

DOI: 10.37943/AITU.2022.15.24.005

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## FUNCTIONAL MODEL OF ORGANIZATION DEVELOPMENT BASED ON QUALITY MANAGEMENT IN AN EDUCATIONAL ORGANIZATION- AS A QUALITY ASSURANCE TOOL

**Abstract.** In the context of the formation of an innovative economy, great attention in management in recent years has been paid to the problems of mastering and implementing the management of an organization based on quality. Quality management is one of the key functions of both corporate and project management, the main means of achieving and maintaining the competitiveness of any organization. The historical experience of the USA, Japan, Germany, and a number of other countries shows that ensuring the steady and harmonious development of any enterprise through the use of effective management systems based on quality is one of the main levers with which they managed to overcome the economic crisis and take a strong position in the world market. The research topic is relevant due to the great importance and significance of the integration mechanisms for the development of enterprises and organizations based on quality management. Thus, the construction of a functional model allows you to develop new solutions for bringing enterprises to a new level of development. In recent years, the role of quality in ensuring the competitiveness of products and enterprises has significantly increased, which requires the management of organizations to develop and implement modern management models that meet the requirements of international and national standards. This article discusses an algorithm for the formation and implementation of a functional model for the development of an organization based on quality management in an educational organization. The feature of quality management policy in an educational organization is analyzed. A process of forming a functional model based on standardization, which is based on the implementation of interrelated processes that increase the efficiency of an organization in obtaining the intended goals, is proposed. This article describes the algorithm of formation and realization of the functional model of development of the organization on the basis of quality management in education. Analyzed features of the policy of quality management in educational organizations. The proposed formation process

of the functional model on the basis of standardization is based on the implementation of interrelated processes that increase the organization's effectiveness in obtaining goals.

**Keywords:** the quality management process, policies, quality, quality management system, educational organization.

### Introduction

A university's quality management system is a set of organizational structures, methodologies, processes, and resources required to implement a quality policy through means such as quality planning, quality management, quality assurance, and quality improvement. The quality policy defines the goal of building and operating a quality system, as well as the commitment of top management to achieve this goal [1].

The quality management system is a complex structure united by interconnected control loops. The algorithm for developing a quality management model in an organization occupies a special place in the development of an organization based on quality management standardization.

In the modern world, where competition prevails, the winner is an organization that is able to quickly respond to changes, satisfy customer requirements as much as possible, and evaluate and correct its activities in a timely manner. Today, an increasing number of organizations are thinking about the development, documentation, and implementation of a quality management system that meets the requirements of the international quality standard ISO 9001. The ISO 9001 standard imposes special requirements on the organization of work, production of products or the provision of services, quality control, and analysis of the degree of customer satisfaction.

To date, the concept of organization management analyzes the management of changes in the quality of an organization within the framework of innovation management, strategic management, investment management, crisis management, marketing, and virtual management. Each of these types of management analyzes the management of quality change in an organization in a specific learning context defined by the subject of its study. Development quality management is the management of the long-term development of an organization; the formation and maintenance of such a quality of the organization that would ensure its competitiveness [2].

The main stage of the work is designing: procedures for managing the quality of education with a focus on the final result; conditions for the implementation of the predicted end result; alternative resources and their application in the process of education quality management; the possibility of realizing the consequences of the end result in the cultural and educational environment of the university and the practical application of parallel achievements in the process of managing the quality of educational activities.

The project of the procedure for the final stage of quality management of educational activities by focusing on the final result requires a systematic explanation and description, concretization, and detailed analysis in order to develop, improve, refine, and supplement the model. Therefore, the choice of the result of quality management of educational activities in an innovative university and the description of its characteristics are primary mechanisms, the initial basis for modeling the process under study. The more detailed and understandable the educational process at the university is in the process of implementing the presented model, the better the movement will be organized towards the final result and all its possible aspects that may take place in the process of managing the quality of educational activities in an innovative university. The draft conditions for the implementation of the projected final result include: possible conditions for its achievement with a detailed description, explanation and definition of the mechanism by which the analysis of the expected result will be carried out.

The alternative resources project allows the use of variable additional funds to successfully manage the quality of education and obtain a successful end result [3].

The project for the implementation of the consequences of the end result of quality management in the cultural and educational environment of the university and the practical application of a number of related achievements in the field of university management is of no small importance for the quality management of education in an innovative university. This mechanism also needs to be modeled with its subsequent analysis, which will contribute to the generation of various qualities and properties (constancy, continuity, etc.), active volitional tension necessary to advance the model to the final result and its practical application in the cultural and educational environment of the university.

The international standard ISO 9001: 2015 formulates requirements for the development of an organization's strategy and an algorithm for the formation and implementation of a functional model for the development of an organization based on quality management, its development, that is, for forecasting the organization's strategy, as follows: "Implementation of a quality management system is a strategic decision for an organization that can help improve its performance and create a solid foundation for its sustainable development initiatives."

The GOST R ISO 9004-2010 standard provides guidance for maintaining the sustained success of any organization in a complex, demanding, and constantly changing environment in terms of quality management. The sustainable success of an organization is ensured by its ability to meet the needs and expectations of customers and other interested parties over the long term and in an appropriate balance. Sustained success can be achieved through effective management of the organization, through the understanding of the environment in which the organization operates, training, and the appropriate application of either improvement or innovation, or both [4].

An organization is able to achieve sustained success by consistently meeting the needs and expectations of all interested parties in a balanced manner on a long-term basis. The organization's environment is subject to constant change and fluctuation, and to achieve sustained success, the top management of the organization should [5, 6]:

- to have long-term plans for the future;
- to monitor constantly and analyze the organization's environment regularly;
- to identify all relevant interested parties, assess their individual potential impacts on the organization's operations, and determine a balanced approach to meeting their needs and expectations;
- to involve stakeholders constantly and inform them about the activities and plans of the organization;
- to explore the possibility of establishing mutually beneficial relationships with suppliers, partners, and other interested parties;
- to use a variety of approaches, including negotiation and mediation, to balance the often differing needs and expectations of stakeholders;
- to identify associated short-term and long-term risks and use the overall strategy of the organization to reduce them;
- to plan for future resource requirements (including the required competence of people in the organization);
- to establish the processes necessary to implement the organization's strategy, ensuring their ability to respond quickly to changing circumstances;
- to assess regularly the implementation of current plans and procedures and take appropriate corrective and preventive actions;
- to ensure that the organization's employees have training opportunities for their own development, as well as to maintain the vitality of the organization;
- to establish and maintain processes to ensure innovation and continuous improvement.

### Review of the literature

In this work, the ideas of modern management, expressed in the works of such foreign and domestic scientists as R.L. Ackoff, L. Bertalanfi, K. Bowling, G. Buch, W. E Deming, J. Juran, K. Ishikawa, were further developed., I.A. Ilyin, Yu.P. Adler and B.I. Gerasimova, M.P., Okrepilova V.V., V. Yu. Ogvozdin, V. Lapidus, Ashby, E. G. Yudin, A. Jacobson, S. Young. Various aspects of the management of professional educational institutions were studied according to the works of the following authors: S. Ya. Batyshev, N.P. Glotov, A.T. Glazunov, A. B. Leibovich, D. A. Novikov, A. M. Novikov, M. V. Nikitin, M. M. Potashnik, P. I. Pidkasistogo, E. I. Rogov, V. A. Slastenin, I. P. Smirnova, G. L. Frish, T. I. Shamova. The problem of leadership in the aspect of social management is reflected in the research of the following authors: O.S. Vikhansky, V.V. Goncharov, A.P. Egorshin, A.V. Molodchik, E.B. Morgunov, K. Morozova, N.N. Moiseeva, Ya.Sh. Palu, V.P. Pugacheva, E.A. Utkina, L.V. Fatkina [7].

### Methodology

The quality management system is a complex structure united by interconnected control loops. The algorithm for developing a quality management model in an organization occupies a special place in the development of an organization based on quality management standardization [8].

Modeling real quality management systems is based on the application of a systems approach, that is, by considering the organization as a system of hierarchical and interrelated processes at all levels of the organization. All management processes and the production cycle of the organization should be presented as a structure of interrelated functions.

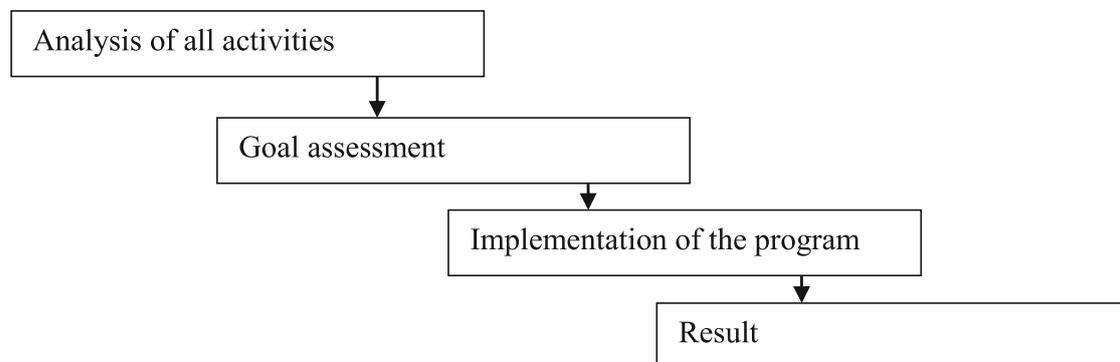


Figure 1. Structure of functions in quality management systems

The main functions of the organization are highlighted in all processes. Further, the processes are accentuated and documented by the “owners” of these processes in order to determine all the relationships and interactions. Then all the documents are selected, on the basis of which the interaction is carried out, that is, the documents with which the interaction begins, and the documents that are obtained as a result of the implementation of managerial and production procedures are determined. In these documents, the “owners” of the processes coordinate their interactions based on mutual requirements for the content and procedure of the processes. The entire list of documents and requirements for them, as well as the addresses of the “process owners” are indicated in the “approval tables”.

Harmonization tables and the entire structure of processes and procedures are used to form a “matrix of responsibility” for all persons in the organization and create quality system documentation: quality management system manuals and enterprise standards (process instructions). The quality management system documented in this way is checked by special procedures (audit) for implementation and implementation. The audit process quantifies

deviations in the quality of all results (products) and management and production procedures [9, 10].

An algorithm for the formation of a functional model for the development of an organization based on quality management standardization should be based on eight quality management principles underlying the international standards for quality management systems ISO 9000 series. These principles can be used by top management as guidelines for improving the efficiency of the organization. To achieve sustained success, top management must adopt a quality management approach. The organization's quality management system should be based on principles that clarify the concepts that underlie an effective quality management system. To achieve sustained success, top management should apply these principles to the organization's quality management system.

The organization shall develop the organization's quality management system to ensure:

- efficient use of resources;
- making decisions based on facts;
- focusing on customer satisfaction and the needs and expectations of other interested parties.

Thus, the created organization management system is optimized, and the obtained efficiency is evaluated according to the required economic standards and the actual quality criteria. The developed approaches to measurement, analysis and evaluation are used for audit (inspection) and processes for improving the quality of the organization, the quality of processes and product quality. The whole complex of measures for the creation and implementation of a quality management system is completed by the process of certification of the enterprise system for compliance with the requirements of ISO 9000 [11].

The development of a systematic model of quality management in an organization can be implemented on the basis of international standards of the ISO 9001: 2015 series, Russian standards of the GOST R ISO 9001-2015 series, as well as on the basis of ISO 9004: 2009 - Management for achieving sustainable organizational success. When developing a quality management model, a number of basic tasks are identified [12, 13].

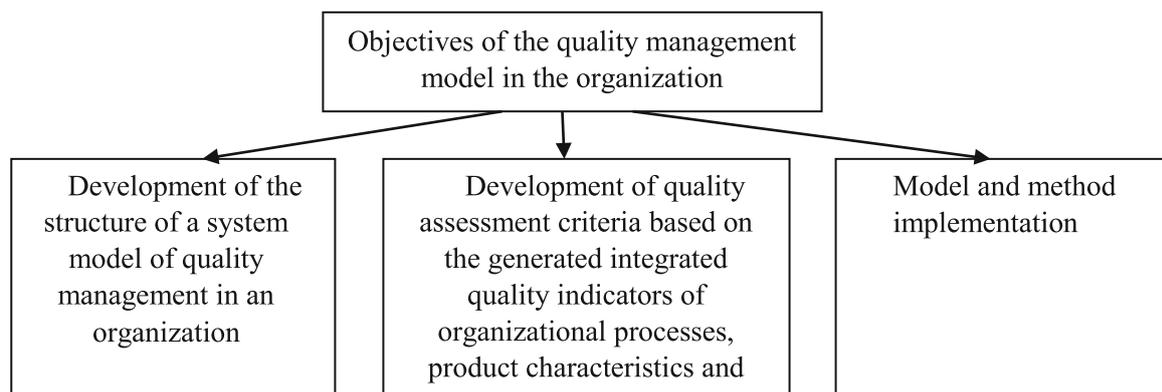


Figure 2. The main tasks of the QMS management model in the organization

The main task of developing a quality management model in an organization is to form the structure of a systemic model of quality and quality management of a process in an organization, a system of criteria, methods and recommendations for its use in genuine assessment and management of the quality of an organization's activities.

The formation of a functional model based on quality management standardization involves the implementation of interrelated processes that increase the efficiency of the organization in achieving the intended goals. The process of forming a functional model based on quality management standardization is shown in Figure 3.

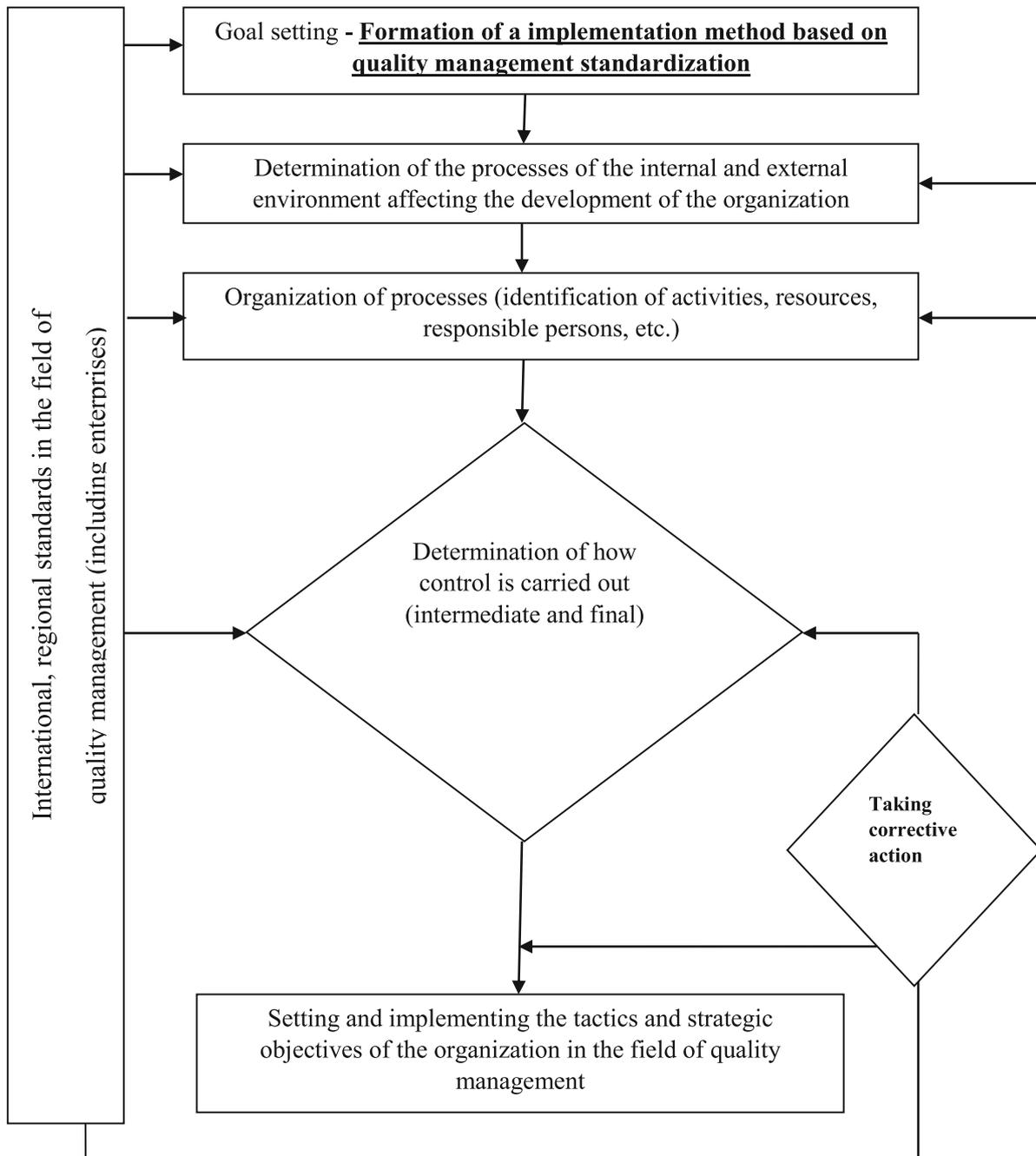


Figure 3. The process of forming an implementation method based on quality management standardization

The processes included in the structural-functional model interact between themselves, ensuring the integrity of the education quality management system. The implementation method of education quality management in the context of innovative development of the university makes a real contribution to building a “theoretical bridge” between the initial conceptual provisions that determine the essence and content, functions, criteria and levels of education quality management in an innovative university, and their implementation in university practice.

The process of forming an implementation method based on education quality management will be in demand administration of universities, intra-university services of the quality management system to improve the quality management system higher professional education. The process approach encompasses the systematic identification and management

of processes and their interactions in order to achieve the desired results in accordance with the quality policy and the strategic direction of the organization. The management of processes and the system as a whole can be implemented by using the PDCA cycle in conjunction with an emphasis on “risk-based thinking” to obtain capitalize on opportunities and prevent unwanted results. The PDCA cycle enables an organization to ensure that its processes are adequately resourced and managed, and that opportunities for improvement are identified and implemented [14, 15].

The use of the process approach in the quality management system allows:

- 1) understand the requirements and ensure their continued implementation;
- 2) consider processes from the point of view of adding value by them;
- 3) to achieve effective functioning of processes;
- 4) improve processes based on the assessment of data and information.

Figure 3 schematically depicts the process of forming a functional model based on quality management and shows the relationship between its elements. The monitoring and measurement points that are required for control are specific to each process and will vary depending on the associated risks [16, 17].

The organization shall determine the processes needed for the quality management system and their application within the organization, and:

- 1) determine the required inputs to these processes and their expected outputs;
- 2) determine the sequence and interaction of these processes;
- 3) define and apply the criteria and methods (including monitoring, measurement and related performance indicators) necessary to ensure the effective operation and control of processes;
- 4) determine the resources required for these processes and provide them availability;
- 5) assign responsibility and authorize these processes;
- 6) take into account risks and opportunities in accordance with the requirements;
- 7) evaluate these processes and make any changes necessary to ensure that these processes achieve the desired results;
- 8) improve the processes and the quality management system.

When developing a quality management model based on the characteristics of the organization, the following are taken into account:

- initial level of organization;
- the required level of development of the organization;
- industry requirements;
- features of consumer requirements;
- and much more.

Based on the principles of the quality management system, it is possible to determine the need for a quality management system in an organization:

- improving the management of the organization;
- systematization of the organization’s workflow;
- strategic partnerships with suppliers;
- establishing a marketing system with consumers.

To form a functional model for the development of an organization based on the standardization of quality management in an educational organization, the field of activity of this organization was analyzed and its features were identified [18]:

- The first strategic direction of the educational organization, the training of professional and scientific personnel in accordance with the needs of society and the labor market;
- The second, integration into the global educational and scientific space.

- The third, in this industry there is a need to modernize the management and financing system of the university;
- Fourth, there is a need for state control in the field of legislative regulation and state support of students and employees of the organization.

An important role in the model is played by the “Measurement, analysis and improvement” block, which includes customer satisfaction monitoring the quality of educational services in an innovative university; monitoring and measurement of processes and products related to quality assurance education; internal audits; control inappropriate products; data analysis; focus on continuous improvement.

### Research results

Based on the analysis carried out, we propose the implementation of a functional model of the organization based on quality management. The main processes in the quality management system in higher education institutions are carried out in strategic directions focused on consumers, the labor market, departments, personnel, technologies, as well as communications and document flow of the organization.

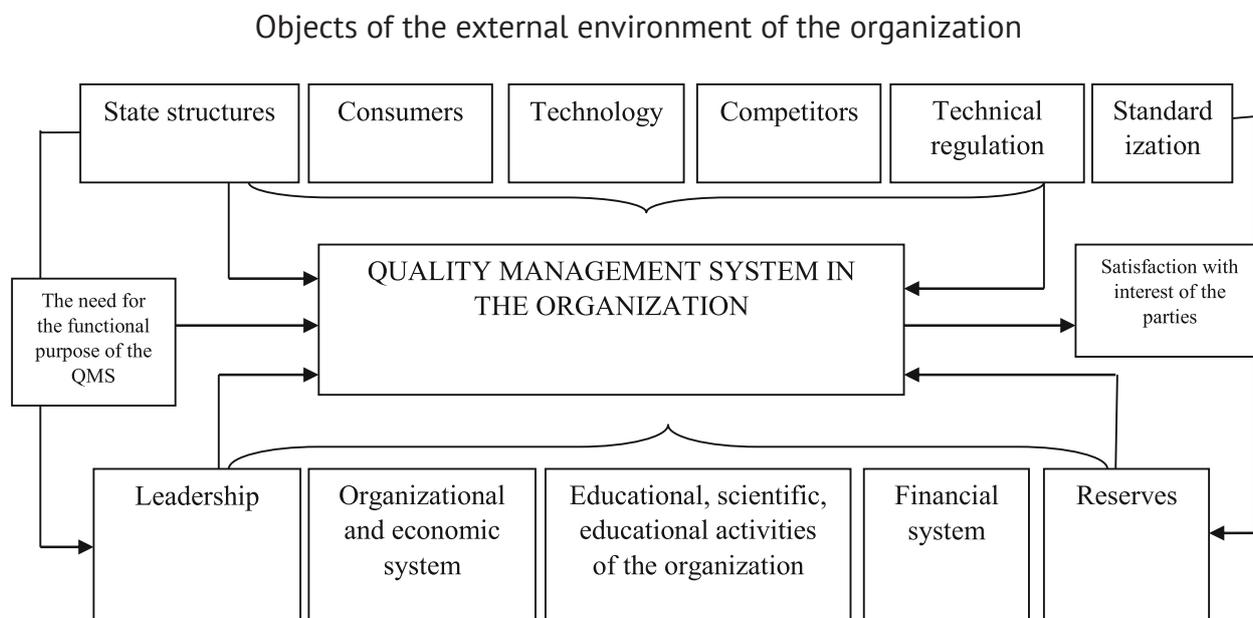


Figure 4. Functional model of the quality management system in an educational organization

The quality management system in the organization interacts with the internal and external environment of the enterprise. The internal environment includes [19]:

1. Management of the organization (management structure, management style and experience, quality of management decisions, personnel).
2. Organizational and economic system of the organization (technological and auxiliary equipment, personnel, economic resources of the organization).
3. Educational, scientific, educational activities of the organization.
4. The financial system of the organization (capital structure, financial condition of the organization, sources and objects of investment, innovation).
5. Reserves (information, personnel, technological, financial, innovation).

The external environment of the organization includes:

1. State structures (legislative bodies).
2. Consumers (learners, listeners).

3. Resources (technological and auxiliary equipment).
4. Competitors (existing innovative universities).
5. Technical regulation (GOSTs, specifications, recommendations).
6. Standardization.

Most quality management methods cannot be used without tools that provide data analysis, control over the dynamics of indicators and the fulfillment of quality goals. Quality tools primarily mean various methods and techniques for collecting, processing and presenting quantitative and qualitative data of an object (product, process, system, organization, etc.).

Our proposed model generally meets the requirements of the process model of the quality management system and includes the following tools for implementing the model in educational institutions: quality control tools, quality management tools, and quality analysis tools, quality design tools.

When forming the model, we also considered the following:

- 1) Formation of a strategy, policy and goals in the field of quality – development of educational quality goals, specifying the doctrine of education and socio-pedagogical normalization of these goals, checking the relevance, development, adjustment and updating of educational standards and programs.
- 2) Planning and continuous improvement of activities ensuring the planning of processes and procedures, their maintenance and continuous improvement.
- 3) Resource management, including teaching staff and other resources required for the training of students – providing life cycle processes with all types of resources: financial, material, human and informational.
- 4) Management of processes and procedures – management of the main (training, scientific activity, additional education, retraining of personnel) and auxiliary (economic activity, personnel management, etc.) processes.
- 5) Monitoring and control (measurements) – measurement and evaluation of parameters and characteristics of work processes and analysis of their results, including: assessment of students (progress made in their knowledge and skills); measurement of key performance indicators; marketing and sociological research; processing and analysis of measurement and research results; quality assessment the results of the educational process and individual processes; determination of competitive positions.

The model of quality management of students' learning is considered by us as a complex multilevel system that includes the following interrelated blocks: motivational-target, organizational-content, functional, procedural and diagnostic-resultant [20]. The motivational-target block ensures the development of innovative processes, the formation of the value attitude of the teacher and students to learning, the installation of quality management of learning. The organizational and content block of the model provides the process of integration of invariant and variable components of training, additional education and leisure activities of students, its content, forms and methods, the formation of links between all blocks of the model, taking into account the gradual transition of the process under study to a higher level. The procedural block includes the definition of forms, methods of training, as well as the choice of management tools for these processes. The functional block defines the functions of quality management, namely: the function of developing a strategy for managing the quality of training; the function of developing tactics for managing the quality of training; the feedback function in the course of training quality management. The diagnostic and effective block includes diagnostic methods, criteria for quality management of training, developed in accordance with international standards and adapted to educational activities: functionality, efficiency, and safety. Thus, the model considers the requirements of a system, process and personality-oriented approach, is based on the principles of universal quality management

(planning, functionality, efficiency, optimality, manufacturability, continuity, ergonomics, safety, reliability, and productivity) and allows, on the one hand, to take into account all the necessary means and conditions, and on the other – to make scientifically based adjustments to the educational process.

The whole set of tools and methods of education quality management can be grouped into two blocks: methods that are determined by the priorities of educational programs, and methods of systematization of actions in accordance with these priorities. In each group, the following methods can be distinguished [21]:

- methods of establishing a system of priorities (for example, the priority of quality, innovation, strategy, any discipline of the educational program, human factor (capital), efficiency, etc.), which is laid in the educational program and implemented in the current management;
- methods of limitations and critical factors, including liability. Restrictions are set in accordance with quality criteria, trends in its change, and the development program;
- the method of rewards, which manifests itself in the choice of a reward system (for what, how, whom to encourage). Such a system should be the subject of analytical development;
- methods of differentiation of the conditions of activity by specific factors (indicators) of the quality of education;
- method of participation of teachers and students in educational quality management programs;
- methods of assessing the quality of education.

Thus, the analysis of general management methods, general quality tools, as well as quality management methods in relation to education allows us to draw the following generalizing conclusion: when implementing a quality management system within an educational organization and its divisions, it is necessary to use all groups of general management methods that reflect the features of educational technologies.

### **Conclusion**

Using the proposed functional model of the quality management system, the organization's management solves the assigned tasks with the help of the resources of other organizations (located in the external environment) and due to the elements of the internal environment. Thus, the quality management system is an integrated tool for the development of the internal environment of the organization through the optimal use of the capabilities of the external environment.

Thus, the following conclusions can be drawn:

1. The complex and multivariate nature of the problem of the organization causes an increased focus on the complex development of the organization, including socio-economic, production, technological, scientific, and regulatory development.
2. The quality management system is a complex system focused on continuous quality improvement, cost minimization, fulfillment of contractual obligations, and productivity increase.
3. This functional model of the organization's development on the basis of quality management standardization will be able to contribute to the improvement of the quality management system, moving it to a new stage of quality management in the organization.

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