



Conceptual View of the Mechanism of Innovative Development by the Level in the Economy

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ABSTRACT

Implementation mechanism of innovative development is a very important task of modern economic theory and practice, the solution of which will allow in the long term competitiveness of the country by increasing its advantage in science, education and high technologies in the economic, scientific-technical and other fields. This article deals with some aspects of the mechanism of innovation development at the micro, macro - and meso - levels of the economy, describes the innovative company which is characterized by high-tech capabilities. The principles of managing the mechanism of innovative development at the micro level are the comparative characteristic of high-tech enterprises and traditional industries. This area is also complemented by the consideration of the main provisions of the control mechanism of innovation development at the meso level. Stand and describes specific areas of the mechanism of innovation development in the framework of macroeconomic models and the main provisions of the "triple helix."

Keywords: Innovative Development, Mechanism Innovation Firm, High-tech Industry

JEL Classifications: L60, O3

1. INTRODUCTION

The problems of the innovation development of economy in recent years have become more and more relevant. During this period, the development of Russia, in spite of the difficult economic situation, the country has never put the most ambitious and challenging objectives in principle. Such as: To ensure high rates of economic growth, efficiency and productivity. And, of course, the only possible action to achieve the strategic goals is to change the Russian economy in the innovative way of development. The importance of this issue was reflected in the speech of Prime Minister D.A. Medvedev at the plenary session of the forum "Open Innovation" October 28, 2015, which noted that "despite the rather difficult economic situation, despite the cost, this course will continue" - to support innovative growth of our economy. It has really been a state task. No alternative innovative development does exist, even in a country with huge energy reserves, a country such as Russia.

At the same time it should be noted that Russia still lags behind developed countries in terms of innovation, although in recent years the country has managed to build a system to support them. Meanwhile, it is innovation that should be the main lever of influence on the possible long-term growth of economic prosperity for Russia in the conditions of limited access to other resources and the main reserves for economic development in the near future. Despite the fact those in recent years the country has formed the basic elements of the national innovation system, the potential for innovation in the country remains huge.

The new economy is formed at a certain stage of economic development, when there is a need to change single, outdated and uncompetitive economic systems of other, more progressive. It is important to emphasize that the development of all socio-economic systems is cyclic, because each system has its own cycle of formation and development, which covers the period from its inception to destruction. The continued existence of

systems, their degree of stability due to the fact that each of them has the property of self-reproduction. If the newly formed system is no different from the previous cycle of development is called symmetric or conformal and development - extensive. If a system or a combination of elements from the new properties appears, then the cycle is called an asymmetrical imbalance and acquires the properties: The elements are available from the “old” features and elements of the new. However, the system becomes more sophisticated, and its intensive development.

Thus, important and relevant is to examine the mechanism of innovation development of the country from different perspectives: The economic entity, the sector and the state, as they are characterized by different principles of operation of this mechanism.

2. LITERATURE REVIEW

Beginning stage of the formation of the fundamental principles of the theory of innovation and serious research in this area is associated with the name of N.D. Kondratiev. Kondratiev himself was not engaged in direct analysis of innovative issues, but considered them large cycles conditions (long wave) initiated a subsequent study of the causes of these cycles and their duration. The most important reasons were found to innovation.

A significant contribution to the development of theoretical knowledge of innovative development made by such foreign economists as Schumpeter, Drucker, Mensch, Twiss and others.

Austrian economist Schumpeter in the early XX century developed the basic theory of innovation. He is in his “Theory of Economic Development” (1911) for the first time considered the “new combinations” of changes in the development and gave a full description of the innovation process. Schumpeter identifies five changes in the development of: (1) The use of new techniques, processes, or a new market to ensure production; (2) the introduction of products with new properties; (3) the use of new raw materials; (4) changes in the organization of production and logistics; (5) the emergence of new markets (Schumpeter, 1982).

Concept Schumpeter was developed and some other Western scholars, in particular the leading American expert on management Drucker in his book “innovation and entrepreneurship.” According to him, for the innovative development of the economy need to strengthen innovation, which is not technical, and economic and social concept arises from social needs, rather than the logic of the development of science (Drucker, 2007).

German scientist Mensch, based on the ideas of Schumpeter, offered its classification of innovation in order of importance. He identified two main types of innovation: Basic, improvers. Mensch considered cyclical and growth in relation to the process of reproduction of the basic innovations. With the spread of basic innovations happening exhausted its potential and creates a situation of “technological stalemate” and the stagnation in the economy (Mensch, 1975).

American economist Twiss understands innovation as a process in which the invention or idea becomes the economic content: This unique process that combines science, technology, economics and management. He is to obtain a novelty and lasts from idea to commercial reality, embracing set of relationships, production, exchange, consumption (Twiss, 2009).

Also in the development of the theory of innovation economy made a great contribution to Bell and Cannes, to develop the concept of post-industrial society (Bell, 1986). Various aspects of the present stage of development of society and the economy is seen as Galbraith (2004), Deming (2006), Jensen (2004), Crawford (1999).

Features actual innovation disclosed in the writings (Arrow, 1962; Besen and Raskind, 1991; Wright, 1983).

In Russia, since the late 1990, the problem of transition to an innovative way of involved (Abalkin et al., 2004; Dezhina, 2001; Inozemtsev, 2000; Lvov, 2002; Novitsky, 2009; Yakovets, 1993; Yasin, 2006).

Studying together different points of view on the researched topic leads to the conclusion that, due to its integrated nature, a common opinion about the mechanism of innovative development by the level of the economy in the scientific community is not yet formed, making it difficult theoretical justification to now in Russia incentives innovative development.

3. THE MECHANISM OF INNOVATIVE DEVELOPMENT WITH THE POSITION OF THE COMPANY

3.1. Micro Level

Referring to the theory of the innovative company developed Latsonik (2006). According to this theory, to generate innovative results innovative firm as opposed to optimizing firms that accept these conditions as “given” to transform the market and competitive conditions.

In addition, the innovative firm as defined conditions and does not take fixed costs of participation in the industry. At current prices of factors of production level of fixed costs characterizes the innovation strategy of the firm. In fact - It is a strategy of development of productive resources, and it is connected with the decision of the quantity and quality of these resources, in which you need to invest to develop technologies and products that are qualitatively different from those that were available earlier or to be developed by competitors.

Thus, the company creates innovative capacity to gain a sustainable advantage over its competitors and secure a leading position in its industry. It should be borne in mind that:

- Such a development of productive resources will be successful only if embodied in products and technologies with the best production quality than those that were before;
- Innovative investments entail significant fixed costs compared

to similar costs at competitors who have chosen optimization under given constraints;

- Increase in production costs is provided by the fact that the innovative firm uses in the production process a significant amount of variable resources.

However, on the one hand, the innovative company is characterized by high production capabilities (high-tech, and therefore more productive capacity) than the competition. On the other hand, for innovative firm's peculiar increase in production costs, it is characterized by a kind of competitive failure.

Therefore, we can assume that the innovative firm to overcome the lack of competition must:

- To invest in the development of productive resources, the use of which as a variable resource becomes a source of rising costs.
- To achieve a high level of utilization of productive resources developed.
- To improve access to markets to resolve the problem of handling the potential demand for their goods in real demand, which will require additional investments in distribution, sales and service, in advertising and promotion to inform and convince potential buyers exclusivity manufactured goods. As a consequence of the price elasticity of demand for the product will be reduced, as the perception of higher quality customers reduces their willingness to reduce the volume of demand with growth rates (Lazonick, 2002).

Thus, the mechanism of innovation development creates the opportunity for the company:

- Not only to expand its market share, but also to prevent competitors to gain access to customers, both now and in the future, as to when customers repeat their purchases of goods and innovative firms increase their demand for them.
- Gradually take possession of a variety of market segments, which are based on different levels of income buyers.

For example, consumers with higher incomes will be less sensitive to price changes, so the initial stage of company, manufactures innovative product has access to a segment of the market, defined by this group of customers. And to satisfy the demand of high-buyers, the firm receives revenue conducive to mass production and sales, thereby achieving access to customers with lower incomes and are therefore more sensitive to price.

If the company produces traditional products using technological innovations that improve product quality and reduce costs, in this case, the innovation strategy will be aimed initially at the low-income markets. However, in the subsequent stages of the firm may enter and for higher-yielding markets due to the advantages in the characteristics of the offered goods, which she got through technological innovations.

Next, we determine which firm (enterprise) can be classified as innovative. In our view, they should be classified as follows:

- Innovation active enterprises that produce innovations, products, and are actively engaged in research and experimental

development (R&D) for the formation of a reserve that allows to realize innovative breakthroughs in the market.

The enterprises that are receptive to innovative technologies and are able to respond quickly to technological innovations through the modernization of production facilities.

In today's economic realities, innovation is not only a company that in its purest form involved research and development and commercialization, but all the firms that were involved in the competition not at the expense of extensive development, and due to the intensification of all activities with the use of advanced management, marketing and technological approaches to business.

As you can see, modifying the existing market conditions (not taking them as a restriction of their activities), innovative companies in the market are dominant. All this is due to a modification of the structure of industry costs, the formation of an active demand for their products and the production of a significant amount of output than innovative enterprises would be able to sell at lower prices in comparison with optimizing firms in the industry.

It should be noted that the management mechanism of innovative development at the micro level should be based on the following principles:

The principle of an innovative susceptibility, based on the fulfillment of the conditions for the rapid modernization of production facilities based on the latest technology of the emerging new technological order.

The principle of innovation activity, which focuses on a generation of innovative ideas, conducting its own scientific and technological developments and their implementation in the form of innovations in the market.

Organizations that have chosen an innovative (organic) way of development, over time, be able to create and constantly develop unique competitive advantages, *trudnovosproizvodimye* competitors due to the fact that the innovation process - Is a complex and lengthy process of turning innovative ideas into a product that flows under the influence of numerous external and internal factors that at some point in time can stimulate or inhibit the development of innovative enterprises.

In fact, innovative development is a complex and lengthy process of innovation organization, comprising a set of objectives, planned activities, the system of motivation and ways of financing should be a strategy of innovative development of the enterprise, which will ensure that the principle focus of innovation development. The implementation of this provision is objectively reduces the amount of consumed financial, human and material resources. During the innovative development requires serious investments in the future of the enterprise, however, this limits the ability of the current economic growth (due to a decrease in working capital) and leads to a decrease in yield (profitability) due to the growth of debt the company during this period. In this regard, there is a need to implement the principle of balance of current activities

and strategic innovation. Otherwise possible crisis or bankruptcy may occur. Innovative development requires the active use and development of theoretical approaches and scientific management.

3.2. Meso Level

The essence of the changes caused by the mechanism of innovation development at the macro level shows that modern developed economies are divided into two sectors - industry of traditional industries and high-tech industries, which are closely linked. The economies of these two sectors require unequal management techniques, strategies and methods of government regulation (Nikolaeva et al., 2015). The essence of these differences - different concepts of the functioning of markets and firms in these sectors.

Some distinctive features of enterprises manufacturing high-tech enterprises from traditional production, reflecting their specificity, are presented in the Table 1.

Understanding how markets function and firms in sectors of traditional industries, is directly based on the situation of diminishing returns: Companies that lead the market in the end, faced with constraints so that a predicted equilibrium prices and market share. This theory was developed by Marshall and is still popular in today's economics textbooks.

Yet at the present stage in the structure of the developed economies of major importance is the market innovation. As part of this market is made the displacement of the main mechanisms that govern the behavior of economic agents. These changes can be explained by the concept of increasing returns: The market leading position occupied by vendors that can increase the gap between the competitors at the expense of innovation activity and receptivity to new technologies. In this situation, those who lose the championship - losing him forever, since increasing returns is a positive feedback mechanism, aimed at strengthening the successful enterprises, and the weakening of those who bear the losses.

At all stages of the high technology manufactures their profitability is higher than in traditional industries. It should be

noted characteristic of the largest and most successful high-tech industries - a significant portion of their products is predetermined to meet the needs of the general population. Therefore, hence the high rates of return (the average in the world economy is considered a normal level of profitability to investment capital at a rate of 7-8%) (Arthur, 2008).

In connection with the above, it is logical to conclude that the high-tech (high-tech) sectors of the economy subject to the law of increasing returns for the following reasons:

1. Development of high-tech products is laborious and complex, which determines the high costs of their production, falling as growth in their sales. Sale of high-tech products, their additional production brought enormous profits while actually single, although high, development costs. For example, the first disk Windows, which was released by Microsoft, was worth \$50, the second disc and the subsequent - \$3. CD Duplication information or floppy copy almost cost nothing, because the marginal cost of software is almost zero (Lyubimtseva and Surnyaev, 2006).
2. Many high-tech products - it complements the goods in relation to goods from other manufacturers (without the use of the latter is not possible). Thus, these high-tech goods must not conflict with the network users. For example, the software - it is a complementary product to computers and all products of the information and communication technologies (ICT) industry. As is known, the use of ICT products is impossible without the software.
3. Since the use of high-tech products is difficult, all this requires proper training. Consumers, those who had once invested in such training, with the appearance of other versions of this product you need to update these skills.

Analysis of the differences between traditional and high technology sectors allows us to highlight the following. First, the traditional industry - a sector of mass production, operating on the principle of diminishing returns and producing products that require overhead inexpensively knowledge; secondly, high-tech industry - a production, operating on the principle of increasing

Table 1: Comparative characteristics of the production of high-tech enterprises and the traditional industrial enterprises

The criterion of comparison	Company	
	High-tech industry	Traditional production
The presence in the activities of innovative nature	The experimental nature of pilot production	Duplication products
The magnitude of the costs of operating activities	Associated with a high level of uncertainty	It is easy to forecast
Chance of regrouping activities	Difficult as the limited specificity of the main focus of activity is the limiting factor	Permissible
The ratio of credit institutions to enterprise data	Most often a negative attitude, because the high level of risk, uncertainty, innovation and a long time lag of return	A positive attitude, if there is a reasonable business plan (the stability of cost, schedule and results)
The duration of the impact of the results of activity	With technology innovation, the duration of the impact of their implementation is much higher (almost 2 times). When hardware innovation duration of its life cycle is limited	Depending on the duration of the life cycle of the equipment
Engineering	Traditional, uncommon novelty items	The use of advanced technologies mainly
Attitude to innovation	Stimulation of the process, the possibility of obtaining, exploration and development of scientific and technological progress (NTP)	Using the results of innovative activities

the impact and is a “concentrate” of knowledge with respect to traditional low resources.

It should be noted that the distinction between traditional industries and high-tech is conditional. The economic meaning of the category “mass” product is that its price almost no rent for the use of a particular technology, which is typical for the pricing of the products of high-tech industries. This rent to some extent covers the risk of the use of specific technology consumer surplus due to increased prices for quality goods.

As mentioned above, the high-tech industries at the stage of initial production goal of reducing costs is to a lesser extent. However, the problem arises when the aim is the quantitative increase in output. Accordingly, there is a change in the direction of the production technology of mass production, particularly focus on the use of cheap resource. Since some products (for example, personal computers) begin their life in a world of increasing returns, but later during their life cycle actually become commodities owned sector of diminishing returns.

Management mechanism of innovative development at the meso level should provide leadership development of knowledge-based industries, the objective of which is the basis of the following provisions:

- High profitability of high-tech industries (high-productivity industry) makes them attractive to investors.
- The emergence of new high-tech industries by value mechanism makes it possible to reallocate part of the newly created value and provide a local increase in profit margins of some producers. Thus, in the new production of free capital will rush into the credit or financial forms that will lead to an increase in the capitalization of technology companies. As a result, the market will expand, creating a new type of consumer and, therefore, will be a new market.

Permanent development of new markets at the macroeconomic level has led to the emergence of a specific mechanism that enables:

1. Constant redistribution of the cost of the newly formed based on old technological order productions, improved production.
2. The positive effect of acceleration of aggregate demand balancing the proportions between income and consumption, a significant increase in consumption throughout the economy by increasing productivity, reducing the cost of high-tech products, as well as goods in the production of which they are used.
3. A large impact on the dynamics of aggregate supply through the implementation of the principle of increasing returns, which greatly accelerate the reaction of proposals in response to changes in demand.
4. Increase the flexibility of supply and demand, enabling it within the boundaries of the loop to provide a short-term increase in the supply of adequate accelerated growth in demand.
5. Specific pricing mechanism for knowledge-based, innovative products (Bendikov and Frolov, 2001), the value of goods is

determined by changing individual attitudes potential customer for this product, and therefore will be variable. This, in turn, determines the dependence of the manufacturer, operating in a saturated market conditions, its ability to create a product that has a unique “innovation value” or “individualized value” (Karacharovsky, 2002).

The traditional idea of the pricing mechanism based on the fact that the value of the average level of prices implies costs for the production of a product. But this is only true if you do not take into account technological sectoral differences.

However, we must take into account the existing differences between the levels of technology in various sectors, which is characterized by filling in the form established by the applicable technologies and resources. Still, the economy-wide data levels provide a common national level of technology. Taking into account the relationship of the industries in the sense that each branch essentially produces resources for other sectors, the principle of complementarity can be identified (complementarity). According to this principle, all economic entities within the same technological level are interlinked and mutually intertwined with the technology used at this level.

Of particular note is that the greater the share of high-tech industries in the structure of production, the more the principle of complementarity extends to all the technological level of social production. When there is a new innovation paradigm that begins to develop innovative new products, and then there are new industries. However, it is important that the flow of innovation is also fed into the old existing sectors of the economy, there is increasing added value and providing a significant increase in productivity. As a result of technology transfer from the old to the new branches of the traditional industry is a “fusion” and the evolution of innovative paradigms. Thus, there are two directions of development of basic innovations. The first - is the formation of new industries that produce new and innovative products. Second - it’s penetration into existing traditional industries, which gives impetus to the growth of productivity and even results in the appearance of new products through fusion.

4. THE MECHANISM OF INNOVATIVE DEVELOPMENT FROM THE PERSPECTIVE OF MACROECONOMIC

The underlying factors of the effectiveness of innovative development at the macro level are the growth rate of public expenditure for the development of science and education, rational innovation policy of the state, enabling the tax, credit, depreciation policy, etc. An important macroeconomic indicator of innovative activity - the gradual convergence of the volume of expenditure on R and D of each country and the capital. Macroeconomic indicators of such activity are the number of intellectual property (particularly patents, licenses) per 1000 population, the balance of foreign trade, high-tech products and others. Also on innovative activity at the macro level affect the intelligence of the nation,

the people (set of abilities and creative talents of the people, their educational qualification and cultural level), the optimal combination of market-based instruments of self-regulation of the economy with the state and supranational regulation, pluralism of ownership, competition, etc.

Within the framework of macroeconomic mechanism of innovative development should be focused on:

- Compliance with quality of resources used in the system of social production
- Synchronization of technological change in all spheres of the national economy
- Perception of the innovations of all economic actors
- The formation of a highly skilled workforce
- Promotion of shared interest in each other business entities
- The need for interaction between business entities and development of a coordinated position in the system of economic priorities.

Consequently, at the macroeconomic level, the basic principle of the control mechanism of technological innovation in favor of a balanced focused on the formation of a higher technological order.

In the context of Russian reality, the actual implementation is the triple helix model, developed by Etzkovitz and Leydesdorff (2000), which is based on a prospective role of the university as a leader relationships with business and government. These relationships are built to produce new knowledge, innovation and economic development. The model of innovative development of “Triple Helix” includes three main elements:

- In a society based on scientific knowledge, is characterized by strengthening the role of science in conjunction with business and government.
- The three institutions (science, business and government) tend to cooperate, with, innovative component of this is due to the interaction, not at the initiative of the State.
- In addition to the traditional functions, each of the three institutions, “partially takes on the role of another.” Institutions capable of performing innovative features considered the most important source of innovation.

5. CONCLUSION

In summary, we can say that the innovative development - an objective process of transformation of the socio-economic system to a new state through the materialization of knowledge in new technologies and the formation of a stable system of relationships of objects of innovative infrastructure to improve the quality of the resource potential and enhance the competitive advantages at all levels of the economic system. The logical structure of the mechanism of innovation development of the economic system consists of interrelated and interdependent elements defined by different levels of social production and differing principles and objects of management. So at the micro level of the economy management mechanism of innovative development ensures the implementation of the principles - innovation activities of enterprises and their susceptibility to resource-saving technologies.

For the industry level is characterized by the development of technological innovation and increasing returns complementarity of production factors. At the macroeconomic level, the main principles of this mechanism act as a technological balance, focused on the formation of a higher technological order.

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