

APPLICATION OF SQDCME OPERATIONAL MANAGEMENT SYSTEM IN EDUCATIONAL ORGANIZATIONS

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ABSTRACT

The article is devoted to the improvement of educational system management processes and design of the educational process through the use of Lean technologies. Lean technologies as a phenomenon in management are effective in different areas, while their application in educational institutions has features. The SQDCME operational management system is considered as a standard Lean technologies method that allows managers of different levels to show the relationship of their operational activities with production indicators. It is determined that the purpose of the SQDCME operational management system is to constantly ensure the effectiveness of the main processes, reduce losses in processes by improving operations, achieve high quality products and services, and visualize success. The criteria for the effectiveness of different departments of an educational organization with regard to ensuring competitiveness are identified. The system of strategic, tactical and operational indicators of educational organizations is generalized. monitoring of these indicators allows evaluating the degree of achievement of goals. The process of coordinating goals within the organization between management and employees has been studied. We propose a management scheme based on a balanced system of strategic, tactical and operational indicators based on several key areas of activity of an educational organization. The content of the SQDCME operational management system, which includes basic parameters that determine the types of responsibility of organizations, is studied. Responsibility to owners for product quality (Q), order execution (D), costs (C). The company is responsible to the public for safety (S) and ecology (E). To exercise responsibility, the company forms a target corporate culture (M). The article offers the author's set of indicators for the SQDCME operational management system, which allows improving the efficiency of management of an educational organization and achieving its development goals.

Keywords: *SQDCME, educational organization, goal management, lean management, lean technologies*

1. INTRODUCTION

The scientific and practical significance of improving management processes and improving the efficiency of educational organizations does not lose its relevance. Improving the processes of managing the educational system and designing the educational process in educational institutions can be achieved through the use of Lean technologies. Using the SQDCME operational management system opens up new growth opportunities for educational organizations. At the same time, an important element of such a management process should be the visualization of targets and key indicators. Despite the widespread use of lean production concepts in many organizations, the methods of using lean tools are not sufficiently developed, and there is a need for their development. The practical application of the SQDCME management approach in educational organizations can significantly increase the effectiveness of organizations without significant costs. At the same time, an important element of SQDCME's operational management system should be the visualization of targets and key indicators. Despite the widespread use of lean manufacturing concepts in many organizations, the methods of using lean tools are not sufficiently developed, and there is a need for their development. It will be appropriate to consider in detail the set of indicators for the SQDCME operational management system, which allows you to improve the effectiveness of management of an educational organization, as well as achieve its development goals.

2. SQDCME OPERATIONAL MANAGEMENT SYSTEM IN EDUCATIONAL ORGANIZATIONS AS A GOAL BASED MANAGEMENT APPROACH

Goal-based management is a popular comprehensive system management tool. The peculiarity of this method is that the Manager creates a set of goals for all employees and divisions of the educational organization. (Chernyakov, 2015, p. 21) the Goals of an educational organization in the management process are areas of performance control (Belov, 2012, p. 2; Kuzmin et al., 2012, p. 12; Semenyuk, 2017, p. 27). The strategic goal of the educational organization is its formation as an international scientific and educational center that provides training of highly professional specialists, promotes the implementation of the intellectual capital of students and teachers; integrating education, basic and applied research. Therefore, according to the goals, a set of indicators (indicators) is defined to measure the achievability of the target. The most successful way to define the goals of a lean organization is to use the SQDCME operational management system (Thakur, 2016, p. 64; Womack et al., 2003):

- S-security (the educational institution is responsible to the society for security),
- Q-quality (responsibility for the quality of services),
- D-order execution (responsibility for order execution),
- C-costs (rational expenses),
- M-corporate culture (formation of a target corporate culture by an educational institution),
- E-ecology (responsibility to society for the environment).

The SQDCME model allows you to show managers at different levels the relationship between their operational activities and the strategic performance indicators of the organization (Melton, 2005. p. 665). For each of these goals, it is advisable to build a system of indicators that can be recorded in development programs, lean projects, and individual employee plans (Mostafa et al., 2013, p. 53). The effectiveness of the program is evaluated by indicators covering scientific, educational, international and social activities, distributed by SQDCME goals, synchronized with indicators of Federal and national projects, and indicators of the effectiveness of evaluating the activities of the rector. Those responsible for tactical indicators monitor the performance of each indicator (Chase et al., 2004). At the same time, these indicators are monitored at various intervals, from monthly to quarterly, depending on the target indicator. The purpose of an operational management system in SQDCME format is to constantly ensure the effectiveness

of the main processes, reduce losses in processes by improving operations, achieve high quality products and services, and visualize success. (Lapaev, 2015, p. 318; Shah et al., 2003, p. 134). Thus, it should be noted that when managing goals in the SQDCME format, organizations do not define individual target areas for themselves, but adapt a single set of goals to their activities as a lean-balanced system that contributes to the maximum rationalization of management. Management by goals in the SQDCME model format allows you to summarize the strategic, tactical and operational indicators of organizations, monitoring which allows you to assess the degree of achievement of goals (Lander et al. 2007, p. 3688.). The advantage of using a single model of SQDCME targets in the company can be called the solution of the issue of inconsistency in goals within the organization between management and employees (Petersen, 2003, p. 32.). To plan, organize, motivate, and control SQDCME goals, you need a set of indicators that will allow you to draw conclusions about the level of achievement of goals.

3. SET OF INDICATORS FOR THE SQDCME OPERATIONAL MANAGEMENT MODEL

Let's consider an approximate set of indicators of an educational organization for operational management in the SQDCME management model. Since the goals of an educational organization in the framework of the s (Safety) direction are to ensure the safety of students and employees, preserve health and avoid accidents in the process of providing educational services, it is proposed to consider the following indicators to measure the achievement of these goals:

- 1) The Total number of accidents with classification by type that occurred during the provision of educational services, during the organization of cultural and sports events, while living in University dormitories.
- 2) Accessible environment – the percentage of students with disabilities and people with disabilities who positively assess the level of accessibility of priority facilities and services in an educational institution.
- 3) Providing students in need with places in University dormitories.
- 4) Percentage of students, teachers and staff who have been trained in the field of civil defense and protection from emergencies.
- 5) The Proportion of students who have passed the introductory instruction on civil defense.
- 6) Percentage of students, faculty, and staff who have studied the program to gain experience in the use of personal protection against hazards arising in emergency situations.
- 7) Percentage of students, faculty, and staff who have passed the annual medical examination.

The direction indicators Q (Quality) should allow to assess the quality of services and products, educational organization level of satisfaction of students with quality educational services, the level of employee satisfaction with processes of the organization the educational, scientific, and managerial activities. It is therefore proposed to use the following indicators:

- 1) The proportion of graduates employed within one calendar year following the year of issue, the total number of graduates of educational institutions, enrolled in basic educational programs of higher education.
- 2) The Number of scientific publications of teachers and scientists of the educational organization in publications with a high rating for the year.
- 3) The total number of all scientific, methodological and educational publications of teachers in educational institutions year.
- 4) Indicators of students' publication activity per year.
- 5) The Total amount of research and development work performed by employees of the educational organization.

- 6) The Number of identified nonconformities based on the results of internal and external audits of the quality management system.
- 7) The Number of identified nonconformities based on the results of internal and external audits of the quality management system.

Within the framework of direction D (Delivery), the goal of the educational organization is the timely and complete execution of customer orders, the development of educational programs and modern training technologies, and the expansion of the material and technical base. To monitor the achievement of these goals, you can use the following indicators:

- 1) Number of educational programs.
- 2) The Share of the number of students on the basis of agreements on targeted training in the total number of students.
- 3) The Total number of foreign students at the University.
- 4) The Share of the number of students from third-party organizations in the total number of students who have been trained in an educational organization for advanced training and retraining programs.

According to the target direction C (Cost), which is focused on optimizing the expenses of an educational organization and eliminating all types of losses, the following indicators should be analyzed:

- 1) Material expenses for educational activities.
- 2) The Share of the University's income from income-generating activities in the income from all sources of financial support for the University's activities.
- 3) The Ratio of the average salary of employees of an educational organization to the average salary for the economy of the region.
- 4) The Share of financial resources allocated for the implementation of social programs in an educational organization in the total amount of funds from income-generating activities.
- 5) The Number of reports generated for internal exchange of information on the educational organization that resources are spent on.
- 6) The number of working days required to prepare documents in your organization.

To ensure the competitiveness of the educational organization, the indicators of the M direction (Morale) set a goal to form a target corporate culture. Therefore it is suggested to use the following indicators:

- 1) Percentage of employees involved in continuous improvement of operations.
- 2) The number of corporate events.
- 3) Proportion of the number of students involved in student self-government.
- 4) Number of subscribers in official groups in social networks.
- 5) Percentage of students involved in extracurricular activities of educational orientation.
- 6) The Share of lean technologies used in the work processes of employees of an educational organization.

Within the e (Ecology) direction, an educational institution is responsible to society for the quality of its environment, so the following indicators should be considered:

- 1) The state of the environment in an educational organization (maximum permissible concentrations of pollutants in air, water, food, maximum permissible levels of fields).
- 2) The proportion of students, staff and faculty involved in environmental actions.
- 3) The Number of cases of violations of the order recorded in the premises of the educational organization (sanitary condition, Smoking, etc.).

- 4) The Percentage of volunteers of an educational organization engaged in garbage collection and landscaping.
- 5) The Percentage of volunteers of an educational organization engaged in garbage collection and landscaping.

In the process of managing in the format of the SQDCME target areas model, you should first set the normative or planned values of key indicators, as well as the frequency of monitoring the actual results achieved. An important step in applying the SQDCME operational management system in educational organizations is to determine the reasons for deviations of actual values of indicators from the planned level. In our opinion, the best way to monitor performance in key areas is to monitor indicators for each SQDCME goal. In this context, monitoring means periodic (for example, daily) monitoring, constant assessment of the parameters of the target direction for the purpose of operational management of its state. Since visual management is considered one of the fundamental principles of lean production, this tool should undoubtedly be applied to management in terms of goals and key areas of ensuring efficiency. Visual control is "a system of visual elements (tableau, diagrams, signs, markings, information on displays) that control people's actions" (Denisova, 2019, p. 73). Visualization in the management process involves a systematic representation of the values of key indicators on the stand in the meeting room, mainly in graphical or tabular form. At the same time, monitoring visualization is of particular importance in management as a means of visual representation of the relationship between the process of activity and the results of work. Visual management in monitoring mode helps the Manager understand the success and problem areas of the organization, provides employees with information for self-assessment of their actions. Visual management of goals within the lean concept involves the following stages of implementation:

- adaptation of SQDCME goals to the types and areas of activity of the organization;
- selecting at least two key indicators for each goal;
- approval of frequency of monitoring of key performance indicators for each goal;
- pinning is responsible for the achievement of key performance indicators for each goal;
- the establishment of regulatory or target values for key indicators.

Managers who use visual operational management in SQDCM format in practice in all divisions of an educational organization, formulate the following positive effects of this tool (Zhemchugov et al., 2014, p. 8; Setina, 2018, p. 150; Kucheryavenko et al., 2019; Lukashevich, 2018, p. 7, Wilson, 2010, p. 153):

- timely informing all participants of the educational process about the results and goals of activities, transparency and efficiency of data;
- monitoring of all stages and parameters of the educational cycle;
- save time on meetings and planning;
- not only tracking results during the work process, but also quality control, compliance with labor protection requirements, service and corporate culture on a daily basis;
- more correct and correct prioritization in the process of activity;
- solving problems of interaction between the services of an educational organization.

Exploring existing approaches to implementing lean technologies through the SQDCME goals management system, it should be noted that the authors' proposed comprehensive system of indicators provides for its definition, evaluation, visualization, analysis and correction of key indicators. Monitoring the effectiveness of these target values will improve the effectiveness of management of an educational organization, as well as achieve its development goals.

4. CONCLUSION

In modern conditions of increasing competition and scientific and technical development, educational organizations are looking for ways to modernize the management system. In the practice of many educational organizations, the approach based on operational management, which is based on fixing targets in different areas of activity, has become widespread. The effectiveness of the educational organization in managing goals is ensured and controlled by key indicators. Since the tools of lean production are now widely used in the business environment of many countries of the world, the approach to managing goals is also being modified according to the lean ideology. As part of the application of lean production concepts, management is carried out in the following target areas: ensuring the safety of all consumers and employees of the organization (S), achieving high quality products and social and labor relations with the organization's staff (Q), fulfilling customer orders (D), cost control (C), developing corporate culture (M), and compliance with environmental standards (E). The greatest efficiency in managing an educational organization is achieved through a visualization tool that can be used everywhere, including when managing goals in the SQDCME model. As part of the application of lean manufacturing, the goal-based approach to managing an educational organization should be implemented in the SQDCME format. The SQDCME model is considered a standard method of lean technologies that allows managers of different levels to show the relationship between their operating activities and performance indicators. The author's set of indicators proposed in the article for the SQDCME operational management system will improve the efficiency of educational organization management.

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