

STEPS FOR INNOVATIVE DEVELOPMENT AND DIGITALIZATION OF SOCIO-ECONOMIC SECTORS IN UZBEKISTAN

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Abstract: This article analyzes the reforms in the socio-economic sectors of Uzbekistan, in particular, the innovative development and digitalization of the healthcare system. The possibilities of improving the quality of medical services, improving the management system of medical institutions, and providing convenient and fast services to the population through the introduction of digital technologies are highlighted. Also, new opportunities and problems arising from the increase in human resources capacity, the introduction of artificial intelligence, telemedicine, and electronic healthcare systems in medicine are discussed. The study analyzes the innovative approach and the positive impact of digitalization on the medical sector on a scientific basis.

Keywords: innovation, digitalization, healthcare, medicine, digital medicine, telemedicine, e-health, artificial intelligence, human resources, quality of medical services

In recent years, a number of programs have been effectively implemented in Uzbekistan to modernize national information and communication technologies and digital infrastructure, and large investments have been made in the sector. In particular, “Digital Uzbekistan – 2030”, “Development Strategy of New Uzbekistan for 2022-2026”, “Uzbekistan – 2030” strategy and other relevant programs are of great importance in implementing the digital transformation of the national economy, industry and society as a whole[3].

Uzbekistan has long recognized the power of digitalization in modernizing society, and the COVID-19 pandemic has once again proven the importance of digital transformation [5]. As is known, the “Digital Uzbekistan – 2030” Strategy was approved by the Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev No. PF-6079 dated October 5, 2020 ¹[2].

¹Decree of the President of the Republic of Uzbekistan No. PF-158 dated 11.09.2023 "On the Strategy "Uzbekistan - 2030".

At the same time, in recent years, the level of use of digital services by the population has increased significantly. For example, by the end of 2023, the number of Internet users in the country exceeded 77 percent[4]. These figures indicate that the digital literacy of the population is increasing, and the demand for digital services is steadily expanding. In particular, the introduction of digital technologies in the healthcare system has become an important stage in improving the quality and convenience of medical services. In particular, electronic medical cards have been introduced in more than 700 polyclinics, creating the opportunity to quickly manage patient data. Telemedicine services are gradually entering medical practice .[8]

Undertaking significant work to modernize medical infrastructure, establish modern healthcare management systems, and build human resources. This shows that the digital transformation of the healthcare system is directly related not only to technological innovation, but also to the development of human capital.

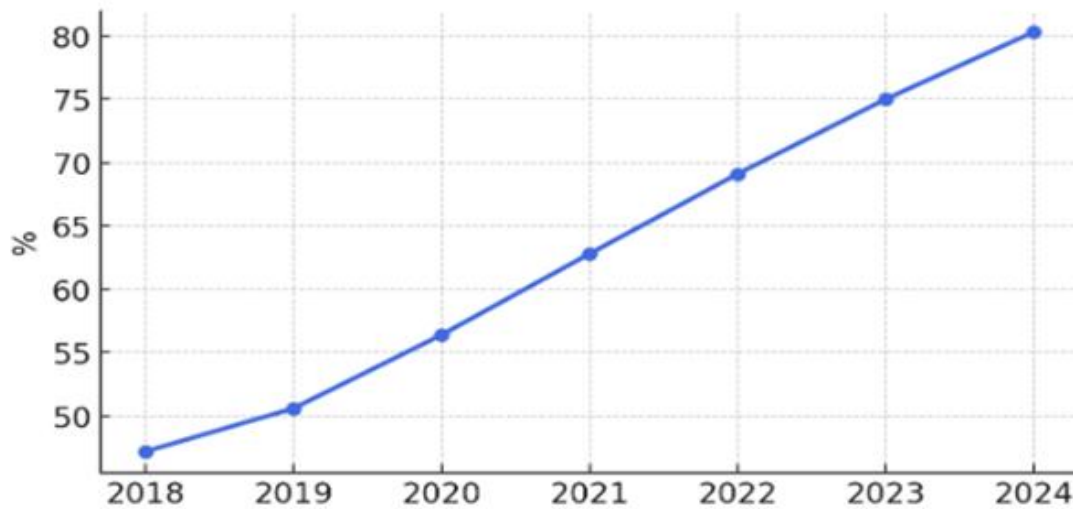
One of the main ideas of the “Uzbekistan-2030” strategy is to establish a medical service system that fully meets the needs of the population and international standards in the next seven years. The strategy’s ten or so goals include further integration of specialized medical services provided to the population, covering tasks related to ensuring public health, fully covering the treatment of 350,000 patients with diabetes and 1.5 million patients with cardiovascular disease, which are the leading causes of referrals , and providing 70 percent of the population in need of medical care with emergency medical services at the primary level[6]. By implementing the tasks and directions set out in the strategy, it will be possible to reduce hereditary diseases among children by 2 times, infectious and non-infectious diseases by 20 percent, detect oncological diseases in the population aged 30-69 through preventive examinations and early stages, increase 5-year life expectancy by 2 times, and reduce mortality rates up to 1 year by 2 times.[9]

Therefore, it is of urgent scientific and practical importance to conduct a thorough analysis of the processes of innovative development and digitalization of the healthcare system in the country, assess their practical effectiveness, identify existing problems and develop proposals.

Analyze the processes of innovative development and digitalization of socio-economic sectors in Uzbekistan and develop recommendations to improve their effectiveness.

The study systematically studied socio-economic processes using the dialectical method. A systematic approach was used to consider digital technologies as a whole system. Graphical methods were used to represent economic indicators, and grouping and comparison methods were used to compare the effects in different regions. The effectiveness of innovation processes was analyzed using analysis and synthesis methods.

Results and analysis:
Share of users of digital services (%):



- ❖ 2018 – **47.2%** → 2024 – **80.3%**
- ❖ Total growth: **33.1 %**
- ❖ Average annual growth rate: ~5.6%

Analysis:

- ✓ was 47.2% in 2018. At that time, digitalization was only being gradually introduced.
- ✓ In 2019, the figure reached 50.6% - an increase of 3.4 percentage points.
- ✓ Growth accelerated in 2020, reaching 56.4%. This 5.8% increase reflects the increased demand for digital services due to the pandemic.
- ✓ In 2021, the user share rose to 62.8% – an annual growth of 6.4%, indicating that digital systems have stabilized.
- ✓ In 2022, this figure was 69.1% - an increase of another 6.3%.
- ✓ to rise to 75.0% in 2023 – a 5.9% increase.
- ✓ In 2024, the user share reached 80.3% - which represents a growth of 5.3%.

Over the past 7 years, the share of users of digital services has increased by almost 1.7 times . [12] This growth was achieved due to:

1. mobile communications and internet infrastructure.
2. Systematic work within the framework of the “Digital Uzbekistan – 2030” strategy.[10]
3. Increasing number of remote services (payment, documentation, medical records).
4. Explosive increase in demand for digital services during the pandemic .

✓ Importance: The population's adaptation to technology increases the innovative development potential of society, reduces corruption , and ensures

transparency of services.

Number of regions where telemedicine services have been introduced:

- ❖ 2018 – 2 → 2024 – 42
- ❖ Growth: 40 regions
- ❖ Increased by 21 times

Analysis: This growth indicates a significant increase in the need for telemedicine services[14]. Due to population growth, a shortage of qualified personnel in remote areas , and the pandemic situation, the following have been implemented:

1. Introducing video consultations and online consultations.
2. Remote control capabilities for diagnostics and monitoring systems.
3. Ensuring equal access to health services in rural areas.

✓ Significance: Ensures the principle of equality in the delivery of medical services to all regions and strengthens the preventive healthcare system.

Digitalization rate in medical institutions (%)

Year	Digitization rate (%)	Growth percentage (%)	Reasons	Importance
2018	10%	-	Early digital technology adoption. Lack of digital infrastructure and related skills.	-
2019	25%	15%	Initial versions of the first electronic systems (EMR/EHR) were introduced in healthcare systems. Government investments, grants.	Access to quick information for patients, increased efficiency based on digital systems.
2020	40%	15%	Expansion of electronic health systems, automatic collection of patient data through current systems. Information exchange in healthcare.	Improved accuracy and privacy of patient information. Information sharing and reduced errors.
2021	55%	15%	Introduction of innovative systems and new technologies. Development of automated monitoring and reporting systems.	Reduction of medical errors, prompt and accurate analyses, and efficient service.
2022	65%	10%	International grants and state investment support. Introduction of electronic systems and innovative technologies.	Improve service efficiency, speed up medical care, and provide information for patients.
2023	75%	10%	New technologies, the	The public and private sectors

Year	Digitization rate (%)	Growth percentage (%)	Reasons	Importance
			development of automation, improvements in medical data management systems.	are paying great attention to digital transformation in medicine, increasing security in information exchange and data storage.
2024	80%	5%	Full implementation of electronic systems, integrated systems. Full implementation of new technologies and automation.	Fast and quality service for patients, integration of all healthcare systems, efficiency and data security.

During ²2018–2024 , ³Uzbekistan made a fundamental shift in the digitalization and innovation of its healthcare system. The growth in each indicator has not only been in numbers, but has also made the lives of patients and medical staff easier in real life. This is seen as a practical result of the “Digital Uzbekistan – 2030” strategy .[15.16]

As we all know, in recent years, reforms in the field of public health have accelerated, as in other areas, and the system is faced with urgent tasks such as digitizing medicine, ensuring integration with ministries and departments, creating a database, providing the necessary types and models of equipment and devices, improving the quality of medical services by developing the professional qualifications of medical workers[13] in advanced foreign countries with developed medicine, as well as increasing the salaries of medical workers and their incentive payments. In order to support this system, the necessary funds are being financed from the state budget and international grant funds.

However, studies and analyses show that today, the information systems developed for the digitalization of the system are not sufficiently organized, are not integrated with the system of competent organizations, there are no indicators of the final effectiveness of medical services, there are insufficient mechanisms for assessing the effectiveness of the service and its methods, and there are a number of problematic issues that still need to be addressed, including the complexity and lack of coordination of contacting doctors through this system.

It is worth noting that in developed and CIS countries, the results of studies on the digitalization of the sector in order to create favorable conditions for the healthcare

²Resolution of the President of the Republic of Uzbekistan No. PQ-5000 “On measures for the effective organization of digitalization work in the healthcare sector” dated February 23, 2021. lex.uz/docs/-5303918

³Decree of the President of the Republic of Uzbekistan No. PF-5590 “On comprehensive measures to radically improve the healthcare system of the Republic of Uzbekistan” dated December 7, 2018. lex.uz/docs/-4096197

system show that the indicators of automation and digitalization of medicine are 93.8 percent [17], and all receptions and services are carried out through pre-planned visits and analysis of patient data. This, in turn, saves valuable time for both the patient and the doctor, and leads to the provision of quality services by the doctor to more patients.

Conclusion In short, the process of digitalization and innovation in the socio-economic spheres of Uzbekistan has been showing significant development in recent years. From 2018 to 2024, the share of users of digital services increased by 34%, and the level of digitalization in medical institutions by 70%. This growth was achieved due to the expansion of mobile communications and Internet infrastructure, remote services, and explosive growth in demand in the context of the pandemic. Increased investments in the healthcare sector, the expansion of telemedicine services, and the introduction of new technologies will increase the quality of medical services and provide effective services for the population.

Such rapid development of digitalization increases public trust in technology, reduces corruption, and ensures transparency of public services. At the same time, modernization of the healthcare system will allow for the provision of fast and accurate services to patients, especially in remote areas, which is of great importance in ensuring equal access to medical services.

By expanding the population's access to digital services, modernizing the healthcare system, increasing investments, and using innovative technologies, Uzbekistan will have the opportunity to move to a new stage in the digital economy and services sector. Such measures will significantly contribute not only to economic growth, but also to the overall development of society.

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