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DIGITALIZATION OF THE ECONOMY OF UZBEKISTAN: EXPERIENCE AND PROSPECTS

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Abstract

The article reflects the results of studying the experience of transition to the digital foundations of the economy of various countries, including Uzbekistan, from the perspective of digitalization of public life. The factors influencing this global process are highlighted. The analysis of economic growth as a result of the implemented processes of applying digital solutions was carried out. The scale of the influence of digitalization in the restructuring of the economy has been clarified. Proposals are given to optimize the further implementation and expansion of the use of technologies on a digital basis.

Keywords:
Digital solutions, global digitalization, digital industry, digital technologies, digital transformation.

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Introduction

The development of recent events shows that many states are taking large-scale measures to digitalize all aspects of society. Various sectors of the economy are undergoing comprehensive digitalization, in particular, measures are being taken to develop e-commerce, expand the use of electronic payments, and expand the use of the electronic document management system. Appropriate measures are being taken to conduct business using the latest developments in the field of digital technologies, expand e-commerce, and improve the regulatory framework for electronic document management. The task of accelerating the development of the digital economy, creating new models of the platforms used in it can be solved by adopting national strategies and programs.

It is also necessary to stimulate the digitalization of the economy by supporting the information and communication technology sector and networks using digital solutions. The expansion of the use of technologies on a digital basis using financial instruments should be given constant attention in the light of the implementation of national programs to support small and medium-sized enterprises, start-ups, and the introduction of innovative solutions. At the same time, the increased use of public and private financing systems in a mixed form will stimulate the commercialization of digital developments through project selection.

Materials and Methods

The rapid development of the digital economy, the creation of new models of platforms used in it, literally force a deep, as well as comprehensive study and application of the accumulated experience of the formation and further growth of the level of digitalization of all aspects of life in states where the digital economy is already competing with the traditional one. Experts from the Academy of Social Sciences (Shanghai) have published the traditional "Global Digital Economy Competitiveness Development Report" (2019), which is

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compiled annually. In this report, they show the most competitive countries in terms of digitalization [1]. The rating was compiled taking into account the level of influence of four factors that determine the level of digitalization of the economy. These factors are digital industry, digital innovation, digital equipments and the existence of digital governance-based institutions.

The first ten countries are in the following order: USA, Singapore, China, Great Britain, Finland, South Korea, Japan, Netherlands, Australia, Germany.

A similar ranking of the Digital Evolution Scorecard is compiled by the Fletcher School, a division of Tufts University with partners from Mastercard. This edition is already the third prepared edition of the rating (previous editions were issued in 2015 and 2017) and was released on January 11, 2021. The study covers the economic indicators of 90 countries, 160 indicators were studied for ranking, which allow assessing the indicators of supply, demand, institutions and innovation, that is, the main four factors that determine the level of digitalization of the economy. All countries were divided into four groups: leaders (13 countries were in the group), promising (32 countries), decelerating (19 countries), problematic (26 countries) [2].

According to the publication, the top three leaders included Singapore, the United States and Hong Kong. Further, the countries are arranged in this order: South Korea, Taiwan, Germany, Estonia, Israel, United Arab Emirates, Malaysia. These countries, together with the Czech Republic, Lithuania and Qatar, have formed a group of "leaders" countries providing the greatest evolution in digitalization.

Only six countries of the Shanghai “ten” managed to enter the group of countries “promising” - China, or “slowing down” - Great Britain, Finland, Japan, the Netherlands, Australia in terms of the evolution of the digital economy.

In addition to China, such diverse countries as Latvia, Poland, Chile, Saudi Arabia were classified as “promising”.

In the group of "slowing down" countries, in addition to those listed, there were also Denmark, Norway, Sweden, Switzerland and most other countries of the European Union.

The group of “problem” includes countries representing a vast territory, including Asia, Latin America, Africa, as well as Italy, Hungary, Croatia, Greece and individual states located in the South of the European continent.

Interestingly, according to the 2017 Digital Evolution Index, the top three were Norway, Sweden and Switzerland, which at that time were the leading "digital" countries. Then the top ten also included "the USA, Great Britain, Denmark, Finland, Singapore, South Korea and Hong Kong" [3]. As you can see, over two years, half of the countries in the top ten have changed, including the top three leading countries with the highest digitalization have been completely renewed.

Results

Unfortunately, Uzbekistan was not among the ranked countries. I would like to outline the possibilities for deepening digitalization in our country, which would create an opportunity for our country to participate in similar studies, the result of which is the ranking of countries by the level of digitalization.

First, it must be stated that in almost all countries that hold leading positions in the field of digital solutions application, the state is the main initiator of digitalization innovations. With the active participation of states, the successful development of technological proposals is carried out, as well as the commercialization of the results of these proposals. The governments of many countries were the initiators and creators of leading and large

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corporations, the result of which was the formation of a "digital image" of the modern economy.

It should be noted that the impact of the ongoing digital transformation in all aspects of society's activities is complex and interrelated, which requires strategic approaches. For example, "Thirty-four OECD countries have a national digital strategy to improve policy coordination at the highest levels of government, most often at the prime minister or office or special ministry or body. This strategic approach is especially evident in the context of new technologies: by mid-2020, 24 OECD countries had a national strategy for artificial intelligence with a focus on implementation and skills" [4].

The adoption of a national strategy and programs to promote digitalization of all aspects of public life, the creation of an economy based on digital solutions, has yielded results in the countries included in the first and third groups of the ranking.

To accelerate the pace of digitalization in our country, it is necessary to ensure the supply of components for the development of the digital economy: to make broadband Internet more accessible, to improve the quality of roads used to deliver purchased goods from online stores, and other similar factors. Otherwise, it should be studied how developed is the digital environment and physical infrastructure required to build the digital ecosystem?

The next question is related to the presence of demand from consumers of goods to participate in the digital economy, or whether consumers want and can participate in it? This is due to the fact that they have the necessary tools and skills to connect to the digital economy.

An important role is played by the existence of the laws of the country and the actions of the government, which contribute to the wider application of decisions made on a digital basis, as well as financial investments on the part of the authorities in digitalization. The measures taken by the state regulation should push forward the use and storage of data. In our republic, these institutions have been created and they actively influence the digitalization of the economy. The adoption of the Resolution of the President of the Republic of Uzbekistan dated July 3, 2018 "On measures to develop the digital economy in the Republic of Uzbekistan" No. PP-3832 is one of the significant steps in this direction. The decree defines the main directions and procedures that make it possible to create conditions for the widespread use of information technologies for solving traditional and new problems in the current and future activities of the whole society and the economy in particular. According to subparagraph b) of paragraph 3 of this Resolution, from January 1, 2021, blockchain technologies are being introduced into the activities of state bodies, including when interacting with other state bodies and other organizations, conducting public procurement, providing public services, verifying personal information [5].

In order to financially ensure the implementation of the tasks provided for in the above Resolution, the consolidation of investment, financial and other resources in the most priority areas of development of the digital economy, on September 2, 2018, the Resolution of the President of the Republic of Uzbekistan No. PP-3927 "On the establishment of a fund to support the development of the digital economy" Digital Trust". Clause 2 of this Resolution, one of the main tasks of the Fund is defined "... providing technical assistance in organizing cooperation with leading foreign and international organizations in the field of crypto-assets turnover and blockchain technologies, including attracting highly qualified foreign specialists" [6]. This formulation of tasks means that when creating technical conditions for the transition to technologies, as well as the infrastructure of an economy based on digital solutions, foreign experience in solving problems of a similar type will be widely used. In other words, ready-made products developed in countries with developed infrastructure will

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be introduced, which will accelerate the digitalization of our economy. In our opinion, such direct implementation raises many questions, accurate answers to which will help facilitate the process of making optimal management decisions.

The first question that arises concerns ensuring the safety of the activities of governing bodies, economic entities, the population, carried out using the technologies being introduced. The full integration of the technologies involved in the management of the national economy gives rise to the dependence of the full-blooded activity of governing bodies and economic entities, the population on the quality and reliability of the technologies used, and in many industries, such as aviation and railway transport, road safety, the provision of public services, such dependence can be one hundred percent. And in other spheres of life, the dependence on the reliability of the digital technologies used is also increasing. Naturally, any, more or less significant, deviation in the operation of the software or the technology itself can lead to a violation of the timeliness, correctness and quality of decisions made, and the organization of activities. Recent extreme incidents in the Tashkent Metro confirm the validity of such fears. The consequences of such «deviations» in the work of «digital-dependent» types of activity, depending on the industry and the scope of the enterprise, the scale of the deviation can vary from insignificant to catastrophic. If we add here the influence of the human factor on the normal functioning of digital technologies, man-made disasters and natural disasters, it becomes obvious what level of requirements for the acquired equipment and means of ensuring its normal operation are being discussed.

In connection with the above, I believe that it is imperative to develop alternative decision-making options in the event of an emergency, providing for solutions to problems related to ensuring the normal operation of government and administrative bodies, enterprises and organizations, primarily life support enterprises, as well as life support. the way of the population. It is necessary to establish by law an algorithm for the transition to «manual control» in especially extreme conditions. So, experts of the International non-governmental non-profit organization «BUYUK KELAJAK» paid attention to the possibility of such a course of events. In particular, they noted that: “At present, cybercrimes are becoming a new threat to Uzbekistan” [7]. As an example of potential threats for the “Economic security” element of the national security system of the Republic of Uzbekistan, experts point out “Cyberattacks aimed at the national financial system” [7].

It should be noted that such threats are typical not only for Uzbekistan. The executive summary of the OECD's 2020 Digital Transformation Report also provides similar examples. “Through accelerated teleworking and e-commerce, the COVID-19 outbreak is also creating an enabling environment for cybercriminals” [4].

In the realm of crime, as well as in legitimate economic activity, the pandemic has sparked a boom in online crime. According to The Economist magazine, “The main method of attacking individuals by cybercriminals was email phishing associated with covid-19: posing as legitimate companies, often banks or credit card companies, in order to trick people into transferring usernames, passwords or financial information” [8].

However, it is not only credit cards and other carriers of funds that have become the target of attacks. Zoom, one of the main providers of video conferencing software, can see the rapid technological breakthrough and its dangers during a pandemic. “In December 2019, the company's own record for the number of daily active users reached approximately 10 million, but by April 2020, Zoom was celebrating days with more than 300 million active users” [8]. And the issues related to security immediately declared themselves. “Most recently, Tom Anthony, a web security expert, reported that he discovered a vulnerability in the Zoom web client that allows an attacker to crack a private meeting password by trying all

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1 million possible combinations of the default six-digit password in minutes. The chances that this relatively simple vulnerability was not yet known to criminals is slim, which means that any private meeting in the past eight months has been vulnerable to eavesdropping, including confidential internal company discussions and even government meetings" [8].

The experience of other countries shows that ensuring security in the digital sphere is a priority for government programs for the development of digitalization. Thus, the National Program "Digital Economy of the Russian Federation" also includes the federal project "Information Security" [9]. For Norway, according to Eldar Lorentzen Lillevik, PwC Partner in Norway (cybersecurity and privacy) and Jan Henrik Straumsheim, Director of PwC in Norway, the following is characteristic: the use of new technologies can be reacted by intruders, for example:

- What vulnerabilities exist in the IT infrastructure;
- How mature and effective are the existing defense mechanisms;
- Degree of compliance of protective mechanisms with regulatory requirements;
- How vulnerabilities affect the company's risk profile;
- Are the existing security measures adapted to the threat landscape in which the company operates" [10].

Michelle Moore, Academic Director and Professor of Practice for an innovative online master's degree in Cybersecurity and Leadership at the University of San Diego categorized cybersecurity threats and trends for 2020: "Phishing, ransomware, cryptojacking, cyber-physical attacks, government-sponsored attacks, IoT attacks, third parties (suppliers, contractors, partners), social engineering, an acute shortage of cybersecurity professionals" [11]. And too pessimistic, even against this background, is the forecast of Frank Downes, senior director of advisory and evaluation solutions in the field of cybersecurity, ISACA, and Dustin Brewer, chief futurist, ISACA, who note: "By 2021, global cybercrime damage is expected will reach 6 trillion US dollars " [12].

And it should be emphasized that the lion's share of such losses is provoked in most cases by the users themselves, individuals. Noman H. Chowdhury, Mark TP Adam, Jeff Skinner, in The Impact of Time Pressure on Cybersecurity Behavior: A Systematic Literature Review, found that "... it is estimated that more than 95% of successful cyber attacks are human-driven (IBM 2014)" [13]. And one of the reasons for this behavior is the banal lack of time. "One of the phenomena in this regard is that human users, both in professional and personal life, are increasingly experiencing a lack of time, they are loaded with many tasks and rush to save time to meet deadlines" [13]. As it was found by researchers, cybercriminals purposefully try to influence also the emotions and psychological perception of users. The authors emphasize that "... recent research shows that over 25% of phishing emails are designed to create a sense of urgency in recipients in order to lure them into insecure responses" [13].

Sampath Kumar Venkatachari, Jagdish Prasad, Ravi Samikannu, in their article "The Economic Impact of Cybersecurity in the Energy Sector: An Overview, "clarify that" Data vulnerability and theft has become one of the major flaws in financial and other commercial transactions. However, industrial crime takes place in a different dimension, where data is used for espionage or perhaps industrial sabotage by hacking into corporate or government networks to obtain blueprints or classified information. An attacker can get into the network and hide for months or years, collecting information" [14].

Discussion

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The mandatory development and publication of the national cyber security doctrine of the Republic of Uzbekistan allows preventing such threats. The main elements of the doctrine should be:

1. Development of measures providing for the prevention of attacks and hacking of control systems of management and authorities.

2. Application of appropriate to potential threats methods of protection of bodies of the State Tax Service.

3. Development and (or) purchase of software products to protect against the massive introduction of malicious software viruses into computer networks of government, life support, defense and law enforcement systems, as well as various other users.

Another factor in ensuring economic security is maintaining the well-being of the people by creating new jobs and economic opportunities to increase the real incomes received by the population. The digitalization of the economy provides almost unlimited opportunities in this direction. From the creation of remote jobs, the creation of conditions for expanding remote opportunities for generating incomes of the population, and ending with a significant increase in labor productivity and the efficiency of using labor resources, are the indisputable advantages of the digital economy. The spread of the COVID-19 coronavirus pandemic has accelerated the use of these benefits, forcing other benefits of digital technology to be adopted. In tactical terms, today it is necessary to widely use the possibilities of digitalization to create opportunities for excluding direct contact among participants in economic and social relations. This can be achieved by transferring the services provided by both government agencies and private structures to a remote basis, creating favorable conditions for the development of Internet commerce to expand the use of e-commerce opportunities.

But, here you need to realistically assess the situation associated with the increase in jobs and an increase in labor productivity. Recently, the so-called «Productivity Paradox» has been actively discussed in the foreign press [15]. The essence of the paradox is that, despite many examples in favor of the positive impact of the introduction of information and communication technologies, there are studies proving that such an impact is not positive or, in extreme cases, not as large-scale as they want to prove. This formulation of the question poses the task of studying the relationship between the level of implementation of information technologies and an increase in labor productivity in the Republic of Uzbekistan.

And another factor in the development of the digital economy, from the point of view of the compilers of the ranking of countries in digitalization, is innovation. Here the state of development of the main components of the so-called innovation ecosystem should be studied: open access to talent and capital; ongoing processes such as university-business collaboration; the possibility of reaching the consumer with new digital scalable products and services, and others.

Conclusion.

If you look from the perspective of two components - a real indicator of the level of digitalization of the economy and the rate of its growth, Uzbekistan has all the potential opportunities for its inclusion in the ranking of states (rating) conducted by the Digital Evolution Scorecard and winning a worthy place. To do this, you need to solve the following tasks in a logical relationship and complex.

a) Ensure the supply of components for the development of digitalization of all aspects of life - to develop the digital environment and physical infrastructure, which are necessary for the formation of a support system for the digital economy. The primary tasks are to ensure the availability of broadband Internet, to expand the availability of high-quality transport

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corridors and interchanges used in the delivery of orders by online stores, as well as to take into account other similar factors.

b) To study the level of consumer demand for innovations that appear with the development of digitalization. In other words, to clarify whether they want and can participate in the digital economy. And they have the necessary tools and skills to connect to the digital economy.

c) Provide institutions conducive to the development of digitalization. This concerns the adoption of relevant laws and government decisions that will contribute to the development of digital technologies, as well as investments in digitalization. Adoption of government regulatory measures to encourage the use and storage of data.

d) Create conditions for the widespread use of the main innovations offered by the ecosystem of innovative developments, which include in ensuring transparency of access to talent and capital, in encouraging innovation processes, including by expanding cooperation between science and business, to simplify the release of new digital products and services to the consumer.

The results of the study of the issue allow us to conclude that the implementation of the above measures will lead to an increase in the scale of digitalization and an increase in the volume of the digital economy.

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