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TENDENCIES AND FEATURES OF INNOVATIVE POLICY OF FOREIGN COUNTRIES (ON THE EXAMPLE OF USA, JAPAN AND EUROPEAN UNION)

Abstract

In countries that have achieved significant results in innovative development, along with direct methods of government regulation, in which financing has the most important place, measures are taken to disseminate innovation with an emphasis on incentive methods. One of the tasks solved with a close combination of these methods is the development of innovative cooperation. In this regard, the purpose of the research is to analyze the features and tendencies of strengthening state regulation of innovative activity in developed countries (on the example, the United States, Japan and the European Union) for possible their consideration in improving the measures of regulation of innovative activity in the Republic of Kazakhstan. The research shows the tendencies in strengthening state regulation of innovative activity, which are visible in developing innovative systems of several countries, the features of innovation activity of the United States, contributing to its activation, are considered. The authors reveal the features of innovative policy in Japan, covering the efforts of the state and business in achieving the best results of innovative activity. It is reported the features of main public regulation measures of innovative activity in the Eiropean Union member-states, which successfully develop national and regional innovative systems too (Germany, United Kingdom and France). The research presents several recommendations regarding the possible consideration of tendencies in improving regulation measures of innovative activity, created as a result of the research.

Key words: state regulation, innovation management, regional economy, innovation systems, tendencies, analysis, incentive methods.

In current competition in the high-end markets benefit countries, regions, companies that not only have the potential for innovation, but also intelligently use it, i.e. R&D results are converted into competitive products. High-tech production is increasingly formed around the so-called global value chains, the development of which in the last two decades, significantly transforming the character of the world economy.

One of characteristic of the latter becomes a specialization of enterprises and industries of separate countries on specific “link” these chains, in other words, their entry into the interethnic industrial vertical integration. Value added chains include such steps as stage design, production, marketing, sales and after-sales service. Previously, the companies, the states are trying to build them independently, on their territory. However, they are distributed more often among different companies, concentrated in the separate countries and groups of countries. In this regard, it is increased the share of goods and services, that has the global character. And states become participants of vertical integration compete with each other not only for the production of high-tech products, as for the most favorable places in global value chains [1]. The innovative sector of the world economy is becoming global in its content. The specific impact of globalization and regionalization processes is shown in the international scientific and technical cooperation.

The most important tendency in recent decades has been the development of scientific and technical relations between the countries and their regions, there is the internationalization of R&D and high-tech industry.

The realization of major scientific-research projects due to their complexity, duration and high cost becomes not always possible within the framework of one state. Developments started in one region, often in one or another form adapted and successfully implemented in others regions.

The expansion of international integration and cooperation in this sphere is becoming for many industrialized countries the most important strategic growth model.

The country's leaders of innovative development have accumulated considerable experience in state regulation of innovation activity. This applies to both developed and newly industrialized countries. In this regard, priority is to research the tendencies and comparison of states experience entered into the technological kernel of the world – United States, Japan, European Union.

In the development of these innovative systems and possibly other countries it is possible to trace a tendency of strengthening of direct regulation of innovative activity (budget financing, the state assignments, administrative methods and legal methods). At the same time important task of state regulation in the leading countries of innovative development is to create favorable conditions for innovative activity.

It is possible to allocate the following main measures applied in the world within the corresponding innovative policy [2]:

- budget financing of innovative programs and projects (the state's share in the total expenditures on science up to 50%;
- property support innovators and investors;
- tax incentives for promotion of R&D spending and attraction to innovative activity both large, small and medium-sized enterprises;
- formation of the elements of innovative infrastructure at the national and regional levels;
- regulation of internal and external innovative cooperation of subjects of innovative activity and separate sectors of the national innovation system.

In recent decades, high positions in the rankings, encouraged to assess the development of innovative activity, firmly held the United States of America, which was accompanied by the evolution of the innovative system of the state. In the past twenty years, the degree of state regulation of innovative activity has increased significantly. Most of the innovations developed within public-private partnership. The authors identified a number of key directions of innovative policy in the United States of America, promoting to activization of innovative activity (Table 1).

Table 1 – Features of directions of USA innovative policy, promoting to activization of innovative activity

Features	Characteristic
The concentration of fundamental and applied R&D in universities	Universities, in addition to owning own considerable resources, carry out R&D, financing by the government, involve the possibilities of technology transfer through venture financing organizations
The developed system of other research organizations	There are government laboratories, big institutions that specialize in separate applied researches, as well as "factories of thoughts" – research centers bring together experts' efforts to develop specific scientific problems
The activity of innovative clusters and technology parks	They are designed to stimulate scientific-research organizations and business to the development and commercialization of innovations. It is directed to concentration in separate territory specialized and connected by a technological chain: a) organizations carrying out R&D; b) the high-tech industry; c) providers
Legislative initiatives	Increasing the commercial importance of research carried out at universities and public-scientific research organizations. In 1980, the Bai-Dole's law was adopted, directed to stimulating of developers to commercialize innovations, the construction of businesses and sale of licenses

Continuation of table 1

Federal programs directed to assistance to financing of R&D companies (partly financed from the federal budget on the scientific-research activity)	Government programs directed to promotion of R&D financing, carrying out by the enterprises (since 1950). The three main programs within which the financing of small innovative enterprises are: a) the program of companies' creation for investment of small business; b) the program of technologies transfer of small business, directed to expansion of opportunities of R&D state financing and creation of joint enterprises on the basis of small businesses and non-profit research institutes; c) the program of innovative researches of small enterprises, directed to enhancing the role of small innovative enterprises in the state-financing of R&D, creating incentives for the participation of small enterprises which have the commercial potential of researches (through grants), in general, for the technological development of small business
Venture financing	Recognition of the importance of venture capital for activization of innovative activity is reflected in the fact that stimulating activity of venture capital companies operating since 1950. In scientific literature expressed the point of view according to which growth in the field of venture capital is connected with development of the stock markets
The development of international cooperation in innovative activity	Due to the growth in recent years, the importance of tasks of science and technique at international level, as well as the resulting increase in the activity of participation of the private and public sector in the international scientific and technical cooperation National Science Council (NSC) in the process of the development of strategic documents as one of the most important challenges, facing the USA, identified the solution to the problems of scientific and technological activity in the international aspect. NSC has formed a special commission on international problems of scientific and technical activity to assess their current role and the needs they create, and postulated the need to create strategies of productive connections' support between research objectives of domestic and foreign policies. According to the formed recommendations for the government should intensify cooperation programs connected with the assessment and financing of international scientific and technical projects; NSF should intensify efforts to stimulate the potential of innovators to obtain within research grants additional financing for attraction of foreign partners from developing countries, to promote the activity of all directorates of NSF in development of special plans and programs for support of international scientific and technical cooperation and the further diffusion of information about them to target audiences. Federal agencies must continuously have own budgets and estimation mechanisms intended for the purposes of realization of the international scientific-technical projects and programs
Note – Compiled by the authors on the basis of data [3, 4].	

These state regulation tendencies create opportunities to attract leading experts, achieve leading positions across a wide range of scientific fields. Thus, in the innovative activity of the USA the role of state regulation is significant, which is reflected both in direct and in indirect measures. At the junction of these two types of measures significant attention paid to the development of public-private partnership, cooperation of scientific-research institutions and business, as well as international cooperation in innovative activity. The tendency of activization of the last is observed. As a result, the subjects of innovative activity extend the opportunities of the commercialization of R&D results.

Results of innovative development of Japan attract attention of researchers of problems of innovative activity. Since the 1990s in national research system of Japan there have been significant structural changes [5].

1. Increased influence of public authorities, which competence includes questions of a higher level innovative policy, therefore degree of centralization of state regulation of innovative activity generally increased.

2. Influence of state bodies within which competence questions of innovative policy of the highest level therefore degree of centrality of state regulation of innovative activities in general raised are increased.

3. In the mid – 1990s it was the beginning of the regular approval of plans of science and technology development up to five years as method of mobilizing the innovative potential of the country, which had a significant influence on the formation of innovative policy. Among postulated in them an integral element of corresponding policy were the need to high costs for R&D of the state with assignment of the leading role to the state to stimulate fundamental research. Important characteristics of fundamental research, in turn, should be diversified and multi-disciplinary character.

4. It is increased the importance of the tasks of promotion of innovative processes of private enterprises in the system of state regulation of innovative activity. Distribution was gained by initiatives in the field of the budget and tax policy, support of venture entrepreneurship, public procurements of innovative products, the legal sphere.

5. The system of views on the development of innovative cooperation of the authorities and business, science and business in order to improve the effectiveness of innovative activity has been recognized in the innovative policy. It should be noted that similar tendencies may be traced and at the corporate level. These changes can be attributed to the field of R&D, where the prevailing before implementation of innovative activity from own expenses of the enterprises is characterized by a slight decrease of these expenses, as well as expansion of cooperation with domestic and foreign subjects of innovative activity, merging with them. In other words, the dominant emerging paradigm is shift of accent from of constant R&D implementation by own resources to the involvement of the greatest possible part of the spectrum of potential resources of innovative activity (including R&D outsourcing). In the process of placing industrial and other subdivisions abroad, in particular, there is a tendency of R&D implementation in other countries, the purpose of which is to achieve a synergy effect. In comparison with the previously used data strategies are characterized by a significantly higher degree of initiative. In addition, it traces the development of international practices.

Research of the experience of state regulation in Japan allows formulating a number of generalizations and conclusions that can be interesting and useful for other countries. Although the positioning of market competition as the basic factor of activization of innovative processes in Japan it is recognized that the promotion of innovative activity is the most important task of the state. In Japan it is dominated the integration process, which allows to combine the development of foreign and domestic technology through the realization of direct state control measures for encouragement of innovative activity. In addition, the significant component of the above mentioned process is innovative cooperation, creating opportunities for more competitive advantages, resources, synergies. In the innovative activity of Japan it is observed tendencies in the development of public-private partnership, inter-firm cooperation and international cooperation, the important manifestation of which is intensification of efforts to develop innovative international cooperation, including at the regional level.

The research of works of A. Belov, V.A. Zuckerman [6, 7] and other scientific literature allows to suggest that the extensive experience in the field of state regulation of innovative activity, including international innovative cooperation, has the European Union as the largest economic and political union, aimed at regional integration , and the EU countries are in the forefront of innovative development.

The programs of promotion of innovative activity of Western European countries the development of international cooperation are recognized more than two decades. In scales of the EU the leading positions in the field of development cooperation in the innovative activity belong to the UK, Germany, France and the Nordic countries. Key initiatives of the EU program documents intended to turn R&D results in innovative products and services in order to ensure the competitiveness of the EU, which also means an increase in R&D financing in Europe, strengthening of international innovative cooperation.

The mechanisms, by which the regional authorities are involving the innovations, have specifics in each country, but there are and general tendencies. The results of the research of the EU experience allow concluding that there is a focus of EU innovative policy in the stimulation of innovative cooperation, which is perhaps more important innovative program in comparison with the financing of innovative projects. In the regulation which founded the EU's "Horizon 2020" program, noted that the aim of the EU is to strengthen scientific and technological potential through the formation of the European Research Area, in which is freely extended scientific knowledge and technologies, and also through the EU support to the promotion to the knowledge society and creating a more competitive

and sustainable industry and the economy as a whole, as well as the fact that to achieve this goal is necessary to implement measures for R&D and innovation realization, to strengthen international cooperation, diffusion and optimization of results, stimulation of training and mobility.

Thus, in Europe, activization of international cooperation in innovative activity is carried out continuously for nearly three decades. The considered measures of state regulation are closely related, their action is based on the principle of complementarity in order to achieve the best results of innovative development. It may be noted that the significant number of measures proposes pooling the efforts of subjects of innovative activity, including different countries on the basis of international projects that oriented on achieving maximum efficiency of R&D. In general, the EU countries are characterized by the formation of the three-level innovative policy, including regional, national and supra-national components. The governments of the countries possess a priority in the field fundamental research, training of specialists, and the regions are increasingly carried out a policy of diffusion of innovations. Innovative cooperation allows using operational and financial resource, the competitive advantages of companies in other countries, promotes increasing the productivity of labor and the development of capital-intensive products, allowing to realize large projects, which is extremely difficult without synergies.

Summing up, it should be noted that in countries that have achieved significant results in the innovative development, along with the direct methods of state regulation, the most important place that takes financing, and also are taken the measures for the diffusion of innovations with an emphasis on stimulating methods. One of the problems to be solved in close combination of these methods is the development of innovative cooperation. Globalization and regionalization, the growth of high-end technologies, the limited resources of domestic subjects of innovative activity lead to the fact that innovative cooperation has the significant potential for activization of innovative activity, including at the regional level, and the degree of intensity of its use within state regulation of innovative activity is increasing rapidly. This is evidenced by the experience of the EU, USA and Japan.

As a result, regional authorities and managing strengthen economic relationships with other countries interested in cooperation with subjects of innovative activity. At the same time, regional tasks are solved through close cooperation between federal and regional authorities and administration, because the latter are better known economic, technical and social needs of the regions. And the degree of convergence of the three levels of formation of regional innovative policy (regional policy, regional components of the federal and the transnational policy) recently tends to increase.

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Аңдатпа

Инновациялық дамуда елеулі нәтижелерге қол жеткізген елдерде қаржыландыру маңызды орын алатын мемлекеттік реттеудің тікелей әдістерімен қатар ынталандыру әдістеріне баса назар аудара отырып, инновацияларды тарату жөніндегі шаралар қабылданады. Осы әдістердің тығыз үйлесуі кезінде шешілетін міндеттердің бірі инновациялық кооперацияны дамыту болып табылады. Осыған байланысты зерттеудің мақсаты Қазақстан Республикасында инновациялық қызметті реттеу шараларын жетілдіру кезінде оларды ықтимал есепке алу үшін дамыған елдерде (АҚШ, Жапония және Еуропалық Одақ мысалында) инновациялық қызметті мемлекеттік реттеуді күшейту ерекшеліктері мен тенденцияларын талдау болып табылады. Мақалада бірқатар елдердің инновациялық жүйелерін дамытуда байқалатын инновациялық қызметті мемлекеттік реттеуді күшейту үрдістері көрсетілген. АҚШ-тың оны жандандыруға ықпал ететін инновациялық қызметінің ерекшеліктері қарастырылды. Авторлармен Жапонияның инновациялық саясатының аспектілері айқындалды, онда инновациялық қызметтің үздік нәтижелеріне қол жеткізу бойынша мемлекет пен бизнестің күш-жігері көрініс тапты. Ұлттық және өңірлік инновациялық жүйелерді табысты дамытатын ЕО елдерінде (Германия, Ұлыбритания және Франция) инновациялық қызметті мемлекеттік реттеудің негізгі шаралары сипатталған. Мақалада Қазақстан Республикасындағы инновациялық қызметті реттеу шараларын жетілдіру кезінде зерттеу барысында анықталған үрдістерді ықтимал есепке алуға қатысты бірқатар қорытындылар мен ұсынымдар берілген.

Тірек сөздер: мемлекеттік реттеу, инновацияларды басқару, өңірлік экономика, инновациялық жүйелер, тенденциялар, талдау, ынталандыру әдістері.

Аннотация

В странах, добившихся значительных результатов в инновационном развитии, наряду с прямыми методами государственного регулирования, важнейшее место среди которых занимает финансирование, принимаются меры по распространению инноваций с акцентом на методы стимулирования. Одной из задач, решаемых при тесном сочетании данных методов, является развитие инновационной кооперации. В связи с этим целью исследования является анализ особенностей и тенденций усиления государственного регулирования инновационной деятельности в развитых странах (на примере США, Японии и Европейского союза) для возможного их учета при совершенствовании мер регулирования инновационной деятельности в Республике Казахстан. В статье показаны тенденции усиления государственного регулирования инновационной деятельности, прослеживающиеся в развитии инновационных систем ряда стран, рассмотрены особенности инновационной деятельности США, способствующие ее активизации. Авторами выявлены аспекты инновационной политики Японии, в которых нашли отражение усилия государства и бизнеса по достижению лучших результатов инновационной деятельности. Охарактеризованы основные меры государственного регулирования инновационной деятельности в странах ЕС, успешно развивающих национальные и региональные инновационные системы (Германии, Великобритании и Франции). В статье представлен ряд выводов и рекомендаций относительно возможности учета выявленных в ходе исследования тенденций в целях совершенствования мер регулирования инновационной деятельности в Республике Казахстан.

Ключевые слова: государственное регулирование, управление инновациями, региональная экономика, инновационные системы, тенденции, анализ, методы стимулирования.