

THEORETICAL AND PRACTICAL ASPECTS OF THE DIGITAL ECONOMY

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Abstract: The article defines the theoretical foundations of the concept of digitalization of the economy and practical aspects of digitalization for the development of water management. It is shown that Uzbekistan has significant scientific and resource potential for the development of the digital economy, including modern water and agriculture. The purpose of the study is to analyze current trends and prospects for the development of the digital economy in agriculture and water management, as well as to justify the introduction of digital technologies in agribusiness and water management in the Republic of Uzbekistan.

Keywords: digitalization, agro-industrial complex, agriculture, neural network technologies, artificial intelligence, innovative development, digital transformation, information and communication technologies.



Introduction. While representatives of the world's leading international financial institutions are unaware of the pandemic in 2019, predicting that a deep economic crisis could begin in 2020, the only way to improve the global economy is to build a new, more reliable and modern global system to end trade wars and exchange goods and services based on advanced IT technologies [1].

Thus, with the International Labor Organization pandemic reducing the number of jobs from 5 million to 25 million, the losses of the U.S. population alone could range from \$ 860 billion to \$ 3.4 trillion. The United Nations Conference on Trade and Development estimates a 40 percent reduction in foreign direct investment. The World Tourism Organization says it could drop by 20-30%. The International Telecommunication Union warns that 3.6 billion people could be left without the Internet. UNESCO is concerned that 1.5 billion children will not be able to read [2].

The United Nations Secretary-General stressed that if all states act correctly, the pandemic will mark the beginning of a new era of global and social cooperation, and the challenges facing humanity can be addressed by joining forces [4].

Research analysis and examples.

In the context of globalization, the international economy is developing in an era of unprecedented change. While the financial crisis and the COVID-19 pandemic are causing economic change in the global business landscape, the economic crisis is accelerating the transition to new technologies.

The world economy is experiencing digital changes in the new digital economy, associated with changing thinking. This change applies not only to changing business technologies, but also to changing companies' customer service, deepening integration with partners, working with large amounts of data, introducing innovations, and unique approaches to managing people.

Speaking about the state program of the President of the Republic of Uzbekistan "On the implementation of the Action Strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021 in the Year of Science, Enlightenment and Digital Economy", - and condition. This allows us to take the shortest path to ascension. After all, today in the world, information technology is penetrating deep into all areas. Public and public administration, as well as the widespread introduction of digital technologies in the social sphere,

can increase efficiency, in short, dramatically improve people's lives. - emphasizes the importance of digitalization in the new economy of Uzbekistan [1].

There are two main approaches to understanding the essence of digitization in the modern scientific literature. The first is a narrow approach, in which the digital economy is an economy based on digital technologies, covering only electronic products and services. In the second expanded approach: the digital economy is part of the economic relations of production, distribution, exchange and consumption through the Internet, mobile communications, digital IT technologies.

At the end of the last century, due to the development and spread of digital technologies, a new concept of economics - the digital economy - emerged. Then, in 1995, Nicholas Negroponte put forward his views on the technological evolution associated with the exchange of atoms for bits [2] and the conversion of information into digital form. In other words, books, CDs, videos are being replaced by digital media. As a result, in his view, the new economy that is taking place today is characterized by new forms of addressing and individualization of content, characterized by the digitization of information and the use of technology [3].

The concept of "digital economy" serves to describe the markets that focus on digital technologies and move from the third industrial revolution to the fourth industrial stage, i.e. the replacement of analog electronic and mechanical devices in the late twentieth century.

The interpretation of the "digital economy" is ambiguous. In particular, R. Buxta, R. In Hicks's major works, more than twenty meanings of the term are given, and their boundaries are marked by ambiguity or precision [3].

According to the World Bank, the digital economy is understood as a system of economic, social and cultural relations based on the use of ICT. However, this definition is not sufficiently complete that the digital signal does not take into account the key role of creating continuous information systems in the process of going through all stages of social reproduction.

In the theory of modern economics, the concept of economic "digital economy" is still generally accepted, not fully defined.

In our opinion, the coordination of relations between the participants of a market economy through ICT is called "digital economy".

So far, no country in the world has a fully digital economy.

The relationship between the economic categories of the information and digital economy can be summarized as follows. If we consider the information economy as the beginning of the technological system, the digital economy is an increasingly high level of development. The information economy 3.0 represents the economy with its specific features and institutions, its networks, the Internet and virtuality.

So, the digital economy is a 4.0 industry that is based on high technology, predicts the development of information economy institutions, and includes the creation of cryptocurrencies, blockchains, cyberphysical manufacturing systems, biocorporations, and other new institutions.

The basis of the digital economy is:

- electronic products and services;
- New types of goods and services can be purchased and sold on the Internet.

Electronic goods and services include:

- e-books, movies, music, games, media content,
- Paid access to the site (forum, Portal)
- electronic service,
- in-game account, game money, webmoney, etc .;
- electronic products, software, as well as keys for its activation, paid subscriptions for updates, etc .;
- hosting, mail, ip-telephony - electronic products;
- system administrator services for server storage, designer and webmaster services for website creation;
- services of various consultants provided through the network (lawyers, accountants, psychologists);
- Distance learning via the Internet.

Experts from the World Economic Forum believe that the digital economy is based on the 4.0 industry [5].

Specifically, the 4.0 industry integrates digital, physical, and biological systems, and its components are:

- artificial intelligence;
- Internet of Things
- driverless vehicles;
- 3D printing;
- nanotechnology and biotechnology;
- quantum computers and cloud technologies;
- development of Big Data methods of data collection and analysis;
- crowdsourcing;
- partnership economy.

Modern economic publications list the key features of "emerging" industry 5.0. Unlike the 4th Industrial Revolution, Industry 5.0 will focus on people-to-people communication and created digital technologies, not digital transformation [5].

The emergence of Industry 5.0 will lead to major changes in the nature of manufacturing activities. If the modern digital transformation directs products to the consumer, then in the era of Industry 5.0, products will be massively personalized. That is, the supply chain of goods will be focused on the individual consumer, not on the market segment. The changes will affect all types of industrial production and services. The production of the future creates the maximum interdependence between humans and machines. In production and in everyday life, the relationship with machines rises to a new level [5].

The emerging 5.0 development path is a gradual digitization process in developed countries, mainly due to the widespread use of NBIC-convergence (convergence

of nano-bio, info and cognitive technologies) in sectors of the national economy [6].

The digital economy is realized through the processes of digitization of economic processes, which leads to the simplification of commodity-money relations, saving time and increasing the security of economic operations. The digital economy can be understood as an economy in which "data in digital form is a key factor of production in all spheres of socio-economic activity".

Due to the development of digital technologies, the distance between the manufacturer and the consumer is lost and the consumer can buy products quickly and at low prices, in online stores and use the necessary services to save their money. Nowadays, an individual can register a business online to start a business without even leaving home.

The advantages of the digital economy are also:

- growth of labor productivity;
- increase the competitiveness of firms;
- reduction of production costs;
- creation of new jobs;
- Poverty alleviation.

In particular, the G20 Leaders Declaration in July 2017 noted that digital transformation is a key factor in global, innovative and sustainable growth, helping to reduce inequality and achieve sustainable development by 2030. Positively assessing the experience of the introduction of Internet technologies, the governments of most countries of the world are financing the introduction of broadband connectivity through direct public investment or changes in universal service programs [7].

For the first time in the world, in 2010 Finland passed a law guaranteeing broadband Internet access to every citizen (speed not less than 1 megabit / s and a low price of 30-40 euros per month) [8].

Not only will connecting to the network allow people to change their lives for the better, but everyone will be able to climb the social ladder with equal opportunities. Many of the world's leading nations are developing digital strategies.

"At the same time, there is a huge digital gap between the countries of the world today, for example, in the least developed countries one in five people use the Internet, in developed countries four out of five people have access to the Internet." [6]

In this digital imbalance, the two countries, the United States and China, play a leading role, for example, they account for 75 percent of all blockchain technology-related patents, 50% of global Internet spending on products, and more than 75% of the global cloud computing technology market. . It is also significant that they account for 90% of the market capitalization of the 70 largest digital platforms in the world [6].

As for Europe, its share in the capitalization of digital platforms is 4%, Africa and Latin America together - 1%, and in Uzbekistan - only 0.2%. [6]

As a result, the technological and regulatory climate is still determined by the United States and China, and Uzbekistan has great potential, but we are far behind in terms of capitalization.

Presidential Decree "On approval of the Strategy" Digital Uzbekistan - 2030 "and measures for its effective implementation" (PF-6079, 05.10.2020) was adopted and in accordance with the Decree, from November 1, 2020 all ministries and departments, local in the executive branch,

one of the acting deputy heads is assigned the authority of the Deputy Digital Officer.

However, in accordance with this Decree, from January 1, 2021:

- Up to 50% of the cost of obtaining international IT certificates in the areas of system management, information security and other high-demand areas will be reimbursed by citizens;

- As an experiment, when issuing an ID card to an individual, his personal account will be formed to establish electronic relations with government agencies;

- An electronic platform of local software products and IT services open to all will be created.

- From July 1, 2021 on the Open Data Portal will be posted online statistics on public procurement, patents, drug registration and other public use.

- By September 1, 2021, digital technology training centers for the general population, especially youth and women, will be opened in each district and city on the basis of existing infrastructure facilities. By January 1, 2022, all popular tourist destinations will be provided with high-speed internet.

- By the end of 2022, each settlement will be provided with access to the Internet at a data rate of not less than 10 Mbit / s.

- By the end of 2023, more than 200 schools specializing in in-depth training in computer science and information technology will be gradually established on the basis of existing educational institutions in all districts and cities.

In order to accelerate the development of the digital industry in the country, increase the competitiveness of the national economy, the Strategy "Digital Uzbekistan - 2030" defines the strategic goals, priorities and medium- and long-term prospects for the development of digital economy and e-government. It will also serve as a basis for the wider introduction of digital technologies, based on the priorities identified in the UN Sustainable Development Goals and the e-Government Development Rating.

The share of the digital economy in GDP in Uzbekistan in 2019 amounted to 2.2%. But according to the international rating, the average reasonable rate is 7-8%, for example, in the UK - 12.4%, South Korea - 8%, China - 6.9%, India - 5.6%, and in Russia - 2.8%. Kazakhstan - 3.9%. According to the draft concept of development of "e-government" in the Republic of Uzbekistan, it is planned to increase the share of ICT services in GDP by 5.0% by 2025 and by 10% by 2030 [3].

In the first half of 2019, investments in the information and communication sector increased by 2 times compared to the same period in 2018, but in 2018, this figure decreased by almost 2 times compared to 2017. and in the first half of 2019, and compared to the same period in 2018, it remained virtually unchanged at 1.3%. [1]

For the first time in the history of the republic, President of Uzbekistan Shavkat Mirziyoyev addressed the members of the Senate and the Legislative Chamber of the Oliy Majlis, saying:

The analysis conducted by leading international organizations also confirms this. Therefore, it is necessary to carry out digital transformation in the economy, develop national information technologies and attract investment in this area.

Assuming that an average of \$ 200 million will be allocated annually for the development of ICT in Uzbekistan

in 2017-2019. In 2018 alone, \$ 1.3 trillion will be invested in the United States alone. dollars, \$ 499 million in China. In Belarus, foreign direct investment in ICT alone is estimated at 1.5 billion rubles. dollars. Analysts at IDC estimate that global ICT spending will grow by 3.8% annually to reach 4.8 trillion by 2023. dollars [3].

The total volume of foreign investments in the economy of Uzbekistan in January-June 2020 amounted to \$ 4.8 billion, including \$ 3.2 billion in foreign direct investment and \$ 1.6 billion in state-guaranteed foreign loans. Analysis of this period shows that the ICT sector (growth of 3.5 times) is relatively attractive for investors, and positive growth dynamics is observed [7].

In addition, Uzbekistan ranks 93rd out of 168 countries in the global cybersecurity (GCI) ranking and 9th among the CIS countries. This shows that Uzbekistan must first and foremost be active in the field of ICT in terms of cyber security.

Investments in the ICT sector are crucial for the development of the country's economic potential, which will stimulate innovative development, increase efficiency, reduce costs, create new economic activity and improve the quality of life of the population.

However, in the dynamics of attracting investment in this area, although there are some positive shifts, it does not meet today's demand.

The ranking of the world's Internet speeds has been announced. According to a ranking compiled by WebsiteToolTester, the fastest internet is available in Taiwan, Singapore, Jersey (an island in the English Channel), Sweden and Denmark.

The top twenty also includes Japan, Luxembourg, the Netherlands, Switzerland, Norway, Andorra, Spain, Belgium, the United States, Latvia, New Zealand, Estonia, Hong Kong and Hungary.

It should be noted that Uzbekistan ranks 181st out of 207 countries. Internet speed in Uzbekistan has increased by 33.8% in one year and by 80% in two years.

Kazakhstan is 113th, Kyrgyzstan is 155th, Tajikistan is 192nd and Turkmenistan is 203rd.

Digitization of industrial, agribusiness and water companies in Uzbekistan remains low. For example, for the first time Uzbekistan is included in the Competitive Industrial Efficiency Index (CIP) calculated by the United Nations Industrial Development Organization (UNIDO) and is ranked 152nd in the world.

Although there is a tendency to move from the use of individual solutions abroad to the introduction of single systems, technologies and powers of knowledge management - digital platforms, the concept of transition to "Industry 4.0" is still under discussion in Uzbekistan.

At present, the use of computer engineering and virtual modeling technologies, additional technologies, industrial Internet, mechatronics and robotics tools is not yet widespread. As a result, domestic industrial products lag behind leading foreign competitors in terms of price and quality, as well as in terms of bringing finished products to market.

There are three important conditions for the formation of a digital industrial market in Uzbekistan, namely: regulatory regulation of the digital environment (concept, software and law), infrastructure development (data center, mobile, Internet, business and production automation) and training of competitive market and the government will soon focus on the development of eight platforms: a single

interactive public services portal; a public procurement portal; lectron cooperation portal; localization program monitoring; monitoring of investment programs; monitoring of small industrial zones; monitoring of socio-economic development programs of the regions; electronic payment systems.

By 2022, it is planned to implement 268 projects in Uzbekistan aimed at developing the e-government system, telecommunications, software products and information technology, as well as the introduction of digital technologies in the economy, agriculture and water management.

At the same time, the directions and required amounts of funding for new projects were identified. 104 projects worth 1.3 trillion soums are being implemented within the e-government, 87 projects worth 5.3 trillion soums in the real sector of the economy, 35 projects worth 15.1 trillion soums in the telecommunications sector and others.

According to the Decree of the President of the Republic of Uzbekistan dated April 28, 2020 "On measures to widely introduce the digital economy and e-government", by 2023 it is planned to double the share of digital economy in the country's GDP and share. services in this area have tripled, and their exports have reached \$ 100 million [3].

Conclusion and suggestions. Thus, it is necessary to increase investment activity in the digital economy, encouraged by appropriate government policies, and further digitization of business processes in companies,

which will lead to increased efficiency, reduced time and costs. In general, the adoption of such measures will ensure the high competitive position of our country in the world economy due to the fact that there is a direct link between the level and level of "development" of the ICT sector. economic development: the higher the value of the digital economy development index, the higher its GDP.

Based on the above, we consider it appropriate to make the following suggestions and conclusions on the transformation of the digital economy in Uzbekistan:

1. In the theory of modern economics, the concept of economics of "digital economy" is still generally accepted, not fully defined. In our opinion, the coordination of relations between the participants of a market economy through ICT is called "digital economy".

2. It is necessary to reduce the digital divide between the regions of Uzbekistan.

3. We consider the development of digital culture in Uzbekistan to be a topical issue.

4. Small business and entrepreneurship is the main driving force of digitalization of the economy.

5. In order to increase the efficiency of the sector in Uzbekistan, which has a high level of employment in agriculture, it is necessary to take measures to develop digital agriculture and water management.

6. A favorable innovation environment created with the direct support of the state is important to accelerate the digital transformation.

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