

The management of the resources educational institution



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Abstract

The structure of the management of higher education according to the criterion of efficiency, which, in contrast to existing, provides control on the achievements of the institution and the level of use of resources, and a model is developed to assess the level of resource management when scheduling classes.

Key words: SCHEDULE, AUTOMATED CONTROL SYSTEMS (ACS) OF HIGHER EDUCATION INSTITUTIONS, RESOURCES OF THE UNIVERSITY, THE CONTROL CIRCUIT, MANAGEMENT OF THE EDUCATIONAL PROCESS, QUALITY OF MANAGEMENT RESOURCES.

To solve strategic and operational problems of resource management of the institution must have objective information about the use of resources, processes and results of educational institutions, which requires the creation and maintenance of up to date monitoring and evaluation system-level resource use

university. At the stage of creation of such a system it is important to identify priority sites monitoring information that could materially affect management decisions. These facilities primarily include the performance of staff and efficiency of classroom fund educational institution.

Traditionally, ACS is used in the management of various technical systems and technological processes (ACS TP). In the economy it is known as ACS organizational management (ASO), in which the management of people with different functions for the production of a tangible product. In the works of Professor E.V. Lutsenko [1, 2] it is proved that the transfer of huge developments in these areas to a new domain synthesis reflexive ASU University is correct. The learning process is a complex dynamic system of interrelated activities of teachers and students with organizational and leadership educational institutions, managers and the managed systems. The functioning of this system is determined based on the specified meanings, goals and objectives. Outside (external contours) training system is deterministic, since learning in General, in relation to students (knowledge, abilities, skills development and so on), provides specific, planned, expected results. And the internal system is characterized by individual actions of students who are of indeterminately character [2]. Theoretical analysis of scientific papers, familiarization with the practical experience of universities in relation to identified problems revealed a number of contradictions between the requirements of this to learning management and security institutions relevant modern means and methods of their use [2, 3, 4, 5, 6].

In determining processes control educational institution may disengage from school and physical characteristics instead of a real institution consider it adequate model. Applying the basic concepts and provision of general management theory to educational institutions and using resource approach, university management system can be represented as shown in **Figure 1**.

The control object in this control scheme the "Educational process" as the system performing process of the formation of the activities of the educational institution and needs to be specially organized outside influences for the implementation of the algorithm of its operation. Device management is the structure element "Analysis and correction", as the device is performing in accordance with the control algorithm impact on the control object. The main influence that muddies, $x_o(t)$ which acts on the control object is the resource part, and a controlled variable $y(t)$ is the original part that characterize the state of the control object. Then, according to economic theory, the effectiveness of educational institution is defined as the ratio of the obtained achievements in nested resources [7]:

$$k = \lim_{s, w \rightarrow \infty} \frac{\sum_{i=1}^n D_i(g_1^1, g_2^1, \dots, g_s^1)}{\sum_{j=1}^m R_j(g_1^2, g_2^2, \dots, g_w^2)} \rightarrow 1, n = \overline{1 \div 5}, m = \overline{1 \div 7}$$

where k – is the efficiency, D – achievements, R – resources.

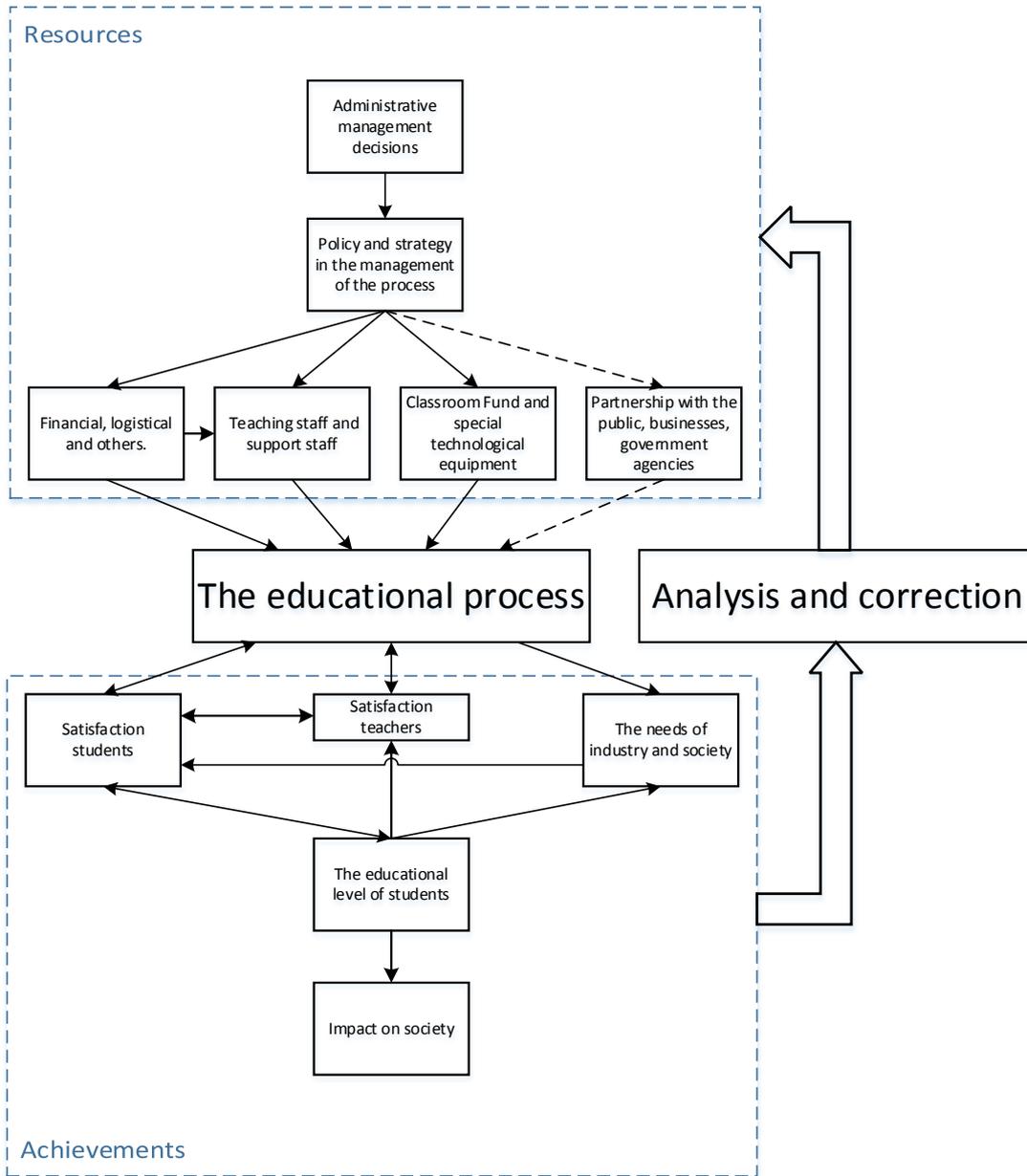


Figure 1. The structure of University management

As an educational institution is a non-linear organizational system, it requires the formation of a complex, multi-layered, multi-factor and multi-circuit control system. The management of the educational process in the University is carried out through the management of the teaching corps in providing students with educational services and the management of the

University in relation to the educational process (classroom Foundation, educational and scientific laboratories, etc). The level of provision of educational services largely determines the rating and performance of the University in the education market. If the structure of management of the educational institution deploys from the point of view of efficiency, it is transformed into the form presented in Figure 2.

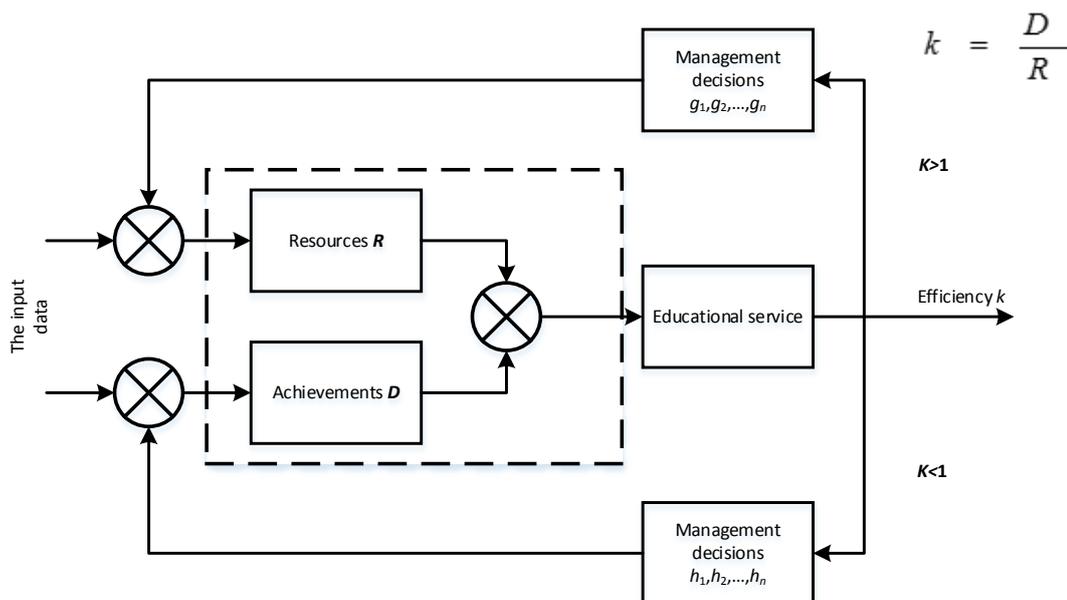


Figure 2. The structure of University management based on their performance

The structure component "Achievements" Y combines the following elements: the level of satisfaction of students, enterprises and institutions, consumers, labour, higher education, teaching corps; the educational level of students; impact on society. The structure of the component Resources X includes elements such as: the leading role of leadership and collegiality of decision-

making; policy and strategy in the field of quality; financial, logistical and other resources; teaching staff and other personnel; partnerships with businesses and institutions, students, social organizations. Decision-making is about the size of the obtained efficiency. The algorithm of decision-making is presented in Figure 3.

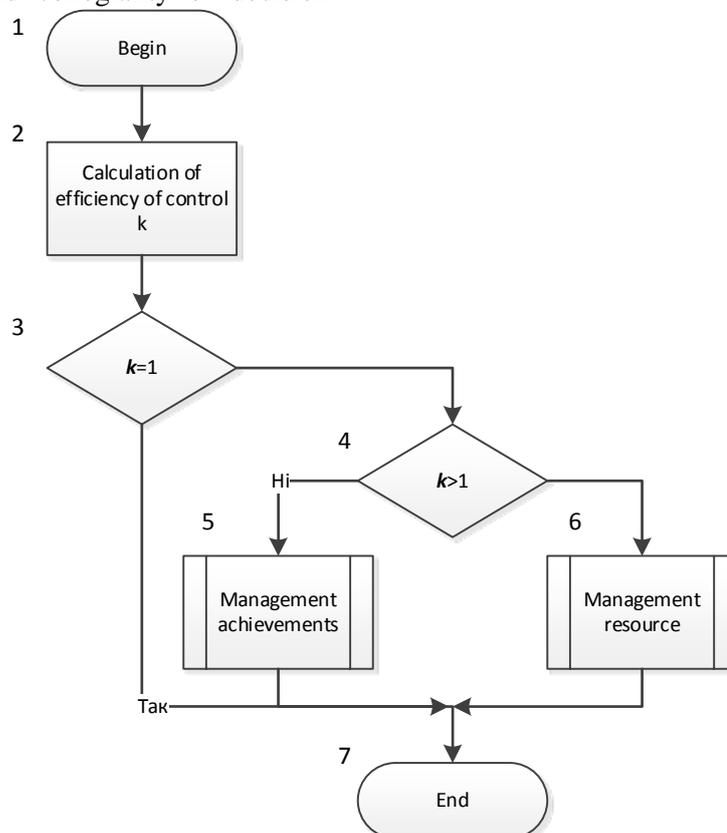


Figure 3. Algorithm for management decision

As a control object in the control structure of the educational institution will be considered by educational service as an essential element of the educational process, and the management will be divided into two circuits: the "resource Management" $\{g_1, g_2, \dots, g_n\}$ and "Management advances" $\{h_1, h_2, \dots, h_n\}$. The output parameter is the efficiency of k that characterize the educational service. The input stream in turn, is divided into two components: "Resources" X and "Achievements" Y all participants in the educational process. Both components, in turn, are complex systems with their input and output streams.

The algorithm of functioning of the control device and the algorithm of functioning of the control object will be described dependencies:

$$g(t) = A_y[X(t), k(t)]$$

$$h(t) = A_y[Y(t), k(t)]$$

$$k(t) = A_o[g(t), h(t), Z(t)]$$

Component input stream "Resources" includes two types of resources:

- external, which include: financial security r_1 ; logistical supply r_2 ; methodical provision r_3 ; organizational security r_4 ; provision of professional development r_5 ; Information security r_6 ; system of incentives r_7 ;
- the interior: the level of preparedness and adaptation to professional activity.

Each component of the components in the "Resources" and "Achievements" feature or settlement, or expert opinion. Among the characteristics that can be measured and monitored, determining the quality management of the educational process, a significant position indicators of the quality of resource management. Regarding boot classrooms quality criteria are objective and simply defined in a quantitative measure. Quality use of teaching staff, the situation is somewhat more complicated: each teacher has a personal view to the quality made up for him the schedule and quality of the schedules of the students regarding his discipline. As it is known [1, 8], the schedule has a pretty significant impact on the quality of training at all. The purpose of management of the educational process and revealing hidden factors negatively affecting it uses mathematical models, based on the apparatus classical regression analysis. Based on these models, forecasts quality class schedules, which are used in the process of scheduling that allows you to reduce the number of possible schedules when searching for the optimum.

Conclusions

The developed model will allow us to estimate the generalized quality schedules in the process of formation of the point of view of efficient use of resources of the school (classrooms and teaching staff). To improve the model it is necessary to examine the components of quality schedules and their impact on the efficient use of resources.

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