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STRATEGY FOR SUSTAINABLE DEVELOPMENT OF A DIGITAL UNIVERSITY AS A RESEARCH AND EDUCATION CENTER OF INNOVATION

The article analyzes the strategy of sustainable development of a digital university as a center of research and innovation. It examines the transformation of higher education under the influence of digitalization, globalization, and changing market demands, emphasizing that university competitiveness depends on strategic resource management, development of dynamic competencies, and effective interaction with the external environment. The study substantiates the use of a resource-based approach and the concept of open innovation to strengthen the university's innovation capacity and integrate educational, scientific, and entrepreneurial activities. The importance of strategic leadership, teamwork, and a culture of openness for successful digital transformation and implementation of innovation-oriented development strategies is highlighted.

Keywords: digital university, digitalization, digital transformation, competitiveness, innovation activity.

Problem statement. In the 21st century, universities are undergoing profound transformations under the influence of digitalization, globalization of knowledge, and growing demands from society and the labor market. The traditional model of higher education, focused on knowledge transfer, is increasingly giving way to a new paradigm – the university as a research and education center of innovation, which is not only a source of knowledge but also an active participant in socio-economic development. At the same time, there is a growing need for a strategic approach to managing a higher education institution, which involves effective configuration of resources, development of intellectual capital, integration of innovative practices, and the ability to act in conditions of uncertainty.

Despite some achievements in this area, the domestic higher education system has not yet developed a unified model of strategic management of a digital university based on the principles of sustainable development, open innovation, and resource efficiency. The problem remains the low level of interaction between the scientific, educational, and entrepreneurial activities of universities, the lack of systematic work on the formation of dynamic abilities as the basis for institutional flexibility, and the fragmented implementation of digital management tools.

In the context of global challenges – digital transformation, changes in work formats, increased competition in the market of educational services – there is a need to develop a strategic model of the university's functioning as an adaptive, innovation-oriented organization capable of ensuring sustainable development, effective interaction with the external environment, and proactive updating of educational content according to the requirements of the knowledge economy. It is this problem that is the subject of the research within the framework of the proposed scientific article.

Analysis of recent research and publications. The problems of digitalization of the educational space, transformation of universities into research and innovation centers, and strategic management in the digital economy have gained wide scientific resonance. The works of domestic and foreign researchers, in particular A. Kozynets [1], A. Krap, S. Bataiev, N. Bobro, V. Kozub, N. Hlevatska [2], O.Yu. Stryzhak [3], consider approaches to the formation of the motivational, technological, and managerial environment of higher education in the context of digital transformation.

The issue of the impact of digital technologies on the educational process and the development of digital competence of higher education students has been studied in the works of O.O. Khomenko, M.V. Paustovska, I.A. Onyshchuk [4],



O.V. Skliarenko, S.M. Yahodzinskyi, O.Yu. Nikolaievskyi, A.V. Nevzorov [5]. They prove that digital tools help to increase interactivity and personalize learning.

The innovation activity of universities in the field of using artificial intelligence, digital avatars, and intelligent analytical systems in the educational process is revealed in the works of R. Hyshchuk, A. Strunhar, O. Bukovskyi, V. Alekseiko [6], as well as in the publications of S. Lysenko, K. Korsunova, O. Vasylchshyn, Y. Tatarchenko [7; 8], where the emphasis is placed on the security aspects of the use of AI and automation of digital services.

The digital efficiency of the latest approaches to the organization of the learning environment is analyzed in the works of Ya.O. Kolodinska, O.V. Skliarenko, and O.Yu. Nikolaievskyi [9], which highlight the practical aspects of the formation of innovative business ideas using digital services.

Research by A. Kozhyna [10], S. Kubiv, G. Lopushnyak, Y. Lenher, A. Kozhyna [11], H. Lopushnyak, O. Chala, O. Poplavska [12] outline strategic directions of inclusive development, institutional frameworks of innovation policy, and ecosystem approaches to sustainable development, which are extremely relevant in the context of rethinking the role of the digital university as an open innovation system.

In general, despite the existence of a significant body of work, modern scientific discourse has not yet sufficiently generalized approaches to the strategic management of a digital university based on resource efficiency, dynamic competencies, and the open innovation concept. Therefore, further research on strategic mechanisms for ensuring the sustainable development of higher education institutions as research and education centers of innovation in the context of digital transformation is relevant.

The aim of the article is to theoretically substantiate and structurally and functionally model the strategy of sustainable development of a digital university as a research and education center of innovation based on the principles of resource efficiency, open innovation, and integration of educational, scientific, and entrepreneurial activities.

Presentation of the main research material. Modern higher education functions as a competitive segment of the educational services market. The current competitive position of the university in this market is determined by a set of key indicators, such as national and international rankings, the level of attracting applicants, partnerships with businesses, and market share.

However, this position is also critically dependent on internal factors, including the quality of management, the amount and efficiency of resource use, and innovation potential.

A. Kozynets, in his research, emphasizes that the competitive advantages of organizations, in particular universities, are formed not only through the possession of resources but primarily through the ability to effectively configure and use available resources [1, p. 207]. This concept is the basis of the resource-based approach to strategic management.

Consideration of the strategic management of the university in the context of resource theory allows us to rethink the mission of a higher education institution as an innovative entity that not only responds to the challenges of the digital age but also forms new trajectories for the development of the educational and scientific space.

The concept of “strategic management” originated within the framework of economic theory, but at the present stage, it has become interdisciplinary. Its methods and approaches include elements of psychology, sociology, political science, cybernetics, etc. In this context, the positions of researchers who believe that it is necessary to consider strategic management in the field of socially important services – in particular in education – as an extension of the basic provisions of economic theory are fair [8, p. 9].

For the market sector, strategic management has already become a standard of functioning, but for institutions belonging to the state or public sector, such as universities, this approach is only gradually being integrated into the system of management practices [7, p. 49]. This requires the adaptation of strategic planning tools to the specifics of educational activity, in particular in the context of digital transformation.

The fundamental elements of the resource concept are: digital and non-digital resources and the efficiency of their use, scientific and educational products and services, as well as dynamic abilities and core competencies of the university. In the context of the intellectual capital management of a digital university, such branches of the resource concept as the concept of dynamic abilities and the concept of intellectual potential are of particular importance. Today, the resource concept is an independent area in the theory of strategic management. In this concept, a digital university can be viewed not just as a set of business processes, but as a unique set of resources and competencies that form its innovation capacity and competitive advantages (Figure 1).

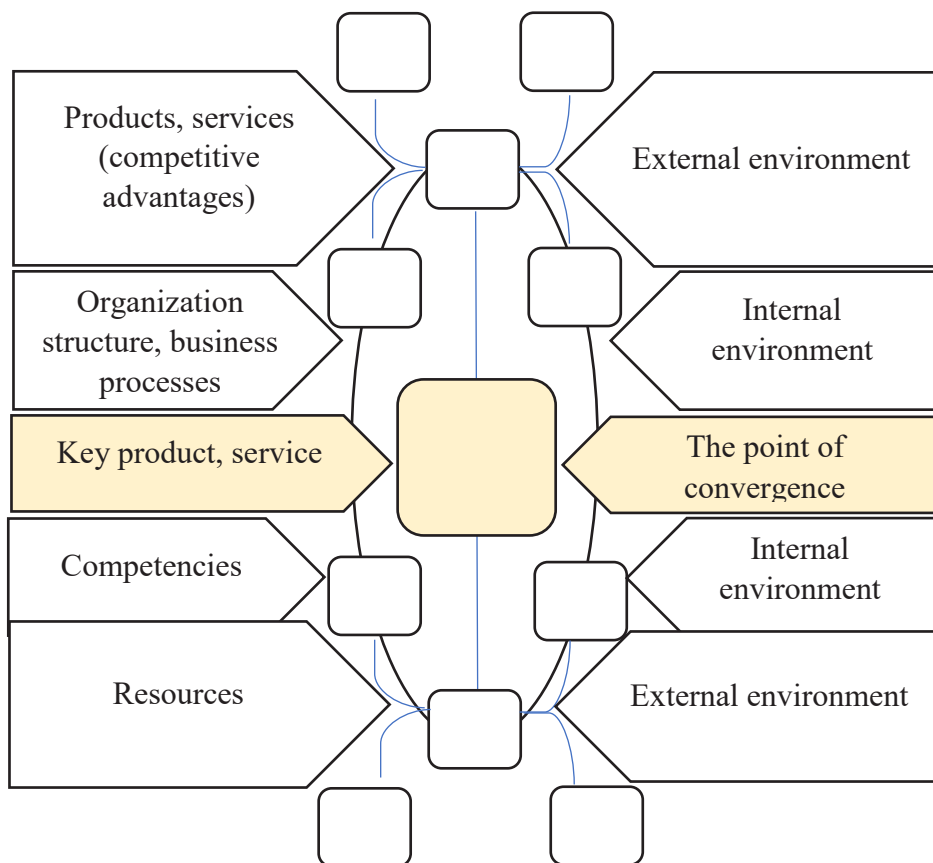


Figure 1. A model for transforming resources and competencies into products and services

Source: compiled by the author

The essence of the resource-based approach is that the basis of sustainable development of the organization is the managerial ability to strategically combine the internal capabilities of the university, formed on the basis of unique resources – human, methodical, methodological, and technical. The key source of competitive advantages is not so much the availability of resources as the ability to effectively configure them according to the challenges of the external environment and the organization's goals.

In this context, the main task of university management is to accumulate resources and form unique combinations of innovative processes through the modernization of educational activity, team development, systematic staff training, and training of change leaders. At the same time, it should be noted that not all management teams are able to transform available resources into sustainable competitive advantages.

The determining factors of the success of educational institutions in the modern market of educational services are the unity of strategic goals, a high level of internal cooperation of employees, as well as the leadership qualities of managers, their willingness and ability to act in conditions of constant transformation [1; 9; 12].

Universities that demonstrate high results in performance evaluation systems are usually distinguished by strong management teams capable of strategic thinking, digital management, and partnership development.

An obvious advantage of such universities is the deep integration of educational, research, and innovation activities. They successfully implement the open systems model, which is focused on active interaction with the external environment – business, government, civil society, and local and global stakeholders. An example of this is the open innovation concept, in which the university acts not only as a generator but also as a transmitter of innovations, including those from external sources.

In this model, a higher education institution becomes the center of an innovation ecosystem capable of accumulating, adapting, and scaling ideas, technologies, products, and solutions, including entrepreneurial initiatives of students and researchers. The concept of the “entrepreneur-innovator” developed by J. Schumpeter clearly illustrates the role of the university as an agent of transformation.

In recent years, there has been an increasing trend towards the implementation of the

open innovation model in the activities of universities [4, p. 1230]. The most successful of them use multi-level mechanisms for attracting external and internal sources of innovation – through the functioning of project offices, student innovation hubs, startup studios, technology parks, business incubators, collective access centers, “boiling points”, and other formats of open interaction.

In such a model, deep integration of educational and research and innovation activities is of key importance. This approach transforms the university into a dynamic adaptive system where knowledge is produced not only through its translation, but also through continuous interaction between academic programs, research, and innovative practice.

The model can be conventionally visualized as a system with two interconnected flows that have a common anchor point – knowledge exchange. The first flow is conventionally designated as “Money – knowledge – money” and reflects the logic of research and innovation activities that generate new knowledge. It is this knowledge that becomes the source for the second flow – “Money – knowledge – education – knowledge – money” – in which the educational process serves as a mechanism for transforming and distributing innovative content.

The central idea of the model is to prioritize science and innovation as the basis for the formation of modern educational programs that guarantee the proactive updating of the competence content of education according to the needs of society and the knowledge economy.

The presented model of open innovations is based on several key principles: the maximum effect is achieved in interdisciplinary teams formed at the intersection of scientific fields and departments because it is this interaction that contributes to the emergence of innovative ideas. The university should form a socially distributed scientific potential, involving various specialists – consultants, developers, analysts, practitioners, and theorists – that supports sustainable innovation dynamics in the educational environment. Research teams function most effectively in a non-hierarchical structure where cooperation is based on

initiative and shared values, creating a favorable environment for scientific creativity. Students should be not just participants but co-creators of the research and innovation process, optimally implementing research projects in teams that include mentors and students for the parallel generation and assimilation of knowledge.

Conclusions. Digital transformation and the globalization of knowledge require modern universities to move away from the traditional paradigm of mere knowledge transfer to become research and education centers of innovation. This new role implies active participation in socio-economic development and requires a strategic management approach that includes effective configuration of resources, development of intellectual capital, and integration of innovative practices. Despite certain achievements, the domestic higher education system has not yet developed a unified model of strategic management of a digital university based on the principles of sustainable development, open innovation, and resource efficiency. Problems remain in the low level of interaction between scientific, educational, and entrepreneurial activities, the lack of systematic work on the formation of dynamic capabilities as the basis for institutional flexibility, and the fragmented implementation of digital management tools.

The development and implementation of a strategic model for the functioning of the university as an adaptive, innovation-oriented organization is an urgent necessity in the context of global challenges. This model should ensure sustainable development, effective interaction with the external environment, and proactive updating of educational content according to the requirements of the knowledge economy. The key aspects of this model are the deep integration of educational and research and innovation activities, the formation of socially distributed scientific potential, the organization of research teams in non-hierarchical structures, and the active involvement of students as co-creators of the research and innovation process. This will enable universities not only to respond to the challenges of today but also to form new trajectories for the development of the educational and scientific space.

References

1. Kozynets, A. (2024) Motyvatsiine seredovyshche zakladiv vyshchoi osvity v systemi mizhnarodnykh porivnian [Motivational environment of higher education institutions in the system of international comparisons]. *Věda a perspektivy*, (12(43)). pp. 206–214. DOI: [https://doi.org/10.52058/2695-1592-2024-12\(43\)-206-214](https://doi.org/10.52058/2695-1592-2024-12(43)-206-214)
2. Krap, A., Bataiev, S., Bobro, N., Kozub, V., Hlevatska, N. (2024). Examination of digital advancements: Their influence on contemporary corporate management methods and approaches. *Multidisciplinary Reviews*, 7 (26). DOI: <https://doi.org/10.31893/multirev.2024spe026>

3. Stryzhak O. Yu. (2024) Digital university. Concept of creation. *Scientific Notes of Junior Academy of Sciences of Ukraine*, no. 2(27), pp. 70–79. DOI: <https://doi.org/10.51707/2618-0529-2023-27-08>
4. Khomenko O. O., Paustovska M. V., Onyshchuk I. A. (2024) Vplyv interaktyvnykh tekhnolohii na protses navchannia i rozvytok здобувачів вищої освіти [The impact of interactive technologies on the learning process and the development of higher education applicants]. *Naukovi innovatsii ta peredovi tekhnolohii – Scientific Innovations and Advanced Technologies*, no. 5 (33), pp. 1222–1231. DOI: [https://doi.org/10.52058/2786-5274-2024-5\(33\)-1222-1231](https://doi.org/10.52058/2786-5274-2024-5(33)-1222-1231)
5. Skliarenko O. V., Yahodzynskiy S. M., Nikolaievskiy O. Yu., Nevzorov A. V. (2024) Tsyfrovi interaktyvni tekhnolohii navchannia yak nevid'iemna skladova suchasnoho osvithnoho protsesu [Digital interactive learning technologies as an integral component of the modern educational process]. *Innovatsiina pedahohika – Innovative Pedagogy*, no. 68 (2), pp. 51–55. DOI: <https://doi.org/10.32782/2663-6085/2024/68.2.51>
6. Bobro N., Hyshchuk R., Strunhar A., Bukovskyi O., Alekseiko V. (2024) Exploring the role of AI in shaping future marketing strategies: evaluations and outlooks. *Amazonia Investiga*, vol. 13 (80), pp. 43–53. DOI: <https://doi.org/10.34069/AI/2024.80.08.4>
7. Lysenko S., Bobro N., Korsunova K., Vasylchyshyn O., Tatarchenko Y. (2024) The Role of Artificial Intelligence in Cybersecurity: Automation of Protection and Detection of Threats. *Economic Affairs*, vol. 69 (Special Issue), pp. 43–51. DOI: <https://doi.org/10.46852/0424-2513.1.2024.6>
8. Bobro N. (2025) Use of digital avatars in the learning process as a factor of economic efficiency. *International Scientific Conference “Economic Transformation in the Context of Global Challenges: Current Issues” : Conference Proceedings (February 7–8, 2025, Klaipeda, Lithuania)*, pp. 7–10. DOI: <https://doi.org/10.30525/978-9934-26-529-7-3>
9. Kolodinska Ya. O., Skliarenko O. V., Nikolaievskiy O. Yu. (2022) praktychni aspekty rozrobky innovatsiinykh biznes-idei z vykorystanniam tsyfrovyykh servisiv [Practical aspects of innovative business idea development using digital services]. *Ekonomika i upravlinnia – Economics and Management*, no. 4, pp. 53–60. DOI: <https://doi.org/10.36919/2312-7812.4.2022.53>
10. Kozhyna A. (2022) Reducing poverty, inequality and social exclusion in European countries based on inclusive approaches to economic development. *Economics and Management of the National Economy. The Crisis of National Models of Economic System*, pp. 29–32. DOI: <https://doi.org/10.30525/978-9934-26-269-2-7>
11. Kubiv S. I., Bobro N. S., Lopushnyak G. S., Lenher Y. I., Kozhyna A. (2020) Innovative potential in European countries: analytical and legal aspects. *International Journal of Economics and Business Administration*, 8 (2), pp. 250–264. DOI: <https://doi.org/10.35808/ijeba/457>
12. Lopushnyak H. N., Chala O., Poplavska O. (2021) Socio-economic determinants of the ecosystem of sustainable development of Ukraine. *IOP Conference Series: Earth and Environmental Science*, vol. 915 (1), pp. 1–9. DOI: <https://doi.org/10.1088/1755-1315/915/1/012019>

Бібліографічний список

1. Козинець, А. Мотиваційне середовище закладів вищої освіти в системі міжнародних порівнянь. *Věda a perspektivy*, 2024. (12(43)). С.206–2014. DOI: [https://doi.org/10.52058/2695-1592-2024-12\(43\)-206-214](https://doi.org/10.52058/2695-1592-2024-12(43)-206-214)
2. Krap, A., Bataiev, S., Bobro, N., Kozub, V., Hlevatska, N. Examination of digital advancements: Their influence on contemporary corporate management methods and approaches. *Multidisciplinary Reviews*, 2024. 7 (26). DOI: <https://doi.org/10.31893/multirev.2024spe026>
3. Стрижак О.Ю. Digital university. Concept of creation. *Scientific Notes of Junior Academy of Sciences of Ukraine*. 2024. № 2(27). С. 70–79. DOI: <https://doi.org/10.51707/2618-0529-2023-27-08>
4. Хоменко О. О., Паустовська М. В., Онищук І.А. Вплив інтерактивних технологій на процес навчання і розвиток здобувачів вищої освіти. *Наукові інновації та передові технології*. 2024. № 5 (33). С. 1222–1231. DOI: [https://doi.org/10.52058/2786-5274-2024-5\(33\)-1222-1231](https://doi.org/10.52058/2786-5274-2024-5(33)-1222-1231)
5. Складенко О.В., Ягодзінський С.М., Ніколаєвський О.Ю., Невзоров А.В. Цифрові інтерактивні технології навчання як невід'ємна складова сучасного освітнього процесу. *Інноваційна педагогіка*. 2024. № 68 (2). С. 51–55. DOI: <https://doi.org/10.32782/2663-6085/2024/68.2.51>
6. Bobro N., Hyshchuk R., Strunhar A., Bukovskyi O., Alekseiko V. Exploring the role of AI in shaping future marketing strategies: evaluations and outlooks. *Amazonia Investiga*. 2024. Vol. 13(80). P. 43–53. DOI: <https://doi.org/10.34069/AI/2024.80.08.4>.
7. Lysenko S., Bobro N., Korsunova K., Vasylchyshyn O., Tatarchenko Y. The Role of Artificial Intelligence in Cybersecurity: Automation of Protection and Detection of Threats. *Economic Affairs*. 2024. Vol. 69 (Special Issue). P. 43–51. DOI: <https://doi.org/10.46852/0424-2513.1.2024.6>
8. Bobro N. Use of digital avatars in the learning process as a factor of economic efficiency. *International Scientific Conference “Economic Transformation in the Context of Global Challenges: Current Issues” : Conference Proceedings (February 7–8, 2025, Klaipeda, Lithuania)*. P. 7–10. DOI: <https://doi.org/10.30525/978-9934-26-529-7-3>
9. Колодінська Я.О., Складенко О.В., Ніколаєвський О.Ю. Практичні аспекти розробки інноваційних бізнес ідей з використанням цифрових сервісів. *Економіка і управління*. 2022. № 4. С. 53–60. DOI: <https://doi.org/10.36919/2312-7812.4.2022.53>

10. Kozhyna, A. Reducing Poverty, Inequality and Social Exclusion in European Countries. Based on Inclusive Approaches to Economic Development. *Economics and Management of The National Economy, The Crisis of National Models of Economic System*, 2022. Pp. 29–32. DOI: <https://doi.org/10.30525/978-9934-26-269-2-7>
11. Kubiv S.I., Bobro N.S., Lopushnyak G.S., Lenher Y.I., Kozhyna A. Innovative potential in European countries: analytical and legal aspects. *International Journal of Economics and Business Administration*, 8 (2), pp. 250–264. DOI: <https://doi.org/10.35808/ijeba/457>
12. Lopushnyak, H. N. Chala, O. Poplavska. Socio-economic determinants of the ecosystem of sustainable development of Ukraine. *IOP Conf. Series: Earth and Environmental Science*, 2021. 1. C. 1–9. DOI: <https://doi.org/10.1088/1755-1315/915/1/012019>

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СТРАТЕГІЯ СТАЛОГО РОЗВИТКУ ЦИФРОВОГО УНІВЕРСИТЕТУ ЯК НАУКОВО-ОСВІТНЬОГО ЦЕНТРУ ІННОВАЦІЙ

У статті здійснено комплексний теоретико-методологічний аналіз стратегії сталого розвитку цифрового університету як науково-освітнього центру інновацій. Акцентовано на актуальності переосмислення традиційних моделей функціонування вищої школи в умовах цифрової трансформації, зростання глобальної конкуренції та запитів суспільства до якості освіти і рівня інтеграції інноваційних технологій у навчальний процес. Визначено, що ключовим чинником конкурентоспроможності університету у XXI столітті виступає його здатність до стратегічного управління власними ресурсами, формування динамічних компетенцій і активна взаємодія з екосистемою зовнішніх партнерств. Обґрунтовано доцільність застосування ресурсного підходу у стратегічному управлінні, що передбачає оптимізацію використання кадрових, методичних, технічних та організаційних активів університету з метою забезпечення його інноваційної спроможності. У дослідженні розкрито зміст концепції відкритих інновацій, яка дозволяє університетам не лише генерувати власні наукові результати, а й виступати інтеграторами знань, технологій та підприємницьких ініціатив у межах багаторівневої освітньо-наукової екосистеми. Особливу увагу приділено моделюванню механізмів інтеграції освітньої, наукової та інноваційної діяльності, що забезпечують сталий розвиток університету, підвищення його ролі у формуванні інтелектуального капіталу та створенні сприятливих умов для розвитку людського потенціалу. Висвітлено роль стратегічного лідерства, командної взаємодії та формування культури відкритості до змін як визначальних чинників ефективної цифрової трансформації. У межах статті проаналізовано сучасні наукові підходи до управління цифровим університетом, визначено структурно-функціональні компоненти моделі сталого розвитку, а також окреслено практичні рекомендації щодо впровадження ресурсоефективних та інноваційно-орієнтованих стратегій. Отримані результати дозволяють поглибити розуміння механізмів стратегічного управління вищими навчальними закладами в умовах цифрової доби й можуть бути використані для удосконалення політики розвитку університетів у національному та міжнародному контексті.

Ключові слова: цифровий університет, діджиталізація, цифрова трансформація, конкурентоспроможність, інноваційна діяльність.

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