

The Role of It and Engineering in Today's Developing Economy

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Abstract. The article examines the concept of the digital economy, the definition of the digital economy, the technological developments characteristic of the digital economy, the impact of the digital economy on the employment of the population, the creation of a national digital economic system, the share of ICT in GDP, the analysis of some indicators of communication and information, the number of special software, used in this area.

Keywords: information technology systems, digital economy, age of network intelligence, Internet and telecommunications networks, information society, development of the digital economy, national digital economic security, economic indicators of the country.

In recent years, the importance of advanced technologies and innovation in the development of the economy is increasing. The latest technologies can improve the efficiency of production and business processes. Traditional approaches and ways of working are changing as the newest technologies penetrate into all new areas and fields of human activity. The emergence and spread of information and communication technologies (ICT) has had such an impact on the global economy that a new phenomenon has emerged - the digital economy.

Under the influence of smart technologies, the way of life of people began to change, the communication between users changed - there was an opportunity to establish communication between people in different geographical regions, fields of activity, etc. This is the rapid growth of information communication, which is the basis of the digital economy.

The impact of digital technologies is felt both globally and locally. The digital economy is a rapidly growing part of the global economy as a combination of new production. New technologies have a transformative effect on some aspects of the activities of well-organized economic entities, which mainly consists of replacing working mechanisms - communication tools or industrial machines with digital or digital mechanisms, as well as further modernization.

The growth of the digital economy is linked to the growth of a number of marketing activities directly related to digital and mobile technologies.

At the current stage of technological development and the current state of marketing, the digital economy should be considered not as a goal, but as a means of increasing the efficiency of economic activity. The modern digital economy offers new business models and emphasizes the need to change governance mechanisms to reflect the changing reality. In recent years, the economy of Uzbekistan has undergone fundamental changes. The economy has become an open, rapid, innovative development. However, it should be recognized that in the conditions of globalization of the world economy and technological development, it is difficult to imagine the further economic development of Uzbekistan without the development of the digital economy. Unfortunately, there are two major problems in this field in the Republic: telecommunication infrastructure and lack of specialists. This can seriously hinder the digital transformation of the economy of our Republic and, as a result, slow down the digital economy.

- Creating additional conditions for the development of the digital economy, as well as five priority measures for the development of the digital economy in the Republic of Uzbekistan in 2017-2021" PQ of July 3, 2018 - 3832- Decree no.
- Resolution PQ-4022 of November 21, 2018 of the President of the Republic of Uzbekistan "On measures to further modernize the digital infrastructure in order to develop the digital economy".
- PQ-3832 of the President of the Republic of Uzbekistan dated 07.03.03 "On measures to develop the digital economy in the Republic of Uzbekistan" and develop blockchain technologies with practical skills

using modern information and communication technologies In accordance with the objectives of the Strategy of Actions in the direction of training qualified personnel in their use and use, the following was adopted:

- It has become clear that success in the transformation of the traditional economy into a digital economy is problematic without the training of qualified personnel. Therefore, at the initiative of the President of the Republic of Uzbekistan Sh.M. Based on Mirziyoyev's Decision No. PQ-3832 of July 3, 2018, a faculty of digital economy was opened at the Tashkent State University of Economics for the preparation of bachelors, and a master's degree was opened for training qualified personnel in the field of digital economy at the Faculty of Economics and Business of the Samarkand State University. Digital economy is a new direction in the world economy. Economically developed countries have made significant progress in this direction, while others are advancing in this direction.

Introduction. Today, the importance of digital technologies in society is increasing. The issues of their widespread introduction and development of the digital economy have become a serious vital issue for every country nowadays. According to experts, in the next 3 years, 22% of jobs in the world will be created with the help of information technologies through the digitization of the economy. In Uzbekistan, special attention is paid to the wide introduction of digital technologies in areas of great importance for development. The agricultural sector occupies an important place in this list. Therefore, it is planned to implement 24 projects that serve to bring the networks to a new level. Today, a lot of work is being done to create conditions for specialists in the field, to develop IT entrepreneurship, especially start-up projects in the field of ICT. For this purpose, a technological park of software products and information technologies was established. Currently, 392 organizations with four thousand specialists are residents of ITpark [1]. "We need to develop the "National Concept of the Digital Economy", which envisages the renewal of all sectors of the economy based on digital technologies. On this basis, we need to implement the "Digital Uzbekistan-2030" program. The digital economy allows to increase the gross domestic product by at least 30%, and to reduce corruption sharply. This is also confirmed by the analyzes conducted by reputable international organizations.

Therefore, the government is tasked with developing a "roadmap" for the transition to the digital economy within two months. In this regard, it is necessary to pay special attention to the provision of information security," said our president [3]. The development of the digital economy in the world is accelerating, and the capabilities of information technology systems to make appropriate decisions based on data collection and analysis are increasing year by year. According to the United Nations (UN) Conference on Trade and Development (UNCTAD), the traffic volume of Internet users in the world averaged 100 gigabytes (GB) per day in 1992, and by 2017, the traffic volume is now 45,000 GB per second. enough. Today, as a result of the acceleration of work on the transition to the digital economy in all countries, in the context of the pandemic, especially as a result of the further increase in the use of the Internet, by 2022 the volume of world traffic is forecast to reach 150,700 GB per second.

Analysis of literature on the topic. Instead of goods and services, the digital economy has given rise to "new" activities related to the collection and use of various types of information. Data can be collected, aggregated, stored, and analyzed in many forms, including open and closed data, personal and abstract, confidential and non-confidential, commercial or public, voluntary or surveillant. , a "data value chain" was formed by modeling companies. The data is "digital intellect", that is, value creation occurred in the process of turning it into a useful asset and using it for commercial purposes and making a profit. When talking about the process of "digitization" of the economy and society (in English, it means "digitization", i.e. digitalization, and sometimes "digitalization", i.e. digitalization), first of all, it is necessary to clarify the terminology. In its broadest sense, the process of "digitization" usually refers to socio-economic change initiated by the widespread adoption and assimilation of digital technologies. Technologies for creating, processing, sharing and transmitting information [4]. In 1995, Nicholas Negroponte, a scientist in the field of informatics of the University of Massachusetts, introduced the term "Digital economy" and expressed it as a metaphor of the transition from the movement of atoms to the movement of bits, to the form of information and communication tools [5]. The concept of digital economy has been given a number of definitions. For example, V. Ivanov, Doctor of Economics,

Corresponding Member of the Russian Academy of Sciences, described: "The digital economy is a virtual environment that fills our reality and its basis is information and communication technologies" [6].

According to the definition given by M.Nikrem and others, information and communication technologies in the digital economy are the share of production carried out at the expense of "digital" resources in the total economic output.

Comprehensive resources include digital skills, digital equipment (accessories and components, software and communication equipment), intermediate digital products and services used in the production process [7].

Another foreign researcher, M. Rose, said: "Using information and communication technologies in the digital economy is an international network of economic activity, where data circulation is carried out at the expense of information and communication technologies. In a simpler way, this concept can be described as an economy based on digital technologies" [8]. Many experts, without clearly defining the concept of "information and communication technologies in the digital economy", express it as a "complex structure" and give different definitions as an economy based on digital technologies.

R.V. Mesheryakov states that there are two approaches to the term "information and communication technologies in the digital economy": classic and extended. According to the classical approach, the digital economy describes the economy based on digital technologies, and here only the field of electronic goods and services. For example, distance education, telemedicine. According to the extended approach, the digital economy is a process of economic production implemented using digital technologies [9]. According to the definition given by T.A. Gasanov and G.A. Gasanov, the application of information and communication technologies in the digital economy is a system of institutional categories in the economy based on leading scientific achievements and advanced technologies, primarily information and communication technologies, and its implementation it is aimed at increasing the efficiency of gross production, maintaining stable economic growth rates in order to improve the standard and quality of life of the population[10]. The digital economy is the transformation of the institutional economy, in the process of expanding the size of the national wealth, raising the standard of living of the population and the economic development of the country.

Digital technologies are used comprehensively and systematically for the innovative development of the national economy in order to strengthen its security. The group of authors led by S.S. Gulyamov, one of the economists of our country, defined the importance of the use of information and communication technologies in the digital economy as "using the results of process analysis and processing a large amount of data to maintain various productions, technologies, equipment, goods and services, "It is an economic activity in which digital information is considered the main factor of production, which allows to significantly increase the efficiency of sales and delivery." At the same time, noting that this definition is inconvenient for use, they gave the following functional definition: "In the digital (electronic) economy, information and communication technologies - information, including personal information, to meet the needs of all participants as much as possible. is an economy that uses digital technologies as a characteristic" [11]. Deputy of the Legislative Chamber of the Oliy Majlis of the Republic of Uzbekistan, Doctor of Economics, Professor N.Kh. According to Jumayev, information and communication technologies in the digital economy do not mean only Blockchain technology and its use in international financial markets or cryptocurrencies. The term "digital economy" refers to the economy conducted with the help of digital communications and IT [12]. Another integral part of the digital economy is the digital platform. In practice, a digital platform can be roughly compared to a marketplace, because parties in a business process or trade relationship interact and conduct their relationships through the digital platform. The difference between the process and the normal market is that the participants communicate online using the platform.

Research methodology. Economic statistical indicators of the development of the digital economy in our country were analyzed. The activities of the digital economy were closely studied and a database was compiled. Based on the collected data, methods such as observation and comparison of economic analysis, systematic approach and logical approach were effectively used.

Analysis and results. The level of development of the digital economy is directly related to the level of development of information and communication technologies (ICT), and is usually evaluated by various indicators. These indicators include: the share of the digital economy in the GDP, the volume of investments

in the ICT industry, the speed of the Internet, its coverage of the territory of the country and its ease of use for the population, the level of development of e-commerce, the share of public services in the "Electronic Government" system, the number of organizations in the field of ICT and so on.

In addition, indicators of international ratings evaluating the level of development of information technologies in the country are important.

The digital economy allows to overcome the limitations inherent in the classical economy due to the presence of some features of a unique function:

1. A few people cannot use tangible products, because digital products do not have such barriers: they can be copied and distributed to an unlimited number of people.
2. It is prohibited to use the materials during use. Digital products do not lose their original features, and these features may be enhanced through collaboration or exchange.
3. Information and communication platforms avoid the restrictions on the size of the available spaces in conventional commercial buildings and, at the same time, restrictions on the number and quantity of customers served at the same time.

An important aspect of the formation and implementation of the digital economy is, first of all, the implementation of the state regional policy aimed at solving the following problems. It is necessary to increase the investment attractiveness of the regions and increase innovative activities in them, develop production and social infrastructure, minimize territorial disparity in the field of socio-economic development of regions, strengthen interregional relations and use human potential wisely. Business entities use the Internet for effective continuous work at the level of business entities. At the same time, the model of effective cooperation between the subjects of the "business power" system is indispensable and important. We believe that technologies and services for digital systems should include:

- advanced structure of the information and communication system;
- interactive teams participating in objective-oriented groups;
- information resources;
- information base;
- new forms of electronic interactions;
- platform for integration of business, government and society;
- digital environment.

Conclusions and suggestions. Taking into account the above, special attention should be paid to increasing the level of necessary education in the application and use of digital technologies, their availability and quality, stages of preparation and various levels of development, acquisition of technical skills in compulsory preschool education, and higher education in enterprises and organizations. We need to provide graduate and doctoral education programs. Economic and innovative development investment is formed on the basis of public-private sector cooperation by establishing a rational economic system at the regional level, determining the points of sustainable economic growth, not only digital formation of the areas and directions of the region's development in modern conditions, but also, first of all, by determining the priority directions for the development of human resources. The main factors are the development of mass information aimed at the activation of software, the upgrading of hardware, the development of network technologies, and the growth of the transaction sector. At the same time, the spread of ideas of the development of a competitive economy, the development of socio-economic and legal relations characterized as the information market, the trade between consumers, producers, and intermediaries forms the market of information products. This approach strengthens the dominance of the information industry in a number of countries, and the production and service sectors are increasingly knowledge-based and innovation-based.

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