

INFORMATION TECHNOLOGIES INFLUENCE IN LITHUANIAN HEALTH CARE INSTITUTIONS (HCI)

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INTRODUCTION

The contemporary healthcare system is dynamically evolving due to technological progress and information flows, opening new possibilities for the improvement of healthcare institutions management through information technologies (IT). The European Union's healthcare strategy for 2014–2020 (EU Health Programme [3]) and the Lithuanian health system development outline for 2011–2020 [16] emphasize the creation of an innovative health, the development of e-health services. Studies such systems including those by D.Jankauskienė and co-authors [21,22,11,10,5,23,24] analyze the application of IT in healthcare, but there is a noted lack of systematic studies examining the impact of IT on the management of healthcare institutions. The research objectives are: 1) to examine the theoretical aspects of IT application in healthcare institutions; 2) to develop a model for the application of IT in the management of healthcare institutions; 3) to assess the perspective of experts on the significance of IT in Western Lithuania's healthcare institutions. The goal of the study is not only to theoretically discuss the role of IT in the operation of healthcare institutions, referencing EU and Lithuanian strategic documents [3,16], but also to practically evaluate how IT can enhance the management of healthcare institutions, especially considering the context of Western Lithuania.

The aim of the study is to theoretically analyze the application of IT in health care institutions, to prepare a model for the application of IT to the management of HCI and to investigate the importance of IT in HCI of Western Lithuania.

The object of the study is the impact of IT on the management of HCI. Research methods - theoretical: systematic and comparative analysis of scientific literature; analysis of methodological literature; content analysis of documents (legal acts, strategic documents); empirical: expert assessment method was used (interviews - qualitative research). A structured content oral interview of experts (managers) of HCI of Western Lithuania was used (qualitative research). The research was carried out in Western Lithuanian HCI, located in Klaipėda, Palanga, Telšiai, Mažeikiai, Šiauliai, Taurage. 4 respondents were interviewed, as it was possible to find so many experts who agreed to participate in the study.

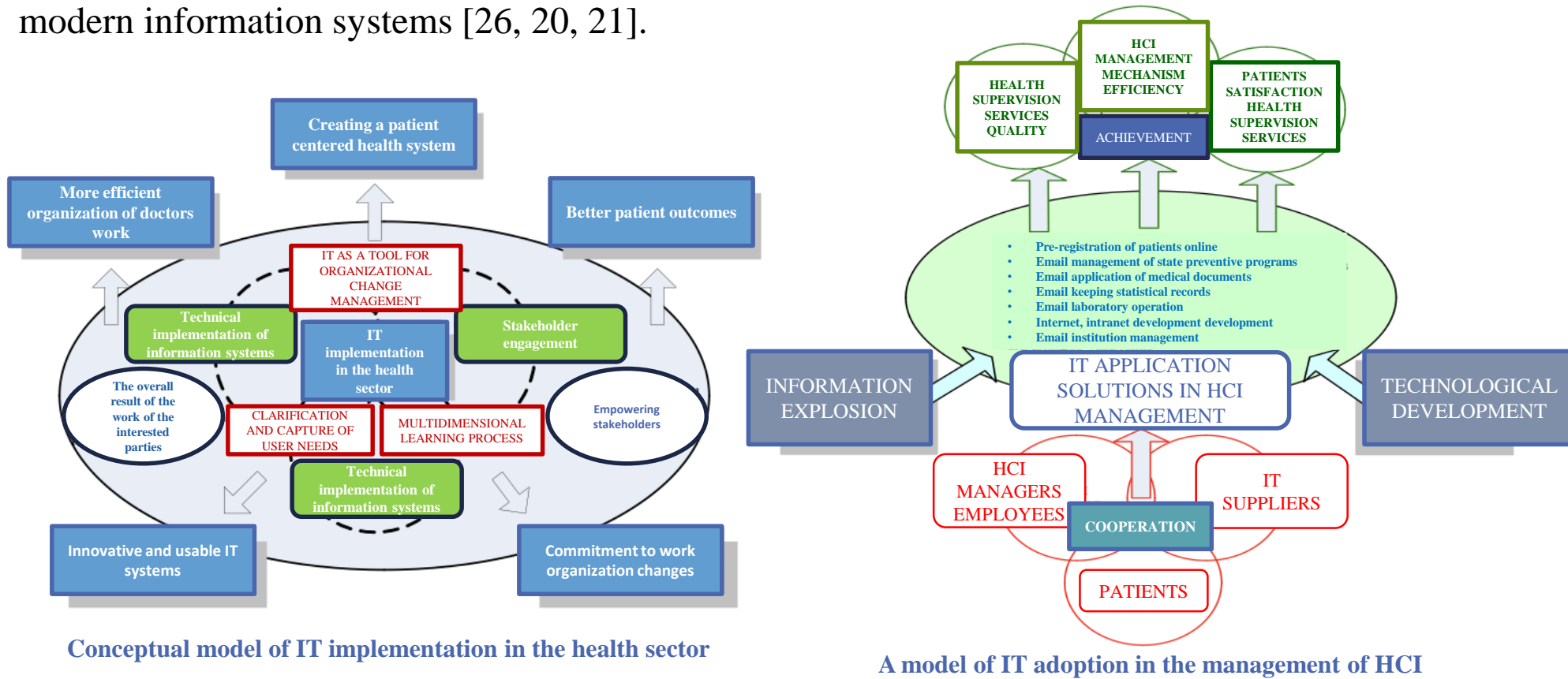
The experts were selected according to the following criteria: managerial position, managerial work experience, competence and ability to evaluate the object under investigation, level of professional knowledge. The results of the qualitative research were analyzed using a descriptive method, in some cases - content analysis. In the study, all interview participants are called by one conditional name - experts. According to the coding, they are designated as follows: E1, E2, E3 and E4.

The specifics of IT application to the management of HCI

The application of IT in healthcare institution management stands out for its complexity, requiring an integrated approach to information systems (IS) research, organizational changes, and stakeholder engagement[19]. When implementing IT in the health sector, it's crucial to consider technical aspects, employee and patient needs, and the automation or improvement of operational processes. Effective IT use depends on meeting individual user needs and enhancing the overall organizational efficiency[5][25][14][10]. Improving healthcare quality through IT involves a comprehensive approach where the human factor and patient orientation play key roles, as reflected in the study conducted by B. Rahimi et al. and the conceptual model[18][10][8]. It's important that IT implementation is strategically managed, incorporating long-term and medium-term strategies along with daily operations, focusing on trust, user engagement, and the technical performance of systems.

Solutions and directions of IT application in the management of HCI

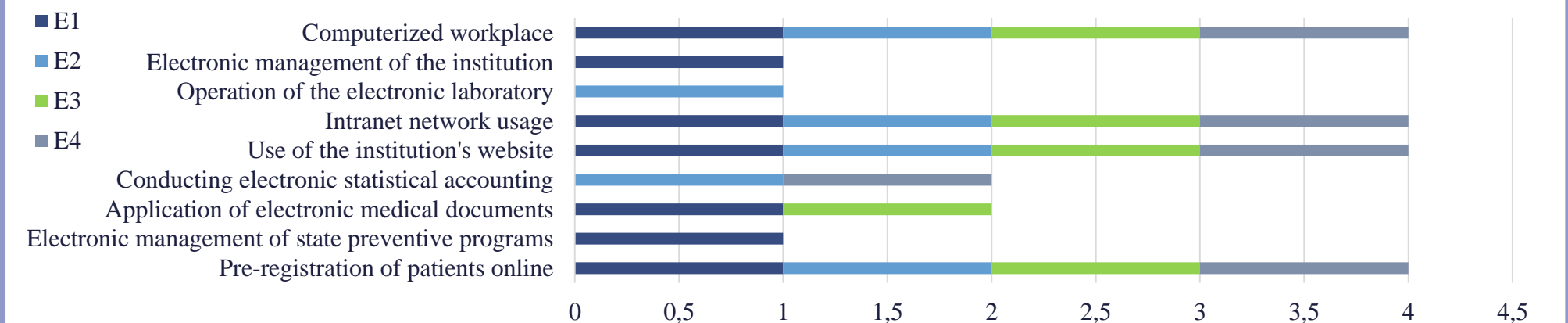
The application of IT in the management of health care institutions is multifaceted and subject to debate regarding the most critical solutions in this field. Various studies emphasize the diversity of IT applications, including electronic medical records, teleconsultation, modern medical encyclopedias, vital signs and home care monitoring, and the modernization of healthcare services [26, 20]. K. Štaras classification highlights key IT solutions such as online patient registration, electronic management of state preventive programs, electronic collection of patient medical information, electronic statistical accounting, development of internet and intranet, electronic laboratory operations, and electronic management of institutions [21]. While IT solutions in healthcare management offer advantages, their implementation presents challenges, including the development of information systems that fully meet the specific needs and expectations of healthcare institutions, training of staff to work with new technologies, and motivation to use modern information systems [26, 20, 21].



The main findings

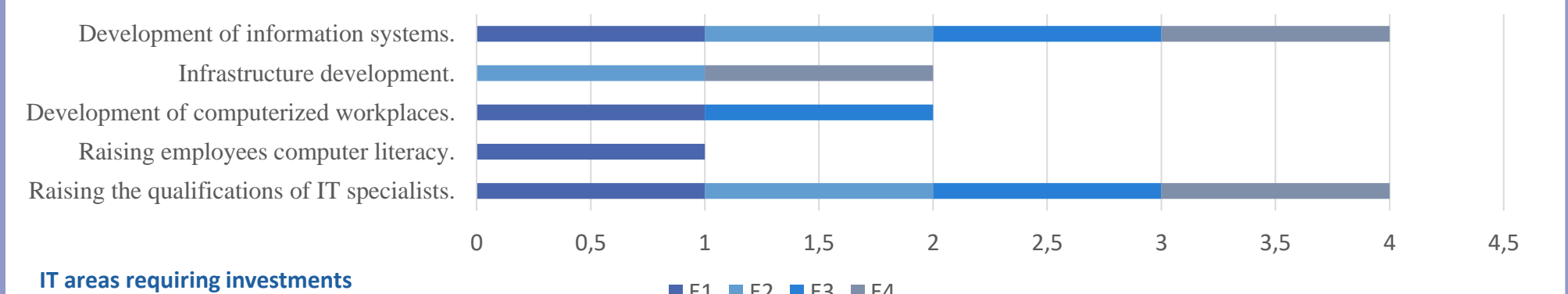
Experts emphasized the importance of IT in managing healthcare institutions as a necessary or important factor. Most agreed that IT optimizes management, and the state encourages IT development, but the attention is considered insufficient. Despite the Lithuanian e-health development strategy, the implementation is not effective. The realism of state strategies is criticized, and the strategic policy is considered only satisfactory due to the lack of implementation and control. Experts indicated adequate computer equipment but highlighted a lack of internet access and funding for IT updates, with employees working with old equipment expressing the need for modern technologies. More funding is needed, along with rationalizing the use of funds and seeking private support. A lack of strategic action plans was found, financing sources vary, but IT development in healthcare institutions is not merely an internal matter. Standard IT products can be customized, but a culture of collaboration, training, and adaptation of new solutions is crucial. The importance of IT investments is emphasized, especially in qualification improvement and system development, but not all institutions have plans to improve IT areas, and the evaluation of specialist qualifications and work quality varies, highlighting the need for continuous improvement.

Solutions for the use of IT in HCI



Positive and negative changes that have taken place after the introduction of IT and information systems in the HCI

Criterion	Positive changes	Negative changes
Management quality	There is an opportunity to develop good quality health care services and increase the efficiency of treatment (E1). Improved management quality (E2).	It was difficult to cope with the increased flow of electronic information in the management process, so initially the quality of management decreased (E4).
Exchange and collection of information	It became possible to quickly exchange available information about the patient, methods of diagnosis and treatment of diseases (E1). Accelerated acquisition, use and exchange of patient information (E4).	There was a lack of human resources competence to support effective information exchange (E3). Accumulated information is duplicated (E2).
Administrative processes	Helped to streamline administrative processes (E1).	
Time management	Reduced time spent on paper transactions (E2).	There was a lack of time for direct work (E3).



MAIN RESULTS AND CONCLUSIONS

- Management of HCOs (Health Care Organizations) involves the integration and management of activities and resources under HCO control into a unified whole, and their planning, organizing, leading, and monitoring, aiming to more efficiently utilize IT potential, improve the quality of healthcare services, and ensure patient satisfaction with services. Key IT applications in managing HCOs include: online pre-registration of patients; electronic management of state preventive programs; application of electronic medical documents; electronic statistical accounting; development of internet and intranet; operation of electronic laboratories; electronic management of institutions.
- Qualitative research has determined that the primary importance of IT and IS (Information Systems) implementation in HCOs is to optimize institutional management. The government's attention to IT development in HCOs is insufficient due to the existence of imperfections in the implementation methods, tools, and mechanisms of national strategic plans, marked by a lack of effective control. Not all institutions have a strategic action plan that would include the implementation/improvement of new IS in the near future. Different IS implementation methods are applied in HCOs – IT standard products can be adapted according to institutional needs, developed by the institution's IT specialists, or installed by IT companies. In HCOs, when implementing new IT solutions, there is a lack of collaboration among management, employees, and especially patients. The most common IT solutions in HCOs include online pre-registration of patients, the use of the institution's website, intranet network, and computerized workplaces. The most investment-demanding areas are the improvement of IT specialists qualifications and IS development.

Recommendations:

- For the Government and the Ministry of Health to improve national policy on IT development in managing Healthcare Institutions by utilizing best practices from foreign countries' policies and tightening the control mechanism of strategic plan implementation; allocate more funds for IT renewal, increasing partial/total funding, and controlling the implementation of funding instruments.
- For Healthcare Institution managements to improve IT funding policies within their institutions by rationalizing financial resource distribution and utilizing additional funding sources such as EU and international funds, private sponsors' contributions, and foreign state aid.
- For Healthcare Institution managements to regularly prepare institutional strategic action plans that include the implementation/improvement of new IT in the near future, and prepare investment plans for IT development.
- For Healthcare Institution managements, IT suppliers, patients, and other stakeholders to collaborate in the IT development and implementation process in Healthcare Institution management, basing these collaborative relationships on partnership.
- For Healthcare Institution managements to ensure the improvement of IT solutions in managing Healthcare Institutions by more actively applying electronic medical documents in management; intensively implementing local networks; adapting IT solutions to the needs of Healthcare Institution work organization; conducting staff training on using IT solutions; informing employees about IT solutions; and more intensively developing modern information systems.
- For Healthcare Institution managements to invest in their human resources by increasing the qualifications of IT specialists and improving the computer literacy of Healthcare Institution employees.

Literature

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