

DIGITAL TECHNOLOGIES AND THEIR TRANSFORMATIONAL ROLE IN THE MODERN ECONOMY

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Abstract

The article examines the main role of modern digital technologies in the world economy. Digitalization is seen as a key factor in increasing the efficiency of production processes, improving product quality, reducing costs and increasing the competitiveness of enterprises. Particular attention is paid to digital transformation in the industrial sector, using it as a means to increase productivity and introduce innovation.

The article analyzes the concepts of "digitalization", "digital transformation" and "digital organization", and provides economic essence and interdependence. The article also describes the stages of introduction of digital technologies in enterprises and their main types.

Keywords: Digitalization, digital transformation, digital technology, industry, digital economy.

Introduction

In the new paradigm of the development of the world economy, modern digital technologies are considered as the main production resource that determines the growth of social well-being. At present, digital technologies are causing profound changes in all spheres of the economy. They are becoming the main driver of the development of production, management, education, healthcare and many other industries. Especially in industry, digital transformation significantly increases production efficiency, product quality and labor productivity. Modern digital solutions provide enterprises not only with a technological advantage, but also with economic efficiency, efficiency and competitiveness.

In the 21st century, digital technologies began to be rapidly introduced into various sectors of the economy, including industry. The digital transformation of industry is an important factor in improving production efficiency, developing innovation, and increasing labor productivity. Digital technologies allow industrial enterprises to automate production processes, reduce costs, improve product quality and adapt to the requirements of the global market.

The digital economy has become an integral part of global economic development. According to the World Bank, by 2023, the share of the digital economy in the global gross domestic product (GDP) was about 15.5%, and by 2030 it is projected to grow to 24.3%¹

¹ <https://www3.weforum.org/>



The Decree of the President of the Republic of Uzbekistan dated October 5, 2020 NoPF-6079 "On the Digital Uzbekistan - 2030 strategy and measures for its effective implementation" also defined the tasks for the development of digital technologies in the real sector of the economy. In particular, we are talking about "the introduction of modern information systems and software products in order to improve the quality of products and services, reduce their cost, reducing downtime in production, increasing the transparency of financial and economic activities."²

The use of modern computer and information support by organizations, especially enterprises of the real sector, is the most important condition for their effective functioning in the digital economy.

Literature Review

Despite the fact that in modern studies such concepts as "digitalization" and "digital transformation" are studied in a broad context, their economic essence is not fully disclosed. There is a need to further improve the mechanisms for assessing the effectiveness and feasibility of introducing digital technologies into the activities of enterprises and organizations.

Despite the significant contribution of scientists and specialists, as well as the results of research in this area, the methodology of digital transformation of enterprises remains a relevant topic of scientific research. This is due to the fact that in order to ensure the sustainable development of economic entities at various levels, it is extremely important to conduct additional research on the use of digital technologies.

Analyzing the research on modern digital technologies, it can be noted that V.A. Plotnikov proposed various approaches to determining the essence of such key concepts as "digitalization", "digital transformation" and "digital organization".

V.A. Plotnikov explains digitalization as follows: "This is a modern stage of informatization, characterized by the widespread use of digital technologies in the processes of creating, processing, transmitting, storing and visualizing information. This process is associated with the emergence and wide distribution of new hardware and software solutions, including their economic and physical accessibility."³

"Digitalization" means the process of introducing modern digital technologies into the production and management systems of enterprises.

"Digital transformation" is understood as a qualitative change in the strategy and business processes of an enterprise as a result of the comprehensive digitalization of production processes and management activities.

A "digital organization" is a digital twin (virtual model) of an enterprise formed as a result of its digital transformation.

² Decree of the President of the Republic of Uzbekistan dated October 5, 2020 No PP-6079 "On approval of the Digital Uzbekistan - 2030 Strategy and measures for its effective implementation"

³ V. A. Plotnikov, Proceedings of St. Petersburg State University of Economics, 4 (112), 16-24 (2018)

Digital technologies play an important role in the efficient use of resources and the development of production. Their rational use helps to reduce management costs, as well as increase the flexibility and sustainability of production systems.

The use of digital technologies has made it possible to solve many problems and tasks that previously arose during the implementation of management mechanisms and tools.

There are many different definitions of digital technology proposed by scientists, for example, Polyakova T. and others argue: "Digital technologies are technologies that operate with "digitized" information, that is, presented in a universal digital format. Digital technologies encompass all gadgets, electronic devices, technologies and software related to electronic computing and data processing."⁴

"Digital technologies" are technologies that use electronic computing equipment to record coded pulses in a certain sequence and at a given frequency⁵.

Digital technology is the use of digital systems, means and devices for processing, storing and transmitting information in electronic form. It covers a wide range of technologies, including computers, smartphones, software applications, the Internet, as well as emerging technologies such as artificial intelligence, machine learning, and blockchain.

In his research, J. Westerman put forward the idea that "technological change is happening so fast that every industry is affected by it."⁶

Digital technologies are various innovative tools based on the use of digital information and data processing using computers and electronic devices. They include a wide range of technical solutions aimed at improving processes, services and products in various fields. The main elements of digital technologies are software, hardware and network infrastructure. Internet of Things (IoT), Big Data, machine learning, virtual and augmented reality, blockchain, cybersecurity, robotics, and others. These technologies continue to evolve, penetrating new industries and transforming the way the economy operates⁷.

Methodology

The article uses the methods of comparative analysis in the organization of production, the analysis of existing literature in this area, decrees and resolutions of the President, laws, as well as domestic and foreign literature related to the topic of research.

4 Polyakova T.N., Belyaeva E.S., Belyaeva O.V., Mashkina N.A., Yakimova E.Yu. Development of fintech as a challenge for traditional banking || Vision 2025: Education Excellence and Management of Innovations through Sustainable Economic Competitive Advantage. Proceedings of the 34rd International Business Information Management Association Conference, IBIMA 2019. 2019. C. 11966-11974

5 GOST R 33.505-2003 "Unified Russian Insurance Fund of Documentation" [Elektronnyi resurs]: Postanovleniem Gosstandart Rossii ot 29 iyulya 2003 g. N 255-st. Access from the legal reference system "ConsultantPlus"

6 Embracing Digital Technology A New Strategic Imperative By Michael Fitzgerald, Nina Kruschwitz, Didier Bonnet and Michael Welch. Research report 2013

7 <https://rzddigital.ru/glossary>



Analysis and Results

The relationship between the studied categories is presented schematically in Figure 1.

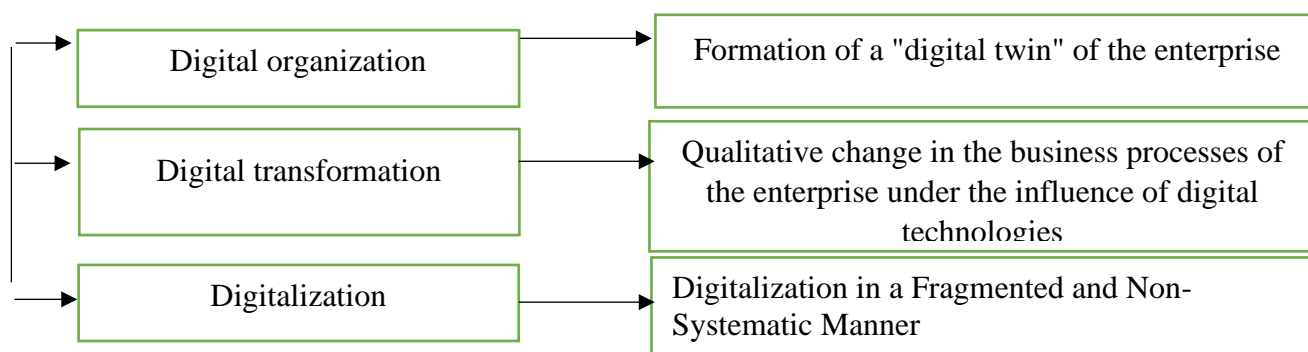


Figure 1. Stages of implementation of digital technologies at the enterprise⁸.

Digital technologies are products created with the help of computer technology and related software, and are inseparable from them. There are several main types of digital technologies, the classification of which is given in Figure 2 according to E.M. Kanisheva.

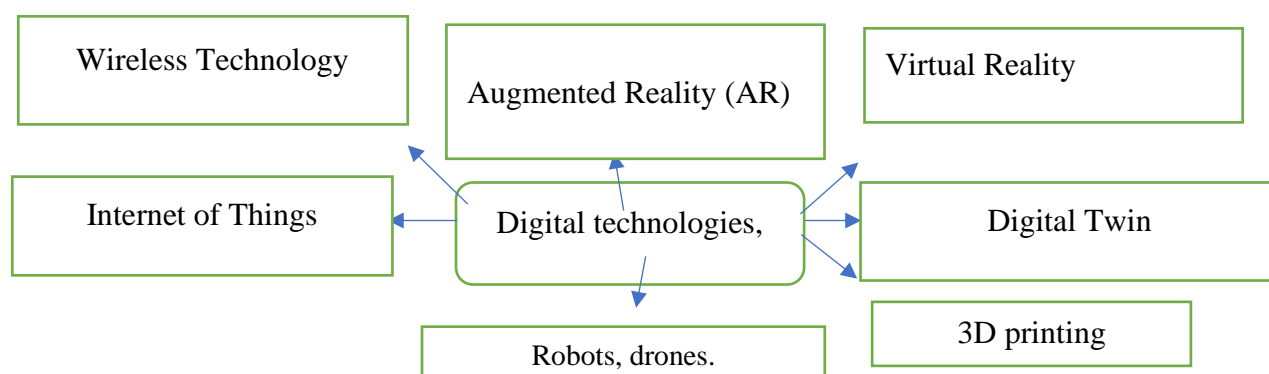


Figure 2. Main types of digital technologies.

The digital technologies presented in Figure 2 not only allow for the reception, storage and processing of data from multiple sources, but also have a positive impact on the quality of life of people, contributing to economic growth and inclusion, empowering individuals, supporting innovation and entrepreneurship, and solving social problems. In addition, digital technologies supplement information about the environment, change the perception of the outside world, are used in the development of project prototyping schemes, and are widely used in other areas.⁹ Having analyzed and systematized the above definitions, digital technologies can be summarized as follows:

⁸ Introduction of digital technologies in the enterprise Anna Obukhova^{1,*}, Ekaterina Merzlyakova¹, Irina Ershova¹, Kristina Karakulina¹ ¹Southwest State University, 50 let Oktyabrya, 94, 305040 Kursk, Russia.

⁹ Kanishcheva E.M., Belyaeva E.S. Digital Technologies: Concept, Types, Advantages and Disadvantages. 10th International Scientific and Practical Conference ACTUAL PROBLEMS IN THE CONTEXT OF THE FORMATION OF A MULTIPOLAR WORLD COLLECTION of scientific articles December 15, 2021

Digital technologies are technologies used to create, store, process and exchange information in electronic form using computers, smartphones, the Internet, artificial intelligence and other digital devices.

Digital technologies are the main driving factor for the development of the modern economy and society, they contribute to the creation of new business models, increase economic efficiency and improve various aspects of human life.

In other words, digital technologies are modern tools that simplify, speed up and automate work with information.

Findings

Modern digital technologies are one of the key factors ensuring the transition of the global economy to a new stage of development. The introduction of digital technologies contributes to the increase in labor productivity, the development of Industry 4.0, as well as the expansion of opportunities for the use of financial and educational services.

They make it possible to increase efficiency in such areas as industry, services, education, finance and other sectors, reduce costs and increase resilience to global competition. The Digital Uzbekistan 2030 Strategy, adopted by the Republic of Uzbekistan, testifies to state support for digital transformation. Measures in this area are aimed at the introduction of digital technologies in industrial enterprises, automation of control systems, ensuring transparency and rational use of resources.

At the same time, a theoretical in-depth analysis of concepts such as "digitization", "digital transformation" and "digital organization", as well as their interrelations and practical applications, are important for the development of enterprises. The results of the research show that the consistent introduction of digital technologies makes it possible to achieve sustainable and innovative development of economic entities. This is an important step towards leadership in the digital economy in the future.

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