

DIGITALIZATION OF THE HEALTHCARE SYSTEM

Bekturdeiv Sanjarbek Sharifboyevich

3rd year PhD doctoral student of the Tashkent State Technical University named after Islam Karimov.

Abstract: In this article, the author refers to the digital transformation of the healthcare sector as the development of telemedicine, the use of cloud technologies, the improvement of electronic document circulation, complex automation systems for organizations, the creation of electronic portals and mobile applications that guarantee a new level of access to medical services. In general, digital technologies help to strengthen national health systems, expand the coverage of medical care, increase the transparency, accessibility and quality of medical services and information, and open new opportunities.

Keywords: health systems, medicine, healthcare, electronic document, big data, medical information.

The digital transformation of the healthcare sector involves the development of telemedicine, the use of cloud technologies, the improvement of electronic document management, the creation of complex automation systems for organizations, electronic portals and mobile applications that guarantee a new level of accessibility of medical services for the population [4]. The World Health Organization (WHO) and the International Telecommunication Union (ITU) are encouraging governments through their governing body resolutions to develop national eHealth strategies.

Key areas of healthcare digital transformation include:

- *information relevant to the health and well-being of the population, with a focus on indicators;*
- *increasing accessibility and improving the dissemination of information about e-medicine;*
- *strengthening information networks*
- *health systems;*
- *development of electronic legislation*
- *healthcare;*
- *building up the institutional and personnel*
- *potential;*
- *communication and outreach.*

Health information systems are characterized by a significant coverage of personal data and high dynamics of their use, which leads to a number of requirements for their development and operation. The most important of them are shown in fig. 1.

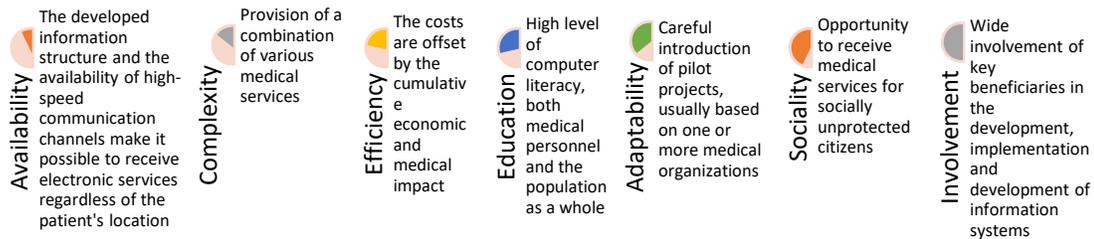


Fig. 1. Modern directions of digital transformation of health care.

The digitalization of the healthcare system is possible if there are a number of favorable factors. These include the readiness of the country's information base for the development of this area, the impact of the digital transformation of healthcare on social and economic processes. The level of digital healthcare can be judged by the indicators presented in various rankings of the socio-economic development of states. Thus, it can be concluded that in many countries the central element of the concept of eHealth is an integrated electronic health record. It contains information in the form of structured electronic medical documents and is a complete and complete source of patient data. Common components of eHealth include e-prescription, data integration and exchange, and the importance of basic legal and technical infrastructures.

In the course of the study, we modeled several possible trends in the development of digital medicine, taking into account the factors influencing the improvement of healthcare:

- *general movement towards a comprehensive human-centered system;*
- *formation of personalized medicine;*
- *development and implementation of a full-scale information and analytical data exchange system;*
- *development and maintenance of the unified telemedicine network of healthcare organizations;*
- *creation of unified branch classifiers for the purpose of unification and standardization of information and software of medical electronic systems.*

Digital technologies in general help strengthen national health systems, expand the coverage of medical care, improve the transparency, accessibility and quality of medical services and information, and open up new opportunities for patients as part of the transition to a people-centered health system.

Problems in the field of healthcare transformation in the Republic of Uzbekistan The policy of our state in the field of e-health is aimed at improving the quality of medical care through the direct exchange of information between all levels of its provision and the introduction of an information support system for clinical decisions. For these purposes, an appropriate infrastructure has been created in Uzbekistan and a number of systems have been introduced. It is important to emphasize that the formation of digital medicine is carried out directly with the participation of the state.

However, despite certain successes in the creation of e-medicine in Uzbekistan, the system needs to be finalized and improved, since it cannot yet be called complete, unified and complete (Figure 3.)

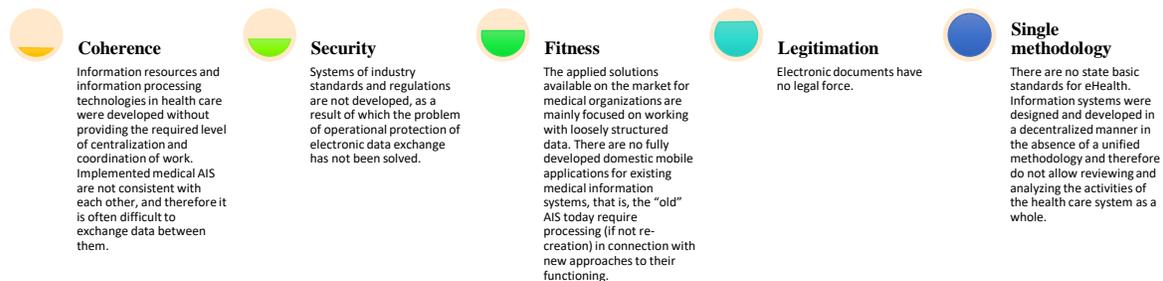


Figure 3. The main obstacles to the development of the digital healthcare system in the Republic of Uzbekistan.

The development of information technologies goes in several directions and according to expert data, today the most promising are several main trends in digital medicine:

- 4P medicine (preventive, prognostic, patient-oriented, personalized);
- medical blockchain;
- strengthening the role of mobile applications for smartphones;
- telemedicine;
- artificial intelligence systems.

Creation of expert systems based on artificial intelligence (AI). These projects are extremely important for medicine, they allow to expand the scope of digital health ecosystems.

Thus, for the effective digitalization of healthcare in our republic, reducing its cost, legislative support is required in the form of a set of regulatory legal acts (on telemedicine, protection of the rights of consumers of e-health services, its state regulation), as well as well-coordinated work of all

participants in this process. The availability and quality of medical services without significant costs can be ensured by optimizing all the resources of the healthcare system. First of all, it is necessary to improve the quality of management, optimize the flow of patients, organize unhindered interaction between all components of the healthcare system, and intensify the processes of introducing the latest diagnostic and treatment technologies. It is e-medicine that opens up new prospects for the development of the industry and provides opportunities for the efficient use of resources such as information, money and medicines.

Today, the main task is to “train” AI systems in big data format using the principle of neural networks – the larger the knowledge base, the higher and more accurate the data verification. To do this, a certain personnel shift should take place in healthcare - if in the 90s and 00s healthcare needed experienced lawyers and economists, today the industry needs professional programmers, mathematicians, and specialists in computer neural networks. This is the call of the times and it cannot be stopped. Therefore, it is necessary to reorient the curricula of technical and medical universities to train specialists in the field of digital medicine, and add the corresponding specialty to the list of medical specialties and positions. The digital transformation of Uzbekistan healthcare is a multi-vector way of developing information technologies, medical information and expert systems, professional staffing, but the main thing in this process is the restructuring of the consciousness of an ordinary medical worker.

The formation of new methodological approaches to the organization of the medical diagnostic process in a multi-structured market economy and digital health ecosystems is the key to success in fulfilling the tasks set by the country's leadership to transfer the Uzbek economy to a digital footing.

Revolutionary "digital" transformations open up unprecedented prospects for the Uzbek health service for infrastructural changes in the industry, expanding export opportunities for medicine, developing and creating technologically advanced devices based on new physical principles, biosensor diagnostic test systems, and "smart" drugs. Ultimately, these transformations will serve as a powerful catalyst for the transition of healthcare from the status of a “subsidized stepson” to the format of the leader in economic growth in the country..

REFERENCES

1. Siddikov I.Kh., Bekturdiyev S.Sh., Otabek Ismoilov «Application of big data in medicine and healthcare» 26-28, 2022). Hamburg, Germany: Busse Verlag GmbH, 2022. 1206 p 1049-1055 p.

2. Siddikov I.Kh., Bekturdiev S.Sh., Otabek Ismoilov «Functions and principles of the organization of an integrated electronic medical record.» Hamburg, Germany: Busse Verlag GmbH, 2022. 1206 p 1056-1065 p.

3. Alessandra Curioni-Fontecedro. A new era of oncology through artificial intelligence // ESMO Open May. - 2017. - №2(2). – P. 58-64

4. Kong HJ. Managing Unstructured Big Data in Healthcare System. Healthcare informatics research. 2019;25 (1):1-2. <https://doi.org/10.4258/hir.2019.25.1.1>.

5. ДавидовичЕ. И., КугачВ.В. Информатизация медицины и формации в Азиатском и Австралийском регионах / Е. И. Давидович, В.В.Кугач //Вестник фармации, 2018. №1 (79). С. 77–87