

Enterprise Management System: an enterprise as an open system that operates within the framework of a situational approach

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ABSTRACT: The article considers an enterprise as an open and social system that acts in terms of situational approach. This supposes changes of enterprise management forms, methods, systems, style depending on the objective conditions of the environment, as well as accelerated convergence of management models. It is demonstrated that management is a purposeful and continuous process of management subject influence on a controlled object, which is aimed at changing a state according to a defined plan and which is an essential function of any system. There are basic principles (cybernetic laws) of building management systems that include variety, differences of general from particular, external addition, feedback, anti-entropy, as well as cybernetic and functional models of a management system. The paper considers an enterprise management system as a form of real implementation of managerial interconnections and its composition including the subsystem of management methodology, process, structure and technique.

Keywords: enterprise, social system, a control system, functions, principles, laws, feedback, structure, mathematical model.

INTRODUCTION

In the conditions of a modern market economy, the active development of entrepreneurship, and the modernization of the public sector, the content of organizational, managerial, both in the public administration system and in management at the level of an individual enterprise, is significantly changing [1]. The creation of corporate forms of management, changing the psychology of managers, the style, their reassessment of their role and place in the

management system cause a reasonable interest in the theory and practice of managing a modern enterprise.

A new approach to production management is that any enterprise is considered as an open system that operates within the framework of a situational approach [2]. Therefore, the forms, methods, system, style of enterprise management should change significantly depending on the objective conditions of the external environment, goals, strategy, technology, etc. Today we can talk about a more accelerated process of convergence of management models.

Management as a function of the system

Management is a purposeful constant process of influence of the subject of management on the object of management, aimed at changing the state of the object and/or subjects (including oneself) according to a predetermined plan [3]. This is the activity of bringing the objective process to the subjectively chosen goal. Expediency necessarily underlies any management. When studying and analyzing any system, it is necessary to clearly distinguish between its two main characteristics - function and purpose.

The function of the system is a characteristic that determines the change in the states of the system. The set of all possible states of the system is predetermined by the number of its elements, their diversity and interconnections.

The management function is a special type of management activity, specific forms of management influence on the activities of the system, which determine and determine the content of business relationships.

The goal of the system is a certain (desirable, set from the outside or established by the system itself)

state of its outputs, that is, a certain value or set of values of the system function.

The purpose of the production process at the enterprise is the optimal release of a given range of products with the most rational use of limited technological resources and progressive methods of organizing production.

The set of observed states of the system function describes the trajectory of the system. The concepts of function, purpose, and trajectory of a system refer to it as a holistic entity, rather than individual elements.

Important characteristics of a system are its structure, size and complexity.

The management structure is an ordered set of persistently interconnected elements that ensure the functioning and development of the organization as a whole.

The organizational structure of the management apparatus is a form of division of labor in production management.

Each division and staff unit in the enterprise is created to perform a certain set of management functions or work, is endowed with certain rights to manage resources and is responsible for the performance of the functions assigned to the division.

The organizational structure regulates the distribution of tasks among departments, their competence in solving certain problems, and the general interaction of these elements.

Within the framework of organizational structures, the entire management process takes place, as well as the movement of information flows, in which managers of all levels take part.

The size of the system is characterized by the number of its elements and the connections between them, the complexity - by the diversity, heterogeneity of the properties of the elements and the features of the connections between them.

Management as a process of influence of the subject on the object of management is unthinkable without a management system, which is usually understood as a mechanism that provides the management process, that is, a set of interdependent elements that function in a coordinated and purposeful manner. The elements involved in the management process are combined into a system using information links, and more specifically, according to the feedback principle.

Defining the concept of "management", the French founder of the administrative (classical) school of management A. Fayol names six such functions (operations) [4]:

- technical (production, manufacturing and processing);

- insurance (insurance and protection of property and persons);

- accounting (accounting, calculations, accounting, statistics, etc.);

- administrative (forecasting, organization, management, coordination and control).

Revealing the content of the administrative operation, the scientist explains: "To manage means to organize, dispose, coordinate and control; to foresee, that is, to take into account the future and develop a program of action; to organize, that is, to build a dual material and social organism of the enterprise; dispose, that is, force the staff to work properly; to coordinate, that is, to connect, unite, harmonize all actions and all efforts; to control, that is, to take care that everything happens according to the established rules and given orders.

Any management process has characteristic features:

- the need to create and operate a complete system;

- purposeful influence on the system, the result of which is the achievement of orderliness of relations and connections capable of performing the tasks;

- the presence of the subject and object of management as direct participants in management;

- information as the main link between management participants;

- the presence of a hierarchy in the management structure (elements, subsystems, systems, areas, regions, etc.);

- the use of different forms of subordination of the control object to the subject of control, within which different techniques, forms, methods, methods and means of control are used.

Based on the division of the surrounding world into three main components (lifeless nature, wildlife and human society), management is traditionally divided into the following types:

- technical management in lifeless nature (in technical systems) - management of scientific and technical processes and physical bodies, machine systems, etc.;

- biological control in living organisms (in biological systems) - control of processes occurring in wildlife and related to the vital activity of organisms;

- social management in society (in social systems) - management as an influence on the activities of people united in different social groups with different interests.

Each of the types of management is distinguished by its purpose, qualitative originality, specific features, and the intensity of the management functions and operations carried out.

Regarding the quantitative composition of management functions, scientists do not have a

common opinion. For example, in [4] there are five main management functions (foresight, organization, management, coordination and control), in [5] - six (planning, organization, leadership, leadership, work with personnel and control), in [6] - ten (goal setting, organization, coordination, managerial decision making, planning, regulation, control, work with personnel, leadership and administration), and in [7] - four (planning, organization, motivation and control) and decision making as a cross-cutting and interconnected function. This set seems to be the most optimal, because the concept of organization is quite broad and all-encompassing and includes those functions that some authors identify as management functions.

Planning. With the help of this function, the goals of the enterprise (organization), the means and the most effective methods for achieving them are determined. An important element of the function is forecasts of possible development directions and strategic plans. At this stage, the enterprise must determine what real results it can achieve, assess its strengths and weaknesses, as well as the state of the external environment organization. This management function forms the structure of the organization and provides it with everything necessary (personnel, means of production, materials, etc.), that is, at this stage, conditions are created to achieve the goals of the organization. Good organization of the work of the staff allows to achieve more effective results.

Motivation. It is the process of motivating people to act in order to achieve the goals of the organization. Performing this function, the manager provides material and moral incentives for employees and creates the most favorable conditions for the manifestation of their abilities and professional growth. With good motivation, the staff performs their duties in accordance with the goals of the organization and its plans. The process of motivation provides for the creation of opportunities for employees to meet their needs, subject to the proper performance of their duties. Before motivating staff to work more efficiently, the manager must find out the real needs of his employees.

The control. This management function provides for the evaluation and analysis of the effectiveness of the results of the organization's work. With the help of control, an assessment of the level of achievement by the enterprise of its goals and the necessary adjustment of the planned actions are carried out. The control process includes setting standards, measuring the results achieved, comparing these results with the planned

ones and, if necessary, revising the primary goals. Control unites all management functions together, allows you to maintain the desired direction of the organization's activities and correct wrong decisions in a timely manner.

Principles of construction of control systems

When constructing control systems of any degree of complexity, it is necessary to take into account the basic principles (laws) of cybernetics [8].

Law of Necessary Variety. The essence of this law is that the diversity of a complex system requires a fairly diverse management. The law substantiates the need for multivariate planning, finding optimal solutions. Management based on the consideration of only one version of the plan cannot be recognized as scientific. Optimal control, built on the consideration of different options, is scientific control that meets the law of necessary diversity. The more complex and, therefore, the more diverse the system itself, the more important the optimality in control becomes.

The law of difference between the whole and the partial (the law of emergence). The essence of this law is that the system has integral properties, that is, not inherent in its constituent elements. The larger the system, and the greater the discrepancy in scale between the part and the whole, the more likely it is that the properties of the whole may be very different from those of the parts. Emergence is one of the manifestations of the dialectical principle of the transition of quantitative changes into qualitative ones. The law of the difference between the whole and the partial shows the discrepancy between the local optima of individual subsystems and the global optimum of the entire system, as well as the need for an integral consideration of the system, achieving a general optimum. When synthesizing control systems, it is customary to assume that common (emergent) interests are concentrated in the center of the system, in the central body, at the top level of the hierarchy,

The law of external complement. In complex systems, the forecast of the state of the environment and the development of control influences by formal methods can only be carried out approximately. As a result, meaningful control of the work of a formalized control scheme and its correction by making additional (external) informal decisions are always necessary. Such adjustments can be considered as a result of the functioning of the black box built between the output of the formalized control subsystem and the input of the controlled subsystem.

The more complex the system, the more natural will be deviations that are not taken into account when planning and creating systems. Therefore, the control system must have appropriate reserves, compensators and regulators to correct such unaccounted for deviations. A set of informal procedures for correcting algorithmically (formally) obtained control influences and setting different parameters is called external addition, and the theoretical necessity of such informal compensation is called the principle or law of external addition.

The law of feedback requires the construction of a system using closed loops. For the economy, this means the need to concentrate the plan and accounting in one hand.

The law of anti-entropy comes down to the fact that the control of the system is always aimed at reducing the uncertainty in knowledge about the construction and behavior of the controlled system by increasing information awareness when making a decision. Control is always associated (for a given degree of system complexity) with the limitation of the degrees of freedom of the system, which is necessary to determine the purposeful behavior of the system.

Currently, there are two forms of division of labor in the enterprise: horizontal and vertical. The first form is the division of labor into component parts of the overall activity by decomposing work into separate tasks. The result of the horizontal division of labor is the formation of enterprise units that perform certain parts of the overall transformation process. Since the work in the enterprise is divided between departments and individual performers, someone must coordinate their actions in order to achieve a common goal. There is a need to separate managerial work from the executive. Thus, the need for management is directly related to the processes of division of labor in the enterprise.

In any management process, there is an object that is managed and a body that manages. In the process of management, this body receives certain information about the state of the external environment, where the object is located and with which it is associated. All this information is perceived by the governing body, which, on its basis, develops management information (makes a decision). On the basis of the decision made, a certain executive body makes a controlling influence on the object that is being managed. It is these three components (together with information links) that form the control system [9].

A control system is a systematized set of means of influencing a controlled object in order to achieve a certain goal by this object.

Often the managing and executive bodies of the object of management are combined into one concept - the subject of management.

The subject of management is structurally defined associations of people and managers at the personal level, carrying out managerial activities and having the authority to do so.

The object of management is individuals or groups of people who are targeted by organized, systematic, planned actions of the subject of management.

Using the methodology of the system-target approach provides for the allocation of two main groups of factors influencing the formation and development of organizational structures of enterprise management. The first group reflects the influence of the characteristic production features of enterprises, the second - the influence of the external environment.

In modern conditions, the constant change in the external environment, the complication of technologies adversely affect the general state of the enterprise. Lagging departments negatively affect the performance of the enterprise as a whole, the activities of middle managers are often ineffective, there are a large number of poorly controlled costs - all these are characteristic features of the activities of large enterprises and the reasons for the overall decline in production.

Therefore, the restructuring of production and, above all, its management system is becoming an increasingly urgent task, in the solution of which it is advisable to use the system principles of modern management to create an effective organizational and economic model for managing a manufacturing enterprise and adapt it in practice.

REFERENCES

- [1]. Kudryavtsev E.M. Organization, planning and management of the enterprise. M.: ASV, 2011. 416 p.
- [2]. William H. Newman and Harvey W. Wallender, Managing Not-for-Profit Enterprises, Published Online: 1 Jan 1978 <https://doi.org/10.5465/amr.1978.4296304>.
- [3]. Jiwat Ram, David Corkindale & Ming-Lu Wu, Enterprise Resource Planning Adoption: Structural Equation Modeling Analysis of Antecedents, Journal of Computer Information Systems Volume 54, 2013 - Issue 1.

- [4]. Fayol H. Industrial and general administration. Paris: Dunod and Pinat, 1917, 174 p.
- [5]. Kunz G., O'Donnell S. Management: systemic and situational analysis of managerial functions; M.: Progress, 1981. 250 p.
- [6]. Zhuravel V.I., Zaporozhan V.N. Management in the system of medical care. Odessa: OMU Publishing House, 2000. 432 p.
- [7]. Meskon M., Albert M., Hedouri F. Fundamentals of management. M.: Delo, 1997. 704 p.
- [8]. Frederik ,Ahlemann , Towards a conceptual reference model for project management information systems ,International Journal of Project Management ,Volume 27, Issue 1, January 2009, Pages 19-30.
- [9]. Korotkov E.M. Study of control systems. M.: DeKA, 2000. 183 p.
- [10]. Richard C. Kearney and Steven W. Hays, Labor-Management Relations and Participative Decision Making: Toward a New Paradigm ,Wiley,Vol. 54, No. 1 (Jan. - Feb., 1994), pp. 44-51 .
- [11]. Gaifullin B., Obukhov I. Modern enterprise management systems // Computer Press. 2001. No. 9. S. 23–27.