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DIGITAL TRANSFORMATION OF UNIVERSITIES IN THE CONTEXT OF FORMING AN INNOVATION ECOSYSTEM

The current stage of development of society is characterized by the rapid spread of digital technologies, which significantly affect all spheres of socio-economic life, including the higher education system. Universities are gradually transforming from traditional educational institutions into multifunctional centers of knowledge generation, innovations and entrepreneurial activity. In this context, digital transformation is not only a tool for modernization of the educational process, but also the basis for the formation of an effective innovation ecosystem of universities [2, 3, 4].

The relevance of the topic is due to the need to adapt higher education institutions to the challenges of the digital economy, global competition, and labor market needs. The digital transformation of universities in Ukraine is of particular importance in the context of European integration processes and post-war reconstruction, when innovations and human capital are considered key resources for sustainable development.

The purpose of the study is to analyze the impact of the digital transformation of universities on the formation of the innovation ecosystem and identify the main directions of its development.

Digital transformation of universities involves comprehensive changes in management, educational, scientific and communication processes, based on the use of digital technologies. It is not only about the implementation of individual digital tools, but also about rethinking the models of university functioning in general [1, 7].

Among the key areas of digital transformation of universities, it is advisable to highlight:

– **digitalization of the educational process** – involves the implementation of online courses, blended and distance learning models, the

use of learning platforms and learning management systems (LMS). Such tools ensure the flexibility of the educational process, the accessibility of knowledge regardless of spatial and temporal constraints, and also contribute to the formation of personalized educational trajectories in accordance with the individual needs and abilities of higher education learners. Digital technologies allow the integration of interactive teaching methods, digital simulations and educational data analytics, which improves the quality of educational outcomes.

– **implementation of digital solutions in university management**, in particular electronic document management, information and analytical systems and digital services to support management processes. The use of big data analytics and decision support systems (DSS) makes it possible to increase the effectiveness of strategic planning, transparency of management and the validity of management decisions. Digital management contributes to the optimization of internal processes, reduction of administrative burden and improvement of communication between all participants in the educational process.

– **digital support for scientific research**, which includes the development of open scientific data, electronic repositories, digital laboratories and the use of artificial intelligence (AI) tools. The use of digital technologies in scientific activities promotes interdisciplinary research, accelerates the processing of large data sets and increases the visibility of scientific results in the international scientific space. The openness and digitalization of science are an important prerequisite for the integration of universities into global innovation networks.

– **development of digital infrastructure for innovations and entrepreneurship**, including the creation of startup platforms, virtual incubators, acceleration programs, and digital technology transfer hubs. Such tools ensure the interaction of universities with business, investors, and governments, promote the commercialization of scientific research results, and foster an entrepreneurial culture in the academic environment.

Taken together, these areas form the basis of the university's innovation ecosystem in the digital economy and create the prerequisites for active interaction of universities with business, government institutions, and civil society.

Innovative university ecosystem in the context of digitalization is viewed as a set of interconnected entities, processes and resources that enable the creation, dissemination and commercialization of knowledge and innovations. Digital technologies play a key role in ensuring effective interaction between the elements of this ecosystem.

In the context of digital transformation, universities have the opportunity to:

- expand partnership networks at the national and international levels;
- involve students and scientists in interdisciplinary and interuniversity projects;
- accelerate technology transfer and commercialization of scientific research results;
- to shape a culture of innovations and entrepreneurship in the academic environment.

A special role in the development of the innovation ecosystem is played by digital collaboration platforms that ensure communication between all stakeholders and promote the co-creation of knowledge.

Despite the significant potential of digital transformation, universities face a number of challenges, including: insufficient level of digital competencies of staff, limited financial resources, unequal access to digital infrastructure, and resistance to organizational changes [5, 6].

At the same time, the prospects for the development of the digital innovation ecosystem of universities are directly related to the integration of higher education institutions into the European and global educational and scientific space. This process involves the harmonization of educational standards, the implementation of European approaches to ensuring the quality of education, open science and academic integrity, as well as the active participation of universities in international scientific consortia and research networks. Digital platforms and services are key tools for such integration, providing access to common educational and scientific resources [8].

An important perspective is the **development of virtual mobility programs and international digital projects**, which allows students, teachers and researchers to engage in international cooperation without physical movement. Such formats contribute to the exchange of knowledge, the

development of intercultural and digital competences, the implementation of joint training courses and research initiatives, in particular within the framework of the Erasmus+, COIL programs and international online laboratories. Virtual mobility expands the possibilities of internationalization of universities and increases their global competitiveness.

Strengthening the role of universities in **regional innovation development** is another strategic direction for the formation of a digital innovation ecosystem. Universities are increasingly acting as centers of regional innovation clusters, uniting local authorities, business structures, startup communities and public organizations. The use of digital tools contributes to the development of entrepreneurial initiatives, technology transfer, support for small and medium-sized businesses and stimulates the socio-economic development of regions.

Special attention should be paid to **the use of digital technologies for the restoration and modernization of the Ukrainian economy**. In this context, universities play a key role in training highly qualified personnel, developing applied research and implementing innovative solutions in priority sectors of the economy. The digital innovation ecosystem of universities can become a platform for creating technological startups, implementing digital transformation projects and forming a knowledge economy, which is especially relevant in the period of post-war reconstruction of the state.

The digital transformation of universities is a determining factor in the formation of a modern innovation ecosystem,` capable of ensuring the sustainable development of higher education institutions and society as a whole. The use of digital technologies contributes to the integration of education, science and business, improving the quality of educational services and the effectiveness of scientific research. Further development of the digital innovation ecosystem of universities requires a systematic approach, institutional support and investment in human capital.

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