System and parameters of transport and management of an educational organization providing training for specialists in tourism

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Abstract. The article presents the management system of a higher educational institution, which provides training for specialists in tourism. The system reflects the processes of functioning, creation and development of an educational organization as an object of management. The stages of planning the parameters of managed processes and their constituent management phases, including planning, accounting, control and regulation are given. The objective tree based on the management period is also presented. It has been proved that it is the tasks of planning and the quality of their solution that most affect the efficiency of the entire management system.

1 Introduction

The management system of the university that provides training for specialists in tourism business faces a large number of management tasks that can be classified according to various criteria. Despite the variety of tasks that need to be solved for the successful management of an educational institution, they can all be divided into two interconnected groups. These groups differ in the nature of the processes that are intended to be managed.

These groups are the following:
1. Processes of the object functioning;
2. Processes of creation or development of an object.

What are the features of managing these processes for universities that train specialists in tourism business?

According to the first group, the system is designed to develop solutions that will ensure such a functioning (behavior) of the object in which the objectives set for it will be achieved. Thus, the object really exists, and its parameters are taken as input information [1-3].

When managing processes of the second group, it should be taken into account that the object does not exist and should be created. However, it may exist, but it will have such
parameters (for example, capacity) that won't ensure the achievement of the objective. Thus, the purpose of the management system is to make decisions that make it possible to create an object of the desired parameters.

It is clear that in real systems there are processes of both the first and second groups. Consequently, the university management system should take them into account and provide the necessary solutions.

Let’s consider the main concepts for building a management system for the functioning of a higher educational institution which provides training for specialists in tourism.

As a basis for the formation of the key concepts, let us take the analysis of logical and informational links between the components of the managed system, i.e. subsystems and management objectives [4, 5].

Managed processes. Among the material managed processes, we presented the main production process, i.e., the educational process, and others that provide it with appropriate resources. They can be called the resource ones. Each of the material processes has its own "product". The educational one has specialists in tourism business; the process of material resourcing, for example, has those material resources that are used in the educational process; the process of providing workforce (personnel) has teachers and other personnel necessary to ensure the educational process.

Consequently, the achievement of the system objective depends directly on the results of the educational process, and the resource subsystems create the conditions for this. The above considerations make it clear that the process, the results of which are "closest" to the objective, is an educational process, and resource-providing processes are subordinate to this particular process.

It follows that there are certain informational links between the subsystems. Meanwhile, having a defined objective of the system (organization) activity, it is necessary to determine the planned parameters of the main process (the educational one). Then, using these parameters as input information, one should determine such parameters of resource subsystems that will ensure the achievement of the planned objectives and their indicators by the educational process (figure 1).

Management phases. The management phase (one of the stages of the information exchange cycle between the body (management system) and the management object) is taken as one of the signs of the decomposition of the management system. As a result of the decomposition, a set of management tasks of the university is formed. The body and the object of management have a permanent link in the management process. It forms a closed-loop management (cycle) [6-8]. These cycles are always repeated, as long as the system is functioning. Each cycle, in turn, consists of phases (stages), the sequence of which will be presented schematically (figure 2).
Let’s consider the content of the phases shown in the diagram and justify the sequence of their implementation.
1. Planning. It can be presented as a determination (forecasting) of the results of the activity of a managed process (products, services) for a certain period of time in the future based on a comparison of information about the need for the environment in these products (services) and about the capabilities of the object aimed at achieving the system objective. That is, as a result of planning, it is necessary to determine the desired parameters of the managed process, namely, the number of products (services) that ensures the achievement of the objective. The main constraint in planning is information about the demand for products and the production capabilities of the process, for example, production capacity. If we take the type of product (services) as \( j \), and its volume as \( j \), then as a result of solving the planning problem we define \( X_j, j = 1, m \), where \( m \) is the number of types of products.

The transfer of the planning results of the management object makes it possible to carry out a process that is aimed at obtaining the planned parameters.

2. Accounting. Along with the implementation of a managed process, information on the results (products) of this process is transmitted to the management body (block 2). Accounting can be defined as the management phase, which consists in obtaining and processing information about the actual results of the object's activities.

3. Control. Information about the actual state of the managed process can be effectively used with information about the desired state of the process. Control is a management phase aimed at comparing information about the actual results of the production process with planned indicators and identifying deviations (block 3).

4. Regulation is the management phase at which the decisions which will make it possible to establish deviations in the object's behavior and achieve the planned results are made by the management body (block 4).

By analyzing the information links between the considered management phases, it is possible to establish the sequence of their implementation in time: planning, accounting, control, regulation [9].

Indeed, management tasks can be solved only with known deviations from the plan. Thus, it is first necessary to solve management problems. In order to implement management problems, one should know the information about the actual state, which is given by the accounting, as well as the information about the desired (planned) state, which is the result of solving the planning problems.

Based on the content of the tasks of various management phases, it is necessary to note the special role of planning tasks. Their solution determines the best parameters of the object or the results of its activities (volumes of products, resources, economic indicators) according to a certain criterion. All other phases, including accounting, control and regulation, are aimed at achieving these results. If the solution of planning problems in terms of quality differs from the optimal (best) ones, then the tasks of the other phases will ensure the achievement of these non-optimal solutions.

This allows us to conclude that it is the planning tasks and the quality of their solution that most affect the efficiency of the entire management system.

Management periods.

The management period means such a time interval after which decisions on the impact on the managed object are successively made. We defined the management period as one of the signs of the management system decomposition. Let us consider the links between the management tasks for different periods, based on the logical and informational links between the tasks.
Fig. 3. Objective tree based on the management period: a) in general form; b) for the planning period of a certain structure.

Planning tasks. The planning task for any time interval is intended to achieve the system objectives for that time interval. Using a consistency diagram between objective, strategy, and tactics, an objective tree for different periods can be represented.

The main conclusion from the scheme is that the system objectives are formed at the highest level and sequentially are divided into sub-objectives. If we take the summer time interval as the most productive one (conditionally), as in figure 3, b, then the main system objective is formed for the year, in order to ensure its achievement. It is necessary to divide the main objective into sub-objectives, for example, quarterly, then monthly, etc. According to the links of objectives at various levels, planning tasks also have similar links, since they are aimed at achieving the corresponding objectives.

Conclusion. It is advisable to start planning with tasks for a larger time interval (for example, a year) as their results are transmitted as a constraint for planning tasks for smaller
periods (quarters), etc. Thus, the sequence of solving planning problems for different periods is as follows:
   1) long-term (more than a year) planning;
   2) annual planning;
   3) monthly planning;
   4) planning for the week;
   5) planning for the working day;
   6) real-time planning.

Such a sequence in the planning system, as well as the exchange of information between tasks, will ensure the achievement of the entire objective system and will implement the process of effective management of the development processes of the university which provides training for specialists in tourism.

References