

ARTICLE

MECHANISM OF MANAGEMENT OF INNOVATIVE ADVANTAGES OF THE REGION (THE REPUBLIC OF TATARSTAN, THE RUSSIAN FEDERATION)

Ekaterina V. Krotkova*

Kazan Federal University, Department of production management, Naberezhnye Chelny Institute, RUSSIA

ABSTRACT

In the article some approaches to the formation of innovative advantages of the region (on the example of the Republic of Tatarstan of the Russian Federation) are considered and the main problems arising in this case are highlighted. It is emphasized that in the complex socio-economic development of the Republic of Tatarstan, one of the important issues is the formation of an innovation environment, the development of innovative business. The methodological basis of the study was a dialectical method of cognition and a systematic approach to the analysis of the facts and phenomena under consideration. The analysis methods used in various combinations at each stage of the study, depending on the purpose of the study and the problems examined, contributed to the increase in the reliability and validity of the conclusions made by the author. Assessment of innovative advantages of the region is carried out by means of researching the components of the innovation infrastructure in the region. The calculation of the integral indicator of the provision of the innovative process of the infrastructure development component of the Republic of Tatarstan made it possible to identify shortcomings in financial activity. Diagnostics of the asymmetry of labor productivity of residents and non-residents of a business incubator made it possible to determine the effectiveness of investing budget funds in the implementation of an innovation structure - a business incubator. The mechanism of managing the innovative advantages of the region, through the components of the innovation infrastructure, has shown that the functioning of the innovation infrastructure is influenced by the system of state centers of scientific and technical information, structures that support small businesses, technology transfer centers in the region. Applied mechanisms and methods of control do not ensure effective use of budget funds allocated for the development of innovation infrastructure. It is necessary to develop a methodology for assessing the effectiveness of innovation infrastructure based on the calculation of the integral indicator.

INTRODUCTION

At present, Russia faces the problem of transferring the economy to an innovative development path. Despite the measures taken by the state, the innovative activity of the business sector remains rather low (in 2016 - 9.4%). Innovative advantages of the region (IRP) determine the superiority of the region in terms of the level of development of high-tech sectors of the economy and the corresponding institutional, infrastructure, administrative and organizational support with an output at the leading level of economic development [1]. The advantage of the region can be characterized as the possession of a resource potential, a beneficial natural and climatic situation, a high socio-economic development of the region, a significant level of labor productivity, high rates of gross regional product, etc. Existing economic categories identified in the works of foreign and domestic researchers: absolute, comparative and competitive advantages of the region.

One can single out the absolute advantages of A. Smith [2] and the comparative advantages of D. Ricardo [3] associated with superiority in production costs, natural factors, traditions, in the experience and skills of the population, as well as the division of labor. The protectionist views of F. List [4], A. Gamilton [5], N. Senior [6], D. Mill [7], F. Sombart [8], K. Marks [9] do not accentuate the role of innovations in the formation of advanced position of the region. Of the four factors determining economic growth - labor, capital, natural resources and scientific and technological level. The latter factor is decisive in the long term.

Competitive advantages are dynamic, connected with innovations, development of human capital, intellect. M. Porter [10] determines the importance of local conditions for creating competitive advantages and productivity of the use of regional resources (labor and capital). Intellectual resources and intangible assets, which underlie innovative development, require new management approaches, including within the framework of regional management.

E. Sumina, A. Badyukov [1] believe that the region's IPRs allow implementing the strategy of advanced economic development, include the directions of development of industry and other branches of the economy, technologies that make up the core of the high-tech way of life. State support, institutional and infrastructural component is the main in the innovative development of the region.

Competitive advantages of the region require the formation and infrastructure of the implementation of innovative processes, targeting a higher level of manufacturability and science-intensive production. IPR are the basis for achieving long-term competitive advantages of the region, the purposeful formation of a system and management mechanism.

KEY WORDS

innovative advantages,
innovative infrastructure,
financial component,
innovation, asymmetry,
intearal indicator

Received: 10 April 2018

Accepted: 31 May 2018

Published: 3 June 2018

*Corresponding Author

Email:

EVKrotkova@kpfu.ru

MATERIALS AND METHODS

The results of innovation activity at the regional level are expressed in terms of innovation activity within the framework of the indicators for the implementation of the Strategy for Innovative Development of the Russian Federation until 2020 and the Strategy for the Development of Scientific and Innovation Activities in the Republic of Tatarstan until 2015. The main target indicators are the number of personnel engaged in research and development for young scientists up to 39 years of age in the total number of scientists, the number of patents for inventions, the proportion of organizations that carry out technological innovation, the share of innovative products in the total volume of shipped goods and services provided, the share of the high-tech sector in the gross regional product, the number of advanced manufacturing technologies created and other benchmarks.

In modern conditions, the system components of the IPR are a prerequisite for the innovative development of the region, which are manifested in the components of the region's innovation infrastructure. Reproduction of regional knowledge is expressed in improving the indicators of innovation infrastructure in the region, and, consequently, innovation activity.

The financial component of the innovation infrastructure of the Republic of Tatarstan was estimated [11], using the methodology presented in [12]. Diagnostics of the asymmetry indicator of small business development was also carried out [13].

Small and medium-sized businesses are gradually gaining a dominant role, as the most adapted to the rapid change of technology products, which can create competitive products at lower capital investments and be competitive at the expense of high added value. Also, the positive effect of the innovative infrastructure in the region is the growth of the gross regional product.

RESULTS AND DISCUSSION

According to the results of the study, it was revealed that the main source of funding for the development of innovations in the region are other funds and the own funds of innovators (organizations). At its own expense, in 2015, an average of 35% of the costs of innovative activities of organizations (15% higher than in 2014) was financed, 67.1% of costs were financed by other means (1.6 times higher than in 2014 year). Not a high indicator of such sources of financing leads to a decrease in the growth of the number of small innovative enterprises (decreased by 8% compared to the previous period).

In 2015, the average annual growth rate of financing of investment and innovation projects was 2.3%. In 2014, with the participation of the venture fund, 358 innovative projects were supported for a total funding amount of 592 million rubles. In 2015, according to statistical reports, the share of innovative goods in the total volume of shipped goods of innovation-active enterprises was 20.4% in the Republic of Tatarstan [14] (1% lower compared to 2014) [Fig. 1]. However, this is not the highest rate among the regions of the Volga Federal District, for example, for the Republic of Mordovia for the same period, the volume of innovative goods, works, services was 27%.

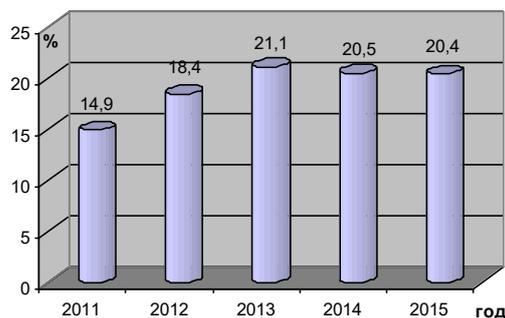


Fig. 1: The specific weight of the volume of shipped innovative goods in the total volume of shipped goods.

One can single out a number of factors that reduce the financial development of the region's innovation infrastructure. This is the ineffectiveness of state control over the mechanism for supporting organizations, the lack of control over the return of the invested public funds, in addition, the low effective demand for new goods, work, services, the high cost of innovation, high economic risk, entrepreneurs' lack of interest in introducing innovations [15] etc.

Diagnostics of the asymmetry index showed that the asymmetry coefficients are more positive than positive, thus, enterprises have higher labor productivity indices. At the same time, one can observe a trend towards an increase in this indicator among non-residents of a business incubator, in addition, when

all non-residents reach a business incubator with maximum labor productivity, the average output will be much higher than that of residents. This shows that enterprises that do not have preferences, in comparison with residents, tend to develop their business more.

Internal costs of the Republic of Tatarstan for research and development in 2015 increased by 0.2%, in 2014 - 9.5% [Table 1].

Table 1: Indicators of innovation activity of the Republic of Tatarstan for 2013-2015

	2013 year	2014 year	2015 year
Gross regional product, million rubles.	1551472,1	1671397,1	1825001,2
Growth rate		107,7	109,2
Number of staff engaged in research and development, h	13079	11982	12708
Growth rate		91,6	106,1
Internal costs of research and development (million rubles)	11125,8	12180,8	12202,2
Growth rate		109,5	100,2
Patents for inventions, pcs.	705	781	882
Growth rate		110,8	112,9
Innovative activity of organizations, %	21	20,5	20,5
Growth rate		97,6	100,0
The share of innovative products in the total volume, %	21,1	20,5	20,4
Growth rate		97,2	99,5

As can be seen from the received results, the percentage of those engaged in scientific research and development increased by 6.1%. At the same time, the innovative activity of enterprises has remained unchanged for the last two years, while the share of innovative products has decreased by 0.5%. Despite the decline in the innovation component, the growth of the gross regional product is observed at 16.9% in two years (2014 - 7.7%, 2015 - 9.2%), which has a favorable effect on the state of the region's economy.

In comparison with other regions of the Volga Federal District for innovative advantages, we will present a table that characterizes the following indicators [Table 2].

The results of the analysis make it possible to conclude that in 2015, despite an increase in the internal costs of research and development, the growth in the number of personnel, there was a decline in the share of innovative products. In the Nizhny Novgorod and Samara regions by 5.5 and 2 percentage points, respectively. The Nizhny Novgorod region has the highest internal research costs, compared to all regions of the Volga Federal District, while the growth of the gross domestic product in 2015 was only 5%, in comparison with the Samara region - 7.7%, the Republic of Tatarstan - 9.2 %.

DISCUSSION

As a result of the research, it was revealed that a number of indicators (the effectiveness of using own and attracted funds) testifies to the ability of the region to more intensive innovative development, but the existing regional innovation infrastructure does not sufficiently contribute to this. This is due to the fact that mechanisms for implementing support instruments have not been adequately worked out, the mechanism of control by the authorities for spending budget funds and investor funds is ineffective, the mechanism for accounting for innovative products in the total volume of goods and services is not perfect [16].

In the Republic of Tatarstan, significant efforts have been made to support small and medium-sized enterprises. However, the system of state control over the use of budget funds allocated to support medium and small businesses is not effective enough. Authorities should track the actually functioning enterprises after the withdrawal from the incubation period, determine the effectiveness of their activities and assess the impact of government support. In our opinion, this is the main shortcoming of the mechanism of state control over the activities of business incubators. In order to eliminate this drawback,

the method of calculating the asymmetry coefficient can be applied, which makes it possible to determine the efficiency of enterprises and ensure effective investments of budget funds [13].

Table 2: Comparative characteristics of innovation activity by regions - leaders of the Volga Federal District in 2015

	Republic of Tatarstan	Nizhny Novgorod Region	Samara Region
Gross regional product, million rubles			
2014 year	1671397,1	1018351,5	1151955,3
2015 year	1825001,2	1069300	1240300
Number of staff engaged in research and development, h			
2014 year	11982	39703	12894
2015 year	12708	39961	12700
Internal costs for research and development, million rubles			
2014 year	12180,8	58507,8	14596,4
2015 year	12202,2	65584,1	17353,3
The share of innovative products in the total volume, %			
2014 year	20,5	21,3	21,1
2015 year	20,4	15,8	19,1

Among the reasons for the low development of innovations in the region can be identified: a low level of motivation, a shortage of engineering specialties, a mismatch between the scientific and research material base of the tasks facing modern science, the underdevelopment of the technology transfer infrastructure, the lack of traditions and the practice of commercializing ideas. In addition, we distinguish the entrepreneurial innovation environment, as a factor of the necessary condition for the development of entrepreneurial activity and the reproduction of inventions, their practical implementation. Therefore, it is necessary to form effective mechanisms for involving business in priority technological areas.

Part of the objects of innovative advantages of the region exists nominally, which adversely affects the formation of a competitive innovative economy of the region and shows the relative underdevelopment of Russian entrepreneurship. This is evidenced by the indicators of innovation activity of enterprises, in recent years their values have decreased by 0.5%. The share of innovative products in the total volume of manufactured goods declined by 1.7% in three years. At the same time, gross regional product growth in 9.2% is observed in 2015, which has a favorable effect on the regional economy.

CONCLUSION

According to the results of the study, it can be concluded that, despite the rather high level of innovative advantages of the region, there is an inefficient investment of budget funds in the creation of an innovative infrastructure. Applied mechanisms and methods of control do not ensure effective use of the created structures of support of entrepreneurship. It is necessary to really use the available resources for technology transfer, provide timely advisory assistance on securing intellectual property rights and their commercialization, development of research and development facilities, increasing the motivation of entrepreneurs and their involvement in research and development.

To solve the identified problems, there could be a scientifically grounded, holistic methodology for assessing the effectiveness of the activity of subjects of innovation infrastructure on the basis of calculations of the integral indicator of the provision of innovative development of the infrastructure of the Republic of Tatarstan and the diagnosis of indicators of companies' asymmetry in the corresponding indicators proposed by the authors. The article reveals not only the reasons for the low development of the region's innovation infrastructure, but also the concrete measures substantiated by the results of the conducted research.

The authors believe that the Republic of Tatarstan has high innovative advantages, however, the management system of innovation economy through mechanisms and tools of innovation infrastructure, urgently requires improving the quality of implementation and application technology.

CONFLICT OF INTEREST

There is no conflict of interest.

ACKNOWLEDGEMENTS

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

FINANCIAL DISCLOSURE

None

REFERENCES

- [1] Sumina EV. [2015] Innovative advantages of the region: essence and role in the conditions of reindustrialization, Innovative Herald Region. 1:1-7.
- [2] Smith A. [1981] An Inquiry into the Nature and Causes of the Wealth of Nations Edited by Edwin Cannan. With a Preface by George J Stigler. 1152: 524-568.
- [3] Ricardo D. [1996] Principles of Political Economy and Taxation Prometheus Books. 306.
- [4] List F. [1980] Das national System der politischen Oekonomie Friedrich List herausgegeben von Arthur Sommer. Berlin Reimar Hobbing. 13: 664. 25 cm.
- [5] [2007] Hamilton Alexander Report on the Subject of Manufactures Alexander Hamilton. Cosimo, Inc. 84.
- [6] [2002] Senior Nassau William an Outline of the Science of Political Economy Nassau William Senior W Clowes and sons. 96.
- [7] [1909] Mill, John Stuart Principles of Political Economy with some of their Applications to Social Philosophy John Stuart Mill. London; Longmans, Green and Co. 1084.
- [8] [2001] Sombart Werner the Jews and Modern Capitalism Werner Sombart. Batoche Books Limtied, Canada. 279.
- [9] [1996] Karl Marx Das Kapital Marx Karl. - Paperback, Abridged. 356 p.
- [10] [1980] Porter Michael Competitive Strategy Michael Porter. USA, Hardcover. 658.
- Krotkova EV. [2017] Financial Component of the Innovation Infrastructure of the Region: Evidence from Republic of Tatarstan International Journal of Economic Perspectives. 11(3): 241.
- Krotkova EV. [2017] Assessment of the Innovation Infrastructure Financial Component of the Republic of Tatarstan [Text] EV Krotkova Economics and Entrepreneurship. 2 (1):1235.
- Krotkova EV, Mullakhmetov Kh Sh, Akhmetshin EM. [2016] State control over small business development: approaches to the organization and problems (experience of the Republic of Tatarstan, the Russian Federation) Academy of Strategic Management Journal. 15(1):15-21.
- State Report On the Innovation Activity Results in the Republic of Tatarstan in 2014 [Electronic resource] URL: http://mert.tatarstan.ru/rus/results_of_innovative_activity.htm (access date September 12, 2017)
- Sadriev RD, Mullakhmetov KS, Krotkova EV, Gabaidullina LA. [2016] Introduction of Lean Production at Russian Enterprises: Perspectives and Problems. International Journal of Economics and Financial Issues. 6(8):39-48.
- Mullakhmetov K. [2016] Control in the system of managerial decisions procedures: A conceptual view. Problems and Perspectives in Management. 14(3):64-76. doi:10.21511/ppm.14(3-1):07.