

## MTSDT 2019

### Modern Tools for Sustainable Development of Territories. Special Topic: Project Management in the Regions of Russia

#### **PUBLIC-PRIVATE PARTNERSHIP AS A MECHANISM TO STIMULATE INNOVATION IN BELARUS REPUBLIC**

E. Dorina (a), O. Meshcheryakova (b), O. Boris (c), O. Momotova (d)\*, G. Vorontsova (e)  
\*Corresponding author

(a) Belarus State Economic University, Partizansky Avenue, 26, Minsk, Republic of Belarus, dogran@mail.ru

(b) PolotskStateUniversity, Blokhina str., 29, Novopolotsk, Vitebsk region, Republic of Belarus,  
olga.kachan85@mail.ru

(c) North Caucasus Federal University, Pushkinstr., 1, Stavropol, Russia, oboris@ncfu.ru

(d) North Caucasus Federal University, Pushkin str., 1, Stavropol, Russia, msaccess@mail.ru

(e) North Caucasus Federal University, Pushkin str., 1, Stavropol, Russia, vgv14@mail.ru

#### *Abstract*

The article is devoted to the research of the tendency and specifics of public-private partnerships in the development of the innovation sphere. The article reveals the organizational and economic essence of public-private partnership as a universal mechanism of effective interaction between the state, private business and higher education institutions and other organizations engaged in innovative developments in the implementation of innovative products (services). The assessment of factors that impede the implementation of innovations in the industrial organizations of the Republic of Belarus is carried out. To overcome the negative trends impeding innovation, it is proposed to take a set of measures to stimulate innovation. It is proposed to create an industrial and innovative cluster for the implementation of innovative developments based on the principles of public-private partnership, as one of the main directions of development of public-private partnership mechanisms. The study developed a scheme of interaction of subjects of industrial and innovative cluster for the implementation of innovative developments on the basis of the principles of public-private partnership. The main advantages of the participants of the industrial-innovative cluster – state, science and business – are named. The results allow to expand the idea of public-private partnership as a form to stimulate innovation. The effective work of the industrial-innovative cluster for the implementation of innovative developments on the principles of public-private partnership will contribute to the achievement of predictive indicators of science and innovation; it will lead to the active integration of the Republic of Belarus into the world economy.

© 2019 Published by Future Academy [www.FutureAcademy.org.UK](http://www.FutureAcademy.org.UK)

**Keywords:** Industrial-innovative cluster, innovative activity, innovative developments, public-private partnership.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## **1. Introduction**

The study of the possibilities of using the mechanisms of public-private partnership to stimulate innovation is especially important due to the fact that the provision of innovative development of the Republic of Belarus is an important direction of increasing the competitiveness of the country. Relatively low indicators of science and innovation suggest the need to use international best practices, theoretical and practical mechanisms for the development of cooperation between the state and private business in the field of innovation, providing for various forms of interaction between private business, the state and science, which determines the relevance and timeliness of the study.

## **2. Problem Statement**

The difficult economic situation of the real sector of the economy, the lack of financial resources of industrial organizations, the absence of experience in implementing projects of public-private partnership in the sphere of innovation, underdevelopment of market mechanisms hinder the development of innovative activity in the country and as a result, the demand for innovative development. There are no effective mechanisms for the practical implementation of innovative developments and bringing them to the stage of industrial scaling.

In the context of budget constraints, new mechanisms for the development of innovative infrastructure based on the principles of public-private partnership are needed. The interaction of the state and private business, the creation of sustainable partnerships between them is complicated by the lack of elaboration on the institutional and economic foundations of this interaction.

The questions of perspective vision of the use of mechanisms of public-private partnership for stimulation of innovative activity remain insufficiently studied, as well as conditions for the development of clusters, which involve joint actions of representatives of business, government and institutions of higher education and research institutions aimed at improving the competitiveness of both the individual region and the state as a whole.

## **3. Research Questions**

- 3.1. How to ensure sustainable development of the Republic of Belarus and move to the innovative path of development, implementing system-wide transformations of the economy and society?
- 3.2. How to increase the amount of extra budgetary sources of financing innovative developments?
- 3.3. How to implement projects of public-private partnership in the innovation sphere?

There is an urgent need for a theoretical understanding of the problems arising in the functioning of public-private partnerships as a mechanism for stimulating innovation.

## **4. Purpose of the Study**

The main objective of the study is the need to use public-private partnerships as a mechanism to stimulate innovation; development of proposals aimed at the transition to innovative development and the

implementation of the modernization of the country's economy; stimulation and development of public-private partnerships associated with the commercialization and introduction of innovative developments into production; increasing the effectiveness of public-private partnerships in the innovation sphere.

The object of the research is the socio-economic activity of industrial-innovative clusters, aiming to implement innovative developments on the principles of public-private partnership, providing incentives for innovative activities in the Republic of Belarus.

The subject of the research is the relations developing between state structures and private business, defining the mechanism for ensuring public-private partnership in the implementation of innovative developments.

Scientific novelty: in the conditions of transition to innovative development and modernization of the economy, an active search is being carried out for the tools to stimulate innovation and ensure the most effective combination of interests of the state, science and private business. It is proposed to use public-private partnership as such a tool. The article provides the authors' definition of a public-private partnership, proposes a set of measures to stimulate the country's innovative activities, justifies the creation of an industrial-innovative cluster for implementing innovative developments based on the principles of public-private partnership.

## **5. Research Methods**

The article studies and systematizes publications indexed in the SCOPUS and Web of Science databases, which made it possible to make a theoretical excerpt, to determine the main theme and problem of the research.

The analysis of international studies in the interaction of the state, government and science has been made. The development of the subject of research using industrial-innovative clusters is proposed, where the use of public-private partnership tools will be able to ensure effective interaction of all the participants of the industrial-innovation cluster implementing innovative developments in the realization of an innovative product (service).

The results are obtained and interpreted, a causal relationship is established between the activities of the industrial-innovative cluster and the development of innovative activities.

In the process of research, a complex of complementary general scientific (classification, comparison, explanation, induction and deduction, scientific evidence, logical, comparative methods of analysis) and particular methods of cognition (generalization, graphic), systematic and integrated approaches were applied.

The information and empirical base of the research was made up of: regulatory legal acts, resolutions of the Council of Ministers of the Republic of Belarus; official statistical materials of the National Statistical Committee of the Republic of Belarus; scientific developments of Belarusian and foreign scientists, international scientific organizations; PhD and doctoral dissertations; materials of scientific conferences; materials posted on the Internet.

## 6. Findings

In most of the leading countries of the world, government financial support for research and innovation activities is focused on fundamental research. In the Republic of Belarus, the state is the main investor of innovative developments, which affects the amount of their financing. However, while maintaining state participation in science, the role of extrabudgetary sources of financing, primarily of private business funds, should increase significantly.

By 2030, in the National Strategy for Sustainable Social and Economic Development of the Republic of Belarus it is planned to increase the share of domestic research and development expenditures to 2.5 percent of GDP. At the same time, the share of extrabudgetary sources of financing in total costs should be at least 70 percent. The indicator of the share of innovative products in the total volume of industrial products shipped should be about 25 percent. Concurrently, the share of innovatively active organizations may increase to 30 percent of their total number (National Strategy for Sustainable Social and Economic Development of the Republic of Belarus up to the year 2030, 2017). The expansion of exports of science-intensive and high-tech products (goods, works, services) is expected. However, there are real problems that hinder the development of research and innovation activities in the Republic of Belarus (see Table 01).

**Table 01.** Assessment of factors that impede the development of innovations in the industrial organizations in 2017 (units)

Factors	The number of industry organizations rated individual factors that impede innovation as		
	major or decisive	significant	insignificant
<b>Economic factors</b>			
lack of own funds	687	534	339
lack of financial support from the state	244	551	659
low effective demand for new products	247	564	639
high cost of innovation	506	676	322
high economic risk	369	726	389
Long payback periods of innovations	333	751	404
<b>Production factors</b>			
low innovative potential of the organization	258	464	768
lack of qualified staff	160	453	892
lack of information about new technologies	99	365	1 026
lack of market information	121	399	962
organizational in susceptibility to innovation	87	254	1 098
lack of opportunities for cooperation with other organizations	106	320	984
<b>Other factors</b>			
low demand for innovative products (works, services)	166	505	746
imperfect legislation on the regulation and stimulation of innovation	109	352	883
uncertainty of the timing of innovation process	132	460	781
underdevelopment of innovation infrastructure (intermediary, informational, legal, banking, other services)	110	459	824
underdevelopment of technology market	143	457	785

Source: (Statistical book. Science and innovative activity in the Republic of Belarus, 2018).

Analysis of the data allows us to conclude that industrial organizations identify economic factors as the most significant ones that hinder innovation. The greatest significance are the lack of own funds, the high cost of innovation, high economic risk and the long payback period of innovations. The organization's insusceptibility to innovations and the lack of information about new technologies are named as the most insignificant, indicating that organizations are ready for innovation.

Thus, society faces the task of transition to innovative development and the implementation of modernization of the economy. Under these conditions, there is an active search for tools to stimulate innovation and investment activity of private capital while ensuring the most effective combination of interests of the state, science and private business. It is proposed to use forms of long-term development between the state and business as such an instrument (Parakhina, Shalashaa, & Ustaev, 2018).

Therefore, in order to overcome the negative trends that impede innovation, it was proposed to take a set of measures to stimulate innovation:

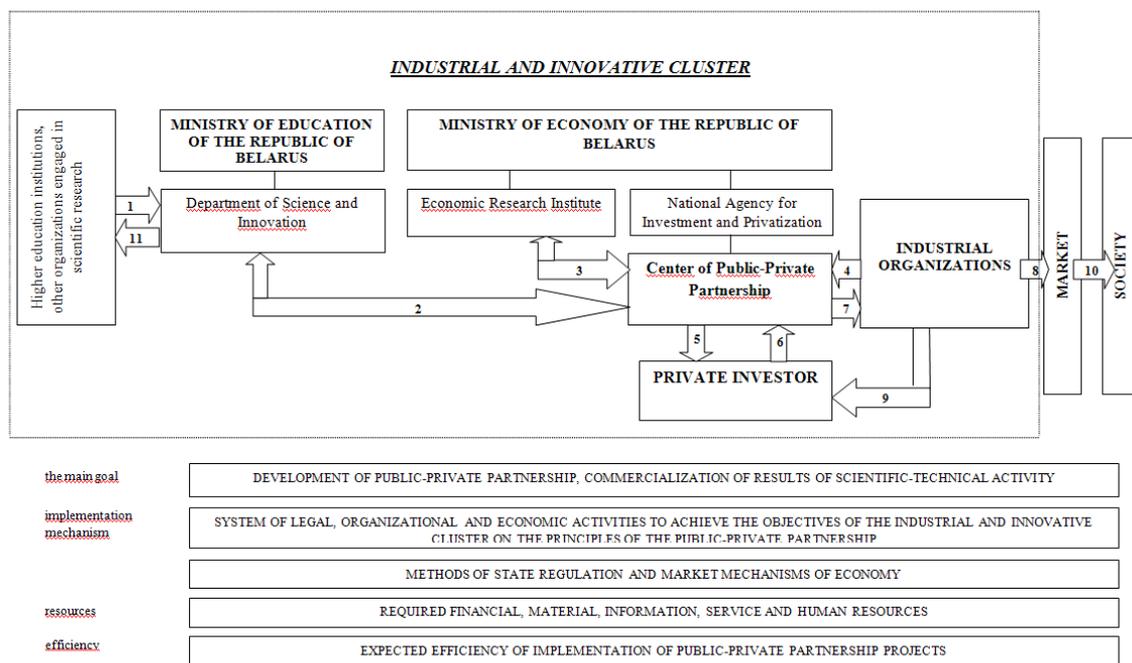
- to create conditions for the development of clusters, which involve joint actions by representatives of the state, business and higher education institutions, research institutes, aimed at improving the competitiveness of both a separate region and the state as a whole;
- to create industrial-innovative clusters for the implementation of the research subject;
- to provide conditions for the development of public-private partnership in the science and innovation sphere (Meissner, 2015);
- to adapt the scientific and technical complex to the conditions of a market economy, to attract extra-budgetary sources aimed at the development of science and innovation;
- to reduce the tax burden on innovation-active enterprises, exclude taxation of extrabudgetary sources of financing innovative developments;
- to apply various tax incentive schemes, ways to increase interest in the results of labor of the subjects of the industrial-innovative cluster;
- to expand the functions of the subjects of the innovation infrastructure in the field of commercialization of the results of scientific and technical activities in the framework of industrial innovation clusters;
- to carry out state support for scientific and innovative activities, taking into account global trends;
- to develop the innovative activity of the population, to cultivate the noosphere thinking, interest, entrepreneurial abilities and readiness for innovative actions of the whole society (Steinbuka, Balina, & Zemitis, 2017).

Thus, one of the effective mechanisms to stimulate innovation is public-private partnership. The authors propose to consider the public-private partnership as a legally secured alliance between representatives of government, science and private business on a contractual basis on mutually beneficial conditions, implying a fair distribution of risks, responsibilities and benefits between the partnership parties in the implementation of innovative developments (Dorina & Meshcheryakova, 2017).

Public-private partnership is actively used by developed countries in innovative activities, as evidenced by foreign experience (Parakhina, Vorontsova, Momotova, Boris, & Ustaev, 2019). Its priority task is to activate the process of technology transfer. To this end, special organizational structures are being created in many countries, acting as intermediaries between sellers and buyers of innovative products, as well as performing a number of functions: from licensing patents to managing research contracts.

One of the main directions of development of public-private partnership mechanisms in innovative development is the creation of industrial-innovative clusters, where the use of public-private partnership tools can ensure the effective interaction of private business and institutions of higher education, scientific institutions and other organizations that carry out innovative developments in the implementation of innovative product (service) (Sozinova et al., 2017).

Consequently, the creation of an industrial-innovative cluster will help stimulate innovation, through the implementation of innovative developments based on the principles of public-private partnership, develop cooperation between the state, science and private business, organize effective interaction of all cluster members, assist in solving social, economic, scientific technical, managerial problems (see Figure 01).



**Figure 01.** The scheme of interaction of the subjects of the industrial-innovative cluster for the implementation of innovative developments (Source: elaborated by the authors)

**Note:** where 1 - scientific and innovative developments; 2,3 - an online system for the exchange of information on innovative development provided to the agency, evaluation of proposals for the implementation of innovative products on the principles of public-private partnership, in accordance with the requirements of the legislation; 4 - request for innovative developments; 5 - providing advisory, informational and methodological support on the development of public-private partnerships, including the preparation and implementation of innovative developments, information on innovations that may be of interest to the investor, other issues that are within the competence of the Center; 6 - the flow of investments in fixed assets, their priority direction in innovation; 7 - practical implementation of innovations in production; 8 - implementation of innovative developments, export growth; 9 - profit from the implementation of innovative developments, obtaining other

economic preferences; 10 - the social effect of society on the use of innovative products (services); 11 - compensation of the costs of creating innovative developments, obtaining financial benefits by scientists, creating conditions for stimulating innovative activity.

The formation of an innovation-industrial cluster based on the principles of public-private partnership is aimed at creating innovative developments up to the stage of their industrial scaling.

As a result, the effectiveness of academic science will increase by optimizing its structure and closer integration with the real sector of the economy, the transformation of scientific organizations into an industrial-innovative cluster is focused on obtaining high-tech final products.

The state will receive an additional source of funding for innovation, effective management, ability to innovate etc. The use of mechanisms of public-private partnership in innovation will create benefits for the state in achieving public goals through the implementation of projects in a shorter time, improving the efficiency of projects and the quality of service to end users.

The implementation of innovations by industrial organizations will help to increase the share of high-tech activities, improve the quality of products (services), apply energy-efficient technologies, create high-performance jobs, increase product competitiveness.

In the industrial-innovation cluster, the Center of Public-Private Partnership is entrusted with organizational, technical and informational support of the cluster, information exchange between the Center and investors, control and coordination of actions of all cluster members, strengthening the advertising campaign about public-private partnership projects.

The advantage of the public-private partnership for a private investor is the opportunity to increase their income from investments in those sectors that were previously considered only as a sphere of public investment, to expand markets, gain new opportunities for the development of innovative business (Dorina & Meshcheryakova, 2018). The motivation for participating in a partnership of a private investor is due to the possibility of obtaining higher profits, tax benefits, sharing risks and project responsibilities (Bikas & Saponaitė, 2018). Considering the fact that the public-private partnership parties pursue different interests and goals in the implementation of projects, the effective allocation of risks is an important component of this mechanism, providing mutual additional support in order to guarantee the benefits and advantages of the project to both parties. Transferring the entire risk to the private business will make the project ineffective, expensive and sensitive to changes and crises, and too little risk – to a loss in the price-quality ratio.

## **7. Conclusion**

The creation and effective work of an industrial-innovation cluster for the implementation of innovative developments on the principles of public-private partnership will contribute to the achievement of the planned indicators of the development of science and innovations; will entail the active integration of the Republic of Belarus into the world economy, will allow to increase export volumes, expand the geography of the partner countries. This will increase the country's rating in the Global Innovation Rating (2016 - 79th place, 2017 - 88, 2018 - 86th place out of 126 countries).

Favorable conditions will be created for introducing innovations into production in all areas of the socio-economic activity of the Republic of Belarus. The main efforts of the proposed-for-creation

industrial-innovative cluster will be focused on the wide use of public-private partnership mechanisms in financing projects for the development of logistics infrastructure, transport infrastructure, energy, housing and communal services, health care, education, and recycling.

In conclusion, the creation of industrial-innovative clusters will give a positive innovation leap, which is necessary for private business to increase competitiveness and enter international markets. Creating a cluster involves the participation of scientists and entrepreneurs in a single economic and regulatory environment. On the part of the state, the introduction of such clusters requires an appropriate regulatory framework. We believe that it is necessary to create industrial-innovative clusters in different sectors, by territorial affiliation and other criteria. It is the cluster approach that is an effective tool in achieving the goals of the country's innovative development.

## Acknowledgments

The reporting study, in part, which was performed by Russian authors, was funded by the Russian Foundation for Basic Research (RFBR), project No. 19-510-40001 / Abh-a.

## References

- Bikas, E., & Saponaitė, V. (2018). Behavior of the Lithuanian Investors at the Period of Economic Growth, *Entrepreneurship and Sustainability Issues*, 6(1), 44-59.
- Dorina, E., & Meshcheryakova, O. (2017). Evaluation of the Efficiency of Projects Implemented on the Basis of the Principles of Public-Private Partnerships. *New Challenges of Economic and Business Development – 2017: Digital Economy* (pp.152-163). Riga: University of Latvia.
- Dorina, E. B., & Meshcheryakova, O. M. (2018). Mekhanizm vzaimodeystviya gosudarstva i chastnogo biznesa v formirovanii ob'ektov infrastruktury: zarubezhnyy opyt. *Vestnik of the Polotsk State University. Series D. Economic and legal sciences*, 14, 22-26. [in Russ.].
- Meissner, D. (2015). Public-Private Partnership Models for Science, Technology, and Innovation Cooperation. *Journal of the Knowledge Economy*, 1-21. <https://doi.org/10.1007/s13132-015-0310-3>.
- National Strategy for Sustainable Social and Economic Development of the Republic of Belarus up to the year 2030. (2017). Retrieved from <http://www.economy.gov.by/uploads/files/NSUR2030/Natsionalnaja-strategija-ustojchivogo-sotsialno-ekonomicheskogo-razvitija-Respubliki-Belarus-na-period-do-2030-goda.pdf>
- Parakhina, V. N., Shalashaa, Z. I., & Ustaev, R. M. (2018). O razvitii gosudarstvenno-chastnogo partnerstva v Rossii i Abkhazii. *Vestnik of the North Caucasus Federal University*, 4(67), 47-55. [in Russ.].
- Parakhina, V. N., Vorontsova, G. V., Momotova, O. N., Boris, O. A., & Ustaev, R. M. (2019). Innovational Projects of Technological Growth on the Platform of Public-Private Partnership: Risks and Methods of Their Minimization. In B.S. Sergi (Eds.), *Tech, Smart Cities, and Regional Development in Contemporary Russia*, (pp. 15-27). Bingley: Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78973-881-020191003>
- Sozinova, A. A., Okhrimenko, O. I., Goloshchapova, L. V., Kolpak, E. P., Golovanova, N. B., & Tikhomirov, E. A. (2017). Industrial and innovation clusters: Development in Russia. *International Journal of Applied Business and Economic Research*, 15(11), 111-118.
- Statistical book. Science and innovative activity in the Republic of Belarus. (2018). Minsk: National Statistical Committee of the Republic of Belarus.
- Steinbuka, I., Balina, S., & Zemitis, M. (2017). Fostering Research, Innovation and Digitalization in Europe and Latvia. In *New Challenges of Economic and Business Development – 2017: Digital Economy* (pp. 63-64). Riga: University of Latvia. <https://doi.org/10.2775/74012>