СЕКЦІЯ 4
МЕНЕДЖМЕНТ

DOI: 10.32999/ksu2307-8030/2023-47-6

UDC 330.341.4

Soloviov Andrii
Doctor of Economics, Professor,
Dean of the Faculty of Business and Law,
Kherson State University
ORCID: https://orcid.org/0000-0002-6429-5253
E-mail: asolovyov@ksu.ks.ua

SYSTEM OF ORGANIZATIONAL RELATIONS IN UNSTABLE CONDITIONS

The article considers the theoretical aspects of the system of relations in the management of the organization. It has been established that the methodological basis of the development of the conceptual apparatus as a toolkit in management is fully implemented with the help of the general theory of systems, the theory of organization, the theory of management, and the general theory of management. Studies of multi-level relationships and many factors determining the development of management systems are becoming promising. Such an approach is important for specifying and substantiating the logic and process of system creation, which allows adapting the research model of the management system, which will help to understand how the results of the organization's activities appear, which later form a single picture, as well as the ways of the least resource costs and the greatest economic effect. It has been established that identifying areas of instability in the system of relations is possible with respect to the system-forming levels of the organization relative to the subject and the object of management. In these levels, using the laws of dialectics, relevant vertical and horizontal connections regarding the implementation of business processes are described.

Keywords: system-forming factors of organization development, multi-level structure, attractor, management activity, unbalanced structures, dynamically unstable systems.

Соловйов А.І. СИСТЕМА ОРГАНІЗАЦІЙНИХ ВІДНОСИН У НЕСТАБІЛЬНИХ УМОВАХ

В статті розглянуто теоретичні аспекти системи відносин з управління організацією. Мета дослідження полягає у виявленні системи відносин організацій в умовах нестабільності управлінської діяльності і виявленні системно-теоретичних аспектів в дослідженні системи відносин організації. Встановлено, що методологічна основа розвитку концептуального апарату як інструментарію в менеджменті повністю здійснюється за допомогою загальної теорії систем, теорії організації, теорії управління та загальної теорії менеджменту. Проте поняття «багаторівневість структури», «алгоритм системоутворення», «ієрархічні та горизонтальні зв'язки», «етапи системодинаміки» запроваджуються як категорії міждисциплінарного синтезу, що лежать в основі загальнонаукового пізнання. На основі міждисциплінарного теоретичного апарату виникає необхідність у практичному використанні системної методології при розробці методів дослідження менеджменту організації. Перспективними стають дослідження багаторівневих зв'язків (як зовнішніх, так і внутрішніх) та безлічі факторів, що зумовлюють розвиток управлінських систем. Такий підхід важливий для конкретизації та обґрунтування логіки та процесу системоутворення, що дозволяють адаптувати модель дослідження управлінської системи, яка допоможе зрозуміти, яким чином з'являються результати діяльності організації, що складаються згодом в єдину систему, а також шляхи найменших ресурсних витрат та найбільшого економічного ефекту. Феномен нестабільності відносин призводить до серйозних проблем, одна з яких – передбачення. Перш, ніж проводити розподіл ресурсів у бізнес-проекти, необхідно виділити флуктуаційні галузі нестабільності в системі відносин організації на аналітичних і синтетичних фазах проектної діяльності та за допомогою визначення причинно-наслідкових зв'язків в ієрархії системи відносин виявити тенденцію до зміни ритму розвитку організації. Встановлено, що виявлення областей нестабільності у системі відносин можливе щодо системоутворюючих рівнів організації відносно суб'єкта та об'єкта управління. У цих рівнях, використовуючи закони діалектики, описуються актуальні вертикальні та горизонтальні зв'язки щодо реалізації бізнес-процесів.

Ключові слова: внутрішні і зовнішні системоутворюючі фактори розвитку організації, багаторівневість структури, атрактор, управлінська діяльність, нерівноважні структури, динамічно нестабільні системи.

Problem statement. The modern socio-economic development of Ukraine poses urgent questions regarding the ways and patterns of the economic and evolutionary development of society. In the conditions of the global financial crisis, there is a need to adapt organizations to external instability. The ratio between consumption and savings

is reduced, which in turn determines both todays and future consumption of products. In the conditions of the financial crisis, at this stage, there is a need to obtain the most effective result and implement the organization's development strategy with the available minimum resource investments.

Analysis of recent research and publications. There are many opinions on this problem, in which it is necessary to take into account the consistency and subordination of external and internal system-forming factors of the organization's development. So, K. Berry, P. Drucker, A. Pulford, P. Smith, L.W. Fatkin, F. Jansen, V. Gerasimchuk, I. Ignatieva, G. Kindratska, S. Mocherny, A. Nalivayko, A. Povazhny, V. Stadnyk, Z. Shershnyova and others consider various states of the organization's relations system.

However, this issue requires additional research in specifying the organization's reactions to instability, imbalance of the management system, and diagnostic ambiguity of system indicators. Understanding the system-wide relativity of implemented business processes in the system of relations between organizations and the general crisis can allow us to react more quickly to instability and crisis situations.

The purpose of the article. The purpose of the research is to identify the system of relations of organizations in the conditions of instability of managerial activity and to identify system-theoretical aspects in the study of the system of relations of the organization.

Presentation of the research material and its main results. One of the solutions to this issue is a causal-system approach in management, which contributes to a systematic understanding of the formation of optimal conditions for the development of the science of management. The content of the subject of management is the basis of the professional culture necessary for managers in their field of activity. But the integrative and interdisciplinary processes driving the progress of science also create a level of coordination of interests between different branches of science. In this connection, the significance of the system paradigm is growing in management.

The methodological basis of the development of the conceptual apparatus as a toolkit in management is fully implemented with the help of the general theory of systems, the theory of organization, the theory of management, and the general theory of management. However, the concepts of «multilevel structure», «system formation algorithm», «hierarchical and horizontal connections», and «stages of system dynamics» are introduced as categories of interdisciplinary synthesis, which is the basis of general scientific knowledge. On the basis of the interdisciplinary theoretical apparatus, there is a need for the practical use of system methodology in the development of research methods for organization management.

This approach is presented in a number of fundamental works of scientists: for example, the evolutionary approach as a means of learning multi-quality integral phenomena of nature and society by K. Meyer and S. Davis [5]; research of directions in management as scientific systems [6]; categorical analysis of management by Michael X. Meskon [4].

However, issues related to the consideration of management levels and deterministic capabilities, the degree and depth of macrosystemic, microsystemic, and subjective influences on the development of management systems do not lose their relevance at the current stage. Studies of multi-level relationships (both external and internal) and a multitude of factors determining the development of management systems are becoming promising.

Such an approach is important for specifying and substantiating the logic and process of system creation, which allows adapting the research model of the management system, which will help to understand how the results of the organization's activities appear, which later form a single picture, as well as the ways of the least resource costs and the greatest economic effect. A methodological requirement arises, necessary for the approval of a conceptual apparatus, with the help of which there is an opportunity to describe the solution to the problem of the instability of the system of relations in the organization.

Research that takes into account interdisciplinary connections allows us to conclude that the study of macro- and microsystem determinants (factor space), such multilevel processes as subsystem-system-supersystem, contributes to the knowledge of complex integral objects and the study of management systems of various nature It should be noted that from the sufficient completeness of ideas on the role of management in the knowledge of management, specific processes (for example, formation, interaction, development, emergence of a system in the process of evolution, which generates changes in its

supersystem, study of the space of factors determining its development) remain poorly studied.

One of the primary tasks of management is the description of the dynamics of the development of the management object in the context of the evolution of management systems. This makes it possible to reveal the space of factors of multi-level connections that lead to transitions from one management system to another, which in turn contributes to the evaluation and optimal use of savings.

Thus, it is expedient and relevant to combine the modern achievements of general systems theory, system approach, organization theory, management theory, and general management theory and build a conceptual version of the system-multilevel and deterministic approach in organization management.

The phenomenon of instability of relations leads to serious problems, one of which is prediction [7]. The same event can be analyzed using deterministic and indeterministic research methods. The reason is the inclusion in the object of research of human activity, which drew attention to such concepts as instability, unpredictability, and time, as an essential variable in the study of socio-economic systems. In order to understand the instability of relations, scientists study the internal and external environments of the organization's system of relations and find general regularities, which are the most important events in the research of our time. These studies contribute to the discovery of such concepts as «non-equilibrium structures», where system connections are established by themselves, which in turn contributes to the emergence of the idea of the constructive role of «time», and, of course, such a concept as «dynamically unstable systems» changes the notion of determinism.

Science began to create two ways of research: the deterministic external world and the indeterministic internal world. Order and disorder began to be considered as two aspects of one whole. Perception must be considered dialectically, which is the core idea of disequilibrium. With the help of these scientific studies, it can be assumed that the spectrum of the existence of objects expands and becomes variable. A significant role here can be played by the practical application of the theory of relativity because the question of the reference point in the analysis and development of the organization's management system often arises.

As a result of such variability, a change in the spatiotemporal organization of the object may occur at the bifurcation points. «Therefore, only in a non-equilibrium system can unique events and fluctuations that contribute to these events take place, and there is an expansion of the scale of the system, an increase in its sensitivity to the outside world, and finally, a historical perspective appears, that is, the possibility of the emergence of others, perhaps more advanced forms of organization. And, in addition to all this, a new category of phenomena called attractors appears» [3]. In turn, it is necessary to pay attention to the concept of «attractor», which will help us assess the trajectory of the hierarchy of the organization's development goals.

Two concepts are considered: the first, when the system returns to the starting point after reaching it («point attractor»); second, when the system moves from one point to another in a deterministic manner, where ultimately the system's motion is impossible to predict, as there is a mixture of stability and instability («strange attractors») that correspond to multiple points of motion. Many scientists in various fields of science are interested in answers to questions from the point of view of stability and instability. The research objects under consideration are determined by strange attractors, which makes it difficult to predict their future behavior.

This scientific issue is proposed to be investigated with the help of A. Einstein's theory of relativity, the unification of two attractors into a single hierarchical system of subject-object relations according to M. Mesarovych, and the conceptual justification of the mechanism of optimization of the system of management relations of the organization, as a system of managing the organization from the point of view management of self-organized soft systems.

We believe that from the standpoint of instability, it is possible to make assumptions about the existence of a mechanism that controls the dynamics of the universal development of systems. But, even knowing the initial conditions of system development at many points of the studied space-time continuum, the future remains unpredictable. «However … the idea of reality assumes the opposite: in a world based on instability and creativity, humanity once again finds itself at the very center of the laws of the universe» [1, p. 34].

«A strange attractor is a region in phase space, not the entire space as a whole», and it is also «a region within which the real state of the system wanders with a certain probability through a limited spectrum of states» [8]. Given the fact that such a domain is limited, it can therefore be predictable, and we have every right to speak of determinism. That is, there remains determinism, which speaks of the location of the object in a specific region of the phase space.

Of course, the instability of the object of study should be considered as unstable behavior to small disturbances, because small disturbances and fluctuations at the micro level can affect the large-scale behavior of the object in conditions of its unstable state. Thus, paying attention to the organization's business projects, it can be assumed that small resource infusions in a certain field of the phase space of the system of relations will allow giving the maximum economic effect.

It is enough to disrupt the action of internal tendencies, and nature itself will build the necessary structure, where, accordingly, it is necessary to know the potential opportunities of the environment of the object of management and methods of its stimulation. Therefore, there is a prerequisite for a conceptual and innovative approach to managing the organization. Having studied the properties of the system of relations of the organization and its environment with the help of intervention in certain (small number) elements of the management system, it is possible to bring the management system to the necessary directed effect of self-organization (in accordance with the potential capabilities of the environment itself).

To determine the instability of the system of relations in the management of the organization, it is necessary to investigate the relativity of processes that occur simultaneously. Which arises in the following repeating regularities at different levels: the structural organization of the system relations of the organization; analytical-synthetic cyclical development of system relations at various times

It is necessary to consider the system of relations as a complex integrity of the organization of relations of elements. With the help of a systemic approach, we will identify the investigated system of relations as a whole, a part of which is the object of control under study, we will study the properties of the object separately from the larger system, and we will explain the properties and behavior of the object in the system from the point of view of the necessary functioning. And then we will consider the change in the properties of the system of relations in the larger system.

Let's take the concept of «supersystem» as a large system in which the investigated system of relations is included. Then you can reach the following system-wide conclusion. The supersystem sets the relative development parameters of the system, which determines the necessary tasks of the system's functioning and the necessary characteristics of the properties that the system should possess, where, in turn, the system determines the functional degree of freedom of the subsystems and its elements.

In the evolution of social systems, the most general regularities can be traced, as in the movement of physical systems. «This is explained by the fact that the development of systems within each stage is determined by the structure and is deterministic, while the period of structural change is characterized by high uncertainty and instability. This period is formally modeled as a state of bifurcation. With the help of this statement, it is possible to come to a conclusion about the unevenness and non-linear nature of the development of management systems» [2].

But at the same time, bifurcation as the destruction of the old form of organization is characterized by alternativeness [6]. With the help of cyclic repetition of development stages, alternatively creates conditions for the accumulation and systematization of knowledge about the most effective way of improvement [3], where, «... the development of a social system within the framework of an unchanging structure is accompanied by an increase in entropy, which reaches a maximum in the state of the attractor, to which it evolves system» [3, p. 25]. This cyclical process takes place with the help of bifurcation destruction of the old structure of the system and its subsequent targeted synthesis, where the goal is the established development criterion.

Overcoming the diffuse-dissipative barrier is associated with the complication of the structure of the control system during its passage through the bifurcation point. This process can be defined as the «life cycle trajectory» of the system's development from the initial state to «the state of maturity, in which the system realizes its inherent potential, reaching the limits of evolution within the limits of the initially given

structure». Further opportunities for system development are associated with changes in its structure during the system's entry into a new life cycle.

After a change in the structure in a new cycle, «determinism takes effect after one of the possible ways of development of an unbalanced system is chosen and instability is replaced by a new order» [3, p. 11]. Next, we consider the path of development from one attractor to the «attractor structure most favorable for this system» [2], as a transitional process that can be described as a system of causal relations, which has an analytical-synthetic cyclicity similar to any system. Therefore, it is necessary to take into account the relativity of the nature of research, stability, and instability of systems, which is connected with the simultaneity of processes in different-level systems (elements – subsystems – systems – supersystems). It is necessary to define a point of reference in relation to which the processes and properties of the system of relations are considered.

In this case, it is possible to consider the step-by-step formation of the management system and management activities aimed at finding a mechanism for the optimal direction of development for subjects of multilevel relations (individuals, teams, organizations, society). The relativity of the step-by-step formation of the mechanism of the rational path of development characterizes the interdependence of the structural multi-level organization of various systems. The emergence of the interdependent nature of the development of the management system is manifested as the relative simultaneity of the repetition of fractal patterns [9], which requires the optimization of the needs of the subject of system relations.

The competitive struggle for living space and the natural selection of the most effective structures leads to the orderliness of living space, which is a prerequisite for the creation of hypercycles [3, p. 47] and the formation of a hierarchy of interconnected elements. At the same time, the studied elements are characterized by relatively simultaneous analytical and synthetic processes of decay and synthesis, according to E. Kant [10, p. 25], where the analytical process is characterized by the knowledge of quantitative indicators of the development of the management system, and the synthetic process is characterized by the creation of more advanced forms of management endowed with qualitatively new content from the known.

«Value systems always resist the destabilizing effects of fluctuation. And values are codes that we use to keep the social system on a certain line of development, which has been chosen by history» [8, p. 6]. So, in the activity of a participant in the business process, value orientations determine, according to the opinion, the life path in the cycle of «evolutionary and bifurcation phases of development» [3, p. 8], which characterizes the individual features of the management subject's behavior. When evaluating the management activity of the organization, it is necessary to determine the resource allocation program for the formation of the organization's value orientations, which can be the basis of the organizational culture and, as a result, strengthen feedback in organizational and interpersonal communications.

The relatively simultaneous existence of the structural organization of the management system in multi-level (hierarchical and horizontal) systems and the transformative cyclical nature of their development determine deterministic and indeterministic views. Thus, the knowledge of relativity becomes a relevant direction in management theory for establishing the dynamics of the development of multilevel systems and forecasting the stages of socio-economic changes.

Thus, the knowledge of relativity determines the possibility of forecasting the development of the management system based on the simultaneous repetition of the processes of system organization of analytical (bifurcation) and synthetic (self-organizing, integral) stages of development.

The concept of relativity was first defined in Einstein's special theory of relativity [10]. The theory defines spatiotemporal relations arising from the interaction of material objects moving relative to each other in space. Einstein described the fact that an event reveals its essential characteristic with respect to a reference point. For example, in quantum mechanics, the process of movement has a dual manifestation of both particles and waves. This approach of relativity must be considered in the perspective of the synthesis of functional and process approaches, not excluding one approach from the other, as well as in relation to static and dynamic projects of resource investments of the organization, where static projects – create conditions for a stable system of relations, and dynamic projects – create conditions for adaptation organizations to external instabilities.

The new scientific base for «Scientific Management» will be general evolution. A theory of living matter cognition will bring insight into how we use the information and how we manage organizations. There are such concepts as «agents» (decision-making units according to the relevant rules, such as the rules of behavior of atoms, computer programs, and people), «self-organization» (The ability of agents to autonomously organize themselves to form complex systems), «recombination» (combination of agents to create new properties of systems), «directed selection» (the ability to recombine the system after feedback from the external environment), «adaptation» (changing the behavior of the organization in order to evolve the industry), «natural emergence» (emergence of complex network management systems) [5].

This theory is based on three main approaches to describing the processes of general evolution:

– to create is the nature of model agents and rules of development (formation);

– connect – support for recombination and directed selection (interaction);

– develop – processes of adaptation and evolution that lead to the emergence of new agents, returning to creation (management).

Adaptive systems theory, described by Christopher M. and Stan D., has come close to understanding the processes that occur in complex systems. However, it is theoretically a mistake to reject the accumulated experience of the development of hierarchical systems and not consider qualitatively the hierarchy of the organization's relations. In management, the multi-level system of relations is not considered at the proper level, which in turn can allow seeing the quality of system development and the interdependence of horizontal and vertical connections. However, three main approaches to processes in general evolution can be adapted to consider subject-object relations in the management system. We systematize these approaches and obtain a key series of development of the system of relations: form – interact – manage with the aim of regulating changes in the properties of the organization's system of relations.

The position of adaptive theory is to consider the formation of the world from the bottom up, where agents organize themselves into more complex and intelligent structures in an upward process. In this case, it is necessary to understand the essence of agents, and under what rules to subordinate them (for the participants of the business process, their values, and principles). «Bottom-up» development for management becomes an alternative to «top-down» resource allocation, where mechanisms of interaction between agents are used instead of a centralized approach. But this view is the other extreme of using the self-organizing effect, which, in turn, can lead to chaos in management. It is necessary to take into account «top-down» trends in the development of the environment and, accordingly, opportunities for the formation of resource-bearing relations, and «bottom-up» – the proposed initiative from agents.

For the organization, it is necessary to adapt to the change in capabilities in interaction and the growing diversity of influencing factors. After recombination in the system of relations, a new idea is created in the development of the organization, a new innovative system of relations, after which the environment gives the system feedback. The idea spreads, which is the result of matching the internal rhythm of the organization with the external, or is ignored and leads, accordingly, to the destruction of the system of relations. The newly created agent either adapts or dies. Directed selection takes place.

Over time, each agent of the system that evolves «reflects» and influences the evolution of other agents, creating and transforming the world of collective evolution. Of course, due to the interrelationships between agents in the process of recombination, innovations are formed, but the question arises about the meaning of certain innovations. Evolution in this matter begins with target selection, which eliminates unpromising projects and helps to rationally use the resources of the organization. Therefore, it can be concluded that the rapid screening of dead-end options can be an important agent of the concept of the adaptive organization.

Conclusions. From the above, we can conclude that before allocating resources to business projects, it is necessary to identify fluctuating areas of instability in the organization's system of relations at the analytical and synthetic phases of project activity and, by determining cause-and-effect relationships in the hierarchy of the system of relations, identify a trend to changing the rhythm of the organization's development.

REFERENCES:

1. Andrushkiv B.M., Kuzmin O.E. (2005) Osnovi menedzhmentu. Lviv: Svit. 293 p.
2. Monastirskiy G.L. (2014) Teoriya organizatsiї: pidruchnik. Ternopil: TNEU. 288 p.
3. Mocherniy S. V. (2001) Metodologiya yekonomichnogo doslidzhennya. Lviv: Svit. 416 p.
4. Czarniawska B. (2013) Troch inna teoria organizacji. Organizowanie jako konstrukcja sieci dziaa. Warszawa: Poltext. 212 p.
5. Daft R.L., Armstrong A. (2019) Organization Theory and Design. Toronto: Nelson.
6. Jones G.R. (2010) Organizational Theory, Design, and Change: Text and Cases. 6th ed. Upper Saddle River, NJ : Pearson Prentice Hall.
7. Molloy, S., Schwenk, C. (2005). The Effects of Information Technology on Strategic Decision Making. *Journal of Management Studies*, 3, p. 26–35.
8. Norton D., Kaplan R. (2014). The Balanced Scorecard: translating strategy into action. *Harvard Business Press*, 5, 41–48.
9. Pearce J.A. (2012) Strategic Management: Planning for domestic and Global Competition / J. A. Pearce, R. B. Robinson. 13 th edition, Chicago, IL.: R. D. Irwin, Inc. 1014 p.
10. Pugh D.S. and Hickson D.J. (2017) Writers on Organizations. 6th ed. Thousand Oaks, CA : SAGE.

БІБЛІОГРАФІЧНИЙ СПИСОК:

1. Andrushkiv B.M., Kuzmin O.E. Basics of management. Lviv : World, 2005. 293 p.
2. Monastyrskyi G.L. Theory of organization: a textbook. Ternopil : TNEU, 2014. 288 p.
3. Mocherny S. V. Methodology of economic research. Lviv : Svit, 2001. 416 p.
4. Czarniawska B. A slightly different theory of organization. Organizing as a network of activities. Warsaw : Poltext, 2013. 212 p.
5. Daft R.L., Armstrong A. Organization Theory and Design. Toronto : Nelson, 2019.
6. Jones G.R. Organizational Theory, Design, and Change: Text and Cases. 6th ed. Upper Saddle River, NJ : Pearson Prentice Hall, 2010.
7. Molloy, S., Schwenk, C. (2005). The Effects of Information Technology on Strategic Decision Making. *Journal of Management Studies*, 3, 26–35.
8. Norton D., Kaplan R. (2014). The Balanced Scorecard: translating strategy into action. *Harvard Business Press*, 5, 41–48.
9. Pearce J.A. Strategic Management: Planning for domestic and Global Competition / J. A. Pearce, R. B. Robinson. 13 th edition, Chicago, IL. : R. D. Irwin, Inc., 2012. 1014 p.
10. Pugh D.S. and Hickson D.J. Writers on Organizations. 6th ed. Thousand Oaks, CA : SAGE, 2017.

Стаття надійшла до редакції 24.03.2023.
The article was received 24 March 2023.