

SYSTEM-CREATIVE APPROACH TO THE ANALYSIS OF INNOVATIVE ACTIVITY OF ORGANIZATIONS

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Abstract: The article proposes the author's concept of analysing the innovative activity of enterprises from the position of system-creative approach. The stages and indicators are proposed, and the peculiarities of using the methods of system-creative analysis in the process of studying innovation activity are revealed. Special attention is paid to the analysis of cognitive-intellectual potential of the enterprise as a key factor in activating innovation processes.

Keywords: innovation activity, analysis, enterprise, innovation potential, system-creative analysis, cognitive-intellectual potential

Introduction

The increase in the efficiency of social production in the first quarter of the XXI century is inextricably linked with the activation of the processes of implementation of the latest achievements of scientific and technological progress on the basis of the implementation of the policy of innovatisation. The main goal of such policy is to significantly reduce the gap in the level of technological development between advanced and scientifically and technologically backward enterprises. The solution of this task is possible on the basis of the development and

successful implementation of a system of measures for the innovative development of enterprises. An important role in this process belongs to the analysis of innovative activity of enterprises.

The problems of analysing the innovative activity of enterprises are devoted to the publications of a number of domestic and foreign authors. They reveal the basic provisions of the analysis of innovation activity [1, p. 123-158], the issues of analysing information and investment sources and risks [12, p. 189-195], assessing the effectiveness of innovation activity [6, p. 50-55], studying the processes of creative and innovative development of enterprises [7, p. 33-41] and others.

At the same time, most authors, analysing innovation activity, its structure and features of organisation, do not, in our opinion, pay enough attention to the analysis of the key element of innovation activity of a modern enterprise in the information and digital era - creative-innovative and cognitive-intellectual potential as the leading driving force of innovative development. They do not use the latest theories and methodologies, in particular, systemic-creative analysis, in the process of analysing the innovative activity of enterprises.

The purpose and scientific novelty of the article consist in the development of theoretical and methodological apparatus for the study of innovation activity of enterprises in relation to the conditions of information and digital economy. And, in particular, to determine the peculiarities of the application of system-creative analysis in the process of studying innovation activity.

The author's hypothesis is that at the stage of transition to the information and digital society the leading element in the development of innovation activity of enterprises becomes the cognitive-intellectual potential, the analysis of which serves as a basis for combining and transforming innovative ideas, experience, and information.

The research methodology is systemic-creative analysis. It represents a comprehensive study of innovation activity based on the peculiarities of the study of the specifics of creative, creative-innovative potential of the enterprise.

Systemic-creative analysis provides monitoring and identification of ways of systemic organisation of innovation activity, systemic assessment of existing interdependencies and links, on the one hand. On the other hand, it opens wide prospects for using specific tools and methods of systemic-creative analysis in order to search for highly effective creative solutions.

Main part

The object of system-creative analysis is its structural units, innovation processes, innovation products or areas of innovation activity.

The subject of system-creative analysis of innovation activity of enterprises is organisational and managerial relations. Which are formed in the process of innovation activity, starting from the development and ending with the development and further utilisation of the results of innovation activity.

The analysis is carried out directly by the heads of organisations, enterprises and institutions in departments, sectors, groups, public organisations, quality circles, etc. The analysis is carried out by the heads of organisations, enterprises and institutions.

In order to ensure the systematicity and comprehensiveness of the system-creative analysis of innovation processes at the enterprise, a methodology is developed in relation to the peculiarities of its activity. Such a methodology is a set of specific algorithms, techniques, criteria, indicators of the study of information about the innovation processes and their results occurring at the enterprise.

System-creative analysis of the innovation activity of the enterprise is usually carried out according to the following main stages:

I. Stage: Analysis of the innovative potential of the enterprise (assessment of the place of own financial and other means in the creation and development of the innovative potential of the enterprise; identification of internal corporate opportunities to increase the innovative potential, etc.).

II. Stage: Analysis of innovation activity (dynamics of innovation activity costs, the number of innovative developments and projects for the analysed period; assessment of the impact of factors on innovation activity; identification of innovation activity growth reserves, etc.).

III. Stage: Final assessment of the results of innovation activity (the results of the implementation of innovative products by the enterprise; the impact of innovation activity on the efficiency of the enterprise; identification of reserves to improve the efficiency of innovation activity of the enterprise).

IV. Stage: Development of proposals to improve the efficiency and sustainability of advanced innovative development of the enterprise.

At the initial stages of the analysis the innovative potential is studied and evaluated. The role and influence of innovation potential on the level of development and results of innovation

activity is assessed, reserves of development and effective use of innovation potential of the enterprise are identified.

At subsequent stages, the innovation activity of the enterprise is analysed (changes in the costs of innovation activities, the number of innovation projects, etc.), and potential opportunities for increasing innovation activity are identified.

Then the results of innovation activity of the enterprise are evaluated, the efficiency of innovative projects implementation is assessed, the efficiency of implemented innovations is evaluated, the impact of innovation activity on the efficiency of the enterprise functioning as a whole is assessed. Potential opportunities for increasing the efficiency of innovation activity of the enterprise are identified.

The stages of system-creative analysis of innovation activity of the enterprise, as well as the content of these stages are largely determined by the goals, objectives and features of innovation processes.

With the help of the methodology in the process of analysing the innovation activity of the enterprise all its main components are studied: R&D; management of project development and implementation; system of professional retraining and advanced training of personnel; marketing of innovations, etc. The methodology is used to analyse the innovation activity of the enterprise.

Special attention in the process of analysis should be paid to the methods of system-creative analysis of innovation activities. Such methods are ways of analysing complex systemic research of innovation processes and its results.

The key methods of system-creative analysis are the methods that allow studying innovation processes taking into account their interrelations and mutual influence on the enterprise's activity. They provide a comprehensive study of all blocks and elements of the system of innovation activity of the enterprise, the impact of each of its individual components on the efficiency, sustainability and quality of innovation processes.

Such methods primarily include abstract-logical methods, intuitive, heuristic and causal methods, as well as traditional methods of modelling, statistical and correlation analysis, etc.

In the process of system-creative analysis of innovation activity of the enterprise, first of all, the generalising indicators of such activity are analysed.

The main generalising indicators for analysing the innovation activity of an enterprise include indicators reflecting:

- a) economic goals of innovation activity (replacement of obsolete types of manufactured products; expansion of the field of application of manufactured

innovative products; increase in the production of environmentally friendly types of manufactured innovative products; development of new domestic and foreign markets; reduction of resource costs for the production of innovative products, etc.),

- b) the level of compliance of innovation activity results with the latest achievements of domestic and foreign science and technology_(application of the latest materials, techniques and technologies, production processes, new forms and methods of organisation and management),
- c) conditions and factors determining the efficiency of innovation processes (resource potential of innovation activity; state of the innovation market; educational and research capabilities; own and acquired licences and patents, etc.),
- d) results of innovation activity_(the number of innovative products produced by progressive technologies, the impact of applied innovations on the production activity of innovations, etc.).

Indicators reflecting the dynamics of innovation processes at enterprises are indicators of the use of time spent on the development of innovative products, preparation of pilot production of innovative product, production cycles of innovative products.

The indicators of innovations renewability include the indicators characterising the number of innovative equipment, technology and products introduced; the number of innovations borrowed, acquired or transferred to other organisations; the volumes of innovative services and products provided; export volumes of innovative products produced.

Structural characteristics are reflected in the indicators of the number and composition of enterprise units that are engaged in innovation activities and, above all, experimental design and research work; the number and direction of activities of enterprise units that are engaged in the adaptation and implementation of innovative products, techniques and technologies; the number and structure of personnel engaged in innovation activities.

The peculiarity of the system-creative analysis of innovation activity of the enterprise is the analysis and assessment of its innovation potential, which are the key tools in the process of innovation activity management.

It is the assessment of the level of innovative potential of enterprises that makes it possible to determine the real opportunities for the implementation of innovation development strategies in the short, medium and long term.

One of the most important moments of the analysis is the analysis of creative and innovative potential of the enterprise, which is a set of available resources for the implementation of its creative innovative capabilities and innovative activities. It includes, in addition to material and production, financial, information and other resources, first of all, potential intellectual and scientific and technical capabilities.

The key characteristics of creative and innovative potential of enterprises include innovative goals of its development; intellectual, information, investment resources required to ensure the main activities, as well as other opportunities for the effective use of innovative development resources.

It should be noted that the creative-innovative potential of the enterprise contains, first of all, such hidden characteristics as underutilised reserves of the enterprise, which for one reason or another have not been put into action to achieve the set innovation goals.

The structure of creative-innovative potential of the enterprise contains such elements as:

- cognitive-intellectual capacity;
- research capacity;
- innovation and production potential;
- financial capacity;
- organisational and management potential, etc.

All these elements of the innovation potential of the enterprise are interrelated.

Briefly about each.

Cognitive-intellectual potential is the potential of employees involved in R&D processes and, above all, the creative potential of personnel, their predisposition to self-development, learning, willingness to improve their qualifications, to constantly carry out professional training, etc. The cognitive-intellectual potential is the potential of employees involved in R&D processes.

Cognitive-intellectual potential is revealed in the staff's ability to creatively participate in research and development.

An important specific element of cognitive-intellectual potential is the so-called peripheral, tacit knowledge. It is informal, non-verbal, hidden, characterised as some changeable "mixture" of personal values, experience, intuition, etc., which is the basis for combining, transforming new ideas, experience, information. [3, p. 253-256]

In the process of analysing cognitive-intellectual potential, the innovation capabilities of R&D personnel are assessed. Here, the qualification level of employees, their work

experience, their ability and willingness to innovate, training and professional development are assessed.

In the process of analysing the cognitive-intellectual potential of the enterprise, the level of possession of such personnel competences as:

- possession of methods of system-creative analysis - methodology of strategic management of innovative development, as well as the basics of chaos management;
- the ability to think creatively (creatively), critically and analytically;
- sensitivity to innovative ideas and acceptance of opponents' viewpoints that differ from one's own;
- initiative, need for self-development, readiness to independently generate innovative ideas and turn them into a profitable innovative product;
- interest and motivation for creative self-development;
- possession of skills in the application of tools, technologies and methods for making effective innovative decisions under conditions of uncertainty;
- ability to work well in a team, communication skills;
- possession of modern technologies and methods of formation, organisation of activities and management of innovative project teams, etc. [10, p. 47-66]

Research and development potential represents the availability of licence agreements, intellectual property, research and laboratory facilities, links and agreements in the field of innovative cooperation with university science and research institutions, both at home and abroad.

Innovation and production potential is an opportunity for innovative improvement of the enterprise, which is characterised by the level of applied techniques and technologies, their compliance with the latest achievements of scientific and technological progress.

Financial potential is the financial capacity of the enterprise for the development of innovation activity (possibilities of financing sources, the amount of profit, financial resources, etc.);

Organisational and managerial potential is a set of values and traditions of the enterprises' innovation development strategies. It is characterised by the peculiarities of the organisational structure, the presence of highly qualified managerial personnel and the relevant corporate innovation culture.

All the elements that make up the creative and innovative potential of the enterprise are closely interrelated. Their effective interaction is an objective prerequisite for quality implementation of innovation activity of the enterprise.

The main purpose and result of the use of creative-innovative potential of the enterprise is the creation of fundamentally new non-copyable, non-standard, original innovations or improvement (modernisation) of techniques, technology, manufactured product, as well as the creation of a favourable internal environment for effective innovation activity.

Conclusion

The application of the system-creative approach to the analysis of innovative activity of the enterprise convincingly demonstrates that in the conditions of digital transformation and the widespread use of artificial intelligence, the main component of the creative and innovative potential of the enterprise is people: leaders, managerial staff, management.

The successes or failures of the innovative development of the enterprise directly depend on the level of their competence, skills, abilities, knowledge and experience. Such personnel should be characterised not only by general, but also by specific competences peculiar to employees engaged in innovative activities, not only by specific knowledge, but also by personal traits of character, which should be constantly directed towards the development and implementation of innovative solutions. These are, first of all, abilities to generate innovative ideas, inspire employees to search for new non-standard solutions, create a special creative environment in the team, motivate employees to achieve the set goals and increase the efficiency of innovation activity.

The professional competences of the personnel engaged in the analysis of innovation activity should differ to a certain extent from the competences of workers employed in line departments. If one of the main competences of the personnel working in industrial production, where technologies are characterised by strict executive and technological discipline, was the ability to follow various instructions, norms and instructions precisely, to the point of automatism, then for employees engaged in the analysis and improvement of innovation activity, such competences as creativity of thinking, initiative, independence, non-standard actions are valued first of all.

In this regard, in the process of analysing and assessing intellectual potential it is necessary to evaluate the level of intelligence, reflexivity, learnability, creativity of employees.

Thus, in the process of system-creative analysis and, first of all, the analysis of cognitive-intellectual potential it was established that the decisive qualities of personnel in modern conditions, providing activation and increase of efficiency of innovative activity are the ability to self-renewal, initiative, the level of intelligence, the ability of personnel to non-template creative thinking, search for non-standard innovative ideas and solutions and keep this level high.

It is obvious that in order to carry out qualitative and effective analysis of innovation activity in the future it is necessary that such professional competences should be possessed by the personnel of innovation teams of all enterprises. This important task should be solved on the basis of the development and implementation of special educational programmes for advanced training in innovation management.

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