FEATURES, TRENDS AND WAYS OF FURTHER DEVELOPMENT OF THE DIGITAL ECONOMY

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Abstract: The development of digital technologies leads to major changes not only in the economy, but also in society itself. This processes have not only led to fundamental changes in business models and consumer behavior in the modern economy, but also created the basis for the transformation of a wide range of social processes, including high-tech production [3], economic activity, financial services, educational concepts and standards, entertainment and leisure. The article examines the current state and global trends in the development of the digital economy, and also proposes measures for its further development in Uzbekistan, as well as in Uzbekistan, at the highest level, great attention is paid to the development of information and communication technologies, increasing their role in the socio-economic development of the country, it is necessary to adapt the educational system and infrastructure to the new requirements of the digital era.

Key words: digital economy, information and communication technologies, digitalization, digital technologies, Internet of Things, e-commerce.

Introduction

Today, articles related to the development and popularization of information and communication technologies around the world are becoming increasingly relevant. The revolutionary influence of ICT is reflected in government structures and civil society institutions, in the economic and social spheres, in science and education, culture and people's way of life. This is due to the fact that, in general, communication services allow for the full use of existing potential, and significantly contribute to the achievement of the goals of sustainable economic growth, prosperity, democracy, peace and stability. [1].

Indeed, the digital revolution, which is becoming a new stage of economic and technological development, has dramatically changed people's lives, created huge opportunities and increased competition in the international arena. Now, such digital technologies as big data, artificial intelligence, neurotechnology, quantum technology, cloud and mobile technologies, virtual and augmented reality technologies, cross-exchange, blockchain technologies play a decisive role. [2].

Over the past decade, the above processes have not only led to fundamental changes in business models and consumer behavior in the modern economy, but also created the basis for the transformation of a wide range of social processes, including high-tech production [3], economic activity, financial services, educational concepts and standards, entertainment and leisure. This infrastructure, based on electronic interaction, is becoming a new vector in the development of

the global economy, which is acquiring the status of digital as an economic activity based on digital technologies [4].

The digital economy is a new economic environment that creates new huge opportunities for business. In the digital economy, under the influence of new technologies of the digital economy and e-commerce, both the structure and nature of competition and business models are completely changing. In this article, much attention is paid to the development of information and communication technologies in Uzbekistan at the highest level, increasing their role in the socio-economic development of the country. The main example of this is the speech of Shavkat Mirziyoyev at the inauguration ceremony of the President of the Republic of Uzbekistan, in which the following is especially noted: "Modernization of industries and regions, increasing their competitiveness, developing export potential will always be in the center of our attention. As a result, traditional offline companies are forced to transform their business or switch to online mode. This kind of situation encourages entrepreneurs to start their business on the Internet.It is on this basis that we will be able to achieve an increase in the gross domestic product by more than 2 times by 2030" [5].

Overall, the new economic space formed by the digital economy creates fundamentally different opportunities and prospects for its participants than before. At the same time, according to the OECD report, competition in digital markets has certain distinctive characteristics, including such trends as the “winner takes all” in the competition for the market, network effect, innovation and investment.

Literature Review on the Topic

The concept of the digital economy emerged in the last decade of the 20th century with the introduction of this phrase into circulation in 1995 by Nicholas Negroponte from the University of Massachusetts. Over the past period, many approaches to the disclosure of the term "digital economy" have been formed in the scientific community.

Thus, M.L. Kaluzhskiy defines the digital economy as a communication environment of economic activity on the Internet, as well as the forms, methods, tools and results of its implementation [7]. The OECD considers this concept as a general term for describing markets focused on digital technologies and including, as a rule, trade in information goods and services through e-commerce [6]. In this case, digital technologies are understood as the Internet, mobile phones and all other means of collecting, storing, analyzing and exchanging information in digital form [1].

Thomas Mesenburg identified three main components of the digital economy [8]:

• e-business infrastructure (technical means,
software products, telecommunications, networks, human capital, etc.);

• e-business (a way of doing business, namely: any
process implemented by an organization using information and communication networks);

• e-commerce (transfer of goods, for example, selling a book online).

According to V. Katasonov, in the most general sense, the digital economy can be represented as that part of economic relations that is mediated by the Internet, cellular communications, and ICT [9]. Digital technologies in the modern world create fundamentally new opportunities for building interactions between the state, business, and the population, eliminating long chains of intermediaries and accelerating the implementation of various transactions and operations.

Based on this view of the digital economy, the authors of many studies conclude that this economic model will provide "digital dividends" to society in the form of expanded market access and market coverage, increased internal and market efficiency, including higher labor productivity, reduced transaction costs, increased employment (reduced unemployment), more complete satisfaction of human needs, reduced poverty, and even weakening (or completely overcoming) social polarization of society [1, 10–12].

Research Methodology

The methods used were empirical research, system and comparative analysis, statistical grouping and expert assessment.

Analysis and Results

Digital technologies have developed rapidly in the last decade. The number of people with access to the Internet increased from 1 billion to 3.4 billion between 2015 and 2023, covering more than 40% of the world's population.[13] More households in developing countries have a mobile phone than have access to electricity or clean drinking water. Nearly 70% of those in the bottom quintile of the population own a mobile phone, compared to 98% in high-income countries.[1]

Digitalization is changing the face and structure of the economy, breaking traditional business models, leading to the expansion of markets and opportunities, increased competition and growth of competitiveness, both among individual economic entities and entire countries.

A striking example of this is the data provided in the McKinsey Global Institute Report, according to which, after 20 years of growth, the share of traditional flows of goods, services and finance in global GDP has decreased from 53% in 2018 to 39% in 2023, while the volume of cross-border data exchange increased 45 times between 2018 and 2023. As of 2020, about 12% of global trade in goods was carried out through international e-commerce, about 50% of global trade in services has already been digitalized.

That is why many experts agree that digital transformations are becoming one of the key factors in global economic growth. Thus, according to one of the authoritative experts in the field of digital economy, The Boston Consulting Group (BCG), the share of the digital economy in the GDP of developed countries has grown by 1.2 percentage points since 2018 and is 5.5%. In developing countries, this figure increased from 3.6 to 4.9% of GDP (Table 1).

The UK is the world leader in terms of the share of the digital economy in GDP. The sector, which includes IT and telecommunications, online trade, and government spending related to the Internet, ranks second in the country's

economy after real estate and ahead of manufacturing and trade. South Korea and China follow.

If we consider the indicators of the level of development of electronic commerce (EC) by country, then, according to BCG [14], Great Britain is also in the lead here, followed by Germany (Table 2).

The high level of e-commerce development in China is noteworthy. According to the same BCG company, in 2020, e-commerce turnover in China amounted to USD 18 billion, and by the end of 2024, Chinese consumers spent about USD 750 billion on purchases through the Internet, which is more than the same figure for the United States and Great Britain combined. In general, according to the Ministry of Commerce of China, China's share in international e-commerce by the end of 2024 was 39.2% [15]. At the same time, according to the industry development program adopted in the country for 2022-2030, the volume of e-commerce will grow to USD 5.8 trillion in 5 years [16].

Table 1. Dynamics of growth of the share of the digital economy in the GDP of G20 countries, %

Country	2020	2025
United Kingdom	8,3	12,4
South Korea	7,3	8
China	5,5	6,9
European Union	3,8	5,7
India	4,1	5,6
Japan	4,7	5,6
USA	4,7	5,4
Mexico	2,5	4,2
Saudi Arabia	2,2	3,8
Australia	3,3	3,7
Canada	3	3,6
Argentina	2	3,3
Russia	1,9	2,8
South Africa	1,9	2,5
Brazil	2,2	2,4

Source: Boston Consulting Group (BCG)

Table 1. Level of e-commerce development in some countries in 2024, %

Country	Share of EC in total retail trade	Share of EC in retail food trade
United Kingdom	11,4	4,4
Germany	10,2	0,8
PRC	8,4	-

USA	6,8	3,0
Japan	6,2	-
Netherlands	-	3,6
France	-	1,5
Russia	3,3	0,2

Source: Boston Consulting Group (BCG)

According to estimates by the McKinsey Global Institute [17], by 2030, digital technologies will drive China's GDP growth to 22%, and Russia's to 34%. The expected increase in value created by digital technologies in the United States by 2030 could amount to 1.6–2.2 trillion US dollars.

These economic forecasts are determined not only by the high level of automation of existing processes, but also by the introduction of fundamentally new, breakthrough business models and technologies. Among them are digital platforms, digital ecosystems, in-depth analytics of big data, Industry 4.0 technologies (3D printing, robotics, Internet of Things). According to the McKinsey Global Institute [17], annual investments in the global economy of the Internet of Things alone will amount to between 4 and 11 trillion US dollars by 2030.

Another trend in e-commerce is the increasing activity and role of small and medium-sized businesses in global trade. Digitalization has enabled the most active and enterprising representatives of small and medium-sized businesses to transform themselves into “micro-multinational” organizations, including by providing them with access to the infrastructure of digital platforms operating on the so-called “plug and play” principle, as well as an unprecedented opportunity to access the global database of potential customers built into these platforms.

The most extensive databases of potential clients are contained in social media platforms. Thus, according to Facebook calculations [18], in 2021–2025 alone, the number of small and medium-sized businesses registered on its platform increased more than 2.5 times: from 25 to 65 million. At the same time, the share of their foreign subscribers is about 30%. This fact characterizes social media platforms as a powerful marketing tool, especially for companies interested in increasing export indicators.

Meanwhile, e-commerce is an important, but not the only component of the digital economy. In some countries, for example, e-banking has become relatively well developed. In 2024, BCG [14] specialists attempted to assess the level of development of the digital economy, taking into account all its sectors. They expressed the results in indices that take into account many parameters ("BCG indices"). All countries were ranked in descending order of the BCG index value. The leaders were: Denmark (1); Luxembourg (2); Sweden (3); South Korea (4);

Netherlands (5); Norway (6); Great Britain (7). Lower rankings were occupied by the UAE (30); China (35); Russia (39); India (80) and the last, 85th place - Cameroon.

BCG experts divide diverse digital economies into 5 groups. The criteria for grouping were the relative level of development of digital operations and GDP per capita.

BCG experts include countries with the highest percentage of “digitalization” of economic operations and a high level of technology used for such “digitalization” in the group of leaders. These are: South Korea, Denmark, Great Britain, Sweden, Norway and the Netherlands.

The second (main) group includes most countries with developed economies, in particular, Germany, the USA, Japan, and the EU countries.

The third group includes countries with a high level of prosperity (GDP per capita), but with relatively lower indicators of "digitalization" of operations. These are the countries of the Middle East, primarily the UAE and Saudi Arabia. BCG experts emphasize that a number of countries in the third group have high themes of digital operations development, which is why in the future they can rise to the second or even the first group.

The fourth group is represented by “emerging leaders.” In these countries, the level of digital operations development is higher than the level of economic development. The most prominent representative of this group is China.

BCG experts classify all other countries as “lagging behind” in the development of the digital economy.

Since the establishment of independence, Uzbekistan has paid special attention to the intensive development of information and communication technologies. Large-scale digital infrastructure projects are being implemented in the country, including the development of state electronic services, expansion of the electronic procurement system, and the involvement of citizens in the process of making socially significant decisions. Real digital services are beginning to be provided to the population and businesses.

According to Internet Live Stats [19], in terms of the number of Internet users, our country currently ranks first in Central Asia, third in the CIS and 37th in the world. As of 2022, the access speed to international information networks reached almost 35 Gbit/s, mobile communications covered 92% of the republic's settlements, and the number of subscribers amounted to 20.8 million people. At the same time, according to the Program for the Development of the Service Sector for 2022–2026, based on the active growth trend in the number of mobile communications users, this figure is projected to reach 27 million people by 2026. [20].

Nevertheless, despite the positive dynamics in the development of information technologies and communications, the problems of their more active implementation in economic sectors require their solution. The rapid development of digital technologies in the world and the expansion of their role in the global economy, on the one hand, open up new opportunities and horizons for further development, and on the other, give rise to serious challenges and threats for countries and companies that have not learned to live in a dynamic world of constant innovation.

Today, we can confidently say that in the near future, the competitiveness of not only businesses, but entire countries will be determined by their level of digitalization. At the same time, there is no place on the digital pedestal for those who take a wait-and-see attitude. Passion is needed to win - it will require a willingness to invest in bold projects, a focus on a specific result, flexibility at the mental level, and a desire to work and experiment with full dedication. Countries and companies that manage to become leaders in the digital economy will have virtually unlimited prospects.

Understanding this, leading players are actively developing ICT infrastructure, modernizing the education sector, developing and implementing digital tools, including those using elements of artificial intelligence, in a variety of economic sectors. Thus, in the last two years alone, a number of countries with already developed digital economies, including the United States, Great Britain, South Korea and China, have adopted national strategic plans for the further development of digital technologies, including artificial intelligence. Moreover, in some cases, the documents contain specific amounts and sources of funding for projects worth billions of US dollars.

In order to successfully adapt to the ongoing changes and reduce the technological gap with leading players, Uzbekistan, like many other countries, needs to promptly develop effective responses to the challenges of the digital era.

Some work has already begun in this direction. In particular, large-scale projects are being implemented to deepen the digitalization of the activities of government bodies, aimed at expanding the list, improving the quality and simplifying access to public services, as well as increasing the efficiency of interdepartmental interaction for these purposes. An example is the launch of an updated version of the Unified Portal of Interactive Public Services (my.gov.uz) - EPIGU 2.0. with expanded functionality, completion of the modernization of the real estate registration and cadastre system, the introduction of the Notary information system, the creation of electronic databases of individuals and legal entities, registration and accounting of vehicles. Plans for the near future include the digitalization of tax accounting in Uzbekistan and the approval of a methodology for assessing the financial efficiency of e-government.

In 2024 alone, contracts worth approximately 6 billion soums were concluded from the funds of the Fund for Development of Information and Communication Technologies of Uzbekistan for the implementation of e-government projects [21].

The legislative framework is being improved. The country has adopted a number of laws regulating relations in the field of electronic document management (laws "On Electronic Document Management", "On Electronic Digital Signature", etc.).

By the Decree of the President of the Republic of Uzbekistan dated June 30, 2017 No.UP5099, a serious foundation has been laid for the development of the software development sphere in the republic. For the first time in history, an Innovation Center for Support of Development and Implementation of Information Technologies “Mirzo Ulugbek Innovation Center” has been created within the

territory of the Republic of Uzbekistan on the principle of extraterritoriality. At the same time, the center and its residents have been granted unprecedented tax and customs benefits.

In the future, there will be an increase in the efficiency of the system of grant financing of scientific research within the framework of state scientific and technical programs, as well as state co-financing of promising projects for the development of the production of competitive science-intensive domestic products using funds from the Fund for the Support and Development of Scientific and Technical Activities.

At the same time, successful development of the digital economy mediates timely resolution of problems, including the creation of conditions for the expanded implementation and use of digital technologies, including further development of basic ICT and supporting infrastructure, ensuring universal and widespread accessibility of the Internet, reducing the persistent regional digital gap. It will be necessary to form an effective legislative and regulatory framework.

It is necessary to adapt the educational infrastructure to the changing labor market. The system of education and retraining of personnel must be ready to provide the economy with specialists who meet the requirements of the digital age, since the automation of an increasing number of operations will lead to the complete disappearance of a number of specialties and a massive shortage of specialists with digital skills.

Conclusions and Proposals

The main key trend occurring in the world global economy over the past decades is its rapid growth of digitalization. The transition to a digital economy changes the appearance and structure of the economy, breaking traditional business models, leads to the expansion of markets and opportunities, and becomes the main driver of global economic growth.The results of the analysis suggest that, with a high degree of probability, in the near future the level of digitalization will determine the competitiveness of not only businesses, but also entire countries. At the same time, only those countries and companies that can most quickly adapt and make the most of the benefits of the ongoing changes will achieve a sustainable competitive advantage.

In order to successfully adapt to the transformations and reduce the technological gap with the leading players, Uzbekistan needs to develop effective responses to the challenges of the digital era. In particular, it is necessary to develop long-term scientifically based strategies for digitalization, taking into account the need to ensure accelerated development rates in this area both at the state level and in the context of industries and enterprises of the republic.

In this context, the advanced development rates should in no case imply a gradual "catch-up" implementation of previous generation technologies. Such an approach will not only put the country and business in the position of eternally lagging behind, but will also lead to significant risks, since players with fundamentally new business models may enter the market. For advanced development, it is important to identify trends in the field of digital technologies

that have the greatest impact on the appearance and structure of the economy as a whole and on individual industries in particular, and also to determine which of them will allow us to extract the greatest benefits in the next 5-10 years.

The pace of building digital infrastructure is critical. In the world of the Internet of Things, everything must connect to each other quickly, reliably, and securely. In this regard, it is important to continue implementing measures to expand the coverage of advanced technologies to the population and their rapid deployment across the country. This will lead to increased accessibility of the Internet, and will also give impetus to the development of entrepreneurship in the digital periphery.

No less important are measures to increase the potential of our own ICT industry, the implementation of which will reduce critical dependence on imports and increase the export of digital technologies. According to the Decree of the President of the Republic of Uzbekistan dated June 30, 2017 No. UP-5099, today the country has created the necessary favorable conditions for this.

The efficiency of these measures will be increased by using the development of industry programs for the modernization of the country's industry based on the principles of "Industry 4.0" with the introduction of financial and non-financial mechanisms to stimulate demand from enterprises for development technologies. At the same time, it is important to motivate industrial enterprises to attract domestic suppliers, engineering companies and research centers for the development and implementation of these technologies. Thanks to this approach, domestic demand will become the gravity of the development of local technology companies.

One of the key elements of state policy should be the training and retraining of personnel. In this context, it will be necessary to adapt the educational system and infrastructure to the new requirements of the digital era. In particular, it is necessary, first of all, to introduce fundamentally new approaches to education and ensure a high level of basic digital literacy of the population.

In conclusion, it can be said that the digital economy is a strong improvement of innovation, growth and social well-being and its development in Uzbekistan is special in the modern era. Deepening and improving digitalization will increase the competitiveness of the domestic economy in the world arena, provide conditions for a gradual transition to the level of an innovative economy and a knowledge economy, as well as improve the quality and standard of living of the population.

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