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Innovations as a way of the USA's competitiveness

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Abstract

Despite of the fact, that the leader on quantity of the Global Innovation Index has been Switzerland for several years (Index is 68.3), the United States of America have one of the most powerful innovation infrastructure in the world and hold 5th place (Index is 60.1). The development of positive innovation climate is one of the most significant political direction in the USA. Fundamental achievements in the sphere of innovations are officially recognized as the base for economic growth. The problem of development of science and technologies has acquired essential importance in order to achieve national goals. In this way, the most effective principles of distribution of state funds for research and development in priority areas for national economy are worked out in the USA. The government creates various favorable terms for innovations' development, whereupon this country can be named a leader in the field of technological achievements now. Mobility promotion policy between research institutions and industry is based mainly on the idea of removing barriers in the labor market: regime of entry and employment is simplifying, the variety of training programs is increasing.

Keywords: innovations, National Innovation System, Innovation System of the USA, innovation clusters, financing of innovations, research and development, innovation policy.

1. Introduction

Despite of the fact, that the leader on quantity of the Global Innovation Index which is the most comprehensive set of indicators of innovative development in various countries around the world and which is calculated by International Business School INSEAD has been Switzerland for several years (Index is 68.3), the United States of America have one of the most powerful innovation infrastructure in the world and hold 5th place (Index is 60.1) after the United Kingdom (Index is 62.42), Sweden (Index is 62.4) and Netherlands (Index is 61.6) [2].

The development of positive innovation climate is one of the most significant political direction in the USA. Fundamental achievements in the sphere of innovations are officially recognized as the base for economic growth. The problem of development of science and technologies has acquired essential importance in order to achieve national goals [10].

In this way, the most effective principles of distribution of state funds for research and development in priority areas for national economy are worked out in the USA. The government creates various favorable terms for innovations' development, whereupon this country can be named a leader in the field of technological achievements now [11]. Next, the main, existing at the present phase aspects of interaction between the state and market of innovations will be considered.

2. Innovation policy in the USA

Innovative USA's policy can be defined as a market-oriented policy, which suggests the leading role of the market mechanism in the distribution of scarce resources and selecting promising directions of science and technology. Limitation the role of the government in promotion of fundamental research and creation of economic and information environment for innovations in companies, reduction of direct participation of the state agencies in R&D and marker research and significant reduction of direct state regulation are provided. Formation of this political model started during the Cold War because of the active technologies' exchange

between allied countries – Japan, Germany and the United States of America. In the postwar years, when the European economy had been almost destroyed, the USA helped Germany according to Marshall Plan: the USA financed companies in the most developed branches of economy (i.e. mechanical engineering, chemical and automotive industries and etc.) and accepted Japanese experts to studying of American specialists' innovative working-outs. This influenced the development of National innovation systems of Germany and Japan a lot. As a result, of close cooperation during the global economic recovery there are similar organizational political models, but taking into consideration the specifics of every country in Germany, Japan and the United States of America.

Main state USA's policy operations, directed to the support and development of innovations are:

- Financing from the state budget;
- Creating a state investment fund;
- Preferential taxation;
- Indirect promotion through tax, depreciation, patent, customs policies;
- Support of the small innovative enterprises [5].

State subsidies (2.8% of GDP) plays a significant role in the development of scientific and technical progress [7]. The main goal of state financing is maintenance of competitiveness of the country in the domestic and global levels. Preservation of the USA's technological leadership in comparison with the markets of Japan and Western Europe is especially important for the USA.

Structure of financing of the USA's innovation system in 2015 is shown on the Figure 1 [7].

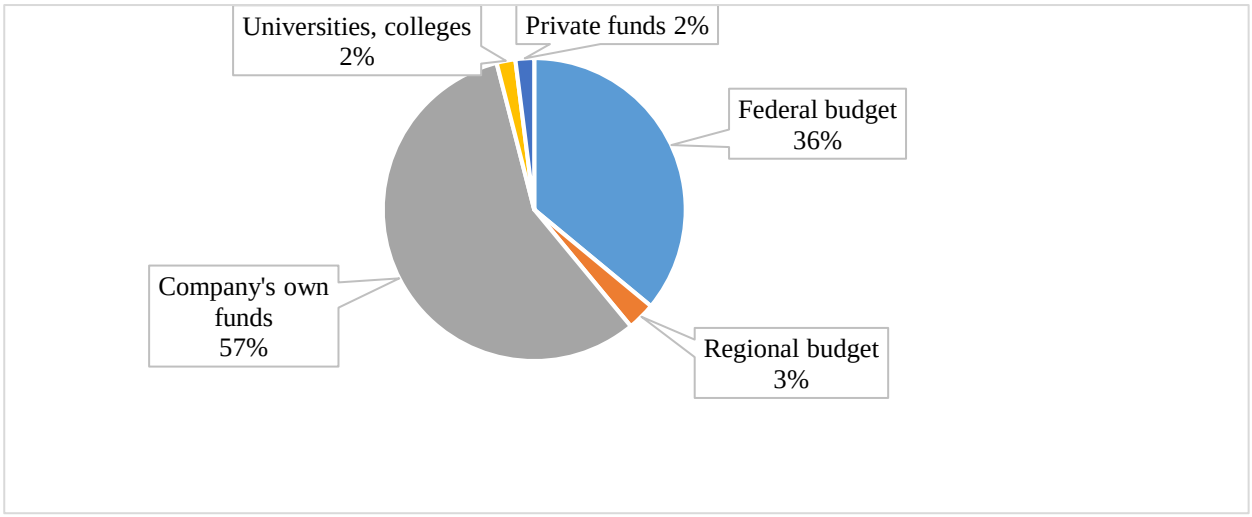

Fig. 1. Structure of financing of innovation system in 2015

Elements of modern the USA's innovation infrastructure are:

- The federal executive agencies;
- Regional executive agencies;
- Intellectual property, patent agencies;
- Venture activities, venture funds;
- Technoparks, technopolises;
- Technology Platforms;
- Centers of scientific and technical information;
- Transfer of information centers;
- Innovation funds and centers;
- Business incubators;
- Training centers and universities;
- Special economic zones [3].

Important area of state support at all levels is promotion to development of venture business. Experts of National Science Foundation of the USA tells that the most effective research centers and venture funds can be financed fully or partially from the federal budget for first 5 years [9]. The government fully finances the most effective and high-technology research because of its complexity, high costs, risk and strong international competition.

3. The sources of innovations in the USA

The main source of the USA's national innovations is universities, substantial part of which takes the first places in world rankings. Harvard University; Columbia University; Yale University; Stanford University; The University of California, Berkeley; Massachusetts Institute of Technology and etc. make the most significant contribution to the scientific development. Distinguishing feature of American universities is very high level of salaries for Teaching Staff. Thereby they succeed to attract the best professors and specialists from all over the world, so the best students, the most of them stays to work and live in the USA. This structure of the USA's National innovation system makes the country unconditional leader in the most research fields and allows to update and expand regularly accumulated intellectual capital base [1].

The primary source of creation of scientific and technical knowledge and the main channel of direct government policy are federal laboratories (Laboratories for Social Entrepreneurship at Harvard and Stanford Universities, NASA at Stanford and etc.), and also another R&D institutions which have unique equipment indispensable for research by universities, private corporations. Now, the total number of federal laboratories operating in the USA is more than 700 [8].

4. Innovation clusters

It is necessary to distinguish the direction of the USA's modern state innovation policy, which involves creation of Science and Technology Parks (Silicon Valley, Route 128 and etc.) which connects universities, R&D institutions (Social Entrepreneurship Center at the University of George Mason, Center for Social Innovation at the Harvard Business School, Center for Entrepreneurship and Innovation at Berkeley and etc.), laboratories which are for providing access to private companies for innovations developed with government support [6]. Otherwise, Science and Technology Parks are called Technology Platforms or innovation clusters [4].

Originally, Technology platforms in the USA were formed predominantly because of market forces, i.e. the government performed a soft regulatory function. However, in 2012 the USA's National Research Council had prepared a report, which emphasized an importance of using of a cluster policy at the state level. Later, researchers from the Brookings Institution explained the relevance of cluster innovation policy at the federal level:

- There are good financial conditions for qualified staff in the working groups of technological platforms;
- Strategies for the development of innovations based on technology platforms are more adequate reflection of reality and based on the comparability analysis of the available resources and opportunities, that makes it feasible;
- Innovation clusters distribute optimally budget resources;
- The center of technological platform is usually a major university or research laboratory, which provide a necessary concentration of personnel;
- Technoparks connect efforts of government, science and business, which is profitable partnership for all participants [6].

Nowadays, the ministries of trade, energy, defense, labor, agriculture, education implement innovation development programs through technology platforms in the USA. In addition, there is a new approach to innovation parks development: combination of efforts of a few departments on cluster's forming. For example, Small Business Administration, the Economic Development Administration, National Institute of Standards and Technology, the National Science Foundation and the Centre for the Development of Education joined to the Department of energy of the USA to create energy-innovation hubs based on regional innovation clusters in the field of solar energy, energy-efficient designs and nuclear energy [11].

5. Conclusion

It should be noted, that before the important feature of technological platform was geographic concentration, but now with the development of the Internet this need has disappeared, the type and nature of relations have transformed. This fact led to the development of international strategic alliances in the area of innovations, which stimulate the cluster's mobility and qualified personnel. Mobility promotion policy between research institutions and industry is based mainly on the idea of removing barriers in the labor market: regime of entry and employment is simplifying, the variety of training programs is increasing. All the most advanced countries such as Britain, France, Canada, Germany, Australia, Sweden, Belgium and others follow this example.

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