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TASHKENT STATE UNIVERSITY OF ECONOMICS

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**RESEARCH ON NEW TECHNOLOGICAL APPROACHES TO IMPROVING
THE “E-HEALTH” SYSTEM**

08.00.16 – Digital economy and international digital integration

**ABSTRACT OF THE DISSERTATION
of the doctor of philosophy (PhD) on economic sciences**

Tashkent – 2025

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The doctoral dissertation has been prepared at the Tashkent state university of economics.

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The defence of the thesis will take place on "8" 11 10³⁰ hours 2025 at the meeting of on time Scientific council PhD.03/29.12.2022.I.157.01 for awarding scientists degrees at Nordic International university. Address: 100077, Tashkent city, Chust Street, house 17, building 3, 1st floor. Tel.: (55) 508-44-00, e-mail: info@nordicuniversity.org.

The typescript variant of the dissertation is available at Information and resource Center of the International Nordic University (registered No. 10). Address: 100077, Tashkent, st. Chust, house 17. Tel.: (55) 508-44-00.

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INTRODUCTION (Doctor of Philosophy (PhD) dissertation abstract)

The purpose of the research is to develop scientifically based proposals and recommendations on the use of new technological approaches in improving the “e-health” system.

The object of the study is Tashkent Regional Department of Healthcare under the Ministry of Health of the Republic of Uzbekistan.

The subject of the study is the socio-economic relations in the process of developing new technological approaches to improving the "e-health" system and their effective use.

The scientific novelty of the research is as follows:

according to the methodological approach, the economic content of the concept of “electronic health care system” is improved from the point of view of an innovative management mechanism based on information and communication technologies, which serves to increase the efficiency of resource use in healthcare institutions, optimize costs, and ensure economic stability in maintaining the health of the population through the digitalization of medical service delivery processes;

the proposal is based on reducing the time and costs of collecting medical statistics by developing an information architecture for compiling and analyzing health statistics based on the system of working with patients by medical workers in calendar plans;

Economic efficiency has been substantiated within the framework of the “electronic polyclinic” information system platform by reducing the time spent by medical personnel on preventive, in-depth, targeted, screening, dispensary, and patronage medical examinations — under the “negative” impact of information quality ($X1 \rightarrow Y = -0.075$) and the “positive” impacts of system quality ($X2 \rightarrow Y = 0.255$), service quality ($X3 \rightarrow Y = 0.131$), usage ($X4 \rightarrow Y = 0.237$), and user satisfaction ($X5 \rightarrow Y = 0.291$).

based on econometric models of the interrelationship among factors driving the development of digital technology use in Uzbekistan’s healthcare system, forecast indicators of the sector’s key parameters have been developed up to the year 2028.

Implementation of research results. Based on the results obtained in the study of the use of new technological approaches in improving the “e-health” system:

From a methodological perspective, the theoretical and methodological developments related to improving the concept of the “electronic healthcare system” in terms of its economic essence have been applied in the preparation of the textbook “Information and Communication Technologies and Systems in the Economy” recommended for university students (Order No. 356 of the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan dated August 18, 2021). The improvements are considered from the standpoint of an innovative management mechanism, which, by digitalizing medical service delivery processes based on information and communication technologies, contributes to increasing resource efficiency in healthcare institutions, optimizing costs, and ensuring economic sustainability in public health. As a result of introducing this scientific proposal into practice, students have gained the opportunity to further expand their theoretical knowledge of the improved concept of the “electronic healthcare system” from the perspective of an innovative management mechanism.

The proposal to reduce the time and costs of collecting medical statistical data by developing an information architecture for compiling and analyzing healthcare statistics — based on calendar scheduling of medical personnel’s work with patients — has been implemented in the healthcare institutions of the Tashkent District Medical Association under the Tashkent Regional Department of Healthcare of the Ministry of Health of the Republic of Uzbekistan (according to Information Note No. 05-28/12301 of the Ministry of Health of the Republic of Uzbekistan dated June 2, 2025). As a result of using this system, the time spent on collecting medical statistical data in the healthcare system has been reduced by 40%, and costs by 30%.

The proposal to ensure economic efficiency by reducing the time spent by medical personnel on preventive, in-depth, targeted, screening, dispensary, and patronage medical examinations — within the limits of the “negative” impact of information quality ($X1 \rightarrow Y = -0.075$) and the “positive” impacts of system quality ($X2 \rightarrow Y = 0.255$), service quality ($X3 \rightarrow Y = 0.131$), usage ($X4 \rightarrow Y = 0.237$), and user satisfaction ($X5 \rightarrow Y = 0.291$) on the “electronic polyclinic” information system platform — has been implemented in the healthcare institutions of the Tashkent District Medical Association under the Tashkent Regional Department of Healthcare of the Ministry of Health of the Republic of Uzbekistan (based on Information Note No. 05-28/12301 dated June 2, 2025, of the Ministry of Health of the Republic of Uzbekistan).

Based on the proposals developed from this scientific innovation, the platform <https://id.medhub.uz/> was improved, and the number of online appointments for doctor visits increased by about 55 percent in January 2025 compared to January 2024.

Furthermore, econometric models of the interrelationship among factors influencing the development of digital technology use in Uzbekistan’s healthcare system, and the forecast indicators of the sector’s key parameters up to 2028, have also been applied in the healthcare institutions of the Tashkent District Medical Association under the Tashkent Regional Department of Healthcare of the Ministry of Health of the Republic of Uzbekistan (based on Information Note No. 05-28/12301 dated June 2, 2025, of the Ministry of Health of the Republic of Uzbekistan). As a result of this scientific innovation, it was established that the introduction of artificial intelligence into the electronic healthcare system, through the use of technology-based systems, has improved diagnostic accuracy: from 74 percent in diagnoses made by doctors without using AI technologies, and 76 percent accuracy in patient diagnoses made directly with the help of artificial intelligence.

Publication of research results. A total of 21 scientific works have been published on the dissertation topic, including 6 in scientific publications recommended by the Higher Attestation Commission under the Ministry of Higher Education, Science and Innovations of the Republic of Uzbekistan for publishing the main scientific results of doctoral dissertations, of which 5 articles were published in prestigious international journals.

Structure and volume of the dissertation. The dissertation consists of an introduction, three chapters, a conclusion, a list of used literature and appendices. The volume of the dissertation is 146 pages.

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СПИСОК ОПУБЛИКОВАННЫХ РАБОТ
LIST OF PUBLISHED WORKS

I bo'lim (I часть, part I)

1. Mirzarakhimova A.B. Digital health: elements of electronic health and their implementation. International Journal of Education, Social Science & Humanities. Finland Academic Research Science Publishers ISSN: 2945-4492 (online) |(SJIF) = (Impact factor 7.502) Volume-11| Issue-8| 2023 Published: |22-08-2023|.

2. Mirzarakhimova A.B. Modern trends in the realization of electronic services in health care under the development of the digital economy // “Iqtisodiyot va innovatsion texnologiyalar” ilmiy elektron jurnali. № 3, may-iyun, 2019 yil <http://iqtisodiyot.tsue.uz> 264-269- betlar (08.00.00. № 10).

3. Mirzarakhimova A.B. Sog'liqni saqlash tizimini raqamlashtirishda elektron tibbiy yozuvlarning roli // “Raqamli iqtisodiyot va axborot texnologiyalari” ilmiy-elektron elektron jurnali. Maxsus son 2023-yil. <https://dgeconomy.tsue.uz/jurnal> 209-214-betlar (OAK Rayosatining 2023-yil 28-fevraldagi 333/5-son qarori).

4. Мирзрахимова А.Б. Вопросы становления и применения электронной медицины в условиях цифровизации // “Raqamli iqtisodiyot va axborot texnologiyalari” ilmiy-elektron elektron jurnali. № 1, yanvar-mart, 2023-yil <https://dgeconomy.tsue.uz/jurnal> 198-204-betlar (OAK Rayosatining 2023-yil 28-fevraldagi 333/5-son qarori).

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6. Mirzaraximova A.B. Развитие электронной медицины в условиях цифровизации экономики. // “Raqamli iqtisodiyot: O'zbekistonda rivojlantirish istiqbollari va jahon amaliyoti” mavzusidagi Xalqaro ilmiy-amaliy onlayn konferensiya materiallari to'plami. – Toshkent, 2020-yil 24-dekabr. 658-661-betlar.

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II bo‘lim; (II часть; part II)

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11. Mirzarakhimova A.B. Advantages of Using Information Technologies in the Education System of Our Republic. “Yangi O‘zbekiston taraqqiyot strategiyasi-talabalar nigohida” mavzusidagi talabalar ilmiy-amaliy konferensiyasining maqolalar to‘plami (2023 yil 20 aprel). -Tashkent: “Iqtisodiyot”, 2023. - 954 b.