

FORMATION AND USE OF INFORMATION PROCESSES FOR MANAGEMENT OF COOPERATION IN HIGHER EDUCATION INSTITUTIONS

Taking into account the fact that today higher education, like many other spheres of society, is not limited by geographical-spatial affiliation and even time format, which is mostly due to the rapid development of information and communication technologies, information support for management processes of cooperation of international higher education institutions acquires a new value and format. Information and communication technologies in modern conditions provide new opportunities for change and forecasting, enabling universities, research organizations, education institutions, professors and teachers to be aware of the latest scientific findings, educational innovations and the results of international research in various fields.

During the last decades, the implementation of analytical systems has been a priority for companies when investing in information technology and communications, providing the necessary management tools for forming strategic goals and stimulating the decision-making process based on data analysis [1]. The most widespread today are the information systems of business analytics, which are used to collect relevant data, integrate and analyze such data in order to find relevant information that helps to improve the performance indicators of the organization.

In the field of higher education, information support of management processes primarily concerns such aspects as student enrollment, reporting and financial resources management. At the same time, the information support of management processes to a lesser extent refers to the data that can be obtained from the teaching-learning process or from the process of conducting scientific research. This approach leads to the fact that the most important components of the activities of higher education institutions (teaching and research) are neglected, which leads to the formation of an ineffective information support system that is not able to solve the main problems of the higher education institution. Moreover, the cooperation of institutions of higher education further complicates the information provision of management processes, since in this case it is, firstly, an increase in the amount of data, and secondly, a complication of the system of inter-university ties. In our opinion, the main causes of such an imbalance are:

1) the complexity of creating integrated information support for management processes of cooperation of international higher education institutions. Creating such systems can be very difficult, time-consuming, and resource-intensive;

2) lack of both academic and research data collected by higher education institutions over the past decades;

3) insufficient maturity in data recovery and management in the academic field, for example, lack of standards, software tools, technical and infrastructure capabilities.

However, over the last decade, the introduction of virtual learning environments for most higher education institutions has opened up new opportunities for the formation of a huge amount of academic data for the purpose of their effective analysis.

Considering the fact that higher education institutions are non-profit organizations that provide public services and whose main goal is to serve the progress of society, we formulate the main goals that universities can pursue when creating integrated information support for cooperative management processes:

- making informed decisions in the short term;
- planning for the long term;
- continuing to provide educational opportunities that are relevant for students;
- meeting compliance reporting requirements;
- continuing to attract students;
- managing employees and human resources;
- managing economic and financial activities;
- increasing the number of scientific publications and research projects.

Today's existing information support systems of higher education institutions are mostly aimed at improving organizational processes, such as personnel management or resource allocation, increasing the efficiency of higher education institutions management. These systems also focus on measuring and monitoring indicators determined by third-party evaluators (government or external quality agencies) and internal indicators that are related to the strategic goals of HEIs [1]. However, the integrated systems of information provision of the management processes of cooperation of higher education institutions, which deal with educational and research data, still remain poorly developed.

As an example, we can give the following areas of information support, which relate to the educational and scientific activities of higher education institutions:

- student tracking: data related to student behavior patterns are analyzed [2];
- survey on student satisfaction: the strategic planning of the university changes based on the determination of student satisfaction indicators [3];

- enrollment forecast: reports that predict future admissions according to students' interests;
- management of at-risk students: analysis of the behavior of students who are at risk of quitting study. The system provides support at the institutional level and defines a set of indicators for monitoring students' educational activities;
- research management: defines a set of indicators that provide support for the monitoring of research activities, for example, the number of scientific publications grouped by authors and departments [4];
- learning management: data is used to provide reports on teaching and learning processes.

It should be noted that in the context of understanding the information provision of management processes, such concepts as educational and academic analytics are used. Academic analytics is the application of the information support system in education at the institutional, regional and international levels). Action analytics is a new generation of tools, solutions, and behaviors that provide more powerful and effective opportunities to measure performance and improve it. Academic analytics and action analytics are considered systems for understanding the information support of management processes in universities and are focused, for the most part, on the institutional level.

Learning analytics is the measurement, collection, analysis, and reporting of student data in the context of improving the educational environment. Learning analytics focuses on the learning process, including the relationships between students, learning resources, subject content, teachers, and the university.

Taking into account the above, the creation of such a system of information support for the management processes of cooperation of international higher education institutions, which would be used by all participants of the cooperation and integrated into university information systems, becomes urgent. In our opinion, such a system should be called the integrated system of information support for the management processes of the cooperation of higher education institutions (ISIZUK). So, in our understanding, ISIZUK is a set of processes and tools that collect and analyze internal and external data of higher education institutions, turning them into meaningful and useful information that can be used for more effective and timely strategic decision-making regarding activities related to with the cooperation process of HEIs ISIZUK covers the entire range of activities in higher education institutions. The main tasks of ISIZUK are the following:

- improving administrative decision-making and allocation of organizational resources;
- improving the quality of decision-making by teachers and scientists;
- providing tools for more effective and personalized student learning;
- increasing the efficiency of each individual HEIs and cooperation as a whole;

The data stored in the information system are necessary for effective decision-making by managers, teachers and researchers. The output data that will be used in ISIZUK comes from various corporate information systems, information systems of deaneries, departments, student databases, digital library and external data sources such as the Internet. Depending on the needs of each university, other additional analytical databases may be needed to help solve specific problems, as well as an operational data warehouse to reduce the temporal gap between analyzed and real data.

New functionalities provided by ISIZUK:

- the availability of all the data that HEI deals with contributes to the creation of services that provide complete information about any aspect from different points of view and levels;
- the use of external data and the possibility of comparing such data with any aspect of the activity of the Higher Education Institution (what position does the Higher Education Institution have according to the environment: competencies, labor market, potential cooperation, strengths, directions of research, etc.).

Existing information systems usually take into account educational and research data related to their results (student performance, number of published articles per researcher, etc.), but do not cover process analytics. Our proposed system of integrated information support for the management processes of higher education cooperatives will potentially allow to gain more knowledge and value due to the analysis of the processes of educational and research activities. An example of such a process can be the analysis of social interactions of students, teachers and scientists in social networks of the Internet.

References

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