



THE CONCEPT AND FUNCTIONS OF INNOVATION MANAGEMENT

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ABSTRACT

In modern conditions, innovative management is an integral part of the activity of any successful company. Innovation management refers to the system of innovation management, the innovation process and the relationships that arise in the process of innovation movement. Innovations include all changes (innovations) that were first used at the enterprise and bring it specific economic and / or social benefits.

KEY WORDS: *innovation management, company, concept, innovative activity.*

DISCUSSION

Innovation management is a system for managing innovations, the innovation process and the relationships that arise in the process of innovation movement. Innovation is subject to influence from the economic mechanism. The economic mechanism affects both the processes of creating, implementing and promoting innovations, as well as the economic relations that arise between producers, sellers and buyers of innovations. The impact of the economic mechanism on innovation is carried out using certain techniques and a special management strategy. Together, these techniques and strategy form a kind of innovation management mechanism - innovation management.

Innovations include all changes (innovations) that were first used at the enterprise and bring it specific economic and / or social benefits. Therefore, innovation is understood not only as the introduction of a new product on the market, but also a number of other innovations:

- ▲ new or improved types of products (product innovations);
- ▲ new or improved services (service innovation);
- ▲ new or improved production processes and technologies (process and technological innovations);
- ▲ altered social relations at the enterprise (social or personnel innovations);
- ▲ new or improved production systems.
- ▲ These types of innovations in enterprise practice are intertwined. In the conditions of modern technology, technical, economic, organizational and social changes in

production processes are generally inseparable.

- ▲ The following features are crucial for innovation:
- ▲ they are always associated with the economic (practical) use of original solutions. This is their difference from technical inventions;
- ▲ provide specific economic and / or social benefits for the user. This benefit determines the penetration and spread of innovation in the market;
- ▲ mean the first use of an innovation in an enterprise, whether or not it has been applied elsewhere.

In other words, from the point of view of an individual company, even imitation can have the character of innovation; need a creative approach and are associated with risks. Innovations cannot be created and implemented during routine processes, but require all participants (managers and employees) to have a clear understanding of their need and creative abilities.

Innovation management is a relatively new concept in the scientific, technical, industrial, technological and administrative sphere of activity of professional managers. Innovation management is based on the following key points:

- ▲ search for an idea that serves as the foundation for this innovation;
- ▲ organization of the innovation process for this innovation;
- ▲ the process of promoting and implementing innovation in the market.

Innovation management includes strategy and management tactics. The strategy determines the general direction and method of using funds to achieve the goal. After achieving the goal, the strategy as a direction and means of achieving the goal ceases to exist. Tactics are specific methods and techniques for achieving a goal in specific conditions. The task of innovation management tactics is the art of choosing the optimal solution and methods for achieving this solution that are most acceptable in a given economic situation. Innovation management can be considered as a system of enterprise management. From this point of view, the innovation management system consists of two subsystems: a control subsystem (control subject) and a controlled subsystem (control object). The control subject may be one or a group of employees who carry out the purposeful functioning of the control object.

The object of management is innovation, the innovation process and economic relations between participants in the innovation market. The communication of the control subject with the control object is carried out by transmitting information. This transfer of information is a management process. Innovation management performs certain functions that determine the formation of the structure of the management system.

There are two types of innovation management functions:- the functions of the subject of management;- functions of the control object. Consider in more detail the functions of the subject of management.

The forecasting function covers the long-term development of changes in the technical, technological and economic condition of the control object as a whole and its various parts;

- ▲ planning function - covers the whole range of activities to develop them in practice;
- ▲ the function of the organization is to bring together people who jointly implement the investment program based on any rules and procedures;
- ▲ the regulation function consists in influencing the control object to achieve the state of stability of the technical, technological and economic systems in the case when these systems deviate from the established parameters;
- ▲ coordination function means the coordination of the work of all parts of the control system, management apparatus and various specialists;
- ▲ the incentive function in innovation management is expressed in encouraging employees to be interested in the results of their work to create and implement innovations;
- ▲ the control function is to check the organization of the innovation process, the

plan for the creation and implementation of innovative products, etc.

It is also advisable to consider the functions of the control object. The functions of the control object include:

- Risk capital investment;
- Organization of the innovation process; organization of innovation promotion in the market and its diffusion.

The function of risky capital investment is manifested in the organization of venture financing of investments in the innovation market.

Investing in a new product or in a new operation is always associated with uncertainty, with great risk. Therefore, it is usually carried out through the creation of innovative venture capital funds. The content of the organization of the innovation process is the rational organization of innovation in the creation, implementation and dissemination of innovation. In world economic literature, the term "innovation" is understood as the transformation of potential scientific and technological progress into real, embodied in new products and technologies.

The term "innovation" has become actively used in the transitional economy of Russia, both independently and to refer to a number of related concepts: "innovation activity", "innovation process", and "innovation solution".

The Austrian scientist I. Schumpeter identified five typical changes:

- 1) The use of new equipment, new technological processes or new market support for production;
- 2) Introduction of products with new properties;
- 3) The use of new raw materials;
- 4) Changes in the organization of production and its material and technical support;
- 5) The emergence of new markets.

In accordance with international standards, innovation is defined as the end result of innovation, which is embodied in the form of a new or improved product introduced on the market, a new or improved technological process used in practice. The innovation process is associated with the creation, development and dissemination of innovation. Creators of innovations (innovators) are guided by such criteria as the product life cycle and economic efficiency. Innovation cannot be innovation if it is not commercialized. Innovation can be a new order, a new method, an invention. From the moment it is accepted for distribution, an innovation gains a new quality and becomes an innovation.

Scientific and technological innovations should:

- ▲ Have novelty;
- ▲ Satisfy market demand;
- ▲ Make a profit to the manufacturer.

Distribution of innovations, as well as their creation, is an integral part of the innovation process



(IP). The dissemination of innovation is an information process, the form and speed of which depends on the power of communication channels, the characteristics of the perception of information by subjects, their abilities for the practical use of this information.

Diffusion of innovation is the dissemination of once mastered and used innovation in new conditions or places of application. Schumpeter considered the expectation of super profits to be the main driving force behind the adoption of innovations. The subjects of the innovation process can be divided into the following groups: innovators; early recipients; early majority and lagging. Innovators are generators of scientific and technical knowledge. These may be individual inventors, research organizations. They are interested in receiving part of the income from the use of inventions.

The role of early recipients are entrepreneurs who were the first to master the innovation. They strive to make additional profits by promoting innovations to the market as soon as possible. They received the name of "pioneer" organizations. The early majority is represented by firms that were the first to innovate in production, which provides them with additional profit.

Lagging firms face a situation where a delay in innovation leads to the release of new products that are already outdated. All groups except the first are simulators. Introducing innovations is always a difficult and painful process for any organization.

There are innovative management techniques that affect only the production of innovation; techniques affecting both production and the implementation, promotion and dissemination of innovation; as well as techniques that affect only the implementation, promotion and dissemination of innovation.

The introduction of innovative management in the context of enterprise activity means a transition to a new, more advanced way of organizing activities, which ensures the growth of enterprise capabilities. The fact of introducing innovations at the enterprise indicates a transition to a higher level of production capabilities, that is, it is an indicator of the development of the company.

Innovation performs the following three functions:

Reproduction function means that innovation is an important source of financing expanded reproduction. With the help of innovations, the range of products and services is expanded, their quality improves, which contributes to the growth of the needs of each person and society as a whole and the satisfaction of these needs. The meaning of the reproductive function is to profit from innovation and use it as a source of financial resources.

Profit earned through the implementation of innovations can be used in various areas, including as capital. This capital can be used to finance new types

of innovation. Thus, the use of profit from innovation for investment is the content of the investment function of innovation.

Making an entrepreneur profit through the implementation of innovation directly corresponds to the main goal of any commercial organization. Profit serves as an incentive for the entrepreneur to introduce new innovations; encourages him to constantly study demand, improve the organization of marketing activities, apply modern management methods. Innovation is a channel for the realization of the achievements of human intelligence, scientific and technological results, contributing to the intellectualization of labor activity, to increase its knowledge-intensiveness.

The tasks of the innovator can be reduced to the following:

1. The search for a new technical solution - the creation of an invention;
2. Conducting research and technological development;
3. Technological preparation of serial production of new products;
4. Consolidation of products in new markets through continuous improvement of technology, increasing competitiveness.

Marketing innovation strategy.

Problem - Creation and development of new products.

Aspects:

1. Information and forecasting.
2. Management and coordination.
3. Planning and regulation.
4. Standardization and unification.

Methods

1. DAS (Design Automation System).
2. A systems approach and operations research.
3. Generalization of statistics and process modeling.
4. Organization of search procedures and information support.

RESULTS.

1. Ensuring a given technical level.
2. Shortening the cycle of creation and development of new products.
3. Optimization of the methods of transition to the release of new products and their development.
4. Improving the technical and economic indicators of new products.

The goal is the creation of goods of a high technical level, minimizing production and circulation costs. The result of innovation, as a rule, is a rapid and substantial increase in labor productivity.

Technological innovations can give equal to product and even higher commercial effect; a high share of productivity growth is due to the improvement of technological processes.



1.1. Quality growth at a rising price = growth in profit per unit of product = increase in total profit.

1.2. Cost reduction with constant quality = price reduction = growth in sales = growth in total revenue.

Innovations implemented in one organization can then be distributed commercially in other organizations. The speed of their distribution (diffusion) depends on the relative need for investment and the effectiveness of each innovation. There are three logical forms of the innovation process: simple intra organizational (natural), simple inter organizational (commodity) and advanced.

Simple IP involves the creation and use of innovations within the same organization; in this case, the innovation does not directly accept the commodity form. With a simple inter organizational innovation process, innovation acts as the subject of sale. This form of the innovation process means the separation of the functions of the creator and producer of innovation from the functions of its consumer. Finally, the expanded innovation process is manifested in the creation of newer and newer manufacturers of innovation, in violation of the monopoly of the pioneer manufacturer, which, through mutual competition, contributes to the improvement of consumer properties of the manufactured goods.

The subjects of the innovation process are divided into the following groups: innovators; early recipients; early majority and lagging. All groups except the first are simulators. Schumpeter considered the expectation of super profits to be the main driving force behind the adoption of HB. However, in the early stages of HB diffusion, none of the business entities has sufficient information about the relative advantages of competing HBs. But business entities are forced to introduce one of the alternative new technologies under the threat of crowding out of the market.

Scientific and technical services include: the provision of scientific and technical information; translation, editing and publication of scientific and technical literature; surveys (geological, hydrological, topographic, etc.); mineral exploration; collection of data on socio-economic phenomena; tests; quality control; advising clients on the preparation and implementation of specific projects (except for research and development, ordinary engineering services); patent and licensing activities.

The following types of innovation are distinguished:

1. Instrumental preparation and organization of production (acquisition of production equipment and tools, changes in them, as well as in procedures, methods and standards of production and quality control of manufacturing a new product or applying a new technological process);

2. Start-up of production and pre-production developments, including modifications of the product

and the technological process, retraining of personnel for the application of new technologies and equipment, as well as trial production, if it is supposed to finalize the design;

3. Marketing of new products (activities related to the launch of a new product on the market, that is, preliminary market research, product adaptation to various markets, advertising campaign);

4. Acquisition of non-materialized technology from the outside in the form of patents, licenses, disclosure of know-how, trademarks, designs, models and services of technological content;

5. The acquisition of materialized technology (machinery and equipment, in its technological content associated with the introduction of product or process innovations);

6. Production design (preparation of plans and drawings provided for determining production procedures, technical specifications, operational characteristics).

Methods for generating ideas and information retrieval (intuitive and creative methods. Logical and systematic).

The so-called psychological inertia of thinking, which hinders the finding of inventive solutions and new business ideas, which hinders a more comprehensive consideration of the problem. These methods can significantly increase the number of ideas put forward and increase the productivity of this process. However, to solve complex inventive and non-standard business problems, which are based on contradictions, these methods are ineffective.

"Brainstorm". The most famous method of psychological activation of thinking is the "brainstorming" proposed by A. Osborne (USA) in the 40s. Brainstorming is a collective method of searching for inventive solutions and new business ideas, the main feature of which is to divide participants into critics and "generators", as well as to separate the process of generating and criticizing ideas in time. In addition to this, "brainstorming" involves a number of rules:

1. It is forbidden to criticize the proposed ideas, disputes and discussions are prohibited.

2. Any ideas are welcome, including fantastic ones. There are no bad ideas.

3. The development, improvement and combination of other people's ideas is encouraged.

4. Ideas should be summarized, do not interrupt the baton of ideas.

5. The main goal is to get as many ideas as possible.

The prerequisites for a brainstorming session are the creation of favorable conditions for overcoming psychological inertia and the fear of expressing ridiculous ideas because of fear of criticism, attracting various specialists to the group, and their tendency to creative work. The team leader (leader) should be a specialist in technical creativity methods.



Brainstorming is a fairly universal method, the application of which is possible in scientific, technical, administrative, commercial, advertising activities, both for the search for non-standard solutions in technology and for the search for new business ideas.

Analogies. "Synectics" Techniques for using analogies relate to methods of psychological activation of creative thinking. The most interesting method that uses analogies is Sinektika, a method for solving inventive problems and searching for new business ideas by a group of specialists who widely use various types of analogies. This method was proposed by W. Gordon (USA) in 1952. It is based on the property of the human brain to establish connections between words, concepts, feelings, thoughts, impressions, i.e., to establish associative connections. This leads to the fact that a single word, observation, etc., can cause in consciousness the reproduction of previously experienced thoughts, perceptions, and "include" the rich information of past experience to solve the problem. Analogy is a good activator of associations, which in turn stimulate creativity. A direct analogy, in accordance with which the search for solutions to similar problems, business ideas, examples of similar processes in other areas of knowledge is carried out with the further adaptation of these solutions to your own task.

Delphi Method. names of the method: "Delphic Method", "Method of the Delphic Oracle." Authors of the method: O. Holmer, T. Gordon and others (USA), the 50s of the XX century. Delphi ", " Delphic method ", " Delphic oracle method "come from the name of Delphi, where oracle diviners lived at the temple of the god Apollo (Ancient Greece). The Delphi method is a tool that allows you to take into account the independent opinion of all participants in the expert group on the issue under discussion by consistently combining ideas, conclusions and suggestions and come to an agreement. The method is based on multiple anonymous group interviews. Form a working group to collect and generalize the views of experts. To form an expert group of specialists who own questions on the topic under discussion. Prepare a questionnaire, indicating the problem posed in it, clarifying questions. The wording should be clear and unambiguously interpreted, suggesting unambiguous answers. Conduct a survey of experts in accordance with the methodology, which, if necessary, involves repeating the procedure. The answers received serve as the basis for the formulation of questions for the next stage.

Summarize the expert opinions and give recommendations on the problem posed. The generalized answers received are transmitted to each expert through personal communication, either by post or e-mail with a request to review and clarify his opinion, if he considers it necessary. This procedure

can be repeated several times. Logical and systematic (methods of directed search, methods of systematic search). A well-known method for the systematic search for new ideas is the morphological analysis proposed by the Swiss astrophysicist Zwicky. Morphological analysis is based on the construction of a table that lists all the main elements that make up the object and indicates, possibly, a larger number of known options for the implementation of these elements. By combining options for implementing the elements of an object, you can get the most unexpected new solutions.

The sequence of actions is as follows:

1. Accurately formulate the problem.
2. Identify the most important elements of the object.
3. Define options for the execution of elements.
4. Enter them in the table.
5. Evaluate all the options available in the table.
6. Choose the best option.

The method of searching for optimal forms of elements of technical systems using a computer. The main idea of the method is to model the evolution of the forms of living organisms according to Darwin's law. The essence of the method is that some initial form (prototype) of an element of a technical system undergoes a partial random local change. If this change is unacceptable (restrictions are violated) or the quality criterion worsens, then the generated form is destroyed. If the generated form is acceptable and is characterized by the best quality criterion, then it is fixed and becomes the initial prototype for further random or deterministic change.

As a result of this evolution, the shape of the element monotonously improves to a certain limit - a local or global extremum. Moreover, the form found may constitute a new patentable technical solution. The method of synthesis of optimal forms belongs to the class of mathematical programming methods.

From a mathematical point of view, the method is carried out in two stages:

1. a universal parameter space is chosen in which for the problem under consideration it is possible to describe the whole set of possible forms, including new ones;
2. The algorithm for searching the extremum in randomly selected subspaces is implemented.

The method of synthesis of optimal forms can have various mathematical implementations, (presented, in particular, in the literature below, where examples of solving practical problems are also considered). The method relates to one of the areas of automation of search design and construction.



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