



**ADAPTATION MECHANISM OF THE MAIN ELEMENT OF THE CONCEPT OF
MANAGING ECONOMIC AND SOCIAL SYSTEMS**

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Annotation

In this article, setting the Purpose of Control is the starting point for designing the management process and sets the criteria for the operation of the object. If we consider the process of controlling the object of any nature, then the following conclusion will be clear.

Keywords: management, service, competition, economy, competitiveness, competitiveness factors, planning.

Any area of activity in the environment is associated with having an impact so that different objects can be brought to the desired state, known as external impact object management, which is aimed at changing the trajectory of its natural movement to achieve a certain impact on the object. Using conceptual general principles for managing various objects in nature (socio-economic, technical, biological), including:

- the ultimate goal of management;
- preliminary conditions for the operation of an object;
- its internal structure;
- to the external environment.

Determining the purpose of management is the starting point for designing the management process and determines the working criteria of the object. If we consider the process of controlling the object of any nature, then the following conclusion will be clear. Without a predefined goal, the design of the management process does not make sense.

The starting conditions describe the state coordinates of the object, its parameters, taking into account the exact values of the object at the selected zero point for management purposes. Depending on the goal, different time intervals and corresponding coordinate values can be selected.

Object management includes:

- develop a planned direction of action in accordance with certain criteria;
- develop a regulator that corrects the coordinates of an object in accordance with the planned direction.

Designing an object's motion trajectory involves solving the following objective problems:

- first, set the initial coordinates of the movement of an object.
- second, the terms and parameters of its final state (limited coordinates of the movement's trajectory).
- third, determining the quality of an object, at the same time, harmonizes the value of this criterion with the requirement to fall into this area.



Quality criteria determine the acceptability of the process of operation of an object in the process of transition to a specific goal. Quality criteria can be indicated in the form of a condition that a particular function reaches a higher level or falls over a certain period of time.

The planned direction of the controlled object is contained by works by scientists in the field of mathematics. Nevertheless, some attempts to use the results of these studies have been thoroughly reviewed, and we concluded that mathematical formalization of this problem does not have practical implications and cannot be used to develop ways to influence the actual object of control. The validation of this statement is confirmed as "any attempt to make an object transfer: Preliminary conditions under the control of the initial state (Xo) for the required end (XK) Xo object's basic impossible mathematical correct determination leaning." A similar problem lies in the need to formalize the impact of external irregularities on the performance of an object. Thus, by moving across orbit by calculating it, the object will vary from one plan to the fact that the actual state also has mutually planned and actual control actions.

It will also be related to the concept of regulator function. Function of the regulator:

- solving the problem of optimizing the operation of an object;
- is characterized by a dampening of the sensational external pressures that occur when moving along a planned trajectory at each moment. The performance of the regulator can be characterized by the following scheme:

1. The regulator uses feedback to determine the coordinates of an object at each t-time.
2. They are compared to planned coordinates and conclude the need for additional control over the object.
3. If necessary, in accordance with the established quality criterion, the regulator creates an optimal control effect.
4. Affects the object to bring the coordinates closer to the plan.

However, in practice, the planned trajectory and the construction of a regulator are often not enough to effectively control an object. Regulator contributes to deciding a certain task of managing an object

- maintain the laws laid down by the different parameters of the time of the object.
- the object contains reliable information about the creation of a specific math, a measuring error, initial coordinates, difficult to predict, the presence of additional external effects in advance, the presence of character noise that occurs in the object process along the planned orbit, the need to monitor the efforts to change process parameters and environmental characteristics.

The flexible model of the object management system is called the model in which corresponding changes occur in the control structure and parameters to ensure that the object functions as a result of changes in the characteristics of the object's internal and external characteristics.

The effectiveness of managing real objects, regardless of the nature of the controlled object, as shown in practice, usually directly depends on the degree to which a flexible mechanism is used in the control process.

In the broadest sense, adaptation is understood as a system adaptation to change. The specification of the definition of compatibility lies in the research and design objectives.



Adaptation in conditions of cybernetics is the collection and use of information to acceptably achieve the state or behavior of the system with initial uncertainty in changing the environment. It is a system that can adapt to changes, including indoor and external conditions.

Along with the concept of a flexible system, there is a concept of control with adaptation, i.e. information collection and management in a system that does not have a complete knowledge of the management process used to improve the quality of the system. This meaning of the term "adaptation" is based on management theory under the influence of technical manuals.

According to Skurixin V.I., Zabrodskiy V.A., Kopeychenko Y.V., flexible systems work according to certain principles:

1. The principle of necessity diversity. Emphasizes that the diversity of the control system should be no less than the types of control objects. Unlike flexibility, other ("non-appropriate") control systems must incorporate a small number of objects to maintain the ability to control an object. Flexible systems are evidenced by the absence of certain stationary control laws for certain class elements. In the process of operation of the system, its diversity manifests itself, there should be changes in its parameters and structure.

2. Principle of bilateral control. The inspection behavior is of a secondary nature. On the one hand, they serve to control an object, on the other hand, to study its properties and laws for further control. In other words, depending on the change in the parameters of the structure of control objects, the structure of management measures should change.

3. Principle of feedback. With the help of ideas, the characteristics of the controlled object are evaluated and the responses expressed in the control movements are generated.

The main objective is to review the class of economically and socially characteristic objects associated with the functioning of economic and social systems and the processes that take place in them. The basic features of economic and social systems do not allow for the full use of flexible management schemes and methods developed for technical systems.

Economic and social systems are characterized by many factors that significantly complicate their governance:

- difficulties in determining the initial coordinates of the system are exacerbated by the practical inability of their precise measurement;
- lack of a clear structure and frequency of processes;
- inaccuracy of the manifestation of properties;
- inaccuracies of external factors;
- difficulties in clearly defining the working criterion;
- the possibility of changing this purpose of the system movement;
- the possibility of process parameters;
- lack of stationary characteristics of internal and external features of processes.

Management in economic and social systems is not carried out by average characteristics, because it does not bear the right effect: the system itself and its environmental changes in the process of maintaining it. As a result, the mathematical formalization of economic and social systems



management leads to the construction of models that are insufficiently compatible with the actual system.

An important difference between economic and social systems and technical aspects varies in quality in their type of parameter type. Parameters in technical systems, as a rule, have strictly defined physical dimensions. For economic and social systems, formalization in this way is difficult to do due to the difficulties encountered in the precise description of the elements, their parameters and the correlation between the elements. Thus, the management of processes in socio-economic systems depends on the need to make decisions in the context of uncertainty and at the probable level of process parameters. Difficulties in the formation of economic and social systems justify the need for a flexible management mechanism in these types of systems, which involves changing the structure and parameters of the process description model that leads to economic and social systems, depending on the specifics of the process changing.

In the process of moving in the planned direction, the position of the system's coordinates is determined not at a certain point, but at this point at a certain time interval. In cases where it is impossible to clearly define and execute restrictions or objective function, repetitive methods of designing processes are often used. To do this, when managing the process in economic and social systems, it is not taken into account in the entire scheduled direction, but in the time interval ($t_k, t_k + 1$).

Thus, in connection with their non-stationary nature and the fundamental necessity of organizing management for the evolution of time-lapse systems, the use of formal methods for modeling such systems "is not of great size, little knowledge, the availability of poorly formalized factors, unknown criteria for evaluating decisions, etc." Mathematically formalized management models do not provide adequate descriptions of the process, do not fully take into account the incompetence that affects the economic and social system in the process of their work, as well as compensate for the noises that arise in the system as a result of these disorders.

First, it is necessary to define the structure of the process model to develop an economic and social facility management system. In the absence of prior knowledge, it is necessary to develop models with flexible structures and parameters. In other words, in the model describing the process, the structure and parameters should be changed depending on the characteristics of the process during operation. Such a model, according to the rules we adopt, is called flexible. Its construction is connected with the use of iterative methods.

At the same time, every minute of the economic-social system, the values of its parameters are evaluated from the parameters of input and output.

One of the decisive factors contributing to the use of flexible models is the stationary state of the environment. The improbability of formally describing irritating effects in economic and social systems is due to the peculiarity of the deviations in the relevant processes and the probability of their occurrence.

The complexity, stationary and ambiguity of economic and social systems does not allow you to use direct and identification approaches to develop customized methods developed for technical systems.



In technical systems, despite the physical amount of control and the difference in the characteristics of the process, it is usually possible to reflect their correlation as a set of formalized models.

Modern economic and social systems are characterized by many elements and their relationships, high level dynasty, the presence of functional connections between elements, and the effects of various interventions in their nature. The processes arising from these systems have not been made worse.

Therefore, the optimal management problem is solved in two stages by the world's program, orbital synthesis and determined by control movement, including the program. At such stages, economic and social systems are called "planning" and "control." The optimal application is to distract the orbital control economic and social system, find control actions aimed at solving the destabilizing consequences of random symmetries - planning, economic and social time system and regulation for a specified period of time a control program is accepted as an optimal orbital determination.

It is almost impossible to describe the dynamic characteristics of economic and social systems in a formalized form, since it is difficult to show a functional relationship between government and governance. In other words, it is impossible to determine the parameters of the control object, so it is impossible to create a project design algorithm. There are many reasons for this. One is the complexity of the processes leading to economic and social systems. As a result, no model of the management system was created in general, and planning and regulation models were created.

The relationship between the governing body and the controlled process affects them, taking into account the parameters describing the object. Acts as a parameter of the latest planning and regulatory problems models. The nature of the impact of parameters on the change plan or regulation is for the models being studied.

Thus, the flexible model of managing economic and social systems consists of two interconnected parts: a harmonized planning system and systematically fully identifiable parts. These include a customized regulatory system consisting of the following interrelated parts:

- plan (edit);
- jarayonni shakllantirishning simulyatsiya modeli;
- internal (imitation) adapter;
- external (object) adapter.

Based on an analysis of the object and environment, the external adapter selects the planning task model, as well as the simulation model, thereby performing structural adaptation of the control system. Based on the plans of later past periods and the results of significant past changes execution, it sets parameters in the planning model and the object's imitation model, which includes simulation models, environment, and regulatory system.

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