital market offers, and cooperation with bigtech companies is required in order to adapt existing digital innovations to the specifics of the company's activities or to create completely new ones.

However, the introduction of digital technologies, as practice shows, pays off quite quickly (2-3 years on average), and the economic effects derived from them quickly reach huge values (on average, the payback is 120-150% and reaches several hundred percent) [5]. Obviously, the payback of digital technologies also depends on the specifics of the company's activities in general and on the business process. For the optimization of which it is used. For instance, digital technologies in production will be slower to pay off, as they will be more costly, and production itself is the costliest business process. In sales, on the other hand, the use of digital technologies will pay off faster due to their lower costs: the use of social networks and access to an international marketplace together will cost a company much less than robotizing the production process. In any case, investments in digital technologies (especially if they are technologies that have proven themselves in the market) are among the most promising.

Therefore, the implementation of digital technologies for commercial companies is necessary to increase the success of achieving the main commercial goal - profit maximization. The effectiveness of digital technologies is manifested not only in increasing sales volumes, but also in reducing costs: optimizing the use of material resources, reducing the time of business processes (business turnover is accelerated), reducing personnel management costs (many operations are fully automated and do not require special employees, for instance, the use of chatbots).

#### 4. Enhancing communications with customers, partners and employees.

This benefit is worth highlighting specifically because expanding market geography requires international companies to optimize internal and external communications, for which digital technologies serve as the main tool.

Optimization of communications with customers: firstly, ensuring maximum coverage of the target audience (both actual and potential) in order to increase brand awareness in the international market, improve its promotion and increase sales; secondly, the ability to analyze the needs of customers and new consumer demands of society as a whole in order to stay ahead of their competitors in new offerings on the market; thirdly, the ability to change the marketing approach to promoting their products (social networks, marketplaces).

Optimization of communications with partners: first, ensuring the search for the most profitable suppliers both in the domestic market and in the international market, in order to cooperate on the most favorable terms; second, the opportunity to enter into production international integration with other companies; second, the opportunity to enter into collaboration with other global companies in the framework of advertising campaigns; fourth, the opportunity to ensure the most efficient logistics for the delivery of goods to end consumers; fourth, the opportunity to enter international investment markets, which will allow attracting foreign investment capital for the company's development.

Optimization of communications with employees: first, to improve the internal organization of business process management in general; second, to ensure interaction between employees and managers of different levels, including between production units (shops, factories, plants) and trading units (trading houses, retail chains, online stores), between branches, representative offices, subsidiaries - all this is necessary for the smooth operation of the entire company (corporation) with minimization of management and information and communication costs.

Accordingly, digital technologies improve communication both within an international company (throughout its geographical presence) and with its external stakeholders, which is necessary for more effective interaction and management decision-making.

#### 5. Improving competitiveness.

Digital technologies, in addition to what has already been mentioned above, enable international companies in general to increase their competitiveness in the global market. This is facilitated not only by expanding communication opportunities with customers, partners and employees, and not only by increasing the level of high-tech products manufactured and sold, but also by using information and analytical technologies to forecast market trends and demand trends, which ensures the ability to make quick and informed decisions on timely adjustment of competitive strategy and adapt to rapidly changing global market conditions. Today, there are many open access digital services that allow collecting analytical data on the analysis of a specific market, on changes in consumer demand, on new trends in digital technologies, on the socio-economic indicators of specific countries to forecast the possible demand for the proposed products and the purchasing power that can provide the necessary level of sales in the country of expansion.

In other words, an international company is armed if the digital technologies it uses allow it to analyze and forecast the opportunities and results of entering a geographic market. With these tools in place, a company can confidently manage its competitiveness in the global marketplace. Combined with information and communication technologies to reach a new market and digital innovations in production, a multinational company can achieve a leading market approach in a country.

The authors have listed only the main advantages that accrue to international companies that are rapidly transforming their business model in accordance with global digital trends. Even listing them is enough to understand how much management in international companies has changed and continues to change today in the context of digital transformation.

Despite a significant number of advantages, the digital transformation of the management organization of international companies also poses certain challenges. The digital environment inevitably has an impact on organizations that have to face the threats of this technological revolution [1]. Thus, an international company faces the following new challenges that the introduction of digital technologies entails:

#### 1. High cyber risks.

Cybersecurity threats are a critical challenge in the digital transformation of doing business, both nationally and internationally. Global cyber attacks significantly impact economies, societies, organizations, and specific individuals, and the adoption of digital technologies is accompanied by increasing cyber risks [2].

Cyber risks have changed dramatically over the past decade, reflecting advances in technology and changes in societal behavior. Cyber risks are related to illegal actions from outside against a company's information and/or communication systems, as well as its information resources and flows through these systems. In addition, cyber risks are associated with the rapidly increasing number of cybercrime incidents, the growth of which is caused by a significant increase in the share of non-cash, including electronic, settlements in the context of widespread digitalization of life and work processes of the population, increasing complexity of business processes and popularization of online sales in the field of entrepreneurship. All these processes, information and financial flows are becoming targets of attackers (fraudsters, hackers).

The main intentions of cybercriminals against companies are:

1. Breach of data protection to obtain confidential information about the activities of the company and/or its customers, stored and processed in the company's information and/or communication systems;

2. Attacking the company's information and/or communication systems in order to steal its funds and/or its customers.

In other words, the main goal of cybercriminals is to take possession of funds stored in various company accounts or to intercept them during transactions in the process of making purchases by customers, including obtaining confidential and trade secret information aimed at using it for criminal enrichment.

Based on this, cyber risks can be categorized as follows:

1. The risk of theft of funds from bank accounts;
2. The risk of theft and use of classified and confidential information for criminal purposes;
3. The risk of hacking or blocking of the company's website (mobile application), its internal information systems as a result of hacker attacks to intercept or redirect funds and information.

Such cyberattacks occur against large international companies on a daily and round-the-clock basis. The level of security of a company's information and/or communication systems determines the level of its economic security, as their breach leads to its direct financial damage. Today, international companies pay close attention to cyber risk management, which helps to reduce this damage, preserve the company's position in the market by gaining an additional competitive advantage in the form of cyber security, and avoid financial and reputational costs.

The current situation with the level of cybercrime forces companies to invest huge sums of money in ensuring the information security of their activities and mitigating the associated risks. This problem in conditions of progressive digitalization goes beyond the problems of ensuring economic security of the companies themselves, it is becoming a problem of regulating all international companies.

Consequently, all international companies today must be prepared to increase the level of protection against cyber threats in order to protect their data, capital and funds, and to enhance their reputation (any successful cyber attack against one company may cause its partners to be unwilling to cooperate with it). Information risk management, in which cyber risks are of paramount importance today, is becoming a specific area in the management system of an international company, in particular in its economic security management system. This requires additional costs from international companies: training and professional development of employees, reorganization and optimization of management processes, introduction of special digital technologies that increase the level of cyber security (blockchain, DLP-systems). Accordingly, these are additional investments, but the return on these investments is difficult to assess, as they have an indirect relationship with the revenues generated. They can only be assessed in relation to possible losses in the event of successful cyberattacks against an international company. However, such an assessment is possible if these investments have already been preceded by such a negative experience. In most cases, however, these measures and related investments are made on a preventive rather than precedent-setting basis. In other words, with competent management, the management of an international company does not wait for actual damage from cyberattacks to happen; decisions to implement specific cybersecurity measures are made based on existing trends in this area, i.e., on the already existing experience of other companies.

2. Cultural differences in expanding international market geography in e-commerce.

Entering the international market, the company almost always faces cultural differences, which, firstly, determine the peculiarities of demand in the country of expansion, and secondly, are related to the peculiarities of the choice of shopping channels. For instance, online shopping will prevail in a more developed country, while offline shopping will prevail in a less developed one. Accordingly, the market geography of an international company will determine the need to increase the level of digitalization of such a business process as sales

organization, or the actual effectiveness of the investments already made in digital e-commerce technologies. A highly digital company will either need to adapt its sales organization or may even have to abandon expansion into a particular country because of the inefficiency of business development in that geographic area.

In addition to this, entering an international market is associated with the language barrier. It is clear that the language barrier can be easily solved today through the services of an interpreter, electronic online translators simplify the solution of this problem even more. However, speaking about a large-scale entry into a new international market in the field of e-commerce, this problem is no longer so simple. The complexity is directly related to the speed inherent in online sales. It requires fast, virtually instantaneous, translation of all output data for each product, translation of advertising texts, linguistic and socio-cultural adaptation of advertising, providing effective feedback to customers in the language of the country of expansion (in social networks, on marketplaces).

All this also requires certain digital tools and, accordingly, additional costs. At the same time, the overall success of international business will depend on the level of a company's ability to digitally adapt to cultural and linguistic adaptation as part of its integration into international social media and retail platforms.

### 3. Unequal access to digitalization opportunities in different countries.

This problem is partly related to the previous one, i.e. it is about the possibility of organizing online sales in the country of expansion. But this is not the only aspect of this problem (in the previous problem it is more about cultural preference or not for online shopping, in this problem it is about technical feasibility). Not every country and region has the same access to digital resources. In this case, there can be two situations that are directly opposite to each other:

- first option: a company with a high level of digital transformation enters the market of another country with limited access to digitalization opportunities;
- second option: a company with a low level of digital transformation enters a market in another country that is at a high level of digital transformation.

In the first option, the company faces the fact that the market of the expansion country does not meet the level of its digital transformation. In this case, an international company can be more than just a trading company. For industrial multinational companies, moving production to another country (for instance, due to closer access to necessary resources, low taxes, low cost of local labor) may be complicated by the limited level of digital transformation. This is not only the level of internetization in the country, on which, of course, much depends, but also the availability of local companies-developers of digital technologies, availability of technical capabilities (computer equipment, software, etc.) to use digital technologies. In other words, if access to digital technologies is limited, the company will have to send its own technical support (technical and software base), available digital technologies, and specialists who can ensure their work (if the level of digital transformation in the country is low, there are not enough specialists in this area) to the country of expansion. In addition, for further digitalization of production, the company (if it does not have its own innovation laboratory) will apply for digital innovations in its own country, which will then require all the steps listed above. Accordingly, this is a big cost for the company. Here it is important to assess whether the economic effects of entering a new international market will be adequate to the costs incurred for this entry.

In the second option, the company is entering the market of the expansion country, which is in the process of rapid digitalization and its level is already very high. At the same time, the company itself does not meet this level. In this case, the company will not be able to ensure the right level of its own competitiveness in the new market. In particular, it will not be able to offer high-tech products and services, so its competitiveness will suffer. It will not

be able to make full use of digital opportunities to organize e-commerce. Accordingly, the revenues generated in this market will be low and may not cover the costs incurred.

Based on the above, in both cases the international company has high financial. Information, personnel and other risks. In case of ineffective management of these risks, it will face the fact that they are realized in concrete economic damage.

4. Differences in legislative regulation of digitalization processes in different countries.

International companies operate, on the one hand, in a space where de facto borders between countries have been erased. Nevertheless, they face the fact that there are differences in the legal regulation of digitalization between the countries in which they do business, which forces them to maneuver in this legal field. Accordingly, the global digital transformation of international business requires the development and implementation of new and unified legislative international norms to regulate international e-commerce, international production integration on the basis of digital technologies, and in this regard, consumer protection in the emerging single online market of the world information space.

## 4 Conclusions

Thus, we can conclude that digital technologies play an important role in the management organization of modern international companies. They significantly strengthen and accelerate international production integration and international trade, thus accelerating the processes of globalization. Today, we can identify seven key digital technologies that form the basis of the digital transformation of management in international companies: big data, cloud technologies, mobile technologies, social networks, innovations in business process management and business analytics, robotization of processes, and artificial intelligence. The numerous examples currently available of the successful use of digital technologies in international companies confirm their effectiveness, as the success of such companies is growing, as well as their importance for the complete transformation of the management model of international companies adapted to modern digital realities. For international companies, digital technologies in the management organization bring the following benefits: expansion of market geography, increased efficiency and effectiveness of business processes, improved operational efficiency, better communication with customers, partners and employees, and increased competitiveness. At the same time, the main challenges of digitizing the management of an international company are: high cyber risks; cultural differences in the expansion of international market geography in the field of e-commerce; unequal access to digitization opportunities in different countries; differences in the legislative regulation of digitization processes in different countries. At the same time, cyber risks are the biggest challenge of the increasing use of digital technologies in the management organization of international companies, as their information and financial resources in the environment of digital communication are constantly exposed to cyber attacks. Therefore, cybersecurity in the context of digital transformation of international companies is today becoming a specific and very important element of the economic security system.

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