ECONOMICS

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INFORMATION SECURITY RISKS AND WAYS TO OVERCOME THEM IN THE PROCESS OF UNIVERSITY DIGITALIZATION

The development of information technologies has dramatically changed the functioning of all economic entities. Not only commercial enterprises but also the public and municipal sectors have felt their impact. Almost all areas of activity – production, organizational, communication, corporate environment – are covered by digital technologies that optimize not only the internal processes of market subjects but also ensure their effective interaction with other organizations and individuals [1, p. 30].

The intensification of digital transformation in the field of public administration and education has led to an increase in the use of digital services, which in turn has led to an increase in the load on computing resources and information and telecommunication infrastructure [2; 3]. These trends have become a catalyst for deepening the processes of informatization and digitalization, but at the same time, they have led to the actualization of the problems of ensuring an adequate level of information security in the context of the growing complexity of the digital environment.

The digital transformation of the higher education system is focused on creating conditions for large-scale access to quality educational services and promoting the comprehensive development of the student's personality by integrating modern digital technologies into the learning process [4, p. 52]. It opens up new opportunities for personalized learning,

promotes the implementation of innovative teaching methods, and expands access to educational resources through the use of distance learning systems (LMS), online courses, webinars, and digital libraries. The implementation of such solutions contributes to increasing the flexibility of the educational process, its adaptation to the individual needs of students, and ensuring equal access to knowledge. Modern universities are increasingly using artificial intelligence tools to monitor progress and build individual learning paths [5, p. 10].

In addition to the educational dimension, digital transformation has a significant impact on scientific activity. The use of end-to-end digital technologies, such as big data, machine learning, and cloud computing, helps accelerate research, improve its quality, and expand international scientific cooperation. Digital platforms provide access to open scientific data, simplify communication between researchers, and increase the efficiency of analytical information processing.

Digitalization has also covered the administrative and economic sphere of universities. The implementation of automated human resources, finance, document management systems, and analytical platforms based on BI technologies ensures increased efficiency of management processes, cost optimization, and improved quality of management decisions.

At the same time, digital transformation poses a number of challenges. The main problems include the risks arising from the active implementation of digital technologies, which can have a significant impact on both information security and the economic sustainability of higher education institutions. In this context, it is advisable to highlight the key areas of risks that accompany the digital transformation of universities and require careful analysis and comprehensive response:

1. Cybersecurity threats and attacks on infrastructure. Universities that actively integrate digital services into educational, research, and management processes are becoming attractive targets for hacker attacks and cybercrime. With the growth of processed data and the expansion of the number of digital platforms (LMS, cloud computing, analytical services), the likelihood of unauthorized access to information systems, leakage of confidential data, and violation of their integrity increases [6, p. 41].

Particular attention is drawn to the risks associated with the use of cloud solutions for data storage and processing. In this regard, it is advisable to implement the concept of edge computing, which involves processing data on local servers located near information sources, allowing to reduce

dependence on remote services and mitigate the risks associated with the transfer of critical data over the network.

2. Human factor and lack of digital competencies. The human factor remains one of the main sources of threats to information security, especially in the context of rapid digital transformation, when changes in the technological environment are far ahead of the pace of adaptation of organizational procedures [7, p. 1222]. A significant number of information security incidents are caused by user errors, neglect of safe behavior rules, underestimation of cyber threats, or lack of knowledge of modern technologies.

In the context of university functioning, these risks are compounded by a large number of heterogeneous users – from students to administrative staff – with different levels of digital literacy. Effective mitigation of such risks requires a systematic approach, including regular training, professional development of employees, as well as the creation of a sustainable organizational culture of data work and raising the overall level of digital awareness.

3. Digital sovereignty and economic security. Today, universities play a key role in the development of the digital economy, acting as centers of innovation transfer, generators of scientific knowledge, and carriers of intellectual capital. However, the vulnerability of their information systems can have strategic consequences not only for individual institutions but also for the national economy as a whole.

Risks of leakage of critical scientific data, theft of intellectual property, or unauthorized access to high-tech developments may cause a loss of competitive advantage, reduced investment attractiveness, and deterioration of positions in global rankings. Universities involved in the implementation of government or defense projects also bear increased responsibility for the preservation of strategic data.

Therefore, the processes of digital transformation of higher education are accompanied by an increase in information risks, which are manifested in the vulnerability of infrastructure, lack of digital competencies, and threats to the preservation of intellectual capital. Ensuring information security in the context of the digitalization of universities requires the integration of high-security technologies, compliance with regulatory policy, and a strategic rethinking of the university's role in global digital competition.

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