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DEVELOPMENT AND IMPLEMENTATION OF INNOVATIVE METHODS FOR MANAGING THE BUSINESS PROCESS OF THE UNIVERSITY

G.I. KHASSENOVA, K.K. TESHEBAYEVA, N.G. KHAIMULDIN

International University of Information Technologies

Abstract: *The article is devoted to the improvement of the university management system in the conditions of the development of an innovative economy. The integration management system of the university is proposed, which includes strategic planning, a balanced scorecard, universal quality management, reengineering of the university's business processes. The developed information system reflects the main quality indicators affecting the management of the business process of the university.*

Keywords: *management methods, integration of methods, business processes, quality management systems (QMS), balanced scorecard (BSC), Information System (IS)*

УНИВЕРСИТЕТТІҢ БИЗНЕС-ПРОЦЕСІН БАСҚАРУДЫҢ ИННОВАЦИЯЛЫҚ ӘДІСТЕРІН ӘЗІРЛЕУ ЖӘНЕ ЕНГІЗУ

Аңдатпа: *Мақалада жоғары оқу орындарын басқару жүйесіндегі жетілдірулер қарастырылған. Жоғары оқу орындарының интеграциялық басқару жүйесі ұсынылады, оған стратегиялық жоспарлауды қамтыған ұйымдастырушылық-басқарушылық инновациялар, теңгерімделген көрсеткіштер жүйесі, жалпы сапа менеджменті, жобаларды басқару және бизнес процестерді реинжинирингтеу кіреді. Ақпараттық жүйеде ЖОО-ның бизнес - процесін басқаруға әсер ететін ең басты сапа көрсеткіштері көрсетілген.*

Түйінді сөздер: *Басқару әдістері, әдістерді интеграциялау, бизнес-процестер, СМЖ, БПР*

РАЗРАБОТКА И ВНЕДРЕНИЕ ИННОВАЦИОННЫХ МЕТОДОВ УПРАВЛЕНИЯ БИЗНЕС-ПРОЦЕССОМ ВУЗА

Аннотация: *Статья посвящена совершенствованию системы управления ВУЗом в условиях развития инновационной экономики. Предлагается интеграционная система управления ВУЗом, которая включает в себя стратегическое планирование, систему сбалансированных показателей, всеобщий менеджмент качества, реинжиниринг бизнес-процессов ВУЗа. В разработанной информационной системе отражены основные показатели качества, влияющие на управление бизнес-процессом ВУЗа.*

Ключевые слова: *система сбалансированных показателей, ССП, система менеджмента качества, СМК, методы управления, интеграция методов, бизнес-процессы*

Improving the management of higher education in the conditions of the development of an innovative economy requires an adequate response from universities and, above all, the introduction of organizational and administrative innovations, including strategic planning; balanced scorecard; universal quality management; result oriented budgeting; project management; business process reengineering and other management innovations.

The introduction of administrative innovation requires the solution of the following problems:

• aligning the structures and methods of university management;

• consistency of goals and objectives at different levels of government;

• the effectiveness of the introduction of management innovations as a result of their parallel implementation, etc.

The solution of these problems consists in the integration of various methods based on process management and the implementation of a business - process management system, primarily management. This will allow including structural units and staff of the university in the management of the university, increasing their interest and responsibility for the results, and evaluating the contribution to the achievement of the strategic goals and performance indicators of the university. To assess the system of indicators and criteria for evaluating the functioning and efficiency of the processes of the university, it is necessary to develop the BSC of the departments of the university and the university as a whole. The most effective are the introduction of a quality management system (QMS) and a balanced scorecard (BSC) system. Integration of the QMS and the BSC by determining the causal dependencies of how certain elements of the QMS affect the achievement of certain indicators will allow these systems to seamlessly complement each other and function more efficiently.

Exploring innovative management techniques, you should determine their place and role in innovation. Innovation is the final product of the introduction of innovations in order to change the object of management and to obtain an economic, environmental, scientific, technical or other effect. Innovations have the following characteristics: performance, novelty, use, competitive advantage, investment of resources.

Management innovations are the new knowledge that is embodied in new management technologies, in new administrative processes and organizational structures. They may represent, for example, the introduction of new methods of organizing work, structuring tasks, allocating resources, determining remuneration, etc. In other words, the scope of the implementation of management innovations is the management of an economic entity. Naturally, managerial innovations are not directly, but indirectly related to primary production activities.

The basis of managerial innovations of the modern university is modern management systems:

• implementation of a quality management system;

• development of a balanced scorecard;

• process and project management, budgeting;

• optimization of the organizational structure;

• creation of a personnel management system;

The quality management system (QMS) of the university extends to the design, development and implementation of educational activities in the field of higher professional, postgraduate professional and additional education (regardless of the form of training and the conditions for the development of educational programs, in accordance with the field of licensing and state accreditation). It covers all structural units of the university and is focused on continuous improvement of activities based on data analysis, the establishment of mutually beneficial relationships with consumers, and the satisfaction of their requirements for the quality of educational services provided.

What is the basis of the quality management system (Fig. 1)?

• **Quality assurance system.** Continuous improvement of the activities of the university as a whole should be considered as its permanent goal.

• **Users**. Universities depend on their consumers. We must understand their current and future needs, fulfill their requirements and meet their expectations. The university and its partners are interdependent, and mutual benefit relationships enhance the ability of both parties to create values. As such partners can be considered: schools, lyceums and other institutions of general secondary education, whose graduates are going to enter a university;

• **Indicators**. Assessment of the quality of education is carried out on the basis of a system of indicators characterizing the main aspects of the quality of education (quality of results, quality of conditions and quality of the process). The

list of quality indicators and their reference values are established by normative acts regulating the procedures for monitoring and assessing the quality of education at all levels (republican, regional level).

• **Evaluation**. The University provides the necessary assessment procedures, the development and implementation of a specific model of the quality assessment system, provides an assessment, accounting and further use of the results.

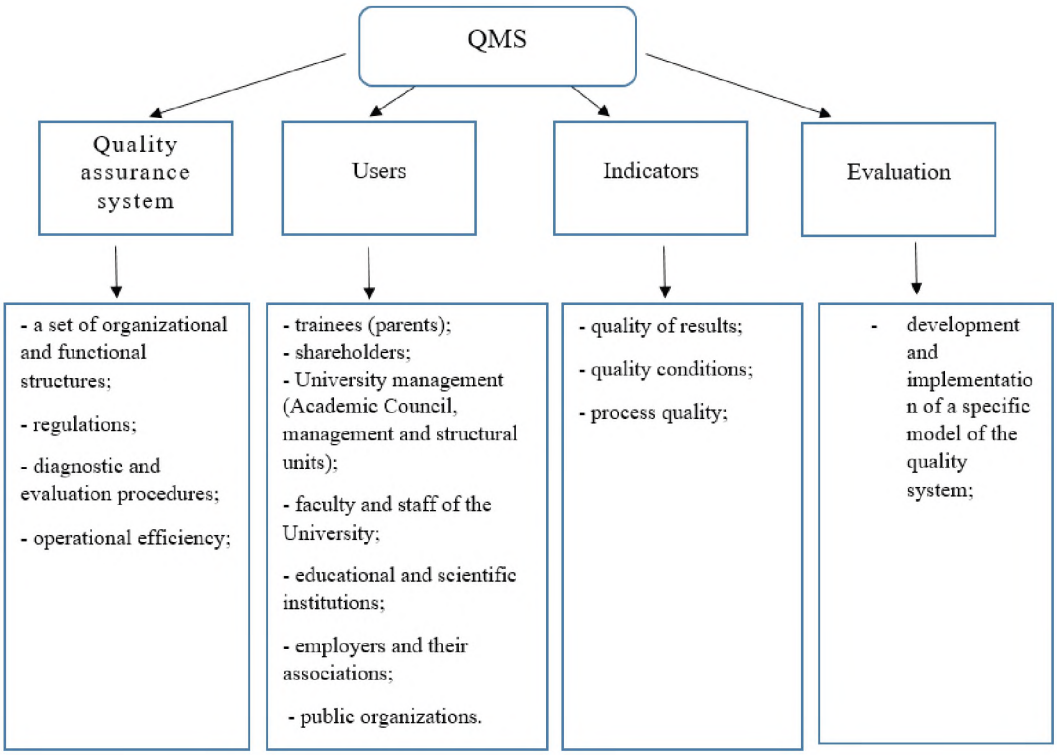

Figure 1 - The basis of the quality management system of the university.

At the same time, the main task of the QMS is not the control of each individual service, but the creation of a system that will prevent the occurrence of errors leading to poor quality of services.

The organization's activities to assess the performance of the QMS includes the following steps:

• development of criteria for evaluating the performance of each QMS process;

• assessment of the effectiveness of the organization's QMS processes;

• assessment of processes on a scale of significance;

• determination of significance (weighting factors) of processes in the overall structure of the QMS;

• determination of the effectiveness of the QMS;

• assessment of the sustainability of the QMS;

• decision making on the management of the QMS.

To assess the effectiveness of the QMS processes, the heads of departments (responsible persons) develop assessment criteria based on the requirements of ISO 9001 standards. The criteria should reflect the full extent of the activities of this process, be clear to the user, and significant additional costs should not be involved in their determination. Criteria, if necessary, can be agreed with the heads of departments of interrelated processes and change due to the importance and relevance of the criteria under consideration for the relevant reporting period.

To assess the ongoing innovation changes, you can use the balanced scorecard (BSC). The Balanced Scorecard (Balanced Scorecard) developed by Robert Kaplan and David Norton from Harvard Business School allows you to simultaneously:

• link strategic objectives with operational actions that allow the implementation of the strategy;

• take into account non-financial indicators (along with financial), which is necessary to assess the activities of the university related to intangible assets and information;

• respond promptly to inappropriate changes in business processes through differences in indicators that measure the results achieved and indicators that reflect the processes for achieving these results. BSC is a tool for developing and implementing a strategy that helps link operational management and strategic planning. The BSC makes it clear that the objectives being developed are consistent with the overall development strategy strategic priorities and missions, and helps the organization solve two key problems: effectively assess the performance of the organization and successfully implement the strategy.

In addition, the BSC is a system of strategic management of a company based on measuring and evaluating its effectiveness in recruiting optimally selected indicators reflecting all aspects of the organization's activities, both financial and non-financial.

An important innovation in SSP techniques is the expansion of the set of measurable indicators that measure the effectiveness of an organization's activities by including, in addition to retrospective financial indicators, non-financial parameters (information about customers, internal processes, training and development, etc.) and making it possible to assess the state of organizations with a view to the future.

The indicator in the BSC is a meter that shows the degree of achievement of the goal. However, it can be considered as a means to assess the effectiveness and efficiency of individual business processes involved in achieving this goal.

The indicators characterizing the BSC (Fig. 2):

Finance - provide financial sustainability;

Consumers - attract new consumers and train highly qualified specialists;

Processes - ensure the improvement of the quality of the educational process, the improvement of research and development activities;

Training - improving the efficiency of faculty, the development of information technology;

All the principles of quality management: customer orientation, leadership of leaders, employee involvement, process approach, system approach to management, continuous improvement, making fact-based decisions, mutually beneficial relationships with suppliers - according to the idea of D. Norton and R. Kaplan integrated into the strategy of the organization through the use of four interconnected BSC - approach:

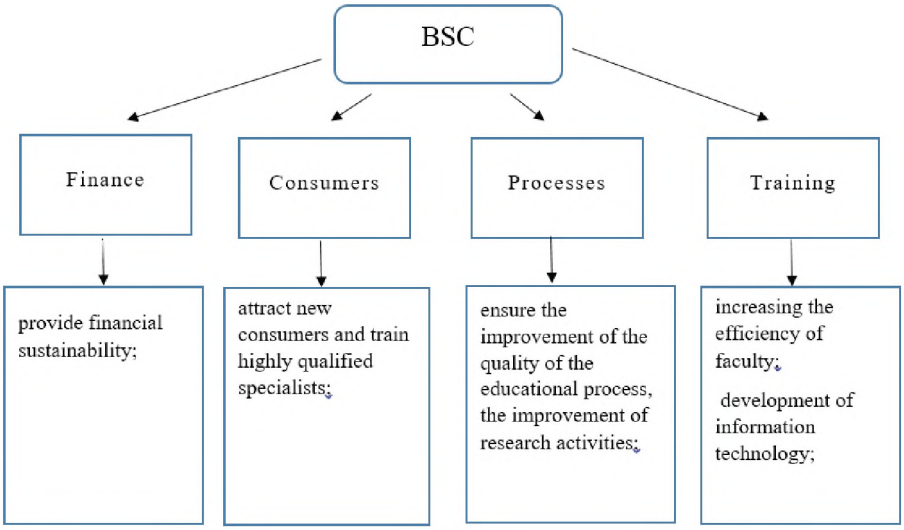

Figure 2 - Indicators characterizing the BSC.

Currently, the most effective for universities are the joint introduction of a quality management system (QMS) and a balanced scorecard (BSC) system. There are many common features in the methods of QMS and BSC, namely: orientation to process management; strategic nature of change; the task of redesigning and restructuring the organization's business processes; decentralization and delegation of authority to staff; feedback from staff; conditions of use in case of stagnation and critical nature of the organization's activities, which allows for their integration with the improvement of the management system (Fig. 3).

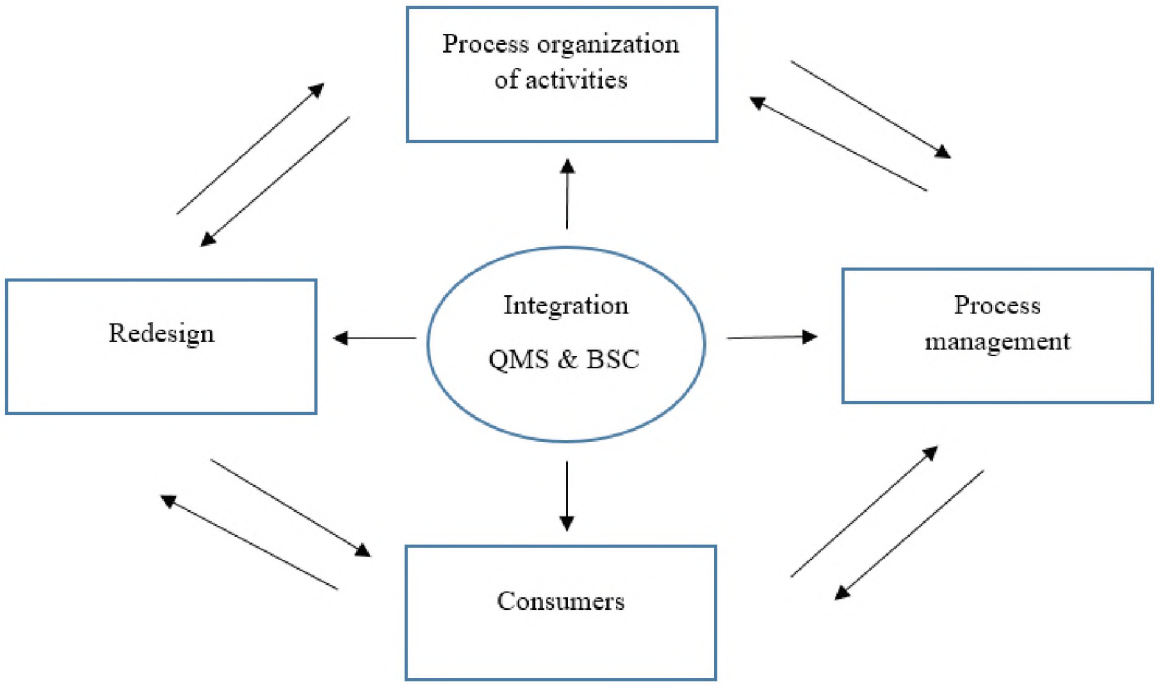

Figure 3 - Integration of QMS and BSC.

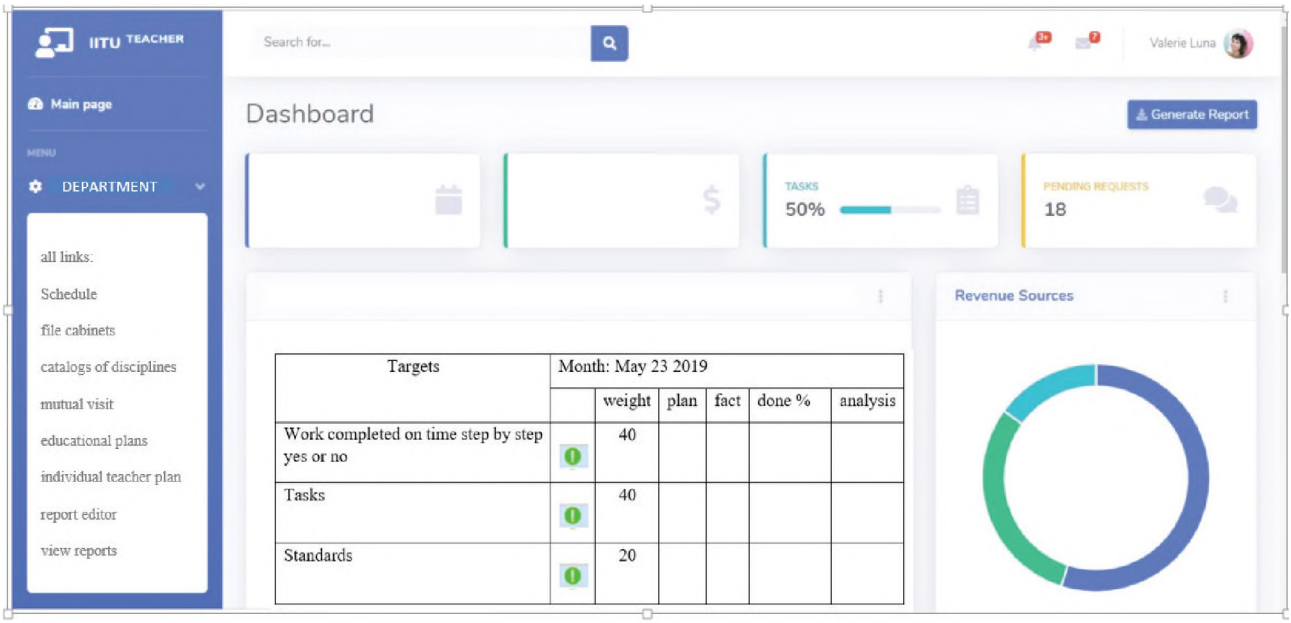

Figure 4 - Information system.

Integration of the considered methods will allow:

- move from strategy to a set of business processes that require attention, and reasonably apply to these processes innovative methods for improving performance;
- associate quality policy with strategy;
- identify a causal set of process goals and indicators for meeting these goals;
- Identify the activities, resources, deadlines and responsibilities necessary to achieve the stated goals.

Thus, the business process will be understood as the redesign of existing and the creation of completely new innovative methods in order to improve the university management system to achieve significant quality results.

The introduction of innovative methods of managing an organization according to the proposed methodology is a rather complicated and time-consuming process. To improve the efficiency of this process, it is necessary to use tools that will automate processes for modeling business processes and IS architecture, as well as for generating documentation, the creation of which is necessary when implementing the QMS: business process regulations, divisional regulations, job descriptions.

The introduction of managerial innovations at the university is primarily reflected in the department as the main structural unit that ensures the achievement of socially significant results by the school. As well as for the university as a whole, and for the department, the following changes become relevant:

- introduction of QMS;
- assessment of the activities of the department on the BSC;
- introduction of reengineering;
- transition to project management;
- changing organizational structure;
- remuneration of employees based on work results based on each rating indicators;
- increasing the responsibility of the manager and each employee for the results of activities.

Work at the department begins planning for the next academic year and ends with the preparation of reporting documents. The experience of real pedagogical activity shows that for the effective work of a teacher, despite the creative nature of work, planning is required. The individual work plan of the teacher is the main document for planning and accounting for all the work performed by the teacher in the academic year. Thus, on the basis of individual plans of teachers, a plan of work of the entire department is formed. Based on the plans and reports of the department, the university administration monitors the work performed at the department and can evaluate the contribution of each department to the common fund of university activities.

To assess the quality and results of labor, faculty will develop a system of indicators, which are divided into 5 groups:

- professional achievements;
- educational work;
- educational and methodical work;
- research work;
- organizational, social activities, educational work with students.

Figure 4 presents an information system that reflects the criteria and quality assessment of each indicator. Evaluates the quality of activity of each structure.

Introduction at the department of innovative management methods: QMS and BSC are designed to improve the department's management system and the quality of training by creating its development strategy, increasing responsibility and interest in the results of activities, and constantly improving business processes.

REFERENCES

1. Bedrina S.L., Bogdanova O.B. Development of the information management system by activity of department of higher education institution on the basis of reengineering in the conditions of introduction of credit system / Infocommunication systems and technologies: problems and prospects / Under the editorship of Cand.Tech.Sci., the prof. A.V. Babkin. Publishing house of the Polytechnical University, 2007. Page 498-542
2. Cannoli T., Databases: design, realization and maintenance. Theory and practice: Translated from english T. Connolly, K. Begg - M.: William, 2003.
3. Kaplan R.S., Norton D. P. Balanced system of indicators. From strategy to action. – M.: CJSC Olympe-business, 2003
4. Khassenova G.I., Auelbekova B.A., Turgambayev M.K. Usage of re-engineering in HEI. 2-nd International conference «Information technologies in science and industry», International IT University Press, Almaty, Kazakhstan, 2016,19-20 may, p.69-71
5. Khasenova G.I, Khaimuldina G.M., Analyzing the risk management process of the company. 2-nd International conference «Information technologies in science and industry», International IT University Press, Almaty, Kazakhstan, 2016,19-20 may, p.65-68
6. Khasenova G.I, Khaimuldin N.G., Hierarchical description of the basic model of software. 2-nd International conference «Information technologies in science and industry», International IT University Press, Almaty, Kazakhstan, 2016,19-20 may, p.62-65
7. Г.И. Хасенова, Е.А. Арзамасцев, Регламентация бизнес – процессов как инструмент обеспечения информационной безопасности. 3-Международная конференция «Цифровые технологии в науке и индустрии-2017» DNS&I-2017, г. Алматы, 19-20 мая 2017 стр.200-205.