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The features of the commercialization of innovations in some countries

In the article the features of the commercialization of innovation systems in countries with successful experiences of measures by the promoting and supporting the industrial innovation system were investigated. In particular, the experience of Finland, Germany, Japan, China, the United States and other countries was shown. On the basis of world experience highlighted a wide range of innovation support in these countries, including government programs of financial and technical support to innovative companies that perform research and development work on the subject of government agencies; direct funding, which reaches about 50 % in the creation of new products and technology costs; granting of loans, including without payment of interest; grants to cover 50 % of the costs for the implementation of innovations; targeted subsidies for research and development; the creation of innovation are assets in view of possible commercial risk; reduction in government fees for individual inventors and the presentation of their tax benefits, as well as the creation of special infrastructure to support them, and economic security; free services of patent attorneys at the request of individual inventors, exemption from payment of fees; tax relief for companies operating in the sphere of innovation; legislative support for intellectual property rights and copyright; government programs to reduce risks and risk compensation of losses; creation of a network of science parks, business incubators and technological development zones; information retrieval specialized sites on advanced technologies and innovative developments, allowing interested companies to quickly find the needed technical solutions and potential partners.

Key words: innovation activity, global experience in the commercialization of innovations, innovative enterprise, innovative development, the venture capital industry.

In the key developed countries in order to stimulate innovative development there are specialized ministries, in addition to the ministries in charge of the development of science. For the solving the tasks by the innovation development of each of the ministries countries have their own state operator (Finland — Tekes, Japan — Nedo, Sweden — Vinnova, etc.). In this statement, there are two categories of innovation development tools: reactionary and proactive. The reactionary tools include various forms of business incubation, supporting for start-ups, commercialization grants, loans and other equipment, while the proactive represent a powerful mechanism for pitting state innovation policy aimed at technological, economic and hence the positioning of the country in the world.

The form of the realization of this proactive policy is a technological program. The essence of proactive measures is to identify the strategic research needed by local businesses in order to create new technological products, processes and thereby increase their competitiveness on the global scale. The main executor of developer technologies is science. In implementing this policy, the state, together with the business chooses the priority technological sectors and medium-term strategic objectives for which must be held by both domestic and foreign (provisionally) research institutes and universities.

Thus, the combined efforts of the three sides create an innovative cluster for this type of program. For example, in Israel as one of the main tools of innovation policy working international funds to support innovation. A powerful tool for growing your own profitable projects, as successfully used by Israel, is a system of grants for research and development, in which the state co-financing of technology commercialization projects in different proportions depending on the stage of project development. You can highlight the following important features of this system: the availability of grants, the speed of decision-making on funding [1; 82, 2; 25, 3; 59].

In Finland, until 2007, the main instrument for the implementation of state policy breakthrough technology, implemented by science, together with the business, was the Tekes programs. This medium-term program implemented by a consortium which has been a major participant in the business, and implementer was a science. In 2007, reviewing the policy, Tekes program initiates the strategic centers of technological development SHOK. 6 such centers were created, which are legal entities in the priority sectors of the economy, which in 2012 implemented 26 programs by 164 mln. A US dollars with a share of co-financing of the business is about 40 %. SHOK program is a part of economic policy, which aims are promoting innovation in sectors that are crucial for the development of the national economy, society and the welfare of citizens. The program is financed by Tekes and the Academy of Finland [4].

Countries that use the successful experience of measures to develop the commercialization of the system are listed below.

The features of the commercialization system in Finland:

– the establishment of centers of commercialization with industrial parks;
– the direct funding of the commercializing projects through grants and loans;
– commercialization centers, as an instrument of export-oriented economy;
– a close cooperation between the centers of commercialization with foreign partners (networks, communities, investors, companies, etc.);
– the presence of regional and sectoral clusters.

The features of the commercialization system in Germany [5]:

– commercialization centers work with universities, but independent of them;
– association of institutions under one strong brand institution performing the functions of commercialization;
– availability of private centers of commercialization, i.e. the market of commercialization has grown to the limits of self-sufficiency (profitability);
– a large part of the profits of commercialization centers comes from contract research;
– the presence of industrial clusters.

The features of the commercialization system in Japan [6; 67]:

– favorable financing terms to encourage the start-up companies contribute to the development of commercialization;
– association of the commercialization centre's employees with private companies;
– regional concentration of centers of commercialization of innovation-active regions.

The features of the system of commercialization of Finland undoubtedly arouse interest. Finland is the leader among European countries in the number of small enterprises per one incubator. These structures have played an important role for the country out of the economic crisis in 90 years. In Finland, it formed the most advanced model of business incubators functioning. Consider one of the leading specialized incubators working in the field of biotechnology — Biotechnology Incubator Science Park Helsinki. The owners of the Science Park are the Finnish Government, Technical University of Helsinki city, various industry associations. The main objective of biotechnology incubator is to bring university research under the commercial framework and facilitate technology transfer. Guide incubator gives enterprises the following services: expert advice in relation to the administrative requirements, the provision of space for offices and laboratories, as well as the necessary infrastructure for industrial production, provision of equipment for research, training in entrepreneurship, marketing and business management.

The features of the commercialization system in Italy. In Italy, the incubators are seen as a means support small enterprises, the development of an innovative environment, create new jobs and, in general, as an economic development tool. Now one of the main objectives of public policy 9 Italy was the development of small and medium-sized enterprises. Traditionally, a small business in the economy of Italy was presented very well, so the state has paid attention to the development of large companies. As a result, business incubators were established in Italy later than in other EU countries. Now there are about 45, and many of them exist at the expense of the financing of the European Center for Innovation and Business. Large companies are also interested in the development of business incubators for two reasons. On the one hand, it allows them to get rid of its workforce, as the formation of new companies goes back a part of the staff. On the other hand, companies gain access to new technologies, the development of which is conducted within the business incubators. In Italy, special attention is paid to those enterprises, which operate in the interior of the country and are at a disadvantage.

Regional innovation development in France. Despite of the relative centralization of scientific and technical activity is clearly visible and a regional approach to innovation. At the same time, depending on the characteristics of the regions (provinces, departments) a variety of regional innovation strategies are implemented: for example, in the economically developed Lyon region, where the function industrial zones and science parks, uses consolidation strategy in the industrialized region (province) of San Dizier — the Strategy of diversification. The Strategy of formation of science parks, the development of innovation infrastructure (e.g. high-technology park «Sophia Antipolis») is used industrially underdeveloped area of the Cote d'Azur in the Alpes-Maritimes department. At the regional level, the specialized structures innovation activity (technology parks, business incubators, agencies and technology transfer centers) were created.

Innovation development of regions in the UK. In accordance with the state document «Strategy of Science and Innovations» in the UK in the regions stimulated proliferation of cooperation between universities and business, supported by the commercialization of advanced technologies, improving scientific and technological base. In organizational terms, in the UK, as in many European countries, in the region science and technology parks with a wide range of functions and variety of structures are established and operated. For example, the Cambridge technology park is a group of research institutions and high-tech manufacturing firms, which are located close to the famous university and take advantage of the interaction with the University [7].

Innovation development of regions in Japan. The role of local government in Japan is quite high, which is the ability to provide additional benefits to project participants, including the exemption from local taxes, the allocation of earmarked grants and loans from local budgets. Technological parks became centers of collaboration between universities and research institutions with industry, with the active support of government at various levels of government. The regional business support centers are located in each of the 47 prefectures and 10 major cities in the country, which, in collaboration with trade associations and local chambers of commerce have a wide range of services for startup and existing entrepreneurs. Japan is an interesting example of well-functioning clusters, which are simultaneously not only promoting interchange between related industries, but also fierce competition in each industry. It is possible to organize 19 major industrial clusters, whose activities contributed significantly to the economic recovery of regions.

An important role in accelerating investment in developed countries plays a government order, which allows you to influence the fluctuations in general economic conditions in the stage of decline and recovery of the investment cycle. With this in mind, it is actively used instrument of conjuncture policy of the leading countries of the world.

Public procurement in Russia. State deliberately take risks, and a certain part of necessary goods and services purchases in the innovative design. In this way, the state itself creates a demand for innovation. For Russia, this is the most effective tool, since 70 % of all goods and services in the country are acquired by the state and state-owned companies. Since 2014 all companies with state participation obliged to purchase innovative products. Acquisition of innovative products is also stimulated by the changes in the law on public procurement. In the new Act on Public Contracts, shall enter into force on 1 January 2014, in the value of the contract includes not only the price of the goods, but also the cost of its maintenance and disposal. These changes stimulate the purchase of equipment with low energy consumption, for example, lamps with LEDs. To reduce the risks of state organizes test innovations that have not yet been tested by the market.

Design offices in Russia and Ukraine are widely developed. In the international practice of engineering in the broadest sense includes process of engineering segment (Manufacturing Engineering), consisting in the provision of customer technological information necessary for the creation and introduction of industrial production or construction of an industrial facility and its operation (transfer of manufacturing experience and knowledge of technology, patent).

In the past twenty years, China elaborates the strategy of «attracting the minds» in the country as an alternative to the diversion. In view of its successes and failures, as well as the rapidly changing situation in the country and the world, China has outlined rather realistic prospects of this policy in the government's plans until 2020. The ongoing China policy «hunt for minds» was a success. If in 1980 only 468 foreign experts working in China, then in 2009 their number reached 300,000 people. In his speech in early 2010, Premier Wen Jiabao has called this figure insufficient and said that the PRC's strategic course for a long time is «raising capital» and «attracting minds». Work is underway to improve the detection system, the use and promotion of talents, including overseas compatriots, from the already available to them preferences and ending with improving the system granting them permanent residence rights. Chinese authorities have already declared for the five-year and multi-entry visas to scientists working at Chinese universities and high-tech centers.

Experience of Malaysia by the attracting talents. Recognizing the critical role of talent to achieve its goal is to become a developed country, Malaysia has created a state agency talent. It operates in three areas. Firstly, it is the optimization of movement of talent in the country. To do this, conducted job fairs where young people receive advice on career decisions and a smoother transition from school to work. Secondly, it is to bring the best global talent, especially Malaysians living abroad. Thirdly, the construction of a global network of talent within the country and abroad (it comes as an expat and a Malaysian business diasporas).

Currently, the state Start-Up Chile program was implemented in Chile, which was designed to attract the entrepreneurs from around the world to create their own startups in Chile and use this country as a platform to enter the global market. The main goal of the program is the transformation of Chile into the innovation and entrepreneurship hub of Latin America. When creating a program, the experience of Silicon Valley was taken into account. The program is designed for 5 years and its cost to the state was about $40 million (the amount of funding for 1,000 companies). The pilot program was launched in 2010 and has attracted start-ups from more than 20 countries, currently already funded more than 700 companies.

In recent years, significant development venture capital industry has received in the countries of East and South-East Asia, especially in China, the Republic of Korea and Singapore as well as in Germany, Israel and Finland. There is a growing volume of venture capital investment in European countries with economies in transition.

Venture investment market expansion largely contributes to the appropriate government support of this sphere of activity, actively carried out by Western countries over the past few decades. Particularly noticeable this trend has manifested itself in the Western developed countries in the transition to an innovative development model, in which «the main source of competitive advantages of individual market participants is the ability to implement innovations, and at the level of the whole economy — the incentives to invest in innovative development». It is believed that the benefits that accrue to society from government programs to support business venture, much more than providing reception profits by venture capitalists. Programme contributes to the development of small and medium-sized high-tech companies that have strategic importance for the long-term growth of the national economy and solves the employment problem by promoting the creation of new jobs.

Currently the worlds there are many network transfer technologies, each of which solves generally similar, but differ in the details of the task. The clients of such networks are usually small companies, medium and large businesses, academic and industrial research institutions, universities, individuals engaged in the promotion of technological information and search technology partners.

State support of industry and innovations implemented by all developed countries. In general, the basic principles and structure of government support measures for most countries is the same. They differ only by their content and emphasis. This is due to the state of the national industry, the existing system of international relations formulated by the development objectives.

Canada has allocated a loan of ten years does not exceed 250 thousand dollars by 2–3 per cent per annum. In other cases, partially offsetting any losses on loans, the federal government makes it easier for small businesses to obtain loans. In Korea, the government funds to support small and medium enterprises (SMEs) are spent in three areas: the provision of soft loans (up to 8 years and the interest rate to 2.5–3 % below the bank), the development and introduction of new technologies and working capital. In Japan, the loans can be obtained by 2–4 % — to stimulate SME co-operative activities that encouraged the union of small enterprises into cooperatives (especially the Japanese approach, meaning that you can get the land, soft loans under the development of new technologies for transport, general parking for cars and etc.). In Singapore, when obtaining a loan for up to 4 years, the current rate of 5 % per annum, and in the preparation of long-term loan — 6.5 %. Special preferential loans provided to micro, the number of employees not exceeding 10 persons [8; 688].

Finland has an extensive network (branches in the regions), the development of institutions: a group of 7 development institutions whose activities are directly related to small and medium enterprises have a wide range of public services. In Korea, the regulation of small businesses engaged in 15 companies, most of them government. Established two banks and two funds aimed at small businesses. It should be noted that the stimulation of exports of small enterprises engaged in major foreign trade structure. They explore the market, provide information to entrepreneurs, helping to enter the global market, have been working on the reduction of taxes, tariffs and rates of preferential loans.

In Japan, an extensive system of specialized institutions operating at both the national and regional levels was established: State Corporation Small Business Financing (59 branches), the National Finance Corporation (102), the central bank, commercial and industrial co-operation (117).

In the world there is a wide range of innovation support, including [9; 142, 10; 84]:

– state program of financial and technical support to innovative SMEs performing research and development on the subject of governmental organizations (USA, Japan, Great Britain, India, China and other countries);

– direct funding (grants, loans), which reach 50 % in the creation of new products and technology costs (France, USA and others);
– the provision of loans, including without payment of interest (Sweden); grants to cover 50 % of the costs for the implementation of innovations (Germany);
– target subsidies for research and development (in almost all developed countries);
– creation of innovations with possible commercial risk fund (England, Germany, France, Switzerland, the Netherlands);
– reduction of state fees for individual inventors and the presentation of their tax benefits (Austria, Germany, USA, Japan, etc.), As well as the creation of special infrastructure for their support and economic security (Japan);
– free services of patent attorneys at the request of individual inventors, exemption from duties (the Netherlands, Germany, Japan, India);
– tax relief for companies operating in the sphere of innovations, including exclusion from taxation of R & D costs, tax rebates universities and research institutions (US, UK, India, China, Japan);
– the legislative enforcement of intellectual property rights and copyright (all developed countries);
– state program to reduce the risks and risk of losses recoverable (USA, Japan);
– the establishment of a wide network of venture capital funds used for the implementation of innovation projects of SMEs forces (in all developed and developing countries);
– creation of a network of science parks, business incubators and technological development zones (in all developed and developing countries);
– creation of powerful state institutions (corporations, agencies) provide comprehensive scientific, technical, financial and production support for innovative SMEs (the US, Japan, India, China and other countries.);
– information retrieval specialized sites on the advanced technologies and innovative developments, allowing interested companies to quickly find the needed technical solutions and potential partners.

The features of the supporting the industrial innovation system in the European Union (EU). The main difference between the support of industrial and innovation program in the EU is challenging the government policy in respect of all sectors in determining the optimal criteria for the selection of supported projects, including support for the export of products with high degree of processing, the creation of import-substituting production, optimization of logistics issues, regional priorities, to promote the development of industrial infrastructure (construction of railway, pipeline, highway transportation systems, communication networks and so forth.).

Active industrial policy includes public sector involvement in R&D, improving access to patents, tax and financial support for new production activities, dissemination of information, adequate policies for attracting foreign direct investment.

The European experience shows that the policy of support for the industry and innovation should be of an integral nature, i.e. intertwined with other areas of economic and social policies, including regional, acquiring scientific and technical, technological and environmental components.

Innovative model of industrial policy in Europe takes into account the growing importance of investment in intangible assets: design, brands and R&D development, intellectual capital, contributing to the creation of modern jobs in the country, the maintenance of its scientific and technical capacity to ensure the economy highly educated and qualified personnel, the increase in domestic demand.

Financial support includes: budget support methods; tax support — set the value of the state and taxation procedure; monetary — regulation by the state sphere of monetary circulation; general financial regulation — regulation and supervision of financial markets, the operational management of public funds.

Basic measures: institutional support measures (market processes appropriate legal base); foreign trade (exporters incentives, the introduction of intelligent import and export restrictions); investment and innovation policy of the state (direct public funding, legislative support of the investment process, the development of the necessary market institutions as the stock market, venture capital funds, investment banks, etc.).

Since the end of 2005 as part of EU industrial policy is implemented five categories of initiatives to address common industry groups of tasks: protection of intellectual property initiatives and the fight against counterfeit products; reform in the framework of the established high-level Group on Competitiveness of state systems and initiatives, energy efficiency and environmental protection; an updated strategy for external competitiveness and access to a single EU internal market; initiatives to support structural changes; ini-

tiatives in support of innovation. At the same time, in the EU there is no explicit prohibition on state economic development. There are many types of state aid approvals, certain restrictions apply to the part of the state support measures. In addition, a special commission could force the Member States to return in the national treasury of prohibited subsidies or grants issued illegally.

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Д.Г.Мамраева, Л.В.Ташенова

Әлемнің кейбір мемлекеттеріндегі инновацияларды коммерцияландыру жүйелерінің ерекшеліктері

Мақалада индустриалды-инновациялық жүйені дамыту мен қолдау бойынша табысты шаралары бар мемлекеттердегі инновацияларды коммерцияландыру жүйесінің ерекшеліктері қарастырылған. Жекелей алғанда, Финляндия, Германия, Жапония, Қытай, АҚШ және басқа мемлекеттердің тәжірибесі көрсетілген. Әлемдік тәжірибені қарастыру негізінде осы мемлекеттердегі инновациялық қызметті қолдаудың кең спектрі анықталды, оның ішінде мемлекеттік ұйымдардың тақырыптары бойынша ғылыми-зерттеушілік және тәжірибелік-конструкторлық жұмыстарды орындаушы инновациялы кәсіпорындарды қаржылық және техникалық қолдаудың мемлекеттік бағдарламалары; жаңа өнім мен технологияларды қалыптастыруға кететін шығындардың 50 % құрайтын тікелей қаржыландыру; қарыз беру, оның ішінде пайыздық төлемсіз; жаңашылдықты ендіруге кететін шығындардың 50 % жабуға төлемсіз қарыз беру; ғылыми-зерттеушілік жұмыстарға мақсатты дотациялар, мүмкін болатын коммерциялық тәуекелдерді ескере инновацияларды ендіру қорларын құру; жеке кәсіпкерлер үшін мемлекеттік баж салығының мөлшерін төмендету және салықтық жеңілдіктер ұсыну, сонымен бірге экономикалық сақтандыру және қолдау мақсатында арнайы инфрақұрылымды қалыптастыру; жеке өнертапқыштардың тапсырыстары бойынша патентті сенімділіктің қызметтері; баж салығын төлеуден босату; инновациялық салада қызметін жүзеге асырушы кәсіпорындар үшін салық салуды жеңілдету; зияткерлік меншік пен авторлық құқықты сақтандыруды заңнамалық қамтамасыз ету; тәуекелдерді төмендету және тәуекелділі шығындардың орнын толтыру бойынша мемлекеттік бағдарламалар; ғылыми парктер, бизнес-инкубаторлар және технологиялық дамыту зоналарының желісін құру; кәсіпорындарға қажетті техникалық шешімдер мен мүмкін болатын серіктестерді тез табуға мүмкіндік беретін инновациялық әзірлемелер мен прогрессивті технологиялар бойынша ақпаратты-іздестірушілік маманданған сайттар.

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Особенности систем коммерциализации инноваций в некоторых странах мира

В статье исследованы особенности систем коммерциализации инноваций в странах с успешным опытом мер по развитию и поддержке индустриально-инновационной системы. В частности, показан опыт Финляндии, Германии, Японии, Китая, США и других стран. На основе изучения мирового опыта выделен широкий спектр поддержки инновационной деятельности в этих странах, в том числе: государственные программы финансовой и технической поддержки инновационных предприятий, выполняющих научно-исследовательские и опытно-конструкторские работы по тематике правительственных организаций; прямое финансирование, которое достигает 50 % расходов на создание новой продукции и технологий; предоставление ссуд, в том числе без выплаты процентов; безвозмездные ссуды на покрытие 50 % затрат на внедрение новшеств; целевые дотации на научно-исследовательские разработки; создание фондов внедрения инноваций с учетом возможного коммерческого риска; снижение государственных пошлин для индивидуальных изобретателей и предоставление им налоговых льгот, а также создание специальной инфраструктуры для их поддержки и экономического страхования; бесплатные услуги патентных поверенных по заявкам индивидуальных изобретателей, освобождение от уплаты пошлин; облегчение налогообложения для предприятий действующих в инновационной сфере; законодательное обеспечение защиты интеллектуальной собственности и авторских прав; государственные программы по снижению рисков и возмещению рисковых убытков; создание сети научных парков, бизнес-инкубаторов и зон технологического развития; информационно-поисковые специализированные сайты по прогрессивным технологиям и инновационным разработкам, позволяющие заинтересованным предприятиям быстро найти необходимые технические решения и возможных партнеров.

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