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**STRATEGIC MANAGEMENT
OF THE UNIVERSITY'S ECONOMIC SUSTAINABILITY****СТРАТЕГІЧНЕ УПРАВЛІННЯ
ЕКОНОМІЧНОЮ СТІЙКІСТЮ УНІВЕРСИТЕТУ**

Summary. The article is devoted to the strategic management of universities' economic sustainability in the context of digital transformations. The study examines the main approaches to ensuring the economic sustainability of higher education institutions, which are particularly relevant in the era of globalization and technological change. The impact of digitalization on university management processes is analyzed, focusing on the integration of advanced technologies, resource optimization, and increased financial efficiency. The role of digital tools in reducing the costs of educational services, improving management processes, and enhancing the competitiveness of universities is explored. A comprehensive model of strategic management of economic sustainability is proposed, encompassing financial flow assessment, cost management, investment analysis in digital technologies, and their integration into university development strategies. The model aims to enhance resilience to economic challenges, ensure stability, and increase competitiveness in the educational services market.

Keywords: economic sustainability, digitalization of universities, strategic management, financial sustainability, digitalization.

Анотація. Стаття розглядає проблеми стратегічного управління економічною стійкістю університетів у контексті цифрових трансформацій. У роботі аналізуються основні фактори, що впливають на економічну стійкість вищих навчальних закладів, зокрема впровадження цифрових технологій та їх роль у забезпеченні ефективності управлінських процесів. Особлива увага приділяється питанням адаптації університетів до цифрової економіки, оптимізації ресурсного забезпечення та впровадженню інноваційних підходів до управління фінансовими потоками. На основі проведеного аналізу пропонується комплексна модель стратегічного управління економічною стійкістю університетів, що враховує сучасні технологічні зміни. Стаття є важливим внеском у розробку методичних рекомендацій для підвищення конкурентоспроможності та стійкості університетів в умовах цифрових трансформацій. Стаття присвячена актуальним питанням стратегічного управління економічною стійкістю університетів в умовах цифрових трансформацій. У статті досліджено основні підходи до забезпечення економічної стійкості закладів вищої освіти, яка стала особливо важливою в умовах глобалізації та швидких технологічних змін. Особливу увагу приділено впливу цифровізації на управлінські процеси університетів, включаючи інтеграцію новітніх технологій у навчальний процес, оптимізацію ресурсів та підвищення фінансової ефективності. Проаналізовано роль цифрових інструментів у зменшенні витрат на освітні послуги, покращенні управлінських процесів та підвищенні конкурентоспроможності університетів у глобальному освітньому просторі. У статті систематизовано сучасні підходи до оцінки економічної стійкості університетів, зокрема фінансові, ресурсні, ринкові та витратні підходи, які є основними інструментами ефективного управління закладами вищої освіти. Наведено приклади застосування цих підходів на практиці, що дозволяє університетам адаптувати свої стратегії до змін економічного середовища. Встановлено, що для досягнення високої економічної стійкості необхідно використовувати інтегрований підхід, який поєднує оптимізацію внутрішніх ресурсів, інвестиції в інноваційні технології та диверсифікацію фінансових джерел. Зокрема, цифровізація університетів виявляється важливим чинником підвищення ефективності управлінських процесів і забезпечення стійкості фінансових потоків. Інтеграція цифрових платформ і інструментів у навчальний процес відкриває нові можливості для надання освітніх послуг, забезпечуючи доступ до якісної освіти для ширшого кола студентів, зокрема завдяки онлайн-курсам та дистанційному навчанню. Водночас необхідність адаптації університетів до цифрової

економіки вимагає розробки нових моделей управління, які поєднують інноваційні технології з традиційними методами фінансового та ресурсного менеджменту. У статті зазначено, що цифрові інструменти не лише підвищують ефективність освітнього процесу, але й сприяють розвитку інноваційних методів викладання, які відповідають вимогам сучасного ринку праці. Розроблено та описано комплексну модель стратегічного управління економічною стійкістю університетів, яка враховує цифрові трансформації та необхідність інноваційного розвитку. Модель включає оцінку фінансових потоків, управління витратами, аналіз ефективності інвестицій у цифрові технології та інтеграцію цих технологій у стратегії розвитку університетів. У результаті впровадження цієї моделі університети можуть суттєво підвищити свою стійкість до економічних шоків, забезпечити довгострокову стабільність і конкурентоспроможність на ринку освітніх послуг.

Ключові слова: економічна стійкість, цифровізація університетів, стратегічне управління, фінансова стійкість, діджиталізація.

Problem statement. In today's world, characterized by globalization, rapid technological change, and uncertainty in the economic environment, the issue of universities' economic sustainability is becoming increasingly important. In particular, given the rapid introduction of digital technologies in the educational process, the digitalization of universities is becoming a key factor affecting their economic sustainability and competitiveness. In the context of dynamic changes in the technological environment, universities are facing new challenges, including the need to adapt to digital transformations, integrate the latest technologies into the learning process, and ensure the sustainable development of organizational structures.

The digitalization of higher education creates new opportunities to improve the efficiency of management processes, reduce the expenses of educational services, and ensure access to quality education on a global scale. However, to ensure the economic sustainability of universities, it is important not only to implement digital tools but also to integrate them into university management strategies, focusing on long-term economic goals.

At the same time, the problem of universities' digitalization is related to the need to ensure an optimal balance between investment in technology, efficiency of its implementation, and economic sustainability. In this context, it is important to develop new approaches to the strategic management of the university's economic sustainability that take into account the impact of digital transformations on resources, financial flows, organizational structure, and competitiveness of the higher education institution.

Analysis of recent research and publications.

Research in the field of strategic management of the university's economic sustainability reveals various approaches and tools used to assess and improve the financial sustainability of higher education institutions. The term "economic sustainability" is considered in the context of the ability of universities to effectively manage financial flows, adapt to changes in the external environment, and ensure the stability of their resources in the long term.

The scientific works of T. Copeland, D. Norton, and R. Kaplan reveal the relevance of strategic

management of financial flows, in particular through the adaptation of methods for assessing business sustainability to the conditions of university functioning [1; 2]. In particular, T. Copeland suggests using financial models to predict the sustainability of universities' cash flows, which is key to strategic planning and ensuring their development in the context of globalization and market competition [1, p. 103].

At the same time, D. Norton and R. Kaplan developed the concept of balanced indicators, which is used in university management for a comprehensive assessment of performance, including financial, educational, and social aspects [2, p. 88]. This model allows to integrate various parameters that determine the university's sustainability, which is important for the formation of strategic decisions in a competitive environment.

Particular attention to the issue of universities' economic sustainability is paid by S.M. Yahodzytskyi and O.S. Karpliuk, who propose an approach that emphasizes the importance of optimizing the resource provision of universities. They prove that effective management of resources (financial, human, material) is the basis for the competitiveness of universities in the modern economic environment [3; 4].

The role of funding source diversification in ensuring the universities' economic sustainability is also actively considered in the scientific literature. Recent research confirms that to reduce dependence on state funding, it is important to attract extra-budgetary funds, grants, and efficient use of income from the provision of educational services [5; 6]. Such strategies help ensure the universities' financial sustainability, especially in times of economic and political crises.

In addition, an important area of research is the development of flexible pricing models for educational services that allow universities to adapt to changes in the market environment and maintain their financial sustainability. Taking into account such factors as demand for educational services, market competition, and government policy in the field of education are important conditions for determining the cost of education and ensuring the university's economic sustainability in the long term [7, p. 43].

In general, based on the analysis of recent research, it can be argued that the strategic management of universities' economic sustainability is a complex process that involves the integration of market, resource, financial, and cost approaches. They should work in close cooperation to ensure the universities' financial sustainability, increase their competitiveness, and adapt to changes in the external environment.

The purpose of the article. The aim of this research is to develop theoretical and methodological approaches to the strategic management of universities' economic sustainability in the context of digital transformations. In particular, the research is aimed at identifying key factors that affect the economic sustainability of higher education institutions, analyzing their relationship with digital technologies, and developing a comprehensive model for managing economic sustainability, including the integration of innovative technologies into the financial and resource strategies of universities.

Summary of the main research material. The classical approach to defining the subject of educational economics states that this process can be defined as the activity of people in the provision of educational services in the conditions of using limited resources and comparing the expenses incurred with the achieved result [8, p. 30].

The scientific literature also presents attempts to develop a fundamental approach to managing the university economy, which is considered not as one of the management functions, but as an integral part of the strategic management of a university [9, p. 110]. These approaches are closely related to the tasks of managing economic and financial sustainability and can be classified into five main groups (Table 1).

The five presented areas are not isolated from each other but rather represent a system of complementary methodological approaches and tools since all of them are economic relations of economic agents

regarding the distribution, use, and exchange of limited resources to achieve the best result.

Different approaches to building the economy of higher education institutions focus not only on different elements of the economy of educational systems in general but also on different aspects of economic and financial sustainability. Therefore, in the process of university management, these approaches are not isolated from each other but are closely interconnected and interdependent. Providing the optimal state of financial flows, the university management allocates resources between university processes in the best way, which contributes to improving the quality of education and achieving the most competitive position. This, in turn, leads to an increase in demand for the university's educational services, and therefore to an increase in financial flows.

The interrelation of approaches is also due to their complementary nature in terms of the range of problems to be solved in the context of the main stakeholders' interests. The logic of public authorities is most consistent with the market approach, employers – with the cost approach, heads of higher education institutions – with the resource approach, founders – with the financial approach, and the approach focused on determining the level of economic security of the educational system is closest to the heads of universities, and research and teaching staff.

Regardless of the specifics of the approach, a common invariant is the recognition of the importance of the following tasks: managing the cost of educational services and the economics of the educational program.

The main aspects of the strategic management of the university economy are: the method of cost accounting and the method of cost calculation, identification of cost drivers and accounting objects, pricing methodology, and financial structure

Table 1 – Five approaches to building the economy of higher education institutions

Approach	Approach description	Stakeholders whose logic is closer to this approach
Market approach	The essence is to determine the impact of the education sector on the economy of the country and the region, analyzing the demand and supply in the labor market.	State and regional authorities
Resource approach	The aspects of ensuring the competitiveness of the educational system and its components are studied, based on the statement that universities with more resources will be more competitive.	Heads of higher education institutions
Financial approach	Financial flow management, their organization, issues of maximizing efficiency, sources of income, mechanisms for attracting new income, and optimizing existing ones are studied.	Founders
Transformational approach	Aimed at determining the level of economic security of the educational system and its elements.	Heads of HEIs and researchers
Cost approach	Aimed at assessing the cost of the educational process and calculating all stages and processes of training a qualified specialist.	Employers

Source: compiled by the author based on [1; 10; 11]

(including the definition of management entities), but the main thing is the correct goal setting for the management system.

The issue of the cost of educational services is important, as, despite universities' desire to attract additional resources, the issue of cost will always be relevant, particularly in the face of competition from digital EdTech platforms. This increases pressure on the quality of education and economic sustainability of universities.

It is also important to keep in mind that the level of state funding is determined by a single regulatory method. For many universities, the issues of state and extra-budgetary funding are identical, although the proportions vary. Operationally, the cost of an educational service means the university's expenses are aimed at providing certain items of expenses for the preparation and implementation of educational programs per student [12, p. 8].

Important issues in cost calculation include: determining the basis for allocating indirect expenses, identifying factors that directly affect demand, and the multiplicity of factors that affect the cost of education, including specialty, field of study, terms and forms of education, classroom load, etc. With the development of digitalization, it is also necessary to take into account learning technologies and the level of electronic information resources.

The costs per graduate should include not only the direct implementation of the educational program but also the expenses for additional activities: open lectures, contests, competitions, conferences, etc. The

most commonly discussed methods of calculating student costs are as follows (Figure 1).

It should be noted that each method has its limitations. The direct calculation method is too labor-intensive even for a small university. The cost summation method, where direct expenses for individual stages of service provision for all years of study are summed up, cannot be fully implemented in practice due to the complexity of the accounting system. The proportional cost distribution method is often used in combination with direct calculation of the workload of academic and teaching staff and is quite suitable for taxation and pricing, but is not suitable for cost reduction tasks. The normative method is attractive, but it requires a solution to the issue of what is the norm of the process in a higher education institution that is in the process of transformation.

The combined method combines the advantages and disadvantages of the previous ones. Higher education institutions regularly perform full cost calculation, acting similarly in two stages. First, conditionally direct expenses associated with the educational program are collected: the payroll of the academic and teaching staff with deductions, the purchase of reagents, consumables, educational literature, internship costs, as well as conditionally incidental expenses that are also directly related to the educational process. Second stage: payroll of employees not directly involved in the educational program (management and support staff), maintenance of immovable property, etc. [10, p. 720]. However,

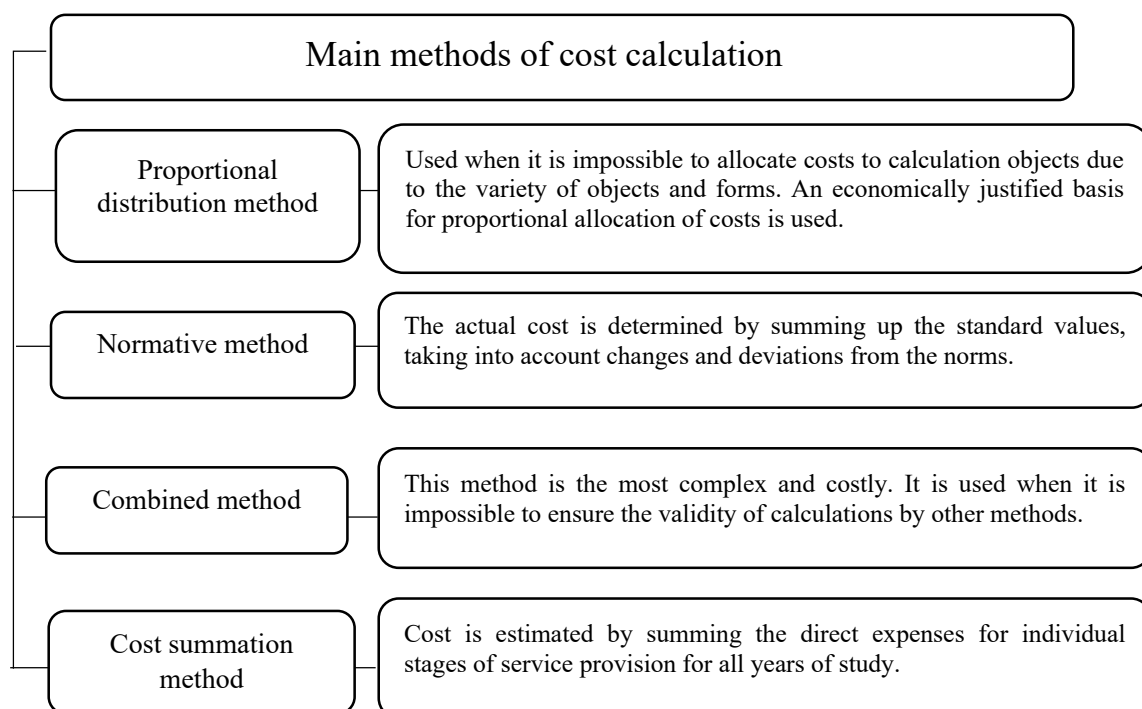


Figure 1 – Methods of cost calculation

Source: compiled by the author based on [13; 14]

today there are no examples of significant cost reductions due to these calculations, and the practice of internal university cost rationing remains limited.

As we have already emphasized, in the context of digitalization, when calculating the cost of learning technologies, it is also necessary to take into account the share of electronic resources used. However, the introduction and use of electronic resources should be supported by flexible labor standards for academic and teaching staff, which, when using modern technologies, provide for time spent on their maintenance, including additional individual work with students, with the prospect of switching to labor accounting based on student educational results.

The introduction of the Internet of Things (IoT) actualizes the development of practices for calculating

individual costs for students, although this task has always arisen when students renew and transfer from other areas or universities, as well as when entering based on additional vocational education and secondary vocational education. A simple calculation principle based on an educational unit of enrollment is optimal (Figure 2). It is important to remember that this approach is appropriate provided that the average cost of enrollment units that a student must master is equal to the average cost of enrollment units in the educational program.

This model is partially based on the approach proposed by T. Copeland, which is used to assess the prospects for cash flow sustainability and business value management, but we have revised, supplemented, and adapted it for universities [1].

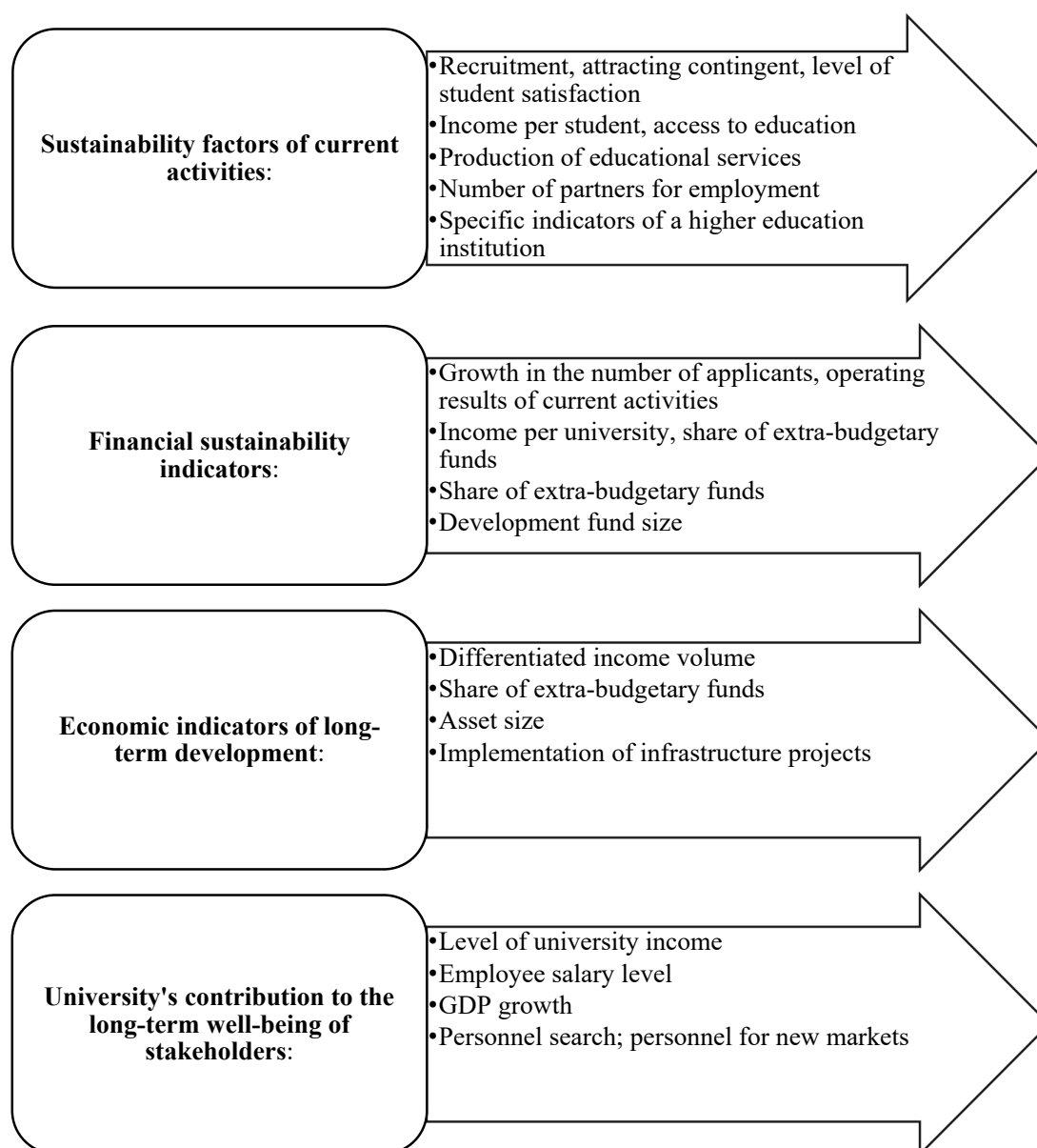


Figure 2 – A complex system of measurable goals for achieving the university's economic sustainability

Source: compiled by the author based on [1; 2]

The model is not a substitute for approaches based on the balanced indicators proposed by D. Norton and R. Kaplan [2], since it can be used to build a complete balanced indicators card based on the subject matter (a full set of strategic goals).

Within the proposed approach, a variety of existing economic characteristics and tasks are grouped into four areas:

- factors (drivers) of current activity sustainability related to both the development of internal processes and external activities of the university aimed at increasing competitiveness;
- financial sustainability indicators, preferably current or medium-term;
- economic objectives and – indicators of long-term development;
- the university's contribution to the long-term well-being of stakeholders.

When formulating an approach to economic goal setting, we often use the term “driver”, understanding it more narrowly than a factor. As a driver of income or expenses, we consider phenomena and facts, the size of which obviously affects the indicators of income and payments, and often this dependence can be expressed as a function.

Let us consider the factors of current activity sustainability (the first group of indicators). First of all, this group is formed through the selection of revenue drivers and performance indicators. As substantiated above, the current sustainability of the university is determined by the ability of the economy of higher education institutions to balance revenues and payments. For most universities, the main source of revenue is tuition fees, the growth of which depends on the decisions of families to enroll in a particular university, including in the international market; on the university's ability to obtain a state assignment, primarily for major educational programs. A university can count on cash flow from higher education programs to the extent that it is competitive in the struggle for the direct consumer – the applicant and their family, for the trust of regional authorities and employers.

Goals and indicators of current financial sustainability (the second group of indicators). The consensus parameter for preserving and developing the set of drivers of the first group is the diversification of revenue sources. Successful universities focus their strategies not only on increasing revenues but also on their diversification. In the mid-term period, diversification of sources can be realized in two directions: budget and extra-budgetary revenues.

Economic indicators of long-term development (the third group). The goals of long-term economic development are aimed at both the university's resilience to shocks (diversification by types of economic activity, size of the endowment fund) and increasing economic scale (implementation

of infrastructure projects, discounted amount of income).

University's contribution to the long-term well-being of stakeholders (the fourth group). For the first time, it is proposed to accept the university's contribution to the economic well-being of external and internal stakeholders as a long-term strategic goal of economic development. A mandatory requirement of our approach is to include all stakeholder groups in the group of long-term indicators of interest.

Therefore, as a result of the theoretical approaches analysis to the economic foundations of the functioning of the higher education institutions economy and comparison of expert positions, the problems, and limitations of cost calculation of higher education services were identified. The article presents a methodological rule for the distribution of intra-university expenses – “expenses follow income, and cost follows price”.

Based on the analysis, “a comprehensive system of measurable goals for achieving the university's economic sustainability” methodological approach was developed, which includes grouping economic characteristics and tasks in four areas. This allows to focus the university's activities on increasing economic sustainability and lays down tasks that strengthen the university's competitiveness in the set of goals.

Conclusions. As a result of the research, it was established that the universities' economic sustainability is an important factor in their long-term development and competitiveness in the context of global changes. The digitalization of universities is a key driver of change, as it helps to optimize management processes, reduce the expense of educational services, and increase access to education. The introduction of the latest digital technologies not only improves the efficiency of the educational process but also creates new opportunities for the development of innovative educational forms and models that meet the requirements of the modern labor market.

In addition, an important component of the university's economic sustainability is the integrated management of financial flows, resources, and investments. Different approaches, including financial, resource, and cost approaches, should be integrated into a single university management strategy. This allows to ensure the efficient use of resources, reduce dependence on state funding, and improve the overall economic sustainability of a higher education institution. Strategic financial management, which takes into account not only internal but also external factors, is an important condition for ensuring the high economic sustainability of universities.

As part of the research, a comprehensive model of strategic management of the university's economic

sustainability was also developed, including a combination of innovative technologies, analysis of financial flows, and strategic resource planning. This model is an effective tool for universities seeking to adapt to a changing environment, improve their

competitiveness, and ensure sustainable development in the digital economy. Implementation of this model will not only increase economic sustainability but also develop innovative approaches to higher education management in the context of digitalization.

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