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## **THE MARKET OF SCIENTIFIC AND TECHNICAL PRODUCTS IN THE SYSTEM OF MARKET ECONOMY**

**Abstract.** Theoretically investigated and defined features of the market of scientific and technical products. The analysis of factors influencing the development of the market of scientific and technical products is carried out; the specificity of scientific and technical products and its influence on the effectiveness of this market are shown. The specificity of subject-object relations of the market of scientific and technical products is investigated and it is determined that the process of forming this market should be considered from the perspective of creating an integral system of concepts, including objects, subjects, patterns and market interaction.

The market of scientific and technical products is considered as part of a single market environment, along with the market of material resources, financial market, labor market, etc. All these markets are organically interconnected, the formation and functioning of each of them is carried out through interaction with others. The necessity of developing a common economic and technical policy for the development of the market of scientific and technical products and its infrastructure, the importance of coordinating the work of individual elements of the infrastructure of the market of scientific and technical products is substantiated.

**Keywords:** scientific and technical products, market of scientific and technical products, scientific and technical activities.

**Introduction.** In his Message of January 10, 2018 to the People of Kazakhstan “New Opportunities for Development in the Conditions of the Fourth Industrial Revolution”, the First President of the Republic of Kazakhstan - Leader of the Nation N.Nazarbayev notes that “... the world is entering the era of the Fourth Industrial Revolution, the era of deep and rapid changes: technological, economic and social ... ” [1].

Modern economic growth of the Republic of Kazakhstan is associated with the development of market relations, the formation of an open economy. Achieving these perspectives is unthinkable without scientific and technological progress, the central point of which is the development of the innovation sphere. Currently, the development of innovative entrepreneurship in the global economy is increasingly seen as the main component of the industrial strategy of technologically developed countries.

The experience of world economic development indicates the presence of a mechanism for stimulating and functioning scientific and technological progress. Such a mechanism is the market of scientific and technical products. Because of the market mechanisms, a new, adequate economic situation is formed, under the influence of which the development priorities and the extent of resource exploitation change.

The modern complex of economic issues that the Republic of Kazakhstan faces today especially actualizes the problem of the formation and development of the market of scientific and technical products.

**Research methodology.** Used such universal research methods as observation, synthesis, analysis, analogy, induction, deduction, abstraction, comparison and analogy.

**Results.** A developed market economy is a system of markets in which the means of production, consumer goods, securities, labor, scientific and technological developments, etc. are traded. This set of economic ties is in constant motion in accordance with its inherent laws.

The transition to a market economy also implies the formation of a market for scientific and technical products, the widespread inclusion of economic results of intellectual labor in the turnover. The market of scientific and technical products is an integral part of the market economy system along with the market of material resources, financial market, labor market, etc. All these markets are organically interconnected, the formation and operation of each of them is carried out through interaction with others.

For the effective formation of the market of intellectual products, it is especially important to take into account the balance of interests of all - those who create and consume them. At the same time, the process of commercialization can play a huge role in achieving this, in which the price of intellectual products and copyright protection can achieve a balance of interests between innovation entities and consumers.

Commercialization of intellectual activity results became integral to innovative development in the modern world. Namely this allows distributing the results among a wide variety of customers providing the income of means necessary for the next round of intellectual processes circulation in human society. The commercialization notion is differentiated and transformed with changing of its scale [2].

Scientific and technical activity should lead not only to the creation of an innovation, but also, subsequently, to its introduction, which will allow to evaluate its effectiveness, and then to continue its wide distribution (diffusion). The development of innovations begins with marketing research, which is continued by research and development, then organizational and technological preparation of production, production itself and evaluation of results follow. At the same time, the effectiveness of innovation is assessed more broadly - economic, social, environmental, scientific, technical and other types of effects.

Scientific and technical products is an innovative product of scientific work with high-tech properties, which then through production can be turned into a specific product for use by consumers. The knowledge invested in a scientific product, by changing its appearance, through a specific form - scientific information - can appear on the market as a commodity in the form of scientific and technical products. At the same time, the specifics of its production affect the features of this product.

A characteristic feature of any scientific and technical production is its phased development during the life cycle. In each scientific and technical cycle, one can identify the main stages:

- birth - scientific development, formation and initial testing of the technological idea underlying the new generation of equipment and technology;
- development - the process of implementation of technological innovations, application in the field of production; at the same time, the costs of restructuring production and cooperative ties are significant with a minimum of effect;
- distribution - the rapid expansion of production and the use of new generation technology, its rapid reduction in price; cost reduction with a rapid increase in the effect;
- maturity is a relatively stable volume of production of the prevailing generations of technology when changing its models and improving certain parameters, which give an ever smaller increase of the effect;
- The final stage is the process of obsolescence of technology that has exhausted its potential, creating the conditions for replacing it with a more efficient generation of technology.

Features of scientific and technical products determine the specifics of the formation and development of the market of scientific and technical production. These features include the instability of demand for products of intellectual labor, more dynamic competitiveness, specific pricing, dependence on the innovation potential of the consumer, the difficulty of determining the use value of scientific and technical products. Essential feature of the process of generating knowledge and innovation is their stochasticity; It is only possible to predict the characteristics, time and place of appearance of a separate new result. Thus, the main features of the market of scientific technical products are its uncertainty and dynamism, the monopoly of the discoverer of innovation.

When positioning and promoting innovation to the market, adhere to the following principles:

- innovation must have a practical result;
- Innovative project is aimed at long-term implementation of innovations in a certain market;
- close interaction of production, research and marketing spheres is necessary;
- take into account the requirements of consumers of products when developing strategies.

The market of scientific and technical products consists of products in the form of goods and services, including intellectual property. For the market of scientific and technical products is characterized by the fact that the product meets all the characteristics of the product; national markets for scientific and technical products have quantitative characteristics, industry and geographical structure, their own forms of advertising, price calculation methods, legal norms; On the national market of intellectual products there are constant influence of market factors: general - cyclical fluctuations, and specific - the state of scientific and technical potential and production sphere, trade and political conditions for the realization of objects of innovation activity; The global innovation market is based on the national markets of economically developed countries. This market is largely determined by the technical potential of scientific organizations and innovative enterprises and differs from other markets (labor, material resources, finance) [3].

The formation of a public need for innovation is mediated by market mechanisms that force economic agents to compare the size of the resources used or the total costs of innovation with the results of their development in production, with the effect they give. Investments in research and development work are effective when they provide income (rent) for the capital invested in buildings, and ultimately the entire society receives this rent [4].

Demand and supply, solvent opportunities for consumers, the effectiveness of innovative communications are components of the innovation market. Venture capital is used by organizations to conduct research and development.

Venture capital is provided for patenting or introducing an idea to finance several subsequent stages, up to commercial launch. Further participation in the project is called private financing. Venture investment can be made in the formal sector, where venture funds as a pool of resources of private and public funds, corporations, individuals and in the informal sector, where the market is not well understood, but the demand significantly exceeds the supply of participants (private investors), become the main tool [5].

It should be noted that there is an economic need that is not provided by solvent consumers and represents a pent-up demand for innovations. The manufacturer of innovations in the market of scientific and technical products demonstrates not only the finished product, but also high-quality execution of the buyer's order. This is one of the specifics of the innovation market, in which innovative communications are built in accordance with the requirements of the modern market.

An innovative proposal is based on the request of the manufacturer of a particular product and service. Each product has a specific market niche, address, area of production. Manufacturers of the goods are usually better informed about the technical side, the possibilities of the goods, but less informed than the buyer about its commercial evaluation.

When making decisions, the consumer of innovation relies on a general idea of his task.

The demand for any innovation in real conditions is a determining factor. After all, the demand for innovation, its demand in the economy is the main incentive for the processes of diffusion and commercialization of the results of scientific work. Consequently, until the necessary economic conditions for application appear, the result of scientific and technical activity will not be claimed or involved.

Barysheva A.V. conducted an analysis that confirms: "the economic effect is most often extracted not by the economic entity that creates the innovation, but by the one that applies it" [4].

For the market of scientific and technical products are characteristic: the entry into the market of the direction of exchange (purchase and sale) is determined by the specifics of the formation of supply and demand for scientific and technical products; supply of goods exceeds demand; large selection of goods, the global nature of development; consumers of innovations are professionals who are interested in improving the competitiveness of the enterprise that buys the product; tough competition contributes to the emergence of innovations; This market of scientific and technical products is secondary to the product market, since the demand for goods that are produced using innovations determines the demand for scientific and technical products.

Scientific and technological progress is constantly developing and contributes to the development of the infrastructure of the market for scientific and technical products. Consequently, the market for scientific and technical products contributes to changing the economic content of the exchange.

**Conclusion.** The market competition in the world is becoming ever tougher every day due to the emergence of more subtle, sophisticated methods and forms of competition. The main thing today for

many enterprises is the ability to give a consumer a product (service) of higher quality or possessing some new properties, but for the same price and at the same production costs. In ensuring the quality of products, the achievements of the company, its ability to master advanced technologies based on updating and upgrading technological equipment, constant research and development, patent research and patenting of industrial property objects play a dominant role. The presence of unique consumer properties of the product, due to the use of inventions in it, may be the basis for marketing it at a higher price than those of competitors that do not possess these properties.

Thus, intellectual property and scientific innovations are the basis for the competitiveness of not only products, but also the competitive advantages of the national economy as a whole.

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### **НАРЫҚ ШАРУАШЫЛЫҒЫ ЖҮЙЕСİNДЕГІ ҒЫЛЫМИ-ТЕХНИКАЛЫҚ НАРЫҚ**

**Аннотация.** Ғылыми-техникалық өнім нарығының ерекшеліктері теориялық тұрғысынан зерттерген және белгіленген. Ғылыми-техникалық өнім нарығының дамуына әсер беретін факторларға талдау жүргізілді, Ғылыми-техникалық өнімнің өзіндік ерекшеліктері және оның аталған нарықтың тиімділігіне әсері көрсетілді. Ғылыми-техникалық өнім нарығының тақырыптық-объективтік қатынастардың ерекшеліктері зерттеліп, ондай нарықты қалыптастыру процесін нарықтың объектілерінен, субъектілерінен, заңдылықтары мен өзара әрекеттерінен тұратын түсініктердің біртұтас жүйесін құру позициясынан қарау қажет екендігі айқындалған.

Ғылыми-техникалық өнім нарығы материалдық ресурстар нарығымен, қаржы нарығымен, еңбек нарығымен және т.б. олармен бірқатардағы бірыңғай нарықтық жүйенің бір бөлігі ретінде қаралды. Ол нарықтардың барлығы өзара табиғи байланыста, оның әрқайсысының қалыптасуы мен қазмет етуі басқалармен өзара әрекет ету арқылы іске асырылады. Ғылыми-техникалық өнім нарығын дамытудың бірыңғай экономикалық және техникалық саясатын әзірлеу қажеттілігі, ғылыми-техникалық өнім нарығы инфрақұрылымының жеке элементтерінің жұмысын үйлестірудің маңыздылығы негізделген.

**Түйін сөздер:** ғылыми-техникалық өнім, ғылыми-техникалық өнім нарығы, ғылыми-техникалық қызмет.

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### **РЫНОК НАУЧНО-ТЕХНИЧЕСКОЙ ПРОДУКЦИИ В СИСТЕМЕ РЫНОЧНОГО ХОЗЯЙСТВА**

**Аннотация.** Теоретически исследованы и определены особенности рынка научно-технической продукции. Проведен анализ факторов, влияющих на развитие рынка научно-технической продукции, показана специфика научно-технической продукции и ее влияние на эффективность данного рынка. Исследована специфика субъектно-объектных отношений рынка научно-технической продукции и определено, что процесс формирования этого рынка необходимо рассматривать с позиции создания целостной системы понятий, включающей объекты, субъекты, закономерности и взаимодействия рынка.

Рынок научно-технической продукции рассмотрен как часть единой рыночной среды, наряду с рынком материальных ресурсов, финансовым рынком, рынком труда и др. Все данные рынки органически взаимосвязаны, формирование и функционирование каждого из них осуществляется посредством взаимодействия с другими. Обоснована необходимость разработки единой экономической и технической политики развития рынка научно-технической продукции и ее инфраструктуры, важность координации работы отдельных элементов инфраструктуры рынка научно-технической продукции.

**Ключевые слова:** научно-техническая продукция, рынок научно-технической продукции, научно-техническая деятельность.

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