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EFFECTIVENESS OF MOBILE APPLICATIONS IN HEALTHCARE

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Abstract

The development of the digital economy drives the transformation of all areas of socio-economic activity, including healthcare. One of the most rapidly developing areas is the use of mobile applications as a tool to increase the efficiency of medical services. This article examines the role of mobile digital solutions in the healthcare system as an element of digital infrastructure. It analyzes the functional capabilities of medical mobile applications, their impact on user behavior, and the optimization of healthcare delivery processes. Special attention is paid to assessing the effectiveness of such applications in the context of improving access to medical services, enhancing the quality of prevention and monitoring of chronic diseases, as well as fostering digital skills among the population. The article also discusses the prospects for further integration of mobile solutions into the healthcare economy and the need for regulatory frameworks in the context of digital transformation. The research findings highlight the significance of mobile technologies as a driver of sustainable healthcare development in the digital economy.

Keywords: Digital economy, healthcare, mobile applications, digital transformation, efficiency, e-health.

Introduction

The current stage of economic development is characterized by active digital transformation across all sectors, including healthcare. The digital economy not only changes the forms and methods of interaction between the participants in medical services but also contributes to the emergence of new digital tools aimed at improving the efficiency, accessibility, and quality of medical care. One of the most promising directions in this context is the use of mobile applications in the healthcare system. Mobile medical applications are becoming an important element of the digital healthcare infrastructure, providing patients and medical professionals with access to essential information, remote health monitoring capabilities, as well as tools for self-diagnosis and treatment management. Such solutions are particularly relevant in the context of increasing pressure on the healthcare system, growing demand for personalized medicine, and the development of remote interaction models between doctors and patients.

Despite the wide range of existing mobile solutions, questions remain regarding their practical effectiveness, user trust levels, and the degree of integration into the overall healthcare system. In the context of the digital economy, it is important to assess not only the technological characteristics of such applications but also their impact on the healthcare economy, patient behavior patterns, and the effectiveness of disease prevention and treatment.

The aim of this study is to analyze the effectiveness of mobile applications in healthcare from the perspective of the digital economy, as well as to identify the factors that contribute to or hinder their successful implementation and use.

Research objectives

To achieve the stated goal — a comprehensive analysis of the effectiveness of mobile applications in healthcare within the context of the digital economy — the following research objectives were formulated:

- To examine the theoretical and methodological foundations of digital transformation in healthcare, with an emphasis on the role of mobile applications as an element of the digital infrastructure;

- To classify mobile medical applications according to their functional purpose, target audience, and level of integration into the healthcare delivery system;

- To assess the impact of mobile applications on key healthcare performance indicators, including accessibility of medical care, patient adherence to treatment, and economic efficiency;

- To analyze the practices of using mobile applications in healthcare based on domestic and international experience, highlighting successful cases and identifying factors that contribute to their widespread adoption;

- **To identify barriers and limitations** hindering the effective use of mobile solutions in healthcare (technical, regulatory, behavioral, and others);

- To formulate recommendations for improving the effectiveness of mobile applications in healthcare, taking into account the priorities of the digital economy and government policies in the field of healthcare digitalization.

The development of the mobile application **"Med-UZ AI"** and its capabilities for automatically answering users' questions using artificial intelligence based on medical information is highlighted. The primary goal of the application is to implement digital technologies into the healthcare system by providing clear, scientifically grounded, and fast responses to medical questions in the Uzbek language. The project aims to improve medical literacy by offering medical education, general understanding of diseases, information about medications, symptoms, and diagnostics. The application is developed based on modern artificial intelligence algorithms, analyzes users' questions in context, and provides accurate answers.

The project is a mobile application that allows patients or individuals to receive answers to their medical questions. The user sends a question to the chatbot in the "Med-UZ AI" section of the app, and the chatbot retrieves relevant answers from the medical database and displays the response on the user's screen.

- In rural areas, people do not have access to medical information.
- People do not know which doctor to consult when they fall ill.

- Recently, people have become dependent on ChatGPT and have worsened their condition by taking medications prescribed by the bot.
- Information security in healthcare is poorly developed: patient information is widely shared among medical staff

Use of artificial intelligence technologies and development of mobile applications for mobile devices:

- Early disease diagnosis
- Improving the population's medical literacy
- Creating convenience for doctors and patients
- Enhancing the quality of medical care
- Ensuring information security in healthcare

The mobile application is used by the general population as well as by staff of medcal institutions (polyclinics, hospitals, private clinics), which in turn leads to the formation of a target audience. This project will cover the population of Uzbekistan and create a comprehensive user base.

The mission of our application is to provide all citizens with simple, reliable, and fast online medical assistance.

Our goal is to promote online medical services and popularize medical knowledge in Uzbekistan.

The analysis conducted, showed that mobile applications are becoming an integral part of the digital healthcare ecosystem, facilitating the transition from traditional interaction models to more flexible, personalized, and cost-effective forms of medical care. The study identified several key areas in which mobile applications demonstrate the greatest effectiveness:

1. Improving accessibility to medical services. The use of mobile applications enables patients to receive basic medical consultations, medication reminders, chronic disease monitoring, and symptom assessment without the need to visit a healthcare facility. This is especially relevant for remote and less mobile population groups.

2. Improving treatment adherence. Applications integrated with reminder systems, self-monitoring diaries, and feedback from doctors have shown a positive impact on patients' compliance with treatment regimens, especially for chronic diseases such as diabetes, hypertension, and cardiovascular conditions.

3. Economic efficiency. Mobile applications can contribute to reducing the costs of primary healthcare and disease prevention by automating certain processes, decreasing the number of unnecessary doctor visits, and shortening the time required for processing medical information.

4. Limitations and barriers. Among the main challenges are the low level of integration of mobile solutions with government healthcare information systems, the absence of unified standards for verification and certification of medical applications, as well as risks related to the confidentiality and security of personal medical data.

The results obtained confirm the need to develop a unified strategy for the development of mobile digital solutions in healthcare within the framework of the state digital economy policy. This includes regulatory measures, the formation of an infrastructure base, training of medical personnel and patients, as well as the promotion of innovative activities in the field of digital medicine.

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