

The System of Innovation Management and its Role in the Economic Development of the Energy Service Company

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Abstract

The phenomenon of innovation and innovative activity reflects the dynamics of society, covers all areas of life, carries a landmark for the future. The essence of this phenomenon requires thorough research from the standpoint of philosophical, scientific, technical, economic and socio-cultural aspects. Based on the growing strong regulatory framework, there is a leading role of innovation for the state as a whole and for individual enterprises and the obvious need to increase innovation, build innovation capacity and implement systematic targeted planning, development, implementation and use of innovations.

The study suggests that the solution to the problems of formation is developed effective management system of innovation activities of enterprises, which meets the objectives of their innovation strategy, depends on the use of advanced methods and approaches, adequate elements of models of innovation processes of modern generations, and meets the conditions of informatization and digitalization of the economy.

Keywords: European standards, innovations, management, energy service enterprises.

I. INTRODUCTION

The issue of innovative development arises as a serious reasoned highly effective a means of dynamic sustainable formation of the economically developed way of life of the country. He is a response to irrational energy use combined with highly subsidized prices for energy and constant political challenges. On the agenda are the questions that relate to advanced energy, information and communication and social technologies that will determine the technological profile of the markets of hardware, software systems, engineering and services in energy.

A conscious, balanced sense of the need for comprehensive and comprehensive implementation innovation – is undoubtedly the surest evolutionary path that determines the exit of the enterprise growth stage, which is characterized by an increase in financial assets and income of the enterprise. However, this exacerbates organizational problems in the management of innovation and, thus, defines the boundaries of the enterprise management system in the form of a multidimensional model.

In Ukraine, there are certain prerequisites for consolidating significant positions in new global markets. No less important is the fact that the dissemination of solutions based on innovative approaches will solve a number of problems regarding the efficiency of the economy, in particular, and the national security of the country in general.

II. LITERATURE REVIEW

This issue has been studied by both domestic and foreign scientists. Analysis of the research shows that countries cannot develop effectively without the introduction of innovative technologies. Among the authors whose research is devoted to the economy of Ukraine in this aspect, we can highlight such scientists as V.P. Aleksandrova, T.I. Artyomova, Yu.M. Bazhal, V.Ya. Brich, L.V. Dermanskaya, V.M. Geets, T.P. Lobodzynska, T.V. Mirzodaeva, V.I. Negyborec, O.I. Tabenska, O.L. Starling, M.M. Fedirko, H.V. Chesbro and others. However, the contradictions in the development of economic processes require further research.

The purpose of the article is to assess and analyze the development of innovation processes in the management system energy efficiency of enterprises.

III. METHODOLOGY

The method of comparison is used in the work – to identify differences between innovation processes developed and developing countries; generalization - to define the general concept and understanding of the principles of functioning of the subjects of the innovation process; abstraction – to identify the most important links of innovative development of enterprises.

Scientists are faced with the need to develop a number of provisions that expand the idea of the development of the management system of innovative activity of enterprises, concentrating the need to increase innovation activity, increase innovation potential and implement systematic targeted planning, development, implementation and use of innovations; substantiation of expediency of application of the system approach to the management of innovative activity; formation of the content and structure of the system model management of innovative activity of enterprises.

The methodological principles of the study are the basic provisions of economic theory, the theory of economic growth. The paper uses a method of comparison – to identify differences between innovation processes of developed and developing countries; generalizations – for the definition of the general concept and understanding of the principles of functioning of the subjects of the innovation process; abstraction – to identify the most important links of innovative development of enterprises.

IV. RESULTS

Innovative development of the enterprise provides a constant and dynamic process of formation and implementation of the latest ideas. Such a process is possible only if the management of the enterprise is open to the perception, identification and quantification of change. These changes are related to unexpected events inside and outside the company, new strategic vectors of development, changes in the structure of the market or industry and any other subjective or objective circumstances.

Today, most Ukrainian companies have realized that they need innovative, fundamentally new methods of personnel management and the organization as a whole. Innovations are necessary for the organizational, industrial, financial, scientific spheres because in the complex they bring the most effective result [Utkina Yu.M. Visilova A.V. INNOVATIVE MANAGEMENT AT ENTERPRISES. Bulletin of Transport Economics and Industry № 46, 2014 p. 299, pp.298-302].

Undoubtedly, the structure, principles, tasks, management mechanism, subjects and objects in the system of innovation management of the enterprise directly depend on its functional features, industry factors, market place and development strategy.

The only fundamental paradigm is that “as a science and art of management, innovation management is based on theoretical principles of general management, among which the laws and patterns of dynamic

systems, principles, functions, forms and methods of purposeful human activity in the management of these systems”. [p. 9; Mikityuk P.P. Innovation management. Textbook. – Kyiv: Center for Educational Literature, 2007. – 400 p].

That is, forming a system of innovative management enterprises must be guided by the conceptual principles of management, its main tasks, principles and functions.

From the point of view of the system approach and guided by the fundamental principles of management, we can say that the system of innovative management of the enterprise is a rather dynamic component, the structure of which is variable, and the results are multifaceted and multivariate.

There is no doubt that, as in any management system, there must be subjects of management, the object of management and the management process. The innovation system in these aspects is special in that there are several options for its design. First, when the innovation system is one of the management elements in the management system of the enterprise, without clearly defined elements and process. Secondly, when the innovation system is a management element with clearly defined elements and a defined process. In addition, we are convinced that a third option is possible, when the elements or process are vaguely defined and clearly, again, the elements or process. It is according to these criteria that we will characterize the system of innovative management of enterprises.

Focusing on energy service companies as quite specific enterprises in terms of innovation, it is advisable to determine first of all the role of the innovation management system for such enterprises.

Note that the specificity of these enterprises in terms of innovation, in our opinion, is a full-scale integration into the innovation process within the macro, meso and micro levels. That is, energy service companies are essentially innovative companies or, alternatively, companies implementing innovations.

Innovative enterprise embodies a complex set of economic relations associated with the inclusion of intellectual property relations in the sphere of material production [Sizonenko V.O., Ovcharenko L.V. INNOVATIVE ENTERPRISE – FORM OF REALIZATION OF INTELLECTUAL. bitstream / handle / 123456789/9747 / Syzonenko_%20Innovatsiyne_pidpryemstvo.pdf? sequence = 1 & is allowed = y]. That is a characteristic feature of any enterprise that is associated with innovation - a combination of the production process and intellectual property. However, in our opinion, this definition does not characterize the enterprise itself, but only reflects the economic relations underlying its operation.

A rather clear position is defined in the legislation of Ukraine. Thus, the Law of Ukraine "On Innovation Activity" stipulates that an innovation enterprise (innovation centre, technopark, technopolis, innovation business incubator, etc.) is an enterprise (association of enterprises) that develops, produces and sells innovative products and (or) products or services, the volume of which in monetary terms exceeds 70 percent of its total volume of products and (or) services “[Law of Ukraine “On Innovation” <https://zakon.rada.gov.ua/laws/show/40-15>]. Given the legislative criterion of an innovative enterprise, an energy service company, we can characterize not as an innovative enterprise, but as an enterprise-implementer of innovations. That is, the energy service company uses a ready-made innovative product and the economic effect of its use directly affects the economic efficiency of the company itself.

That is why for energy service companies the role of innovation is that it is a source of vitality, efficiency, competitiveness because the introduction of energy-saving technologies requires high-quality monitoring of innovative achievements in lighting, heating, air conditioning and ventilation, hot water and more. This is the area of commercial interests of the energy service company.

In support of the above provisions, some researchers identify the main elements of the organizational structure of an innovative enterprise and identify specific components of the internal network and external network of such an enterprise. The internal network is based on group forms of work of employees, combined to solve key problems facing the innovative business. The central link of this network is the working (project) team of employees of the firm, whose activities are aimed at achieving the overall goal

[Head VM INNOVATION FIRM: FEATURES OF THE ORGANIZATIONAL STRUCTURE. Bulletin of the National Law Academy of Ukraine named after Yaroslav the Wise № 6/2011 p.98, p.95–103].

In turn, the external network of the innovation firm (inter-organizational network) as a system of explicit and implicit contracts between formally independent economic agents for optimal combination and use of resources, as well as knowledge is the organizational form of its relations with participants in the innovation process [Sheresheva M. Yu. networks: monograph / M. Yu. Sheresheva. - M.: Econ. Faculty of MSU, TEIS, 2006. – 320 p., p. 161]

As a result, the energy service company is essentially a “radar” in the field of energy innovation, the main mission of which is to search for innovations, monitor their efficiency, implementation and evaluation of their effectiveness for energy consumers.

In this case, the role of the innovation management system for the energy service company will be determined by its functionality. In our opinion, this system is key for such a company, ie it is a mechanism for its effective development.

In order to determine the features of the formation and functioning of the innovation management system of the energy service company, it is necessary to clearly distinguish between such concepts as “innovation system of the enterprise” and “system of innovation management of the enterprise”. Thus, the innovation system enterprises are considered as a set of organizational, structural and functional components (institutions) involved in the creation and application of scientific knowledge and technologies that determine the legal, economic, organizational and social conditions of the innovation process within the enterprise and ensure the development of innovation as at the level of the enterprise and at the level of the region and the country as a whole [p. 198, L.I. Fedulova CONCEPTUAL FUNDAMENTALS OF FORMATION OF INNOVATIVE SYSTEM OF ENTERPRISES ACTUAL PROBLEMS OF ECONOMY №10 (160), 2014 p.195–205].

Such an understanding of the innovative system of the enterprise for the energy service company is appropriate only from the standpoint of applying scientific knowledge and ensuring the implementation of scientific achievements for energy efficiency of organizations and institutions. For an energy service company, the innovation system acts as a catalyst for a commercial effect.

It should be borne in mind that “the successful development of economic systems at the enterprise level is directly related to innovative transformations that occur with a certain frequency and cover the field of science and technology, which, in turn, is closely linked to economic and social transformations in society”, and “one innovation is replaced by another, more perfect, ensuring the constant development of the economic system as a whole” [Ensuring the innovative development of Ukrainian industry / Yu. Z. Drachuk, K.O. Kopyshynska, Ya. O. Koleshnya, Ya. I. Kologrivov, K.O. Kuznetsova; for general Science. ed. PhD in Science, Prof. VV Dergacheva. – Kyiv: KPI named after Igor Sikorsky, Polytechnic Publishing House, 2018. – 234 p.125].

Therefore, the innovation system of the enterprise must respond quickly to periodic innovation transformations and in the initial parameters to take into account the cyclical nature of social development and updated economic results. That is why for the management of an energy service company an extremely important criterion is efficiency, relevance and economic effect in identifying and implementing innovations in the energy service process.

To fully disclose the capabilities of energy monitoring and energy control systems, it is necessary to build clear relationships between these systems and the innovative system of the energy service company, as this will allow timely accumulation of objective and relevant information on innovative technologies in energy monitoring and energy control. collection and analysis of energy consumption data. Undoubtedly, this will further optimize energy supply, control energy consumption and have information on possible reserves in the energy potential of the enterprise or organization.

In our opinion, the macro-level of the functioning of the innovation system in the field of energy service is quite clear in the study of the structure of the State Agency for Energy Efficiency and Energy Saving of Ukraine. Thus, the Resolution of the Cabinet of Ministers of Ukraine “On approval of the Regulations on the State Agency for Energy Efficiency and Energy Conservation of Ukraine” of November 26, 2014, № 676 determines that the main tasks of the agency are:

- 1) implementation of state policy in the field of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels;
- 2) ensuring an increase in the share of renewable energy sources and alternative fuels in the energy balance of Ukraine;
- 3) provision of administrative services in the relevant field;
- 4) submission to the Minister of Energy and Environmental Protection of proposals to ensure the formation of state policy in this area [Resolution of the Cabinet of Ministers “On approval of the Regulation on the State Agency for Energy Efficiency and Energy Saving of Ukraine” of November 26, 2014, № 676 URL: <https://zakon3.rada.gov.ua/laws/show/676-2014-%D0%BF#n9>].

It should be noted that a characteristic feature of domestic enterprises, organizations and institutions, which are essentially implementers of innovations, it is quite difficult to delineate the boundaries of functionality and elements of the innovation system. However, we can identify areas of functional relationships or areas of direct or indirect influence.

The sphere of the direct influence of the innovation system in the directions of the agency's functioning provides:

1. Carrying out the procedure of qualification of the cogeneration unit.
2. Carrying out of the state energy examination.
3. Assessment of the quality of alternative fuels.
4. Creation and operation of energy audit and energy management systems.
5. Monitoring and control of efficient use of fuel and energy resources, renewable energy sources and alternative fuels
6. Development of norms, rules and certain technical regulations for the field of fuel and energy resources, energy saving, renewable energy sources and alternative fuels.
7. Development of sustainability criteria for liquid and gaseous fuels made from biomass.
8. Development of technical requirements for the production and use of biofuels and bioliquids in order to reduce greenhouse gas emissions.

The indirect influence of the innovation system is manifested in the following areas of functioning of the State Agency for Energy Efficiency and Energy Saving of Ukraine as:

- 1). First, the implementation of public-private partnership in the field of efficient use of fuel and energy resources, energy conservation, renewable energy sources and alternative fuels;
- 2). Secondly, it ensures the creation and functioning of the state system of monitoring the energy balance of Ukraine;
- 3). Third, maintaining a register of alternative fuels;
- 4). Fourth, ensuring the functioning of the system of energy labelling of household electrical equipment;
- 5). Fifth, participation in the preparation of international agreements of Ukraine and in accordance with the law ensures their implementation; in accordance with the legislation concludes international

agreements of Ukraine of interdepartmental character; ensures the adaptation of national legislation to EU legislation on matters within its competence; performs, within the powers provided by law, measures for the implementation in the national legislation of the provisions of international treaties to which Ukraine is a party; carry out international cooperation on issues within its competence;

6). Sixth, participation within the limits of its powers in establishing cooperation between Ukraine and the European Union, in particular on the implementation of the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other areas of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels;

7). Seventh, conducting information activities to promote the economic, environmental and social benefits of efficient use of fuel and energy resources, energy conservation, renewable energy sources and alternative fuels;

8). Eighth, participation in the organization of training and preparation of proposals for improving the system of training and retraining of specialists in the field of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels;

9). Ninth, ensuring, within the powers provided by law, the creation of state support funds for measures in the field of efficient use of fuel and energy resources, energy conservation, renewable energy sources and alternative fuels [[https://zakon3.rada.gov.ua/laws/show / 676-2014-% D0% BF # n9](https://zakon3.rada.gov.ua/laws/show/676-2014-%D0%BF#n9) and <http://sae.gov.ua/uk/business>].

The basis of the management mechanism of all processes of direct or indirect influence of the innovation system at the micro or macro level in the field of energy service, as well as the main tool for achieving the goal and achieving all tasks, in our opinion, is the innovation management system. It can be considered both as a separate management mechanism and as a subsystem of the innovation system, as well as an element of the overall management system of the company, organization or institution.

However, we are convinced that in any case, it is an integral part of the overall management system of the energy service company, the purpose of which is to optimize the innovation process and maximum concentration on the process of accumulation of innovations, as well as unlocking the company's innovation potential.

Let's form a list of the main tasks for innovative systems in the field of energy audit:

1. Improving the effectiveness of the process of monitoring primary documents through the introduction of improved innovative methods of data processing;
2. Improving the effectiveness of visual examination of the location of the organization or institution by applying the introduction of modern innovative technologies of video surveillance;
3. Improving the process of researching the features of the equipment in the context of energy supply through the use of the latest IT technologies and modern high-precision devices;
4. Maximizing the efficiency of the process of research of energy supply systems with the use of innovative equipment, which will take into account all the factors that directly or indirectly affect the amount of energy consumption of the organization or institution.
5. Improving the effectiveness of the process of analysis, evaluation and calculation of the efficiency of energy supply systems according to improved methods and modernized algorithms.

At the same time, the feasibility study of energy efficiency measures, in our opinion, is in itself a rather complex process and one that needs constant improvement. Thus, the "Guidelines for the development of feasibility study of projects in the field of energy-saving in Ukraine" states that "the development of feasibility study (feasibility study) of projects in the field of energy and energy-saving should be carried out in two stages: stage 1: preliminary (technical and technological) substantiation; stage 2: detailed (full)

justification "[Methodical recommendations for the development of feasibility study of projects in the field of energy-saving in Ukraine. The textbook is a reference book. – Edited by Mamaliga Volodymyr Mykhailovych. – Kyiv: United Nations Industrial Development Organization, 2018. – 193 p, p.4].

Therefore, the first stage envisages an assessment of all limiting factors, as well as factors influencing the project implementation.

At this stage, among the main tasks of the innovative system of the energy service company, we highlight:

1. Rationalization of the process of taking into account technical and technological limitations, through the use of innovative equipment and technologies for determining the parameters of these restrictions;
2. Improving the effectiveness of the assessment of all parameters of equipment operation, environmental factors, features of utilization and occupational safety, by finding or developing a methodology for calculating the absolute and relative indicators of these areas of project implementation;
3. The effectiveness of assessing the human potential of the project, improving the efficiency of training and retraining, as well as staff incentive programs, by implementing the latest methods of performance appraisal, training and retraining, motivating staff involved in the project.

The second stage of feasibility study of energy efficiency measures involves detailing formalized procedures for the economic evaluation of their effectiveness. The main task of the innovative system of the energy service company at the second stage is the introduction of relevant methods and algorithms of economic justification of the project and the formation of scientifically sound measures for project implementation.

V. CONCLUSIONS

The conclusions and results obtained during the study expand the theoretical apparatus management of innovative activities of enterprises and can be used in conducting further research on the problems of innovation management system development enterprises. Research on the development of innovation management system is promising activities of enterprises, building innovation capacity and the implementation of systematic purposeful planning, implementation and use of innovations; justification of expediency application of a systematic approach to innovation management; content development and structures of the model of the management system of innovative activity of energy service companies.

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