

APPROACHES TO MANAGEMENT, METHODS AND MODELS OF ESTIMATING ENTERPRISE EFFICIENCY UNDER CONDITIONS OF INNOVATIONAL TRANSFORMATIONS

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***Abstract:** The main goal of the article is to develop methodological provisions and to improve tools to manage an enterprise under conditions of innovational transformations.*

The methodological basis of the research included the system approach, synthesis and analysis, grouping and generalizing of theoretical and practical materials, methods of economic analysis, as well as general scientific methods (dialectical, abstract and logical, statistical, functional and structural and level).

It is possible to single out the following most important scientific results of the conducted researches:

- *15 scientific approaches to managing the enterprise under conditions of innovational transformations were systemized and described,*
- *A system of estimation indicators that characterizes scientific and technological activity of the enterprise under conditions of innovational transformations was developed, and*
- *Basic problems of implementing innovational transformations at national enterprises were revealed.*

The conducted research is practically important because the obtained results can be used as theoretical basis when planning and implementing the strategy of innovational development of the enterprise for the purpose of increasing the efficiency and strengthening competitiveness.

***Keywords:** Innovational transformations, scientific approaches to management under conditions of the innovational environment, indicators of the innovational activity estimation, problems of managing innovational transformations.*

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1. INTRODUCTION

The change of priorities in the economy actualizes the transfer of enterprises to the innovational way of development and focus on the need of the modern market and high competitiveness of the environment. In order to achieve high competitiveness, manufacturers need to focus their attention on the development of the science-driven, innovational production that meets the needs of the internal and external markets.

The research of peculiarities related to managing the enterprise under conditions of the innovational environment becomes especially important for economic entities because the efficiency of their functioning depends on it.

Theoretical and methodological issues of the enterprise management under conditions of innovational transformations were put in works of classicists of economic theory: I. Ansoff, K. Bowman, P. Doyle, P. Drucker, M. Porter, B. Lundvall, R. Nelson, B. Santo, B. Twiss, and J. Schumpeter.

Various aspects of improving the enterprise management under conditions of the innovational environment were considered in works of national authors. It is necessary to mention works of O.S. Vikhanskiy, L.I. Abalkin, I.T. Balobanov, S.V. Valdaitsev, S.D. Ilienkova, P.N. Zavlin, R.A. Fathutdinov, V.G. Medynskiy, A.E. Varshavskiy, V. Kovalev, A. Rumiantsev, A. Porshnev, and R. Fedosova.

In spite of the fact that a lot of works are devoted to this aspect of managing the development of economic entities, issues of theoretical and methodological nature on organizing the enterprise management under conditions of innovational transformations and estimating the efficiency of the enterprise innovational activity, etc. are still little researched.

That is why the problem on studying and developing theoretical recommendations to improve the system of enterprises management under conditions of innovational transformations is actual.

Management of innovational transformations acquires a special meaning under the modern economic conditions. It has an impact on the strategy, goals and methods of managing economic entities.

2. METHODOLOGY

2.1. Possible Approaches to Management

At the modern stage the efficiency of the enterprise management directly depends on the stipulated choice of the methodology to solve problems. In spite of the variety of scientific approaches, it is possible to observe that only some of them are applied in the management of modern enterprises. Namely they include the system, behavioral, and marketing approaches.

Along with this, the analysis of theory and practice of managing economic entities enabled the authors to single out 15 scientific approaches to managing enterprises

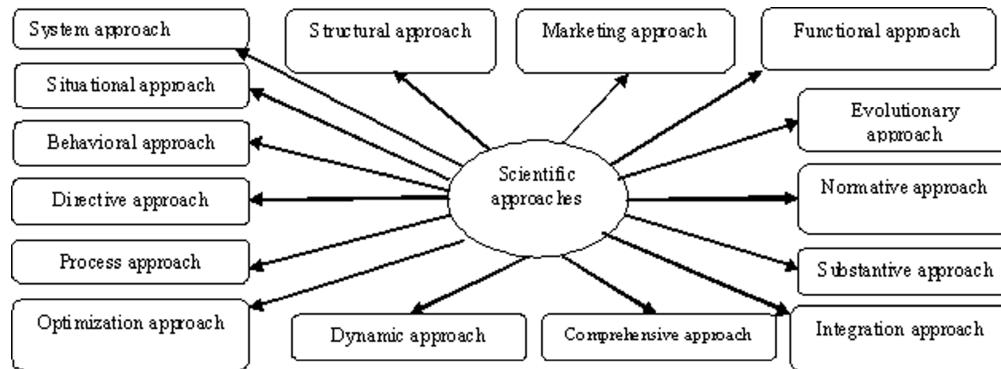


Figure 1: Research Approaches to Managing Economic Entities under Conditions of Innovational Transformations (Author's Systematization)

under conditions of the innovational environment that are used in practice. Figure 1 shows them.

Each of the approaches accounts for a specific aspect of management. Thus, the approaches are not doubled and have different nature. Under conditions of innovational transformations, each approach bears its specific loading in the enterprise management.

Short content of each approach to managing enterprises under innovational conditions that can be applied depending on peculiarities of the development process is described below.

2.2. System, Structural, Marketing, Functional, Substantive, Reproduction, and Standardizing Approaches

1) The system approach is the methodology of researching economic entities as systems. It takes into account factors of the external (connection with the external surrounding of the entity) and internal environment (combination of interrelated elements that account for the process of the management subject's impact on the entity, transformation of incoming resources in the result to achieve the system goals) (Lapygin, 2014).

2) The structural approach is mainly applied when studying the expenses (results) structure.

In economy the structural approach is found in studying the structure of any entity that is taken as 100. Then this whole is divided into components and depending on the volume the ratio of each one is defined.

This approach is less known and applied in the management of innovational transformations. In practice top managers or managers choose one of the alternative statements being guided by the "either... or" principle. Thus, for example, economic

methods are used instead of administrative methods, liberal style of management is chosen instead of authoritative, etc. The above method of solving problems is rather categorical because only extreme points are considered. In practice it happens rather seldom. That is why it is recommended to use the structural approach by setting priorities, determining the importance of one indicator as compared to another in their total aggregate, and to calculate the correlation of various factors.

3) The marketing approach anticipates the directionality of the management system in solving any issues directly on the consumer. Thus, the choice of innovational transformations in the marketable line is based on the analysis of the existing and forecasting of possible needs of clients of this product or service, and analysis of the competitiveness of one's own products and products of competitors. It is recommended to use the marketing approach when solving any issue in any subdivision of the enterprise.

4) The functional approach in management anticipates the considering of the formed need as an aggregate of some functions that must be fulfilled. It will lead to meeting this need. After defining functions, they develop several alternatives of innovational transformations are developed, and one of them is selected. It anticipates a smaller quantity of the aggregate expenses per unit of its useful effect of the innovation (Miheeva, 2008).

It is recommended to apply the functional approach together with the system, marketing and reproduction approaches. It is observed in the practice of the world leading companies that apply the above methods in aggregate and produce qualitatively new products that to the most meet new needs of their clients. Under this approach, stages related to developing the object of innovational transformations include the need – the required management functions to create the object to meet it – indicators of the innovational object – changing (correcting) the management system at the enterprise.

At the present time this chain of stages is shortened because in the majority of cases when managing innovational transformations the substantial approach is used. It anticipates the improvement of the object that already exists.

5) The substantial approach, as mentioned, anticipates innovational transformations in the object that already exists. That is why scientific references note that, when applying this approach, managers cannot enter the world level in innovations because they only overtake scientific and technical progress but do not contribute to its development.

6) The reproduction (evolutionary) approach is focused on continuous renewal of production of the object of innovational transformations to meet the occurring needs. This approach is focused on constant improvement of the object production that is required for meeting the clients' needs with fewer expenses per unit of useful effect as compared to the aggregate expenses of the best analogue on the market under consideration (Fathutdinov, 2000).

7) The essence of the normative approach is expressed in developing regulatory standards of management for all subsystems of management.

Regulatory standards are components of standards that characterize

- Intensity of using the element of standardizing when performing production processes per unit of mass, volume, area, capacity, productivity, number, etc.,
- Volume of technological losses and wastes according to types of production processes,
- Sizes of deductions from income (economic standards), and
- Composition and structure of the personnel needs (social standards).

The developed standards must comply with the requirements of efficiency, stipulation, comprehensiveness, and perspective of using according to the range and time factors.

The stipulated and quantitatively expressed standards in management are a guarantee of its organized nature, high level of automation, strategic planning, and regulation on all levels of management. Standards allow to unify processes, and decrease the time of innovational transformations.

2.3. Integrational, Comprehensive, Dynamic, Process, Optimization, Directive, Behavioral, and Situational Approaches

- 8) The integration approach is focused at the research and increase in interrelations:
- a) Between individual subsystems and components of the innovational management system,
 - b) Between stages of the life cycle of the management object (production, management, research and development works, etc.),
 - c) Between vertical management levels (region, city, economic system, its subdivisions, departments), and
 - d) Between horizontal management subjects.

The term "integration" means strengthening of subjects' cooperation, and deepening of the interrelation between components of the management system.

Thus, the managing subsystem sets specific indicators of functioning according to terms, quantity, quality, resources expenses, etc. to other subdivisions of the economic system. On the basis of fulfilling the set tasks, general target goals are achieved because the coherence of the above indicators allows to provide for the operational efficiency of management and rationality of using resources.

Integration provides the economic entity with additional possibilities to improve the quality of the manufactured products and to enhance the interrelation of the management elements. It is observed due to horizontal expanding of cooperation of

individual firms, organizations, and establishments that render various services, and strengthening of the interrelation according to the “you help me, and I help you” principle.

The use of the integration approach in the innovational management provides the economic entity with great opportunities to form new competitive advantages and improve the management system.

9) The comprehensive approach. It takes into account technical, economic, organizational, social, ecological, and other aspects of management, as well as their interrelations. The efficiency of innovational transformations will be insignificant or negative even if the decision is the most rational but, for example, some management aspects are omitted.

10) The dynamic approach. When using it, dialectics of the management object development is studied, causal relationships are analyzed, behavior of analogues for several years is analyzed, and based on the results, the development of the object is forecasted for some period.

11) The process approach consider management functions jointly with the interrelated actions (processes) on planning, activity organization, motivation, accounting, and control (Makhovskiy and Pateshman, 2013).

12) The optimization approach. It means the use of engineering calculations, mathematical and statistical methods, points-based system, expert estimations to transfer from qualitative to quantitative estimation. When planning innovational transformations, it is necessary to use more accurate methods of forecasting and management decisions analysis. It is more rational to use the additional unit of currency (time) today to increase the accurateness of forecasts than to lose much more tomorrow because of low quality management decision.

13) The directive approach. With this approach, rights, obligations, functions of the management subjects, expenses standards, quality, and terms of innovational transformations are regulated. This approach is reflected in enactments (orders, standards, instructions, decrees, provisions, etc.) (Fathutdinov, 2000).

14) The behavioral approach is focused on providing the employee with assistance in understanding his creative obligations and his own opportunities. The key goal of the behavioral approach is to increase the efficiency of the economic system due to increasing the efficiency of using its human resources. Rational use of the behavioral theory will undoubtedly contribute to improving the efficiency of not only separate employee but the whole economic system of the enterprise as a whole. For the set goals to be achieved, the top manager must coordinate the personnel’s work and stimulate people to efficiently fulfill the set tasks.

15) The situational approach means that applying of various management methods directly depends on peculiarities of a specific situation. According to this approach, the most efficient method in a specific situation is the method that complies to the

maximum with the current state of affairs and specific situation. The situational approach is based on selecting alternative variants of achieving the same goal when taking and carrying out a management decision. For the final choice, taking into account all possible unpredictable situations is extremely important (Popova, 2002).

They single out the following features that have an impact on changes of specific situations:

- According to the content – economic, technical, organizational, and other,
- According to the type of the management decision in time – strategic, tactical, immediate, and
- According to the type of provision and methods of fulfilling management decisions.

3. RESULTS

3.1. Types of Effects of Innovational Transformations

Innovational transformations have various impacts on the position of the enterprise. That is why when estimating all possible consequences, it is necessary to take into

Efficiency of the enterprise activity	
↑	
Effect of innovational development is a result of innovational activity of the enterprise	
→ Scientific effect	Discovering of phenomena of the material world that were unknown before, regularities of its formation or development, defining opportunities of their practical applying in the activity of machine-building enterprises, revealing parameters and indicators of applying results of scientific researches.
→ Technical effect	Appearance of new equipment and technologies, discoveries, inventions, know-how, etc. Obtaining a competitive advantage by creating or improving equipment and technological systems, service instruments and other production resources. Increase in the coefficient of the production automation.
→ Economic effect	Increase in the labor productivity and decrease in the labor intensity, material intensity and net cost of products, reduction or saving of resources for products manufacturing or service production, decrease in expenses for managing, growth of profits and profitability.
→ Social effect	Development of the human factor, growth of qualification and change of the professional composition of personnel, improvement of labor conditions and increase in its safety. Growth of material and cultural level of life.
→ Ecological effect	Increase in the ecological level of the manufactured products, decrease in production wastes contribute to the decrease in the environment pollution.

Figure 2: Types of Effects of Enterprise Activity under Conditions of the Innovational Environment (Author's Systematization)

account types of results. The required criterion of the transfer to the innovational way of development is the obtaining of the positive effect. Its basic types are shown on Figure 2 (Vasilionok, 2010; Fathutdinov, 2012; Ilienikova, 2014)

3.2. Approaches to Estimating Enterprise Activity under Conditions of Innovational Transformations

Management of innovational transformation at the enterprise requires the estimation of such indicators as economic efficiency, competitiveness, resources of financing, expenses, risk level, etc. The methodology of efficient management of innovational transformations at the enterprise must be based on the estimation system of indicators of the innovational activity efficiency.

In spite of numerous works and researches of foreign and national researchers in solving the problem of innovations management, there are no unified methodological tools at the present time. It proves the necessity to perform further work on forming the model related to estimating the efficiency of the modern enterprise functioning under conditions of innovational transformations (Gonin et al., 2014).

The development of the system of indicators related to estimating the modern enterprise functioning under conditions of innovational transformations can be based on the analysis and systematization of the existing methodologies and approaches.

The scientific economic references offer various indicators of efficiency, performance, analysis of economic activity, financial stability, competitiveness of the enterprise, system productivity, etc. as tools to estimate the enterprise functioning.

Thus, it is necessary to note that there are various approaches to analyzing and estimating results of the enterprise activity. They are shown in Table 1 (Chernov, 2012).

Table 1
Basic Approaches of National Researchers to Estimating Enterprise Activity under Innovational Transformations

<i>Approach</i>	<i>Basic characteristics of approach</i>
Production	It lies in the estimation of production indicators that characterize economic and innovational activity of the enterprise.
Cost-based	It is characterized by general expenses and expenses for implementing innovational transformations, in particular.
Integral	It is based on the comparison of expenses and results of production. The numerator of such generalized estimation is the obtained profit, and the denominator is indicators of the spent fixed, current assets, means for labor payment, and other.
Personnel	It considers in more details the spent labor resources, efficiency of management on all levels.
Resource and potential-based	It is based on the estimation of economic and innovational potential of the enterprise.
Qualitative	It is made exclusively according to qualitative indicators and criteria
Purposeful	It lies in quantitative and qualitative estimation of the enterprise goals achievement

3.3. Summary Systematization of Indicators of Research and Innovational Activity of Enterprise under Conditions of Innovational Transformations

Based on scientific publications in economic literature, we systemized the existing methodologies of estimating the results of the enterprises activity under conditions of the innovational environment according to the criteria we offered:

Table 2
Summary Systematization of Indicators Characterizing Research and Innovational Activity of Enterprise under Conditions of Innovational Transformations (Author's Systematization)

<i>Group</i>	<i>Subgroup of indicators</i>	<i>Indicators</i>
Resourceful indicators	1. Material and technical provision: fixed assets renewal,	<ul style="list-style-type: none"> – Capital-labor ratio, – Coefficient of – Level of manufacture automation, – Accessibility and reliability of means resources, and – Investment activity and attractiveness.
	2. Labor resources:	<ul style="list-style-type: none"> – Workforce productivity, – Level of management qualification, and – Readiness of personnel to novelties.
Financial indicators	1. Liquidity ratio	<ul style="list-style-type: none"> – Liquidity coefficients, – Coefficients of payment capacity loss/recovery.
	2. Financial stability indicators	<ul style="list-style-type: none"> – Financial independence coefficient, – Coefficient of provision of current assets with own means
	3. Business activity indicators	<ul style="list-style-type: none"> – General turnover coefficient, – Turnover coefficients (mobile means, reserves, debtor and creditor indebtedness), and – Turnover period.
Management indicators	1. Management efficiency	<ul style="list-style-type: none"> – Profitability of sales, assets, investments.
	2. Organization and technology of management	<ul style="list-style-type: none"> – Flexibility of management structure, – Share expenses for management, – Completeness of researching sales markets, – Competitiveness level, – Level of development of sales channels, and – Level of advertising activity.
Innovational indicators	1. Innovational activity	<ul style="list-style-type: none"> – Share of personnel involved in research and development works, – Share of expenses for research and development works, – Level of demand of results of the research and development works, and – Percent of novelties put into operation.
	2. Economic results of innovational activity	<ul style="list-style-type: none"> – Saving expenses as a result of implementing innovations, – Turnover of innovational investments, and – Profitability of innovational products.

- 1) According to the content (methodology of analyzing the economic activity, efficiency, stability, competitiveness estimation, etc.).
- 2) According to indicators groups (general economic and functional, generalizing and particular, quantitative and qualitative, indicators according to key parameters: production, finances, personnel, marketing, and indicators according to separate business processes).
- 3) According to the goal of using (methodology of estimating for planning and forecasting, analysis, management, monitoring and control, methodology of estimating financial state, investment attractiveness, etc.).
- 4) According to the level of planning and management (strategic, tactical, immediate indicators).

Having generalized various methodologies and systems of the indicators specified in the national scientific literature and used in the practice of Russian enterprises, we made a system of indicators that characterize scientific and technological activity of the enterprise under conditions of innovational transformations (Table 2). This system is based on quantitative and qualitative indicators of results of research and development works, results of the innovational activity, and resources spent for their performance.

3.4. Indicators of Estimating Efficiency of Enterprise Activity within Functional Blocks under Conditions of Innovational Environment

The following groups shown in Table 3 are singled out among the indicators of the estimation of the efficiency of enterprises under conditions of the innovational

Table 3
System of Indicators Related to Estimating Efficiency of Enterprise Activity under Conditions of Innovational Environment according to Functional Block (Author's Systematization)

<i>Groups</i>	<i>Indicators</i>
Cost-based indicators	<ul style="list-style-type: none"> – The ratio of expenses for research and development works in the volume of sales (research intensity of the manufactured products), – Expenses for acquiring patents, licenses, know-how, – Structure of expenses for stages of the innovational cycle: research and development works, design and development work and production, comparison with the practice existing in the area, and – Availability and volume of funds for the development of innovational creations.
Indicators characterizing dynamics of innovational process	<ul style="list-style-type: none"> – Indicator of TAT (turn-around time) innovativeness. This indicator reflects the period of time since the moment of occurrence of demand for new products till the moment it is forwarded to the buyer (Kossov, et al., 2000); – Duration of the process related to developing a new product of technology,

(contd...)

(Table 3 contd...)

<i>Groups</i>	<i>Indicators</i>
	<ul style="list-style-type: none"> – Duration of the process related to preparing the production of a new product, – Duration of the production cycle of a new product, – Ratio of developments based on marketing researches, – Ratio of commercially successful projects in the total amount of developments, and – Ratio of initiative development of research and development works subdivisions that were successful on the market due to the successful marketing policy (formed demand for the invention or product)
Renewability indicators	<ul style="list-style-type: none"> – Indicators of the dynamics of the products update (ratio of products manufactured from 2 to 10 years in the total volume) – Quantity of developments and implementation of novelties, – Number of the acquired (sold) new technologies, and – Volume of export of the innovational products.
Structural indicators	<ul style="list-style-type: none"> – Composition and quantity of researching, developing and other scientific and technical structural subdivisions (including experimental and text complexes), – Composition and quantity of joint enterprise involved in the use of a new technology and creation of new products, and – Number and structure of employees involved in the research and development works, and – Composition and number of creative initiative timely teams and groups.

environment that are wide-spread in the Russian and foreign practice (Goncharova, 2016).

It is offered to use the system of indicators related to the efficiency of innovational planning of enterprises development. Herewith, the estimation is made in accordance with the methodological approach according to the international standard ISO 9000:2000 (Table 4).

In the process of estimating the efficiency of the enterprise activity in the innovational environment, planning of the innovational development and estimation of its efficiency is especially important. When estimating the efficiency of innovational planning, it is possible to widely use such generally known economic indicators as products price, cost of production, activity content, material intensity of a product, prime cost, profit, cost-effectiveness, resources economy, payback period, etc. Selecting of various economic indicators for estimating the efficiency of planning the enterprise innovational development depends on the selected strategy, target goals and expected results from their implementation (Ryzhkova and Gorelova, 2013).

4. Discussion

4.1. Providing Innovational Transformations

At the modern stage of the market development, the methodological component of estimating the efficiency of the enterprise activity under the conditions of the

Table 4
System of Indicators Related to Efficiency of Innovational Development of Enterprise under Conditions of Innovational Environment (Author's Systematization)

<i>Estimation area</i>	<i>Group of indicators (indicator)</i>	<i>Calculation method</i>
Weight of innovational planning in terms of all production	Relative value of volumes of selling innovational products, percent	Ratio of the volume of innovational products sales to the total volume of the enterprise sales during the accounting period
	Relative profit from selling innovational products, percent	Ratio of profits from selling innovational products to total profit from selling goods of the enterprise during the accounting period
Time factor that influences the competitiveness of the innovational development	Term of the cycle of applied and marketing researches, months	Period from establishing needs of consumers to manufacturing innovational products
	Term of the development and design cycle, months	Period from the project launch to the beginning of preparing the manufacture of products
	Term of the preparation, production reclaiming, and organization cycle, months	Period from the end of marketing researches to the target manufacture of products
Quality of the innovational products	Estimation of the products quality by consumers, points	Quality as compared to analogous products and substitutes
	Availability of refusals during the warranty period, pcs.	Quality of the registered refusals form the innovational products

innovational environment is an important and rather actual issue. The transfer of enterprises to the innovational concept of development requires accurate formalization of methods and algorithms of planning and estimating of novelties that provide the efficiency of investing in innovational practice.

As the world practice shows, economic systems of the developed countries can be fairly considered as exporters of innovations because they provide economic entities of other countries with possible patents, know-how, licenses and other obtained results of scientific researches and technological developments. As a rule, innovational importers are states that are less developed and acquire results of research and development and engineering works.

Under the whole so called national difference of the production and management activity of economic entities, they single out three types of approaches to providing innovational transformations represented in Table 5 (Ponomareva, 2013).

As national economist researchers note, in the Russian Federation it is possible to observe a special situation with innovational transformations. That is why since the beginning of the XXI century they single out an individual approach to managing innovations – passive and active. Above all, this approach is characterized by the fact

Table 5
Characteristics of Approaches to Providing Innovational Transformations

<i>Approaches to managing innovational transformations</i>	<i>Characteristics</i>
Active approach is observed in economic systems of the developed countries (countries of the North America, Western Europe, Eastern Asia – Japan, China, etc.)	<ul style="list-style-type: none"> – Active operation on developing and implementing innovations, – Development of research, technical and technological basis in the country, – Acquisition of the most progressive foreign developments, and – High support of private business.
Passive approach is observed in economic systems of less developed countries in terms of technology (countries of the Latin America, post-Socialistic countries, Egypt, Turkey, etc.)	<ul style="list-style-type: none"> – Acquisition of results of the research and engineering works of highly developed countries, – Compliance with the traditions and regulations that were formed in economic systems.
Passive and active approach is observed in the Russian Federation	<ul style="list-style-type: none"> – Acquisition of results of the research and engineering works of highly developed countries; – Growth of the innovational potential, – Active operation of management structures of all levels in the process of investing and commercialization of innovations, and – Taking management decisions in organizational processes that include all types of potential (technological, scientific, marketing, etc.).

that along with the acquisition of innovations from the exporting countries, the Russian Federation performs great work on developing and implementing national innovations (first of all, in relation to such highly technological products as space and nano developments). This approach focuses on gradual but continuous strengthening of the proper component, i.e. the growth of the national innovational potential (Adodina, 2013).

Herewith, it is necessary to emphasize the importance of applying the innovational management by enterprise of our country as a key factor in managing innovations that accounts for the development of the level of adaptation and perception of innovational transformations.

4.2. Problems Related to Managing Innovational Transformations in Russian Economic Systems

To a greater degree, the modern Russian economy is based on the production and further export of gas and oil. Stability and sustainable growth of economy can be achieved by taking substantial measures on its modernization and focused on avoiding dependence on raw materials. The process of economy modernization is based on the implementation of modern scientific achievements, developments, and progressive

technologies. The potential of the future development of economy lies in constant implementation of innovations in all areas of the economic activity of the country. The majority of industrially developed countries relate their hopes for the long-term economic growth to the transfer to the implementation of innovational transformations.

The current economic conditions make it reasonable for economic systems of the Russian Federation to adopt the best practices of Chinese and Vietnamese organizations: to apply project planning and intensive control over innovations, to develop national technological zones, to increase qualification of personnel that works with innovations, to attract foreign investments in the most developing areas, as well as in the areas that are considerable for the country safety.

We stick to the opinion that the main goal of all national developments is to solve the problem related to the country safety and overcoming of the dependence on import. Thus, first of all, investments and innovations must be applied in such areas as pharmaceuticals, food production, etc.

It is still important to solve problems related to managing innovational transformations. It is necessary to carry out innovational planning on all levels of management, thoroughly control the plan fulfillment, and improve the system of motivating and stimulating the personnel involved in creating and implementing innovations.

According to the experts, in terms of its level of developments and innovations implementation the Russian Federation yet lags behind highly developed countries, although the country has been paying a special attention to forming a high quality system of innovational support. The country management states that these are innovational transformations that must become a key reserve for developing the economy of the Russian Federation for the nearest future, the main factor of the long-term growth of the economic welfare of the country population. Besides, experts note that Russia has a great potential for the development of the innovational activity (Trunin and Sakhnevich, 2010).

This statement is also approved by the Head of the RBC I. Agamirzian. His words were published on the website of the RBC in the article "Experts Estimated Innovations Development in Russia" dated 29.10.2015: "It is possible to dispute about the efficiency of the state infrastructure of development and support of innovations because it causes some doubts in terms of a specific economic results for the share of our country on the market of high technologies is still insignificant. However, over the recent years positive dynamics has been observed. It means that the way of innovations development and technological export is the only potential of growth Russia has" (Petrov, 2015).

Thus, the share of innovational products in the Russian Federation reaches only 8-9%. To compare, in highly developed countries this indicator is above 15%. The results of national research developments are of low level of competitiveness. In the total world export of highly technological products the share of the Russian Federation is

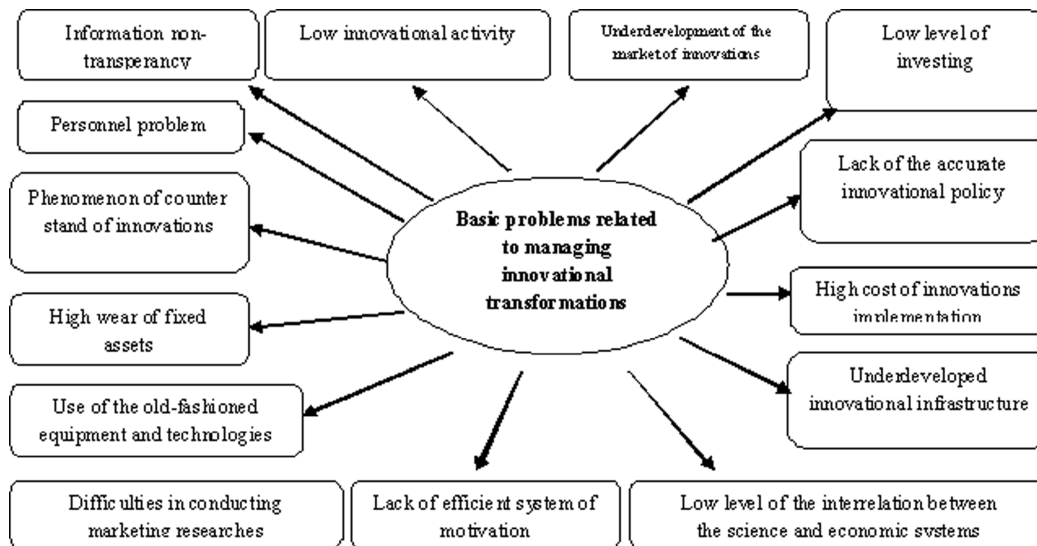


Figure 3: Basic Problems of Managing Innovational Transformations in Russian Economic Systems (Author's Systematization)

0.4%. It is necessary to note that there is positive dynamics. Thus, over 4 years this indicator has doubled. In 2010 the value of the indicator was 0.21% (Dolgova, 2014).

The Russian Federation can attract and maintain human capital much worse than innovational leading countries. In addition, under high state expenses for research and development works subject to the equal number of researches as compared to the developed countries, the Russian Federation considerably lags behind them according to the number of international patents.

In the Russian Federation the ratio of the economic systems involved in innovations is three times lower than that in highly developed countries. Herewith, the number of investments in non-material assets is almost 10 times lower than in leading countries.

Having considered and summarized the opinions of various authors, it is necessary to single out the following problems of managing innovational transformations in Russian economic systems (Figure 3).

4.3. Barriers of Innovations Development in Russia

It is possible to conditionally classify basic barriers for the developing innovations in the Russian Federation into three types:

- Markets (underdeveloped innovational infrastructure, problem of implementing results of scientific researches in production, underdevelopment of the innovations market, and high cost of implementing innovational developments) (Dolzhenkova, 2012),

- Culture (informational non-transparency, low innovational activity of personnel, HR problem, phenomenon related to the opposition to innovations, low prestige of the researcher's profession and research activity as a whole), and
- Institutes (lack of accurate, purposeful innovational policy, weak level of investing in innovations, weak level of the interrelation between the science and economic systems, lack of efficient system of motivating innovational activity) (Sobolev, 2014).

The situations considered in this work do not touch on all the problems that prevent from implementing innovational transformations in the Russian Federation and make up a rather serious threat for the process related to developing innovational activity and economy of the country as a whole.

In order to solve the considered problems, above all, thorough and comprehensive work of the governmental bodies is required. The state must work on creating favorable conditions for forming an innovational structure of economy for the purpose of involving its own and foreign investments for high quality innovational transformations. It must support the implementation of programs related to technological modernization of production and develop regulatory framework and efficient stimulating programs focused on the stimulation of entrepreneurship focused on innovations.

It has been mentioned above that in the Russian Federation the innovational infrastructure is weakly developed. However, it is possible to specify actions of the state in terms of creating the infrastructure for the development and implementation of innovations. The Skolkovo Innovational Center project is well known. This is a research and technological complex on creating and commercializing innovational developments. However, at the present time the implementation of this project demonstrates big problems. Therefore, in 2015 reporters of RBC made their research on the topic "What Happened to Silkovo" (Reiter and Golunov, 2015). According to this research, functioning of this innovational center demonstrates the following problems (Gudkova, 2016):

- Old-fashioned schemes of innovational technologies,
- Inefficiency of the Skolkovo Fund Management Council,
- Research and technological incompetence of the administrative branch,
- High administrative expenses,
- Corruption, thefts, financial violations,
- Low quality, artificial selection of projects for subsidies, and
- Lack of trust not only the project subjects themselves but also potential participants and all population of the country as a whole.

The main technological park of the country is a sort of the prototype of the Silicon Valley located in California, USA. The technological park zone that is the most successful and largest in the world reached its today's form in sixty years after its establishment. That is why it is reasonable to note that national projects are meant for the future, i.e. in order to achieve notable results of the innovational activity and high innovational indicators, not only large financial investments but also definite time are required.

Besides, the following prospective national projects of the innovational infrastructure are singled out: Kuzbass Technological Park, Naukograd, Koltsovo and technological park of the Novossibirsk Akademgorodok, Agropark in Tatarstan that was first in Russia, autonomous non-commercial organization "Krasnoyarsk Municipal Innovational and Technological Business Incubator", etc. Research and Technical Park of the Orenburg State University "OSU Technopark" established in June 2014 is the object of the innovational infrastructure that is the closest to us.

The establishment of technological parks and other objects of the innovational structure, the development of the law about innovational activity prove the beginning of one of the key national tasks of the Russian Federation – the policy of modernizing the country economy based on the "Innovational Russia (Strategy of the Innovational Development of the Russian Federation for the Period up to 2020)" project adopted in 2010.

It is possible to single out the following basic areas of the activity that will contribute to the development of innovational environment in the Russian Federation:

- Optimization of the innovations management system, coordination of the innovational policy on the level of state governmental bodies,
- Development of unified, agreed priorities of the innovational policy, development of the Strategy of the innovational development of the country taking into account the above problems,
- Preparation of the personnel resource of the innovational system, because in the center of any innovational transformations there is a person who develops and implements innovations. It is necessary to raise innovational activity and proactivity, and enlarge the prestige of research professions by measures related to popularization and increase of salaries of research officers,
- Development of a complex of measures on developing favorable environment for innovations (attracting private and foreign capital in the investment area, increasing the openness of large systems for innovations and stimulation of the national innovational export, involvement of intellectual property of state establishments in economic turnover), and
- Implementation of the unified system of innovational activity monitoring.

All measures mentioned above will contribute to creating positive environment for the development of the innovational activity in the Russian Federation. Herewith, it is necessary to take into account that the current situation on the innovational market requires serious actions and measures to solve the above problems, and the mentioned steps of the state are at the initial stage of the development and require not only efficient support but also thorough control on the part of the state power bodies.

5. CONCLUSION

These are the results of the theoretical research conducted by the article authors and related to approaches of management, methods and models of the estimation of efficiency of the enterprise activity under conditions of innovational transformations:

- Systematization of possible scientific approaches to managing economic entities under conditions of innovational transformations,
- Generalizing of types of effects of the enterprise activity under conditions of innovational transformations,
- Defining basic approaches to estimating the enterprise activity under conditions of innovational transformations (production, expense, integral, personnel, resource and potential, qualitative, and target),
- Offering an aggregate system of indicators that characterize scientific and innovational activity of the enterprise under conditions of innovational transformations (resource indicators, financial, management, indicators of the innovational activity – innovational indicators),
- Systematization within functional blocks of indicators of estimating the efficiency of the activity of the enterprise under conditions of the innovational environment (expenses indicators, indicators of the dynamics of the innovational process, updating indicators, structural indicators),
- The author's systematization of indicators of the efficiency of the innovational development of the enterprise (according to the estimation areas: weight of the innovational activity in terms of all production, time factor that has an impact on the competitiveness, and quality of the innovational products), and
- Revealing basic barriers of the innovational activity and problems related to implementing innovational transformations at Russian enterprises.

Along with this, in the declared theme of the research the authors failed to

- Develop practical recommendations for enterprises on selecting the approach to management under conditions of innovational transformations among the variety of the known ones that is the most optimal taking into account the specificity of the current conditions of the enterprise functioning. It could be a sort of a matrix of selecting among a set of variable characteristics and approaches to management recommended under these conditions.

- The authors think that further work in the area of creating the comprehensive system of indicators to estimate the efficiency of the enterprise activity under conditions of innovational transformations is important.

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