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### **Innovative development of banking services in conditions digital economy**

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#### **Abstract**

The article discusses the main factors and conditions for the development of the digital economy, the experience of foreign countries in digital transformation and its specifics in banking, considers the main prerequisites and conditions for the formation of the digital economy and in particular the digitalization of the banking sector in relation to the Republic of Uzbekistan, proposes innovative development of the banking activities in the context of the digital economy.

**Keywords:** Digital economy, digital finance, digitalization of banking, digital transformation, innovative development, cryptocurrency, blockchain

**JEL classification:** F30 International finance: General; F65 Economic impacts of globalization: Finance; G20 Financial institutions and services: General; O53 Economy wide country studies: Asia including middle-east; O39 Technological change: Other

#### **Introduction**

The development of modern society in the long term is characterized by a number of stable global trends - this is the digitalization of all aspects of human activity, population growth, urbanization and climate change. Digital transformation is changing the formation of a global data value chain by transforming digital data into digital intelligence. The development of digital platforms operating on a global scale is changing the conditions of competition and creating new types of services and goods. The expansion of the range of functioning of digital platforms occurs through mergers and acquisitions with companies in related industries, when virtual companies merge with manufacturing enterprises, forming conglomerates and new multinational corporations.

An analysis of global statistics on the development of digital technologies indicates the scale and swiftness of ongoing processes, both from the point of development of technologies and from the standpoint of its use by people.

President of the Republic of Uzbekistan Mirziyoyev Sh.M., emphasizing the importance of developing a digital economy in Uzbekistan, noted: "... that the world is changing rapidly, and if you do not start work in this direction, the country may lag behind modern requirements" [18]. That is why the study of the development of digitalization in all areas of our lives, innovative technologies, new forms of introducing e-business and e-commerce is considered one of the most pressing issues requiring in-depth study and analysis, which determined the relevance of choosing a research topic.

Huawei and Oxford Economics jointly released the Digital Spillover report, which shows that over the past 30 years, every \$ 1 investment in digital technology has led to a \$ 20 GDP increase. Long-term return on investment (ROI) for digital technologies is 6.7 times greater than for non-digital investments, and the digital economy has grown 2.5 times faster than the average global GDP [10, 17].

The emergence of new digital infrastructures, the development of computer technology and digital communications give rise to new opportunities in the field of information technology, their implementation in the socio-political and economic life of society, form a new system of international economy - digital. The financial sector is no exception: cash flow and payment management is massively switching to network platforms. Transformation of transactions, the introduction of new services, integration with cryptocurrencies,

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crowdfunding and other new products are becoming realities of the modern world. Uzbekistan is taking its first steps towards the development of a digital economy. Currently, the draft Concept of the National Strategy "Digital Uzbekistan 2030", which includes the priority areas of digitalization, the implementation mechanism and possible risks, is being considered in the discussion process. The concept will become the basis for the development of industry-specific digital transformation programs. The formation of the digital economy is changing the production processes and social life of society, contributing to the acceleration of international integration, but at the same time it carries risks that must be assessed to take appropriate measures. The importance of this process and the presence of possible difficulties in the implementation process have made it relevant to select a topic for researching problems and prospects for the development of digital technologies in the banking sector based on the study of foreign experience in digital transformation, primarily in leading countries, as best practices, and a comparative analysis of the premises and factors development of digital technologies in the countries of Central Asia, which have much in common with the internal conditions of Uzbekistan.

### Objective

Based on an analysis of the development of the digital economy in developed countries, in the world and in the region of Central Asia, consider the prospects for the development of the financial market, and especially the banking sector of Uzbekistan in the context of the formation of a digital economy in the country.

### Literature review

The concepts and mechanisms of the digital economy are relatively new, but its active development, problems and prospects have become the subject of research by international organizations and companies, many scientists from different countries. At the same time, there is no consensus on the essence of the digital economy, the methodology for studying the effect of its influence on socio-economic development.

Basically, the opinion on the problems of the digital economy is widely represented by the authors of developed countries, such as the United States and Great Britain, where the leaders in the number of publications are specialists at the Massachusetts Institute of Technology and their partners. The term "digital economy" owes its appearance in the scientific and entrepreneurial community to the author of the book "Digital Economics" Don Tapscott, which was first published in 1994, and 20 years later was reprinted taking into account the analysis of modern development [8]. Also, the introduction of the concept of "digital economy" is attributed to the American scientist Nicholas Negroponte of the University of Massachusetts, who introduced it into widespread use in 1995 [16, 25].

The World Bank defines the digital economy as a system of "economic, social and cultural relations based on the use of digital information and communication technologies" [26], and also as a "new paradigm of accelerated economic development" [21]. In the book of Spiridonova N.E. the process of "digitalization" in the broad sense means "socio-economic transformation, initiated by the massive introduction and assimilation of digital technologies, i.e. technologies for the creation, processing, exchange and

transmission of information. The very concept of "digitalization" indicates a new stage in improving the management of production of goods and services and production itself based on the "end-to-end" application of modern information technologies, starting from the Internet of things and ending with e-government technologies" [18, 24]. Phillipov D.I. He believes that various definitions of the concept of "digital economy" depend on a narrower or wider perception of definitions, in his opinion "the digital economy is an economy of a post-industrial society, characterized by new technological capabilities and the active use of ICT (in various sectors of the economy), including economic activities based on electronic processing, storage and transmission of information in order to create new business processes, products and services, as well as optimize costs, reduce risks, improve the quality of life, etc." [25]. According to B. Panshin, "in the technological aspect, the digital economy is determined by four trends: mobile technologies, business analytics, cloud computing and social media; globally, social networks such as Facebook, YouTube, Twitter, LinkedIn, Instagram and others. This means that when forming the national segment it is important to use their capabilities." [twenty]

Most scientists present the digital economy as an activity in which the key factors of production are data presented in digital form, and their processing and use in large volumes, can improve efficiency, quality and productivity in various types of production, technologies, equipment, during storage, sale, delivery and consumption of goods and services. Assessing the prospects for the development of the digital economy, international organizations believe that: "The main directions of the digital revolution are robotics, blockchain, cloud technologies, the Internet of things, big data and advanced analytics, horizontal and vertical integration, cybersecurity, additional reality and much more" [8, 10].

As a specific feature of digital technologies in relation to business, it is defined as "combining the physical and digital resources of an organization to jointly solve business problems, which leads to the formation of new business models, allows you to create new values for the consumer, changes competition strategies and ultimately increases competitiveness business" [10, 15].

If the opinions of scientists began to approach the basic concepts of the digital economy, then there are various conflicting points of view regarding the development of digital finance, cryptocurrencies based on digital technologies. As well as in the legal respect of various countries, where governments differently consider the very possibility and mechanism of circulation of their own cryptocurrencies.

For example, according to David Iheke Okorie, "the emergence of state risks in the markets of cryptocurrency assets is based on their unregulated nature. Since most governments illegally prohibit or restrict trading in these markets in response to the uncertainty surrounding the spread of the negative effects of these markets on the economy as a whole" [5].

The most common and implemented type of cryptocurrency based on the use of blockchain technologies is, of course, Bitcoin, the high cost volatility of which has become the source of scientific disputes. According to some scholars: "... designed to provide a secure distributed platform without central regulation, Blockchain is declared a

paradigm that will be as powerful as big data, cloud computing and machine learning" [2, 7, 6].

According to Tomaso Aste: "... the current cryptocurrency market has a complex structure. Large, highly capitalized cryptocurrencies and small cryptocurrencies are combined into this complex structure, and major currencies play a central role depending on the price and mood of people. At the same time, sentiment and prices are interconnected, and they show dependence and causality mainly between different currencies. " The scientist believes that "... social sentiment plays a very important role in this market, since the sensitivity of Bitcoin value is correlated with prices in other currencies even more than with its own price, and with proven causal measures showing that sentiment has a greater impact at a price than vice versa" [7, 18].

Of course, the emergence of cryptocurrencies is only a small part of the transformation of the entire financial sector through the use of digital technologies. Brett King in his book *Bank 4.0. New Financial Reality* "examines the latest trends that redefine financial services and payments when traditional banks are replaced by a fully digital banking system. "Banks are no longer the place where you go, but what you do," the author believes. "Mobile payments, blockchain, artificial intelligence, augmented reality - these are the components of the new banking ecosystem" [4, 5, 13].

The World Bank pays great attention to the analysis of the development of the digital economy in the world. According to Jin-Yong Kai, Executive Vice President and CEO of World Bank Group International Finance Corporation: "The benefits of digital finance go far beyond traditional financial services: it can also be a powerful tool and driving force for job creation in developing countries" [12].

## Methods

In preparing an article based on a systematic approach, data from the Central Bank of the Republic of Uzbekistan were analyzed.

By using theoretical and factual materials, the results of an analysis of the innovative development of the banking system of Uzbekistan are presented, causal factors are determined, the existing dependencies are identified, the thoroughness and seriousness of the assumptions are assessed, and the most probable selection from a set of them is given.

Also, an analysis of world statistics on the development of the digital economy of international financial institutions, such as the World Bank and the Asian Development Bank on the development of digital technologies in Central Asia, an assessment of the prospects for the development of digital transformation on the example of banking in Uzbekistan.

## Materials

The underlying reason for the expansion of the digital segment of the economy, experts call the growth of the transaction sector, which in developed countries is more than 70% of national GDP. This sector includes: public administration, consulting and information services, finance, wholesale and retail trade, as well as the provision of various utilities, personal and social services. The greater the degree of diversification and dynamics of the economy, the greater the amount of unique data circulates within and outside the country and, accordingly, the more information traffic is generated within national economies. "Therefore,

the digital economy operates most efficiently in markets with a large number of participants and a high level of penetration of ICT services. This primarily concerns "Internet-dependent" industries (transport, trade, logistics, etc.), in which the share of the e-segment is approximately 10% of GDP, over 4% of employment, and these indicators have a clear upward trend " [23].

According to forecasts, "by 2025, the industrial Internet will increase significantly, and various industries around the world will demonstrate a high level of digitalization and intelligent data processing. By that time, the digital economy is expected to continue to grow to reach 24.3% of global GDP" [6, 11].

It is assumed that further development of the global economy will be carried out under the increasing influence of intellectual factors and industries based on the principles of the knowledge economy, new nano- and biotechnologies. Accordingly, the volumes of information required to develop and make managerial decisions will increase; reformatted production management structure for the production of goods and services; there will be changes in the system of interaction between the population and business with government bodies.

In a number of countries, such as the United Kingdom, Singapore, South Korea, the first steps in the formation of the digital economy, determining the phased transition in socio-economic development, were projects to implement the concept of e-government. Next, startups were implemented to create a "smart city" by conducting a comprehensive digitalization of the transport system, the system of state and communal services, etc. An important area was the innovative development and scientific development of consumer goods of a new technological generation. And finally, digitalization has touched the workforce by spreading alternative and free forms of employment, including outsourcing in the field of financial analysis and accounting, programming, creative activity, etc. by creating numerous professional networks where a potential employer places orders. These factors contributed to the reduction of production and management costs through the introduction of digital economy platforms, which can be considered as a combination of goods and electronic services. First of all, we are talking about platforms such as ordering services, sharing resources, selecting counterparties, e-commerce, electronic payments, etc.

According to various estimates, the digital economy brings enormous changes for more than 50% of different industries. This is due to the fact that information technologies and platforms are fundamentally changing business models, increasing their effectiveness by eliminating intermediaries and optimization. As World Bank experts found out, "an increase in the number of users of high-speed Internet by 10% can increase the annual GDP growth from 0.4 to 1.4%" [12].

Recognition of the importance of the role of the e-economy is an annual increase in its share in the GDP of states by almost 20%, in developed countries this figure averages 7%. In 2010, the Boston Consulting Group estimated digitalization at \$ 2.3 trillion for a group of 20 countries, or about 4.1% of their GDP [12].

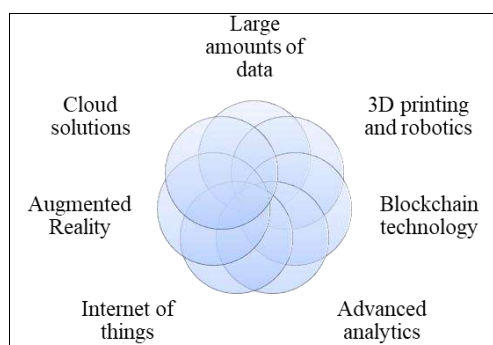
According to the calculations of Huawei and Oxford Economics, in 2016, the global digital economy was estimated at 11.5 trillion. US dollars, which is equivalent to



15.5% of world GDP. Moreover, over the past 15 years, it has demonstrated growth 2.5 times faster than global GDP, and since 2000, the digital economy has almost doubled in size. [eleven]

In developing countries, the information technology sector accounts for about 1% of the workforce; a relatively small number of jobs are directly created in it, however, the number of employees in other sectors that are promoted by high technologies is growing (4.9 jobs per 1 in ICT). [eleven]

In the digital economy, new opportunities for entrepreneurship and self-employment are rapidly expanding. In many cases, investments in the development of information technologies have made it possible to receive dividends in the form of economic growth, the creation of new jobs, the emergence of new types of services for the population and businesses, and the reduction of public administration costs in e-government projects.



**Fig 1:** Digitalization tools <sup>[27]</sup>

However, in a number of countries the combined effect of their use was weaker than expected and was distributed unevenly. In order to get the maximum of digital dividends, it is necessary to better understand the nature of the interaction of technologies with other factors important for development, which are called “analog additions” in the World Bank Group Report <sup>[12]</sup>. These include the following components:

- A regulatory framework that creates a dynamic business environment and allows enterprises and households to fully use digital technologies for competition and innovation, reduce various costs, increase the comfort of the living environment;
- Skills that allow businesses and government officials to use the capabilities of information technology;
- Institutions (state agencies and private companies) that help use information technology.

Digital technologies are also successfully developing in the Central Asian region, demonstrating high growth dynamics. The leader in the region in terms of coverage of the use of Internet technologies among the population is Kazakhstan, where this indicator amounted to more than 76%, in Uzbekistan 47%, our country ranks second. Given the size of the population, if we consider the absolute number of users, then our country is in the lead. In Kazakhstan, the Digital Economy Development Program was adopted in 2017 and is designed for the period 2018-2022. In Uzbekistan, only the draft Concept of the national strategy “Digital Uzbekistan 2030” has been developed.

In Uzbekistan, the speed of the Internet, which remains at the lowest level among the CIS countries, is often criticized.

In January 2018, during a meeting on the development of information and communication technologies in Uzbekistan and ensuring information security, the President of the Republic of Uzbekistan Shavkat Mirziyoyev instructed by 2020 to make Internet prices cheaper and increase Internet speed by at least 4 times.

According to the latest version of the SpeedTest website, according to the results of 2018, Norway has the highest Internet speed - 62.07 Mb/s, the rest of the indicated countries have the following indicators: Singapore - 51.92 Mb/s, UAE - 51.72 Mb/s, South Korea - 42.36 Mb/s, China - 33.96 Mb/s, USA - 27.39 Mb/s, UK - 26.8 Mb/s, Japan - 26.55 Mb/s, Germany - 26.2 Mb/s, Russia - 16.53 Mb/s, Uzbekistan in this rating is in 120th place with a rate of 6.56 Mb/s <sup>[26]</sup>.

Around the world, one of the first sectors of the economy introducing digital technologies is the financial market and, above all, the banking sector.

The banking system of the Republic of Uzbekistan is represented by the Central Bank of Uzbekistan and 30 commercial banks, of which 13 banks with state participation, 17 banks with private and equity capital, including 5 banks with foreign investment.

The banking sector was the first in the country to use modern digital technologies. One of the rapidly developing areas in the activities of commercial banks is the provision of remote banking services. As of December 2019, 10244.6 thousand bank customers use this type of service. At the same time, of course, the majority (9582.8 customers or more than 95%) are individuals who actively use mobile banking, which accounts for 63% of the total workforce or 23.7% of the total population of Uzbekistan. Of course, these statistics are conditional, since one person is simultaneously a client of several banks.

The dynamics of growth in the number of users of mobile banking annually increases by an average of 32%. Commercial banks have already gained experience in remote customer service for the implementation of settlements, control of settlement accounts in real time. The process of reducing the number of banking institutions for customer service has begun; in 2019, 55 banking branches, 241 bank cash desks, and 338 mini-banks were closed. Centers of banking services for terminal customer service are being opened everywhere without the participation of bank workers; in just one year, 260 centers were created <sup>[28]</sup>.

The liberalization of the foreign exchange market and the removal of stringent restrictions on cash turnover made it possible to expand the range of services for payments through a card platform and mobile banking, which in turn contributed to the legalization of entrepreneurial activity.

Along with commercial banks, independent private payment service companies are successfully operating in the market, the most popular are CLICK and PayMe. Companies through a mobile application provide a continuous expansion of the range of services, which currently includes: payment for various types of goods and services, repayment of loans, settlements between customers.

Many commercial banks have developed their own mobile applications with similar services, but they are in limited demand among the bank's customers. CLICK and PayMe settlement systems offer services regardless of the service account, competitive prices and high quality, thereby constituting significant competition for specialized banking mobile applications.

The development of digital services in the banking sector is significantly affected by the processes occurring in general in the society and economy of the country.

For 2016-2018 the republic ensured a 1.6-fold increase in communication and information services. In 2018, services amounted to 9.7 trillion soums. Since 2016, telecommunication companies have been pursuing an active investment strategy. As a result of the implementation of projects for the modernization and development of telecommunication infrastructure, as part of projects to expand and reserve transport networks on trunk intercity and intraregional communication lines, more than 25.6 thousand km of fiber-optic communication lines were built. "The international Internet channel has been brought up to 180 Gbit/s, the growth of Internet users in the country has increased by 15% and amounted to more than 22.5 million users. During 2018-2019, 30 new electronic public services were introduced, as a result of which the Single Portal of Interactive Public Services provides more than 100 electronic public services" [14].

According to the results of 2019, the total number of mobile communication subscribers in the country is 22.8 million people, while the number of third and fourth generation mobile communication users has exceeded more than 16 million subscribers. The development of mobile communication networks is carried out in accordance with the Program for the Development of Telecommunication Technologies, Networks and Communication Infrastructure for 2013-2020 and the targeted program for the development of information and communication technologies for 2015-2019 [14].

It is planned to increase the coverage areas of networks of mobile operators by increasing the number of base stations, bringing their total number to 28 thousand units. by the end of 2020. This will increase the number of mobile subscribers per 100 inhabitants from 70% to 80%.

At the same time, the level of ICT development is not high, the existing pace of development of the industry does not allow for effective solution of problems, modernization of society and ensuring the competitiveness of Uzbekistan. ICT is not implemented enough in socially significant areas (education, healthcare), domestic software products are not produced enough, information technologies are poorly implemented in public administration, the level of computer literacy of the rural population does not allow the widespread use of Internet services. The regulatory framework in the field of certification and standardization requires further improvement. The low level of implementation of information technology limits the ability to purchase online services, as well as the organization of electronic data interchange between market participants and government agencies, which also inhibits the accelerated growth of communication services. "By the target parameters until 2030 it is planned to ensure the growth of communication and information services by 2.5 times.

The development of services industry sectors based on information and communication technologies, the technical equipment of the industry will make it possible to fully switch to the digital economy, as a result, the share of information and communication technologies in the economy of the republic will increase to 3.5 percent" [14].

The share of the costs of supporting and developing the ICT sector from government spending in 2019 amounted to only 1.5% (\$ 7.8 million), which, as noted, is a low indicator for

the effective digitalization of the republic both in the short and long term. A similar minimum indicator for the developed leading countries (Great Britain, Finland, Denmark, the Netherlands, Sweden, the USA, France, Norway, Japan) in this direction is more than 12% of all government spending.

The export of telecommunication and information technology services in 2018 amounted to \$ 154.5 million (5.1% of the total volume of services exported), and the import - \$ 47.1 million (2.1% of the total volume of services imported).

The share of ICT specialists among the employed population in 2019 amounted to 0.5%, which is almost seven times less than, for example, on average in the EU countries (3.7%). At the same time, the demand for IT specialists in the country is growing rapidly, and the shortage of personnel in this area can lead to negative consequences both for the private sector and for effective public administration.

Today, the Republic of Uzbekistan is represented in many foreign and international indices and studies that indirectly assess the level of readiness of the country for digital transformation.

So, the results of work over the past years in the field of development and implementation of the e-government system have a positive impact on the positions of the republic, in particular:

- In the "UN Electronic Government Development Index 2018" - 81 places (0.6207 points) among 193 countries;
- In the "Electronic Participation Index 2018" - 59 place (0.7584 points out of 1,000). At the same time, South Korea and Denmark turned out to be leaders in this rating with 1,000 points each;
- In the "UN Development Program Human Development Index 2018" - 105 place (0.710 points) among 198 countries, rising by 2 positions compared to 2016 and entering the group of countries with a high human development index;
- In the "Information and Communication Technologies Development Index 2017" (according to the International Telecommunication Union) - 95th place among 176 countries;
- In the "Rating for the Development of Telecommunication Infrastructure 2018" - 114 place among 193 countries (this indicator took into account the presence of the following main components: fixed-line telephony subscribers per 100 residents - 10.85, mobile subscribers per 100 residents - 73.98, percentage of Internet users - 46.79, subscribers of the wired Internet access service for 100 residents - 8.73, subscribers of the wireless mobile Internet access service for 100 residents - 53.47);
- In the "Ranking of countries by Internet speed" for 2019 - 129th place among 137 countries;
- In the "Global Cybersecurity Index" of the International Telecommunication Union, the republic rose to 41st position and took 52nd place, thereby standing on a par with the leaders of the CIS countries to strengthen cybersecurity.

"The indicators of international ratings, as well as the lack of a country in some of them indicate stagnation in the development of telecommunications infrastructure and the mechanisms for providing high-quality statistical

information in this area in the public domain” [22].

In the developed draft Concept “Digital Uzbekistan 2030” the main goals of implementation are defined - this is the formation of a developed digital society; improving the quality of life of the population; effective and open government without bureaucratic barriers and corruption components; the growth of competitiveness of the country's economy; ensuring the security and welfare of the people.

### Findings

The advantages of the development of society under the influence of the digital economy are studied. The role of the digital economy as a new development paradigm is substantiated. The goals and targets of the formation of the digital economy in the Republic of Uzbekistan are outlined. The significance of the digital segment of the economy in the banking system is determined. The positive effects and possible risks in the development of the banking sector from the introduction of digital technologies are identified. The problems and tasks of forming a digital economy in Uzbekistan are identified.

The banking sector is quite actively implementing information technologies, the main areas of which are expanding the range of services provided in the field of mobile and Internet banking, but so far the implementation of technologies in the system of internal financial management of banking is at a low level.

When developing a digital economy, it must be borne in mind that this process includes three main stages for each sector of the economy. The first stage is the digitization or translation of the database from paper media into digital format, the second stage is the digitalization of data and the third stage will complete the complex formation through digital transformation.

We can say that in the banking sector, the first stage is implemented, since all data is stored in digital format. Currently, the banking system is in the second stage, digitalization is being carried out, i.e. systematization and unification of data, creating catalogs, automatic search systems. Despite the fact that banking services are directly implemented using software, the business process of conducting transactions is automated, but most banks do not have an analytical component related to customers, taking into account their preferences, needs, problems. And only at the third stage the digital transformation is completed, which provides large-scale access, providing interactive search and an automatic data management system.

### Discussions

Karl Dalman, Sam Miley and Martin Wermelinger, in their studies on the prospects for the development of the digital economy and digital finance in developing countries, note the main advantage of increasing financial affordability: “The provision of financial services through technological innovation, including using mobile money, can become a catalyst for the provision and use of a diverse range of other financial services, including lending, insurance, savings and financial education. Those who are now excluded can get expanded access to money transfer services, microloans and insurance” [4, 11].

Agreeing with this statement, it should be noted that world statistics show how efficiently the use of digital banking and digital finance is becoming, in countries where their own banking system is poorly developed and there are no foreign

banks. The launch and growth of digital financial services has led to an increase in the number of people accessing official financial services. “Today, Africa is home to more digital financial services deployments than any other region in the world, and nearly half of the nearly 700 million individual users worldwide. Mobile money solutions and agent banking now offer affordable, fast and reliable transactions, savings, loans and even insurance opportunities in rural villages and city blocks, where no bank has ever set up a branch” [4, 12].

Mobile solutions reduce the marginal cost of financial transactions to almost zero, which allows service providers to offer mobile banking services to the poor. Mobile banking is already showing great potential in many developing countries. But it should be noted that through mobile banking, a national banking system can develop. Then digital technologies will contribute to the development of the activities of commercial banks in domestic markets. If mobile banking will develop by penetrating foreign banks into the financial markets of developing countries, under unequal competition conditions, the resource base of national banks may decrease and capital outflows from the country may increase.

There are various points of view on the role of the regulator in the development of digital finance. For example, Basov I., noting the importance of the regulatory component of fintech, gives examples of creating in a number of countries, such as the Netherlands, the USA, Singapore and Hong Kong, a unified environment for financial institutions, the so-called “sandboxes”, where “payment service providers and other participants of the payment market can implement innovative models, test them. At the same time, the regulator monitors processes and, together with the participants, works out regulatory aspects” [9, 18]. At the same time, along with the positive aspects of such a mechanism, it should be noted the possibility of the risk of imposing on the regulator the adoption and use of certain technologies, reducing the independence of banks in creating their own financial products based on digital technologies.

Many different points of view also regarding the development of cryptocurrencies, the feasibility of creating a national cryptocurrency. For example, countries such as China, Taiwan, Thailand, etc. took actions in the form of a ban or restriction of operations with cryptocurrencies, refused the initial placement of cryptocurrencies on national markets. According to David Iheke Okorie: “This government action is causing panic in the cryptocurrency markets. In particular, the ban on ICOs in China not only lowered prices, but also the market capitalization of the cryptocurrency markets Bitcoin and Ethereum” [5].

In our opinion, today cryptocurrencies, and first of all Bitcoin, as a digital financial asset, do not so much play the role of a payment instrument, but are more viewed as a financial instrument of a speculative nature, comparable to some types of derivative securities. The limited use of Bitcoin can also be a deterrent to its development as an alternative to cash settlement.

Blockchain provides the ability to use the transaction graph for financial management, but the properties of this graph are not well understood. One of the key issues in this direction is the extent to which the transaction schedule can serve as an indicator of early warning of large financial losses [4, 6, 7]. The most difficult to use blockchain technology is the time it takes to form a transaction, which



may limit its scope in banking and finance.

### Conclusions

The global digital economy is changing the face of doing business; the most important change has been the formation of a global data value chain by converting digital data into digital intelligence. The development of digital platforms operating on a global scale is changing the conditions of competition and creating new types of services and goods, like Amazon, Yandex taxi, etc. The expansion of the range of functioning of digital platforms occurs through mergers and acquisitions with companies in related industries, when virtual companies merge with manufacturing enterprises, forming conglomerates and new multinational corporations. Digitalization of the financial market implies an increase in the availability of finance, changes the nature and conditions of banking services, reduces the cost of banking services on the one hand, and on the other modifies the conditions for generating income. The independence of clients in the implementation of settlement operations helps to reduce transaction costs, but at the same time, the cost of programmer services and the need to increase jobs related to information technology increase. It results in cost savings for specialists with simple qualifications for servicing settlements, while at the same time, costs for training and attracting specialists with programming knowledge are growing.

Promising areas for using blockchain technology could be the development of international currency and credit settlements, the organization of accounting for transactions in the securities market, the development of crowdfunding investment operations, and the improvement of the financial management system. The introduction of its own cryptocurrency is still premature.

Taking into account the development of the draft Concept of the National Strategy "Digital Uzbekistan 2030", it is considered necessary to develop a program for the digital transformation of the banking sector, which can take place in several stages, including the development of digital channels, which are currently being actively implemented in the banking system of Uzbekistan, the provision of digital banking services, the process also takes place in Uzbekistan. The next third stage is promising for the introduction of a full cycle of digital banking - the creation of a digital brain and digital DNA. The main innovative direction should be the formation of a system of feedback from customers and the creation of new banking products. Biometric recognition systems will enable instant customer identification and provide secure remote access. Artificial intelligence will allow you to analyze large amounts of data, identify customer preferences and make them personalized offers of financial services.

Real-time analysis of market data will help you more accurately predict the future and plan your strategy. Cloud-based storage of information will help unload banks' servers and speed up operations. Access to information is possible in any place where there is an Internet connection, which increases the mobility of banks and customers.

Digitalization and implementation of information and communication technologies is a natural and natural process, and, therefore, inevitable. The main reason for expanding the digital segment of the economy is the growth of the transaction sector (public administration, information services, consulting, finance, services, etc.). It has been

established that the digitalization paradigm is characterized by both positive and negative effects. The results of the study can be used to develop programs and strategies for the development of the digital economy at both the macro and mesoscale, the concept of sustainable socio-economic development.

### References

1. Temirkhanova M.Zh, Mekhmonov SU. improving the methodology of organizing financial results in tourism. In the collection: Priority directions of scientific researches. Materials of the II international scientific-practical conference. Institute of Management and Socio-Economic Development; Saratov State Technical University; Richland College. Asia internet use, population data and Facebook statistics. Usage and population statistics 2019, P128-134. <https://www.internetworldstats.com/stats3.htm#asia>
2. Carl Dahlman, Sam Mealy, Martin Wermelinger. Harnessing the digital economy for developing countries OECD Development Centre Working Paper No. 334.
3. David Iheke Okorie. Could stock hedge Bitcoin risk (s) and vice versa? Digital Finance. Springer Nature Switzerland AG 2019, corrected publication 2019. <https://doi.org/10.1007/s42521-019-00011-0>
4. Matthew Dixon F, Cuneyt Gurcan Akcora, Yulia Gel R, Murat Kantarcioglu. Blockchain analytics for intraday financial risk modeling digital Finance 2019;1:67–89.
5. Tomaso Aste. Cryptocurrency market structure: connecting emotions and economics Digital Finance 2019;1:1–4, 5–21.
6. Tapscott Don. The digital economy: promise and peril in the age of networked intelligence. New York: McGraw-Hill 1997. ISBN: 0-07-063342-8
7. Basov I. Financial Market in the Digital Age Digitalization 2.0 2017;2(147).
8. UNCTAD Report Assessing the Impact of Digital Technologies on the Economy and Transformation Process. The Transformative Economic Impact of Digital Technology. [http://unctad.org/meetings/en/Presentation/ecn162015p09\\_Katz\\_en.pdf](http://unctad.org/meetings/en/Presentation/ecn162015p09_Katz_en.pdf)
9. Huawei, and Oxford Economics Report Measuring the Real Impact of the Digital Economy. <https://www.huawei.com/minisite/russia/digital-spillover/>
10. World Bank World Development Report Digital Dividends. <https://www.worldbank.org>
11. Isaev RA. Bank 3.0: strategies, business processes, innovations: monograph/R.A. Isaev. - Moscow: INFRA-M. (Scientific Thought) 2019, P161. [www.dx.doi.org/10.12737/18652](http://www.dx.doi.org/10.12737/18652). ISBN 978-5-16-104656-2. Text: electronic. <https://znanium.com/catalog/product/994352>
12. The concept of integrated socio-economic development of the Republic of Uzbekistan until 2030 (draft Resolution of the President of the Republic of Uzbekistan). [https://regulation.gov.uz/ru/document/8839kontseptsiya\\_kompleksnogo\\_sotsialno\\_ekonomicheskogo\\_razvitiya\\_respubliki\\_uzbekistan\\_do\\_2030\\_goda](https://regulation.gov.uz/ru/document/8839kontseptsiya_kompleksnogo_sotsialno_ekonomicheskogo_razvitiya_respubliki_uzbekistan_do_2030_goda)
13. Korolkov VE, Erofeeva TA. Digital transformation of the economy in the context of geo-economic instability:

- a monograph. M: Prometey 2019.
14. Koksharova TA. The impact of the digital economy on the banking sector and current trends in its use. Student forum: electron. scientific journal 2018;24(45). <https://nauchforum.ru/journal/stud/45/42426> (дата обращения: 19.02.2019).
  15. Komlev N. Banking system in the transition to a digital economy [Electronic resource]. <https://tpprf.ru/ru/mobile/interaction/experts/comments/245746/>
  16. Mirziyoyev Sh.M. Message from the President of the Republic of Uzbekistan Oliy Majlis/National News Agency of Uzbekistan. <http://www.uza.uz/ru/politics/poslanie-prezidenta-respubliki-uzbekistan-shavkata-mirziyeevas-28-12-2018>
  17. Miroshnichenko MA. The study of the processes of "digitalization" of the banking sector within the ecosystem of the digital economy of Russia. <https://cyberleninka.ru/article/n/issledovanie-protssessov-tsifrovizatsii-bankov>
  18. Panshin B. Digital economy: features and development trends. <https://cyberleninka.ru/article/n/tsifrovaya-ekonomika-osobennosti-i-tendentsii-razvitiya?gc>
  19. Polozikhina Mariya Anatolevna Digital economy as a socio-economic phenomenon. ESPR 2018;1. <https://cyberleninka.ru/article/n/tsifrovaya-ekonomika-kak-sotsialno-ekonomicheskii-fenomen> (дата обращения: 02.01.2020)
  20. Draft Concept of the National Strategy "Digital Uzbekistan 2030. <https://regulation.gov.uz/uz/document/10574>
  21. Savina TN. Digital economy as a new development paradigm: challenges, opportunities and prospects Finance and Credit 2018;3(771). <https://cyberleninka.ru/article/n/tsifrovaya-ekonomika-kak-novaya-paradigma-razvitiya-vyzovy-vozmozhnosti-i-perspektivy>
  22. Spiridonova NV. Theoretical analysis of economic systems M: Yurait 2019;C.33.
  23. Filippov David Ilyich Financial innovations in the process of transformation of the digital economy. Bulletin of REA im. G.V. Plekhanov 2018;3(99). <https://cyberleninka.ru/article/n/finansovye-innovatsii-v-protssesse-transformatsii-tsifrovoy-ekonomiki>
  24. The digital transformation of the economy will be in Uzbekistan. Journal Economic Review. <http://review.uz/ru/post/trendi/cifrovaa-transformacia-ekonomiki-predstoit-uzbekistanu>
  25. Digital transformation. Technologies and examples of industrial applications, Microsoft Corporation 2017.
  26. The Central Bank of the Republic of Uzbekistan/Statistics on the development of credit organizations. <http://cbu.uz/ru/statistics/bankstats/2019/12/182169/>