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# THEORETICAL APPROACHES TO CYBERNETIZATION OF MANAGEMENT PROCESSES

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***Annotation* — The article summarizes theoretical approaches to cybernetization of management processes at enterprises, which is usually characterized by high level of uncertainty of expected results of enterpriseseconomic activity.**

***Key words* — management process, cybernetics, management optimization, management information, stages of managerial process.**

The following scientists studied the cybernetics and its significance in the management process: N. Wiener, I. N. Drohbitsky, A. I. Berg, Y. I. Chernyak, V. M. Glushkov, V. F. Turchin, T. A. Vashko, N. V. Markov, Y. I. Fet, A. A. Shiyan etc.

.Management is a process of developing, adopting and implementing targeted effects on any element of a managed system or on the system as a whole, designed to ensure its effectiveness and efficiency at the current moment in an accessible for the prospect.

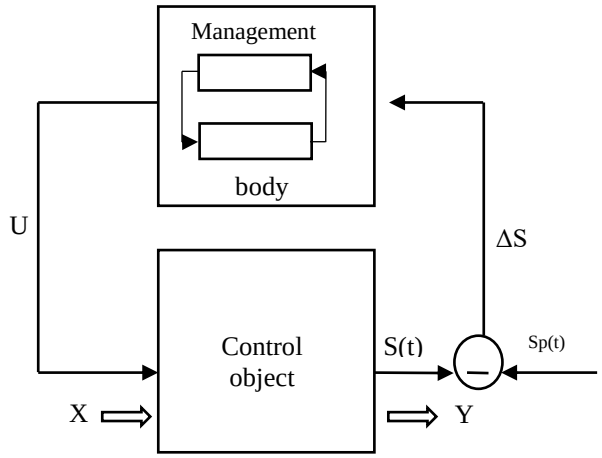
Process Management – a set of specific activities aimed at streamlining and coordinating the operation and development of the organization and its elements in order to achieve their goals [2].

This process is characterized by continuity, cyclic repeatability of individual phases (collection, processing, analysis, storage, control of information and decision making, organization of their implementation), unevenness, inertia, which manifests itself in the lateness of managerial actions. It develops and improves with the organization itself.

Each controlled system should have the freedom to choose the trajectory of the movement to a given goal – a strategic plan. It reflects the intermediate systemstate, the methods of transferring the system from one state to another and necessary resources for this [5]. In order to make the best choice of trajectory to the goal, the managed system should be able to compare alternative trajectories. This means that there are must be criteria for comparison and ways to determine (compute) their values [3, 4].

A managed system should have the resources to ensure the implementation of the managerial decisionsgeneration. First of all, it relates to human resources. In the controlled elements (subsystems) of the system there are must be people (specialists) who adequately perceive generated management decisions and can translate them into life. The moment of the transition of management decision from the governing body to direct executives is a "bottleneck" for most economic systems.Lack of information on the problem can lead to unreasonable management decisions. Without information there is no management [2].

The development of alternative options and the adoption of management decisions are informational and knowledgeable nature and occur in a wielding intellect environment. Such developments necessarily provide for possible consequences. For such a prediction, a model is required [8]. Such cybernetization of the organizational management will go through the formalization and development of all three acts of managerial influence. Managerial decisions will not only be the result of creativity, but will be designed and calculated as engineering solutions. Any management solution generated




by them can be subjected to quantitative verification (recalculation) due to the cybernetic model of management (Fig.1.1).

Fig. 1.1. **The cybernetic management model**

Legend:
X –input stream (raw materials, materials, energy, etc.);
Y –outflow (products, services);
Sp (t) –planned state of the managed system;
S (t) –current state of the managed system;
ΔS –divergence between planned and current states;
U –managerial influence

In response to the current "challenge" of the information exchangemanagement, transmission and storage, such a science as cybernetics develops. Cybernetics is a science of information management. The subject of studying cybernetics is the management processes in complex dynamic systems. Cybernetics examines only those aspects of the systemsfunctioning, which determines the flow of control processes in them, that is, the processes of collecting, processing, storing information and its use for management purposes [7].

The main theoretical tasks of cybernetics are [1]:

1) establishing facts common to managed systems or for some of their aggregates;

2) finding common laws that are followed by controlled systems;

3) detection of restrictions inherent in managed systems;

4) determination of the ways of practical use of established facts and found patterns.

The main practical task of cybernetics is optimization: that is, the solution to the problem of how to achieve the organization of each element of the system under such conditions, such interaction between elements and exchange with the external environment, so that the results of the functioning of these systems were the best, that is, minimize costs (time, raw materials, energy, human labor, etc.) that are used to achieve a given goal [6].

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