+16

INNOVATIVE METHODOLOGY OF RESEARCH AND PROJECT ACTIVITIES

SLAVOVA N.A., KOZILOVA L.V., CHVYAKIN V.A.

textbook

WWW.SCIPRO.RU

INNOVATIVE METHODOLOGY OF RESEARCH AND PROJECT ACTIVITIES

Textbook

Slavova Natalia Alexandrovna
Kozilova Lidiya Vasilyevna
Chvyakin Vladimir Alekseevich

Nizhniy Novgorod

2021

UDC 374.3
UDC 001.89
BBK 65.291.3
M54

Editor:

Kobus N. G. - PhD in Psychology
Mulina N. A. - PhD, Associate Professor, Head of the Department of Advertising and Public Relations, Moscow International University, Moscow, Russia
(scientific edition of the English version)

Authors:

Slavova Natalia Alexandrovna
PhD in Law Associate Professor at the Department of Legal Disciplines of Russian New University, Moscow, Russia

Kozilova Lidiya Vasilyevna
Moscow State Pedagogical University, Moscow, Russia

Chvyakin Vladimir Alekseevich**,**
Professor of the Department of Advertising and Public Relations in the Media Industry, Moscow Polytechnic University, Moscow, Russia

Reviewers:

Sharoyko F. V. - PhD in Economics, the Department of State and Municipal Administration, Institute of Social and Humanitarian Education, Moscow State Pedagogical University

Zhuchkov V. V. - PhD in Social Sciences, the Department of Advertising and Public Relations in the Media Industry, Moscow Polytechnic University

Innovative methodology of research and project activities [Electronic resource]: textbook – El. ed. - Electron. text data. (1 pdf file: 115 p.) - Slavova N.A., Kozilova L.V., Chvyakin V.A. 2021. – Access mode: http://scipro.ru/conf/Textbook.pdf. Syst. requirements: Adobe Reader; экран 10'.

ISBN 978-1-300-15283-5

The textbook contains materials on innovative methodology of research and project activities, which contribute to more successful development of disciplines on the basics of research and project activities. The textbook is addressed to students in the field of training 42.04.01-Advertising and public relations.

Recommended by the Council of the Domodedovo Branch of the Russian New University for use in the educational process as a textbook for students studying the basics of research and project activities of all forms of education, Protocol No. 3 of February 5, 2021.

Contents

Introduction

Innovative activity can be successful if it is provided with pedagogical support. The pedagogy of innovations, the research worldview and the project orientation of thinking contribute to the success of practice-oriented activities in various areas of the modern economy. According to M.M. Musarsky, modern pedagogical education should be aimed at the formation of innovative thinking among students. We are talking about the socio-humanitarian aspects of entrepreneurial activity, the role of socio-economic knowledge in the training of a teacher. An extremely important vector of development is the use of innovative technologies for teaching economic disciplines on the examples of financial literacy disciplines. This is due to the fact that success in an innovation-oriented economy lies in regular and successful innovations that can be implemented on the market. Innovation as the generation and application of new knowledge should be based not on chance, but on systematic research and timely developments in response to market challenges, taking into account the need for an effectively organized production process and the implementation of innovations in the market.

An important tool for this is project management, which is closely related to the concept of innovation management. Projects are an organizational framework for the systematic, systematic and methodological rules-based acquisition of knowledge, ideas and results. The project organization tool is widely used in modern market economy systems for both complex and relatively simple specific tasks.

The concept of "project" combines various types of activities characterized by a number of common features, the main ones are as follows:

- focus on achieving specific goals, certain results;
- dynamic development of the project application area;
- specification of the event, development as a result of the project;
- coordinated implementation of numerous interrelated actions aimed at achieving success;

- a limited length in time with a certain beginning and end;
- limited resources;
- focus on quality;
- an interdisciplinary approach.

The project activity is devoted to the organization of work on the creation of unique innovative solutions, methods, technologies, products and services for a limited time. There are three levels of innovation activity in the business of an enterprise (organization, company).

Achieving the goals of the enterprise's business strategy is based on an interconnected portfolio – program – project system: the goal of the portfolio is to achieve business goals that ensure the success of the strategy, programs are aimed at achieving benefits within the framework of business goals, projects allow you to create unique technologies, products, services that provide benefits for the enterprise.

If we consider the innovative methodology of project activity as the basis for long-term planning, then it is necessary to link it with the corresponding research developments. Without scientific support for project activities, any innovations will be ineffective. Therefore, the whole point of the innovative methodology of research and project activities is the functioning of a complex of relationships, including the specific content of the innovation process and the active state of the innovation sphere; the possibilities of supporting innovation activities; a clear structure of the innovation activity itself; organization and management of an innovation project; evaluation of the effectiveness of innovations, and much more.

Section 1. Innovative methodology of scientific research. The concept and main functions of the methodology of scientific research

Innovative methodology is a set of principles, methods and technologies developed for the development and generation of changes in social systems. The tool of the innovation methodology is innovation management, which is the leading direction of strategic management, which is carried out by the company's management; it is a field of activity designed to form and achieve innovative goals due to the rational use of financial, material and labor resources.

The purpose of innovation management is a strict definition of the leading areas of production and scientific and technical activities of the enterprise in such areas as the development, implementation, modernization and improvement of products, the removal of outdated products from the production line.

Functions of innovation management. The management function means certain opportunities of managerial activity aimed at implementing certain impacts on the innovation process.

The functions of the subject of management are considered planning, organization, control, forecasting, coordination, stimulation and regulation. The functions of the management object include financing management, risky investment of capital, organization of the innovation process and promotion of innovations in the market. The main interrelated functions of innovation management:

- strategic marketing;
- organization of processes;
- accounting and control;
- planning;
- motivation and regulation.

Methods of innovation management include the method of coercion, motivation, persuasion, network toning and management, forecasting, analysis. Read more about each of them below.

- the method of coercion is the method by which the control subsystem affects the controlled subsystem. This method is based on the legislative acts of the region and the country, methodological and informative-directive documents of the company and the higher organization, on plans, projects, programs, tasks of the management;

- the incentive method is focused on the effective use of resources, improving the quality and competitiveness of services and goods, the quality of life of the population according to the ideology and policy of the development of the system. This method is based on the maximum possible optimization of the management decision, as well as the motivation of personnel for its implementation, which implies economic incentives for personnel to achieve the final results of the management system;

- the method of persuasion is based on the study of the psychological portrait of a person and, based on this, on the motivation of her needs. In order to be able to convince an employee of the need to perform a task as efficiently as possible, at the lowest cost and on time, the subject of management needs to know his psychological attitudes;

- the method of network toning and management - a graphoanalytic method for managing the design processes of any systems. The essence of this method is a network graph, which is a graphical model of all types of work aimed at completing the task.

Such a model should reflect the logical relationship, the sequence of works and the relationship between them;

- forecasting methods mean the relationship of methods and techniques of thinking that allow us to judge the future development of an object relatively reliably based on the analysis of information about this forecast object;

- the methods of analysis cover the following principles:

a) the unity of synthesis and analysis, which implies the division of the analyzed phenomena and objects into component parts for the study of their properties and further consideration of them from the point of view of interrelation and interdependence;

b) strict ranking of factors and allocation of the leading link, including setting goals to establish ways to achieve them;

c) ensuring the comparability of the analysis options by terms, volume, quality, conditions of application of the objects of analysis and methods of obtaining information;

d) timeliness and efficiency;

e) quantitative certainty.

The forms of innovation management are:

- specialized departments, which include committees, councils, working groups. The task of such departments is to determine the main directions of the innovation process and make specific proposals for decision-making;

- departments of new products that are independent divisions. They regulate the innovation activity of the company as a whole, develop programs and plans for innovation activity and consider projects for the creation of new products;

- project and target groups engaged in scientific research, development and production of new products;

- development centers are a relatively new form of organizing the innovation process. The activity of the development centers is associated with the introduction of new products, the expansion of sales volumes and the conquest of market positions;

- R & D departments that are engaged in developments and timely bring them to the stage of development, and then production and implementation;

- specialized centralized funds for stimulating innovations, whose activities are aimed at accelerating the introduction of manufactured products into mass production;

- analytical groups that predict the development of demand for new products.

The creation of a comprehensive and more flexible innovation process management system is primarily focused on the development of promising products, as well as the restructuring of the management functions of innovation management, organizational forms and

management methods. Such a mechanism provides that departments and services dealing with innovations are distributed at all levels of the management structure, and an established system of coordination and interaction is actively operating between them.

The complexity, versatility and interdisciplinary status of any scientific problem lead to the need to study it in a coordinate system that is set by different levels of the methodology of science.

Methodology is the study of the rules of thinking when creating a theory of science. The essence of the methodology is quite complex, since this concept is interpreted in different ways. Many foreign scientific schools do not distinguish between methodology and research techniques. In the Russian scientific tradition, methodology is considered as the doctrine of the scientific method of cognition or as a system of scientific principles on the basis of which research is based and the choice of a set of cognitive means, methods, and research techniques is carried out. Most often, the methodology is interpreted as a theory of research techniques, the creation of concepts, as a system of knowledge about the theory of science or a system of research techniques. The methodology is understood as a set of research techniques, including techniques and various operations with actual material.

The methodology performs the following functions:

- defines the methods of obtaining scientific knowledge that reflect dynamic processes and phenomena;
- directs, provides a special path on which a certain research goal is achieved;
- provides comprehensive information about the process or phenomenon that is being studied;
- helps to introduce new information to the foundation of the theory of science;
- provides clarification, enrichment, systematization of terms and concepts in science;
- creates a system of scientific information that is based on objective facts, and a logical and analytical tool for scientific cognition.

These features of the concept of "methodology", which determine its functions in science, make it possible to draw the following conclusion:

Methodology is a conceptual presentation of the purpose, content, research techniques that provide the most objective, accurate, systematic information about processes and phenomena.

The methodological basis of research, as a rule, is not an independent section of a dissertation or other scientific work, but the achievement of the goals and objectives of scientific research largely depends on its clear definition. In addition, in the sections of the main part of the dissertation, the general methodology and the main research techniques are presented, and this requires the definition of the methodological foundations of the qualification work.

The methodological basis of the research should be understood as the main, initial position on which the scientific research is based. The methodological foundations of this science always exist outside of this science, outside of it, and are not derived from the research itself.

Methodology - the doctrine of the system of scientific principles, forms and methods of research activity-has a three-level structure. Nowadays, there are fundamental, general scientific principles that make up the methodology itself, specific scientific principles that underlie the theory of a particular discipline or scientific field, and a system of specific methods and techniques that are used to solve special research problems.

Philosophical, or fundamental, methodology is the highest level of the methodology of science, which determines the general strategy of the principles of cognition of the features of phenomena, processes, spheres of activity.

The development of methodology is one of the aspects of the development of cognition as a whole. At first, the methodology was based on the knowledge dictated by geometry as a science, where normative instructions for studying the real world were placed. Then the methodology acted as a set of rules for studying the universe and moved into the sphere of philosophy. Plato and Aristotle considered methodology as a logical universal system, a means of true knowledge.

For a long time, the problems of methodology did not have a proper place in science because of the mechanistic or religious nature of certain views on the world. The principles of mechanics developed by G. Galileo and R. Descartes were a model of cognition. For many centuries, empiricism has been the starting position when considering all problems.

The idealists Kant and Hegel gave a new impetus to the development of methodology, tried to consider the patterns in thinking itself: the ascent from the concrete to the abstract, the differences in the development of being and thinking.

All the achievements of the past were processed in the form of a dialectical method of cognition of real reality, which was based on the connection of theory and practice, the principles of cognizability of the real world, the determinacy of phenomena, the interaction of external and internal, objective and subjective.

The dialectical logic of cognition has become a universal tool for all sciences, when studying any problems of cognition and practice.

Dialectics as a method of cognition of nature, society and thinking, considered in unity with logic and the theory of knowledge, is the fundamental scientific principle of the study of multidimensional and contradictory reality in all its manifestations. The dialectical approach makes it possible to substantiate cause-and-effect relationships, the processes of differentiation and integration, the constant disagreement between essence and phenomenon, content and form, objectivity in assessing reality. Experience and facts are the source, the basis of knowledge of reality, and practice is the criterion of the truth of the theory. **Dialectics** as a fundamental principle and method of cognition has a huge explanatory power. However, it does not replace specific scientific methods related to the specifics of the field under study. Dialectics manifests itself in them and is implemented through them according to the requirements of heredity and non-contradiction in methodology.

Philosophical methodology performs two types of functions. First, it reveals the meaning of scientific activity and its relationship with other spheres of activity, that is, it considers science in relation to practice, society, and human culture. This is a philosophical problem. Methodology

is not a special branch of philosophy: the methodological functions in relation to the special sciences are performed by philosophy as a whole. Secondly, the methodology solves the problem of improving and optimizing scientific activity, going beyond the limits of philosophy, although it is based on the ideological and general methodological guidelines and postulates developed by it.

The fundamental principles are based on generalizing, philosophical propositions that reflect the most important properties of objective reality and consciousness, taking into account the experience acquired in the process of human cognitive activity. These include the principles of dialectics, which reflect the mutually conditioned and contradictory development of the phenomena of reality, determinism - the objective causality of phenomena, isomorphism-the relations of objects that reflect the identity of their construction, etc. Of course, the meaningful interpretation of these principles varies according to the specifics of the material under study (let's compare, for example, the understanding of isomorphism in mathematics, geochemistry and linguistics, natural sciences). The justification of the methodological approach in the study of a particular field depends on the interpretation of philosophical principles.

Philosophical doctrines, the leading ideas of which are the philosophical concepts of scientific cognition, the dialectical method and the theory of scientific creativity, determine the general approach to the study of the problem, are aimed at solving strategic, rather than tactical, research tasks and related to it indirectly.

General scientific methodology is used in all or in the vast majority of sciences, since any scientific discovery has not only a subject, but also a methodological content, is the reason for a critical review of the conceptual apparatus, factors, prerequisites and approaches to the interpretation of the material being studied so far.

The general scientific principles of the study include: historical, terminological, functional, systemic, cognitive (cognitive), modeling, etc.

Modern scientific and theoretical thinking seeks to penetrate into the essence of the phenomena and processes that are being studied. This is

possible under the condition of a holistic approach to the object of study, considering it in its origin and development, that is, applying a historical approach to its study.

Before studying the current state, it is necessary to learn the genesis and development of a certain science or field of practical activity.

It is known that new scientific and accumulated knowledge are in dialectical interaction. The best and progressive passes from the old into the new and gives it strength and effectiveness. Sometimes the forgotten old is revived again on a new scientific basis and lives a second life in a different, perfect form.

In this regard, the study of historical experience, analysis and evaluation of historical events, facts, previous theories in the context of their origin, formation and development are of particular importance. So, the historical method makes it possible to study the emergence, formation and development of processes and events in a chronological sequence in order to identify internal and external relationships, patterns and disagreements.

Any theoretical research requires a description, analysis and clarification of the conceptual apparatus of a particular field of science, that is, the terms and concepts that denote them.

The terminological principle provides for the study of the history of terms and the concepts designated by them, the development or clarification of the content and scope of concepts, the establishment of the relationship and subordination of concepts, their place in the conceptual apparatus of the theory on which the research is based. The method of terminological analysis and the method of operationalization of concepts helps to solve this problem.

The definition of concepts should be formulated based on explanatory and professional dictionaries. The definition of the scope and content of the concept is given through the generic feature and the nearest specific difference. As a rule, the generic concept is first called, to which the concept that is defined is included as a component. Then they point to the sign of the concept that distinguishes it from all similar ones, and this sign should be the most important.

There are certain rules for defining concepts. The dimension rule requires that the volume of the concept that is defined corresponds to the volume of the concept that defines, that is, these concepts must be identical. Second, the new concept should not be a tautology. Third, the concept should be clear and unambiguous. If it is difficult to specify one feature when defining a concept, several features are called that are sufficient to reveal the specifics of its scope and content. Indeed, the scientific definition of complex phenomena and facts cannot be limited to formal and logical requirements. It can contain an assessment of facts, objects, phenomena that are determined, organically enter into the current system of scientific terms.

The general scientific methodology should include a systematic approach, the application of which requires each object of scientific research. Its essence consists in a comprehensive study of large and complex objects(systems), the study of them as a single whole with the coordinated functioning of all elements and parts.

Each specific science, activity, object can be considered as a certain system that has many interrelated elements, components, subsystems, certain functions, goals, composition, structure. The general characteristics of the system include integrity, structurality, interrelation with the external environment, hierarchy, purposefulness, self-organization. From the standpoint of a systematic approach, any sphere can be considered. Orientation to a systematic approach in research (structure, interrelations of elements and phenomena, their subordination, hierarchy, functioning, integrity of development, dynamics of the system, essence and features, factors and conditions) is justified if there is a task to investigate the essence of the phenomenon, process.

In a systematic study, the object that is analyzed is considered as a certain set of elements, the relationship of which determines the integral properties of this set. The main emphasis is on identifying the variety of connections and relationships that take place both inside the object under study and in its interaction with the external environment. The properties of an object as an integral system are determined not only and not so much by the total properties of its individual elements or subsystems, but

by the specifics of its structure, special system-forming, integrative connections of the object under study.

The system principle makes it possible to determine the strategy of scientific research. Within its boundaries, there are structural - functional, system-effective, system-genetic and other approaches.

The essence of the structural and functional approach is to identify structural elements (components, subsystems) in system objects and determine their role (functions) in the system. The elements and the connections between them create the structure of the system. Each element performs its own specific functions that "work" for system-wide functions. The structure characterizes the system in statics, the functions - in dynamics. There is a certain dependence between them.

The general scientific methodology of studying the object of research is a system-effective approach, which is widely used in modern scientific developments. This approach indicates a certain component composition of human activity. Among its most important components: need-subject-object-processes-conditions-result. This makes it possible to comprehensively explore any sphere of human activity.

The content of the system-genetic approach consists in revealing the conditions of the origin, development and transformation of the system.

The cognitive or cognitive principle is connected with the general philosophical theory of cognition and is the methodological basis for many sciences; it is especially effective in studying the dynamics of science and its relationship with society, in justifying the leading value of knowledge in the behavior of an individual. It should be borne in mind that for the analysis of the formation of knowledge, it is necessary to study the practical and theoretical activities of a person in relation to his social aspect. At the center of the studied problems is a person as a member of society, a representative of an ethnic group, a psychological subject, a linguistic person, a communicant.

The cognitive principle in the methodology does not have clearly defined boundaries, the possibilities of its use are determined by the specifics of the field. A special place is occupied by the study of the level

of cognitive structures of social groups and their motivation in determining information and cognitive needs.

Modeling is essential for studying the internal and external relations of the object of research. With its help, those processes and phenomena that are not amenable to direct study are studied. The modeling method has proven itself as an effective means of identifying essential features of phenomena and processes using a model (conceptual, verbal, mathematical, graphical, physical).

A model is understood as a mental or material system that, by displaying or recreating the object of research, can replace it so that its study gives new information about this object.

The modeling method has the following structure:

a) problem statement;

b) creating or selecting a model;

c) study of the model;

d) transfer of knowledge from the model to the original.

A specific scientific (or private scientific) methodology is a set of ideas or specific methods of a particular science that are the basis for solving a specific research problem; these are scientific concepts that this researcher relies on.

The level of concrete scientific methodology requires an appeal to the generally recognized concepts of leading scientists in a certain field of science, as well as those researchers whose achievements are considered generally recognized.

The search for the methodological foundations of the study is carried out in such areas as:

- study of scientific works of well-known scientists who used general scientific methodology to study a specific field of science;

- analysis of the scientific works of leading scientists who simultaneously studied the issues of this field with the general problems of their field;

- generalization of the ideas of scientists who have directly studied this problem;

- conducting research on specific approaches to solving this problem by professional practitioners who have not only developed, but also implemented their ideas in practice;

- analysis of concepts in this field of scientific and practical activity of Ukrainian scientists and practitioners;

- study of scientific works of foreign scientists and practitioners.

So, based on the methodological foundations of scientific research, it is necessary to clearly answer the question about: the envisaged leading scientific idea, the essence of the phenomenon (object, subject of research), disagreements that arise, stages, stages of development (or trends). This is the scientific concept of the study.

A concept is a system of views, a system of describing a certain object or phenomenon, regarding its construction, functioning, which contributes to its understanding, interpretation, and study of the main ideas. The concept is of extreme importance, since it is a single, defining idea, the main idea of scientific research.

In this regard, it is of great importance to organize the activities of centers of professionally oriented practices that can ensure the formation of strategic thinking among students, taking into account the need to develop the innovative potential of an educational institution.

Questions for self-control on section 1

1. What is the meaning of the innovative methodology?
2. List the main methods of innovation management.
3. What is the methodology?
4. What are the main functions of the methodology?
5. What are the methodologies?
6. What does the terminological principle mean?
7. What is the essence of the structural and functional approach?
8. What does the cognitive principle mean?
9. Determine the relationship between research and project activities.
10. What is the concept?

Section 2. The concept and types of innovations in the structure of scientific and project activities

Various scientists, mainly foreign (N. Monchev, I. Perlaki, V. D. Hartman, E. Mansfield, R. Foster, B. Twiss, J. Schumpeter, E. Rogers, etc.) interpret the concept of innovation in different ways depending on the object and subject of their research, but the analysis of these different definitions of innovation leads to the conclusion that the specific content of innovation is change, and the main function of innovation is the function of change.

The Austrian scientist J. Schumpeter identified five typical changes:

1) the use of new equipment, new technological processes or new market support for production (purchase and sale);

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.

These provisions were formulated by J. Schumpeter in 1911. Later, in the 30s, he introduced the concept of innovation, interpreting it as a change in order to introduce and use new types of consumer goods, new production and transport means, markets and forms of organization in industry. Sometimes innovation is considered as a process system, thus it is recognized that innovation develops over time and has a clearly expressed stage-by-stage nature.

The methodology for describing innovations in a market economy is based on international standards. To coordinate the collection, processing and analysis of information on science and innovation, a Group of National Experts on Science and Technology Indicators was formed within the Organization for Economic Cooperation and Development (OECD), which developed the so-called Frascati Manual ("Proposed Standard Practice for Research and Experimental Development Surveys"). The document was so named due to

the fact that the first version of the recommendations was adopted in the Italian city of Frascati in 1963.

Every company should develop and improve its products. Otherwise, it will not be competitive, which, as a rule, leads to the loss of sales markets and financial insolvency. For this reason, the enterprise must constantly be in search of new types of products, methods of its production, organizational forms of production and management, that is, in other words, in search of scientific and technical achievements.

Scientific and technical achievements are distributed at the enterprise in the form of innovations.

To describe innovative processes at an enterprise, different interpretations of this type of activity are used in the economic literature and in practice. This is primarily due to the complexity and versatility of this process. Therefore, in the future, when considering this problem, we will proceed from the existing domestic theory and practice, which, in our opinion, most fully reveals the essence of innovations and innovative activity of the enterprise.

In particular, such concepts as "innovation" and "innovation" should be distinguished.

Various scientists, mainly foreign (N. Monchev, I. Perlaki, V.D. Hartman, E. Mansfield, R. Foster, B. Twiss, J. Schumpeter, E. Rogers, etc.) interpret the concept of innovation in different ways depending on the object and subject of their research, but the analysis of these different definitions of innovation leads to the conclusion that the specific content of innovation is change, and the main function of innovation is the function of change.

The Austrian scientist J. Schumpeter identified five typical changes:

1) the use of new equipment, new technological processes or new market support for production (purchase and sale);

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.

Innovation is defined as a product of intellectual labor, which has not yet been encountered in this capacity in its presented form.

Innovation (innovation) is an innovation in the form of a created product, material, technology, equipment, production and management organization, etc. for the first time introduced into production.

The literal translation of the English word "innovation" is "introduction of innovations". In turn, the term "innovation" can be explained as:

1) a certain innovation related to various fields of activity (social sphere, science, production);

2) qualitative characteristics of the process or result (final product). Numerous definitions of this concept can explain the reason for a large number of disagreements about the concepts of "innovation" and "innovative activity" derived from it, but it does not take them away.

At the moment, there are probably two approaches in the definition of the term "innovation" - process and object approaches:

- process – a certain process, the result of which is aimed at the implementation of a certain idea;

- object-where innovation is a certain object, as a result of scientific and technological progress: new equipment, technology.

The emergence of innovations is based on scientific and technological progress, which determines quantitative and qualitative changes in social production in general and at an individual enterprise in particular. Innovations are very diverse. They can be classified according to a number of characteristics.

According to the content, innovations are divided into:

- production, including new types of equipment, raw materials, materials, production technologies, etc.;

- management, including new methods of organizing production, management, promotion of goods to the market, etc.;

- information, including new ways of collecting, processing and transmitting information for making managerial decisions at a qualitatively new level;

- social, covering changes in working conditions, everyday life, ecology, etc.

In reality, changes in production technology, equipment (product innovation) cause the need to change management methods, production

organization (managerial innovations). This, in turn, changes the working conditions, the development of employees ' personality (social innovations), which causes new needs that lead to the need to use new technologies, etc. This relationship of innovations of various kinds is called the "Circle of Innovations".

The main properties of innovations:

- scientific and technical novelty;
- the possibility of practical use;
- commercial implementation;
- social significance;
- economic, social or environmental efficiency;
- satisfaction of existing and creation of new market demand;
- high degree of risk.

Classification of innovations:

1. According to technological parameters, there are:

- product innovations – the use of new materials, the production of new products;
- process innovations

– technical and technological, organizational and managerial innovations that reduce the cost, increase the efficiency and quality of a new or existing product.

2. According to the degree of novelty, innovations are divided into:

– fundamentally new, that is, having no analogues in the past and in domestic and foreign practice;

- innovations of relative novelty.

3. According to their scientific and technical significance and novelty, they distinguish:

- basic innovations that implement major scientific and technical developments and become the basis for the formation of new-generation technologies that have no analogues in domestic and world practice;
- improving innovations that implement small and medium-sized inventions that improve the manufacturing technology and / or technical characteristics of already known goods;

- pseudo-innovations aimed at partial, more often decorative (shape, color), changes of outdated generations, as well as the expansion of the product range due to the development of production, not previously produced at this enterprise, but already known on the market products.

The conditions for the emergence of innovations are formed in society continuously, but for many reasons they are often unnoticed. Most people — business leaders, businessmen, financiers-do not notice or remain indifferent to various "symptoms" of impending changes in industry, trade, consumer interests, etc.

The discovery of innovative opportunities, understanding their significance and timely implementation ensure success in economic activity.

A well-known expert in the field of management, Peter Drucker, identified seven main sources of innovation:

1. An unexpected event (success, failure, an event in the external environment).

2. Discrepancy or discrepancy between reality and its reflection in our opinions and assessments.

3. The needs of the production process.

4. A change in the structure of the industry and the market that "took everyone by surprise".

5. Demographic changes.

6. Changes in the perception and moods of consumers.

7. New knowledge (scientific and non-scientific).

It should be noted that this classification is very conditional. Thus, unexpected success, which is isolated as an independent factor, can also be considered in other classes (for example, as new knowledge). All these innovation opportunities are interconnected and intersect.

Each innovation goes through a so-called life cycle, which covers the following phases: entering the market, maturity, decline, leaving the market.

The development of innovation is traditionally illustrated in the form of an S-shaped curve, illustrating the origin of innovation, the abrupt growth of the result, the achievement of the limit in obtaining the result, the decline and withdrawal from the market. The increase in the costs of improving innovation at the stage of leaving the market leads to a decrease in the efficiency of the

enterprise, that is, the maximum opportunity for innovation comes, based on the law of disproportionate changes in decreasing productivity. This law is universal in nature. The meaning of the law is that any human activity goes through a phase of increasing efficiency with a reduction in unit costs, then reaches a maximum with an optimal combination of production factors, then goes into a phase of falling and growing unit costs. It is important to realize the technological and economic limit in order to stop investing what can no longer be improved.

When justifying a management decision on the development of innovative activity of an enterprise, it is necessary to take into account at what stage the innovation is located. For example, if an innovation is at the end of a period of rapid growth, then the enterprise should plan the introduction of a new innovation, especially if it is a question of manufactured products.

The innovative activity of an enterprise is understood as a set of measures developed by the enterprise and aimed at introducing innovations into production in order to achieve, maintain and improve the competitiveness of products and increase profits from sales.

Innovative activity includes a strategic analysis of the retrospective and prospects of innovations, the development of an innovation plan, and material incentives for the creativity of the company's personnel.

The initial position in innovation activity is marketing research of sales markets and the search for new consumers; the search for innovative ideas and partners for financing innovations.

Each enterprise strives to ensure the production of competitive products based on both price and non-price factors.

The justification of measures to increase the competitiveness of products based on price factors is carried out on the basis of determining the savings of raw materials, labor and other types of resources provided by innovative activities aimed at introducing new equipment, materials, technologies.

The justification of measures to increase the competitiveness of products due to non-price factors, and to improve the technical and economic parameters and quality of products is carried out on the basis of calculations to increase the profit from the sale of new-type products due to both a higher price and an increase in sales.

If significant investments are required for the implementation of completed scientific and technical developments at the enterprise, then an innovative project is being developed. It is justified in the same way as an investment project, but its most important distinguishing feature is taking into account a higher level of risk, which is an internal characteristic of innovation activity.

The increased risk of innovation activity consists of the increased risks of its stages. An increased risk when entering the market with a new product is associated with a high level of uncertainty in consumer behavior.

The innovative activity of the enterprise for the development, implementation, development and commercialization of an innovative project includes:

- conducting research and design work on the development of the idea of innovation, conducting laboratory research, manufacturing laboratory samples of new products, types of equipment, new structures and products;
- selection of the necessary types of raw materials and materials for the manufacture of new types of products;
- development of the technological process of manufacturing new products;
- design, manufacture, testing and mastering of samples of new equipment necessary for the manufacture of products;
- development and implementation of new organizational and management solutions aimed at implementing innovations;
- research, development or acquisition of necessary information resources and information support for innovations;
- training, training, retraining and special methods of recruitment of personnel necessary for R & D;
- carrying out work or acquiring the necessary documentation for licensing, patenting, acquiring know-how;
- organizing and conducting marketing research to promote innovations, etc.

The innovative activity of the enterprise is organized within the framework of the developed innovation policy, which is designed to regulate innovation processes and provides for:

- formation of the innovation program,

- selection of tools for managing the innovation activity of the enterprise,

- development of evaluation systems for determining the effectiveness of innovation activities,

- development of a system of material incentives for staff creativity.

When forming an innovative program, the company faces problems:

- receiving innovations (forming an "innovation portfolio"). The innovative portfolio of the enterprise should include such innovations that would meet the interests of the enterprise in terms of efficiency, implementation time, payback period. In practice, it is very difficult to achieve such a relationship due to the rapid changeability of the conjuncture, consumer demand and supply in the market of goods and services,

- financing of innovations, as a rule, associated with insufficient or lack of own or borrowed funds, lack of external investors,

- evaluation of the effectiveness of innovations within a specific production, due to the existing time gap between the time of implementation of costs and the periods of obtaining the result.

An innovative development strategy should be aimed at creating new products, new equipment and technology.

Indicators of the effectiveness of the use of innovations. The defining role of innovations in the economy entails the need to evaluate the effectiveness of research, bring an innovative project to implementation and enter the market. For this purpose, qualitative and quantitative methods are used.

Qualitative methods include:

- linking innovations with the sale of products, the state of which shows how effective the costs of research work are in terms of their recognition by the market;

- calculation of indices by comparing research costs with sales and profit received;

- comparison of firms dominating the markets with firms engaged in research;

- comparison of firms that dominate scientific research with firms that are not engaged in research, etc.;

- the image of Western firms largely depends on the cost of research expenses. The share price of firms that invest significant amounts on research and development of innovations is much higher.

Proponents of qualitative methods have confidence in their estimates and, according to them, do not need complex formulas to prove evidence.

The innovative activity of an enterprise is inseparable from economic activity and is its competitive advantage. For this reason, the economic efficiency of innovations at the enterprise for a certain period can be identified with the economic efficiency of the enterprise.

The increase in the innovative level of production is reflected in the structural changes of the company's personnel (in particular, the share of highly qualified employees is increasing); the active part of fixed assets (the share of production machines and semi-automatic machines, equipment based on new electronic technologies, etc., is increasing).

An integral characteristic of the effectiveness of innovative activity is to increase the competitiveness of the enterprise. As a rule, the evaluation of the effectiveness of innovations is carried out from the position of the manufacturer, not the consumer. This indicates the relativity and limitations of economic theories, which are clearly revealed when considering problems related to innovation. This should always be remembered when evaluating the effectiveness of innovations and their potential opportunities. The probability of increasing efficiency increases significantly under the condition of not just innovative thinking, but also readiness for constant training, development and self-development of the personality of those who are engaged in project activities.

Questions for self-control on section 2

1. What is innovation and what is innovation?
2. How do innovations differ in content?
3. What are the properties of innovation?
4. What is the classification of innovations?
5. The main sources of innovation?
6. Innovative activity of the enterprise is...?

7. What are the main indicators of the effectiveness of the use of innovations?

8. What is the integrative characteristic of innovation?

Section 3. The content of the innovation process. Innovation sphere

The innovation process is the process of transforming scientific knowledge into innovation, that is, a sequential chain of events during which an innovation matures from an idea to a specific product, technology or service and spreads through practical use. Unlike STP, the innovation process does not end with the so — called introduction-the first appearance of a new product or service on the market or bringing a new technology to the design capacity. This process is not interrupted even after the introduction, because as the spread (diffusion) of the innovation is improved, becomes more effective, acquires new consumer properties. This opens up new areas of application for it, new markets, and, consequently, new consumers who perceive this product, technology or service as new for themselves. This process is aimed at creating the required markets for products, technologies or services and is carried out in close unity with the environment: its orientation, pace, goals depend on the socio-economic environment in which it operates and develops.

The innovation process covers the cycle of working out a scientific and technical idea before its implementation on a commercial basis. Innovation processes are more closely related to market relations than other elements of STP. The bulk of innovations are implemented in the market economy by business structures as a means of solving production and commercial problems. Therefore, innovations are focused on the market, on a specific consumer or need.

The innovation process is defined as a complex of sequential works from obtaining theoretical knowledge to using the product created on the basis of

new knowledge by the consumer. The concept of "innovation cycle" implies the presence of feedback between the consumer of a new product and the scientific sphere. Innovation cycles can be of different lengths, depending on which stage of the scientific search the consumer turns to for improving the way to meet his needs.

The life cycle of the innovation process includes the following stages.

1. The early stage-from the emergence of a new idea to its technical elaboration. A number of publications use a more detailed classification of the early stage of the innovation process with its division into separate stages that characterize the content of scientific research and development — fundamental, exploratory, applied, etc.

2. The middle stage-from technical study to commercial study.

3. The final stage is before practical implementation, that is, mass production.

The life cycle of a product is the period of time during which a product is traded on the market, starting from the moment it enters the market and ending with its withdrawal from the market. One of the fundamental concepts of the concept of modern marketing.

According to the marketing concept, any product goes through a life cycle, that is, there is a certain period of time when it is present on the market. In a typical product life cycle, there are four phases, four stages:

Bringing the product to the market. The first appearance of the product on the market. A small increase in sales volumes is characteristic and, accordingly, the profit is minimal or there is no profit at all.

Height. A period of rapid growth in sales volume, if the product is accepted by the market and demand for it is growing. The profit also increases as the sales volume increases.

Maturity. Sales volumes are significant, but there is no further growth in sales. The profit at this stage has stabilized, since no additional costs are required to bring the product to the market.

Decline, withdrawal from the market. This phase of the product life cycle is characterized by a significant decrease in sales volumes up to a complete drop in demand for this product. The profit drops sharply to zero**.**

In some cases, individual phases are divided into several more stages for a more detailed description of the behavior of the product and making decisions related to the activity at this stage. For example, the first phase of putting a product on the market can be divided into two stages: the creation of a new product and its introduction to the market.

The dependence of the change in sales volume is usually depicted graphically. On the abscissa axis, time is postponed, and on the ordinate axis, the volume of sales, measured in value or in kind, is postponed.

The dependence of changes in indicators related to the presence of goods on the market is not always the same for all types of goods and may differ from the typical one shown in the figure. The product life cycle curve can have a repeated cycle. The repeated increase in demand for the product can be explained by sales promotion measures carried out at the stage of the decline of the product. Another kind of product life cycle curve can be a "comb" curve, which represents several consecutive cycles generated, for example, by the discovery of new product characteristics, new ways of using or the appearance of new users.

The concept of the life cycle is also applicable for a product class, a variety of goods or a specific brand, for example, a car. Product classes have the longest life cycle, and product varieties have a shorter life cycle. The duration of the life cycle of a particular brand depends on how successful and popular it turned out to be, as well as on how competitors act.

Innovation activity is an activity aimed at using and commercializing the results of scientific research and development to expand and update the nomenclature and improve the quality of products (goods, services), improve the technology of their manufacture with subsequent implementation and effective implementation in the domestic and foreign markets. Innovative activity related to capital investments in innovations is called innovation and investment.

Innovative activity is associated with the transformation of the results of scientific and technical activities into a new or improved product and involves a whole range of scientific, technological, organizational, financial and commercial activities that together lead to innovation. The varieties of the main types of innovative activity can be:

- preparation and organization of production, covering the purchase of production equipment and tools, changes in them necessary to create a new technological process;

- pre-production developments, including product and technological process modifications, personnel retraining;

- marketing of new products, which provides for activities related to the release of new products to the market;

- acquisition of non-materialized technology from the outside in the form of intellectual property (patents, licenses, disclosure of know-how, trademarks, designs, models and services of technological content);

- acquisition of materialized technology — machines and equipment related to the introduction of product or process innovations at the enterprise in terms of their technological content;

- production design, including the preparation of plans and drawings for determining production procedures, etc.

Innovation activity is based on scientific and technical activity (NTD), which is closely related to the creation, development, dissemination and application of scientific and technical knowledge in all fields of science and technology. The concept of NTD was developed by UNESCO and is the basic category of international standards in science and technology statistics.

The concept of enterprise value management focuses management on the growth of the company's market value or the growth of the value of the property complex created or developed in innovative projects. This concept, in contrast to the concept of maximizing current and expected profits in the near future, implies an emphasis on the implementation of innovative projects that promise to achieve an innovative monopoly and allow the firm to establish stable increased cash flows for the future.

The growth of the market value of an innovator company or an innovation property complex occurs even before the company is able to reach significant actual profits from product and process innovations. This corresponds to the interests of those investors who initially plan to resell their shares in the company after a certain time and who are ready to contribute to a significant increase in their value over the period of implementation of innovative projects.

In a financial sense, the most interesting thing is that from the beginning of the implementation of large innovative projects to the possible time of obtaining these material certificates, as a rule, 3-5 years are required, so that the value of the innovator company, in case of success achieved at this stage in the innovative project, will be able to significantly rise precisely to the time planned by many investors for themselves to exit the company, that is, the resale of their share in the enterprise.

A special case of applying the concept of enterprise value management is the establishment for the implementation of innovative projects of young specialized firms with the involvement of venture investors. They are attracted as co-founders of these firms with the provision of a significant degree of control over management.

The innovation process is the process of consistently turning an idea into a product.

The innovation process can be divided into two main stages: the first stage (it is the longest) includes scientific research and design developments, the second stage is the product life cycle.

The main elements and stages of innovative production

Subjects of innovative entrepreneurship. In the Russian Federation, the following classification of organizations — subjects of innovative activity is valid according to organizational characteristics, the nature and specialization of the work performed.

In the process of scientific and technological development, the problem of distinguishing the structures of innovative entrepreneurship becomes more complicated, their real diversity is so great that when classifying it is impossible to do with a few groups with fixed features. The methodological basis of their classification is the concept of types of specialization (economic orientation) of the links of the organizational structure.

The type of specialization should be attributed to the most important grounds for classifying organizations. On this basis, the subjects of innovative entrepreneurship are divided into subject and targeted. The subject specialization is aimed at creating specific types of products, technologies and resources. Targeted specialization implies the use of significant scientific results by creating subsidiaries of scientific, technical and innovative firms, as

well as innovative services for enterprises, which can be the subject of intersectoral use.

The key features of the classification of innovative enterprises by the nature of innovative activity, taking into account market and marketing aspects, are the prevailing types of innovations implemented by these structures.

Comparative characteristics of the subjects of innovative entrepreneurship.

1. Leaders and followers. Leaders are enterprises that initiate innovations, which are then picked up by followers. They work in conditions of increased risk, but with the successful implementation of innovations of a strategic nature, they have a margin of economic strength, which is expressed in the presence of a portfolio of new competitive products and in lower, compared with average, unit production costs.

Innovators-followers, on the contrary, take less risks, their innovations are, as a rule, a reaction to the innovations of leaders and at the same time have lower economic indicators of competitiveness.

2. Focusing on new scientific discoveries or pioneering inventions and creating innovations based on the application of previously made discoveries and inventions.

The implementation of new scientific discoveries and pioneering inventions in production is typical for enterprises that have a full R & D cycle or at least a developed application base, but innovations of this type are quite rare. The majority of innovative structures create innovations based on new ways of applying previously made discoveries.

3. Creating new needs and contributing to the development and fuller satisfaction of existing needs.

The development of existing needs is facilitated by innovations in the implementation of new generations of goods that create new needs.

4. Creating basic innovations and innovations-modifications.

Basic innovations can be implemented both on the basis of new discoveries, and through the application of new approaches to previously made discoveries. This type of innovation is associated with the creation of new generations of technology, which will subsequently be improved by developing innovations-modifications.

5. Creating innovations for their subsequent application in one industry and implementing innovations for the entire national economy. In the second case, a more powerful R & D base is required to carry out their full cycle.

6. Implementing innovations that replace previously created products and technologies, or creating rationalizing and expanding innovations. The development of substitute innovations requires the involvement of significant scientific potential.

7. Creating basic (product and technological) innovations and developing complementary innovations.

8. Implementing innovations-products and innovations-processes.

9. Creating innovations for new markets and focusing on innovations or creating new areas of application in old markets.

10. Initiating innovations to regenerate the original properties of products and processes or to increase the productivity and quantitative intensity of existing processes.

Innovations of the first direction are zero, that is, they can only be conditionally called innovations. As a rule, these are various kinds of innovations that can only restore existing processes. They are at the lowest rung of the "innovation ladder". Their position in the market is extremely unstable due to the very low share of new products and the low probability of their appearance in the future.

The second type of innovation refers to innovations of a higher order. The position of enterprises with this type of innovation in the market can be stable and only for a narrow group is subject to significant qualitative changes.

11. Focusing their innovative activities on the introduction of innovations related to the rearrangement of individual elements of the existing production system. This can manifest itself in the creation of new products (with a slight degree of novelty) due to various combinations of elements already existing in this production, in organizational rearrangements of production.

12. Creating adaptive innovations on individual, as a rule, complementary elements of the production system, or aimed at partially improving its elements without significantly changing the functioning of the system as a whole. These innovations do not have a significant degree of

novelty, since changes in individual elements are not characterized by a high degree of innovation.

13. Initiating new types of production systems (products and technologies) that contain qualitative changes to the original concept, but retain the functional principle.

14. Creating new generations of equipment and technologies, which is the highest type of innovative entrepreneurship.

Each of the listed types of innovative entrepreneurship exists simultaneously with the others. Therefore, when talking about the type of innovation structure, it is necessary to keep in mind the structure and the prevailing types of innovations implemented at the enterprise. The organizational development of innovative entrepreneurship, leading to the noted variety of forms, mainly occurs in the field of applied (branch) science in the conditions of a combination of two counter trends — integration and disintegration.

The objects of innovative entrepreneurship are the most diverse aspects of the economic activity of enterprises. Their classification basically coincides with the classification of innovations.

The actual innovation process. Entrepreneurship as a process includes four stages: search for a new idea and its evaluation; preparation of a business plan; search for the necessary resources; management of the created enterprise. For innovative entrepreneurship, it is advisable to divide these stages into smaller ones. The allocation of research, technical and technological, production, and commercial functions in the innovation process is determined by the goals of the company. It begins with an assessment of available resources, the definition of a strategic goal (development goal) and ends with the return of invested funds.

At the stage of scientific research, the company's management formulates the need for ideas, proposals, recommendations, which are formed as a result of the interaction of participants in the innovation process. After choosing an idea, more rigorous technological and commercial forecast estimates are developed, which in general justify the formation of the expected technical parameters, the cost of material resources and time, the scale of risk, etc., and in case of failure — alternative solutions. All this together contributes

to the development of a strategic plan, which becomes a key factor in the further development of innovation.

Technology transfer means not only the exchange of relevant documentation, but also the constant close interaction of scientific and technical centers, laboratories, departments involved in the preliminary preparation of innovations.

As the preparation for the production of scientific and technical products is completed, the participation of researchers and developers in the innovation process decreases, and the nature of their innovative activities changes accordingly. At this stage, the research and development department deals with the problems of increasing labor productivity, reducing costs, minimizing the risk factor, etc. With the release of the product to the market, they, taking into account feedbacks and market requirements, set their goal for further development and improvement of the product.

The features of innovation processes, the consideration of which is necessary when creating an organizational and economic mechanism for a particular business, follow from the nature of the type of innovation.

The simplest model of the innovation process is the result of a logical division of the entire process into separate functional or structural parts (stages):

1. Fundamental research.
2. Applied research.
3. Engineering and technical works.
4. Demonstration.
5. Production and operation.
6. System management.
7. Usage.

The result of innovative activity is an intellectual product, which can be defined as the result of activities in the field of spiritual production, intended to meet the needs (in commodity or non-commodity form) its consumers.

The intellectual product includes:

- scientific and technical products, that is, discoveries, hypotheses, theories, concepts, models (the product of fundamental research), inventions,

scientific and design developments, projects, prototypes of new equipment, new products;

- computer science products — software products, radio and TV programs, etc.;

- cultural products.

Let's consider in more detail the components of scientific and technical products.

The invention refers to the product of scientific research, creative activity, which embodies new principles of operation or design of technical systems. The objects of the invention are devices (machines, equipment, devices, etc.), methods (methods, techniques, processes), substances (materials, alloys, etc.), the use of known devices, methods and substances for a new purpose.

The new technology includes materialized scientific knowledge that helps to increase the efficiency of labor activity. In a narrow sense, these are new, more efficient means of labor, in a broad sense, these are new materials, energy sources, technological processes, medical, household, environmental and other equipment.

It is necessary to distinguish between an improved new technique based on improving innovations and a fundamentally new technique that implements major inventions, basic innovations and provides a leap in the level of novelty and efficiency of technology.

A new product is a product with improved or fundamentally new consumer properties, created on the basis of scientific research, development and design work. There are two main levels of novelty: a completely new type of product that has not been released on the market before, and the introduction of new components into products already known on the market.

Innovation sphere: the ratio of innovative activity and innovative entrepreneurship. Unlike classical, reproductive entrepreneurship, innovative entrepreneurship is based on the search for new ways to develop an existing enterprise (new products, technologies, markets, materials, forms of management) or on the creation of a new, innovation-oriented enterprise.

The concept of innovative entrepreneurship does not reflect any specific organizational and legal form of innovative activity. The category of innovative entrepreneurship in domestic and foreign practice is most often addressed in

order to identify specific economic entities in all spheres of the country's economy that make up a constantly developing special sector of the economy that requires special management tools and forms of state support.

A special area of the social division of labor, which ensures the implementation of the product of the scientific sphere in material production, and at the same time a special production phase of social production are allocated to the innovative sphere of the national economy. The condition for the functioning of the innovation sphere is intellectual property and ownership of the product of innovative activity. In the innovation sphere, a separate specialized material and technical base is formed, special techniques and methods are accumulated that correspond to the forms of organization and management of innovative activities.

Theoretical studies of the innovation sphere have become particularly relevant in the context of the formation of marketing concepts (the 60s of the XX century) and the activation of innovation activity in the world economy since the mid-70s.

A significant contribution to the study of innovations was made by J. Schumpeter, who justified the creative role of credit, its "purchasing power" in innovative activity. He also defined the functional purpose of the innovation sphere:

- commercial analysis of potential consumers of innovations;
- search for promising ideas, sources of functioning;
- organization of the creation and implementation of innovations;
- replication;
- support;
- utilization of an innovative project.

The innovation sphere is a set of branches of the national economy, types of social activities that do not directly participate in the creation of material goods, but produce use values of a special kind, often without a material substance, but necessary for the functioning and development of material production.

The functional purpose of the innovation sphere in the system of the social division of labor is associated with the performance of its functions of

creating and meeting the needs for innovations of material production and society as a whole.

The main part of the use value of innovative products has a commodity form, its movement is carried out through exchange.

The innovation sphere covers the objects of R & D, marketing, and entrepreneurial structures whose activities are aimed at meeting the needs of material production in innovations. It participates in the creation and redistribution of national income in the national economy and ensures the transfer of property and scientific product from the sphere of science to the sphere of material production.

In the innovation sphere, disparate processes are combined into a single innovation process that creates innovations that meet the demand of the production sphere and provides conditions for their development by the enterprise and consumers.

In contrast to the scientific sphere, in the innovation sphere, exchange operations predominate when transferring a product, property rights are clearly indicated during exchange operations between subjects engaged in innovative activities and subjects external to this sphere. Management in the innovation sphere is based on the criteria of economic efficiency, and the transfer of an innovative product to the production sphere involves the implementation of marketing research.

The development of the innovative sphere makes it possible to reduce the time of mastering the production of scientific products, to return the advanced capital faster and re-direct it to expanded reproduction.

The innovation sphere is characterized by a special form of financial activity, venture lending and a marketing focus on promoting scientific products to the market.

The innovation sphere is an area that covers the participants of the innovation process. The innovation sphere directly includes various state bodies and organizations, scientific, investment, public, commercial and other organizations that carry out and regulate innovative activities in the field of fundamental science, applied research, experimental design developments, initial development (implementation) and use of innovations.

Innovation activity is an activity aimed at using and commercializing the results of scientific research and development to expand and update the nomenclature and improve the quality of products (goods, services, works), improve the technology of their manufacture with subsequent implementation and effective implementation in the domestic and foreign markets.

Innovative activity involves a whole range of scientific, technological, organizational, financial and commercial activities that together lead to innovation.

The types of innovative activity can be:

a) preparation and organization of production, covering the purchase of production equipment and tools, changes in them, as well as in the procedures, methods and standards of production and quality control necessary for the creation of a new technological process;

b) pre-production developments, including modification of the product and technological process, retraining of personnel for the use of new technologies and equipment;

c) marketing of new products, which provides for activities related to the release of new products to the market, including preliminary market research, adaptation of the product to different markets, an advertising campaign;

d) acquisition of non-materialized technology from the outside in the form of patents, licenses, know-how, trademarks, designs, models and services of technological content;

e) acquisition of materialized technology — machinery and equipment related to the introduction of product or process innovations in its technological content;

f) production design, including the preparation of plans and drawings to determine production procedures, technical specifications.

When implementing innovative activities, its objects and subjects differ. The objects of innovation activity are the development of equipment and technology by enterprises, regardless of their organizational and legal form and form of ownership, located on the territory of the country.

Subjects of innovation activity — legal entities, regardless of the organizational and legal form and form of ownership, individuals of the Russian

Federation, foreign organizations and citizens, as well as stateless persons participating in innovation activities.

The concept of innovation infrastructure. In order to understand the essence of innovation infrastructure, it is necessary to divide this concept into its constituent elements (innovations and infrastructure) and consider each of them separately. The word "innovation" itself came to the Russian language from Latin. In literal translation, it means "introduction of innovations". Despite all the variety of definitions of this term, in a general sense, innovations should be understood as innovations introduced into production and commercialized, providing a qualitative increase in the efficiency of products or processes. Innovation is the engine of progress. Next, let's move on to the term "infrastructure". In the modern world, in a market economy, it is usually understood as a special system of interrelated institutions, the objective function of which is focused on the formation of general conditions for the functioning of economic entities in various markets. The term "infrastructure" itself is used in relation to various industries and spheres of society (transport infrastructure, information infrastructure, production infrastructure, etc.).

The innovation infrastructure operates at two basic levels – the macro-environment and the micro-environment. At the level of the macro-environment, the innovation infrastructure is formed from such elements as innovative legislation and legal mechanisms that ensure the law enforcement practice of legislation in the innovation sphere at various levels. It also includes a strategic regulation that reveals the state's innovation policy. Being formed at the micro level, the innovation infrastructure solves the tasks of supporting the innovation activities of individual enterprises. It is more narrowly specialized and applied.

The infrastructure of an enterprise's innovation activity is formed from a number of subsystems. The regulatory and legal subsystem of the innovation infrastructure of an economic entity is represented by a set of federal and regional laws, regulatory legal acts, rules and regulations that directly or indirectly regulate the organization of innovation activities. The financial subsystem includes budget organizations and various types of funds, such as: Budget funds; Extra-budgetary funds; Investment funds; Insurance funds; Venture funds. The production and technological subsystem of the innovation

activity infrastructure of the enterprise is represented by innovation and technology centers, business incubators, technoparks, etc. The personnel subsystem of the innovation infrastructure includes educational institutions for training and retraining of personnel in the field of scientific and innovative management, technological audit, marketing, etc. The information subsystem of the enterprise's innovation infrastructure consists of knowledge and data bases, access centers, information, statistical and analytical centers that provide relevant services. The expert and consulting subsystem of the innovation activity infrastructure of a business entity can be represented by organizations providing services on certification, standardization, intellectual property, as well as consulting centers specializing, among other things, in such areas as marketing, investment, management, finance, etc. The composition of the innovative infrastructure of an enterprise is determined by a set of innovation-oriented departments, professional personnel, financial resources, material and technical equipment, intellectual property and additional sources of improving the effectiveness of innovative activities. The elements presented above are strongly interrelated. Together, they form the innovative infrastructure of the organization, the main tasks of which are the selection and implementation of potentially profitable innovative projects in order to increase the competitiveness of the business and ensure the growth of its innovative potential. The level of development of the innovation infrastructure affects not only the cost of implementing innovative projects, the speed and effectiveness of their flow, but also the possibility of implementing individual innovative projects.

Currently, the work on innovative training has been intensified in the country's educational institutions. This is due to the fact that modern society is characterized by rapid and profound changes. They invade all spheres of society. Therefore, a modern specialist should be able not only to perceive them, but also to be a creator of the new. In this regard, education plays a major role in the formation of the so-called innovative thinking. In accordance with this, there is a need to look for new ways, means, and ways to increase the effectiveness of the educational process. However, innovation is a complex and lengthy process. In the conditions of an ordinary school, many factors participate in it and influence it, among which one of the main ones is the

teacher. The success of innovations depends more on him, on his attitude to innovations (innovations). If the teacher does not perceive them, does not master them, they will be unsuccessful. In this regard, it is important to form students ' readiness for constant self-development.

Questions for self-control on section 3

1. What is the difference between the traditional (classical) view of entrepreneurship and the modern one?
2. In the works of which economists there are developments of issues of innovative entrepreneurship?
3. What are the views on innovative entrepreneurship?.
4. Tell us about the relationship between entrepreneurship and innovation.
5. What is the innovation sphere?
6. Are there any differences between the concepts of "innovative activity" and "innovative entrepreneurship"?
7. What are the objective prerequisites for innovative activity and innovative entrepreneurship?
8. Tell us about the role of innovation in the development of the economy and people.
9. What is innovation and how does it differ from innovation?
10. Reveal the main differences between innovations and fundamental scientific or artistic ideas.
11. Which areas of innovation classification reflect the novelty in innovation processes to a greater extent?
12. What areas of activity are covered by innovative processes?
13. What are the classifications of innovations?
14. Can a technical development whose implementation period is more than ten years be considered an innovation?
15. What is the special relevance of innovative entrepreneurship for Russia?

Section 4. Support for innovation activities

State regulation and support of the economy and innovation processes is one of the main conditions for the transfer of the functioning of the economy to market relations. The main function of the state in the conditions of market relations is to protect the freedom of the individual, property and entrepreneurship, as well as the formation of a research worldview and project thinking in the process of training through the education of a business-oriented personality.

The most important principles of the state innovation policy include:

1) reliance on the domestic scientific potential;

2) freedom of scientific creativity, consistent democratization of the scientific sphere, openness and transparency in the formation and implementation of scientific policy;

3) stimulating the development of basic scientific research;

4) preservation and development of the leading Russian scientific schools;

5) creating conditions for healthy competition and entrepreneurship in the field of science and technology, stimulating and supporting innovation activities;

6) integration of science and education, development of an integrated system of training and retraining of personnel at all levels;

7) protection of intellectual property rights of researchers, organizations and the state;

8) ensuring the right of free exchange of information;

9) development of innovative organizations of various forms of ownership, support of small innovative entrepreneurship;

10) increasing the prestige of scientific work, creating decent living and working conditions for scientists and specialists;

11) promotion of modern scientific achievements, their significance for the future of Russia.

Innovation policy is regulated by legislative acts, which define the subjects and objects of management, their rights, duties and responsibilities. To create a program for the state's recovery from the crisis, the development of scientific, technical and innovative potential of the country, state support is necessary.

State support for innovation activities. All branches of the national economic complex of the country, depending on the level of competitiveness of their products, can be divided into three groups:

1. Industries that have global competitiveness.

2. Industries that are potentially competitive in the global market.

3. Industries that are not competitive in the global market.

The first group of industries includes industries that have great competitive potential and have been operating on the world market for a long time. They produce competitive products. These are the branches of the fuel and energy complex, the chemical and aluminum industries. They must constantly increase their production and economic potential in order to stay on the world market during crises.

The branches of the second group produce products that are close to competitive in many respects on the world market. They have all the opportunities to enter the world market and gain a foothold on it. To do this, they need some support and assistance from the state. These industries include the defense industry, mechanical engineering, etc.

The industries of the third group include the agro-industrial complex, the light and food industries, the construction materials industry, etc. Their products are not listed on the world market. Therefore, they are mainly focused on the domestic Russian market. As a rule, these industries have a low production and economic potential, an insignificant volume of production, and are unprofitable. Therefore, to enter the world market, they need large capital expenditures, a new personnel policy, etc. The state's innovation policy for each of these groups of industries should be implemented in a differentiated manner.

The measures for state support of the first and second group of industries include:

- domestic demand for products of this level (weapons, aviation, rocket and space technology, biotechnology, nuclear energy, microelectronics, etc.) should be generated by the state, and sales to the foreign market should be controlled by the state.
- State support for the sale of products to the foreign market.
- State support for the formation of joint ventures.
- Creation and organization of joint ventures.
- Formation and payment of the state order for high-tech products.

Provision of state assistance in the creation of vertically integrated holding structures, including research, development, experimental and serial enterprises by providing the parent company with a block of shares.

The measures for state support of the third group of industries include:

1. Stimulating domestic and external demand for consumer goods produced by Russian enterprises by increasing wages.

2. Mortgage lending in order to stimulate demand for housing and durable goods.

3. Providing loans to the population.

4. The direction of budget funds only for the purchase of excellent products.

5. Development of licensed and assembly production of consumer goods together with leading foreign firms.

6. Assistance in the formation of its own sales network.

7. Creation of information systems in Russia for all types of products.

In order to provide state support for the most important innovative projects in priority areas of scientific and technological progress, the development of competitive technologies and industries, as well as measures for the development of new types of products, the Federal Fund for Industrial Innovations was established in 1995 in accordance with the Decree of the Government of the Russian Federation No. 827 of 26.08.1995 "On the Federal Fund for Industrial Innovations".

The Federal Fund for Industrial Innovations is a state non-profit organization. The main objectives of the fund are:

- assistance to the state structural, scientific, technical and industrial policy based on the support of innovative projects in priority areas of scientific and technological progress;

- participation in the development, in the examination and competitive selection and in the implementation of innovative projects aimed at the structural restructuring of the economy and to be implemented with the support of this fund;

- support of innovative activities, preparation and development of production of fundamentally new types of products and technologies by financing the construction, reconstruction and technical re-equipment of facilities, the creation of unique research and testing facilities;

- assistance in the construction and reconstruction of high-tech industries.

The Government Commission on Science and Innovation Policy operates under the Government of the Russian Federation.In 1999, federal centers of science and high technologies were established in accordance with the Decree of the Government of the Russian Federation No. 651 of 18.06.1999 "On the formation of Federal Centers of Science and High Technologies". The status of the federal center of science and high

technologies is assigned to scientific economic entities (organizations) that provide scientific and technical support for solving the most important problems of the development of high-tech industries of the real sector of the economy. The status is assigned by the Government of the Russian Federation according to the submissions of the Government Commission on Innovation Policy. The assignment of this status means the provision of state support to scientific organizations for their scientific, technological and educational activities, provided that the center fulfills its obligations to perform specific tasks.

For 1998-2000, the following directions of the state's innovation policy were established:

1. Development and improvement of the regulatory and legal support of innovation activity, the mechanism of its stimulation, the system of institutional transformations, the protection of intellectual property in the innovation sphere and its introduction into economic circulation.

2. Creation of a system of comprehensive support for innovation activities, production development, competitiveness improvement and export of high-tech products. In the process of activating innovation activity, it is necessary to involve not only government bodies, commercial structures, financial institutions, but also public organizations at both the federal and regional levels.

3. Development of the infrastructure of the innovation process, including the information support system, the examination system, the financial and economic system, production and technological support, the system of certification and promotion of developments, the system of training and retraining of personnel. Practice shows that the reason for the lag is not the low potential of domestic research and development, but the weak infrastructure of innovation activity, the lack of motivation of commodity producers to implement innovations as a way of competition. This leads to the lack of demand for the potential of domestic applied science and technology.

4. Development of small innovative entrepreneurship by creating favorable conditions for the formation and successful functioning of small high-tech organizations and providing them with state support at the initial stage of activity.

5. Improvement of the competitive system for selecting innovative projects and programs. The implementation of relatively small and quickly recouped innovative projects in the sectors of the economy with the participation of private investors with the support of the state will allow supporting the most promising industries and organizations, increasing the inflow of private investment in them.

6. Implementation of critical technologies, priority areas that can transform the relevant sectors of the economy of the country and its regions. The key task of forming and implementing an innovation policy is the choice of a relatively small number of the most important basic technologies that have a decisive impact on increasing production and competitiveness of products in economic sectors and ensuring the transition to a new technological order.

7. The use of dual-use technologies. Such technologies can be used both for the production of weapons and military equipment, and for civilian products.

The state innovation policy in basic industries and industries will be aimed at accelerated industrial development of domestic and foreign scientific, technical and technological achievements of the world level, reproduction of natural resources (mineral raw materials, drinking and industrial water resources, flora and fauna resources, etc.).

The following can be attributed to the forms of state support for scientific and innovative activities:

- direct financing;
- providing interest-free bank loans to individual inventors and small innovative enterprises;
- creation of venture innovation funds that enjoy significant tax benefits;
- deferred payment of patent fees for resource-saving inventions;
- realization of the right to accelerated depreciation of equipment;
- creation of a network of technopolises, technoparks, etc.

The main directions of state support for innovation policy are the following:

a) promoting the increase of innovation activity that ensures the growth of the competitiveness of domestic products based on the development of scientific and technical achievements and the renewal of production;

b) orientation to the full support of basic and improving innovations that form the basis of the modern technological order;

c) the combination of state regulation of innovation activity with the effective functioning of a competitive market innovation mechanism, intellectual property protection;

d) promoting the development of innovative activities in the regions of Russia, interregional and international technology transfer, international investment cooperation, protecting the interests of national innovative entrepreneurship.

A number of benefits for innovative activities of small enterprises have already been introduced in Russia. In particular, the profit directed to the construction, reconstruction and renewal of fixed production assets, the development of new equipment and technologies is excluded from taxation. Leasing payments of small enterprises are exempt from VAT, a simplified taxation procedure is in effect. Small enterprises are allowed to write off up to 50% of the original cost of fixed assets with a service life of more than three years as depreciation charges in the first year of operation.

Specialized state bodies have been created – the State Committee of the Russian Federation for the Support and Development of Small Entrepreneurship, as well as the Federal Fund for the Support of Small Entrepreneurship, whose main function is to provide financial support for relevant measures, provide state guarantees for loans from commercial banks and other financial structures of small enterprises. The Government of the Russian Federation has approved a federal program of state support for small businesses, including the development of a subprogram for the development and reconstruction of small enterprises that master new technologies.

State support for innovation activities can also include the financing of R & D and innovative projects from budget funds. State allocations and subsidies can be provided to the state and non-state sectors for the actual innovative purposes or for providing the innovative component of multi-purpose investments. In order to diversify the innovative investments of the state, it is possible to create specialized state holding and innovative companies. Government contracts for R & D and government orders for innovative products are important for generating innovations and creating initial demand

for innovations. The efficiency of innovation processes increases when using competitive mechanisms in the allocation of budget funds.

In the conditions of limited opportunities for budget financing of innovations, the need to attract funds from additional sources (own funds of organizations, private investments, etc.), that is, extra-budgetary funds, has increased.

Extra-budgetary forms of support for innovation activities in Russia. The main extra-budgetary forms of support for innovation activities include the following:

- state legal protection and support of innovators, especially small businesses;
- creation of state tax, credit, customs, depreciation, rental benefits for innovators;
- inclusion of non-budgetary innovative projects in complex federal innovation and investment programs without financing;
- state scientific and methodological support of innovation management by state standards, manuals, instructions, regulations and other documents on various aspects of analysis, forecasting, optimization, economic justification of an innovative solution;
- state provision of information for innovation activities;
- implementation of the state protectionist policy in the foreign economic activity of innovators;
- providing state assistance to innovators in conducting certification, marketing research, advertising and marketing of new products (services);
- state support for innovators in the repair of complex equipment;
- implementation of state support in deepening domestic and international cooperation;
- creation of a system of federal extra-budgetary funds, unions, associations to support various aspects of innovation activity;
- implementation of state accounting and control of the use of extra-budgetary funds.

The most important form of extra-budgetary support for innovation activities is the creation and functioning of extra-budgetary funds. Extra-budgetary funds are formed in accordance with the Decree of the Government

of the Russian Federation, which approved "The procedure for the formation and use of sectoral and intersectoral extra-budgetary funds for research and development works" dated 12.04.1994. The subjects of the formation of extra-budgetary funds are:

- The Ministry of Science and Technology of the Russian Federation forms the Russian Fund for Technological Development;
- federal ministries – extra-budgetary funds of the relevant ministries;
- other federal executive bodies – extra-budgetary funds of departments;
- corporations, concerns and associations may form extra-budgetary funds of associations.

In accordance with the decree of the Government of the Russian Federation, extra-budgetary funds are formed at the expense of voluntary contributions from enterprises and organizations, regardless of their forms of ownership, in the amount of up to 1.5% of the cost of products sold. A significant role in the development of innovative entrepreneurship is played by the Decree of the President of the Russian Federation "On Private Investment in the Russian Federation" dated 17.09.1994. This decree was adopted in order to attract private investment.

This decree provides for the annual allocation of federal budget funds in the amount of 0.5% of GDP to finance highly effective investment projects prepared with the participation of commercial structures, provided that these funds are placed on a competitive basis. It is also established that commercial highly effective investment projects related primarily to the development of economic growth points, for which the investor invests at least 20% of his own funds and whose payback period does not exceed 2 years, have the right to participate in the competition.

The creation of extra-budgetary federal funds contributes to the completion of profitable scientific projects, including patenting abroad and world-class certification, which is necessary for the entry of domestic innovative firms into the foreign market, accelerating the promotion of the most promising developments to the market. The number of extra-budgetary funds increased from 57 in 1994 to 71 in 1996, the volume of funds accumulated by them increased from 12 billion rubles in 1994 to 500 billion rubles in 1995.

In order to implement state support for highly effective innovative projects, the Federal Fund for Industrial Innovations was established by the Decree of the Government of the Russian Federation of 26.08 1995, which on a return basis should support innovative projects that can initiate progressive shifts in industry.

Thus, one of the most important directions of the formation of innovation infrastructure in Russia is the formation of innovation centers, extra-budgetary and budgetary funds that support the activities of high-tech innovative enterprises and contribute to the transfer of finished scientific and technical products to the market. The Union of Innovative Enterprises, the Union of Independent Engineering Organizations, the Project Management Association and a number of others have been created, which have merged into the Russian Innovation Union, the Association for the Support of Small Innovative Enterprises. The main goal of these organizations is the development and implementation of competitive products and technologies based on innovations on the domestic and foreign markets.

Forms and tools of state regulation of innovative processes. The methods of state influence on innovative processes in the country and their correlation are determined by the general economic situation in the country and the concept of state regulation chosen in this regard.

In countries where the state plays a significant role in socio-economic processes, direct methods of regulation, including the innovation sphere, mainly prevail. The system of state regulation in states with a liberal management model, on the contrary, is based on the use of a significant number of indirect methods. The specifics of these methods of state regulation were presented in the previous section.

The fundamental difference between these two groups of methods is as follows: direct methods of influence often restrict the freedom of choice of an economic entity, indirect methods of state regulation, on the contrary, expand the freedom of entrepreneurial choice. For example, reducing business taxes or, say, lowering the discount rate of interest are typical methods of indirect regulation aimed at increasing production and strengthening the innovative activity of companies. The latter increase capital investments and production volume based on the production program and investment policy.

Nevertheless, sometimes the strict distinction between direct and indirect methods of state regulation is to some extent conditional. In order to use any indirect regulator, a preliminary administrative decision of the relevant state bodies is necessary, for example, a decision on changing tax rates, granting tax benefits or selling government bonds by the Central Bank, in this sense, any economic regulators bear the stamp of administration, i.e. direct management of processes.

At the same time, any administrative regulator, directly forcing economic entities to perform certain actions, simultaneously has a secondary indirect impact on a number of related innovation processes. For example, an administrative increase in prices will not only directly determine their new level, but through prices will indirectly affect the state of supply and demand, and in this sense it can be said that any direct methods of regulation carry features characteristic of economic, indirect regulators. The distinction between the methods of state influence is fundamentally important from the point of view of the nature of market relations.

Direct methods of state regulation of innovation processes are carried out mainly in two forms: administrative-departmental and program-targeted.

The administrative and departmental form of state regulation of the innovation process is direct financing carried out in accordance with special laws adopted for the purpose of directly promoting innovation. The program-target form of state regulation of innovations is the contract financing of innovations through state targeted programs to support innovations, including in small knowledge-intensive firms. In this case, a system of state contracts for the purchase of certain innovations (goods, technological processes, services) is created, and companies are granted credit privileges for implementing innovations, state orders and forfeits are formed.

Direct state support for innovation activities is carried out in the following forms:

- financing of research, development and technological works related to innovation activities;

- financing of innovative programs and projects that provide innovative activities of events, as well as the activities of subjects of the innovation infrastructure;

- financing of patenting abroad of inventions and industrial designs that are part of the exported or preparing for export of domestic products;

- investing in the creation and development of innovation infrastructure entities;

- placement of a state order for the purchase of products created as a result of innovative activities;

- providing subsidies for the implementation of individual innovative projects and supporting activities;

- guarantee to Russian and foreign creditors and investors on the obligations of subjects of innovative activity and subjects of the infrastructure of innovative activity.

At the same time, it should be taken into account that state support for innovative activities is provided only for the period of implementation of such activities. State support for an innovative project is provided for a standard payback period, but no more than three years from the start of production.

Support provided on a competitive basis is usually carried out on the terms of repayment.

The most common in the Russian and foreign practice of state support are: contract financing, grants and government orders.

Contract financing is one of the elements of the system of contractual relations that is currently widespread in many countries – contracts between customers and contractors. This form is used if the acquisition of research and development results by the state brings direct benefit or benefit to the state; at the same time, the situation of transferring the purchased product to a third party is not excluded. The conclusion of a contract, with the exception of specially stipulated situations, is the result of a competition. In the course of work under the contract, the representative of the state has the right to control the process of performing work and adjust them.

The contract clearly provides for the terms of completion of work, a specific division of labor between performers, the nature of material remuneration. Mutual obligations and economic sanctions are strictly stipulated.

The second most common tool is grants. It legalizes another form of relations between the state and the research sector, namely, the support or

stimulation of scientific research and development by the state with finance, property, services or anything else of value. Moreover, it is assumed that until the end of the work on the grant, the state does not have the right to control and interfere in their implementation. The term of performance of works is stipulated by a special agreement. The grant is used especially often to support research and development by the state, if the results of the work are uncertain or cannot bring immediate benefit or benefit in the near future.

An important direction for improving the efficiency of using federal budget funds when carrying out research and development in priority areas is the state's order for scientific and technical products, which ensures the alignment of research and development plans with the programs of socio-economic development of the country.

The basis of the state's order for scientific and technical products is made up of federal targeted programs in the field of science and technology, as well as the state armament program and the state defense order. The formation of federal target programs is carried out on the basis of general principles determined by the Government of the Russian Federation, taking into account the priorities and goals of the socio - economic development of the country, the directions of structural and scientific and technical policy, forecasts of the development of national needs and financial resources, the results of the analysis of the economic, social and environmental state of the country, foreign policy and foreign economic conditions, as well as international agreements.

Along with these general principles, the formation of federal target programs in the field of science and technology is carried out taking into account the following conditions:

- ensuring the continuity of the cycle "fundamental research-exploratory research" (R & D) – applied research and development (R & D) - technologies-production – market implementation and the balance of its stages with a general focus on the final result – serial production of high-tech competitive products in economically feasible volumes;

- ensuring the concentration of federal budget funds and extra-budgetary funds for the implementation of priority areas and the targeting of measures to stimulate scientific, technical and innovative activities;

- selection of funding objects based on their assessment according to scientific, technical, economic, environmental and other criteria, taking into account the capabilities of the federal budget.

State regulation in the field of science and technology provides for the implementation of the most important innovative projects of national importance, which are based on world-class scientific results obtained during research in priority areas.

Indirect methods also play an important role in the state regulation of innovation processes. Indirect methods used in the implementation of the state innovation policy are aimed, on the one hand, at stimulating innovative processes, and on the other – at creating a favorable (social, economic, psychological) climate for innovative activities. The composition, structure and content of indirect methods of state regulation of innovative processes, as noted above, are quite diverse.

In many developed and developing countries, indirect methods of state regulation are widely used. In particular, tax benefits and discounts, credit benefits are actively applied. Tax benefits and discounts find expression:

- in the exemption from taxation of that part of the profits of enterprises and organizations that is directed to carrying out promising innovative developments, creating a scientific and technical reserve;

- exclusion of foreign currency funds of scientific organizations and universities from the number of taxable income received from the sale of scientific and technical (innovative) products and aimed at the purchase of special equipment and unique devices;

- reducing the rates of value added tax, property and land for scientific and technical organizations;

- reduction during the defined period of taxable profit received by enterprises (firms) from the use of inventions and other innovations.

Under certain conditions, such indirect measures of state regulation of innovations as credit incentives can be effective, that is, the provision of loans (for example, with a low interest rate) to enterprises, joint – stock companies and firms-potential consumers of the results of innovative developments, innovations.

Thus, the most important role in stimulating innovation activity on the part of the state is played by the formation of a favorable innovation climate in the economy and infrastructure for research and development, including national services for scientific and technical information, patenting and licensing, standardization, certification, statistics; analytical centers for studying foreign experience, preparing forecasts of scientific and technological development and forming on their basis a system of national scientific priorities in providing information to decision makers; assessment of possible negative consequences of innovations.

In addition, in the system of methods of state influence on innovation processes, an important place is occupied by events that stimulate the interaction of companies, universities and research centers.

In the course of regulating and stimulating innovation activity in the country, state authorities use both direct and indirect management methods. Despite the existing differences between the state of the innovation sphere and the specifics of the socio-economic model implemented in a particular country, we can say that all states implement a system of measures for scientific, technical and innovative activities, stimulating it through a constant flexible combination of two methods: direct and indirect support.

Questions for self-control on section 4

1. List the principles of the state innovation policy.
2. What are the main tasks of the Federal Fund for Industrial Innovations?
3. What are the main directions of the state's innovation policy?
4. The main directions of state support for innovation policy are...?
5. What are the main extra-budgetary forms of support for innovation activity?
6. What are the forms and tools of state regulation of innovation processes?
7. What is the meaning of administrative-departmental and program-target forms of state regulation of innovative processes?

8. What does the return of support provided on a competitive basis mean?

9. What are grants and how are they used to support innovation activities?

10. There are indirect methods in the state regulation of innovation processes. What are they?

Section 5. Organizational structures of innovation activity

The solution of the tasks facing innovative enterprises is carried out within the framework of certain management structures that provide for the presence of a certain composition of departments that are in established interaction. The

structure of an innovative organization is a combination of production and organizational structures.

The production structure of an organization is a set of the main, auxiliary and servicing divisions of the organization that ensure the receipt of the finished product (innovations).

The nature of the construction of divisions, their number is determined by such forms of production organization as specialization, concentration, cooperation, combination. Depending on the form of specialization, the production units of the enterprise are organized according to the technological (execution of a separate operation or type of work), subject (production of a separate type of product or its component part) and mixed (subject-technological) principle.

The organizational structure of an innovative organization is a set of main departments and services engaged in performing the main, auxiliary and servicing functions for managing the innovation process, interconnected and interacting with the aim of purposefully influencing all types of available resources and achieving planned results.

The most important principles of building and improving the organizational structures of innovative organizations are:

- the primary nature of goals, functions and tasks and the secondary nature of their decision-making bodies;
- rational division and cooperation of labor;
- hierarchy of interaction of structural divisions with the lowest possible level of hierarchy;
- ensuring manageability;
- specialization of each structural unit at any level to perform a possibly narrow range of functions;
- flexibility and adaptability of the management structure.

The main factors determining the type, complexity and hierarchy of the organizational structure of the enterprise are: the scale of production and sales volumes; the range of products; the complexity and level of unification of products; the degree of development of the infrastructure of the region; the level of specialization, cooperation, concentration. Depending on the factors considered, the structure of an innovative organization can be part of

traditional organizational management structures or refers to modern management structures.

Types of organizational management structures of innovative organizations:

The linear-functional structure is based on the strict subordination of the lower management level to the higher one. This is the process of dividing an organization into separate elements, each of which has its own clearly defined tasks and responsibilities. In the process of decentralization of the management structure, rights and responsibilities are distributed among functional divisions, leading technical developments, procurement of raw materials and materials, production units.

A divisional structure can be considered as a combination of organizational units that serve a certain market and are managed centrally. With such a management structure, production units receive a certain independence, but development strategies, research and development are within the competence of top management. The main role in such structures is played by the managing production departments (divisions).

In the matrix construction of an innovative organization, the members of the project team report not only to the project manager, but also to the heads of those functional departments in which they constantly work. In a matrix organization, project managers are responsible for integrating all activities and resources related to a particular project, for planning and the progress of its implementation. The heads of functional departments delegate some of their functions and decide where and when this or that work will be performed.

The project form of an organization is a temporary organization created to solve a specific complex task (project development and its implementation). Qualified employees of different professions, specialists, researchers gather in one team to implement a certain project with a given level of quality and allocated resources. All team members and allocated resources are fully subordinate to the Team leader.

The brigade form of the organization is the most flexible and adaptive form of the organization, since it is able to adapt and change its form when the conditions of the organization's functioning change. The main principles of work in a brigade organization are: independent decision-making by working groups and horizontal coordination of activities; replacement of rigid

managerial ties of the bureaucratic type with flexible ties; involvement of employees of various departments for the development and solution of tasks. In brigade structures, there is no strict distribution of employees by functional services. Employees are under double subordination – administrative (reporting to the head of the functional unit in which they work) and brigade (reporting to the head of the working group to which they belong).

Virtual organizations are organizations that use information technologies as much as possible, and are formed with widely distributed autonomous links. These are organizations that specialize in the production of products (works, services) in order to instantly and specifically, at the request of the customer and in different regions, create a huge number of their variants and models. Virtual enterprises are built on the following principles: the abolition of relations of preferential subordination; geographical dispersion; separation of the development process from the decision-making process; the use of telecommunications processes; the availability of free access to information; the combination of key competencies and technologies; the joint work of customers, managers, performers.

Organizations built on the principle of a circular organization are characterized by the ability for each member of the organization to participate directly or through representation in solving all tasks; the ability of members of the organization individually or collectively to make and implement decisions that affect only those who make these decisions. The main structural characteristic of a circular organization is that a Council is created for each head, which includes a head who heads the council and a direct subordinate of this head. At the same time, they have the right to expand their membership at the expense of participants attracted from outside.

The main principles of building "internal market" organizations are:

1) transformation of the management hierarchy into internal business units;

2) creating an economic infrastructure for decision-making;

3) corporate guidelines for the organization of joint activities. The core structure of the organization "with an internal market" consists of new enterprises formed on the basis of production units for the production of products (services). Auxiliary divisions are commercial centers that sell their services to other divisions. The network of business relationships formed as a

result of the interaction of all functional and regional divisions forms an "internal market economy".

The network form of the organization appeared in the 80s of the XX century. A network organization is a group of people united in a management company to conclude contracts with industrial enterprises, transport agencies, trade and intermediary firms and retail enterprises united in a network. Instead of a sequence of commands, a chain of orders is built in the management hierarchy of network organizations, any functions are implemented on a contractual basis. The features of network organizations are as follows: the use of collective assets of several companies located at different points in the value chain; the use of market mechanisms for managing resource flows; the growth of participants ' interest in the final results of activities.

The role of small innovative organizations in the innovative development of the country's economy. In the modern world, there is a change in the technological structure, accompanied by a transition to a new stage of development – the construction of a post-industrial society. The seventh technological order is based on an economy based on knowledge, innovation, positive perception of new ideas, readiness to implement developments for various purposes. The leading role is played by information networks, high technologies, intellectual resources, innovative organization of various fields of activity, a new level of attitude to the transfer and diffusion of knowledge. The knowledge economy turns into a powerful impetus for socio-economic development, increasing the competitiveness of products (services), contributes to the diversification of activities, helps to raise production in the regions and the country as a whole.

In industrialized countries, from 70 to 100% of GDP growth is carried out through the use of scientific achievements. More than half of the US economic growth is achieved not by increasing such traditional factors of production as labor and capital, but thanks to scientific and technological progress. The success of the innovative component of the domestic economy largely depends on the state and development of small business, which is undoubtedly a source of innovation, as well as a channel for the transfer of knowledge and technologies.

It is necessary to distinguish between small business and innovative entrepreneurship. Small businesses may not be innovative. An innovation is an

innovation that has become the subject of use for industrial or consumer purposes. Joseph Schumpeter noted that an indispensable property of entrepreneurship is innovation, which implies constant creativity in using limited resources to achieve maximum results. Therefore, a characteristic feature of an innovative business is the use of new approaches, ideas, products to make a profit in order to meet the potential needs of the market as much as possible.

Small business is the most important subject of innovative activity, it can make a significant contribution to the development of production in technically advanced areas and directions. It serves as the main source of innovations, a generator of new ideas, creates prerequisites for the innovative development of the country's economy as a whole. Small business is innovative by nature, which is facilitated by the strong features of small business organizations:

- flexibility, mobility and adaptability in rapidly changing conditions due to size, as well as management, as a rule, by an innovative manager;
- increased motivation for innovation activity by economic and non-economic factors;
- creative specialization in the activity;
- a few, but most often highly qualified personnel;
- focus on achieving the highest possible result;
- the opportunity to take risks;
- high labor productivity and low production costs;
- high return per unit of financial investment in R & D.

Small business is an important factor that ensures the dynamic development of entrepreneurial activity, as well as a necessary condition for the functioning of an innovative economy. Especially in the part of small enterprises that are innovatively active. Their activities are aimed at creating an innovative product, their successful commercialization. Small innovative enterprises should open new market segments, master and introduce new products and technologies, be the main suppliers of products, thereby increasing the knowledge intensity and competitiveness of production and contributing to the formation of a new technological order.

The priority field of activity of small firms is knowledge-intensive industries. The characteristic features of such industries include: high growth rates and wages of employees; large volumes of exports, and most

importantly, high innovation potential. Knowledge-intensive industries are based on high technologies, and this requires that the potential of the industry belongs to a high-level technological structure. The knowledge intensity of the industry can be measured as the ratio of R & D costs to the volume of sales of the industry, or as the ratio of the number of scientists involved in the innovation process to the volume of sales.

The Organization for Economic Cooperation and Development (OECD) classified the following industries as knowledge-intensive: aerospace, computer and office equipment manufacturing, electronic communications production, and the pharmaceutical industry. In the service sector, five sectors are classified as knowledge-intensive: education, healthcare, modern types of communications, financial and business services.

Over the past 20 years, sales volumes in the knowledge-intensive sector of the developed countries of the world have grown 1.7 times faster than in the manufacturing industry. The increase in innovation activity naturally led to an increase in the indicator of the overall knowledge intensity of GDP. The leader of the innovative development of the economy is Sweden, where the knowledge intensity of GDP was 4.27%. The second place is taken by Japan – 3.09%, followed by the USA-2.7%, in the EU countries the knowledge intensity of GDP on average is 1.9%. In Russia, this figure does not exceed 1%. Until 2020, a gradual increase in the indicator of the knowledge intensity of GDP is expected. It is very likely that the expansion of the scope of R & D in Russia will reach 2.5%. In general, according to the optimistic version of the forecast, an increase in the share of expenditures in the scientific sphere is expected, the growth of innovative segments of the Russian economy, an increase in the role of scientific and technological progress in the life of society.

To characterize the innovativeness of enterprises, the ratio of R & D costs to the annual sales volume of the enterprise is used. In world practice, high-tech enterprises include companies with an innovation coefficient exceeding 4.5%. However, this indicator does not contain information about the contribution of innovations to the growth of the company's profitability. To obtain more complete information, it is necessary to consider the innovation process at the enterprise in dynamics. The innovativeness of enterprises is also characterized by the number of developments or implementations of innovations; the number of personnel engaged in R & D at the enterprise, the

professional and educational level of the personnel. In the innovation potential, it is also possible to distinguish the legislative base; the mentality of the population; the infrastructure that provides the entrepreneur with innovations.

The advantage of small business is a pronounced creative initiative, the ability to make rapid changes, independence in making important decisions, which contributes to the creation and implementation of innovations. Unlike large companies, small enterprises develop and introduce innovations with ease, with high speed and efficiency. A distinctive feature is also the highly developed communications of the company's employees, who are able to quickly exchange information and experience. The management of such companies is much more tolerant about the work of employees involved in the process of creating something new.

The role of small business in innovative development is diverse: on the one hand, it activates innovative processes in the economy, improving production and management, on the other-directly participating in the production of high-tech products (services), creates demand for new developments and research.

Small business is of great importance in forming the material basis for the welfare and social stability of the country's population. The role of small business in achieving the competitiveness of products and services in the domestic and foreign markets is significant. At the same time, much more important than the ability to generate new knowledge and technologies is the ability to transfer these technologies to the market, successfully commercialize them, and quickly turn them into products or services that consumers need. For the effective transfer of technologies from science to industry, the condition for active cooperation of all subjects of innovative activity (scientists, investors, entrepreneurs, authorities and consumers) and the full implementation of intellectual property rights at the expense of small knowledge-intensive businesses should be achieved.

Despite the high risks of conducting research and experimental implementation of the results of scientific research, small enterprises, due to their flexibility and adaptability to changing conditions, successfully carry out the initial stages of the innovation process. In the future, they can transfer innovations for their industrial development to large businesses with significant financial and production capabilities. Small businesses should act as a link in

the relations between production and science, transmit information to the scientific community about the demand for new products, materials, and technologies. At the same time, on the one hand, small innovative business places emphasis on conducting applied research and development by science, on the other hand, it brings the activities of scientific organizations to commercial results.

In the United States, 55% of new products are created at small businesses. In the Russian Federation, the innovative potential of small businesses is huge, it is due to its economic and technological flexibility in the implementation of ideas, rapid response to market requirements. However, it is still poorly developed. The features of small innovative business include:

- high risk;
- a long way from an idea to its implementation;
- low survival rate of new firms;
- innovative immunity of the Russian industry.

The weak points of small business activity can be: insufficient support from the state, limited opportunities for external and internal financing, unprofessional level of management, narrow specialization of employees, lack of the possibility of obtaining a synergetic effect.

But, despite this, small innovative businesses are characterized by high efficiency of mastering innovations. The ratio of the number of innovations to the number of scientific personnel in foreign innovative firms is four times higher than in large business organizations. In Russia, in organizations with the number of employees from 50 to 100 people, the share of innovative products in the total volume of goods shipped is 16.3%, despite the fact that the average indicator does not exceed 12%. Small innovative enterprises are leading in terms of the share of the most qualified employees; in terms of the volume of innovative products and services per employee; according to the indicator of the knowledge intensity of products. An important characteristic of innovation activity is also the life cycle of manufactured products, for small enterprises it is 7 years lower than for larger enterprises. Thus, small innovative business hides a significant potential for economic growth, which is realized in most industrialized countries, but does not yet have a proper development in the Russian Federation.

In Russia, initially small enterprises were created with the aim of transferring public sector workers there, partly as a result of the shutdown of state-owned enterprises, partly as a result of the formation of small enterprises in the form of cooperatives under state-owned enterprises. The transition on the terms of combining allowed to earn money by moving the resources of state-owned enterprises to cooperatives. After the liberalization of prices at state-owned enterprises, such forms of part-time work have lost their attractiveness.

At the beginning of market reforms, the state created preferential treatment for various scientific and technical organizations. Some of them, using the preferential tax regime, were engaged in imitation of innovative activities. However, some of them still formed an innovative potential and occupied a market niche. Only those who were actively working and had high professional qualifications could enter a job at a small innovative enterprise. The decrease in the number of small innovative businesses contributed to the increase of the competitiveness of such enterprises, the conquest of those niches in the innovation market that cannot be occupied by large firms either because of the small amount of work or because of the originality of the R & D carried out.

Interaction of small innovative and large business enterprises. The modern economy is based not on the opposition of small and large businesses, but on their effective combination and interaction. Large enterprises have always played a decisive role in the economy of any country from the standpoint of forming directions of economic growth, creating favorable conditions for the functioning of small businesses. A small business in a state of dependence on a large one receives orders for production and scientific research, research, raw materials, equipment, technologies and financial resources. In turn, a small business has a direct impact on a large one, which cannot organize large-scale production and sale of goods without its participation. In the US, for example, 3/4 of small businesses are part of large multi-industry systems.

The main part of small Western companies is in the sphere of influence and interests of large companies, and often is present directly with them. Small businesses are part of the structure of corporations – holdings, concerns,

consortia, financial and industrial groups, providing themselves with a stable position and stable income, wide investment opportunities.

In Russia, the interaction of large, medium and small businesses is just being formed. The specifics of this process in the conditions of the Russian economy are influenced, on the one hand, by previously existing scientific and industrial associations, on the other hand, most often spontaneously arising prerequisites for cooperation in the conditions of transformation of the sectoral production structure, the unbundling of enterprises and the denationalization of property.

In particular, in Russia, the basis for creating integration structures was the need to realize the opportunities of strategic partnership, create flexible organizational and managerial structures and use the potential of small enterprises in the innovation process. In the conditions of the need to overcome the crisis, small business is attractive for large companies as a potential resource for economic growth, as well as a source of formation of optimal proportions of production and management.

Recently, the process of creating integration structures has intensified in the country: financial and industrial groups, corporations, including transnational ones, where small businesses play a significant role, thanks to which flexible management systems are created, vertical connections are replaced by horizontal ones that allow adapting to market requirements to the greatest extent.

However, the formation of integration ties in Russia occurs extremely spontaneously, without the active support of the state, although the direction of structural changes has been gaining strength recently. The number of associations where small innovative enterprises play a primary role is increasing. Scientific and production centers, zones of technical and economic development, new technologies focused on the creation of high-tech products are being formed. These organizations concentrate a significant human resource potential; research firms that develop current and promising scientific and applied problems; manufacturing companies that produce new products and implement them.

Cooperation between small and large businesses in the scientific and technical sphere is a relatively young form of economic relations, in which small enterprises take an active part. This is primarily due to scientific and

technological progress, the development of knowledge-intensive industries, and the growth of knowledge-intensive production. The ways in which small innovative businesses interact with large companies are very diverse. They cooperate in the field of high-tech production, including subcontracting relations; in the field of organizing and conducting innovative business using franchising; in the field of investment through the system of venture financing of high-risk projects and through the development of leasing.

One of the most common forms of interaction between small and large businesses is subcontracting, where relations are based on industrial cooperation and active division of labor between the contractor (large enterprise) and subcontractors (small firms, including innovative ones).

As a rule, the contractor retains only certain elements of the production cycle: assembly, packaging, design, commissioning, marketing, advertising. Subcontractors also perform the entire range of works and services, conduct research and development work.

The contractor system allows large businesses to get rid of economically unprofitable production, shorten the production cycle, minimize costs by refusing to organize their own production, reduce transaction costs, as well as win free market niches and expand their sphere of influence with the help of a faster reaction of small enterprises to changes in market demand.

For small innovative enterprises, in turn, the partnership also provides a number of advantages in their existence and their possible growth. The advantages are the possibility of risk diversification, ensuring stable operations and a guaranteed sales market, increasing the technological level of production, obtaining financial support, as well as payment guarantees.

It is important for representatives of small businesses to join the production networks of large companies abroad, since in this case small innovative enterprises become the "starting point of growth" of the world economy. Enterprises, therefore, functioning in a single complex, optimally allocate resources on a global scale, establish useful relationships between various parts of the economy.

Thus, contract relations provide huge advantages to all participants in the integration process, although they set strict requirements for cooperation, which include: strict compliance with contractual obligations; the requirement of timely delivery of products; rational placement of small businesses around a

large company; strict quality control. It follows from this that small enterprises should not only maintain the required technical parameters of products and delivery conditions, but also apply modern management principles in their activities. Subcontractors must meet the requirements of the parent company, adapt to changing conditions and develop a strategy for their development together with the contractor. All this, despite the trend of partnership relations, makes a small innovative enterprise dependent on a large business and reduces the possibility of expanding relationships with other customers. In addition, the high requirements of the parent company create technical barriers to entry into the existing networks of new small enterprises. In such conditions, it is necessary to be able to retrain personnel taking into account emerging trends and be ready for competition based on innovative thinking. Centers of professionally oriented educational practices can be a structure that ensures the formation of innovative thinking.

Questions for self-control on section 5

1. What is meant by organizational form an innovative organization?
2. What forms of organization of innovative activity, You know?
3. What do you mean divisional form of organization?
4. What does the matrix form of organization?
5. What does the project form of organization?
6. What does a network form of organization?
7. What is meant by organizational structure of the innovative organization?
8. What features of building traditional organizational structures do you know?
9. Describe the modern forms of building innovative organizations.

Section 6. Organization and management of innovative activity of the enterprise

The content of innovation management, like any activity, is always associated with information processes and management processes. The management process consists of many system elements: preparation, collection, processing, transfer of scientific, technical, technological and managerial information, development and decision-making, descent of decisions made along the management vertical, monitoring of execution and evaluation of results.

The structural and organizational specifics of the innovation management process in its implementation are largely determined by uncertainties at all levels. Uncertainties in the innovation process lead to the restriction of the use of optimization management methods, necessitating the use of adaptive approaches.

Speaking about the innovation management system, it is necessary to take into account two main existing levels: state and entrepreneurial.

The state level is a national innovation management system consisting of many elements (subsystems), such as: regulatory, financial, economic, organizational, social, etc.

The task of the state in the implementation of innovation management is to maintain a flexible balance between state regulation and free entrepreneurial initiative. In other words, in ensuring effective, market and competitive conditions for the development of the innovation market, while performing supervisory, control, fiscal and other necessary functions of state regulation. It should be a dynamic, constantly adapting process that accurately and sensitively responds to changes and market demands.

The system of innovation management and development at the state level is characterized by the following aspects.

1. The direct influence of the state should be carried out at the expense of:

1) budget, grant, project and program-targeted financing at various levels, carried out on the basis of adopted federal, regional and local regulatory legal acts;

2) effective and planned state stimulation of innovative technologies within the framework of the state order for innovative products.

2. The indirect influence of the state should be carried out at the expense of:

1) reducing the tax burden, creating tax holidays for innovative enterprises/innovative products;

2) benefits of income tax accrued on the results of the use of intellectual property (license agreements, know-how) and other intangible assets;

3) reduction of the taxable base of income tax in respect of contributions to various funds, the sphere of investment of which is innovation activity;

4) implementation of protection of domestic innovative enterprises and the market (protectionism);

5) providing investment tax credits for profits allocated for R & D and innovation.

The role of the state in the management of innovation activities is extremely large. The state policy in the field of innovation support consists not only of tax breaks and financial assistance, but also of the comprehensive development of scientific, technical and technological potential. As it has been repeatedly noted earlier, innovation activity is a complex, complex, systematic process. The system of state management of innovation activities should include:

- development and support of fundamental scientific and applied research and development;
- development and timely updating of the regulatory framework in the field of science and technology support;
- formation and development of the national innovation system;
- ensuring the processes of convergence and interaction between science, education and production;
- development of international cooperation and cooperation;
- development and development of ways and mechanisms of interaction between all participants of innovative activity;
- development of existing and creation of new innovative facilities (business incubators, technology parks, etc.) and provision of appropriate infrastructure;
- support of small innovative entrepreneurship;

- development of specialized educational components within the framework of the state standard in the relevant disciplines, ensuring the acquisition of practical skills in universities and business incubators created at them.

At the entrepreneurial level, there are two main approaches to building an innovation management system in an organization:

1) combining all stages of innovation activity into a common and continuous process, with a change in the structure of each level of management and coordination of inter-level horizontal and vertical links;

2) the allocation of the innovation process management system as an independent object of management, that is, the separation of innovation units from all others (production, etc.).

In practice, you can find the use of both approaches. In Western companies, especially in large ones, in order to organize innovative production, they reorganize the existing scientific and production complex, thereby regrouping technical, technological, labor and financial resources.

Innovation activity can also be managed by creating a separate affiliated organization (structure). Moreover, this organization can be created outside the location of the resident parent company, for example, in order to simplify entry into a new market or minimize taxation.

A separate issue is the choice of the form and type of organizational management structure. There is no universal or uniform organizational form for all types of innovative enterprises. Depending on the goals and objectives, as well as on the specifics of the proposed activity, the following types of organizational structure can be distinguished:

- companies that create specialized innovation units;

- companies that do not have specialized innovation units. The innovation process takes place within the framework of linear-functional and matrix interactions between existing departments;

- companies of a mixed type. A specialized department (service) is organized, which interacts with other departments of the organization and has priority in implementing its activities and solving common organizational tasks within its competence.

Management of innovation activity in the conditions of a combination of external and internal factors and market competition is carried out by modern companies in the following ways:

- introduction of individual innovative divisions into the company's structure;
- development of market, strategic structures and their varieties;
- the use of forms of horizontal coordination (project management).

An analysis of the organizational systems and forms of innovation management used in the world practice shows that there are no fundamental differences between them in advanced and all other companies.

Management of innovative activity of the enterprise. The concept of "innovation" is applied to all innovations both in production and in organizational, financial, research, educational and other areas, to any improvements that provide cost savings or even create conditions for such savings. The innovation process covers the cycle from the emergence of an idea to its practical implementation.

Innovation as a process has a certain structure distributed over time, called the innovation lifecycle. The main stages of the innovation life cycle include the origin, development, diffusion, routine, obsolescence. The classification of innovations by stages of the life cycle allows taking into account the time characteristics of production processes when forming an enterprise's innovation policy.

And also, the concept of "innovative activity" is a set of measures that can turn certain knowledge and skills into financial benefits for the company. Innovation activity is a process aimed at the development of innovations, the implementation of the results of completed scientific research and development or other scientific and technical achievements into a new or improved product, into a new or improved technological process, as well as related additional scientific research and development.

An innovative enterprise is one that introduces product or process innovations, regardless of who was the author of the innovation-employees of this organization or external agents (external owners, banks, representatives of federal and local authorities, research organizations and technology providers, other enterprises)

The innovation policy regulates a complex system of scientific and technical, marketing, management, production and economic activities, the purpose of which is to introduce innovations into the work of the enterprise to ensure satisfaction of customer needs and optimal production workload.

The management of the innovative activity of the enterprise includes the application of new forms of management. For example, you can save on office supplies, but implement a more efficient enterprise management system and eventually get a higher profit. And also innovative activity requires clear planning and control. Otherwise, even the most advanced technology can bring a loss to the enterprise, not income. Innovation management is associated with an increased level of risk, as a rule, there should be several ideas in the innovation portfolio that can be implemented at the enterprise. Analysts do not recommend to engage in the development of one large innovative project, but to disperse their efforts into several small projects. Obviously, this approach allows you to reduce the amount of investment for projects and make a profit in the case of the implementation of one or more business ideas.

Over the past few years, interest in innovation has grown very significantly - even at the government level, measures have been taken to stimulate innovation activity. Innovation is often understood as the creation and use of new technological ideas, but there is another side of innovation activity - organizational. Innovations can be successfully applied not only in the production of products, but also in the organization of business in order to increase its efficiency.

Innovation is a materialized result obtained from investing capital in a new technique or technology, in new forms of organization of production, labor, service and management, including new forms of control, accounting, planning methods, analysis techniques, etc. With the economic development of society, the importance of innovations is increasingly increasing, and at the present stage, innovations are becoming the most important tool for the competitive struggle of economic entities at all levels of the hierarchy-from individual structural units of enterprises to countries and regions as a whole.

The innovation system is usually understood as the elements of the organization that accompany innovation activities, as well as the relationships between them, which are fixed in the regulatory documents of the enterprise

(charter, regulations on divisions, job descriptions). In order for any employee to freely navigate through the documents, it is better to combine them into an information base (for example, create a website in an internal corporate network), and also oblige a legal adviser or a personnel manager to give advice on the application of documents.

The purpose of creating an innovation system is:

- improving the competitiveness of the company's products;
- creation of an innovative base for long-term sustainable growth of the enterprise;
- ensuring the economic security of the enterprise.

The innovative system of the enterprise should perform the following functions:

- market forecasting and selection of priority research areas;
- strategic planning of innovative activity of the enterprise;
- search, evaluation and selection of innovative ideas and inventions;
- implementation of innovative projects;
- monitoring of indicators of already implemented innovative projects and their adjustment.

Experts distinguish several types of strategic innovations. The offensive type of innovation activity is aimed at conquering new market segments, the defensive type is aimed at maintaining its position in the market, the imitation type is aimed at copying new technologies that have been developed by other companies, and the "niche" strategy is aimed at finding and actively working in a certain market segment focused on a small number of consumers.

The importance of innovation activity for the enterprise economy:

- it is a factor of the competitiveness of products;
- ensures the efficient use of production resources;
- increases the degree of adaptability of the enterprise to changing environmental conditions;
- expands the company's opportunities to enter foreign markets of products;
- creates prerequisites for long-term stability.

By the nature of its activity, the innovation center is primarily a cost center, that is, a structural unit that represents the place where costs arise and which can be responsible and have a certain impact on the costs associated

with the implementation of its functions. Cost centers are not self-supporting. At the same time, for innovation-oriented enterprises, whose innovations may have an independent commercial value, the innovation center can also be a revenue center. The income center is a structural unit, a division, the result of which can be determined by a specific amount of income earned by them for the enterprise.

The stages of the product life cycle are research and development, production, sale, operation or use, and disposal. The cost characteristics of the innovation center are related to the determination of the total costs for research, design and technological preparation of production. Accordingly, the main types of costs are the costs of pre-project research; the development of technical and draft tasks; the development of a technical project; the preparation of design documentation for a prototype; production and testing of a prototype (batch). For the successful operation of the enterprise's innovation system, it is necessary to closely interact the innovation department with the department that develops new products (marketing department, development department, etc.).

An important role in the process of strategic management of the enterprise is played by increasing the efficiency of the innovation program, which is carried out in order to reduce investment costs for each of the selected innovative projects and answers questions about how the most effective way can be brought closer to achieving the set development goals. It should be noted that only those innovative projects that have already been "brought" to the required values of the profitability index, payback period and other indicators used in the economic assessment of investments are subject to inclusion in the enterprise's innovation program. The use of the proposed methodology in practice makes it possible for the enterprise to manage the innovative activity of the enterprise with greater efficiency and to level out some of the most significant and most likely economic risks, the appearance of which is explained by the very fact of involving new technologies in economic turnover. The most important factors hindering the effective management of innovation activities are: the danger of late introduction of innovation to the market, the lack of contractors – executors of the project, the problem of finding strategic partners for the implementation of the project.

To create a successful innovation system, it is important to provide financial, informational, regulatory, organizational, legal and personnel support, as well as the allocation of resources for innovation activities belongs to the category of strategic decisions and should be linked to the long-term goals of the enterprise.

Innovation activity is an independent object of management, since it has a relative isolation and has its own specific characteristics. This is primarily due to the uncertainty of the research and development processes, the duration of the implementation of innovative activities, difficulties in forecasting and evaluating the effectiveness of the results, their significant impact on the future development of the enterprise as a whole.

The development of plans for research and development and other forms of innovation activity is associated with the choice of a strategy.

The strategy development has two main goals.

1. Efficient allocation and use of resources. This is an "internal strategy" - it is planned to use limited resources, such as capital, technology, people. In addition, the acquisition of enterprises in new industries, the exit from undesirable industries, the selection of an effective "portfolio" of enterprises is carried out.

2. Adaptation to the external environment – the task is to ensure effective adaptation to changes in external factors (economic changes, political factors, demographic situation, etc.).

Strategy development begins with the formulation of the overall goal of the organization, which should be clear to any specialist. Goal setting plays an important role in the company's relations with the external environment, the market, and the consumer.

The overall goal of the organization should take into account:

- the main activity of the company;
- working principles in the external environment (principles of trade;
- relations with the consumer; conducting business relations);
- the culture of the organization, its traditions, the working climate.

When choosing a goal, you need to take into account two aspects: who are the clients of the company and what needs it can meet.

After setting the general goal, the second stage of strategic planning is carried out – the specification of goals. For example, the following main goals can be defined:

1) profitability – to achieve a net profit of 5 million units in the current year;

2) markets (sales volume, market share) - to increase the market share to 20% or to increase sales to 40 thousand units;

3) productivity – the average hourly output per worker should be 8 units of production:

4) financial resources (the size and structure of capital; the ratio of equity and debt capital; the size of working capital, etc.);

5) production facilities, buildings and structures-to build new warehouses with an area of 4000 sq. m.;

6) organization (changes in the organizational structure and activities) - to open a representative office of the company in a certain region, etc. In

order for the goal to be achieved, the following requirements must be taken into account when setting it:

- a clear and specific formulation of the goal, expressed in specific measures (monetary, natural, labor);

- each goal should be limited in time, the deadline for its achievement is set.

Goals:

- can be long-term (up to 10 years), medium-term (up to 5 years) and short-term (up to 1 year): they are specified taking into account changes in the situation and the results of control:

- must be achievable;

- we should not deny one another.

Strategic planning is based on a thorough analysis of the external and internal environment of the company:

- the changes occurring or possible in the planned period are evaluated;

- factors that threaten the company's positions are identified;

- the factors favorable for the company's activity are investigated.

Processes and changes in the external environment have a vital impact on the company. The main factors related to the external environment are the economy, politics, market, technology, and competition. Competition is a

particularly important factor. Therefore, it is necessary to identify the main competitors and find out their market positions (market share, sales volumes, goals, etc.). It is advisable to conduct research in the following areas:

- to assess the current strategy of competitors (their behavior in the market, methods of promoting products, etc.);

- to investigate the influence of the external environment on competitors;

- try to collect information about the scientific and technical developments of rivals and other information, make a forecast of future actions of competitors and outline ways to counteract them.

A thorough study of the strengths and weaknesses of competitors and a comparison of their results with their own indicators will allow you to better think through a competitive strategy.

The strategy is the starting point of theoretical and empirical research. Organizations may differ in the extent to which their leaders, who make key decisions, have associated themselves with the strategy of using innovations. If top management supports attempts to implement an innovation, the probability that it will be accepted for implementation in the organization increases. As the top management is involved in the decision-making process, the importance of strategic and financial goals increases, the

first phase is the most difficult. It includes the formation of goals and conducting a SWOT analysis.

An innovative strategy is a means of achieving the goals of the organization in relation to the internal environment of the organization. Innovative strategies are divided into the following groups:

- product-oriented-focused on the creation of new goods, services, technologies;

- functional-these include scientific and technical, production, marketing and service strategies;

- resource-an element of novelty is introduced into the resource support (labor, material and technical, financial, information):

- organizational and managerial-relate to changes in management systems.

The basis for the development of an innovation strategy is the scientific and technical policy pursued by the company, the company's market position and the theory of the product life cycle.

Depending on the scientific and technical policy, there are three types of innovative strategies.

1. Offensive – characteristic of firms that base their activities on the principles of entrepreneurial competition; characteristic of small innovative firms.

2. Defensive-aimed at. to maintain the company's competitive position in existing markets. The main function of such a strategy is to activate the cost-result ratio in the innovation process. Such a strategy requires intensive R & D.

3. Imitation – used by firms that have strong market and technological positions: they are not pioneers in the release of certain innovations to the market. At the same time, the main consumer properties (but not necessarily technical features) of innovations released to the market by small innovative firms or leading firms are copied.

Currently, basic (reference) innovation strategies are widely used. They are aimed at developing competitive advantages, which is why they are called growth strategies.

Basic growth strategies are divided into four groups:

1) intensive development strategy;

2) integration development strategy:

3) diversification strategy:

4) reduction strategy.

When implementing an intensive development strategy, the organization increases its potential by making better use of its internal forces and the opportunities provided by the external environment.

There are three strategies for intensive development:

- "existing product in the existing market" - the strategy is aimed at deeper penetration with this product into the market;

- "new product-old market" is a product innovation strategy, in which a product with new consumer properties is developed and it is sold on the old market;

- "old product – new market" is an innovative marketing strategy aimed at selling a well-known product in new market segments.

There are three strategies for integration development:

- vertical integration with suppliers;

- vertical integration with consumers;

- horizontal integration (interaction with industry enterprises-competitors).

There are also three strategies for diversification:

- design-product strategy aimed at finding and using additional business opportunities; strategy implementation scheme: new product – old technology – old market;

- design and technological strategy-involves changes in the product and technology: strategy implementation scheme: new product – new technology – old market:

- design, technological and marketing strategy-used according to the scheme: new product – new technology – new market.

The reduction strategy is manifested in the fact that organizations identify and reduce inappropriate costs. These actions of the enterprise entail the acquisition of new types of materials, technologies, changes in the organizational structure.

There are several types of reduction strategies:

- managerial (organizational) - changes in the structure of the enterprise and, as a result, the liquidation of individual structural units;

- local innovation-cost management associated with the change of individual elements of the enterprise;

- technological-changing the technological cycle in order to reduce personnel and overall costs.

The innovation strategy developed on the basis of the product life cycle theory takes into account the phases in which the product is located. Sometimes innovations include several stages in the life cycle: origin, birth, approval, stabilization, simplification, fall, exodus and destructurization.

1. The origin. This turning point is characterized by the appearance of the embryo of a new system in the old environment, which requires the restructuring of all vital activity. For example, the appearance of the first idea (a formal technical solution) or the organization of a company specializing in the creation of new or radical transformation of old market segments, which undertakes to develop new equipment.

2. Birth. At this stage, a new system appears, formed largely in the image and likeness of the systems that gave rise to it. For example, after the design of a technical solution, they move on to the general presentation of a new type of equipment (formulation of a layout scheme) or to the

transformation of the created company into another one that works for a narrow market segment and meets the specific needs existing on it.

3. Approval. Here a system arises and forms, which begins to compete on an equal footing with those created earlier. For example, the appearance of the first idea will allow us to move on to the practical creation of the first samples of a new type of equipment or the transformation of the previous company into a company with a "power" strategy operating in the field of large standard business.

4. Stabilization. The turning point is the entry of the system into a period when it exhausts its potential for further growth and is close to maturity. For example, the transition to the practical implementation of technical systems suitable for large-scale implementation, or the company's entry into the world market and the formation of the first branch on it.

5. Simplification. On this ethane, the "withering" of the system begins. For example, the optimization of the created technical system or the formation of a multinational company (TNC) from the firm.

6. The fall. In many cases, there is a decrease in the majority of significant indicators of the vital activity of the system, which is the essence of the fracture. At this stage, improvements of the previously created technical system at the level of innovation proposals begin, the breakup of TNCs into a number of separate firms that carry out medium and small businesses to meet local needs.

7. Exodus. At this stage of the life cycle, the system returns to its original state and prepares for the transition to a new state. For example, a change in the functions of the operated equipment or the death of one of the firms that separated from TNCs.

8. Destructurization. Here, all the processes of the system's vital activity are stopped, or it is used in another capacity, or its disposal is carried out. The company ceases to exist; as a rule, this means its re-specialization for the production of other products.

According to modern economics, in each specific period of time, a competitive production unit (firm, enterprise) specializing in the production of products to meet a certain social need is forced to work on a product belonging to three generations of technology – outgoing, dominant and emerging (promising).

Questions for self-control on section 6

1. What is the purpose of creating an innovation system?
2. What is the significance of innovation activity for the enterprise economy?
3. How is the SWOT analysis carried out?
4. List three types of innovative strategies.
5. What is an offensive innovation strategy?
6. What is a defensive innovation strategy?
7. What is an imitation innovation strategy?
8. List the stages of the innovation life cycle?

Section 7. Innovation project management

Project management is a purposeful process of achieving project goals with restrictions on financial, material, human, time and other resources. Managing an innovative project is a complex task. The working group created for the implementation of the project solves new tasks that differ from the tasks solved by existing functional units. There is a stable connection between the working group and the entire organization, since the project should be implemented in cooperation with existing departments and the result should be integrated into the existing structure.

Each member of the working group, in this case, has, as a rule, two managers (the head of the group and the head of the functional unit). A manager can also be assigned to manage the project. The structure of the project team depends on the current situation. If, for example, the project is not complex (product modification), then a limited working group is created, which includes the departments of new product development, production, marketing and service. Such a group reports to the head of the relevant department.

If we are talking about radical changes in the group can be distinguished: technical leader, deciding what and when to do staff; research (functional) managers responsible for the quality of work; leader-the organizer of providing personal interests of employees (wages, etc.).

The heads form a steering group, which includes:

- the aim of the project;
- appointment of heads of working groups;
- creation of working groups;
- problem statement;
- control over the implementation of the project (quality, time, costs);
- making a decision to continue;
- dissolution of working groups.

Working groups are responsible for the implementation of their part of the project; planning and monitoring, reporting to the coordinating group and the entire organization.

When selecting candidates for the working group, the following criteria are used:

- competence and experience;
- availability of special knowledge in the problem area;
- the possibility of attracting to work;
- power and authority in the organization;
- ability to resolve conflict situations;
- attitude to the case;
- personal interest and motivation.

It should be borne in mind that the project manager plays a crucial role in the organization of work. Therefore, according to his personal qualities, abilities and powers, he must have authority in the eyes of the heads of functional departments.

In the practice of management, many methods of managing a working group are used. Among them: planning (especially budget planning and cost control; information flow management, etc.). However, these techniques are not special, they are used to manage any processes. The procedure for organizing project meetings, making decisions, etc. is universal.

Specific project management tools are:

1. Defining the project and setting the task.

2. Establishing intermediate stages (dividing the project into separate phases

They are interconnected and cannot function effectively in isolation. A clear formulation of the problem and the formulation of the problem is important for:

- understanding the project and establishing the stages of implementation;
- highlighting the most important problems;
- creating an information exchange model;
- determination of expected results;
- development of recommendations after the completion of the work.

During all stages of the project implementation, decisions can be made on the following emerging issues:

- you need to continue or adjust the tasks;
- is it not necessary to clarify the last stage;
- the form of completion of the last stage.

The entire division of the project into stages should be carefully thought out. One of the reasons for the failures in the implementation of the project is the unclear organization of cooperation and coherence within the working group, as well as between the working group and the organization.

Innovation project management is decision-making in a constantly changing environment, continuous review of the innovation program and reassessment of it as a whole and its components. For the head of the innovation sphere, it is natural that any of his actions is surrounded by uncertainties of both internal and external order. At any moment, an unforeseen technical problem may arise, the need for reallocation of resources, new assessments of market opportunities. Therefore, any system of planning and managing innovations should be quite flexible, and the dynamism of the situation requires more managerial attention than any field of activity.

Every project should start with a clear goal statement. Since the final success is determined in the market, then the goals should also be determined by the market need. First of all, this is the market segment and its interrelated characteristics (size, acceptable price, technical efficiency requirements and product withdrawal time). The product, in turn, should be determined by its effectiveness, price and date of appearance. All these characteristics are interdependent, and, therefore, a certain iterative procedure for clarifying the goal is required.

Special attention should be paid to what technical level of the product this market segment is most likely to require. Redundancy of parameters will certainly increase the cost of innovation and production, as well as development time and, consequently, reduce the profitability of the project.

At the stage of the initial definition of the project, it is essential to focus more on the market need and the degree of its satisfaction than on decisions regarding the type of final product (it should be borne in mind that alternative solutions will appear during the development process). The sequence of solutions should be as follows:

- what should be achieved;
- how to translate this into a practical plane;
- which of the alternatives are the most promising.

Only after an exhaustive search and selection of the most attractive project concept should you switch your attention to the technical details and specification of the work program. The definition of the project should be brief and should not limit the freedom of the team in finding new solutions. At the same time, it should contain clearly formulated goals, guidelines for technical, cost parameters and the duration of development.

The process of managing an innovative project. Innovation management is changes in order to introduce and use new types of equipment, processes, and constantly update various aspects of an enterprise's innovation activity. It includes not only technical and technological developments, but also any changes for the better in all areas of the enterprise's activity, as well as in the management of the process of new knowledge.

Accurate and timely information is primarily necessary for effective project management. As an information base for the management of an innovative project, the following are used:

- project evaluation criteria;
- estimates and assumptions on which the decision on the selection of the project was based;
- project definition;
- project implementation plan.

Naturally, it is extremely important to timely update all types of information coming from other departments of the company (marketing, financial, etc.). Organizational management structures of the matrix type most contribute to this.

The project management system should be adequate to its volume, complexity, degree of uncertainty, and place in the portfolio of innovative projects. It should provide:

- assessment of progress in solving each task, costs and duration of work;
- identification of those tasks that fall out of the schedule, assessment of the consequences of this for the overall progress of work on the project;
- changes in the development of the project as a whole relative to the planned costs and completion date.

One of the difficulties of innovation management is the effective allocation of resources. This is due to the following reasons.

1. It is necessary that the total amount of resources in the field of R & D be relatively stable over time.

2. Resources are invested either in equipment that has a fixed cost, regardless of whether it is used or not, or in the remuneration of personnel; both are specific and non – interchangeable resources.

3. Each project requires a different combination of these resources, and due to the uncertainty in the projects, it is impossible to accurately allocate resources in advance.

As the project progresses from applied research to development work, it undergoes changes, including in management methods.

The art of management consists in the implementation of the planned. In the field of innovation, more than in any other, it depends on the people who are part of the project "team". Creativity and entrepreneurship cannot be planned, but the conditions in which they can be effectively revealed strongly depend on management decisions. The implementation of a plan can be effective only when it is perceived as real by those who are responsible for its implementation. Therefore, the nature and style of leadership on the part of top management is a vital component of the success of the project.

It is impossible to determine the financial profile of the project with sufficient accuracy. Nevertheless, it is necessary to know that its actual form is largely determined by the decisions of the R & D management.

Innovation management at the enterprise includes a number of well-known stages:

- the formulation of the goals of innovation. At the stage of formulating the goals of innovation, the mission-purpose, mission-orientation and mission-policy of the organization are established, which emphasize the commitment to innovation and innovation strategies, formulate the goal of the organization's development, build and calculate a tree of goals;

- analysis of the existing situation (assessment of the innovative position of the company). At this stage, the internal environment of the organization is analyzed and the innovation potential is evaluated, the system of the external

environment is analyzed and the innovation climate is assessed, the innovative position of the organization is determined;

- the choice of an innovation strategy and the definition

of innovative management methods (the basic development strategies and their innovative components are established, the preferred innovation strategy is selected and formulated, the methods of innovation management are selected);

- development and design of innovations;

- organization of work on the implementation of an innovation project, which includes the creation or restructuring of management bodies, the establishment of relationships between management units, etc.;

- motivation of innovations. It is considered in two aspects:

a) stimulating the creation and sale of innovations, the purpose of which is to receive money from the sale of new products immediately

b) stimulating the purchase of innovations (the goal is to receive money in the future through the implementation of new products and technologies purchased today);

- monitoring and evaluating the effectiveness of the progress of the project, which consists in checking and assisting in the organization of the innovation process, the plan for the creation and effective implementation of innovations;

- adjustment of the project, strategies, goals and mission of the enterprise.

For the successful functioning of firms and their further development, there should be several directions, options, ideas for innovations, i.e., the so-called "portfolio" of innovative ideas, which is constantly updated and replenished. This is necessary so that in the conditions of unexpected changes in the market, it would be possible to reorient its production in time, taking into account the already existing new developments, and also have new products in stock for their use in the future.

To facilitate the management of innovative projects, managers should adhere to the following principles of innovative project management: The principle of selective (selective) management. The point is to choose priority areas. Targeted support for innovative firms and innovators.

The principle of targeted orientation of projects to ensure the final goals. It involves establishing relationships between the needs for creating innovations and the opportunities for their implementation. At the same time, the final goals of specific projects are oriented to the needs, and the intermediate goals are oriented to the final goals of these projects.

The principle of completeness of the project management cycle.

The principle of phasing innovation processes and project management processes.

The principle of hierarchy of the organization of innovative processes. All levels of activity are consistent with each other.

The principle of multivariance in the choice of management decisions.

The principle of consistency. A set of measures necessary for the organization of the project (organizational, administrative, etc.) is being developed. The principle of security or balance. All activities should be provided with the necessary resources.

The stage of forming proposals for priority areas may look something like this:

A list of the most significant criteria for achieving the goal is recorded.

For each project implementing a priority direction, an assessment is made of the level of improvement of each indicator in comparison with the existing situation on the scale of "low", "below average", "above average", "high".

Technologies that do not have ratings of "above average" or "high" are excluded from further consideration. The rest are included in the preliminary proposals for priority areas and critical technologies.

Technologies that have at least one rating of "high" or at least two "above average" are provisionally considered candidates for the priority group; if more than two "high" or three "above average" - candidates for the group of special priority.

The degree of priority is determined in accordance with the following criteria:

- each project (program) of the lower level is evaluated according to two indicators:

- the final result, measured by the growth of the analyzed indicator for a fixed period;

- costs in the production of software products (total, including investment and operating costs).

The value of the efficiency indicator that characterizes the degree of priority is calculated: the result is divided by costs.

All projects are ordered by priority level in accordance with the level of efficiency (result (effect)/costs).

In the world practice, the cost - result analysis is a mandatory procedure for any financial distribution mechanisms. This is due to the fact that, with all the simplicity for practical application of this decisive rule, it provides the choice of such a portfolio of projects that gives:

- the maximum possible efficiency with a given limited amount of funds;

- minimum costs when achieving the required level of result and efficiency.

The role of the risk concept in the management of innovative projects. Uncertainty is one of the main signs of an innovative project. Then it is quite natural to ask about the relationship of the innovator to risk, about the risk management of innovations, about the balance of profitability and risk in specific innovative projects. The main components of the risk concept for innovative projects should be noted:

- the risk takes place in relation to the future, and, therefore, is closely related to decision-making;

- the categories "uncertainty" and "risk" are closely related, but they are not synonyms;

- the risk arises in cases when it is necessary to make a decision (one of the variants of the translation of the word "risk" is "making a decision, the result of which is unknown");

- the risk is subjective, and the uncertainty is objective;

- the rule is true for innovation: "if there is no risk, then there is nothing new" - innovation, as an instrument of global competition, becomes meaningless.

The price of risk for the decision-maker is related to the probability of occurrence of a risk event and the amount of damage from this event. The

subjective side of risk is associated with an individual's attitude to its consequences of LPR, his tolerance towards risk. The investor's attitude to risk can be described by indifference curves, as well as in terms of utility theory.

So, we can summarize the main thing as follows –

- uncertainty is an objective condition for the existence of risk;

- the need to make a decision is a subjective reason for the existence of risk;

- the future is a source of risk;

- the amount of losses is the main threat from the risk;

- the possibility of losses – the degree of threat from the risk;

the "risk-return" relationship is a stimulating factor for decision-making in conditions of uncertainty;

- risk tolerance is a subjective component of risk.

Any risk of innovative design is multifaceted in its manifestations and represents a complex structure of elements of other risks. The manifestations of risk are individual for each participant in the situation (the chairman of the corporation's board, the president, the main vice-presidents, the head of development, the main specialists, marketers, financiers, etc.).

Thus, the risk of an innovative project is a system of factors that manifests itself in the form of complexes of risks that are individual for each participant of the project in quantitative and qualitative terms. Such a system can be represented as a mathematical matrix.

So, the value of any risk for each participant is individual, and the overall risk of an innovative project is a complex system of private (including individual) risks with complex numerous connections.

Evaluation of the effectiveness of an innovative project. To assess the effectiveness of an innovative project, project options are compared in terms of their profitability, cost, and implementation time. As a result, there will be a stable demand for products throughout the entire life cycle, sufficient to assign a price that will cover the costs of operation and maintenance of project facilities, payment of debt and satisfaction of the return on investment.

Commercial (financial) efficiency, taking into account the financial consequences of the project implementation for its direct participants.

Budget efficiency, reflecting the financial consequences of the project implementation for the federal, regional, and local budgets.

National economic economic efficiency, which takes into account the costs and results associated with the implementation of the project, going beyond the direct financial interests of the participants of the investment project and allowing for cost measurement.

Thus, the management of the innovation process is an integral component of the activity of a modern enterprise, which covers the planning, organization and promotion of innovative activities, the implementation of Innovative projects designed to gain competitive advantages and strengthen the market position of the enterprise.

Management of innovative projects is an integral part of innovation activity and solves the issue of planning and implementing innovative projects designed for a significant qualitative leap in production, entrepreneurship, and the social sphere. In a broad sense, strategic management is associated with the process of anticipating global changes in the economic situation, finding and implementing large-scale solutions that ensure its survival and sustainable development by identifying future success factors.

Innovative projects present scientifically based technical, economic or technological solutions. Projects can be financed through the state scientific and technical program, by receiving grants. Each project is designed taking into account certain requirements, has a clear name, is accompanied by a brief annotation, the project indicates the number of performers, deadlines, the need for funding per year, information about managers and main performers.

Priority areas of research and development are implemented in the form of large intersectoral projects. The priority directions of the development of science and technology are: information technologies and electronics, production technology, new materials and chemical products, technology of living systems, transport, fuel and energy, ecology and rational use of natural resources. A working group is created to manage the project.

Traditionally, the innovation management process involves the following stages: idea; testing of an idea; development of design documentation; development of technical documentation; creation of a prototype; preparation for production; production.

Innovative tasks involve reducing production costs, improving the quality of products or services, introducing a new product to the market, forming a new sales strategy that helps increase consumer interest in a new product. Attracting or creating innovations should take place purposefully, in order to form competitive advantages in the market segment where the company operates. It is important not only to determine the prospects of a certain idea in a timely manner and evaluate its commercial profitability, but also to create conditions for the rapid introduction of new products at the enterprise.

Thus, the management of an innovative project is a complex process of constant action, when flexibility and readiness for change determine the continuity and success of production development. Such management can be highly effective when management relies on well-coordinated functional groups. The importance of pedagogical support for the innovative activities of such groups lies in the need for their constant development on the basis of modern systems of staff motivation. The ability to form the motivational activity of personnel is one of the practical tasks of innovative pedagogy.

Questions for self-control on section 7

1. Management of innovative projects is...?
2. The process of management of innovation project is...?
3. As the information base for management of innovation project uses...?
4. The financial profile of the project is...?
5. To facilitate the management of innovative projects managers should adhere to the following principles of management of innovative projects...?
6. The principle of selective (selective) control is...?
7. The principle of the stages of innovation processes and project management processes is that...?
8. The principle of the hierarchy of the organization of innovation processes is that...?

Section 8. Evaluation of the effectiveness of innovations and innovative activities

Currently, when evaluating the effectiveness of an investment project (IE), Methodological Recommendations for evaluating the effectiveness of investment projects are guided. However, they are not fully suitable for evaluating the effectiveness of innovations. This is due to the fact that a wider range of participants is usually involved in the creation and use of innovations compared to an investment project. The innovation process involves investors, research, development, design organizations, manufacturers of new products and their consumers. The investors who finance it and the enterprise engaged in the implementation of the project are interested in the implementation of the IP.

The period during which one-time costs are carried out and income is provided due to the creation (research and development), production and operation of innovations, in many cases, is significantly longer than the corresponding period of implementation (creation and operation) of an individual entrepreneur. This is especially evident when introducing new structural materials, new aircraft designs, agricultural machinery, etc. Along with this, the ultimate goal of implementing innovations is to achieve better results in comparison with the analog.

The price of fundamentally new products should be recognized by the consumer, while the price of products whose release is provided for by the investment project has already been confirmed on the market. Achieving the final result of the innovation process is associated with higher risks compared to the implementation of an investment project.

The impact of these factors determines the peculiarities of determining the economic efficiency of innovations:

1. When evaluating the effectiveness of innovations, it is necessary to take into account not only the total mass of income (useful result) that can be

obtained for the entire useful life of the innovation, but also its increase in comparison with its analog. The fulfillment of this requirement means that the feasibility study of choosing the best innovation option should be based on both the theory of comparative efficiency assessment and the theory of absolute efficiency. Based on the theory of comparative efficiency, they select the best option from among the possible ones, and then calculate the estimated indicators of the absolute effectiveness of innovations.

The methodological recommendations focus mainly on the theory of absolute investment efficiency. This approach is expressed in the definition of the effect as the difference between income and costs (current and one-time) from the implementation of the most effective option. The comparison of different project options is not disclosed in the Methodological Recommendations.

Meanwhile, a comparative assessment of the effectiveness of an innovation is necessary not only to select the best option from among the possible ones, but also to determine its impact on the economic indicators of the enterprise's economic activity.

2. When evaluating the effectiveness of innovations, it is necessary to distinguish: the estimated year of implementation; the first year after the end of the regulatory period for mastering the innovation; the initial year of the useful life of the innovation; the useful life of the innovation; the last year of the useful life of the innovation.

The second or third calendar year of the serial production of new products or the second year of the use of new technology, new methods of organizing management, production, and labor is taken as the calculation year.

As the initial year of the useful life of the IP, the year of the beginning of financing of work on its implementation is taken. This approach is not always acceptable for evaluating the effectiveness of an innovation, because one-time costs for its implementation can be carried out for many years. At the same time, a useful result can be obtained, for example, with large-scale innovative projects and the participation of interested state and commercial structures in their implementation (the construction of the latest generation of IL-96-300 and TU-204 aircraft). The features of aircraft construction are such that an aircraft engine is usually designed for about ten years, and it "lives" for thirty to forty

years. A similar situation is developing with the design, production and operation of combined-cycle gas installations, the" heart " of which is a gas turbine. Combined-cycle gas stations exceed conventional thermal power plants by 1.5 times in terms of their combined efficiency.

Based on this, when evaluating the effectiveness of innovations, all costs (current and one-time), as well as the results are given to the calculated year using both discount coefficients and increase coefficients.

In contrast, when evaluating the effectiveness of an individual entrepreneur, the reduction of current costs and results is made by discounting them to the initial year of implementation of one-time costs.

3. When evaluating the effectiveness of innovations, in contrast to evaluating the effectiveness of innovations, much more attention should be paid to the process of choosing the best option from among the possible ones. This issue is practically not developed in the Methodological Recommendations.

When selecting the best option from among the possible ones, it is necessary to ensure their comparability not only by the time factor, but also by the volume of production of new products(works), by qualitative, social and environmental factors. At the same time, the base for comparison is taken as:

1) at the stage of forming the R & D portfolio, when making a decision on putting into production innovations-indicators of the best equipment designed in Russia or abroad, which can be purchased in the required quantity or developed and produced on the basis of a license in Russia. If there are no analogues for comparison and it is impossible to use data on foreign analogues, the indicators of the best equipment produced in Russia are taken as a base for comparison;

2) at the stage of forming plans for the development of innovations-indicators of the replaced equipment (analog);

3) at the stage of the feasibility study of choosing the best option, both the state approach and the approach that takes into account the interests of producers and investors should be observed, which implies:

- assessment of efficiency, taking into account the accompanying positive and negative results in other areas of the national economy, including social, environmental and foreign economic spheres;

- carrying out calculations of economic efficiency throughout the entire cycle of development and implementation of innovations, including R & D, development, mass production, as well as the period of use;

- application in the calculation of the system of economic standards (costs, taxation, land payments, deductions of the unified social tax and occupational risk insurance, rules and regulations for settlements with banks for loans, standards for the conversion of foreign exchange earnings);

- calculation of performance indicators that reflect the impact of innovations on the state interests (through the tax system), the interests of the producer and consumer.

When evaluating the effectiveness of innovations, the costs and results carried out and received before the beginning of the accounting year are multiplied by the increase coefficient, and after the reporting year — by the discount coefficient. The reduction of non-recurring costs to the estimated year is carried out only when determining estimated performance indicators in order to make a decision on the feasibility of implementing an innovation.

When evaluating the effectiveness of an investment project, the selection of the best option as the basis for making the most effective management decision has not found a worthy application. This is explained by the fact that the method proposed here for evaluating the effectiveness of innovations is based on the theory of both comparative and absolute efficiency of capital investments. To do this, it is necessary to simultaneously calculate the level and incremental indicators of the effectiveness of the innovation. Moreover, the increase in efficiency is determined both in comparison with the analog, and with the level of efficiency achieved by the enterprise in the period preceding the implementation of the innovation. In contrast, the methods of evaluating the effectiveness of investment projects are based on the theory of absolute efficiency of capital investments. Comparison of options is only suggested, but is not a necessary condition.

4. The method of evaluating the effectiveness of innovations should be based on a system of evaluation indicators that take into account the state interests, the interests of creators, producers and consumers, while the methods of evaluating the effectiveness of investments duplicate each other

and allow evaluating the effectiveness of an individual entrepreneur only from the perspective of an investor under the restrictions set by him.

5. Methods for evaluating the effectiveness of innovations should include indicators reflecting the integral (general) effect of the creation, production and operation of innovations. This approach allows not only to give a generalizing (complex) assessment of the effectiveness of the innovation, but also to determine the contribution of each of the participants in the investment activity to this efficiency.

In contrast, the methods of evaluating the effectiveness of investments proposed in the Methodological Recommendations allow us to determine the effectiveness only of the participant who implements the investment project.

6. To assess the effectiveness of innovations, it is advisable to use not only discounting methods, but also compounding and annuity methods. In this case, it becomes possible to calculate the economic effect for each year of useful use of the innovation and to a greater extent link the performance indicators with the real economic processes that will occur in the economy.

In contrast, when evaluating the effectiveness of an individual entrepreneur, the costs and results projected for the future are reduced to the current year by the discounting method, which makes it difficult to determine the economic effect for each step of the useful use of an investment project and, as a result, does not allow evaluating the values of efficiency indicators in the near future.

7. When evaluating the effectiveness of innovations, it is necessary to proceed from the possibility of using two rates of return on capital. It is advisable to use one of them to bring one-time costs to the estimated year. By its value, it must correspond to the rate of profit that the bank guarantees to the owner of the funds deposited in the deposit account.

The second rate of return on capital is used to coordinate the interests of investors and producers of innovations.

Methods for evaluating the effectiveness of investments are based on a single rate of return on capital.

It should be emphasized that the methods recommended here for evaluating the effectiveness of innovations can also be used to evaluate the effectiveness of individual entrepreneurs.

Taking into account the above, we can conclude that a system of indicators should be used to assess the effectiveness of innovations, and not one of them, no matter how rich it is in economic content.

The general economic principle of evaluating the effectiveness of innovations is to compare the effect (result) and costs. Result ratio/costs can be expressed in both natural and monetary terms.

The problem of determining the economic effect and choosing the most preferred innovation requires, on the one hand, exceeding the results from its use over the costs of development, manufacture and implementation, as well as comparing the results with the expected effect from the use of other possible innovations for this case.

At firms with accelerated depreciation, in which the terms of replacing existing machines and equipment with new ones are reduced, the problem of evaluating the effectiveness of innovations is sharply updated.

The method of calculating the effectiveness of innovations, based on comparing the results with the costs, allows you to make decisions about the feasibility of innovations.

To assess the overall economic efficiency, the following three main groups of indicators can be used: indicators of the integral effect; indicators of the profitability of innovations; an assessment of the payback period.

The profitability of innovation is related to the integral effect. If the integral effect is positive, then the profitability is greater than one, and vice versa. If the profitability is below one, then the project is unlikely to be implemented.

3. The payback period of T is a fairly informative indicator when evaluating the effectiveness of innovations.

Usually, the longer the payback period, the higher the risk. During the period when the innovation pays off, so-called "overlapping innovations" may arise, which are able to cover the effect of the previous innovation for a period less than the payback period of this innovation. It is during this time that markets, prices, R & D, and technologies can change. In sectors of the economy where the share of R & D and new technologies is high, this effect is observed with particular clarity.

When the risks of economic activity are high, the payback period is the most important parameter when making decisions about innovations, since the risk should be compensated by a low payback period. In other words, it is necessary to implement "fast" projects. As a rule, such projects have a lower "knowledge intensity", but this does not mean that technological innovations are absent or impossible. The payback period represents the ratio of the initial investment in the innovation to the discounted value of the average annual cash income.

However, these indicators are not fully suitable for evaluating the effectiveness of innovations. This is due to the fact that a wider range of agents is usually involved in the creation and use of innovations. When creating an innovation, investors, research, development, design organizations, manufacturers of innovative products and their consumers are involved.

Along with this, the implementation of technological innovations has the ultimate goal of achieving better results in comparison with its analog.

The cost effectiveness of innovation is determined by the following parameters:

- costs for the development of technological innovations; total costs for the production and sale of products; revenue from the sale of products produced with the use of technological innovations;

- profit from the sale of products produced with the use of technological innovations; revenue from the sale of products; the cost of intangible assets; the cost of fixed assets; net profit;

- the average number of personnel on the list.

These indicators allow us to build a system of interrelated factors-multipliers for factor index analysis:

- costs per unit of sales volume; profit from the sale of products; net profit.

The cost effectiveness of innovation development is manifested in:

- reducing the cost of production;

- the growth of the labor stock ratio;

- the growth of labor productivity;

- increase in the volume of sales of products or sales;

- improving the profitability of sales and other production and financial indicators.

To assess the effectiveness of the development of the innovative sector of the economy, the following indicators can be used, which form a single system for measuring the (minimum necessary) innovative effectiveness of the development of any economic system (firm, large corporation, economic region, macroeconomics), therefore, they are applicable in the monitoring system of the innovative development model:

- the volume of production and the share of innovations (new products) in the volume of production;

- innovation costs and their share in the volume of capital expenditures;

- investments in fixed assets and their share in the total volume of investments (costs) of the system;

- capital intensity and capital-to-weight ratio, energy intensity and material intensity of the economic system, manufacturability (technological efficiency);

- knowledge intensity, measured by the share of R & D and innovation costs in the total amount of costs(investments), in the volume of production, sales, as well as the number of personnel employed in this field to the total number of employees;

- the TAT indicator (turn around time - "have time to turn around") is a general indicator of innovation, which measures the time from the moment of the need, which is realized and established by the subject, to the moment of overstocking this market with a new product. In fact, this indicator is a very good comparative characteristic of competitors — the efficiency of production, organization (experimental, design work, etc.), management, etc. The company that has a lower TAT will be more successful in the market sense, will master the market earlier, ahead of its competitors;

- technological intensity, measured by the number of advanced technologies (technological innovations) per employee.

The effectiveness of basic innovations, which are based on fundamental discoveries or are associated with a serious modernization of equipment and technologies in short time intervals, is extremely low, often zero at all. The effectiveness of improving and imitating innovations, and especially product

innovations — is the greatest due to the rapid payback. For a long time interval, we have the opposite situation. Innovations of types C and D usually do not exist at such an interval, they exhaust themselves much earlier. Over long periods of time, as a rule, not one, but several or many improving and imitating innovations with different effectiveness for each of them manage to occur. The size of the system (capital) that implements innovations also greatly affects which type of innovation the system "tends" to, which type is most convenient for it.

In the work" The evolutionary theory of economic change", R. Nelson and S. Winter, speaking about skillful behavior, pay attention to the fact that "...the selection of options, which usually occurs automatically, can be made deliberately or completely deviate from the skill. The changes that a deliberate choice makes in a skillful execution significantly expands the potential diversity, flexibility and adaptability of behavior, but always with additional costs in the form of preliminary involvement of conscious attention, as well as at the cost of the fact that previously smoothly flowing behavior becomes slow and clumsy."

However, pointing out that the formation and modification of routines has its "price", the researchers did not build a clear formalization of this category, which is fundamentally important. The introduction of the concept of "costs of innovation institutions" into the categorical apparatus of the evolutionary theory can be considered as one of the possible ways to answer the question of the "price" of innovations, which are relevant for any firm that has entered the path of innovative development.

We introduce a function on the basis of which it will be possible to assess the potential of the institutional costs of innovation. It is advisable to analyze the company's activities using the institutional transformation function, written as: Pi (t) = C (t), where Pi(t) is the potential for institutional changes of the i-th firm, C (t) is the costs required to change exogenous rules

This function takes into account not only the institutional component of innovation, but also the behavioral one, determined by the costs that the firm must incur for mastering skills, as well as turning skills into deeply rooted skills, in other words, for acquiring experience in implementing and implementing innovations and its transformation. The total costs of the innovative result will

consist of the transformational and transaction costs of the emergence of innovation, and the profitability of innovation institutions will be equal to the ratio of the firm's output to the total costs of institutionalization of innovation.

Thus, the system for evaluating the effectiveness of innovations at an enterprise should be based on integral indicators, the value of which does not depend on the type (directions) of activity, organizational and legal form, scale of work and services of the enterprise, and also allows taking into account both internal and external factors affecting its innovative activity. And if we comprehensively consider the indicators of the effectiveness of innovations together with the intellectual potential of the enterprise available at the time of consideration, then a comparison of estimates for certain periods of work will show the real dynamics of the innovative development of the company. To form a system for assessing the level of "innovation" of an economic entity, a simplified scheme can be proposed.

The level of "innovation" as an aggregate indicator will be represented by the following indicators: the intellectual potential of the enterprise; the share of R & D in the total volume of work; the share of own R & D costs in total costs; the share of profit from innovations in the total profit received by the enterprise.

Of the above indicators, only the numerical expression of the elements of intellectual potential can cause significant difficulties.

The components of the intellectual potential are:

- intelligence personnel (education; knowledge; experience; creativity and skills; skills; professionalism, etc.);

- internal intellectual structure of the company (the innovative production system, the results of creative activity - patents, utility models, inventions, scientific and technological potential of archives CD, etc., databases, innovation management and innovation programs and projects);

- external intellectual structure of the enterprise (organizations of fundamental science, applied research institutes and design bureaus, customers of scientific and technical products, competitors, databases and new technologies and developments of special technological equipment).

However, any assessment of the effectiveness of innovations at the enterprise should begin with traditional assessments of the financial and economic situation of the enterprise and the dynamics of its development in

the considered time period. Indeed, what is the point of evaluating the innovativeness or effectiveness of an enterprise's innovations if the company has unsatisfactory indicators (negative dynamics) of the main parameters of activity? At the same time, it is necessary to identify clear guidelines and ways to determine such negative dynamics, since the traditional approach to the assessment based on the calculation of indicators on the balance sheet is clearly not enough for final conclusions about the innovative prospects of the subject of economic (production) activity under consideration.

Let's clarify some of the possible ways to determine the innovativeness of a business based on the data of existing changes in the quarterly balance sheets of an industrial enterprise in conjunction with other documents of economic activity.

First of all, it is necessary to note the triune nature of the very method of analyzing the effectiveness of innovations, which is a symbiosis: 1) traditional analysis of the current financial condition, 2) analysis of the effectiveness of the organization as a whole, and 3) evaluation of the innovative component in the overall result of activity.

1) The analysis of the current state is based on the analysis of the liquidity of the balance sheet of the enterprise, the security of the enterprise with its own working capital, the turnover of fixed and working capital, the profitability of various types of assets of the enterprise. At the same time, the main documents for conducting analytical work are the balance sheet and its appendices.

A comparative analysis of the dynamics of individual items of the company's balance sheet (production stocks and work in progress, receivables and payables) allows us to catch the characteristic imbalances in the work of the enterprise. The restoration of cash flow allows you to conduct an elementary factor analysis of the balance sheet liquidity by calculating: working capital, the coefficient of provision with own working capital, the coefficients of absolute, intermediate and current liquidity, etc.

The existing methods of analyzing the magnitude and dynamics of various indicators of liquidity, as well as the magnitude and dynamics of the profitability of the enterprise, capacity utilization, the structure of working capital and short-term debt can give a general idea of the reliability of the

economic condition of the enterprise. An important feature in this sense, when assessing the state of an innovative enterprise, is the presence of internal (for example, technological) reasons that reduce its liquidity indicators. One of these reasons may be the inclusion in the short-term debt of the article "advances received" for a significant period of the production cycle. Therefore, when calculating the current liquidity ratio, part of the "advances received" associated with the over-usual cycle duration should be deducted from short-term debt, etc.

2) Analysis of the effectiveness of activities, including: analysis of the behavior of costs and methods of their distribution, budgeting and monitoring its implementation, calculating the cost of products and products, determining the critical point of production and sale of products, is carried out using the design, technical, economic and other necessary documentation of the enterprise.

In contrast to the analysis of the current financial condition, the analysis of the efficiency of the enterprise's activities carried out in parallel with it is based on a comparison of the dynamics of products and resources spent on its production (labor productivity, material consumption, capital intensity, the turnover coefficient of working capital and some other indicators) for the estimated period of activity. Comparing the dynamics of product growth with the dynamics of resources (costs), it is possible to determine the nature of economic growth, which is achieved in an extensive or intensive way. The excess of the growth rate of production over the growth rate of resources or costs indicates the growth of production in an intensive way.

These areas of innovation activity specify the types of innovations in an industrial enterprise. Here an important problem arises regarding the definition of the volume of innovation activity. The principle is known from economic synergetics, according to which a change in control parameters leads to a change in the state of the system and even to its disorganization. Consequently, these areas of innovation can individually lead to a certain imbalance in the activity of the enterprise and, of course, reduce the parameters of financial stability and solvency. The implementation of most of the directions will certainly provide such an outcome, i.e. the probability of increasing system dysfunction will increase significantly. In this regard, it can

be assumed that innovative activity is provoked either by a hopeless situation, when the enterprise has "nothing to lose", and it takes a great risk of introducing innovations, or when the financial and economic state of the enterprise allows you to calmly plan and manage the innovation process that systematically improves the position of the enterprise and ensures its growth. This aspect is especially important in enterprises that create means of production, for example, special technological equipment.

The introduction of breakthrough technologies in most cases is inextricably linked with the need to create new (or significant, deep modernization of existing) technological equipment (specially designed for the implementation of this technology). A good example is such time-demanded industries as electronic engineering, vacuum, nuclear engineering, etc., as a rule, represented by a number of research institutes, design bureaus and factories that develop and produce special technological equipment (SRT). The principle uniting these enterprises and organizations is active innovative activity aimed at creating new technologies and service stations for their effective implementation.

The development of high-tech technologies in different countries has, despite all the existing differences, some common negative features: instability over time, high costs of innovation, unpredictability of consequences, including market prospects. Usually innovations are accompanied by high commercial risks and overestimation (underestimation) of the expected result. An illustrative example of such an innovative market is the market of special technological equipment.

The effectiveness of an innovative project is a category that reflects the project's compliance with the goals and interests of its participants. In this regard, it is necessary to evaluate the effectiveness of the project as a whole, as well as the effectiveness of participation in the project of each of its participants.

The effectiveness of the project as a whole is evaluated in order to determine the potential attractiveness of the project for possible participants and search for sources of funding. It consists of the socio-economic efficiency and commercial efficiency of the project.

The effectiveness of participation in the project is determined in order to verify the feasibility of the project and the interest of all its participants in it and includes:

- effectiveness of organizations ' participation in the project;
- project investment efficiency;
- the effectiveness of participation in the project of higher-level structures, including: regional and national economic efficiency, sectoral efficiency, budget efficiency. This methodological approach is due to the following considerations. The effectiveness of the project as a whole, based on the "Methodological Recommendations", should be evaluated in order to create interest among investors in financing the project. The main purpose of evaluating the effectiveness of the project as a whole is to advertise its attractiveness to possible participants and search for the necessary sources of funding. Therefore, the search for investors is, according to the developers of the "Methodological Recommendations", the most important and independent task, and it should be solved at the first stage of design. To do this, it is necessary to convince potential investors to become real creditors, taking into account the reasoned information about the high efficiency of the project.

The general scheme of efficiency assessment. The effectiveness of the project is evaluated in three stages:

- at the first stage, an expert assessment of the social significance of the project is carried out. Large-scale, national (national) and global projects are considered socially significant;
- at the second stage, the performance indicators of the project as a whole are calculated. The purpose of this stage is an integrated economic assessment of project solutions and the creation of the necessary conditions for finding an investor. For local projects, only their commercial efficiency is evaluated and, if it turns out to be acceptable, it is recommended to proceed directly to the second stage of evaluation. For socially significant projects, their socio-economic efficiency is evaluated first of all. If the assessment is unsatisfactory, such projects are not recommended for implementation and cannot qualify for state support. If their socio-economic efficiency is sufficient, their commercial efficiency is evaluated;

- the third stage of the assessment is carried out after the development of a financing scheme. At this stage, the composition of participants is clarified and the financial feasibility and effectiveness of participation in the project of each of them are determined (regional and sectoral efficiency, the effectiveness of participation in the project of individual organizations and shareholders, budget efficiency, etc.).

Thus, the general principle of evaluating the effectiveness of innovation activity is to compare the effect (result) from the application of innovations and the costs of their development, production and consumption. The effect of the application of innovations can be characterized by the rate of profit, which, on the one hand, may consist of savings from cost reductions, and on the other - from price increases as a result of the new quality of innovative products. The application of methods for evaluating the effectiveness of an innovative project in the practice of management activities of innovation management will allow formalizing the process of making a managerial decision on the feasibility of selecting an innovative project for implementation. The proposed methodological approach will provide a more reasoned choice of financing alternatives in favor of a specific innovation project, taking into account the acceptability of the criteria for the success of innovation, the degree of readiness of the enterprise to conduct future innovation activities and the importance of innovation for the socio-economic development of the region and the national economy as a whole.

Questions for self-control on section 8

1. What indicators should include methods for evaluating the effectiveness of innovations should include indicators?

2. The effectiveness of the cost of mastering innovations is manifested in the fact that...?

3. The triune nature of the method of analyzing the effectiveness of innovations is that...?

4. What determines the effectiveness of participation in the project?

5. What is the general scheme for evaluating efficiency?

Conclusion

Methodology is the teaching about the organization of human activity. But not every activity needs the organization and application of the methodology. Productive activity is aimed at obtaining an objectively new or subjectively new result. The activity aimed at obtaining an objectively new result is called creativity. But productive activity can often destroy previous stereotypes, so the term "ordering activity" is used to obtain a subjectively new result. In this sense, it is necessary to proceed from the fact that any research activity is always aimed at obtaining an objectively new result. At the same time, the innovative support of project and, especially, research activities has always caused a critical attitude, since the very meaning of the innovative methodology was not specific and rather vague. In this textbook, the main concept is the concretization of innovative methodology, which allows the most systematic way to combine the directions of creative activity in such areas as the media sphere, the modern educational environment, project activities, innovative pedagogy, etc.

Literature

1. Alexandrova T.V., Zhukovskaya S.L. Razrabotka metodiki mnogokriterial'noj ocenki ehffektivnosti innovacionnyh proektov [The development of method for multi-criteria evaluation of the effectiveness of innovative projects]. Vestnik Tomskogo gosudarstvennogo universiteta. Ekonomika-Tomsk State University Journal of Economics, 2018, no 44, pp. 233-246.

2. Analysis of innovative activity of the Russian Academy of Sciences /V.M. Buznik [et al.]/Innovations. - 2005. - No. 3–p. 3.

2. Andreychikov A.V. Strategic management in innovative organizations: system analysis and decision-making / A.V. Andreychikov, O.N. Andreychikova. - M.: University. textbook: INFRA-M, 2013. - 394 p.

3. Akhinov G. State regulation of innovative activity in the social sphere / G. Akhinov, D. Kamilov/Problems of theory and practice of management. - 2013. - No. 9. - pp. 22-28.

4. Batukova L.R. On the issue of innovative modernization of the socio-economic system of the region / L.R. Batukova//Regional economy: theory and

practice: scientific, practical and analytical journal. - 2013. - No. 11. - pp. 37-47.

5. Goicher O.L. Improving the efficiency of management of institutions in the structure of investment policy of the region / O.L. Goicher/Regional Economy: theory and practice. - 2012. - No. 1. - p. 24-29.

6. Dolzhenko, R.A. Innovations in personnel management in a commercial bank: monograph/R. A. Dolzhenko; Alt. Institute of Labor and Law (phil.) Educated. institutions of trade unions "Academy of Labor and Social. relationships". - Barnaul: Azbuka, 2012. - 177 p.

7. Yelkina E.E. Methodological problems of innovation activity//The Biblosphere. - 2008. - No. 4. - pp. 10-14.

8. Zedina Yu. Public-private partnership in the strategy of innovative development of Russian regions / Yu. Zedina // Federalism: A Theory. Practice. - 2013. - No. 1-p. 121-130.

9. Ivanus A.I. Harmonious innovation management/A. I. Ivanus; preface by Dr. of Technical Sciences, prof. A. P. Stakhov. - M.: URSS: LIBROCOM, 2011 – - 247 p.

10. Isyanbayev M.N. Structural and technological modernization of the regional economy: the essence, state, problems/M. N. Isyanbayev //Regional economy: theory and practice. - 2013. - No. 12. - p. 2-9.

11. Kozilova L.V., Senatorova O.Yu. Professional activity of teachers with the use of pedagogical innovations in the conditions of the modern educational environment: A textbook. MPSU, VIPK of the Ministry of Internal Affairs of Russia. Tambov: LLC "Consulting company Yukom", 2018. - 80 p. DOI: 10.17117/mon. 2018. 01. 02 https://ukonf.com/doc/mon.2018.01.02.pdf

12. Kotenko V.P. Basic concepts of traditions and innovations in science//Innovations and traditions in science / ed. V. P. Kotenko. - St. Petersburg: Publishing house of SPbGETU-LETI, 2004. - pp. 27-48.

13. Mannapov A. System of management of innovative activity in the organization/A. Mannapov/Problems of theory and practice of management. - 2013. - No. 6. - pp. 98-104.

14. Myzrova O.A. Development and current state of the theory of innovation//Innovations. - 2006. - No. 7. - p. 82.

15. Musarsky M.M. Modern trends and forecasts of economic development: the service sector. Monograph. - Moscow, 2016./M.M. Musarsky, E.D. Platonova, O. A. Igumnov, A.V. Kashepov, V. P. Kuznetsova, etc. - 184 p.

16. Musarsky M.M. Features of the use of innovative technologies in the teaching of economic disciplines (on the example of the discipline "Financial literacy" /M.M. Musarsky, E.D. Platonova/ Modern education: vectors of development. Innovative approaches to the teaching of social and humanitarian disciplines. Materials of the IV International Conference. Under the general editorship of M.M. Musarsky, E.A. Omelchenko, A.A. Shevtsova. 2019. - p. 123-133.

17. Innovations in modern scientific knowledge: theses of the scientific conference, St. Petersburg, February 3-4, 1997 / SPbSETU-LETI. - St. Petersburg, 1997.

18. Entrepreneurship and innovations: regional priorities and development prospects / V.V. Chermyanina, S.P. Lyakishev. - Barnaul: Azbuka, 2012. -210 p.

19. Development and decision-making in innovation management/I.L. Tukkel. - St. Petersburg: BHV-Petersburg, 2011. - 342 p.

20. Rodionova N.D. A network approach to managing the development of the innovative sphere of the region / N. D. Rodionova // Regional economy: theory and practice. - 2013. - No. 4. - pp. 46-51.

21. Reimer V. The innovative system of Russia: management problems and prospects. Reimer, A. Breusov / / International Agricultural Journal. - 2013. - No. 2. - pp. 3-6.

22. Sannikova I.N. Assessment of the innovative potential of an enterprise for development management / I. N. Sannikova, E. V. Tatarnikova//Management in Russia and abroad. - 2013. - No. 3. - pp. 57-64.

23. Trachuk A. Innovative strategy of the company / A. Trachuk /Problems of theory and practice of management. - 2013. - No. 9. - pp. 75-83.

24. Filobokova L.Yu. Innovative approaches to managing the competitiveness of small business /L. Yu. Filobokova, O. V. Grigorieva//Management in Russia and abroad. - 2013. - No. 4. - pp. 52-57.

25. Shevchenko T.A. Innovative marketing in the conditions of local self-government / T. A. Shevchenko // The practice of municipal management. - 2013. - No. 4. - pp. 85-95.

ISBN 978-1-300-15283-5

Printed Sheets 7,1
Edition volume 0.8 MB
Electronic edition design:
LEO Professional Science, mail@scipro.ru
Date of placement: 30.07.2021
URL: http://scipro.ru/conf/Textbook.pdf