

The Role of Information and Communication Technologies in Modern Business Management

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Abstract: The last few decades have been characterized by a rapid saturation of data processing systems in almost all spheres of society. Information has become a strategic resource of society, which has led to the inevitable spread of information and communication technologies. The article deals with the concepts of information and communication technologies in business management. Their role and the need for application in modern business have been investigated. Conclusions are made about the need to solve the problems of the formation of information and communication technologies and their role in management systems. In this article, information technology means methods of solutions for the implementation of running and supporting a business, by creating a system for collecting, storing, processing and transmitting the necessary information.

Keywords: Information Technology, Information, Communication, Technologies, Business Management.

1 INTRODUCTION

Today, in a competitive market environment, every company must have the ability to adapt quickly and economically to constantly changing market conditions. The emergence and development of information technology (IT) has had a significant impact on the development of all sectors of the economy. The information society began to take shape at the turn of the late 20th and early 21st centuries. The growth of the IT industry occurred in the late 1990s due to the development of the Internet and investment in infrastructure. Information has become one of the main factors in the development of production. At the beginning of their development, information and communication technologies (ICTs) had a high cost and were more often used for experimental purposes. Every year, information technologies are becoming more accessible and of higher quality, and their scope of application is expanding. The social needs of consumers have increased, but there are also new ways to meet these needs.

The proof is that the use of ICT is already giving growth to the Russian economy: there is unlimited access to goods and services; the labor market is changing; the competitiveness of Russian goods on world markets is increasing; the efficiency of inter-industry and interregional cooperation within the country is increasing; virtual money, banks and payment systems are

appearing. The Internet allows you to save time and money of Russian citizens on purchases, since goods in online stores are cheaper, and you can manage your money accounts without leaving your home^[2].

This article examines the economic sphere and the impact of information technologies on it. In this context, information technologies are methods of solving problems of management and business support by creating a system for collecting, storing, processing and transmitting the necessary information. The essence of the methods is a single result obtained with a complex approach of interacting elements.

The main meaning of IT work is the implementation of program actions aimed at obtaining a specific result using information systems (IS). Most often, this result is the provision of information to a specific consumer and preparation for the next action. The process of collecting, processing, storing and transmitting information must exclude possible errors.

The use of ICTs is promising, and therefore the political state task in the field of economics is to expand their use:

- improving information security due to independence from imports;
- introduction of ICT in the construction sector ^[3];
- development of e-commerce;
- development of the system of public administration, economy, business, social sphere and the whole society through the program "Digital Economy" ^[5].

2 METHODS, RESEARCH PROCESS

In the study, the authors used some methods, such as analysis and synthesis, induction and deduction, historical and logical, abstraction and refinement.

The research process is aimed at determining the role and significance of information technology in the modern management of a company.

3 RESULTS

In some areas, technology is critical for business, enabling effective management of the point-of-sale system, implementing the use of ICT in general business management, building accounting systems, and other complex aspects of the firm's day-to-day operations. Even such a simple thing as a calculator, revolutionary in its time, appeared thanks to technology. It's hard to imagine how you can go back to performing tasks manually. That would take us back a hundred years.

The technology allows us to automate many processes, which increases our productivity, allows us to use less resources to improve the quality and speed of providing services to customers. Additionally, the introduction of new technologies makes it possible to serve more customers at a lower cost.

The technology also makes it easy to store more information while maintaining the integrity of that information. The quality of storing confidential information is improved, so that it becomes less vulnerable to data hacking. In this case, the information can be obtained instantly, when it is needed, and it can be analyzed not only to study past trends, but also to predict the future. As a result, ICTs help businesses, improve the quality of strategic and operational-tactical management decisions.

Communication is part of the business. Thus, transport and processes turn a business into a network of complex processes that interact with each other. Thanks to technology, it has become possible to globalize business operations. Now almost everyone can do business almost anywhere in the world, from any room of their home.

Technology has enabled businesses to have a broader reach and reach global markets. The best example of this is the Internet. The internet is now an important part of any business ' marketing campaign, as it allows the business to attract customers around the world.

Technology, being well integrated into the business, has allowed us to make life more worthwhile. However, it would be foolish to deny that there are also threats to business caused by technology. These include malicious actions by various organizations, such as hacking. Because of this, it is important that businesses take responsibility when using technology to do business. With the advantages that technology brings, there are also disadvantages that also need to be addressed. Still, it's worth it, and we need to recognize and use technology responsibly to make our business better. Mobility is seen by many as the next big frontier for business. Google's algorithms reflect this, as they make mobile sites a priority. Your business and all aspects of it can be handled with just a tablet or smartphone-from content marketing to customer relations, from sales to internal organization issues like billing and delivery.

But mobile solutions are not just about business, they are also useful for consumers. The modern generation uses their phones for everything from buying and selling to sharing experiences with friends and finding local businesses.

Cloud computing has allowed companies to transfer their functions to third parties over the Internet. This makes it possible to handle packets with variable data, and also allows companies to quickly expand and leverage mobility without worrying about things like crashes, downtime, and data loss. All this has allowed small and medium-sized businesses to access resources that would have cost them a fortune a few years ago.

As more and more data becomes available, it is now much easier to analyze and gain a deep understanding of what customers are looking for. Analytics services are expanding every day and allow companies to divide their potential customers into more and more specific groups, which makes it much easier to target them and get a greater return on their advertising money costs. Something as simple as having a Google account can tell the company where the user is from, what browser they use, how they got to the site, what they do on that site, how long they can stay, and at what point they decide to leave. There are even more advanced analytics services that allow companies to further refine this segmentation to significantly improve their conversions. However, the impact of digitalization varies across countries and sectors. Developed countries benefit more from economic growth of almost 25%, although they tend to lag behind developing countries in job creation by the same margin ^[5]. The main reason for the differences in the effects of digitalization is the economic structures of developed and

developing countries. Developed countries rely mainly on domestic consumption, which attaches great importance to non-tradable sectors.

In all developed countries, digitalization increases labor productivity and has a tangible impact on economic growth. However, the result could be job losses, as lower-skilled jobs with lower added value are sent abroad to emerging markets where labor is cheaper. In contrast, emerging markets are more export-oriented and move at the expense of tradable sectors. They tend to benefit more from the impact of digital technologies on employment than from their impact on economic growth [4].

First, they must develop digitalization plans for the target sectors in which they want to maximize the impact of digitalization. Second, they should encourage the development of the necessary capabilities and tools to implement these digitalization plans. Finally, policy makers should work with industry, consumers and government agencies to create an inclusive information and communication technology (ICT) ecosystem that will facilitate the wider dissemination and use of digital services.

Today, digitalization is becoming a new tool for creating and maintaining absolute business advantages, and in some cases directly provides a victory over competitors in certain sectors, which is the most important opportunity underlying all other national economic efforts. Digital technologies have become an integral part of organizations' activities. Currently, the vast majority of them work using one or another type of network technologies, software systems. At the same time, the degree of integration of digital tools into business processes varies in different countries due to differences in the level of infrastructure development and the sectoral structure of the economy. To measure the overall level of demand for key ICTs in the business sector, specialists from the National Research University Higher School of Economics (HSE) calculate the Business Digitalization Index (Fig.1).

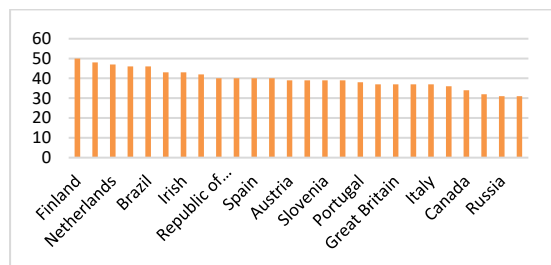


Fig.1 Business Digitalization Index by country^[7]

Today, the digitalization of all processes in the company gives a great advantage, which is that everything becomes faster, better and cheaper. Digitalization of the business contributes to the efficiency of its processes, consistency and quality, namely (Fig.2):

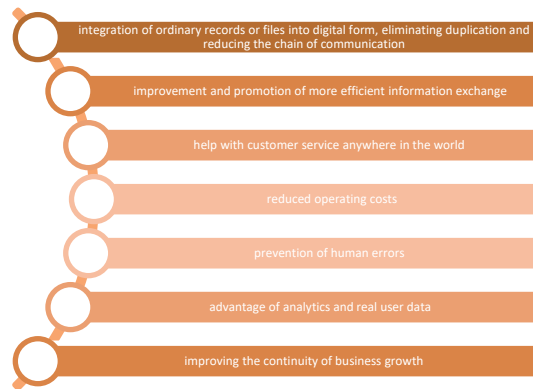


Fig.2. Business digitalization processes^[1]

- integration of ordinary records or files into digital form, eliminating duplication and reducing the chain of communication.;
- improvement and promotion of more efficient information exchange;
- help with customer service anywhere in the world;
- reduced operating costs;
- prevention of human errors;
- advantage of analytics and real user data;
- improving the continuity of business growth^[1].

Digital solutions provide a competitive advantage in the business world by improving quality, inventing new profitable methods, and ensuring consistency. Consequently, there are many companies that have adopted and are significantly increasing the digitalization of their business.

The process of informatization of the world economy follows the path of development of its two components: material (computer technologies, peripheral and telecommunications equipment) and non-material (the impact of information and informatization on the economy, software and information support). The information economy is based on scientific and technical information, as well as financial, investment, economic, political, educational, forecast and indexed information (Fig. 3).

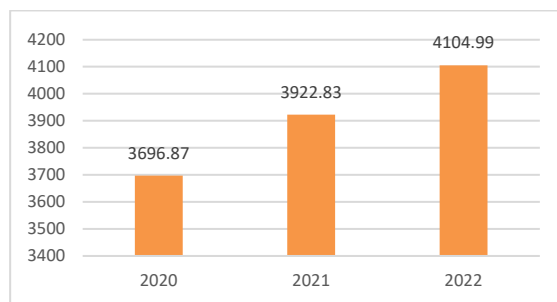


Fig.3. Forecast of the volume of the world ICT market in the forecast (in billions of dollars)^[7]

A variety of information is necessary for the preparation of short-and long-term business plans and strategies. Information flows in various firms, through their influence on international

financial markets and the movement of investment resources, influence the dynamics of global economic relations. The enterprise should be considered as an information node, where external incoming information flows converge and internal flows circulate, and ICTs can increase the processing speed of constantly growing information flows. At the same time, as some researchers correctly point out, "the main economic effect of using these tools is to improve the quality of management and the quality of the main production processes, and not in direct savings from speeding up data processing."

Information about the state of affairs in the real sector allows you to adjust the plans and decisions made, as well as the strategies used. The large gap between the forecasts and the realities of economic activity shows that there is a threat of a recession or a state of crisis. Due to the importance of information at the present stage, there is an increase in investment in information, the demand for which is constantly growing. Information has a huge impact on business at all levels and at all scales: from small to large, from national to global, contributing to the competitiveness of firms in various sectors, so information is an attractive commodity for firms seeking to conquer new markets.

The information industry has also contributed to the emergence of many new firms and companies engaged in the production of computers, peripherals and components, fax equipment, mobile phones, information services, databases and knowledge, software. The emergence of the information industry has led to significant changes in the patterns of international trade and competition. Many of the above factors have inevitably led companies to reorganize their businesses and build their information infrastructure.

ICTs enable companies to achieve greater accuracy, speed, and efficiency in concluding, confirming, and executing commercial transactions. Thus, e-commerce combines all forms of business transactions and transactions carried out in electronic form. E-commerce issues have taken a strong place in the system of the main proportions of the world's leading economic countries. In the course of the development and promotion of the process of globalization, the computer industry, the information services, databases and knowledge sectors have undergone radical changes. The most important result of the widespread introduction of ICTs in all areas of economic and financial activity has been a fundamental change in the management system of a transnational corporation (TNC), for which mass processing of information, its transmission and use have become economically profitable, and the costs of it are economically justified.

The information economy provides economic growth in developed countries at the present stage. The information type of economic growth is mainly indicative for economically developed countries, the use of the information factor leads to an increase in the organization and order of the business environment. The information saturation of the ICT sector of the economy contributes to the increase in labor productivity. At the same time, the cost-performance ratio is steadily declining. The information industry produces information products and services. The information product has an intangible nature, which creates a problem of understanding the nature of information ownership, determining its value, as well as protecting intellectual property rights. It is interesting to note that even in the case of advertising on the Internet and when there are several price models for calculating the cost of advertising, this is not easy to do. With regard to information ownership, a significant amount of information is freely available to users. And here there are many problems: the right of ownership of scientific and creative activities, that is, the right to work in the field of science, intellectual property

rights, the cost of trade secrets of production or special knowledge. The cost of inventions and industrial designs. The information economy in developed countries is a new long cycle of economic development based on the production and sale of information products and services.

Thus, the use of ICT and network technologies in business increases the efficiency of internal and external activities of companies, ensuring faster interaction between suppliers and customers, as well as optimizing the synthesis of supply and demand.

The business world changed forever when computers came along. Businesses can use information technology, computers, and various software tools to work more efficiently across all departments, including finance, manufacturing, human resources, and security. The digital transformation model is shown in Figure 4.

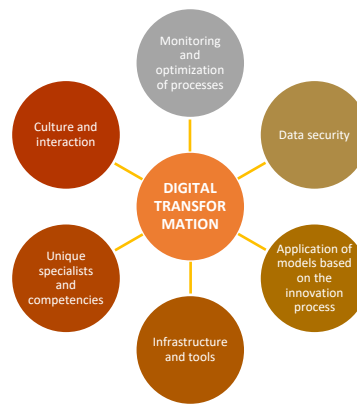


Fig. 4. Digital transformation model

The digital transformation model allows all participants in business processes to see the full picture of what is worth paying attention to, and shows the sequence of actions. However, they do not give clear instructions, but only set benchmarks by which leaders can carry out transformations in companies, taking into account the current circumstances and specifics. Models on digital transformation show people at different levels of the organization the general trend and direction where they need to direct their efforts in order for digital transformation to be successful.

Thus, the digital transformation model allows:

- see the big picture ideal for leaders;
- create a list of tasks and determine the sequence of their implementation;
- focus on divisions responsible for sales, customer interaction and operational functions;
- adapt the model depending on the current circumstances.

With the introduction of e-commerce and e-business in the practice of firms, corporations and banks, there have been changes in the nature of commercial and financial transactions, relations with partners and customers, the development and implementation of business strategies, as well as in real competition. All these new phenomena in the DOW point to the relevance of theoretical research in such a complex, multifaceted and insufficiently studied area as

determining the role of ICT in the development of international business in the field of production, services, trade and finance.

Under the influence of ICT, all areas of international business are being modified, modified, adapted to new phenomena and relations in the business environment. ICTs significantly change the nature of economic interaction between dispersed economic units. Studies of such transformations are very relevant and timely, since the organizational schemes that arise in business are based on the network principle and on network interaction, which becomes the fundamental principle, and networks are the fundamental tool of the new organizational scheme in international business.

The integration of networks of various types and scales and the construction of a global information and communication system in the form of the Internet have led to the creation of a fundamentally new business environment, to the emergence of purely networked virtual companies, in which modern high-tech management is carried out on the basis of electronic infrastructure.

The rapid growth of digital technologies has a significant impact on the development of the economy and society. The role of individual technologies – artificial intelligence, the Internet of Things, blockchain-is increasing, which leads not only to the transformation of production processes, but also to the emergence of new markets, a radical change in business models (platforms, ecosystem companies, etc.). Solutions based on digital technologies can optimize processes, simplify scientific and technical cooperation, promote the connectivity of territories and the involvement of small enterprises in the value chain. The key resource of the digital economy is intangible assets (information, knowledge, competencies). The digital transformation of the economy is primarily caused by changes in the information and communication technology sector^[6].

However, despite the positive nature of the use of ICTs in the economic and economic activities of modern society, there are certain imbalances and contradictions. Thus, the existing socio-economic inequality between developed and developing countries is the cause of the so-called "digital inequality" and, consequently, different opportunities for accelerating economic development, obtaining high-quality information services and improving the well-being of the population. In these circumstances, ICTs in developing countries cannot have such a significant impact on economic systems and economic relations, nor on the development of national and international business, as is the case in developed countries.

4 CONCLUSIONS

Let's draw conclusions. Today, information technologies are used to solve a wide range of tasks in various fields-from industry, fuel and energy complex and agriculture to housing and communal services, medicine and transport. Commercial companies on a global level compete with each other in the speed of creating and implementing electronic services.

As a result, the level and quality of information and communication technologies determine the prospects and sustainability of the business, so they are a priority for the organization's efforts, its tool for achieving success.

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REFERENCES

- [1] Dr. Nazrul Islam The Use of Information and Communication Technology (ICT) and Business Management: Contemporary Issues and Challenges
- [2] History Adidas. <https://street-beat.ru/blog/adidas-history/>
- [3] Zimnaya I.A. Personal-activity approach as the basis for the organization of the educational process [Electronic resource]– Access mode: URL: <http://psychlib.ru/mgppu/ZOsv-01/ZLD-244.HTM>
- [4] Mikhnev I.P. Teaching and monitoring student knowledge with Uni Test // Basic research. 2008.– No. 1.– P. 94–95.
- [5] Yunusova M. Yu. Solving legal problems using combinatorics. VI international conference “Nonlocal boundary value problems”– Vol. III. 2018.
- [6] Trends in the development of the Internet in Russia and foreign countries: analytical report / G. I. Abdrakhmanova, O. E. Baskakova, K. O. Vishnevsky, L. M. Gokhberg, etc.; Coordination Center of the National Domain of the Internet, Nats. research.
- [7] Research by Gartner // <https://www.tadviser.ru/index>.
- [8] The role of information and communication technologies in economic development: A partial survey // https://www.econstor.eu/bitstream/10419/84778/1/zef_dp07.pdf
- [9] Information Technology & Its Uses in Business Management // <https://smallbusiness.chron.com/information-technology-its-uses-business-management-51648.html>
- [10] The Role of IT in Modern Business // <https://voticle.com/a/articles/15010/the-role-of-it-in-modern-business>