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SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

### International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2021 Issue: 10 Volume: 102

Published: 25.10.2021 <http://T-Science.org>

QR – Issue



QR – Article



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## DIGITALIZATION OF THE REPUBLIC OF UZBEKISTAN: CURRENT STATE AND DEVELOPMENT TRENDS

**Abstract:** Today, information technologies are an integral part of almost all spheres of everyday life of society. The information and industrial revolution are accompanied by the active introduction of informatization processes into the economy. This article analyzes the current situation of the introduction of digital technologies into the economy of the Republic of Uzbekistan, as well as provides statistics on investments in the field of information and communication technologies and some recommendations for improving the efficiency of digital economy development.

**Key words:** Digital economy, digitalization, information and communication technologies, investment, Internet, national economy, development, efficiency, digital technologies.

**Language:** English

**Citation:** Mirdjalilova, D. Sh., Yusupdjanova, N. U., & Asadova, M. S. (2021). Digitalization of the republic of Uzbekistan: current state and development trends. *ISJ Theoretical & Applied Science*, 10 (102), 819-824.

**Soi:** <http://s-o-i.org/1.1/TAS-10-102-91> **Doi:**  <https://dx.doi.org/10.15863/TAS.2021.10.102.91>

**Scopus ASCC:** 2000.

### Introduction

Currently, the digital economy is the main engine of economic growth for any country and is one of the main directions in the economy. The digital economy is showing high growth rates in most countries of the world. The impact of digitalization is reflected in government structures and civil society institutions, in the economic and social spheres, in science and education, culture and lifestyle of people. This is due to the fact that, in general, communication services allow the full use of the existing potential, significantly contribute to achieving the goals of sustainable economic growth, prosperity, democracy, peace and stability.

In the Republic of Uzbekistan, the President approved the Strategy "Digital Uzbekistan-2030" [1], in accordance with which programs for the digital transformation of regions and industries for 2020-2022 are being implemented. The strategy includes more than 220 priority projects providing for the improvement of the e-government system, the development of the domestic market of software products and information technologies.

Digitalization, which is becoming a new stage of economic and technological development, has dramatically changed people's lives, created huge opportunities and increased competition in the international arena. Now such digital technologies as

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big data, artificial intelligence, neurotechnology's, quantum technologies, cloud and mobile technologies, virtual and augmented reality technologies, cross-exchange, blockchain technologies play a decisive role.

#### Research methodology

The methodological basis of this work was legislative and regulatory legal acts on the development of digitalization in the country, in particular, Decree of the President of the Republic of Uzbekistan No.-5349 "On further improvement of information technologies and communications" [2] dated February 19, 2018, Decree of the President of the Republic of Uzbekistan No.-5953 [3] "About the state program for the implementation of the action strategy for the five priority areas of development of the republic of Uzbekistan in 2017-2021 in the "year of development of science, education and the digital economy". In addition, the article uses modern statistical methods and observation methods used in the collection and processing of statistical data based on expert evaluation and comparison. Graphic, analytical, structural analysis and other methods are also widely used in the work.

#### Main part

Investments in the field of information and communication technologies (ICT) are very important for the development of the country's economic potential, which stimulate innovative development, lead to increased labor productivity, cost reduction and the emergence of new types of economic activities, and, equally importantly, improve the quality of life of the population.

It is advisable to consider the process of digitalization in a broad and narrow sense. The first is understood as multidimensional organizational and technological processes of mass application of new digital technologies in production and management in order to reduce costs and increase the speed of business processes [5]. In the second, narrower, technical plan, it means the transition from an analog form of transmission, processing and presentation of

data (information) to a digital one, carried out through the use of appropriate technologies and platforms. The transition to the digital economy is a step towards improvement the economic situation of the country. In order to take measures, it is necessary for the State to regulate the management of socio-economic development. It should ensure the interaction of the government, employers and the education system [6].

The concept of the national strategy "Digital Uzbekistan 2030" should be evaluated as a strategy aimed at: accelerated digital development of the country, the formation of a digital economy based on data; creating a favorable environment for the development of innovative products; improving the efficiency of public administration, providing convenient public services to the population and business entities [7]. New economic and technological conditions require the creation and implementation of approaches to assist the population in mastering the key competencies of the digital economy, ensuring mass digital literacy and personalization of education.

According to the Presidential Decree, it is planned to increase the share of the digital economy in the country's GDP by 2 times by 2023 and increase the volume of services in this field of ICT by 3 times, bringing their exports to 100 million USD [4]. In 2019, Uzbekistan ranks 95th in the information and communication development index among 176 countries and the share of information technologies in the country's GDP is only 2.2%. For comparison: in South Korea - 9%, Japan - 5.5%, China and India - 4.7%.

Over the past three years, the economy of Uzbekistan has grown at an accelerated pace, which was accompanied by an annual increase in the volume of investments in fixed assets almost twice, including in the field of ICT and communications.

The volume of investments in the type of economic activity "information and communication" in 2017 increased 2.4 times compared to 2016. In 2018, there was a decrease in investment volumes by almost 2 times, and in 2019 this indicator increased by 3 times.

**Table 1. Dynamics of changes in the volume of investments in fixed assets in 2017-2020 (billion UZS) \***

|  | 2017           | 2018            | 2019            | 2019<br>(6 months) | 2020<br>(6 months) |
|--|----------------|-----------------|-----------------|--------------------|--------------------|
| <b>Total investments in fixed assets, of which:</b>    | <b>60719,2</b> | <b>107333,0</b> | <b>189924,3</b> | <b>85775,1</b>     | <b>84806,7</b>     |
| in the field of "information and communications"       | 1891,2         | 966,0           | 3241,3          | 1115,1             | 1983,4             |
| <b>Foreign direct investment and loans, including:</b> | <b>12395,2</b> | <b>14660,4</b>  | <b>58786,7</b>  | <b>32438,2</b>     | <b>37748,5</b>     |
| in the field of "information and communications"       | 1177,5         | 205,2           | 1175,7          | 616,3              | 830,5              |

\* Source: open data portal of the Republic of Uzbekistan - data.gov.uz

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In the first half of 2020, the volume of total investments in fixed assets decreased slightly, while the volume of foreign direct investment and loans, on the contrary, increased. Despite the decrease in the total volume of investments, investments in the field of information and communication technologies and communications were directed by about 1.8 times, and foreign direct investment and loans - 1.3 times more, compared to the same period last year. The share of investments in the field of information and communication technologies and communications also increased from 1.3% to 2.3% of total investments,

and in the volume of foreign direct investment and loans - from 1.9% to 2.2%.

In the field of information and communication technologies, there was also an increase in the number of newly created enterprises, with the exception of 2020, when 34 fewer enterprises were created than in the same period of 2019, due to the impact of the coronavirus pandemic. At the same time, the share of enterprises in the field of ICT and communications in the total number of enterprises has not changed in the last three years and averaged 2%.

**Table 2. The number of existing and newly created enterprises with the participation of foreign capital\***

| <b>Enterprises with foreign capital</b>                 | <b>2018</b> | <b>2019</b> | <b>2020</b> |
|---|-------------|-------------|-------------|
| Operating enterprises, including:                       | 6294        | 9014        | 11082       |
| <b>in the field of "information and communications"</b> | <b>196</b>  | <b>296</b>  | <b>296</b>  |
| Total newly created (in January-June), including:       | 1601        | 1715        | 926         |
| <b>in the field of "information and communications"</b> | <b>20</b>   | <b>38</b>   | <b>28</b>   |

\* Source: open data portal of the Republic of Uzbekistan - data.gov.uz

Among the enterprises of ICT and communications, the main share of the total number of enterprises is made up of enterprises providing communication services – 30%, computer programming - 29%, publishing - 17%, as well as in the field of information - 15%. In 2019, 9 major investment projects worth 177.5 million USD were implemented in the ICT industry, in accordance with the Investment Program. The sources were foreign investments in the amount of 97.14 million USD, foreign loans guaranteed by the state - 53.38 million USD and own funds of enterprises for 26.93 million USD. The growth of investments in the field of ICT and communications contributed to the improvement of the production indicators of the industry [8]. In 2019, the total volume of services rendered in the field of ICT and communications increased by 104% and reached 10.6 trillion UZS. At the same time, the volume of computer programming services has grown almost 2.5 times - from 443.3 billion UZS in 2017 to 1078 billion UZS in 2019. The total export of communication and information services in 2019 increased by 30% and amounted to \$ 176.0 million, and the export of software products and services increased by 2 times – from 8.0 million USD to 15.8 million USD.

Most of the investment projects are related to improving infrastructure and expanding access of the population and organizations to a broadband communication network. The length of fiber-optic communication lines laid in 2018 was 26.6 thousand km, in 2019 – 36.6 thousand km, and in 2020 it is planned to increase this figure to 48.6 thousand km. The number of broadband ports for Internet connection also grew 1.5 times annually and

amounted to 1.2 million in 2018, 1.9 million in 2019, 2.6 million in 2020, and 3.2 million ports in 2021 [9].

Opportunities for access to the Internet have expanded, in particular, for social institutions (schools, hospitals, kindergartens). So, if in 2019 only 34% of social institutions were covered by such access, then in 2020 this indicator will be brought to 90%, and in 2021 – to 100%.

The total bandwidth of the external (international) Internet communication channel has been increased 10 times since 2018 – from 110 Gbit/s to 1200 Gbit/s. In 2021, it is planned to increase the bandwidth of the international Internet communication channel by 2.5 times - up to 3000 Gbit/s, and the bandwidth of regional networks to regional centers by 2 times - up to 400 Gbit/s, and from regional to district centers by 1.5 times - up to 60 Gbit/s.

In order to develop mobile communication networks, 6 thousand new mobile base stations were installed within three years, as a result, their total number exceeded 26 thousand [10]. The expansion of the network of mobile base stations allowed to create conditions for the provision of services (to increase the coverage) of mobile communications for 96% of the country's population, and the level of coverage of broadband (high-speed) mobile Internet connection to 70%.

At the same time, it should be noted that the expansion of the network of mobile communication stations is due to the installation of new stations that ensure the operation of 3G / 4G networks, that is, networks of the 3rd and 4th generations. In particular, in 2019 alone, more than 2.2 thousand such stations were installed and launched. Installing stations for

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3G/4G networks allows you to increase the speed of the Internet channel used by subscribers.

Considering the attraction of foreign direct investment, proposals will also be developed for the phased sale of state assets of local mobile operators, as well as for creating favorable conditions for attracting private investment in the development of telecommunications networks in rural areas on the site of the so-called "last mile", that is, the section of the communication line from the switching device of the service provider to the subscriber [12,13].

In accordance with the Investment Program for 2020-2022, approved by the Presidential Decree on January 9, 2020, a number of major projects are planned to be implemented in the field of ICT. In particular, during 2020-2022, it is planned to attract a total of 676.8 million USD to the ICT sector. investments, of which 491.2 million USD – foreign direct investment and 178.3 million USD - foreign loans under a state guarantee.

**Table 3. Projected investment in the ICT sector in 2020-2022 (million dollars) \***

|  | 2020         | 2021         | 2022         |
|--|--------------|--------------|--------------|
| <b>Total investment amount, including:</b> | <b>178,7</b> | <b>241,7</b> | <b>256,4</b> |
| foreign direct investment                  | 139,2        | 171,9        | 180,1        |
| foreign loans under state guarantee        | 37,5         | 67,7         | 73,1         |

\* Source: Data from the website of the Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan

In order to further develop the field of ICT and the digital economy, on April 28, 2020, the President signed a decree "On measures for the widespread introduction of the digital economy and e-government", which set new goals and objectives for the development of these areas [11, 16].

The resolution, in particular, provides for the accelerated formation of the digital economy and an increase in its share in the country's GDP by 2 times by 2023, as well as the development of the "electronic government" system and bringing the share of electronic public services to 60% by 2022.

In addition, a complete modernization of the country's digital infrastructure, the availability of modern telecommunications services in the regions, as well as the connection in 2020-2021 of all healthcare institutions, schools, preschool education organizations, villages and mahallas to the high-speed Internet and improving the quality of communication services will be provided [14].

Among the priority areas, the development of "digital entrepreneurship" through the production of software products and the creation of technological platforms, as well as an increase in the volume of services in this area by 3 times, bringing their exports to 100 million USD by 2023, are also highlighted.

The resolution also approved lists of priority projects in 2020-2022 for the further development of e-government (104 projects in total), as well as the widespread introduction of modern ICT in the real sector of the economy (87 projects). A total of 17.6 trillion UZS will be allocated for the implementation of priority projects in the field of ICT in 2020-2022, of which 13.6 trillion UZS will be allocated for telecommunication infrastructure development projects [15].

The resolution also approved "roadmaps" for the further development of the Technological Park of

Software products and information technologies, as well as the introduction of digital technologies in agriculture and water management in 2020-2021. Among the activities of the roadmap for the introduction of digital technologies in the field of agriculture, the development of the "Concept of Smart Agriculture" and the "Concept of Water Management development for 2020-2030" were planned. In addition, it is planned to improve the geoinformation and cadastral system of land accounting [17].

The growth of investments in informatization and telecommunications not only pursues the goal of increasing the export of IT services, but also stimulates innovative development, promotes the emergence of new types of economic activities, increases labor productivity and the quality of life of the population.

### Conclusion

The experience of foreign countries shows that the digital economy is developing simultaneously in a wide range of directions and cannot be built by a limited number of companies, even if they are given special powers and resources. Therefore, the main role in the digital economy should be played by private business with a strong entrepreneurial and innovative approach, and the state should create infrastructure and conditions for private initiative.

The state can stimulate the digitalization of economic processes by the following actions:

- act as an organizer of common technological platforms that unite various organizations, or as a regulator that prescribes requirements for the use of certain technological solutions, since without synchronization of the processes of implementing standard technological solutions in entire segments of the economy, their widespread distribution is impossible;

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- constantly improve the existing regulatory framework regulating the development of the digital economy, and do it in a dialogue mode and considering the opinions of users, developers and service providers, who in practice will face new types of objects and subjects of information legal relations that require legal registration;
- to become a participant in the overall process of digitalization of relations, including developing the "Electronic Government" system and the list of public services provided in electronic format;
- stimulate and encourage the introduction of information systems, electronic services in organizations and introduce tax incentives for the development of digital technologies, as well as cross-border online trade;
- to train personnel in the necessary quantities, both IT specialists and programmers themselves, as

well as qualified users who are able to use constantly updated digital technologies;

- to ensure security against cyber threats, as well as the confidence of all entities involved in the digital economy to one degree or another that the data collected, stored and used by them is protected from possible criminal actions;
- to expand international cooperation and create attractive conditions for the influx and introduction of advanced information technologies in all spheres of economic activity.

At the same time, the main thing is that the development of ICT in the country, including affordable high-speed Internet, keeps pace with the interest of business to introduce digital technologies into various production processes to increase labor productivity, reduce costs, as well as increase production and profits

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