

Directions of Stimulation of Technology Transfer Abroad and Possibilities of Use in Russia

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Abstract In the conditions of formation of post-industrial society development of technologies is qualitatively new factor of effective formation of economy of innovative type. That fact doesn't raise doubts that it isn't enough existence of technologies for successful formation of economy of new type, the effective system of technology transfer is necessary. Among the main characters in production of technology transfer the centers of technology transfer which main objective is the technology transfer and also all processes accompanying it are. It is necessary to investigate how to stimulate development of the Russian centers of technology transfer at this stage of formation of the Russian Federation, on what it is necessary to pay first of all attention in their activity. Today Russia has no such experience, objectively is explained by a condition and attention to development of scientific and technical progress. In this regard very the importance gets studying and loan of the international experience, allocation of the moments which should be used in practice of the organization and functioning of the Russian centers of technology transfer.

Key words: Technology transfer • Transferred technology • Centers of technology transfer • British Technology Group • Centers of Regional Innovations and Technology Transfer • Stimulation of technology transfer

INTRODUCTION

During the modern period of globalization of economy the role of scientific researches, creations and introductions of new technologies of mechanisms and methods of sustainable economic development increases in the world. One of the main components of development of economy is the technology transfer.

The technology transfer is one of the most important parts of innovative process and is realization of procedure of transfer of new scientific and technical knowledge from their owner (developer) to the producer (customer). Thus participants of procedure enter the long-term relations caused by legal instrument (the license contract) and directed on achievement, first of all, material success from introduction of new technologies in production [1].

58% of the transferred technology originates in five countries-Germany, USA, Japan, Denmark and China. 84% of the transferred technology originates in developed countries. The leading suppliers of technology among developing countries are China, India, Chinese Taipei, Brazil and Malaysia [2].

The technology transfer assumes not only transfer of knowledge, but also their transformation into innovative technology with active participation as source of this of the technology/invention, recipient/user and end user of the product made by means of this innovation. Thus technology transfer provides participation as a minimum of two most important subjects of this process which existence is an indispensable condition of its existence-a source and the recipient of technology. Therefore the M of Sharif and R. Kabir recommend the main attention to accent at research of technology transfer not so much on technology as that, how many on subjects-participants of this process and features of their relationship [3].

Among the main characters in production of technology transfer the centers of a technology transfer which main task is association of efforts of science, production and investors for the purpose of advance of innovative technologies on the market, strengthening of competitiveness of Russian economy are. Except the centers of technology transfer there are also other subjects of the innovative infrastructure, urged to

stimulate innovative advance of Russia, however for the centers of technology transfer specific functions on implementation of technology transfer which other subjects aren't always able to execute are inherent.

In many countries of a form of functioning of the centers of technology transfer different, however mission and the purposes are almost identical-the help in search, an assessment and introduction of innovations. Forms of implementation of the centers of technology transfer of the activity often depend on economical and social level of the states, in particular opportunities of public financing, legislative protectionism, etc. [4]. Studying of foreign experience of the organization of the centers of technology transfer is important for the Russian Federation from the point of view of the organization new and improvement of the existing centers of technology transfer taking into account an economic situation in the country, the potential of innovative development.

Stimulation of Technology Transfer Abroad: Research of problems of stimulation of technology transfer abroad reflects certain features of historical development of the countries. In particular, for the purpose of an effective technology transfer the Government of the USA in 1986 created Consortium of federal scientific laboratories. It stimulated establishment of contacts between the companies (first of all important for small knowledge-intensive firms) with competent federal and regional scientific divisions which looked for sales markets of offered innovations. Thus authorities initiated special programs which provided budgeting by federal divisions of scientific researches, development and their advance on the market small enterprises (if these divisions had the annual budget on research and development more than 100 mln USD. The USA-not less than 1,25% of this budget went on support of the small knowledge-intensive enterprises) [5].

At the same time, in the USA the free telephone line with representatives of the databases, necessary for technology transfer of information was open, directories are published, there was a training of the centers of technology transfer in mechanisms of effective implementation of technology transfer.

The legislation of the USA provided in due time to universities, the non-profitable organizations and small business the right to transfer licenses to the industrial companies to commercial use of the inventions made during researches in the presence of financial support of the government. It led to rapid growth of divisions at

universities-the centers of technology transfer which held consultations on registration of licenses and introductions of new inventions.

For Russia it would be expedient to offer financial support of the existing centers of technology transfer (especially for what are formed on the basis of higher education institutions), for the purpose of stimulation of their rather effective search of sales markets of innovations. After all not always the Russian centers of technology transfer have access to sales channels. Databases necessary for this purpose remain expensive that complicates a successful technology transfer.

The Ministry of Trade and the industries of Great Britain in 2002 increased expenses in the budget for the article "support of innovations and technologies" by 20%. Thus paramount value was given to developments of scientific and technical infrastructure (57% of the budget of the Ministry for research and development). 29% and for distribution of the best ways of introduction of innovations of 10% were allocated for development of technology transfer from this sum [6].

One of forms of the centers of technology transfer in Great Britain can consider British Technology Group (BTG) which was formed in 1981 as the self-sufficient state organization and was privatized in 1992 according to the special scheme [7].

BTG promoted a technology transfer from universities and other research establishments of public sector in the industry on the basis of licenses. Among the BTG functions there was a carrying out examination of economic value of innovative ideas, financing of the most perspective, patenting abroad inventions of English experts and protection of foreign intellectual property in Great Britain. Here It should be noted that it is useful for Russian centers of technology transfer to aim not only at search and advance of high technologies of Russian invention, as well as at innovations of the knowledge-intensive companies nonresidents producing the inventions in our market. It, on the one hand, will promote trust and support of our state from the world community, with another-to stimulate innovative development of Russia.

Today as for the USA and Great Britain use of indirect methods of stimulation of the centers of technology transfer because of application of privileges in the customs and tax legislation is characteristic.

As the Russian centers of technology transfer subjects of innovative infrastructure of Germany various joint research associations in the industry which activity

Table 1. Stimulation of technology transfer abroad and possible application in Russia

Country	Directions of stimulation of technology transfer	Possibilities of use in Russia
USA	Financing of researches and development of the small knowledge-intensive enterprises through federal and regional scientific divisions of authorities. Opening of the free telephone line with representatives of databases necessary for technology transfer of information; edition of directories, training of the centers of technology transfer of mechanisms of effective implementation of technology transfer.	The financial help to the centers of technology transfer for the purpose of effective advance of innovations of the small knowledge-intensive enterprises by them. Similar measures are expedient and for the Russian centers of technology transfer.
Great Britain	Increase in expenses in the budget for the purpose of development of scientific and technical infrastructure. Examination from BTG of economic value of innovative ideas and financing of the most perspective, patenting abroad inventions of English experts and protection of foreign intellectual property in Great Britain.	
Germany	Granting by the federal government of subsidies (can reach 46% of a total cost of the ordered research and development) for receiving by the small knowledge-intensive enterprises of the help in a successful technology transfer.	For the Russian centers of technology transfer it is expedient to have financial support not only, actually, for technology transfer, but also for search and adjustment of communication “the inventor-the center of technology transfer-the customer”.
France	The government supports an extensive network of the specialized regional centers of innovations and technology transfer.	It is expedient to Russian centers of technology transfer to support and adjust interrelations among themselves as often each of them deals with innovations of only a certain profile (that is explained by base of creation). The corresponding and timely exchange of information on a commercial basis will stimulate an effective technology transfer.
Poland	Financing by the government of creation of the noncommercial centers of technology transfer and those projects in which EU countries are interested.	Russia is on a similar way of innovative development, however there is still a set of the unresolved moments in the sphere of the state protectionism and financing of the centers of technology transfer.
Finland, Belgium, Denmark, Portugal	Creation on a regional basis of the special centers for cooperation of universities and the industry, the interdisciplinary centers, the innovative centers for technology transfer in small and medium business.	
China, South Korea, Thailand, Singapore, Taiwan, Russia	The main lever of a successful technology transfer is the preferential taxation which directions have flexible character and depend on strategic reference points of the state in science and the industry.	

is mainly financed at the expense of subsidies of the government of Germany and the income from performance of the ordered researches are structurally similar. Their main task is assistance to introduction in a high-tech industry and carrying out researches of nation-wide value. For the small firms needing services of technology transfer, the government provides subsidies at the rate to 40% from a total cost of the ordered research and development [8].

Thus, both the USA and Germany chose similar ways of development of technology transfer-emphasis on financing of the centers of technology transfer and similar structures for the purpose of successful advance of innovations. Thus less attention is paid to adjustment of communication “the inventor-the centers

of technology transfer-the customer” that is actual for Russia.

A little approach of France where the government supports an extensive network of the specialized Centres Regionaux d’Innovations et de Transfert de Technologies (CRITT) differs. Differently, the centers of technology transfer are united in a network, but it isn't a network of this kind which exists now in the Russian Federation. Each Russian network is rather similar to the large-scale center of technology transfer.

Expediently to adjust interrelation between the Russian centers of technology transfer, first of all, in case of search of a sales market or the buyer of a certain technology when the center of technology transfer doesn't possess necessary data for this purpose, usually

on the commercial beginnings. Besides, the various centers of technology transfer, depending on features of their creation (for example, the centers of technology transfer on the basis of technical college deal more with inventions, than the centers of technology transfer on the basis of industrial corporations, produce the latest technological decisions more often) often deal with various types of databases. The corresponding and timely exchange of information will promote a fast and successful technology transfer.

Experience of Poland as both states are closely bound by the general historical roots is especially informative for Russia. Poland is aimed at creation and development of the noncommercial centers of technology transfer on the basis of higher education institutions and other research establishments, is financed from the government [9]. Financing according to those projects in which the European Union is interested, other, not less important researches for the Poland and development is mainly carried out, gain minor value.

In other European countries, such as Finland, Belgium, Denmark, Portugal, are created the special centers for cooperation of universities and the industry, the interdisciplinary centers, the innovative centers for technology transfer in small and medium business. As a rule, they act on a regional basis. For Russia the same tendency is characteristic, however in connection with considerable financial restrictions creation and development of the Russian centers of technology transfer happens the slowed-down rates.

Experience of the Asian countries (China, South Korea, Thailand, Singapore, Taiwan) is based that the main leverage on development of the centers of technology transfer is the preferential taxation. The directions of such taxation have flexible character and depend on strategic scientific and industrial reference points of the state at present.

RESULTS

Results of research are given in Table 1.

Results of research show that the organization and functioning of the centers of technology transfer in the world is supported depending on a technological and economic level of development of the state, by means of straight lines and indirect methods [10]. In particular, for India, China the policy of the accelerated development of innovative technologies that is explained by application of purposeful programs of public financing (direct methods) is characteristic.

For Russia use of the indirect methods connected with increase in number of Russian and foreign investors is characteristic. Therefore, in our opinion, introduction of system approach to stimulation by the state of development of the Russian centers of technology transfer is important: in the direction of increase of efficiency of technology transfer and, respectively, competitiveness of the national producer that, in turn, will promote growth of size of receipts in the budget of the Russian Federation.

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