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## **Features of the development of innovative systems in the foreign countries**

In the article the priority directions of innovation policy development, legislation in the sphere of innovative activity support, innovation development support infrastructure, programs and measures of the development of innovation sphere, sources, volumes and mechanisms of state financing of innovative activity of foreign countries were investigated. The experience of scientific developments and technologies in the Netherlands, the Czech Republic, Japan, China, the United States and other countries has been studied. A comparative analysis of the state and development of foreign innovation systems was carried out. The factors hampering the development of innovation systems were indicated, in particular, the low share of business in financing scientific-research and development works; weak involvement of small businesses in innovation process; «brain drain»; territorial disparities in development; rapid aging of the population; high expenditures on the military-industrial complex; undeveloped venture capital markets; problems of commercialization of innovations; bureaucracy. Analysis of selected measures of state policy in different countries of the world, taking into account these shortcomings of innovation systems, made it possible to identify the several components of the state innovation policy that are used to develop the national innovation system: the creation of special organizations and bodies are responsible for identifying and implementing the innovation policies; and also active interaction with other countries in terms of technology exchange; creation of innovative clusters; implementation of major innovations in large transnational corporations; provision of free education; using of «innovative vouchers».

*Keywords:* innovative development, mechanisms of state financing of innovative activity, scientific developments and technologies, international experience of innovation system development.

The strategic programs of the President of the Republic of Kazakhstan N.A. Nazarbayev «Kazakhstan-2050» [1,2] and the new economic policy «Nurly Zhol - The Path to the Future» [3] determined the main goals, principles and development priorities of the country, the implementation of which will ensure effective growth Economy, which in turn will affect the welfare and quality of life of the people of Kazakhstan, support the domestic political stability of the country, will create a strong foundation for further prosperity. In the Nation Plan «100 concrete steps to implement the five institutional reforms», the Head of the State presented a detailed plan for the country's infrastructure development [4]. «In the conditions of the crisis, as world experience shows, there is a reorientation of economic policy. Support should be given to those industries that create the greatest multiplier effect on economic growth and employment», - said the President.

The Concept of Innovative Development of the Republic of Kazakhstan for the period until 2020, the State Program of Industrial and Innovative Development for the Second Five-Year Plan (2015-2019), and the State Program for the Development of Education of the Republic of Kazakhstan for 2011-2020 were sent to implement the instructions of the Head of the Republic of Kazakhstan [5].

Undoubtedly, this process is inextricably linked with the preparation of highly qualified scientific and engineering personnel and the introduction of new achievements in scientific research of domestic scientists and innovative technologies. Studying of foreign experience of commercialization of inventions will allow revealing the factors promoting successful development of innovative system of Kazakhstan.

*Innovative system of the Netherlands.* The priority direction of the development of the Netherlands' innovation policy was the measures of ensuring the growth of GDP by 2020 up to 2.5 % in investment in research and development. To achieve this objective, the Government of the Netherlands implemented an integrated industrial policy based on the «integration» of scientific, technical and innovative developments into the production practices of Dutch enterprises. At the same time, state financing of innovative projects was carried out on the principle of «minimal intervention».

The state policy of the Netherlands in the area of innovation in 2015 was also aimed at reducing the tax burden for innovative enterprises; the removal of administrative barriers and simplification of regulatory procedures for innovative companies; on the increasing subsidies to innovations in small businesses. Particular attention was paid to stimulating international cooperation in the innovation sphere. Another direction of the innovation policy of the Netherlands is the strengthening of the country's innovative ecosystem in order to enhance the competitiveness of Dutch companies in the national and world economies. At the heart of the concept was the idea of innovation as a process of transforming an idea into a market product or service. In

other words, to launch an innovative growth model, the economy needs not only modern infrastructure (scientific centers, technology parks, development institutions, etc.), but, above all, a horizontal network environment for communication between all sectors and organizations. The Triple Helix concept is an integral part of the innovative ecosystem of the Netherlands, where the main goal of all participants, including academia, industry and government is economic growth.

The main normative document regulating the innovative activity of the Netherlands is the «Horizon 2020» program. This program was adopted by the European Union in order to support research and innovation. The program budget is more than 80 billion euros. Along with the program «Horizon 2020», the Netherlands is implementing the «innovative contracts» are signed between the Government of the Netherlands, research institutes and the business community in the 9 top sectors of the Dutch economy. Other documents regulating innovation activity are the Decree of the Ministry of Economy of the Netherlands on the rules of subsidizing in the field of innovation activity and the Decree of the Ministry of Economy of the Netherlands on innovative policies, corresponding to the realities of the free market.

The most important body for implementing the state innovation policy is the Consultative Council on Science and Technology Policy (AWT). The Council includes 11 representatives of research institutes and business, which jointly develop recommendations for the Ministry of Economy and the Ministry of Education, Science and Culture, concerning the innovative and educational policy of the state. In addition to this organization, there are 8 large organizations and government institutions in the Netherlands that are closely linked to innovation and research, namely: the Netherlands Organization for Applied Scientific Research (TNO); Ministry of Economy (EZ); Ministry of Education, Science and Culture (OCW); Ministry of Defense (MD); Ministry of Public Health, Welfare and Sport; Royal Netherlands Academy of Sciences (KNAW); STW Technology Foundation; Netherlands Association of Universities (VSNU).

The official body responsible for innovative development of the country is the Netherlands Innovation Platform (further - NIP). The activity of the NIP is conducted within the Ministry of Economy of the Netherlands and is governed by two main documents: Demand based Innovation Policy and Public Procurement of Innovation.

The goals of the NIP are the following: the creation of the state and public instruments for the introduction of innovations; an expansion of the potential of the innovative field of the Netherlands; the creation in the productive sector of favorable conditions for the introduction of new technologies; an increasing of the forms and categories of the innovative product. Also, the NIP regulates the innovation activity of the subjects, offers innovative transformations in the Dutch society, and analyzes the using of funds were invested in innovations.

Within the framework of the NIP, innovative projects are subsidized in the following amounts: the scientific and production sectors - from 40 to 60 billion euros; support of state regulation - 10 billion euro; large state purchasers (the amount of subsidies is determined depending on the evaluation of the effectiveness of a particular project). Since 2014, the Netherlands has been actively participating in the European program of the development of innovative technologies «Horizon 2020». For the implementation of the program in the period from 2014 to 2020 laid about 80 billion euros. The Netherlands co-finances projects in which the Netherlands's enterprises participate. To this, the government of the country has put into the budget about 36 billion euros in the period from 2015 to 2017. In 2015, under the support of the «Horizon 2020» program, about 11.2 billion euros of subsidies were allocated, 7.7 % of which were received by the Netherlands. This is significantly higher than the planned indicator of 7 %.

The Ministry of Economy of the Netherlands is responsible for supporting and stimulating innovation in the Netherlands. Over the past 10 years, the Ministry of Economics of the Netherlands has invested more than 200 million euros in funds are supporting start-up technology companies (start-ups). Thanks to the programs of Public-Private Partnership (PPP), this amount was doubled. As a result, by the end of 2015, 265 Netherlands young companies received grants and subsidies. The Ministry's financial investments were distributed among 55 venture funds, which independently attracted private investors for further work within the framework of the state program SeedCapital. Analysis of investment activity in the Netherlands, conducted by the agency Startup Juncture, showed that in the 1st quarter of 2015, 30 Netherlands's start-ups attracted investments totaling 79 million euros. The average volume of funds for one project was 1 million euros. Most of all, the WeTransfer (the service of data exchange via the Internet with the upload of files to third-party cloud storage) managed to attract the investment in this company amounted to 22 million euros. To implement innovative projects, start-ups and private individual entrepreneurs in the Netherlands each year are allocated special innovative microcredits in the amount of 35 to 50 thousand euros.

In the Netherlands, there are two main government organizations that finance R&D: the Netherlands Organization for Scientific Research (NWO), which funds basic researches; The Netherlands Organization for Applied Scientific Research (TNO), which funds applied researches. Direct subsidies are allocated mainly through intermediary organizations such as the Netherlands Society for Scientific Research (NOW), the Royal Academy of Sciences and the Arts of the Netherlands (KNAW) and the Royal Service for the Promotion of Entrepreneurs (RVO). NOW, in particular, finances more than 5,600 research projects in various universities and knowledge institutions of the Netherlands.

*Innovative system of the Czech Republic.* The Czech Republic is one of the industrialized countries with the market economies in Central Europe. The Czech Republic covers an area of 78.9 thousand square meters. km (0.05 % of the total world territory) and provides production of about 0.3 % of global gross output. The most developed branches of the Czech industry, whose condition determines the overall level of the country's economic situation, are automobile industry, engineering, metallurgy, energy, chemical and light industry [6].

Great importance is attached to the development and implementation of innovations in the Czech Republic. Since the 1990s, the country's economy has undergone serious structural changes: production of those types of products and materials is being curtailed, where the Czech Republic is not able to compete effectively in the globalization of markets (general engineering, power engineering, ferrous metallurgy, separate branches of agriculture, glass, textiles and clothing industry, etc.). At the same time, a group of innovative sectors is developing: these are the branches related to automotive, electrical and electronics, chemical and food industries, special metallurgy and tourism. High attention in the Czech Republic is paid to R&D programs in the sphere of high technologies in the semiconductor and related industries. A significant part of the growing flow of foreign direct investment in R&D aimed at a «new» Europe is channeled to the Czech Republic (\$ 4,100 per capita) [7].

Much attention is paid to R&D to create the complex electronic devices, such as optical measuring instruments, components and blocks of instrumentation; semiconductor devices and microcircuits. The largest amount of foreign investment in R&D, is conducted in the Czech Republic, falls on American firms. According to estimates, more than 60 % of foreign direct investment is directed by US firms to conduct research and development in the innovative sectors of the Czech Republic. Thus, out of 16 American companies that announced new investments or expand their activities in the Czech Republic, 12 sent their funds for R D and the provision of services with high added value. New projects include: the opening of a development and technology center by Sun Microsystems; the creation of a center for applied products for mobile equipment by Microsoft; the foundation of the Solectron service and repair center; the creation of an R&D center and training by Ingersoll-Rand. By the middle of last decade, foreign firms have opened in the Czech Republic more than 40 centers engaged in development, technology and distribution. The number of representative offices of the Silicon Valley firms, attracted by the possibility of carrying out R&D abroad, is growing particularly rapidly. Thus, most of the nearly 30 projects under implementation and being at the negotiation stage are caused by the interest of American companies in Czech research and development personnel. At the same time, more than 30 % of these projects are offered by small firms in Silicon Valley, who are looking for acceptable (for the price) design services.

A notable contribution to the development of innovative production is made by foreign companies. In the Czech Republic, which accounts for 21 % of Eastern European electronics production, more attention is paid to the development of R&D and innovative processes. To stimulate innovative processes in the country, the Association of Innovative Entrepreneurship of the Czech Republic (AIP ČR) was established. AIP ČR realizes its INOVACE XXI program, develops the Czech Innovation Strategy, the National Innovation Policy and the Innovation Law. In the Czech Republic there are five business and innovation centers. To date, there are 25 accredited and 17 other scientific and technical parks operating in the Czech Republic, and 32 other projects are under preparation.

*Innovative system of Japan.* In Japan, a long-term program of scientific and technological development is implemented; incentives for applied research and import of licenses abroad are promoted. In the implementation of scientific and technical progress the reliance is placed on large corporations.

The Japanese model of integrating science and production involves the construction of fundamentally new techno polis cities, focusing research and development and science intensive industrial production.

The development of R&D in Japan takes place through the financing of science through government ministries and the creation of giant permanent national laboratories, the development of centralized research

complexes of large corporations receiving large state orders, and through the creation of international institutions and joint programs and projects with foreign partners.

Among the main tools of Japan's innovation policy are the following: 1. financial support of the priority industries through subsidies and cheap loans issued by state financial organizations through the Japan Development Bank and the Japan Export-Import Bank; 2. preferential distribution of foreign currency in favor of priority industries - so that they can import the equipment and technology they need; 3. stimulation of import of the newest foreign technologies and technical cooperation of Japanese firms with foreign companies; 4. protection of emerging industries through the establishment of high import duties and non-tariff barriers; 5. a special system of accelerated depreciation for imported equipment, which reduces the taxation of Japanese firms and makes it possible to increase their investment in new industrial enterprises and projects; 6. unique system of administrative state competition management, peculiar only to Japan, the essence of which is the right of the state to regulate the level of risk associated with competition, by organizing mergers, regulating production volumes and capital investments [8, 9].

In the system of public administration of innovation in Japan, an important role is played by research organizations that are think tanks on the monitoring of innovation processes and their forecasting. About 300 such public and private think tanks in Japan, whose level of expertise and technological development forecasting exceeds the level of the largest US consulting firms, provide the activities of state organizations related to forecasting and planning of R&D.

Until recently, the basis for the development of Japanese R&D was the principle of broad borrowing of technology from abroad, with its subsequent rapid improvement and rapid introduction into production. However, the increased difficulties in acquiring new foreign patents and licenses have prompted Japan to embark on the path of developing its own research not only in the applied but also in the fundamental field.

In 1951, the Japanese Development Bank was established to provide long-term cheap loans to organizations operating in emerging industries. Loans of this bank can cover up to 30-50 % of costs of investment projects in priority areas. The financial activity of the Japanese Development Bank, as a tax system and state subsidies, is an instrument of state regulation of the activities of private firms in the field of R&D in order to accelerate the development of the national economy.

A relatively new important area of Japan's innovative public policy is the promotion of the formation and development of clusters. The active development of such a form of innovation generation is carried out in Japan with the adoption in 2001 of two projects for the development of industrial and intellectual clusters, which were developed taking into account the world experience and national peculiarities. The role of clusters is to promote the most modern scientific and technical areas: the development and production of large integrated circuits, nanotechnologies, and robotics. The mixed industries in Japan play the particular importance: bio-production, environmental and bioinformatics. In Japan's cluster policy great importance is the development of cooperation between private industrial companies, research institutions, educational institutions, and relevant state organizations.

Also, to the specific features of the Japanese cluster policy applies the active support of venture business. An important role is given to establishing contacts with foreign organizations, universities and research institutes.

*Innovative system of China.* The peculiarity of the NIS of China is that historically the state plays a decisive role in the development of the Chinese innovation system. At the same time, the role of the market increases annually. The influence of the state is manifested in particular by the fact that government agencies at various levels still to some extent still control land resources, large investment projects, infrastructure construction and access to the markets of strategic sectors of industry and services (automotive, financial services, etc.). National programs for research and development, various long- and short-term plans are important instruments of state influence on China's scientific and technological development. In order to stimulate the development of innovation in China, a system of national programs for research and development has been developed. For the science-intensive small and medium-sized enterprises the National Innovation Fund and the National Science Foundation functions and supports different fundamental researches [10].

The Chinese government practices the using of all kinds of tools and mechanisms of public policy for the stimulating the innovation activity, supporting the transfer of technology and commercializing the results of intellectual activity. One such mechanism is the creation of special zones and incubators to support high-tech industries. The government is taking a number of measures to strengthen intellectual property rights and to promote the commercialization of scientific results. It became possible to transfer to the university or re-

search institute executing intellectual property rights arising from the implementation of state-funded research projects, instead of turning it into state-owned intangible assets.

The national plan for the development of science and technology in the medium and long term for 2006-2020 years defines China's current policy framework in this area. The most interesting element of it is the intention to strengthen «independent» (local) innovations. To implement the strategy of local innovation, three directions of the policy are envisaged [11]:

1) The growth of investments in science. The government plans to increase the share of research and development costs in gross domestic product (GDP) to 2.5 % by 2020 (currently - 1.3 %). Given that, the expected projected GDP growth rates will be no less than in previous years, an increase in the share of research and development in GDP implies large financial investments. Already today, China ranks the second place in the world in spending on science (at purchasing power parity), outstripping Japan and behind only to the United States;

2) Fiscal support. As a result of the new tax strategy, the amount of non-taxable expenditure on research and development is set at 150 %, which is a net subsidy. Also, accelerated depreciation of research equipment worth up to 300,000 yuan is expected;

3) Purchase of technology. It is planned to modernize the system of state purchases of technologies. The new procurement policy will give priority to local innovative products at a price and volume.

*Innovative system of the USA.* In the US, the state encourages the creation of venture funds and research centers. On the recommendation of the National Science Foundation of the United States, the most effective research centers and venture funds may be fully or partially funded from the federal budget for the first 5 years [12].

The state finances the most effective and knowledge-intensive researches completely due to their complexity, high costs, risk, strong international competition. In the United States, there is a practice of free licensing for the commercial use of inventions patented in the course of budgetary studies and owned by the federal government. An important element of direct support of innovative processes is the formation of a state innovation infrastructure. The state can create networks of centers for the dissemination of innovations and consulting centers that provide business services to innovators. The state promotes the formation of the market of innovations, and itself acts as its agent. State bodies are called upon to monitor and forecast innovative processes in the country and abroad, and often search for the most effective advanced technologies for widespread adoption. A special place is taken by the state expertise of innovation projects, as it is difficult for individual organizations that innovate to assess all their possible effects on a general economic scale. In the United States, much attention is paid to forecasting, standardization, optimization of management decisions, state expertise of innovative projects, keeping state statistics of innovations, a mechanism for developing domestic and international competition has been worked out, antitrust legislation has been in effect for over 100 years. The main mechanisms of state support for innovation are: government programs for supporting R&D; the functioning of these programs has a strong impact on the development of the scientific and technological sphere of the United States; the federal contract system and other state institutions [13].

The US government encourages independent financing of R&D by the private sector, supports the creation of clusters, ventures and small businesses in innovative development. A vivid example of the coordinated using of indirect means of state regulation of scientific and technical progress is the development and implementation of the US National Information Infrastructure and Internet Technologies Program. The development of this program was carried out not by traditional methods of directive administration [14, 15].

Among the indirect tools for supporting innovation activities, we distinguish the following: the establishment of export and import duties; regulation in the field of foreign direct investment; simplification of standards development; improvement of legislation on the protection of intellectual property; development of the federal contract system; development of antimonopoly legislation and policy in the field of competitiveness. Taking into account the opinions of various social circles when developing state scientific and technical policy is a very important distinctive feature of the system of forming the state scientific and technological policy of the United States.

*Comparative analysis of national innovation systems of other countries.* One of the main factors for the success of British innovation policy was the orientation toward private initiative. Unlike many other countries, the leading role in the innovative development of Great Britain does not belong to the state: the country's innovative strategy is aimed primarily at the developing the demand for innovation, and a regional approach to investment is practiced [16, 17].

In Ireland, although the private sector is the main generator of innovation, the state forms the basic conditions for innovative development. The success of its national innovation system can be described by three main components: the inclusion of Ireland in the global financial system, which led to a significant increase in foreign investment in the economy and the arrival of transnational corporations; creation of innovative «foci» of development on the basis of the country's participation in the international technology movement and various forms of international information and technological cooperation; improving the quality of human capital through the immigration of qualified specialists to the country [18, 19].

Historically the state sector played a historically key role in creating conditions for new technologies in Denmark. Important factors for the success of Switzerland's innovative development was, firstly, the consistency of the implemented innovation policy. Secondly, its international orientation played a significant role: serious attention is paid to supporting national innovative enterprises in international research programs [20].

In Norway, support for basic research in institutions and universities is one of the main priorities of the Norwegian innovation policy. Free education makes it possible for children from remote regions and the poor to enter the leading universities and colleges. One of the main strengths of the national innovation system in France, contributing to its innovative development, is the poles of competitiveness, allowing enterprises, universities and research developers to work together [21].

A key factor in the success of Sweden's innovative development is long-term large-scale investments in education, which contributed to the development of science.

In the innovative development of Germany, an important role was played by cooperation with the US (post-war economic recovery), as well as the development of a public-private partnership mechanism that in some ways became a substitute for venture financing, which was not widespread in Germany [22].

The main factor for the successful development of innovation in countries that are not leaders of innovation development (Belarus, Indonesia, India, etc.) is interaction with other countries and the borrowing of technologies and the foundations of state innovation policy [23].

Based on the analysis of innovative systems in a number of countries, it can be concluded that in modern conditions successful competition with the leading players of the world market without the creation and continuous improvement of the national innovation system is impossible. In most models of national innovation systems, either the main or one of the key players is the state.

Successful development of the national innovation system is facilitated by the following factors: a consistent and long-term innovation policy of the state with clearly formulated goals and objectives; rational using of the available innovative potential as a foundation for the construction of innovative economy and implementation of innovation policy; systematic efforts to establish and strengthen cooperation between the private, research and educational sectors; identification and targeted support of important for innovation and technological potential directions, not developing fast enough or developing independently; coverage of the largest possible number of potentially innovative firms by providing them with state support; developed programs of commercialization of innovations, created and borrowed technologies; reasonable attraction of foreign investments of transnational corporations; presence of developed legislation in the field of intellectual property; systematic study and implementation of the best international experience.

Based on the analysis of countries, it can also be concluded that the low level of development of individual institutions does not always hinder innovative development. The key choice in this case is the choice of a strategy for implementing public policy and, often, a successful coincidence of circumstances.

Among the factors hampering the development of innovative systems, in particular, including the following: a low share of business in financing R&D (France, Sweden, Netherlands, India); weak involvement of small business in innovation activities (France, Sweden, Netherlands, Japan); «Brain drain» (France, Germany); territorial disparities in development (Germany, India, China, France, Norway); rapid population aging (European Union countries); high expenditures on the military-industrial complex (Sweden, Israel); undeveloped venture capital markets (Denmark, Germany); problems of commercialization of innovations (India, Germany, Brazil); bureaucracy (India, Brazil, Asian countries) [24, 25].

Analysis of selected measures of the state policy in different countries of the world, taking into account these shortcomings of innovation systems, allows us to identify several components of the state innovation policy, which are usually used for developing the national innovation system: the creation of special organizations and bodies responsible for identifying and implementing innovation policies (almost all countries); active interaction with other countries in terms of technology exchange (almost all countries); creation of innovative clusters (France, Germany); implementation of key innovations in large transnational corpora-

tions (Sweden, France, Netherlands, India, Japan); provision of free education (Germany, Norway); using of «innovative vouchers» (Netherlands, Great Britain, Germany); significant direct budget financing of R&D in various forms.

*The carried out analysis for the possibility of using the most suitable models for the commercialization of inventions in the innovative system of Kazakhstan has shown that for the successful development of the innovation system in Kazakhstan will help the following factors which are the result of studying foreign experience: a consistent and long-term innovation policy of the state with clearly formulated goals and objectives; rational use of the available innovative potential as a foundation for the construction of innovative economy and implementation of innovation policy; systematic efforts to establish and strengthen cooperation between the private, research and educational sectors; identification and targeted support of the directions which are very important for the innovation and technological potential, not developing fast enough or developing independently; coverage of the largest possible number of potentially innovative firms by providing them with state support; developed programs of commercialization of innovations, created and borrowed technologies; reasonable attraction of foreign investments of transnational corporations and the presence of developed legislation in the field of intellectual property.*

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Д.Ф. Мамраева

## Шет елдердің инновациялық жүйелерінің даму ерекшеліктері

Мақалада инновациялық саясаттың дамуының басым бағыттары, инновациялық қызметті қолдау саласындағы заңнамасы, инновациялық дамуының қолдау инфрақұрылымы, инновациялық саласының даму бағдарламалары мен іс-шаралар, шет елдердің инновациялық қызметінің мемлекеттік қаржыландыру көздері, көлемдері мен механизмдері зерттелді. Нидерланды, Чехия Республикасы, Жапония, Қытай, АҚШ және басқа да елдердің ғылыми әзірлемелер мен технологиялардың енгізу тәжірибесі зерделенді. Шетелдік инновациялық жүйелердің жай-күйі мен дамуының салыстырмалы талдауы өткізілді. Инновациялық жүйелердің дамуына кедергі келтіретін факторлар, атап айтқанда, ғылыми-зерттеу және тәжірибелік-конструкторлық жұмыстардың қаржыландыруда бизнестің төмен үлесі, инновациялық қызметке шағын бизнестің әлсіз тартылуы, «ғұламалардың жылыстауы», дамудағы аумақтық сәйкессіздік, халықтың жылдам қартаюы, әскери-өнеркәсіптік кешеніне жұмсалатын жоғары шығындар, дамымаған венчурлік капитал нарығы, инновацияның коммерцияландыру мәселелері және бюрократия белгіленді. Аталған инновациялық жүйелерінің кемшіліктерін ескере отырып, әлемнің әртүрлі елдерінің мемлекеттік саясатының жекелеген шараларын талдауы, ұлттық инновациялық жүйенің дамуында қолданылатын мемлекеттік инновациялық және инновациялық саясатының анықтауға, сондай-ақ іске асыруға жауапты арнайы ұйымдар мен органдардың құруы, технологиялармен алмасу жағынан басқа елдермен белсенді өзара әрекеті, инновациялық кластерлерді жүзеге асыру, ірі трансұлттық корпорациялардағы негізгі инновациялардың іске асыру, тегін білім беру, «инновациялық ваучерді» пайдалану секілді бірнеше компоненттерін бөліп көрсетуге мүмкіндік берді.

*Кілт сөздер:* инновациялық даму, инновациялық қызметінің мемлекеттік қаржыландыру тетіктері, ғылыми әзірлемелер мен технологиялар, инновациялық жүйелер дамуының халықаралық тәжірибесі.

Д.Г. Мамраева

## Особенности развития инновационных систем зарубежных стран

В статье исследованы приоритетные направления развития инновационной политики, законодательство в сфере поддержки инновационной деятельности, инфраструктура поддержки инновационного развития, программы и мероприятия по развитию инновационной сферы, источники, объемы и механизмы государственного финансирования инновационной деятельности зарубежных стран. Изучен опыт внедрения научных разработок и технологий в Нидерландах, Чешской Республике, Японии, Китае, США и других странах. Проведен сравнительный анализ состояния и развития зарубежных инновационных систем. Обозначены факторы, препятствующие развитию инновационных систем, в частности, низкая доля бизнеса в финансировании научно-исследовательских и опытно-конструкторских работ; слабое вовлечение малого бизнеса в инновационную деятельность; «утечка мозгов»; территориальные диспропорции в развитии; быстрое старение населения; высокие расходы на военно-промышленный комплекс; неразвитые рынки венчурного капитала; проблемы коммерциализации инноваций; бюрократия. Анализ отдельных мер государственной политики различных стран мира,



с учетом указанных недостатков инновационных систем, позволил выделить несколько компонентов государственной инновационной политики, которые используются для развития национальной инновационной системы: создание специальных организаций и органов, ответственных за определение и реализацию инновационной политики; активное взаимодействие с другими странами в части обмена технологиями; создание инновационных кластеров; осуществление основных инноваций в крупных транснациональных корпорациях; обеспечение бесплатного образования; использование «инновационных вучеров».

*Ключевые слова:* инновационное развитие, механизмы государственного финансирования инновационной деятельности, научные разработки и технологии, международный опыт развития инновационной системы.

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