STRATEGY OF INNOVATIVE DEVELOPMENT FOR THE REPUBLIC OF TATARSTAN


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Abstract. The paper describes practical aspects of innovative development processes in the Republic of Tatarstan. The dynamics of innovative processes in the Republic of Tatarstan is presented on the basis of introduction of advanced production technologies. The indicators of innovative activity of enterprises for the last ten years are analyzed. Classification of innovative enterprises by types of economic activity was carried out. The strategy of innovative development of Tatarstan is reflected. The main focus is on the application of the cluster approach which involves interaction of science, education, business and authorities. The specifics of the innovative infrastructure functioning in the republic are revealed, the task of which is to create an effective mechanism for the transfer of technology, the commercialization of innovations, and the production of competitive products. It is determined that the maximum effect from the introduction of innovations depends on the innovation process structuring quality. The managerial recommendations for stimulating innovation at the regional level are reflected.

Key words: innovative development strategies, innovative activity of enterprises, innovative infrastructure, cluster approach, commercialization of innovations.

1. INTRODUCTION

The strategic task of economic development for the Republic of Tatarstan is the activation of innovation activities at the regional level. The adopted "Strategy for the development of the Volga Federal District for the period until 2020" calls for the strengthening of the role of innovation in the socio-economic development of the region as one of the mechanisms for achieving strategic goals (Strategy of social and economic development of the Volga Federal District for the period until 2020, 2011).

At present, the sources of extensive economic growth are largely exhausted. Innovation is a key factor in the development of the economy in the face of the limited nature of all types of resources. The real opportunity to increase the competitiveness of domestic products is the introduction of the results of research and development through the transfer of technology. The presence of a development strategy which involves the constant introduction of innovations in the production and introduction of innovative products on the market is the key to success. Due to the specifics of the innovation process, the implementation of a sustainable innovative development of the industrial complex is possible only with the simultaneous development of the scientific sphere.

The Republic of Tatarstan is currently one of the leading Russian regions, where innovative approaches and modern technologies are being introduced in many areas, and, first of all, in oil production, refining, petrochemical industry, machine building, IT and high-tech medicine. The availability of modern innovative infrastructure and active state support ensured the creation of favorable conditions for the increase of innovative activity in the republic. According to the rating of innovation activity of the regions, which is annually compiled by the National Association of Innovations and Information Technologies Development, Tatarstan ranked second in 2014. (The innovative development rating of the constituent entities of the Russian Federation, 2014).

In 2015, the Strategy of social and economic development in the Republic of Tatarstan until 2030 was adopted, the goal of which is the creation of an innovative economy based on knowledge. Considerable attention is paid to the interaction of science, education, business and government within the framework of the cluster approach. Cluster organization involves expanding the opportunity for business to participate in the development and implementation of activities in the most important areas of economic policy in the Republic of Tatarstan.

In Tatarstan, there is envisaged creation of 10 innovative clusters being a "pilot" project within the framework of the National Technological Initiative. A special role in the innovative development of the republic is played by the Kamsky Innovative Territorial and Production Cluster, InnoKam, which is the main point of economic growth in the Republic of Tatarstan. The cluster specializes in oil refining, petrochemical industry, and automotive industry. The share of the cluster in the gross regional product of the republic is over 25%, and the volume of investments is about 40% (Zdunov, 2015).

By 2020, it is planned to increase the volume of industrial production of the Kamsky Innovation Cluster by 3 times. For this purpose, large investment projects are being implemented in the priority sectors of industry in the republic, such as the construction of a deep oil processing plant JSC TANECO, the construction of a complex for deep processing of heavy residues TAIF-NK, the construction of a complex "Ammoniy" for the ammonia, methanol and carbamide production in the town of Mendeleevsk, the construction of organosilicone material production facilities in KZSK-Silicon, and others.

A key role in the Kamsky cluster is assigned to the special industrial production economic zone such as "Alabuga" which has attracted 48 resident companies. Residents of the special economic zone are represented by three key clusters: the automobile and automotive components manufacture, the processing of polymers into finished products, and the production of building materials. In the territory of the SEZ "Alabuga" there are realized projects in the food industry, woodworking, glass production, composite materials, and machine building (Zdunov, 2015).

2. METHODOLOGY OF RESEARCH

An assessment of innovation activity dynamics for enterprises of the republic shows that the number of innovative active enterprises in the period from 2005 to 2015 is characterized by an annual increase. The level of innovative activity of enterprises in the country over the past ten years has grown from 12.7% in 2005 up to 19.5% in 2015. In the Republic of Tatarstan in 2015, 157 organizations, or 20.5% of
all organizations surveyed, were engaged in innovative activity (Kodolova, 2016).
In the republic, the general picture of innovation processes is determined by industrial enterprises which differ in their higher level of innovative activity. The share of industrial enterprises in 2015 was 76% of all active innovative organizations (in 2008 - 87.7%) (Science and innovation in the Republic of Tatarstan, 2016).

The volume of innovative goods, works, and services in the Republic of Tatarstan in 2015 amounted to 373,171.4 million rubles. The bulk of the shipped innovative products are accounted for by industry organizations. Basically, these are large enterprises of oil production and oil refining, chemical, food industry, and automotive industry, which possess wide production capabilities, have a high share of added value of shipped innovative products in the total volume of shipment.

The distribution of the number of organizations engaged in innovation activities by types of economic activity in 2015 is shown in Fig.1.

The share of processing industries accounts for by 59.2% of innovative-active enterprises, 12.7% are companies engaged in research and development. Economic activity of 8.9% of innovation-active enterprises is related to the extraction of minerals.

The analysis of the operating results for enterprises of the Republic of Tatarstan shows that among the total number of organizations engaged in innovative activity, innovative processes are actively implemented in the organizations engaged in scientific research and development (14%), electrical equipment (10.4%), food production (8.5% (7.9%), production of fuel and energy minerals (7.6%), production and distribution of electricity and gas (5.5%) of (Kodolova, n. d), Fig. 2.

![Fig. 2. Innovative activity of enterprises in the Republic of Tatarstan by types of economic activity](image-url)
In the period of 2008-2015, there have been significant changes in the structure of expenses for the production of innovative products. A significant increase in the total expenses for innovation activity occurred in 2011 and amounted to 44,424.8 million rubles, and compared with 2008 growth was 186%. In 2012 the total amount of innovation expenses in the republic decreased and amounted to 38.3 billion rubles. The largest volume of expenses for innovations for the last ten years in the amount of 96,175.3 million rubles occurred in 2014 (Science and innovation in the Republic of Tatarstan, 2016). The level of innovative activity of organizations implementing technological innovations in 2015 at the enterprises of the republic was 19.5% (in 2008 - 12.8%). The total expenses for technological innovations in the republic increased in three years by 1.4 times and amounted to 53,572.6 million rubles in 2015. By types of innovation activity, the largest share of expenses (37%) was aimed at the acquisition of machinery and equipment for technological innovations, Fig. 3.
В таблице приведены данные о структуре затрат на технологические инновации по видам инновационной деятельности в 2015 году.

<table>
<thead>
<tr>
<th>Виды затрат</th>
<th>Категория затрат</th>
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<tbody>
<tr>
<td>Исследование и разработка новых продуктов, услуг и методов их производства (передачи), новых производственных процессов</td>
<td>Виды инновационной деятельности</td>
</tr>
<tr>
<td>Производственное проектирование, дизайн и другие разработки новых продуктов, услуг или методов их производства (передачи), новых производственных процессов</td>
<td></td>
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<tr>
<td>Приобретение машин и оборудования, связанных с технологическими инновациями</td>
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Приобретение новых технологий | Acquisition of new technologies |
---|---|
Приобретение программных средств | Acquisition of software |
Другие виды подготовки производства для выпуска новых продуктов, внедрения новых услуг или методов | Other types of production preparation for the release of new products, the introduction of new services or methods |
Обучение и подготовка персонала, связанные с инновациями | Personnel education and training related to innovations |
Маркетинговые исследования | Marketing research |
Прочие затраты на технологические инновации | Other expenses for technological innovations |

Фи́г. 3. The structure of expenses for technological innovations by types of innovation activities

The expenses for research and development of new products, services and methods of their production, new production processes in the expenses structure for technological innovation are the second largest in terms of expenses, and 2015 accounted for 31%. In 2010, this indicator was significantly lower - only 18.7%. Increasing in the share of expenses for research and development of new products, services and methods of their production, new production processes has a positive impact on the innovation process (Kodolova, 2016).

The insignificant share in the cost structure is made up of expenses associated with the direct preparation of innovative products: the acquisition of new technologies - 1.1%, the purchase of software - 0.9%. It should be noted that for the period from 2010 to 2015 there was a significant reduction in the share of expenses for the acquisition of new technologies: more than 1.5 times. An insignificant share of innovative expenses of enterprises is directed to education and training of personnel (0.4%) and expenses for marketing research (0.07%).

The introduction of more efficient types of technologies, raw materials, and consumables into production processes, creation and improvement of existing types of products is the final result of the
innovative activity of enterprises. In the Republic of Tatarstan in 2015, innovative goods, works and services were provided for the amount of 365965.3 million rubles. Over the past five years, this indicator has grown in 2.2 times. The share of shipped innovative products in the total volume of shipped goods of own production in the Republic of Tatarstan is 21.3%, see Table 1.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2015</th>
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<tbody>
<tr>
<td>Shipped innovative products, works and services, million rubles including</td>
<td>132</td>
<td>152</td>
<td>161</td>
<td>195</td>
<td>272</td>
<td>365</td>
</tr>
<tr>
<td>Shipped goods, works and services of industrial production organizations</td>
<td>131</td>
<td>151</td>
<td>160</td>
<td>193</td>
<td>269</td>
<td>365</td>
</tr>
<tr>
<td>Share of shipped innovative products in the total volume of</td>
<td>14.8</td>
<td>17.9</td>
<td>15.6</td>
<td>14.9</td>
<td>18.4</td>
<td>21.3</td>
</tr>
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Table 1: Dynamics of the volume of innovative goods, works and services in the Republic of Tatarstan

The innovative activity results of the enterprises in the Republic of Tatarstan have a strong dependence of the economy structure on the state of enterprises of the petrochemical and machine-building complexes. The bulk of shipped innovative goods in the republic is accounted for by large enterprises of mining, chemical industry, plastic products, machinery and equipment manufacturing, and production of rubber products.

In 2015, the largest volume of innovative products, works and services provided was recorded for the following types of economic activity: extraction of minerals - 185,435.6 million rubles (49%), production of transport vehicles and equipment - 56831.9 million rubles (15.8%), production of coke and petroleum products 52142.7 million rubles (13.9%), chemical production - 24704.2 million rubles (6.4%), production of rubber and plastics articles - 25296.8 million rubles (6.7%) (Kodolova, n. d.).

As a rule, a positive business climate is formed in innovation-active regions, which is necessary to attract foreign capital. 856.8 million dollars of investment were received by the economy of the Republic of Tatarstan in 2011. The volume of incoming direct foreign investments amounted to $99.6 million; the others were of $757.2 million. In the republic, funds were invested in the development of manufacturing industries - 25.4%, 50.8% of which accounted for by the production of petroleum products; transport and communications - 21.6%; in the real estate and rent operations, and provision of services - 17.0%; in extraction of minerals - 10.0%.

In the current economic conditions, special attention is paid to the development of knowledge-intensive sectors of the economy with high added value, which products and services are competitive in the world market. The priority direction of development in the
Republic of Tatarstan is information and communication technologies. Currently, the republican program "Development of information and communication technologies "Open Tatarstan for 2014-2020" is being successfully implemented. In Tatarstan, a new administrative-territorial unit was formed - the city of Innopolis. Intellectual core of the city is the University of Innopolis. This is a new Russian university established in collaboration with the Kazan Federal University and the leading IT-University of the USA "Camegie Mellon" (Kodolova, 2015).

An important condition for the innovative development of the region is the issue on commercialization of the intellectual activity results. The Program for the Development of the Intellectual Property Market in the Republic of Tatarstan for 2013-2020 was developed in cooperation with Rospatent (Federal Service for Intellectual Property, Patents and Trademarks) and the World Bank. The program is aimed at creation of an effective mechanism for obtaining economic benefits from scientific and technical, innovation and production activities, increasing the competitiveness of commodity producers from the republic in the domestic and foreign markets through effective management of intellectual property.

Universities of Tatarstan play a significant role in the interaction between science and business. Currently, the leading universities of the republic work for the development and creation of new innovative products for enterprises of the Republic of Tatarstan in the following areas: promising materials, information and communication technologies, biomedicine and pharmaceuticals. Examples of commercialization of innovation results are at the Kazan Federal University, the Kazan National Research Technical University, the Kazan National Research Technological University, and the Kazan State Energy University.

Among the key factors hampering the innovative activity of enterprises and organizations are: insufficient volume of own financial resources and high cost of innovations, undeveloped system of state financial support for innovation activity, high level of risks, undeveloped innovative potential of organizations, lack of qualified personnel, and a number of others (Kodolova, 2016.)

3. CONCLUSIONS

An important direction of improvement is the transition to an innovative model for the development of regional economy, the creation of a modern mechanism for the effective management of innovation processes. The key tasks in the implementation of the innovative strategy of enterprise development in the Republic of Tatarstan are:

- Development of a regional innovation infrastructure represented by a network of innovative high-tech clusters;

- Stimulating demand for innovative activities and creating prerequisites for creation of sustainable scientific and production links, the integration of Russian innovative clusters into the world market of high-tech products;

- Creation of favorable conditions for technological modernization of the economy sectors on the basis of advanced production technologies and integration with the world's technological innovation complexes in order to create the innovation market.

When solving these problems, it should be remembered that the management of innovation processes at the regional level requires knowledge of the patterns, problems and specificity of innovation activity.

4. SUMMARY

In the Republic of Tatarstan, the strategy for the development of innovations is implemented through various mechanisms for transferring knowledge that operate at the regional, federal and international levels. In their turn, innovations provide the introduction of new production technologies and new products, using existing knowledge and institutional assets. A stable innovative system is determined by the systemic links between sources of knowledge, intermediaries in the transfer of knowledge and directly, the by real sector of the economy, producers of value added.

ACKNOWLEDGEMENTS

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

REFERENCES


