

## Conference Paper

# Social and Managerial Aspects of Using Digital Health Technologies

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**Abstract**

The development of the health sector around the world is linked to digital technologies, because there is a need to optimize the processes of medical care for the population. Every year there is an increase in this market by a quarter. The use of digital technologies helps to improve health care. The management and organization system implements unified effective systems using the technological capabilities of digitalization in the health care sector. The relevance of the study is related to the need to change the outdated health management system with access to a modern level of technical and administrative support for medical services. The actual tool of digital medicine is cooperative forms of network interaction. We are exploring the further development of digital medicine in the short term, what opportunities can be presented and what results can be obtained by residents. Network communications play an important role in uniting professional medical communities. More than 65% of people between the ages of 21 and 35 have become participants in network technologies, and their number is constantly increasing. Administrative and management staffs are most active in discussions (43%) on the Internet and all respondents have an idea about telemedicine. Patients have the opportunity to get advice by contacting doctors online. The next stage in the development of information technologies is associated with increasing the speed and volume of transmitted data, which will help to predict critical conditions that threaten the patient’s health as quickly as possible. Now there is a discussion about the possibility of not just consulting, but also making diagnoses when patients contact the doctor, discussing in which cases a personal meeting with the doctor is necessary and under what conditions it is enough to provide maximum information about the state of health for diagnosis.

**Keywords:** digital healthcare, digital technologies, adaptation, medical specialists.

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## 1. Introduction

The use of digital technologies generally helps to improve the overall state of health. Managerial and organizational capacity of the state needs to improve the quality of life of citizens, what in healthcare can be implemented using a single efficient complex with the technological opportunities of digitalization with the system of management

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and organization. The problem of complexity and the correct use of information technologies is becoming more and more relevant in the context of the development of the information society in the transition period to a digital society. Relevance of research is connected with necessity to change the outdated system of health management, the need for process optimization of medical care and entry to a modern level of technical and administrative support of medical care. The use of digital technologies and the Internet in some cases helps people get the necessary information faster and easier than independent searches of data in books and consultations with various health care providers, including unscrupulous ones. Digital technologies are constantly developing in the process of doctors' work. Their widespread adoption is becoming a new stage of social existence, and their use is now necessary for the rapid acquisition and transmission of information in most different areas, from education to medical aspects.

Objective: to study the impact of the online medical community on the adaptation of specialists and the use of digital technologies to restore the health of patients.

## 2. Methodology and Methods

Interdisciplinary approaches allow combining various scientific achievements to create more accurate strategies for the future. The system of interdisciplinary approaches outlines the situation of a General view of the image of the whole situation and helps to create high-tech sectors. If you put together scientific achievements, then there are synergistic effects that increase good results. Synergetic is at the intersection of subject knowledge, mathematical modeling, and philosophical reflection [8, 10].

The problem of adapting a person to a new place of work, taking into account digital technologies, was considered by Kotlova A. S. and Popov O. A. [5]. In the process of working adaptation, there are four main aspects: professional, psycho-physiological, socio-psychological and organizational [1]. For work, professional adaptation is very important — it is an additional acquisition of professional knowledge and skills, the formation of professionally necessary personal qualities. Managers often underestimate the need for adaptation, and they can't always make specific demands on specialists [12]. Production adaptation is the basis for the fastest formation of the required level of productivity and quality. The primary one has no professional experience, and the secondary adaptation refers to specialists who already have work experience, but have decided to change the company, position, or specialization. Russian researcher A. Y. Kibanov showed that secondary adaptation is not given enough attention [4].

General scientific research methods: analysis, synthesis, comparative analysis, dialectical method, document analysis, secondary analysis of statistical data, expert surveys, research by sociologists on informatization problems.

For the first time, the term “digital medicine” was introduced into scientific circulation by the international company Apple. The created automation of medical institutions’ activities forms a single information space of medical institutions, including databases, electronic medical records, diagnostic indicators and data of management, economic and financial activities. The work of Russian scientists is devoted to use of digital technologies in medicine [3, 7, 11, 13, 14].

Results of surveys on the use of Electronic medical records.

Surveys on digital health care were conducted in two clinics GBUZ DSP 37 DZM and GBUZ DSP 10 DZM:

1. Do you know the term Digital Healthcare?

(a) Yes 45% 2. No 41% 3. I find it difficult to answer 14%

2. Do you take the opportunity of remote appointment with a doctor? (You can select multiple answer options)

(a) Yes, I use the mobile application 78%

(b) Yes, I use online recording 68%

(c) Yes, I use the recording on the phone 62%

(d) No, I do not use 22%

3. What benefit do you see in the introduction of an individual electronic medical record (EMC) (You can choose several options for answers)?

(a) EMC is useful to a doctor who sees the records of all specialists 87%

(b) EMC is useful to the patient, can monitor the doctor’s records on the course of treatment 72%

(c) EMC is useful to the head of regulatory authorities 27%

The most popular topic today is electronic patient cards. Almost all information is reflected here in a concentrated form. Its storage and integration with databases by means of information and software systems also allows solving a whole range of tasks that are extremely important from the point of view of management technologies, which, of course, will adapt to new opportunities. The formation of a full-fledged health card

in electronic form is a priority task for the Russian Federation. And it affects not only the health sector, but also others that are related to it, so it must be solved at the state level.

The EMC is currently recognized as an official document only if there is an original on paper, with a signature and seal [6].

The main directions of development of digital technologies in healthcare are the following:

1. Analysis of the results already obtained, together with representatives of technical services, administrative authorities, and the professional community, and formulation, coordination, adoption, and introduction of corrective measures in existing information technology implementation programs.
2. Consider the possibility of using unique technologies based on 5-G in healthcare, which allows the use of virtual reality technologies.
3. Within the framework of solving the problem of professional training and adaptation of young specialists, to analyze existing and prospective problems associated with the introduction of information technologies, at the level of the Moscow healthcare management, to form an action plan to solve the identified problems.
4. At the level of the government of the Russian Federation, a number of measures should be taken to coordinate the implementation of information technologies and artificial intelligence elements in the health sector between the following areas: technical and software, organizational procedures for the introduction, adaptation and interaction of social block structures.
5. A separate area is research on best practices in the implementation of information technologies in the practice of the health system in foreign countries.

Ensure the development of a legal framework that provides for a set of legal acts that cover all aspects of the introduction of information technologies in the health care system

### 3. Results and Conclusions

Modern medical management processes are associated with an increasing number of diseases that can be diagnosed, the complexity of society and the modern system of ensuring the health of citizens. The interests and needs of the population, ensuring their efficiency, reproduction and development should be in the foreground.

Analysis of the development of the health care system in Russia shows an improvement in indicators, although opinion polls have revealed dissatisfaction with the quality of one third of the population.

The analysis of the procedures for implementing and optimizing digital health care, as well as the accumulated experience in implementing digital technologies in health care, will allow us to identify problems and develop measures for their regulation in the social management system in accordance with the tasks set for the formation and implementation of the Federal target program "Health" in Russia.

Analysis of data from the Internet resources of the medical community showed that the main trends that are most clearly manifested in recent years, young doctors call the expansion of professional opportunities for using the Internet (laboratory information system LIS MeDaP of Biochemmak, Altey Laboratory of Altey). Another trend is the desire to ensure consistency between different software systems (Lis MeDaP, as well as the Dexter and Laboratory journal programs of Laboratory diagnostics).

The next stage in the development of information technologies is associated with an increase in the speed and volume of transmitted data, which can quickly predict critical conditions that threaten the patient's health. This analysis is made possible by obtaining and processing a large number of patient indicators in real time. Doctors and nurses, including those from small medical institutions located in remote regions of Russia, will be able to immediately get the necessary information about the patient's condition. The volume of paper medical reports will decrease, and the efficiency and accuracy of initial data obtained from various sources will increase. The quality of management decisions will increase. Financial costs will be reduced. Even taking into account the costs of creating, implementing specialized software, and maintaining technological equipment, the financial component will be significantly lower than the costs of similar actions with paper documents, while the quality and efficiency will increase.

The ability to access your own medical information leads to the fact that a single information base will allow you to quickly resolve the issue of providing assistance in various situations, including natural disasters and emergency situations of various types. Since instant access to individual information about the health status of each individual in need with their individual health characteristics (blood type and RH factor, chronic and past diseases, the state of the immune system, intolerance to certain drugs, and much more) will make the assistance provided as effective as possible.

Modern direction in the development of medicine is called Healthcare Technology, whose task is to provide professional medical care to the patient in the conditions

of constant self-improvement of doctors' professionalism, professional growth of medical insurance agents, remote pharmacy network, introduction of modern innovative technologies, production of mobile personal diagnostic devices and remote patients monitoring, creation of a unified network of interaction of all participants. The analysis shows that the presence of a single database is especially important in natural disasters and emergencies, since medical staff will have access to individual electronic maps, including blood groups, chronic diseases, etc. Microcomputers, tablets and wireless Internet connection systems will provide the necessary connection to the unified databases.

The ability to access your own medical information leads to the fact that a single information base will allow you to quickly resolve the issue of providing assistance in various situations, including in cases where all this requires a technological change in the doctor's work with the patient, methods of collecting and processing information and conditions for making collective decisions. Both foreign studies and opinion polls in Moscow have shown that most doctors and medical staff are ready to work under the new conditions. Against this background, the level of fear of equipment failure during operations and high-tech assistance is very high.

The results of the survey of Russian consumers of medical services show the need to improve the information network and communication channels with the population that is not willing to share personal data, increase awareness of young people about the possibilities of individual diagnostic equipment and installation of appropriate mobile applications, and create information security in a single network of medical services to the population.

Adaptation activities are most effectively carried out in specialized training centers provided with remote information technologies. These technologies are based on monitoring the work of colleagues, which enriches social experience, allow you to learn organizational principles and corporate culture in accordance with modern requirements of the clinic. In this plan, it is proposed to develop three-stage adaptation plans — introductory, effective orientation and functional assimilation, provided with clear control by designated responsible doctors under the guidance of chief physicians.

Well-built adaptation helps to improve the competitiveness of staff. The main features of the organizations of the medical sphere are stressful working conditions, high responsibility for the life and health of patients and autonomy in the work of doctors and nurses. Consolidation of highly qualified doctors in the category of mentors is one of the main conditions for the successful adaptation [11].

As a rule, modern large foreign clinics organize educational centers in their composition, in which a group of mentors purposefully adapts new employees to work in their own medical organization [2: 1042]. Optimization of the adaptation process of professional activity is aimed at reducing the time of adaptation and achieving the appropriate level of adaptability [9].

The analysis of periodical scientific publications, mass media, and Internet discussions confirms the widespread use of modern digital technologies, including computed tomography (CT); ultrasound diagnostics (ultrasound); and microcomputer technologies for x-ray research. Breathing and anesthesia devices allow patients to maintain their lives for a long period of time. Radiation therapy with microprocessor control; devices for diagnosis and localization of kidney and gallstones (lithotripsy) dental treatment and prosthetics are now performed using a computer.

The practical realization of the potential of network interaction was the formation of research and professional infrastructure of the Internet, as well as means of information interaction created for the purpose of providing and developing a certain professional field of medicine. Summing up, we emphasize that cooperative forms of network interaction — one of the modern directions of digital technologies is already considered not only exotic, but also a real tool of digital medicine.

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