Development of a methodology for assessing the effectiveness of business processes and sustainable development of a higher educational institution

Irina Kudryavtseva¹, Irina Pocebneva¹* and Oksana Kurakova²

¹ Voronezh State Technical University, 394006 Voronezh, Russia, ² Moscow State University of Civil Engineering, 129337 Moscow, Russia

Abstract. The article develops a mechanism for the formation of a system of indicators that allows to ensure the effectiveness of the university in the context of digital transformation and further sustainable development. In general, the process of developing indicators of efficiency of the activities of structural units of the university and their distribution by levels of responsibility is presented. The concept of forming the target model of the university is proposed, which allows for the transition to the model of a digital university with taking into account the impact on the social and business environment of the institution that will occur as a result of the transformation.

1 Introduction

At present, new rapidly changing requirements are imposed on the higher education system. It is not enough for a university to conduct only educational activities. It is necessary to conduct scientific research, solve frontier problems, engage in educational work and youth policy, fulfill the third mission, that is, contribute to the socio-economic development of the region and the country, to the development of the education system as a whole. At the same time, educational organizations are closely monitored by state authorities that perform the functions of the founder, and control and supervisory bodies.

The university goes through a large number of reports and monitoring requests that characterize the image and digital portrait of the organization. Universities are presented with a fairly wide list of indicators that it must meet. Universities face a large number of tasks, the implementation of which requires the joint efforts of all structural divisions of the university. In such conditions, it is necessary to evaluate the effectiveness and efficiency of the work not only of the university as a whole, but also of its structural divisions, as well as individual personalities, such as the vice-rector's corps, faculty, administrative, managerial and educational support staff. They ensure the continuous functioning of the organization and ensure the effectiveness of its work (Fig. 1) [1-3].

* Corresponding author: ipocebneva@vgasu.vrn.ru

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).
2 Materials and methods

In the context of the presented mechanism, the key concepts are "efficiency" and "effectiveness". The concept of "efficiency" is interpreted in studies in a very diverse way. There are economic (economic), budgetary, social, commercial (financial), technical, functional and other types of efficiency [4,5].

Common to the definitions of efficiency is the focus on the ratio of costs and benefits, which may be different in structure and content for each of the participants, for different types of management systems and projects [6-8].

GOST ISO 9000-2015 "Interstate standard. Quality management systems. Basic provisions and vocabulary" interprets the concept of efficiency (efficiency) as the ratio between the achieved result and the resources used, and effectiveness (effectiveness) as the degree of implementation of the planned activities and the achievement of the planned results [9]. GOST R ISO 10014-2008 "Organization Management. Guidelines for achieving an economic effect in the quality management system" identifies the effect as a result of improving the organization's activities [10-12].

The analysis of scientific sources allows us to conclude that in relation to organizations of the social sphere and, specifically, to educational organizations, the concept of "efficiency" remains the subject of discussion [13]. It should be noted that there is a clear problem of confusion between the concepts of "effectiveness" and "efficiency", "quality of performance" and "efficiency". There are no differences in the understanding of effectiveness, as the ability to obtain the planned immediate results, and efficiency, as the ability to come closer or less
to achieving the final effects, that is, the key goals of the activity, due to the results obtained [14-16].

In this paper, efficiency will be understood as the ratio between the result achieved and the resources used (not necessarily financial or material, but for example, physical, time, etc.). Performance will be understood as the degree of implementation of the planned activities and the achievement of the planned goals.

That is, to assess the effectiveness and effectiveness of the university as a whole and its individual structural divisions and personalities in particular, it is necessary to apply a criteria-based integral assessment of the results of their activities. Hence the need to form a list of indicators and criteria for their evaluation. At the same time, the assessment system should be dynamic and quickly adaptable to various changes in both external conditions and requirements, and the internal policy of the educational organization. In such an integrated assessment, financial performance indicators should purposefully complement non-financial performance indicators. It should be noted that the exclusion from the analysis of financial indicators and the concentration of attention on achieving the set goals, measured in the space of non-financial indicators, leads to the fact that the performance assessment is transformed into an assessment of performance, where the establishment of measures to achieve the planned goals comes to the fore [17].

In general, the integral indicator of efficiency (effectiveness) of activity (Y) can be presented in the following form:

$$\gamma = \sum_{i=1}^{n} a_i$$

where is $a_i$ – a separate indicator characterizing a certain area of activity i. At the same time, each indicator has its own normalized assessment and weight.

It should be noted that in order to assess the effectiveness and effectiveness of the university as a whole and its individual elements, it is important to take into account not only the specifics of the social sphere, but also each specific educational organization, its form of ownership, founder, specialization and other factors.

At the same time, it is important to emphasize that the priorities of state policy in the field of education are set at the upper levels of management, where the requirements, target indicators and criteria for assessing the effectiveness of the activities of educational organizations and their leaders are indicated, which set a basic understanding of effectiveness, but cannot always fully and objectively assess the results and specifics of the activities of specific universities. In such circumstances, the degree of freedom of universities in determining their own priorities and directions of development is very limited, but the educational organization has the right to choose, in addition to the established target basic indicators, its own criteria and indicators, which will be a tool for achieving strategic goals.

Currently, universities are faced with the task of digital transformation of activities. At the same time, universities are required not only to digitize individual processes, but also to form a systematic approach to digitalization, which would change both the structure and the content of the main basic processes, in particular the educational[18].

Thus, there is a need to develop a mechanism that allows for regular evaluation of the effectiveness and effectiveness of activities. Moreover, such measurements should be carried out not once on a certain reporting date, but constant monitoring should be carried out, which will take into account variations in the parameters of criteria and indicators, as well as external conditions and factors, the internal policy of the educational organization. Moreover, it is necessary to assess the emerging deviations and their factors from the planned results. Accordingly, it is necessary to build a monitoring system to assess the performance and
effectiveness of activities, to identify ways to ensure them at a certain level with acceptable deviations from the planned results.

For each new task or to assess the activities of structural units, individual performance indicators (effectiveness) and corresponding indicators are selected, which will be based on the main strategic KPIs of the university. In general, the process of developing performance indicators (effectiveness) and their distribution by levels of responsibility can be represented in the form of a diagram (Fig. 2).

3 Research and results

Thus, forming a system of performance indicators (effectiveness), the university gets a balanced picture of short-, medium- and long-term development goals. In the context of digital transformation, this makes it possible to form a target model of the organization, the achievement of which should be aimed at the activities of structural divisions and employees of the university (Fig. 3) [19].
The concept of forming the target model of the university allows for the transition to the model of a digital university. At the same time, it should be borne in mind that as a result of digital transformation, new (updated) areas of activity will appear, the organizational structure of the university will change and there will be changes in the structure of resources[20].

In conclusion, I would like to note that in the context of the transformation of the university, it is necessary to improve the system for assessing the effectiveness and effectiveness of the university, its individual structural divisions and personalities. The main advantage of the system, built on the basis of performance indicators (effectiveness), is its controllability. An objective assessment of the results achieved makes it possible to increase the interest of employees in the results of the university's activities, thereby ensuring the effectiveness of the educational organization.

References

1. I.S. Kudryavtseva, et.al, Quality and Life 2(38), 10-14 (2023) https://doi.org/10.34214/2312-5209-2023-38-2-10-14
2. S.N. Dyakonova, et.al, Voronezh, 2023
5. V.E. Belousov, et.al, Project management in construction 4(21), 82-89 (2020)
6. O.V. Vusovich, et.al, Approaches to risk management at the university, Innovation-2023
7. N.O. Vasetskaya, Components of Scientific and Technological Progress 8(74), 60-63 (2022)
10. S.N. Pryadko, I.A. Demyanov, Symbol of Science: international scientific journal 8-1, 29-31 (2022)
11. S.A. Bakhodurova, Questioning students as a tool for managing the professional activities of university teaching staff, In the collection: Digital transformation as the main factor in the development of Russia within the EAEU. Materials of the international scientific and practical conference (2022)
12. M.V. Gamzaeva, Z.B. Temaev, Approaches to assessing the quality of the educational process at a university as a pedagogical category and an object of management, In the collection: Vocational pedagogical education (Moscow-Berlin, 2022)
15. S.A. Gudkova, et.al, Bulletin of Volga University. V.N. Tatishcheva 2-3(52), 34-45 (2023)
   https://doi.org/10.1016/j.trpro.2022.06.164
17. D. Yurin, et.al, E3S Web of Conferences 244 (2021)
   https://doi.org/10.1051/e3sconf/202124411010
   https://doi.org/10.34925/EIP.2022.142.5.048
20. L.V. Glukhova, et.al, Bulletin of the Volga University 2-3(50), 40-50 (2022)
   https://doi.org/10.51965/20767919_2022_2_3_40