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CURRENT STATUS OF UZBEKISTAN IN THE FIELD OF DIGITALIZATION

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Annotation. This article examines the reforms carried out in the country in recent years in the field of digitization and the results of these reforms using research methods such as comparative analysis, economic and statistical analysis, correlation-regression analysis and draws conclusions based on the results of the analysis.

Keywords: digital economy, digital technology, online commerce, provider, fiber optic communication, mobile communication, electronic digital signature (EDS).

Introduction.

The use of information and communication technologies in the process of work, in public administration increases the quality of services. Due to the widespread and effective use of ICT, the efficiency of human activity in the economic, political and socio-cultural life of our society will increase. In our country, too, special attention is paid to the development of digital goods and services, the introduction of new technologies to provide free, fast and efficient services in society.

As the President of Uzbekistan Shavkat Mirziyoyev said, "... Uzbekistan needs a strong national idea, a national program for technological development and modernization of the domestic market. This program should allow Uzbekistan to become one of the most developed countries in the world."[1]

The digital economy is an economic activity closely related to e-business and e-commerce based on digital technologies, as well as a set of digital goods and services produced and sold as a result of this activity. The first and most important

factor in the consistent development of the digital economy is the creation of a modern ICT infrastructure. There is a need to create new models of information technology platforms in the systemic operation of the digital economy. The development of the economy or the state through digital technologies and services is a fast and effective way. That is why today many countries pay special attention to the systematic organization of goods and services by investing in digital technologies. Digital technology is the knowledge of electronic devices, systems, devices and resources based on the processing, storage or processing of data and their use and application in economics, education and other fields. Digital technology involves a number of elements. The following are some examples of digital technologies:

1. Websites;
2. Online sales;
3. Smartphones;
4. Electronic books;
5. Geolocation;
6. Blogs;
7. Social media;
8. ATMs;
9. Robotics;
10. Banking and finance.

The development of digital technologies, in turn, depends on a number of factors:

1. Capacity of the international data transmission network;
2. Total number of Internet users;
3. Cost of Internet connection;
4. Length of optical fiber communication lines;
5. Number of mobile subscribers;
6. Number of mobile base stations;
7. Number of EDI keys in use;
8. The level of coverage of the population with digital television.

Literature review

The term “digital economy” was first used by Nicholas Negroponte (1995) of the University of Massachusetts. Many scientists have since discussed the concept of the digital economy in their scientific papers and studies. In his article “Some Precepts of the Digital Economy,” American economist Usman W. Chohan distinguished the digital economy and earlier systems as follows: “The common feature of all economic systems in history is that they are at least minimal among economic actors. requires a level of trust, while the digital economy requires a high level of trust, mainly because activities are carried out online without physical contact, which has historically been associated with the process of building trust.”[2].

According to H.Kehal, V.P.Singh: The digital economy is the integration of communication, computing and data. The new economy is largely driven by coordination, innovation, selection and learning. A.Kuvnakov, T. Djuraev: Digital economy is a type of commercial activity in the field of production and sale of goods and services in electronic form.[3].

SS Gulyamov, RH Ayupov Digital (electronic) economy is an economy in which the maximum satisfaction of the needs of all participants through the use of information, including personal information. This is due to the development of information and communication technologies, as well as the openness of the infrastructure that allows full interaction of all economic entities in the hybrid world - the objects and subjects of the process of creation, distribution, exchange and consumption of goods and services. may be present.[4]

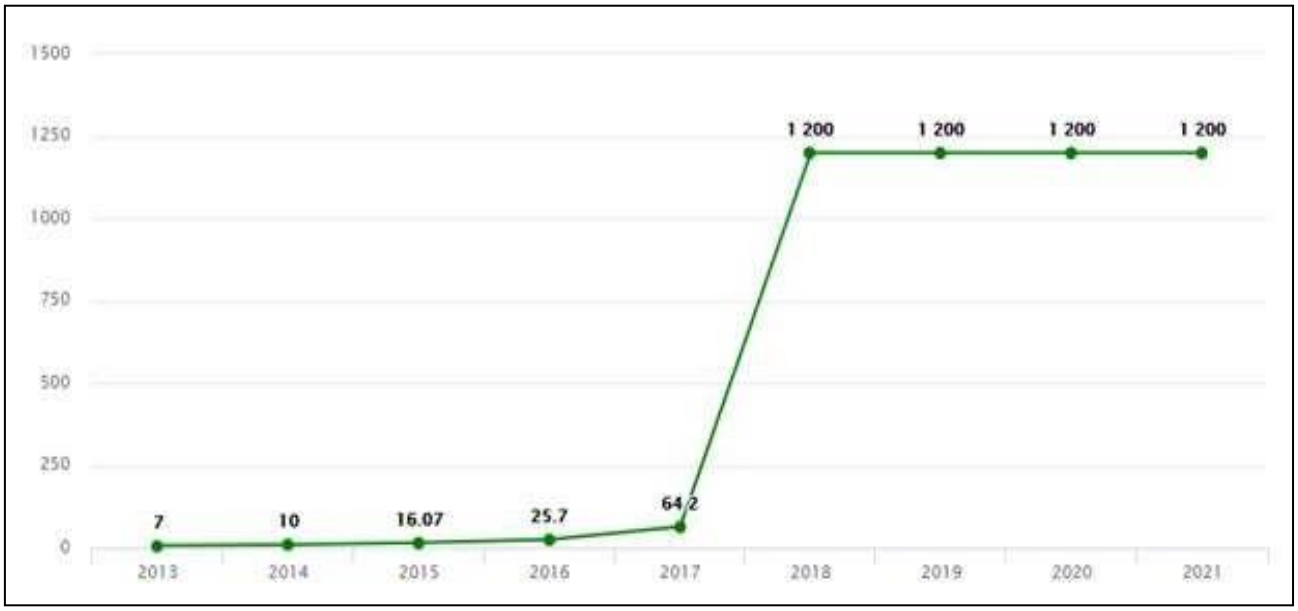
Research Methodology

Methods such as system approach, expert assessment, comparative analysis, statistical and economic analysis, economic-mathematical approach, modeling, correlation-regression analysis were used in the research process.

Analysis and results

Network bandwidth is a measure of the maximum power of a wired or wireless communication device to transmit data over a network connection over a period of time. Typically, network bandwidth is expressed as the maximum number of bits, kilobits, megabits, or gigabits that can be transmitted in 1 second.

Data network bandwidth is one of the key factors in the development of the digital economy. The following figure shows the capacity of the data transmission network in Uzbekistan for the period 2013-2021 (Figure 1).



Source: ***https://mitc.uz/***

Figure 1. Xalqaro ma'lumotlar uzatish tarmog'ining o'tkazuvchanlik qobiliyati (Gbit/s da)[5]

As can be seen from the figure, bandwidth was 7 Gbit / s in 2013 and increased by an average of 1.74% over the next 4 years. The State Program for the implementation of the Action Strategy on the five priority areas of development of the Republic of Uzbekistan for 2017-2021 in the "Year of dialogue with the people and the interests of man" until the IV quarter of 2017 $ 5.7 million has been earmarked for implementation. The aim is to increase the population's access to high-speed Internet, multimedia and IP-TV services. As a result, in 2018, the bandwidth of data transmission networks was increased from 64.2 gbit / s to 1200 gbit / s.

High data throughput has a number of advantages for Internet users (Table 1).

As of 2021, more than 60% of the world's population, or 4.72 billion people, are Internet users. The number of Internet users is growing by an average of 7.6% annually.[6]

Table 1

Advantages and Disadvantages of low and high data throughput

The low level of conductivity	**A high level of conductivity**
● Internet surfing ● Verifying emails ● Playing online games	● Watching videos online ● Downloading large files ● Online video chats ● Live communication ● Download video games

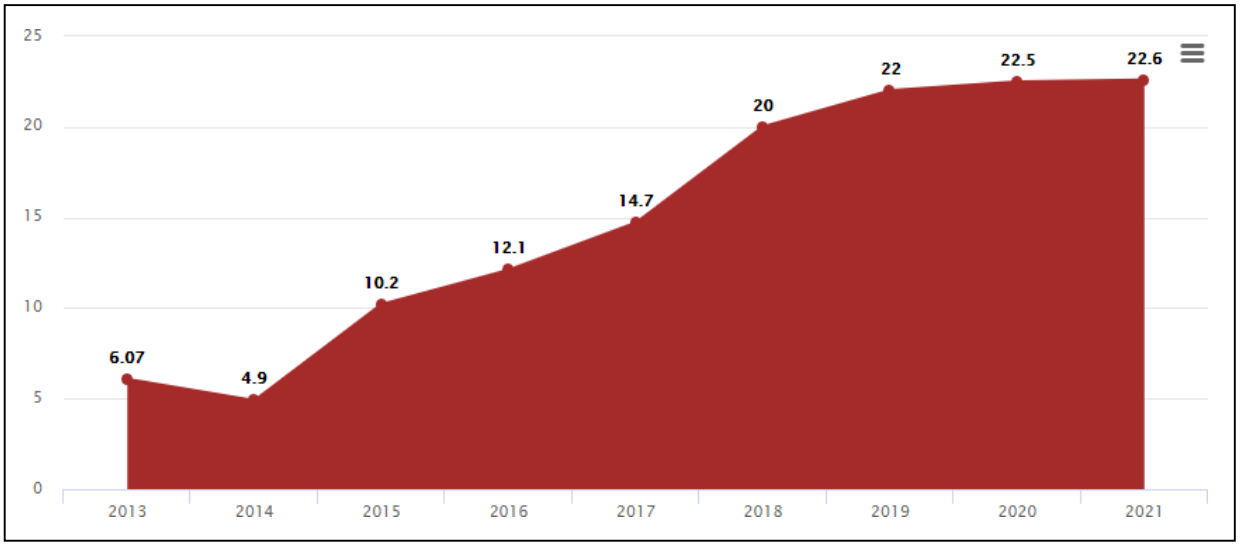
Source: Author's development.

The large number of Internet users is one of the key indicators of the development of the digital economy. The more people who use the Internet, the easier it will be to promote digital services, implement mobile marketing, and reach more students with online education. Cybersecurity Ventures predicts 6 billion Internet users by 2022 (75% of the world's 8 billion people) - more than 7.5 billion Internet users by 2030.[7]

The number of Internet users in Uzbekistan is growing every year. Figure 2 shows that the number of Internet users in 2013 was 6.07 million, but the following year the figure fell by 1.17 million. Subsequently, growth averaged 1.39% between 2014-2017 and 1.1% between 2017-2021.

In a market economy, one of the most important factors of production today is information. The large number of Internet users allows the majority of the population

to quickly get the necessary information. This will definitely increase the efficiency



of doing business.

Figure 2. Total number of Internet users (mln)

The number of files uploaded to the Internet today is much larger than in the early days of the Internet. Of course, in this case, the low cost of Internet access is very important for Internet users.

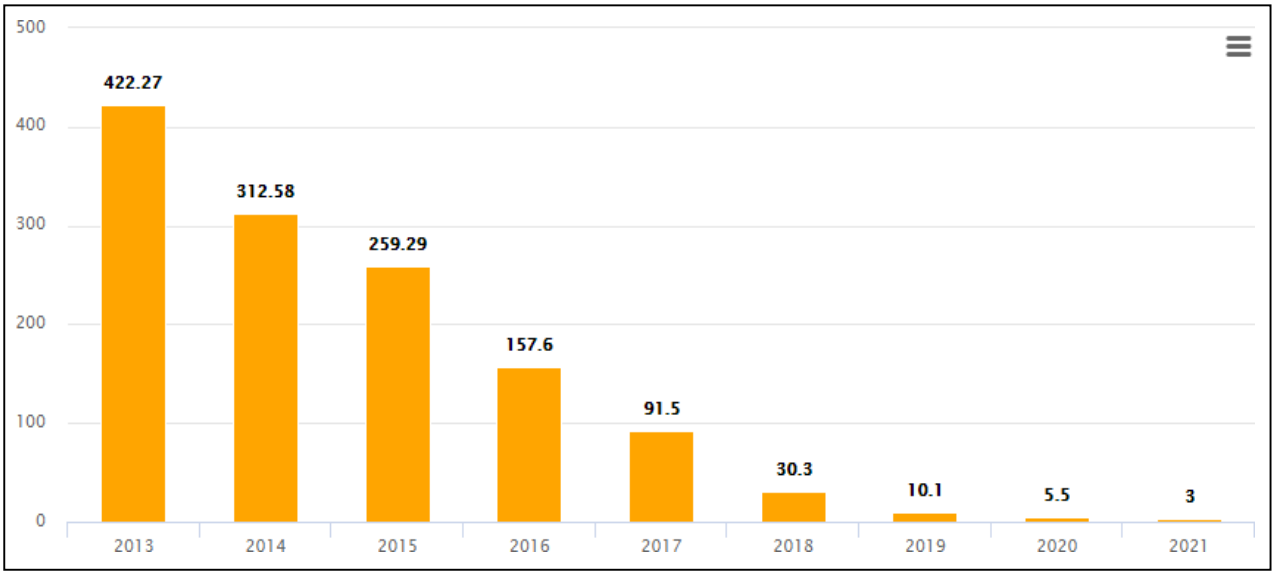


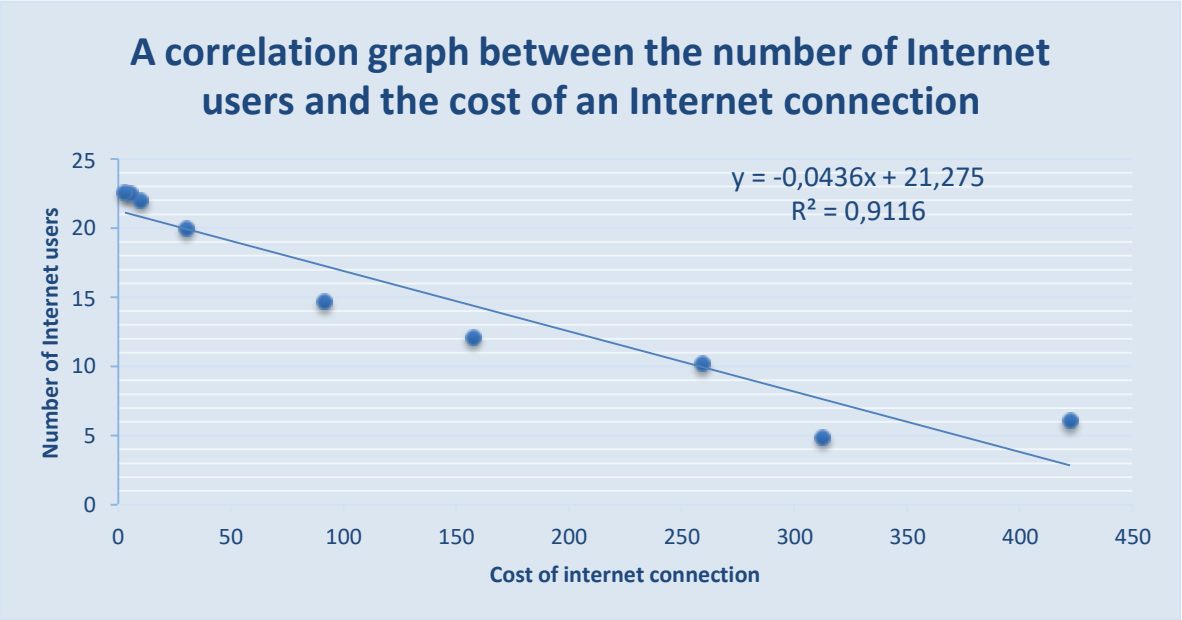
Figure 3. Cost of 1Mbit / s internet connection for providers ($)

As you can see from the picture, the cost of 1 Mbit / s Internet connection in 2013 was $ 422.27. In recent years, this figure has fallen sharply. The cost of internet

access began to decline significantly after 2018 and was $ 5.5 in 2020 and $ 3 in 2021. This figure is 140 times lower than in 2013.

The lower the cost of an internet connection, the more people use the internet and vice versa. The picture below shows how much the number of internet users has increased as a result of the reduction in the cost of using the internet.

As can be seen from the figure, there is an inverse relationship between the number of Internet users and the number of Internet users, and the correlation between the factors is 91% (Figure 4).



Source: Author's calculations based on the site https://mitc.uz/

Figure 4. Correlation between the number of Internet users and the cost of Internet connection (results of double correlation-regression analysis)

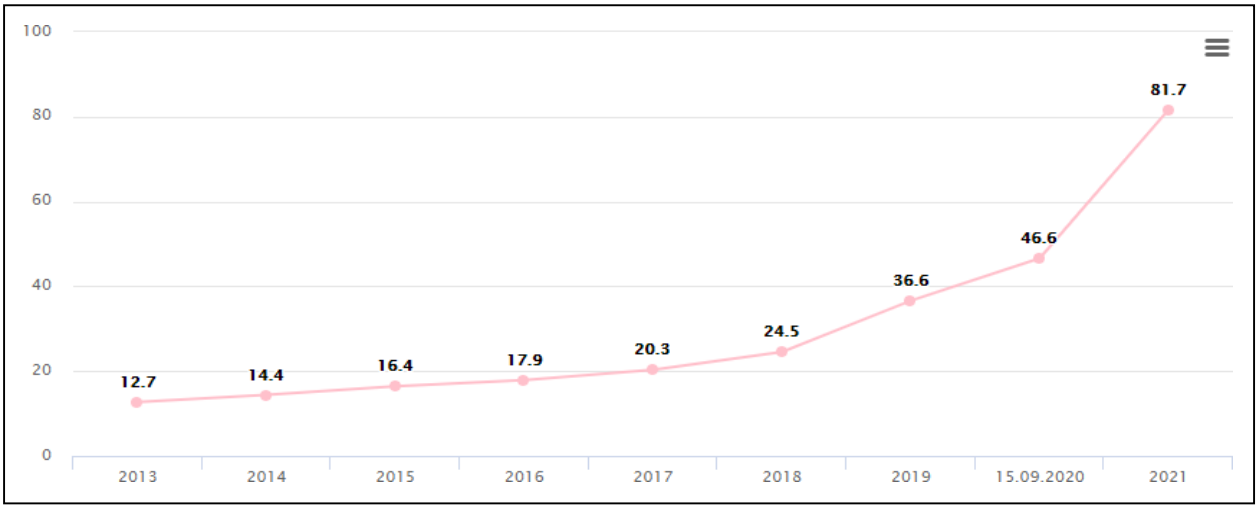
Fiber-optic communication is a method of transmitting information from one place to another by sending pulses through fiber optics. This creates a modulated electromagnetic carrier wave to transmit data. This type of communication can transmit audio, video and over local networks, computer networks or over long distances.[8]

Fiber optic communication lines are used by many telecommunications companies to transmit telephone signals, Internet connections, and cable television signals. Broadband Internet speeds allow people to download and upload data quickly.

Today, fiber-optic communication is of great importance, especially in the digital economy, and is the basis of digital communication. Business owners need speed to get the best opportunities for their business before their competitors. Fiber optic fiber provides reliable communication and uninterrupted operation in business. Fiber-optic communication technology transmits data at a speed 33 percent slower than the speed of light, which greatly helps companies take advantage of business opportunities.[9]

In terms of data security, optical fiber is safer than copper. It does not emit signals from a fiber optic network that make it very difficult to access data for outsiders. It usually requires cutting an optical fiber cable to transmit data from it. Therefore, fiber cutting disables the network and warns users about the risk of data theft.

A number of reforms are being carried out in our country to develop optical communication lines. In particular, the Resolution of the President of the Republic of Uzbekistan dated May 22, 2019 No PP-4329 "On measures to accelerate the development of telecommunications infrastructure in settlements of the Republic of Uzbekistan" Council of Ministers of the Republic of Karakalpakstan, regional and Tashkent city government telecommunication networks, including fiber-optic communication lines, antenna towers and to ensure the timely allocation of land plots for the construction of masts and installation rooms for telecommunications facilities. The dynamics of growth of fiber-optic communication lines in our country can be seen in the following figure (Figure 5).



Source: https://mitc.uz/uz/stat/6

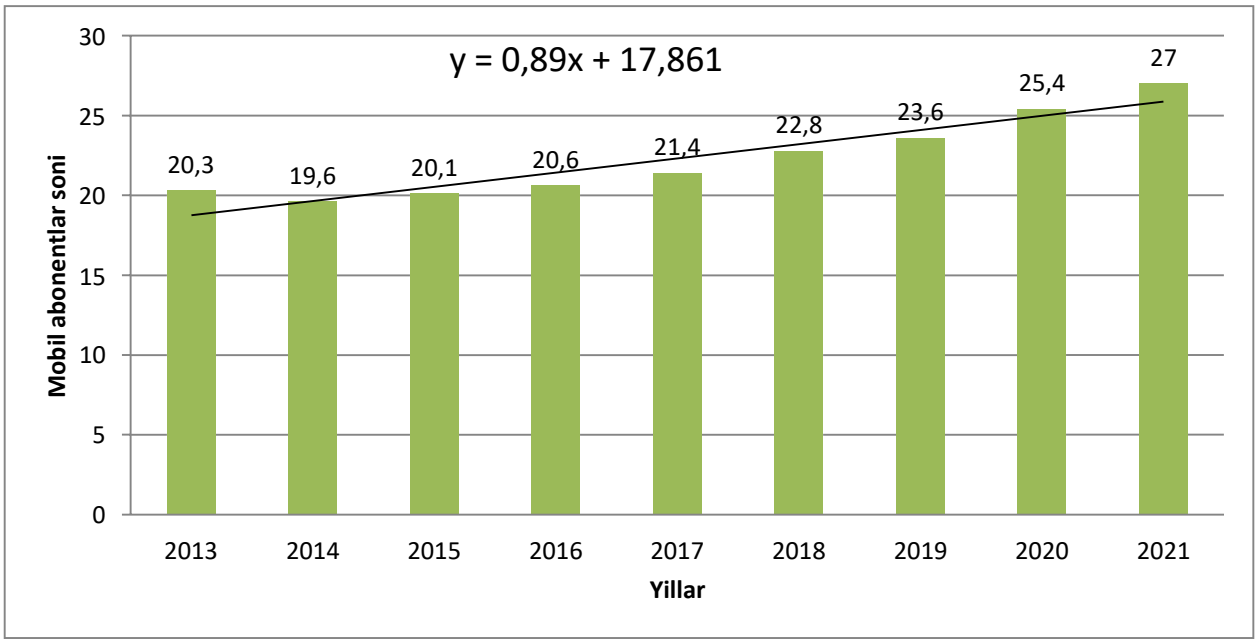
Figure 5. Length of fiber-optic communication lines (thousand km)

The total length of fiber-optic communication lines was 12.7 thousand kilometers in 2013 and had increased by an average of 2.36 thousand kilometers per year by 2018. During 2018-2021, the provision of the population with fiber-optic lines has developed rapidly. In 2021, the average relative growth compared to 2018 was 46.6% and in absolute terms it was 57.2 thousand kilometers.

Mobile subscribers are mobile phone users who subscribe to a common mobile telecommunications service using mobile technology.[10]

Mobile devices have become an essential part of everyday life for millions of people. All over the world, web devices such as smartphones and tablets have become important tools for communication, data transfer or reception. In 2020, the number of mobile Internet users reached 4.28 billion, indicating that more than 90 percent of mobile device users use a mobile device to connect to the Internet. The number of mobile phone owners and Internet users is expected to increase in the future as mobile technology becomes cheaper than ever..[11]

The following is the number of mobile subscribers in the Republic of Uzbekistan in 2013-2021 (Figure 6).

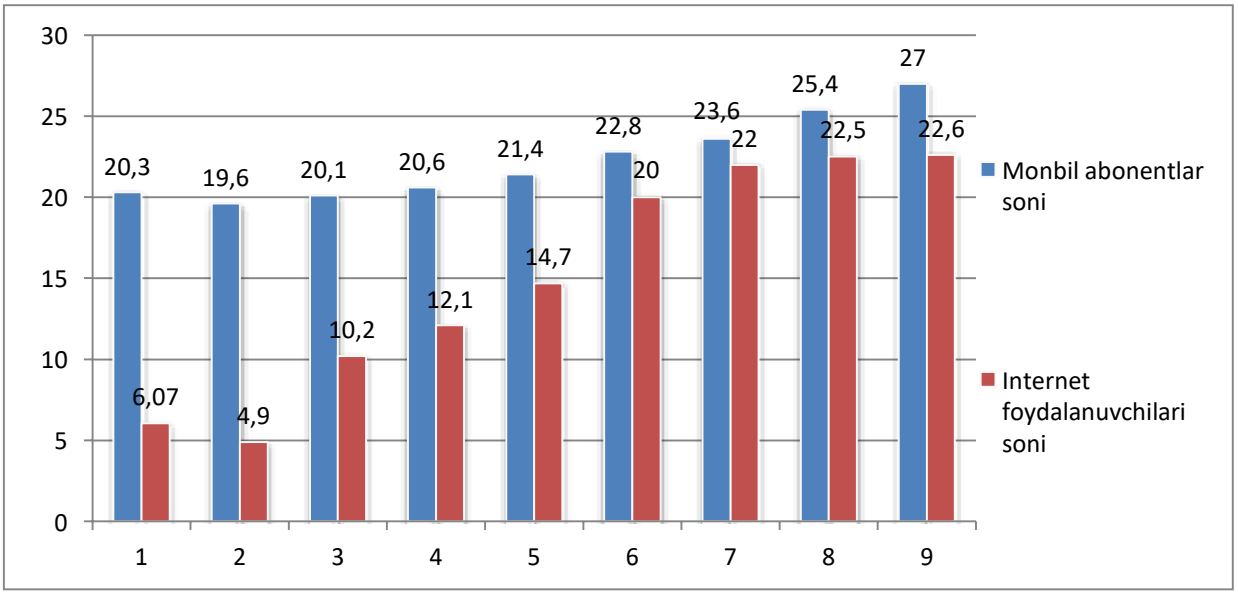


Source: Author's calculations based on the site https://mitc.uz/

Figure 6. Dynamics of the total number of mobile subscribers in 2013-2021 (million units))

As can be seen from the picture, the total number of mobile subscribers has increased by an average of 89,000 annually over the past nine years, from 20.3 million in 2013 to 27 million in 2021.

As can be seen from Figures 2 and 6, in the early years, the majority of mobile subscriber users were not internet users. Because in 2013 the number of mobile subscribers reached 20.3 million. Despite this, the number of Internet users was only 6.07 million. Over the past eight years, the number of Internet users has increased to almost 17 million, but the absolute growth rate of mobile subscribers was only 6.7 million. This can be explained by the increase in the number of Internet connections from mobile subscribers in recent years. This can be seen in the dynamics of the ratio between the number of Internet users and the number of mobile subscribers in 2013-2021.



Source: Author's calculations based on the site https://mitc.uz/

Figure 7. Comparative analysis of the number of Internet users and mobile subscribers in 2013-2021

In recent years, mobile devices have become more accessible to the Internet. As a result, only 30 percent of mobile device subscribers in the first years, especially

25 percent in 2014, were connected to the Internet, compared to an average of 84 percent in the last five years.

The role of the Internet in the digital economy, including mobile marketing, is enormous. Undoubtedly, one of the most important components of the Internet is "communication base stations".

In telecommunications, a base station is a receiver that is the primary communication point for one or more wireless mobile client devices. The mobile base station serves as a central port for many wireless devices to communicate. A network of base stations is required for the operation of mobile phones and other mobile devices. Base station antennas transmit and receive frequency (radio frequency) signals or radio waves to cell phones near the base station. Without these radio waves, mobile communication would be impossible.

Conclusion and Recommendations

The complex organizational and technical measures taken in our country to modernize and expand the telecommunications infrastructure allow to improve the quality and increase the range of telecommunications services, including the expansion of mobile coverage.

In order to eliminate the factors negatively affecting the rapid development of telecommunications networks, to ensure the popularity of e-government services, as well as to create the necessary infrastructure for the development of the digital economy in the regions, on May 22, 2019 Resolution of the President of the Republic of Uzbekistan No. PP-4329 "On measures". The resolution guarantees the following for 10 years, except for mobile operators, telecommunications operators and providers that provide the creation of telecommunications infrastructure for budget organizations located in remote and rural areas under the terms of public-private partnership:

- use of their services by budget organizations and state unitary enterprises in remote and rural settlements;
- Uzbektelecom JSC provides Internet access service at a single tariff, regardless of the place of connection;

- non-discriminatory provision of sites and infrastructure for the installation of telecommunications facilities in remote an
- d rural settlements by budget organizations and state unitary enterprises to serve these organizations, as well as the population and other legal entities in the area.

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