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## INDICATORS FOR ASSESSING OF DEVELOPMENT OF THE DIGITAL ECONOMY OF THE REPUBLIC OF UZBEKISTAN

**Abstract:** This article is devoted to the analysis of indicators for assessing the development of the digital economy in the Republic of Uzbekistan, which is currently actively trying to resolve issues related to the use of digital technologies in various fields of activity, provides methods and indicators for assessing the level of development of the country's digital economy.

**Key words:** Digital technologies, infrastructure, communication, development index, big data, digital platform, Internet of things, cloud computing.

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### Introduction

Currently, data is in digital form, more and more often become the main factor in production, for example, in digital platforms. Thanks to them, it is possible to reduce the organizational and contractual, but also to establish the order of relations among the participants. Therefore, the digital economy should develop primarily in the practical plane, and not theoretical, as is now happening in our republic. This

is the key to the formation of the country's strategic competitiveness.

In recent years, work on the wide implementation of digital technologies in the social sphere has also set priority tasks to use electronic services by the population, phased transfer of public services to electronic format, and increase digital skills among the population.

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In order to ensure the accelerated digital development of the Republic of Uzbekistan, the formation of a digital economy based on the data by creating the necessary environment for the production of innovative products, increasing the efficiency of public administration, providing the population and entrepreneurship subjects of the relevant public services in 2020 year, a decree of the President of the Republic of Uzbekistan was adopted Strategies of “Digital Uzbekistan - 2030” and measures for its effective implementation ”(No. UP - 6079, 05.10.2020).

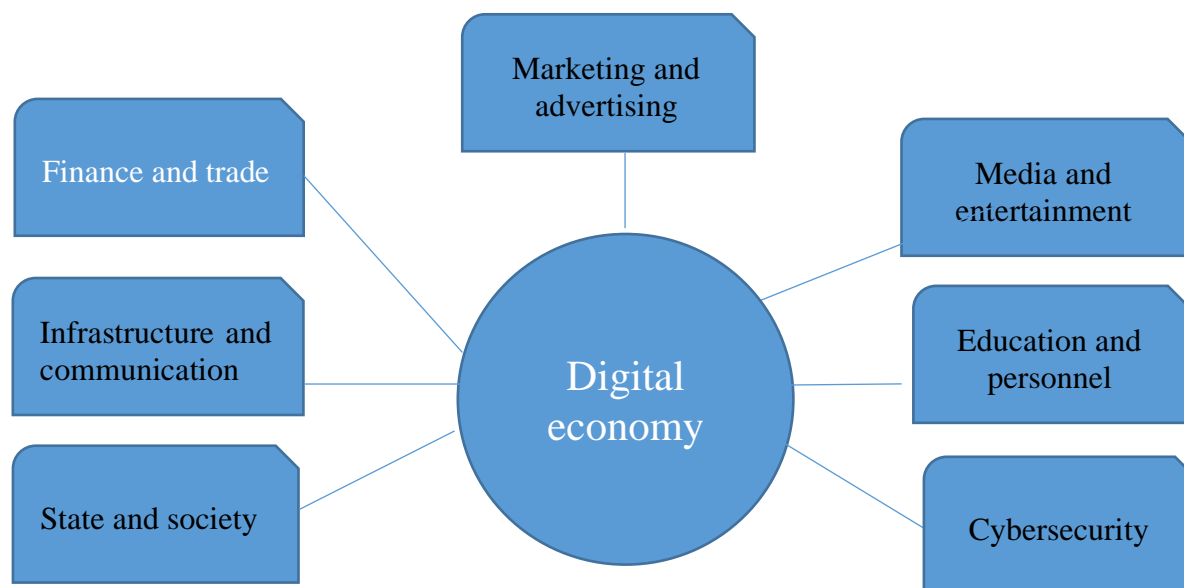
According to the President’s decree on the development of the digital economy and electronic governments, the share of the digital economy in the GDP of the Republic of Uzbekistan is planned to be increased by 2 times by 2023 year, and the share of electronic public services is to bring to 60% to 2022 year.

In addition, in the resolution of the President of the Republic of Uzbekistan “On measures to create conditions for accelerated implementation technologies of artificial intelligence "stipulates that in accordance with the Strategy" Digital Uzbekistan - 2030 "and in order to create favorable conditions for the accelerated implementation of artificial intelligence technologies and their widespread use in the country, ensure the availability and high quality of digital data, the training of qualified personnel in the

specified area To approve the program of measures to study and implement artificial intelligence technologies in 2021–2022 years, as well as a list of pilot projects for the implementation of artificial intelligence technologies implemented in 2021–2022 year, including the involvement of residents of the technological park of software products and information technologies. Digital economy - a set of social relations that develop when using electronic technologies, electronic infrastructure and services, technologies for analyzing large volumes of data and forecasting in order to optimize production, distribution, exchange, consumption and increase the level of socio -economic development of states [1-10]. The use of digital technologies leads to the emergence of new requirements for communications and technologies, as well as to change in human everyday life, production relations, and the structure of the economy.

The digital economy has a great influence on such various industries as banking, retail trade, transport, state, cybersecurity, energy, marketing, advertising, education, healthcare, media and entertainment (Fig. 1).

Media and entertainment are divided, in turn, to three levels: specialized development of solutions, exchange of experience (master classes) and the general level.



**Fig. 1. Industries that are affected by the digital economy**

In the Republic of Uzbekistan, they are currently actively trying to resolve issues related to the use of information technology in various fields of activity. However, often significant barriers are created on the way of forming new institutions of the digital economy, revealing significant shortcomings in the regulatory and regulatory environment, in some cases.

The number of citizens of our republic who recognize the need for digital competencies is gradually growing, but this level is still not high enough, it is still lower than in other countries, and there is a serious gap in digital skills between individual groups of the population.

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The configuration of global markets undergoes significant changes under the influence of digitalization. Many traditional industries lose their significance in the structure of the global economy amid the rapid growth of new sectors that generate radically new needs. Research and development are gaining decisive importance in the ongoing transformation, which requires the creation of a system of research and development in the field of a digital economy, which ensures the coordination of the efforts of interested parties to the executive bodies, companies, higher educational institutions and scientific organizations. Also in the Republic of Uzbekistan, much attention is paid to the use of digital technologies in the education system. All educational organizations must have access to the Internet and are presented there on their sites in accordance with state requirements.

However, educational programs and the number of graduates do not always correspond to the needs of the digital economy. In educational organizations at all levels there is a serious shortage of personnel. Also in the Republic of Uzbekistan, technology parks, infrastructure for science and innovation, business incubators that can and should be used to develop a digital economy are created. In order to implement the strategy for the formation of an informative society, a project was developed aimed at the formation of the conditions for the development of the Society of Cognitions in our republic, the improvement of the well-being and the conditions of the existence of the people of our state by increasing the availability and quality of goods and services performed in the digital economy using the current numerical technologies, and the level of level growth, and growth in the level of levels awareness and digital literacy, improving the availability and quality of public services for citizens, and in addition to security both within the state and beyond its borders.

The digital economy is depicted by three corresponding levels, which in their close interaction have a great influence on the life of people and the environment as a whole: markets and areas of economics (areas of activity), where certain entities (manufacturers and buyers of goods, work and services) are carried out; platforms and technological processes where competencies are created for the formation of markets and areas of the economy (areas of activity); The environment that forms the conditions for the formation of platforms and technologies and the effective interaction of market subjects and sectors of the economy (areas of activity) and includes normative settlement, informative infrastructure, personnel composition and informative safety.

Due to the fact that the effective formation of markets and sectors (areas of activity) in a digital economy is permissible only with the presence of

formed platforms, technologies, institutional and infrastructure spheres.

Telecommunication infrastructure develops dynamically, almost 3.8 times from 17.9 to 68.6 thousand km increased the length of the paved fiber-optic communication lines. The number of basic mobile stations increased 1.8 times from 17.7 to 31.7 thousand units; only in 2020 year more than 5,600 new mobile telephone stations were installed and launched.

The expansion of the network of basic mobile communication stations made it possible to create conditions for the provision of services (bring coverage) of mobile communications for 98% of the country's population, including high-speed bonds of up to 90%.

There are various methods and indicators of assessing the level of development of the country's digital economy. A fairly common indicator of digitalization development is the network readiness index (Network Readiness index-NRI), which, starting since 2002 year, has been published by the World Economic Forum and International Business School of InSead [2]. The index includes four Podindex with two or three components, which are calculated on the basis of individual indicators:

- Wednesday (political and regulatory, business and innovative);
- Readiness (infrastructure, accessibility, skills);
- Use (population, business and state);
- Impact (economic and social).

When calculating the index in the aggregate, more than 50 indicators are used. Some of them are based on international statistics; the other part was obtained on the basis of an expert survey of enterprise managers in evaluated countries.

Another widespread index in the field of measuring the development of a digital economy is the UN Electronic Government Development Index (E-Government development Index- EGDI). The named index was first calculated in 2001 year, and to this period is published once every two years by the Department of Economic and Social Affairs of the UN. According to the indicators of this index, Uzbekistan has improved its indicators from 0.54 to 0.67 since 2016 year and takes 87th place in the ranking among 193 states [11-16].

EGDI consists of the three Subindex characterizing the state of human capital, ICT infrastructure and web pricing of state authorities.

The calculation of the first two indicators is based on official statistical data.

The third indicator is based on the results of the survey of the website of the government (as well as the portal of public services) and six ministries - finance, healthcare, education, labor, social support, and ecology. The examination of websites is carried out as part of the preparation of the index, and they are evaluated from the point of view of information

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filling, functionality, as well as their use to provide public services in electronic form and involve citizens in management processes.

The third index of the development of information and communication technologies (ICT Development index -IDI), developed in 2007 year by the International Union of Electro -Superior. The index is built on the basis of three Podindex-access to ICT, the use of ICT and ICT Reduces.

For calculating IDI, 11 indicators are used that characterize the penetration of fixed telephone communication, mobile cellular communication, broadband mobile and fixed Internet; access to computers and the Internet of households; the throughput of international channels of access to the Internet; the literacy level of the adult population and involvement in the education of youth. In the latest rating of the IDI index, the Republic of Uzbekistan rose to 8 positions compared to 2016 year and took 95th place (4.9) among 176 countries of the world.

The fourth index of world digital competitiveness (World Digital competitiveness' index (WDCI), developed by the Swiss business school. This index reflects the readiness and ability of countries to adapt to the development of a digital economy.

The index is based on 50 criteria aggregated in three subornments: knowledge (education, science, talents), technology (regulation, level of communication development, export), readiness (adaptation, business flexibility).

The fifth index of digital evolution (Digital evolution index, DEI) is calculated according to the results of the study of inter -string differences conducted by the Institute for Study of Business in the Global Context of the Fletcher (USA, University of Taft) together with MasterCard. The basis of the index is 170 indicators combined in the following areas: consumer sentences and demand for digital technologies, institutional environment, innovative climate. In accordance with the value of the DEI of the country, they are divided into 4 groups: countries with a high level of development and preserving the growth rate of digitalization; countries with a high level of development, but slowed down growth; countries with a low level of development, but demonstrating confident growth; Low levels of development.

The sixth index - the index of the digital economy and society (DESI), was developed by the European Union to assess the level of development of the digital economy in the EU countries (28 countries). The index evaluates the progressiveness of countries in the direction of movement to the formation of a digital economy and digital competitiveness.

Work with the index provides the possibility of performing four types of analysis:

1. Analysis of the general characteristics of the results of the activities of individual member states by comparing their common index points;

2. Determination of areas in which, under certain state influences, an improvement in indicators can be achieved;

3. Assessment of progressiveness (regressiveness) of development by the method of dynamic comparisons;

4. Comparative analysis with the allocation of groups of countries with a close level of development and the development of measures to increase the level in accordance with the current state for each group. This index is complex and is calculated as the weighted average of the five components of its parameters with the release of individual indicators for each of them.

In addition, it can be shown, the telecommunication infrastructure index (Telecommunication Infra structure index - TII), which is formed on the basis of the following indicators per 100 residents of the country: the number of users of the Internet and stationary telephone lines, as well as mobile subscribers, wireless broadband and stationary broadband networks. Since 2016 year, the Republic of Uzbekistan has improved its indicators for this index from 0.246 to 0.472.

The global cybersecurity index is also compiled by the International Union of Electroxy and evaluates the level of state obligations in five areas: legal measures, technical measures, organizational measures, the development of potential and international cooperation. Since 2016 year, the Republic of Uzbekistan has improved its indicators in this rating from 0.1471 to 0.666 and rose from 93rd to 52nd place among 175 countries.

The mobile communications index is compiled by the International Association of Mobile Operators (or the GSMA Association), which also includes all the mobile operators of the Republic of Uzbekistan. The index shows the degree of development and use of mobile Internet. The index measures the indicators in more than 170 countries in comparison with key factors that contribute to the implementation of mobile Internet: infrastructure, accessibility, consumer readiness, content and services.

The index helps the mobile communication industry determine what your efforts should be concentrated on to contribute to the wider implementation of mobile Internet.

Over the past four years, the Republic of Uzbekistan has improved its indicators in this index from 36.9 to 46.8 and approached the medium -speed value of 50.

The complexity of the coverage of spheres, which are taken into account when calculating the index, allows you to monitor the state and evolution of digitalization processes, determine the competitive positions of states in this area, makes it possible to

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annually identify quantitative and qualitative differences in the levels of development of digitalization processes.

By decree of the President of the Republic of Uzbekistan, "The Digital Uzbekistan-2030 strategy" provides for more than 280 projects of digital transformation of regions and sectors of the country's economy in the next two years. In the near future, the task of increasing the share of digital services in the country's GDP is by half. In the next two years, it is planned to attract about \$2.5 billion for the development of digital infrastructure. The launch of three large new data centers in the cities of Tashkent (expansion by 5 PB and bringing up to 10 PB), Bukhara and Kokand (each by 50 PB), as well as the further expansion of a fixed telecommunication network and modernization of the mobile communications network. As a result, in each settlement for households, access to the Internet with a speed of at least 10 Mbit/s will be provided.

Given the experience of the fight against pandemic, it is planned to expand digitalization in the field of healthcare, the completion of the introduction

of an electronic clinic and telemedicine in the regions of systems. The digital transformation of the banking sector will continue, including automated control systems and financial technologies. For the digitalization of agriculture, more than \$600 million will be attracted to introduce modern agricultural technologies and innovative solutions.

Despite the initiation of state strategies for the development of a digital economy in the Republic of Uzbekistan, prerequisites for the transition to the economy of a new format were not fully formed. Among the main barriers that lead the development of a digital economy in the Republic of Uzbekistan, there are a lack of institutional infrastructure, significant digital inequality, insufficient information security, shortcomings in the training system of qualified personnel. At the moment, the task is to determine specific steps to accelerate the digitalization of society - what technologies and how should be applied, what are the factors of the effective development of the digital sphere and the electronic trade sphere, to what extent the development of the spheres of the digital economy in the republic is ensured.

## References:

1. Gulamov, S.S., Shermukhamedov, A.T., & Khayitmatov, U.T. (2021). Methodological Aspects of Statistical Analysis of the Digital Economy in Uzbekistan. *International Scientific Journal Theoretical & Applied Science*, 2021, pp.56-67.
2. Gulamov, S.S., & Khayitmatov, U.T. (2021). The role of information and communication technologies in the development of a digital economy. *Information - Communication: Science and technician magazine*, T. 3 (59), pp. 34-36.
3. Gulamov, S.S., & Khayitmatov, U.T. (2021). The main technologies and methods for analyzing work with Big Data. Information communications: networks, technologies, solutions. *Scientific and Technical Journal*, T. 3 (59), pp.43-49.
4. Begalov, B.A., Gulamov, S.S., & Khayitmatov, U.T. (2020). *Using Big Data Tailed Technology Color to improve the efficiency of the national statistical system*. Statistics on the collection, marketing and dissemination of information. Republican scientific and practical conference, November 27, 2020, (pp. 82-85). Tashkent.
5. Gulamov, S.S., Shermukhamedov, A.T., & Svirin, N.N. (2020). Crowdsourcing and "Internet of things" in the Republic of Uzbekistan. *"Theoretical & Applied Science"*. V.81, Issue 01. 2020, - pp. 176-180.
6. Shermukhamedov, A.T., & Azizova, M.I. (2020). Accounting of control system of commercial bank. *«European research: innovation in science, education and technology»*, April 8-9, 2020. N 2 (51), pp.45-49, London, United Kingdom, pp. 76-80.
7. Shermukhamedov, A.T., Kabulov, A. A., & Abdullaeva, D.K. (2020). *Digital logistics: innovative complex of transport services*. Materials of the XVI International scientific and practical conference cutting-edge science - 2020, April 30 - May 7, 2020, volume 9. -Sheffield, England, science and education LTD. 2020, pp. 3-6.
8. Gulamov, S.S., Shermukhamedov, A.T., & Kholboev, B. (2020). *Foreign experience of creation and development of electronic government*. International Multidisciplinary Conference "Scientific research results in pandemic conditions (COVID-19)". Proceedings of the Conference (June, 2020). Primedia E-launch LLC, Shawnee, USA. 2020, 2020.- (pp. 49-53). Shawnee, USA.
9. Shermukhamedov, A.T. (2006). *Globalization in sphere of transport in integration of Uzbekistan to Eurasia*. Proceeding of the 4th International

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- Joint Conference “Global Academic Networking on Business Innovation, Economic Growth, Human Resources and Information Technology” July, 2006, (pp.126-128). Tashkent, Yangnam Logos, Korea.
10. Shermukhamedov, A.T. (2004). *Logistic Centers in Uzbekistan: Problems*. Proc. of the 2 international Joint Conference of Korean Association of logos Management «New opportunities for application of information Technologies for Development of Business, Economic Growth, Social Welfare and Education» June 2-4 2004, (pp. 67-69). Daegu, Korea.
  11. Shermukhamedov, A.T. (2003). *Global Informational Network and logistic of the International Transportation*. Proc. of the 1st Seminar among KALM (Rep. Korea), TSTU, «Ustoz» Foundation «The opportunities for application of Information Technologies for Development of Education and Economic Growth», July 3-5, 2003. (pp. 36-41). Tashkent.
  12. Shermukhamedov, A.T. (2003). *Role of Informational Network in the International Transportation*. Proc. of the 1st Seminar among KALM (Rep. Korea), TSTU, «Ustoz» Foundation «The opportunities for application of Information Technologies for Development of Education and Economic Growth», July 3-5, 2003. (pp. 36-41). Tashkent.
  13. Gulamov, S.S., & Shermukhamedov, A.T. (2020). Digitalization of the education system in Uzbekistan. *International Scientific Journal Theoretical & Applied Science*, 2020 Issue: 10 Volume: 90, pp. 85-90.
  14. Gulamov, S.S., & Shermukhamedov, A.T. (2019). Frontier trade of Uzbekistan with the Central Asia countries. *American Scientific Journal*, N 29, pp. 49-50.
  15. Gulamov, S.S., Svirin, N.N., & Shermukhamedov, A.T (2019). Digital logistics and blockchein -system- the basis on development of transport services. *J. “Theoretical and applied Science”*, 2019, volume 79, issue 11, -pp. 249-254.
  16. Gulamov, S.S., Shermukhamedov, A.T., & Ikramova, Yd.S. (2019). Creation “the clever city in the concept of digital economy. *American Scientific Journal*, N 31, pp. 61-66.