

THEORETIC-MANAGERIAL ASPECT OF PROJECT-ORIENTED INNOVATION DEVELOPMENT OF SOCIO-ECONOMIC SELF-ORGANIZED SYSTEMS



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The conditions of optimal functioning of a sustainable self-organized system are considered, the description of the synergetic method of researching the processes of socio-economic systems self-organization from the managerial point of view is given. The emphasis is on the peculiarities of innovative processes and innovation management strategies. The primary models of innovation implementation are presented. The ways of introducing organizational innovations in order to increase the organizations competitiveness are determined. The necessary conditions for a successful democratization of management and improvement of its quality are revealed.

Key words: *management, innovation management strategy, innovative projects, innovation management, synergetics, self-organization, project activity.*

Problem statement.

The processes of modernization in the Ukrainian society are aimed at changing the most diverse aspects of it. In this regard, the ability to respond quickly to the challenges of the state educational policy, and to act as an independent designer of qualitative changes becomes an especially important component of the specialist's professionalism. In the conditions of the increasing role of innovation management in various spheres of human activity, considerable attention is paid to the research regarding the social and economic problems of management. The most important factor influencing the dynamics of the rate of innovation development can be considered the degree of innovation infrastructure development. In the modern world, increasing importance is given to creating a competitive business, effective management of business processes, strategic development, planning, and marketing, without which no successful stable long-term commercial and economic activity will be implemented. Organization of market conditions is a unique unit of the socio-economic environment; it carries the identity, which is expressed by modern concepts of marketing-management: as well as brand, image, reputation. A close intangible link between the organization-brand and consumer is established. The process of the organization innovation development includes various stages: creation of a structure, connections, functional characteristics of structural units within the organization, strategy development, the use of techniques and technology, development of staff professional competence. Managing a business system to achieve its goals in the long run should be based on the ability to make the most efficient use of existing internal resources and the situations that arise in a dynamically developing external environment [1, p. 248]

Review of the pertinent research and publications. In general, innovation activities are characterized as a process aimed at creating, developing and disseminating

innovations. It is considered as one of the most important factors in the process of social transformation. A great deal of special research and monographs are devoted to

theoretical and methodological aspects of business systems development. Significant contribution made P. Abrams, I. Ansoff, K. Andrews, J. Quinn, M. Porter, A. Thompson, G. Hamel, C. Hofer, A. Chandler, G. Steiner as well as Ukrainian scientists: L. Hlinenko [4], O. Luzhko, A. Mashurian, Yu. Novak. At the same time, it should be noted that some of the acute problems in this area remain virtually unexplored and not even outlined. The latter is the problem of project-oriented innovation development of socio-economic self-organized systems.

The purpose of the research. Consider ways to optimize the business systems functioning. To give a description of the synergetic method of studying the processes of the socio-economic systems self-organization from the managerial aspect point of view.

Results. One of the most difficult tasks of optimizing the business system functioning is the development of its rational organizational structure. This structure is created for managing external and internal resource flows. The business system structure is a set of stable connections and relationships invariant with respect to certain changes and transformations of the business system. The choice of a variant of these transformations depends on the limits and conditions of the business system existence. It should be kept in mind that when removing from the business system one or more elements or replacing them with new ones, the structure may remain unchanged, and the business system can maintain its high-quality stability. This is particularly important in the reorganization of the structure and in the conditions of business system activities diversification.

The formation of organizational structures represents the actual task of adapting subjects of commercial and economic activity to the competitive and external environment in general. One of the key elements of management organization is an organizational structure which is characterized by the allocation of tasks and objectives of management between the units and employees of the organization. The management structure is an organizational form of division of labor for the managerial decisions making and implementation. Thus, the *organizational structure of management* should be understood as the set of the

managerial units, formed in the strict subordination and connection, providing interaction between the managing and managed systems [5, p.131].

In management, innovation is characterized as a process. Management, whose purpose is to identify and implement innovations and key directions for changing and updating educational activities in the education system, is defined as innovation management.

It should be noted that any workable organizational form is determined by a system in which structural and organizational solutions, methods and management style, policies and strategies are mutually determined. This interdependence implies that some changes in the system components will inevitably lead to further changes to other components of it. The formation of a workable, resilient organization is largely determined by the approaches that lay in the base of the future development of the company. A systematic approach regarding the analysis of the organization suggests that everything has its beginning and its end. An important condition for choosing the methods of reforming the organization (company restructuring, organizational design of the management system) is to determine the stage of development on which it is located [5, p. 132].

As for any complex business system as a whole, it is the result of the evolution of a simpler system and cannot be studied unless its history is learned. Thus, the formation and research of the business system should include the following primary stages [10]: – defining the structure and organization of the business system as a set of business micro-subsystems and business macro-subsystems; – defining of internal integral properties and functions of the business micro-subsystem in the context of a particular marketing concept; – defining of the integral properties and functions of the business macro-subsystem; – defining of the business micro-subsystem functions as a response to the inputs of the business macro-subsystem; – defining of the external environment elements, which in the future can be included in the framework of the business system; – defining of the business system history, that is, the ways and mechanisms of its occurrence.

The business system is a purposeful social-economic system with a complex structure,

that is, an interdependent set of subsystems, the object of management of which are business processes, which are based on business operations. The business subsystem has its own mission, which is to provide a rational management of a particular business process. As a result, the operation of business subsystems is possible through the business system activity as a whole. Ensuring the optimal functioning and development of the entire business system is a difficult task. It is necessary to solve it by rotating it in two parallel directions, namely [9, p. 171]: – optimization of management of each local business subsystem, in particular, in the direction of establishing adequate interconnections between individual business processes and business operations; –

establishing parity between business subsystems, that is, a combination of characteristics, needs and capabilities of each individual business subsystem and the business system as a whole.

The content of the innovation activity management includes measures involving: development of innovation activity programs; control over the development and implementation of innovations; estimation of efficiency of the innovative technologies implementation; conducting innovation policy; providing of financial and material resources; providing of qualified personnel; creation of program and project groups (a qualified project team is a guarantee of success in the specific innovations implementation) [11, p. 67].

The objectives of innovation management are implemented in practical terms, using three primary strategies:

- strategy of «politico-administrative type»: innovations are developed and carried out by means of amendments to legislative documents;
- strategy for increasing the professionalism of staff by improving their qualifications;
- organizational strategy.

On the basis of the innovation management implementation, there is a need for the accomplishing of organizational innovations [11, p. 68]. This can be done in two ways:

- through the organizations project development on the basis of new project interventions within the framework of international programs;
- through international practices based on the introduction of innovations.

The managerial aspect, way of thinking and development, forms of management and approaches to organization and management is of paramount importance for the organization. The business idea, laid in the foundation of business, is stable and contributes to the growth and development of the company. The following phases could be defined [5, p. 133]:

1. The phase of managing a business idea, that is, the stage of business creation. The company's founders crystallize the idea, which seems commercially profitable and promising, and begin to implement it. In this case, there is no structured management system, responsibility for various issues is fixed for all business participants, the collegial nature of decision-making, and no relationship «chief-subordinate». Asset management is primarily operational, usually at the level of accounting for income and expenses.

Project participants realize different interests in the process of its implementation, form their own requirements in accordance with the objectives and motivation and influence the project based on their interests, competencies and the degree in the project involvement. The composition of project participants, their roles, the distribution of functions and responsibilities depend on the kind, type, scale and complexity of the project, as well as on the phases of its life cycle [7, p. 50]. The project manager is especially important with respect to all project stakeholders. The task of the project manager

is to find compromises, but the final decision still remains for top-management. It is also important to find the points of contact between the goals of individual project participants, since they can often be in conflict with one another [7, p. 53].

All projects are carried out by teams of people which are created for the purpose of achieving the objectives of the project, having high qualifications in a particular area and maximally committed to the overall goal of their organization, to achieve which they act cooperatively, mutually agreeing with their work. Team management involves leadership

in its creation, adjusting its work, studying group dynamics. If a team begins with a leader, then the team management – from the leader's knowledge and skills to organize the team's work. American businessmen named 26 qualities that are necessary for senior management, among them «intuition» and «good luck» [7, p. 55]. Formation of a project team is usually carried out with discussions, seminars, meetings of working groups involving project managers, team members, and sometimes other project stakeholders. The productivity of the project team members can drop sharply when the conflicts occur. Conflicts can take a variety of forms: from interpersonal conflicts between team members to conflicts associated with resources allocation. The responsibilities of the project manager include identifying early conflicts and resolving them before they

negatively affect the timetable and project objectives [7, p. 58].

The second important aspect of forming a project team is determining its size. The number of team members must be determined by the external environment, type and scope of work that must be performed. For all stages of the changes process, the most undesirable ones are small teams, because they are the most vulnerable. The recommended size of the project team is 4-10 members [7, p. 60]. The members of the project team are selected among the employees according to the following selection criteria: the best and the most talented; psychologically compatible; motivated to achieve a common goal. For this it should be ensured that they are: creative and open-minded; a good team of players; are respected by colleagues and stakeholders.

However, the analysis and management experience convinces that creating an effective project team whose members would have an initiative, a sense of responsibility, high performance and would have teamwork technology to develop, and then to implement innovative projects, is very difficult. Creating a project team by itself is not enough to implement changes. The team must act effectively – it is a guarantee of the success of the changes that were implemented. However to monitor the efficiency of changes and increase it is the task of educational institutions managers [3, p. 35]. The effectiveness of the project teamwork depends on:

- management of the quantitative composition of the team;
- management of team members' functional responsibilities;
- distribution of functional team roles.

By managing these types of teamwork, it can be controlled the effectiveness of project teams, increasing efficiency and making progress in changes implementation. So that the teams proceeded with efficient processes and a favorable atmosphere for change, the manager must use the following technique [3, p. 37]:

- effective communication and addressing his efforts to the whole group. Demonstration of the mentioned by means of visual contact with all members;
- the ability to be a good listener and listen to everyone. Demonstration of this through an active hearing – a look directed at companion, constant visual contact, reflection;
- an equal estimation of all group members and their contribution to the work. Demonstration of this by recognizing and congratulating each person's contribution;
- readiness to share leadership and influence with team members. Demonstration of this by motivating, for example, all the group members with special knowledge to give their instructions;
- consensus-based decision-making – for example, assigning a group to determine the criteria for selecting a subgroup;
- flexibility and openness for alternative ideas and views.

Logic of project management is based on methodological guidelines of the system approach, which consists in the fact that when changing the relationship and the nature of the interaction between managed and managing systems, there is a qualitative change in the latter. Thus, project management in the process of innovation development of project-oriented systems, is

considered as part of the management activity, which has the properties of subjectivity, predictability and productivity. It provides a focused process of cooperative interaction between managed and managing systems, the result of which is the involvement of specialists in qualitative change existing practice with the help of independent development and projects

implementation. This understanding fully demonstrates the essence of this process, indicating the importance of organizing joint activities, managed and managing systems, which ensures the ordering and combination of these forces, promotes the involvement of each in the project activity in the system modernization process. In this definition, the tendency of the involvement of teachers in the project activity as a subject of management is traced, indicating the need for the implementation of both subject-objective relations, and subject-subjective [6, p. 94].

Thus, conditions are created for the training of experts with professional and over-professional competencies [8, p. 224]: management of innovations, the potential of scientific creativity and self-education, professional and social mobility, the ability for professional and personal self-development, skills of strategic managerial thinking, ability to work in a team and the intercultural environment.

Innovation management implies the relationship between innovation activity and staff innovation potential. The primary mechanisms of innovation management are: strategic management of human capital; information-analytical mechanisms of support and control; motivational mechanisms that allow one to consider personnel management in innovation activity as strategic management regarding the level of personnel innovation potential with information and analytical support, based on advanced information technologies and motivational mechanisms.

2. The phase of functions management – the stage of structures formalization and creation. The development of organization activity leads to a consistent complication of the structure of assets and operations over them. Functions which are required for the organization's development begin to be performed by skilled professionals, hired managers. «Areas of responsibility» are outlined, this stage of the business system development is characterized by a «mechanistic» approach to management, built on a linear-functional principle (each function corresponds to a certain type of activity).

It is well-known that human resources management is carried out at two levels: management of collective activities and management of each specialist's activity in particular. However, methods of human

resources management are not significantly different. They can be classified as follows [2, p. 7–8]:

- *according to the procedure, the regulation of the management process implementation*: linear, search; management technologies by deviations, by results, by objectives, by situation;
- *by the complexity and nature of managerial influence*: multi-chain (use of a series of interconnected tasks that are performed sequentially); intermediary (providing services by some teachers to others in solving specific problems); individual (with the specification of techniques, skills and services for each teacher);
- *by the organizational and personnel aspect*: staff planning; optimizing the number and structure of teachers; regulation of labor relations; development of rules of recruiting, placement and dismissal of pedagogical workers; structure of the teacher's work (content, organization, job responsibilities); optimization of working time management pedagogical load, etc.;
- *by structural and functional parameters*: technologies of planning, organization, control, correction, forecasting, stimulation, modeling, making of managerial decisions, self-management;
- *by means of innovation management*: marketing, engineering (design and consulting services), reengineering (technologies of fundamental changes in the conditions of crisis or development), benchmarking (introduction of pedagogical experience of using innovations); brand-strategic (promotion of pedagogical innovations in the market of educational services), fronting (capturing the market of educational services and defending their positions);
- *by the innovative component*: personally oriented, interactive, project, participative, informational, multimedia, portfolio technologies;
- *by the cultural factor*: the formation of the corporate culture of the pedagogical group, the coordination of communication links, modeling the organizational culture of the educational institution;
- *by the social component*: technologies for increasing the activity and socio-adaptive capacities of the person, crisis psychology, monitoring social moods, forecasting social needs, conflict management;
- *by the activity aspect*: organizational-responding, professional-producing, regulation-correcting, motivational-stimulating, psychologically-

adjusting; – *by didactic orientation*: distance, off-line, self-education. Each of these common technologies includes partial technologies, which in turn, are represented by appropriate procedures and algorithms. It allows streamlining individual actions and steps to optimize intellectual, moral and material costs when using the work activity of teaching staff.

3. The phase of processes management – the stage of delegation and diversification. In order to overcome the crisis of functional management in an enterprise, it is necessary to make a transition to process management. The management system at this stage is aimed at the final result of the activity – a criterion that unites the personnel with various functions and responsibilities. Object of management – a process where sequentially executes functions with a clearly marked final result. Thus, the phase of process management allows one to determine which assets, in what quantity and with what efficiency is used in each investigated process.

Speaking about the essence of management, based on team interaction, from the position of the subject-activity approach, it should be noted that this phenomenon is an integral system of influence of subjects on each other, which generates their mutual conditionality and communication. In order to fulfill the role of the subject of the project activity, to get satisfaction from it and as a result work not only with increased efficiency, but with maximally revealing own abilities and opportunities, there is a need to utilize the basic ideas of the participative management theory. In this case, the forms of participation in the project management have different degrees of depth.

The first level is *making proposals*. At the «problem seminar», the proposals are presented individually as well as in the process of group discussion. This is the easiest and most accessible way to participate in the management. It does not require any additional efforts, except for the elaboration of the rules for the making proposals. It is important that the process be put on a regular basis. The most common way to collect proposals is to conduct a survey. This level does not require the introduction of structural and other changes in the traditional organization and can be carried out *directly by the manager*. The second level – *the development* of alternatives – requires the

appearance of the project committee as a special component of the matrix management structure, which can effectively fulfill this task solve this problem. The third level – the choice of *alternative* – suggests that participation in management is carried out in the form of group project activities. Project teams, as structural components of the management system, not only discuss problems and seek ways to solve them, but also have the authority to make decisions on the design and implementation of a particular project. In essence, this is not just a participation in management; it is already the implementation of management, when part of managerial authority is transferred. Consequently, the participative management, which gives access to decision-making, is a motive for a better performance. It leads to greater impact, greater contribution to the life of the organization, and in parallel, to the development of their professional and personal qualities.

Formation of corporate spirit aimed at value-oriented unity in the process of innovative development of organizations is carried out through a series of steps [6, p. 94].

Implementation in the management methods of stimulating interest in the project activity can increase the level of motivation involvement. Motivation is a combination of internal and external driving forces, it prompts to the project activity, provides this activity with an orientation aimed at achieving a certain result.

The organization of cascade training for the project activity basics is carried out as follows: the first training is a group that mainly demonstrated high or average level of project skills by the results of observation in the process of developing a pilot educational project, and then they would pass on the acquired knowledge to their colleagues. Thus, more coverage is achieved without the need for additional resources, and the development of management skills for those who have been trained. The effectiveness of learning the project activity basics is ensured by the diversity of such non-traditional forms of management as: deep learning workshop; workshop-problematization, project workshop, workshop-reflection.

Building effective interaction in project teams, delegation of authorities allows engaging in project activities, where each

member performs a certain functional role: the one generates ideas, the other establishes contacts, the leader delegates authority, etc. By complementing each other, people create a single-balanced team. The process of establishing team-collegial management takes place in three stages: the formation of teams through the nomination of groups' leaders and existing management structures, the coordination of values and goals; development of command-collective management through the development of «maturity» of team members; implementation of the command method of decision-making in management practice. In the process of interaction in group design a joint activity, the development of the subjective position of its participants is happened.

4. The phase of network management – the stage of such development of management, where the coordination function plays a key role. In fact, it is managing processes at a higher level of development. It should be noted that prior to this phase, the aspect of asset belonging to a particular legal entity was not considered. At the previous stage for management, the ownership of assets within the set of legal entities defining the organization was not of fundamental importance. However, to achieve maximum management efficiency the logical solution is the implementation of one process within a single organization (legal entity). There is a process of reallocating assets between organizations. In the focus of management will be separate organizations formed based on functions (rather than particular assets), for which performance targets will be set and material and financial flows will be distributed.

Thus, the phase of network management is characterized by the following: the organization becomes a holding company with some corporate center, for which the portfolio of market segments becomes the object of management. The corporate center conducts investment projects (it places equity capital). The more structured the business units based on the type of activity, the lower the risk of investing in the company's shares. At this stage, the tendency is choosing of some types of business and individual business processes for outsourcing (sub-order to third parties).

5. The phase of intangible assets management – a stage of synergy and cooperation. At this stage management moves into another phase – in forming alliances and

management of intangible assets and intellectual property (goodwill). The use of outsourcing for business will inevitably lead to the management of intangible assets overwhelming on the management of material assets.

We consider the business system in the above meaning (as a set of business micro-subsystems and business macro-subsystems), for which the processes of self-organization can get new interpretation.

The self-organization of the business system is turned out in the process of organizing the business micro-subsystem within the framework of its interaction with the business macro-subsystem. The probable nature of the results of the managerial marketing influence of the business micro-environment on the business macro-environment is turned out in the non-determinism of the entire business system structuring process as a whole. However, the vector of business system development is determined by appropriate marketing actions and is usually interpreted as a process of self-organization. Understanding the phenomenon of self-organization of business systems allows a new looks at the functioning of economic systems. Thus it ensures the possibility of organizing a more effective process of its strategic government management. The framework of the business system is expanding, including the elements of the external environment that can affect the existing business processes. Thus, the scope and possibilities of procedures for managing business processes are expanding.

The theory of self-organization includes the theory of change, the disaster theory and synergetics. Synergetics is a method of studying the processes of self-organization of systems of various qualities in which causal relationships have a nonlinear character. In this case, synergetics generalizes the ideas of the behavior of open systems, which, in particular, are all economic systems. The systemic studies pose tasks similar with the synergetics. However, synergetics [10]: – considers that chaos plays an important role, including positive, in the systems development processes; – focuses on processes of growth, development and destruction of systems; – explores the processes of systems self-organization; – emphasizes the emergence of the processes underlying the self-organization and

development of systems; –studies the complexities of internal and external interrelations of the system, and recognizes the great role of the environment in the process of change.

Synergetics also explores the phenomena occurring at the point of instability, and a new structure that arises beyond the threshold of instability. It can be said that synergetics is based on the principles of systematic, development, isomorphism and typology of systems. Consideration of the business system, consisting of business micro-subsystem and business macro-subsystem, clarifies synergy outputs in relation to economic market players. With regard to the theory of change, it should be noted that this theory is largely based on the conceptual apparatus of synergetics, and therefore it can be called synergistic.

Of great importance for economic systems is the possibility of abrupt changes, revolutions, which in theories of self-organization called the leap, phase transition or catastrophe. Moreover, in the disaster theory it is believed that the leap may be the result of only internal fluctuations in the system (in the context of our consideration – in the business micro-subsystem). The concepts of development and growth are of fundamental importance in the study of self-organization issues. Development is considered as a qualitative change of the system, that is, a qualitative change of the structure (composition and connections) and the functioning of the system. Growth characterizes a quantitative change in the composition and number of interconnections of the system and is characterized by one or another pace. In the basis of synergetic models is self-organization processes that reflect phase transitions in the conditions of strong system disequilibrium on the material-energy and information parameters. In our opinion, in market players, using marketing ideas, material and energy imbalance is expressed in the production and promotion of

goods inadequate in market conditions, and the information imbalance is turned out in the underdevelopment of the communications.

Bifurcation points are characteristic of the business systems of the economy. The bifurcation point is a turning and critical moment in the development of the business system. This is a point of changing regarding the development options, a point in which a catastrophe appeared, that is, qualitative, leap-shaped, and sudden changes in development [10]. The bifurcation point of an enterprise is often generated by inadequate managing activity, and according to the principle of sustainability, only sustainable development options are realized among the possible forms of development. Increasing the complexity causes an increase in the number of states in which bifurcations are possible, and an increase in the number of possible ways of development, raising costs in support of the enterprise operating. In this case, the more non-equilibrium industry, the more different ways of development are, and close initial conditions can generate completely different trajectories of economic development. However, the business system makes a leap, changing its structure only when it has no other choice. Thus, evolutionary development occurs between two bifurcation points, and the development trajectory changes at each point of the bifurcation.

Possible trajectories of development are many and can be predicted accurately, in what state it will pass after passing of a point of bifurcation, it is impossible. However, in our opinion, there is the possibility of influencing the formation of the predominant spectrum of development trajectories after the bifurcation point. This possibility is due to the fact that the direction of development chosen is consistent with its intrinsic properties and the past. The path of development after the bifurcation point is related to the processes of self-organization.

Conclusions.

In general, the nature of innovation processes has changed in recent years and the effectiveness of innovation management has increased. Thus, «politico-administrative» strategies are not the only way to the realization of innovations. Strategies related to changes in the personnel by improving their qualifications are also applied. A great deal attention is paid to the transformation of the organizational strategy for the implementation of innovative changes.

Self-organization in various market conditions are created and realized, mainly in two ways. First, the dynamic chaos usual in a market environment and manifesting in the laws of collective behavior is expressed in the existence of a life cycle for any product and type of business in general. Such a life cycle, according to marketing theory, includes the stages of entry into the market, growth, maturity and decline. Second, the processes of self-organization in a market environment are directly related to the organizational structure of a market entity. Moreover, particular characteristics of organizational structure reduce certain risks. Thus, the component that defines the development trajectory after passing the bifurcation point is the organizational structure. Given the cyclical nature of economic processes, it is necessary to use the principle of transferring the accumulated quantity of competencies (knowledge, abilities, and skills) of the business system to the new quality of the management system. The transition points determine the time and circumstances of possible crisis situations that require some changes in the approaches to managing the organization. Gradually the model of distributed innovation changes: from the first type model «from the center to the periphery» to the second type model, based on common business activity between experts and to the third type model, based on the initiative and activity of the organization. In this regard, the process of creativity and professional training of managers which is a precondition for a successful democratization of governance and raising its quality level in Ukraine is enhanced.

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