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DEVELOPMENT OF INNOVATION IN KAZAKHSTAN: THE MAIN ELEMENTS AND DIRECTION

Innovative development is one of the most important directions for the Republic of Kazakhstan, allowing to occupy a certain competitive position in the modern world economic space.

In the conditions of an open economy and the strengthening of global competition, encompassing not only the traditional markets for goods, capital, technology and labor, but also the system of national management, innovative economic development becomes a fundamental state priority. Innovative development is realized through innovative activity. Therefore, for the Kazakhstani economy, the justification of the parameters of innovation activity, its elements, functional characteristics is practically actual. The development of the national economy is impossible without introducing innovations in the production process and gaining a strategic benefit from innovation. And for the emergence of an innovative economy, a theoretical analysis of its components is initially necessary. If we consider a linearly innovative process, then it is represented by a set of innovative activities. And the initial point of research of the content of innovation activity is its genesis, depending on the development of the basic category – innovation.

Key words: innovation, innovation process, human capital, innovative activity, global competitiveness.

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Қазақстандағы инновацияны дамыту: негізгі элементтері және бағыттары

Инновациялық даму – Қазақстан Республикасының қазіргі заманғы әлемдік экономикалық кеңістіктегі белгілі бір бәсекелестік орнын иеленуге мүмкіндік беретін дамудың маңызды бағыттарының бірі болып табылады. Ашық экономика мен жаһандық бәсекелестікте тауарларды, капиталды, технологияны және еңбекке арналған дәстүрлі нарықты ғана емес, сондай-ақ ұлттық басқару жүйесін, инновациялық экономикалық дамуды ұлттық даму үшін басымдыққа айналдырады. Инновациялық даму инновациялар арқылы жүзеге асырылады. Қазақстанның экономикасы үшін инновациялық қызметтің параметрлері, оның элементтері және функционалдық сипаттамалары негізделген.

Ұлттық экономиканың дамуы өндіріс процесінде инновациялар енгізілмей, инновациядан стратегиялық пайда табу мүмкін емес. Инновациялық экономика тиімді жүзеге асуы үшін алдымен оның компоненттерін теориялық түрде талдау қажет. Егер біз сызықтық инновациялық үдерісті қарастырсақ, онда оның инновациялық шаралар жиынтығымен сипатталатындығын байқаймыз. Инновациялық қызметтің мазмұнын зерттеудің бастапқы нүктесі – инновацияның дамуына қарай оның генезисі болып табылады.

Түйін сөздер: инновация, инновациялық процесс, адами капитал, инновациялық қызмет, жаһандық бәсекеге қабілеттілік.

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Развитие инноваций в Казахстане: основные элементы и направления

Инновационное развитие – одно из важнейших направлений развития Республики Казахстан, позволяющее занять определенную конкурентную нишу в современном мировом экономическом пространстве. В условиях открытой экономики и усиления глобальной конкуренции, охватывающей не только традиционные рынки товаров, капитала, технологий и труда, но и систему национального управления, инновационное экономическое развитие становится приоритетным направлением государственного развития. Инновационное развитие осуществляется за счет инновационной деятельности. Для экономики Казахстана обоснование параметров инновационной деятельности, ее элементов, функциональных характеристик имеет практическую значимость.

Развитие национальной экономики невозможно без внедрения инноваций в производственный процесс и получения стратегической выгоды от инноваций. И для появления инновационной экономики изначально необходим теоретический анализ ее компонентов. Если мы рассмотрим линейно инновационный процесс, то он представлен набором инновационных мероприятий. И исходной точкой исследования содержания инновационной деятельности является ее генезис в зависимости от развития базовой категории – инновации.

Ключевые слова: инновации, инновационный процесс, человеческий капитал, инновационная деятельность, глобальная конкурентоспособность.

Introduction

Thus, the theory of innovation originates from the classical works of J. Schumpeter [1.]. It is represented by the following elements:

• the main economic entity is an entrepreneur who introduces innovations in periods of short-term equilibrium in the market;

• this leads to «creative destruction» of the existing economic system and is the impetus for dynamic changes in the economic situation;

• The process of concentration or clustering of innovations in the short run leads in macroeconomic meaning to long waves of fluctuations in the market.

Thus, in the framework of Schumpeter's classical theory of innovation, innovation activity is based on the introduction of innovations by the entrepreneur. This leads to disruption of continuity, i.e. The abandonment of the old product, the organizational form in favor of the new and involves additional risk. From this period, namely from 1912, when the work «Theory of Economic Development» was published and the term «innovations» was introduced. There was also a first definition of innovative activity. Innovation is an exceptional means for obtaining entrepreneurial profit, the main factor of economic progress.

And innovative activity is an active entrepreneurial activity, creating new combinations of factors and production resources. It leads to changes in technology and technology, the development of new markets, the reorganization of market structures. A feature of this activity is non-price competition, more effective, since it is implemented in fundamentally different conditions than the classical market behavior of the subjects.

The next concept, developing the theory of innovation, is the theory of long waves. Its ancestor N. Kondratiev substantiated the following elements of the formation of the innovation process:

• for the first time highlighted the key role of scientific and technical innovations in the economic development of the country,

• Based on a large body of statistical data for 4 developed countries, he substantiated the conclusion about wide fluctuations with a period of 40-60 years (long wave),

• revealed the relationship between the beginning of the upward wave of a large cycle and the fundamental technological changes in the country. [2.].

Later, the theory of long waves was modified by scientists such as S. Kuznets and G. Mensch. [3.].

S. Kuznets highlighted the following features of the theory of long waves:

• introduced the concept of «epochal innovations», i.e. such innovations that lead to a qualitative transformation of society. The core of these innovations is science and its accelerated pace,

• in the dynamics of innovation can be both positive and negative,

• Therefore, for the first time, the regulatory function of the state as an institution for choosing and evaluating legal and institutional innovations is justified.

Further concretization of Kondratiev's provisions is connected with the name of G. Mensch, who substantiated the main provisions of the theory of development of conjuncture and innovations. They boil down to the following:

• the allocation of a period of economic reorientation – a technological path – during which there is a time of uncertainty between traditional and new forces of development,

• Analyzing the time from the mid-18th century to the 20th century, he singled out 112 of the largest inventions and 126 significant innovations and substantiated four waves of innovative and entrepreneurial activity,

• For the first time technological innovations were divided according to the level of novelty into basic, improving and pseudo-innovation.

It is with the justification of the doctrine of long waves that the modern concept of innovative activity also appears. Now it appears as a set of entrepreneurial activities, connected by successive stages of scientific and technological development, the implementation of investment and marketing. The further development of the theory of innovations leads to an understanding of them as a process in which an intellectual product-invention, information, know-how or idea acquires its continuity, demands the abandonment of everything old in favor of an unusual new (products, forms of organization)

And are associated with risk. (Twiss, B.Santo)

The most comprehensive definition of innovation as a process reflects the determination of B. Santo, where innovation is the social, technical, economic process, the practical use of the ideas and inventions, which leads to the creation of the best on the properties of products, technologies, focused on the economic benefits, additional income covers all range of activities-from research and development to marketing [4], because later in the theory of innovation special attention has been paid to the creative abilities of man as a source of competition and diffusion of knowledge. (F.Hayek) and the formation of the theory of «human capital» (G.Bekker) .This theory made it possible to expand the boundaries of innovation theory to include the process of innovation, organization innovation and management innovation processes based on intellectual resources. [5.].

Proceeding from this, innovative activity acquires a modern meaning, as a multifactorial and systemic activity, including new introductions – products, innovations – processes and modification of products (including services). The innovation process is determined by a combination of innovative activities, which are regulated by the stages of their organization, resource support from the emergence of a promising idea to the creation of new products, services or technology, their commercialization in a competitive environment. The innovative process, viewed from different perspectives, has its own peculiarities.

First, it can be considered as a parallel-sequential implementation of scientific and technological activities, the implementation of investment and marketing.

Secondly, it appears in the form of changing phases of the life cycle of products.

Thirdly, it can be considered as an investment project for the stages of financing research and development, the distribution of new products and services, and their commercialization.

In the modern concept, new introductions-products, innovations-processes and modification of products (including the sphere of services) are distinguished. All of them are considered as directions of innovative activity carried out in the integrated system of innovation management «science → technology → economics → education».

Consequently, innovative activity includes, in addition to innovative processes, a wide range of works both in the development of science-intensive and resource-saving technologies, and in the efficient use of acquired licenses, the disclosure of know-how, and so on. An indispensable and obligatory direction of innovation is distribution and replication, ie diffusion of new products, technologies, methods of organization of production and management.

The development and implementation of innovations are the leading accelerator of economic growth, since it is innovation activity that serves as a real basis for ensuring a higher stage of development of the socio-economic system.

Innovative activity deals not with ready solutions, but with research and development that have the potential for future commercialization by transforming the fundamental scientific grounds of the scientific and educational sphere and large companies into real business.

It is believed that the basic environment for the successful development of innovative business (the so-called ecosystem) includes five main components: scientific potential (universities, scientific and technical community), investments in the form of

institutions ready to finance projects at high risks at the start, infrastructure (technology parks, transfer centers Technologies), mechanisms of legal support, demand for innovations in the market [6].

Innovative activity is defined as activity (including scientific, technological, organizational, financial and commercial activities) aimed at implementing innovative projects, as well as creating an innovative infrastructure and ensuring its activities.

The concept of «innovation activity» is widely represented in the work of researchers in the field of innovation economics. Summarizing their characteristics, one can distinguish its key features:

• System attribute: a set of scientific, technological, organizational, financial and commercial activities;

• Resulting sign: implementation of innovative projects,

• Logistic sign: creation and maintenance of innovative infrastructure;

• Transmission trait: transformation of the results of intellectual activity in the production of new products and their implementation;

• Technological feature: the process of preparing innovations for the building;

• Business sign: a set of purposeful actions of the innovation process participant-the goal is to increase production efficiency, to obtain advantages in the competitive struggle and, as a result, to obtain profit;

• Managerial sign: economic relations about the creation and replication of innovations.

The main feature of innovation activity is the transmission sign-transformation of the results of intellectual activity into the production of new goods, technologies, services, raw materials, and their implementation. In general, according to the received characteristics, innovative activity can be characterized as a complex, multifaceted and purposeful activity, the purpose of which is to increase the efficiency of production, to obtain competitive advantages.

It is advisable to supplement the formed list of signs with one more – a high level of risk. The possibility of obtaining super profits from an innovative project is accompanied by a high risk of its implementation: innovative development may «go», or may not «go,» that is, it is impossible not to take into account the problem of innovative nature.

Along with this, there are varieties of innovation activity, its objects and subjects.

To the types of innovation activities include [7]:

1) preparation and organization of production, covering the acquisition

Production equipment and tools, changes in them, as well as in

Procedures, methods and standards of production and quality control,

Necessary for the creation of a new technological process;

2) preliminary production development, including

Modification of the product and technological process, retraining of personnel

For the application of new technologies and equipment;

3) marketing of new products, providing activities,

Related to the release of new products to the market, including a preliminary

Market research, product adaptation to various markets, advertising

Campaign;

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

5) acquisition of materialized technology – machines and equipment, in terms of their technological content associated with the introduction of product and process innovations at enterprises;

6) industrial design, including the preparation of plans

Innovative activity includes innovation (discovery, invention, utility model, design decision, rationalization proposal, know-how, industrial design options or other type of innovation) [8]. They also include people integrated into innovative economic spaces – scientists, engineers, entrepreneurs.

The economic literature presents an estimate of the intensity and

Extensiveness of innovation. Assessment of intensity

Innovation activity, as an indicator of the saturation of economic innovation activity, is usually carried out according to the level of costs for technological innovations, correlating their cost and volume of all products sold by enterprises.

The effectiveness of innovation is largely determined by the innovative potential. Innovation potential is considered as the scientific and technical potential of the country in the form of research, design and technological organizations, experimental production facilities, pilot training grounds, educational institutions, personnel and technical means of these organizations. It is

also defined as the aggregate of various types of resources necessary for the implementation of innovation activities; Readiness and receptivity of the society, the national economy, the industry, the region, the scientific and production complex, the enterprise for innovation, taking into account scientific and technical, industrial, labor, material and other opportunities [9]; Ability, opportunity, willingness of the participant in the innovation process to mobilize resources and the organizational mechanism for its implementation in the part of the process that reflects the role of the participant, within the given time and costs. In a market economy, the nature of competition influences the use of innovative potential, which forces producers to resort to innovations. However, the competition of commodity producers does not have a serious impact on the pace of formation of the potential itself, it can only serve as a factor stimulating its development. At the same time, the innovative potential is completely reduced to resources because in the same economic conditions the same resources are not a guarantee of the same economic results. The need to characterize the resource potential, not only from the point of view of the availability of resources, but also their purpose, arises in connection with its consideration As part of the innovation potential, along with personnel, technical and technological, information, organizational, financial components. Therefore, the interpretation of innovation It is building a system that includes the capital, own innovation, borrowed innovations and projects which interaction is aimed at efficient development of technique and technology of the production system [10].

In the conditions of transition of the economy to an innovative development path, it becomes urgent to determine the prospects and opportunities for transition to higher technological structures. In the modern economic literature, six technological structures are singled out (along with the traditional five technological waves of the theory of long waves, ND Kondratiev [11, p.8]. «Innovative» are the fifth and sixth technological structures, the feature of which is the practical application of fundamental scientific knowledge. The formation of a national innovation system (NIS) is an important task, an integral part of the state economic policy. Innovative way of development of the country. In the economic literature in the structure of the NIS allocate a managed and control subsystem. The managing subsystem includes the subjects and institutional mechanisms of the actual scientific and technological (innovation) policy, involves the tools of educational and industrial policies.The managed subsystem includes five basic elements [12]:

1) fundamental scientific institutes;

2) large innovative industrial corporations;

3) a set of infrastructure organizations,

Guaranteeing the continuity of the reproduction cycle of innovations, that is,

Implementing, commercializing and distributing

Innovations (techno-park and business-incubator structures, engineering, leasing and consulting firms, transfer centers

Technologies, a stock exchange of objects of intellectual property and scientific-

Technical services, information bases and networks, as well as organizations

Patenting and licensing, certification and attestation);

4) territorial areas with a particularly high concentration of scientific-

Technological potential, showing signs of economic

Subjectness (organizations), including science cities, clusters;

5) organizations of higher education, leading training

Highly qualified specialists and retraining of personnel for all

Listed elements and for themselves and engaged in scientific research.

These are the general parameters of innovation in modern conditions. For its effective functioning in the domestic environment, there are a number of limiting conditions. These include:

– incompleteness of the majority of scientific developments, technologies and products with the purpose of their introduction on the market for consumers' demand. This dramatically reduces the value of the proposed technologies (or products) in the eyes of potential partners;

– the lack of modern mechanisms for introducing technological innovations and bringing them to the market. In market conditions, the mechanism for developing innovations is inextricably linked with a small innovative business, which is characterized by high risks, but also high returns in case of success; [13]

- lack of developed infrastructure elements to promote innovative projects, such as technology parks and specialized business incubators, a network of venture capital funds, special financial mechanisms to support firms at the stage of their rapid growth, certified appraisers of firms and intellectual property, etc .;

- the absence in the domestic market of effective demand for advanced technologies and industrial innovations.

The formation of a purposeful innovation policy, the construction of an innovative infrastructure on its basis and the stimulation of innovative activity of the business sector in Kazakhstan will help to solve these problems and ensure the developed innovative activity in the country.

Conclusion. Thus, modern innovative activity is based on the evolution of the theory of innovation. So, in the classical theory of J. Schumpeter, innovations were initially represented by new goods and services and the modernization of their characteristics. Therefore, innovation activity was concentrated in industrial entrepreneurship. In the future, the theory of innovation evolves both in sectoral and resource terms. Therefore, innovation activity also differentiates and occupies niches in both the market and non-market sectors of the economy. It is becoming more and more differentiated and institutional. This allows, in modern conditions, to structure its features and directions and to reveal a common mechanism of both the transmission of innovations and the diffusion of technologies and scientific developments. This functional picture of innovation activity allows it to be detailed in an applied aspect for implementation in domestic conditions.

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