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METHODOLOGICAL FEATURES OF THE ECONOMY AND UNIVERSITIES' DIGITAL TRANSFORMATION AND THEIR APPLIED TASKS

Natalia Bobro*, Ph.D., Doctor of Philosophy,
Director of the Digital Department European University,
Director of the "NooLab & AI"Scientific Laboratory of the European University,
Private Higher Education Establishment "European University"

**ORCID 0009-0003-5316-0809*

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Introduction. In the contemporary era, digitalisation has emerged as a pivotal factor in the progression of economic, social, and educational processes. The transition to digital interaction in various domains of human activity, ranging from household to public administration, exerts a substantial influence on all facets of life. This process holds particular significance for higher education, where digital technologies unveil novel opportunities for education, research, and university management. The initial practical outcomes of the digital transformation of the educational process have already facilitated substantial success in training a new generation of specialists. Nevertheless, the issues of effective utilisation of digital technologies in universities remain inadequately researched. This is particularly evident in pivotal domains such as scientific research, entrepreneurial and translational activities of universities, which necessitate a comprehensive approach to their digital transformation.

The issue of digital transformation in universities represents a significant scientific and practical undertaking, necessitating a re-evaluation of theoretical frameworks and methodological approaches. This necessitates not only the evaluation of universities' digital development levels through the utilisation of specific indicators, but also the identification of novel approaches to university operations in the digital era. In this regard, there is a need to study the main directions and methods of digital transformation, as well as to develop practical recommendations for the effective implementation of digital technologies in higher education.

Analysis of recent research and publications. Research in the field of digital transformation of universities is undergoing rapid development, with particular emphasis on the integration of cutting-edge technologies into the learning process, the enhancement of management systems, and the strategic planning of universities. It is imperative not only to adapt universities to digital changes but also to create new management models that meet the challenges of the digital economy.

In particular, the use of digital technologies in higher education is the focus of the research of L. A. Leiva, M. Matera, and J. Schöning, who concentrate on interactive technologies and mobile platforms as significant tools for enhancing access to learning materials and their integration into the educational process [1; 2]. Their research emphasises the role of human-computer interaction in providing an effective learning environment that meets modern requirements.

S. M. Yahodzynskyi and O. S. Karpliuk also emphasise the significance of digital interactive technologies in their works, observing that their implementation has the potential to substantially enhance the quality of education. They posit that such technologies facilitate individualised learning, a crucial aspect for contemporary students, and empower universities to develop more flexible and adaptive educational programmes [4; 5].

Research conducted by O. V. Sklyarenko, S.M. Yahodzynskyi, O. Y. Nikolayevskyi, and A. V. Nevzorov considers digital interactive technologies to be an integral part of the modern educational process, with the consequence that critical thinking in students is developed and the process of acquiring knowledge is improved [6]. The necessity of introducing the latest technologies that enable universities to maintain a high quality of education and meet the requirements of the modern labour market is emphasised by the authors.

O. O. Khomenko, M. V. Paustovska, and I. A. Onyshchuk have indicated the impact of interactive technologies on the development of higher education students, which contributes to increasing their involvement in the learning process and developing the necessary competencies for future professional activities [7]. The authors emphasise the pivotal role of interactive technologies in enhancing student motivation and optimising the learning process.

Strategic management is a pivotal component of the digital transformation of universities, ensuring their sustainability and competitiveness in the contemporary economic landscape. In particular, the article "Strategic Management Models for Digital Universities in the New Economy" states that for the effective management of digital universities, it is necessary to take into account various aspects, such as innovation potential and economic development models, which are important for adapting to modern economic conditions [8].

Recent research highlights the significance of incorporating digital technologies into the educational process, management activities, and development strategy of universities. The necessity for a comprehensive approach to digital transformation is emphasised, with the objective of ensuring a high level of quality education and enabling universities to maintain competitiveness on the global stage.

The **aim of the research** is to analyse the processes of digital transformation of universities, in particular, to identify the main directions and methods of introducing digital technologies into the educational process, as well as to develop practical recommendations for the effective integration of these technologies into the development strategy of universities.

The main material of the study. Contemporary research demonstrates that digitalisation has the capacity to instigate the emergence of a novel social order [9, p. 40]. The transformation of traditional economic relations is attributable to the idiosyncrasies of intellectual labour, which serves as the foundation for the innovation process. Digital technologies have the capacity to both accommodate these changes and establish new economic relations. This is particularly evident in the increasing share of intellectual labour in the gross domestic product, accelerated innovation development, and the global utilisation of digital products and networks, which gradually reveal the initial contours of a new socio-economic order.

The fundamental characteristic of a contemporary market economy is the presence of private property rights over economic goods, which serves as the underlying foundation for its operation. The generation and exchange of economic goods through the transfer of property rights constitutes the pivotal mechanism of this economic system. The formalisation of intellectual property rights through mechanisms such as patents and licensing facilitates the integration of knowledge into the economic landscape. The implementation of innovations in specific sectors of the real economy is instrumental in ensuring the development of society. In light of these considerations, the predominant economic agents, notably substantial enterprises and transnational corporations, are vigorously endeavouring to formalise property rights over novel knowledge and to regulate economic development processes in accordance with their interests. Statistical evidence indicates that European transnational corporations allocate up to 80% of the total research and development expenses in the industrial sector to this end, while in the United States, the figure stands at 74% [10].

However, according to the logic of the socio-economic analysis of the innovation process, transnational corporations will be able to remain the main owners of new knowledge only until a certain stage of development of the new social order. The basis of this order, predicated on digital technologies, is a form of ownership that cannot be owned by individual large corporations. This is collective ownership of the common knowledge resource that arises from the innovative activities and scientific achievements of society.

It is evident that knowledge is a commodity which, when consumed, does not result in its diminution; rather, it contributes to its augmentation, alongside the escalation in demand. Consequently, the restriction of access to knowledge through mechanisms of private property does not align with economic rationality. Instead, it is crucial

to promote its consumption, as this contributes to the augmentation of the social productive power of knowledge. Digital technologies have been shown to significantly accelerate this process, facilitating access to information from any multilingual source through digital translators, for example, without the need to know foreign languages.

In the contemporary context, the establishment of precise property rights, encompassing intellectual property, has become imperative in the context of traditional market relations. This paradigm shift is characterised by the advent of the digital economy and the concomitant transformation of economic relations. The traditional market system is being rendered obsolete by these developments, which are concomitant with the emergence of a new collective ownership of knowledge that supersedes private property. It is evident that knowledge represents the primary driving force, specifically universal knowledge, which can be regarded as a shared resource. The restriction of knowledge to the exclusive domain of an individual or a large corporation is an ineffective solution. These are nascent outlines of a new social order, not so much a technological as a social order, but they are already beginning to appear.

It is evident that established categories such as competition, capital, value, added value, productive forces and industrial relations are undergoing a process of re-evaluation. The scientific literature is already endeavouring to describe the future possible format and mechanism of economic relations within the new social order of the digital economy. Researchers have posited the notion of organising economic relations not through traditional market transactions but in the transactional field of interaction of all participants in the innovation process [11, p. 110]. Concurrently, it can be hypothesised that such transactional fields of interaction will be established with the assistance of digital technologies, when it becomes feasible to integrate the knowledge of all participants in the innovation process into a unified resource that is utilised, and to produce, exchange and distribute economic goods with the aid of a unified information and collective resource, within the context of collective ownership relations.

In many higher education institutions, the processes of digitalisation and the introduction of digital technologies have already proven their effectiveness, but to achieve higher rates of development, fundamental changes characterised by digital transformation are needed.

The digital transformation of education can be defined as the process of integrating digital technologies into educational activities. This is accompanied by radical changes in the processes, technologies, culture, methods, and principles of educational organisations.

The necessity to expedite the digital transformation of educational organisations is attributable to the threat of the deleterious impact of global competition in the higher education market [12, p. 720]. The advent of digital technologies, distance learning, proctoring, and other such innovations has effectively mitigated the physical distance between a university and its student body. The advent of digital technologies has effectively transcended geographical boundaries, enabling the pursuit of higher education from the comfort of one's own home, with comparable levels of success to studying in the host country [13;14]. It can thus be concluded that the geographical location of a university is now considered to be of equal importance. The quality of the content and, consequently, the educational process, the breadth and depth of the material offered for study, and the possibility of choosing an individual educational trajectory are certainly paramount.

The notion of a “digital university” can be defined as a set of regulatory and technological requirements that will be imposed on the organisation of the digital space of higher education institutions. In essence, a digital university can be defined as a set of technological and regulatory requirements for the university's digital environment.

In contradistinction to a conventional university, a digital university functions on the basis of big data, with extensive automation of economic, financial, and administrative activities, the implementation of electronic services that operate in a single window mode, and digital resources that facilitate the collaborative execution of research projects with scientists from other organisations and even countries [15;16]. The utilisation of electronic systems in the organisation of educational processes ensures the direct transfer of information, for example, in the form of online lectures, whilst also facilitating the monitoring of new knowledge acquisition. The analysis of diverse data, including academic performance and student interests, will facilitate the creation of a customized educational trajectory.

The proliferation of information has given rise to a concomitant demand for learning formats that facilitate collaboration between humans and artificial intelligence. In essence, the customisation of artificial intelligence for specific tasks enables the provision of intelligent systems that provide prompt advice and information support in decision-making.

It is important to emphasise that the digital transformation of education is not just about providing technological support for the educational environment. Digital transformation of education is a whole range of activities. Today, there are no old methods of teaching such as educator-student or educator-classroom. Today, education must become personalised through digitalisation and digital transformation. It is evident that by observing the learning process and the manner in which a student assimilates content, and by meticulously analysing the student's digital footprint, it becomes possible to ascertain which sections and disciplines the student has mastered with proficiency and which ones require further attention. On this basis, the educational process and/or content can be expeditiously adapted, and adequate recommendations can be provided. Consequently, the system will be capable of providing continuous support to a student throughout their entire academic journey. This enables the system to predict the learning outcomes and final marks of a student.

Digitalisation also makes it possible to predict the final outcome of a student's education. Digital footprints make it possible to see and predict the characteristics of each student.

From a theoretical and methodological standpoint, it is imperative to provide institutional support for the digital transformation of universities. A comprehensive and balanced development of all sectors of the economy and the higher education ecosystem is necessary. Digital technologies should be applied to effective processes of interaction between universities and enterprises, the investment sphere and innovation infrastructure, the labour market, and the innovation market. This implies a transition to a new scientific, technical, and social order in which digital technologies will dominate.

Conclusions. The findings of the research project indicated that the integration of digital technologies has a substantial impact on the structure and mechanisms of the educational process, as well as the management activities of higher education institutions. Specifically, the transition to digital learning has been demonstrated to contribute to increasing the efficiency of knowledge acquisition and adapting curricula to modern requirements. Digitalisation has led to a substantial expansion in the availability of educational materials, thereby overcoming geographical constraints and facilitating equitable access to education. This development has not only enhanced the quality of education but also bolstered its global competitiveness.

However, in order to ensure maximum effect of digital transformation, it is necessary to implement a comprehensive approach that includes the adaptation of not only educational but also management, scientific, and infrastructure processes of university activities. The provision of institutional support for digitalisation, in conjunction with the formulation of explicit strategies and models for the integration of digital technologies into all domains of university operations, constitutes the foundation for ensuring their sustainable development. In order to ensure the competitiveness of universities in today's globalised environment, it is essential that comprehensive support and systematic implementation of digital tools is provided.

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Natalia Bobro, Ph.D., Doctor of Philosophy, Director of the Digital Department European University, Director of the "NooLab & AI" Scientific Laboratory of the European University, Private Higher Education Establishment "European University". **Methodological features of the economy and universities' digital transformation and their applied tasks.**

The article analyses methodological approaches to the digital transformation of the economy and universities, in particular, the role of digital technologies in the development of the educational process and management activities of higher education institutions. It is determined that digitalisation is a key factor that affects economic, social and educational processes, which allows universities to provide a high level of training in the context of globalisation and the digital economy. The article discusses in detail the areas of digital transformation of universities, including the introduction of mobile platforms, interactive technologies and distance learning, which significantly improve access to educational materials and facilitate individualised learning. The paper also examines the challenges and opportunities faced by universities in the course of digitalisation, in particular the need to adapt curricula, management processes and research activities to new requirements. It determines the importance of strategic management in the context of digital transformation, which allows universities to effectively respond to the challenges of contemporary times and ensure their sustainable development.

Keywords: digital transformation, universities, digital technologies, digital university, digitalisation.

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Бобро Наталія Сергіївна, кандидат економічних наук, доктор філософії, директор Діджитал Департаменту Європейського університету, керівник наукової лабораторії "NooLab & AI" Європейського університету, Приватний вищий навчальний заклад «Європейський університет». **Методологічні особливості цифрової трансформації економіки та університетів і їх прикладні завдання.**

Стаття присвячена методологічним особливостям цифрової трансформації економіки та університетів, зокрема дослідженню процесів, пов'язаних з адаптацією закладів вищої освіти до цифрових технологій. Визначено, що цифровізація є одним із ключових факторів, що формують розвиток економічних, соціальних та освітніх процесів. Зокрема, цей процес є особливо актуальним для вищої освіти, де цифрові технології відкривають нові можливості для навчання, досліджень та управління університетами. Зазначається, що діджиталізація дозволяє університетам значно підвищити ефективність навчального процесу, сприяючи кращій підготовці фахівців, здатних працювати в умовах глобальної економіки, де цифрові технології відіграють домінуючу роль. У статті також розглянуто сучасний стан впровадження цифрових технологій в університетах, зокрема, технологій мобільних платформ, інтерактивних методів навчання, які значно покращують доступ до навчальних матеріалів та дозволяють інтегрувати їх у навчальний процес. Водночас зазначається, що використання таких технологій сприяє індивідуалізації навчання та адаптації освітніх програм до сучасних вимог студентів, а також дозволяє створювати більш гнучкі та адаптивні навчальні плани. Констатується, що перехід до цифрових форм управління дозволяє створити ефективну структуру організації наукової, освітньої та адміністративної діяльності, що сприяє вдосконаленню внутрішніх процесів та полегшує вза-

ємодію із зовнішніми стейкхолдерами. Водночас зазначено, що для забезпечення ефективності цифрової трансформації необхідно застосовувати нові методи стратегічного управління, які передбачають розробку та реалізацію довгострокових планів розвитку закладів вищої освіти з урахуванням використання цифрових технологій. Дослідження підтвердило, що діджиталізація змінює структуру освітнього процесу, сприяючи підвищенню якості освіти, зокрема шляхом адаптації освітніх програм до нових вимог та створення більш персоналізованих траєкторій навчання для студентів. Важливим аспектом є використання новітніх технологій для підвищення рівня управлінської ефективності університетів, зокрема через автоматизацію процесів та запровадження електронних сервісів для взаємодії зі стейкхолдерами. Висновки статті підтверджують важливість інтеграції цифрових технологій в усі аспекти діяльності університетів, що дозволяє не тільки підвищити ефективність навчального процесу, а й забезпечити конкурентоспроможність університетів у глобалізованому середовищі. Для цього необхідно впроваджувати комплексний підхід до цифровізації, що включає адаптацію освітніх, управлінських та наукових процесів університетів, а також створення відповідної інституційної підтримки для забезпечення сталого розвитку вищої освіти.

Ключові слова: цифрова трансформація, університети, цифрові технології, цифровий університет, діджиталізація.