
Cluster Development of Innovational Entrepreneurship: New Possibilities and Priorities in the Conditions of the Innovational Economy Creation

Aleksey V. Bogoviz¹, Elena V. Ioda², Yulia V. Ioda³, Valentina B. Kuranova⁴, V.V. Bobrova⁵,

Abstract:

The purpose of the work is to study the possibilities and priorities of cluster development of innovational entrepreneurship in the conditions of innovational economy development by the example of modern Russia. Information and analytical basis of the research include the materials of the INSEAD on the Global innovational index from 2011 to 2016 22.

The authors also used the Global Competitiveness Report from 2008-2008 to 2016-2017, presented at the annual World Economic Forum, which contains information on the state of cluster development. To substantiate the offered scientific hypothesis, the authors determine the presence and level of dependence of cluster development of entrepreneurship on the level of Russia's economy innovativeness with the help of the method of regression and correlation analysis.

Because of the research, the authors conclude that an important place among the market tools of stimulation of development of innovational entrepreneurship in Russia should belong to clustering, as it provides expansion of the resource base and quick diffusion of innovations, which is very important for development of innovational entrepreneurship. The authors offer the concept of cluster development of innovational entrepreneurship in the conditions of creation of innovational economy.

Keywords: cluster development, innovational entrepreneurship, innovational economy.

JEL classification codes: O31, O32, P13

¹**Aleksey V. Bogoviz**, Federal State Budgetary Scientific Institution "Federal Research Center of Agrarian Economy and Social Development of Rural Areas – All Russian Research Institute of Agricultural Economics", Moscow, Russia, Federal Research Institute of System Analysis of the Accounts Chamber of the Russian Federation, Moscow, Russia, e-mail: aleksei.bogoviz@gmail.com

²**Elena V. Ioda**, Lipetsk State Technical University, Lipetsk, Russia
e-mail: tibrioda@yandex.ru

³**Yulia V. Ioda**, Lipetsk State Technical University, Lipetsk, Russia
e-mail: tibrioda@yandex.ru

⁴**Valentina B. Kuranova**, Institute of Law and Economics, Russia
kuranova@mail.ru

⁵**V.V. Bobrova**, Orenburg State University, Orenburg, Russia

Introduction

In the 21st century, the countries of the world undertook the course of creation of a completely new model of an economic system – innovational economy. Instead of the traditional formation of such models based on the principle of determining the dominating sphere of economy (in the industrial model – industry, in the post-industrial model – service sphere, etc.), the model of innovational economy is based on innovations that can and should be developed and implemented in all spheres and sectors of the national economy. That's why the traditional entrepreneurship, which always waits for state support, should be replaced by innovational entrepreneurship, oriented at its own strength and capable of the global competition and sustainable development in the long-term due to high innovational activity. In view of lack of state support, the establishment and development of innovational entrepreneurship suppose the usage of market tools.

This article offers and verifies the hypothesis that an important role among such tools should belong to clustering, as it provides expansion of the resource base and quick diffusion of innovations, which is critically important for development of innovational entrepreneurship. The purpose of the work is to study the possibilities and priorities of cluster development of innovational entrepreneurship in the conditions of creation of innovational economy by the example of modern Russia.

Literature Review

Apart from these specific methods of statistical analysis, methodology of the research also includes the general scientific methods: synthesis, induction, deduction, and formalization. The theoretical platform of the research consists of the fundamental works and publications of the applied nature on the issues of cluster development of the economy (Bogoviz *et al.*, 2016; Shabalov and Dmitrieva, 2017; Foghani *et al.*, 2017; Matveev *et al.*, 2016; Zakharova *et al.*, 2015; Ryzhkova Prosvirkin, 2015; Kolchnova and Kolchanova, 2016; Pociovalisteanu and Thalassinou, 2008) innovational entrepreneurship (Kravets *et al.*, 2013; Bezrukova *et al.*, 2013; Block *et al.*, 2017; Urbano *et al.*, 2016; Aparicio *et al.*, 2016; Havlicek *et al.*, 2013) and the creation of innovational economy (Meelen *et al.*, 2017; Rakhlis *et al.*, 2016; Zhukovskiy *et al.*, 2016; Santarelli and Tran, 2016; Leyden, 2016; Thalassinou and Liapis, 2014; Tyaglov *et al.*, 2017; Liapis *et al.*, 2013; Frank *et al.*, 2016).

Methodology

The information and analytical basis of this research consists of the materials of the INSEAD on the Global competitiveness index in 2011 – 2016. This index includes the detailed information on innovational institutes, the state of human capital and conduct of scientific research, innovational infrastructure, markets of innovational

(high-tech) products, innovational entrepreneurship, creation of new knowledge and technologies, and registration and use of intellectual property objects.

The authors also used the materials of the Global Competitiveness Report in 2008/2009-2016/2017, presented at the annual World Economic Forum, which contains the information on the state of cluster development of economy the 11th pillar: Business sophistication. The statistical information, based on which this research is performed, is presented in Table 1.

Table 1. Dynamics of value of the index of cluster development of Russian economy in 2008/2009-2016/2017 and the index of innovativeness of the Russian economy in 2011-2016

| Index of cluster development of economy | | | Index of innovativeness of economy | | |
|---|--------|-------------------------|------------------------------------|--------|-------------------------|
| Period | Points | Position in the ranking | Period | Points | Position in the ranking |
| 2008-2009 | 3.1 | 96 | - | - | - |
| 2009-2010 | 3.2 | 90 | - | - | - |
| 2010-2011 | 3.3 | 87 | - | - | - |
| 2011-2012 | 3.4 | 95 | 2011 | 35.85 | 56 |
| 2012-2013 | 3.2 | 92 | 2012 | 37.9 | 51 |
| 2013-2014 | 3 | 114 | 2013 | 37.2 | 62 |
| 2014-2015 | 3.1 | 124 | 2014 | 39.14 | 49 |
| 2015-2016 | 3.1 | 118 | 2015 | 39.32 | 48 |
| 2016-2017 | 3.1 | 110 | 2016 | 38.5 | 43 |

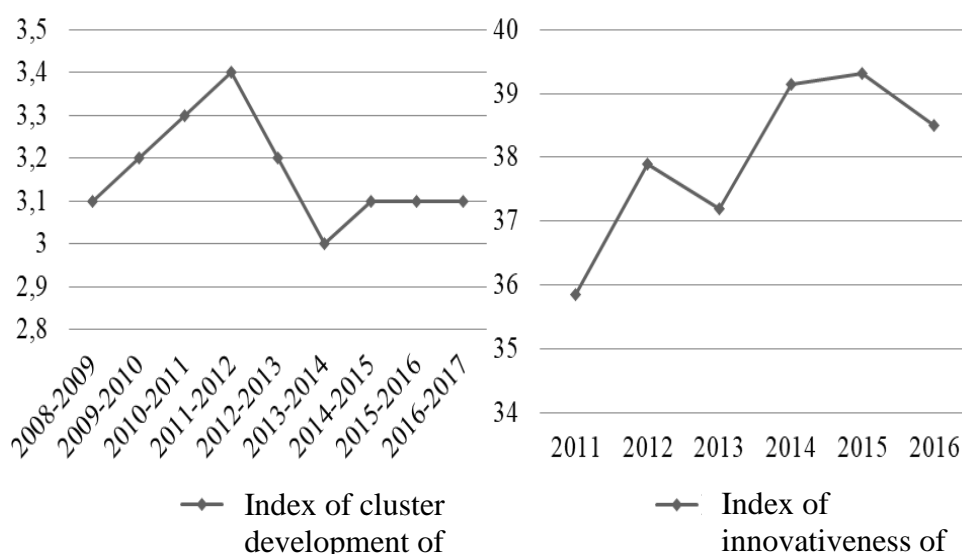
Source: Adapted from (Schwab, 2017), (INSEAD, 2017).

As is seen from Table 1, calculation of the index of cluster development of economy is performed within the analysis of the global competitiveness of the countries from 2008-2009, and the index of innovativeness of economy in the modern form has been calculated since 2011. For verification of the offered scientific hypothesis, the authors determine the presence and the level of dependence of cluster development of entrepreneurship on the level of innovativeness of the Russian economy with the help of regression and correlation analysis.

Results

The statistical information on dynamics of cluster development of entrepreneurship and the level of innovativeness of the modern Russian economy is presented in Figure 1.

Figure 1. Dynamics of values of the index of cluster development of the Russian economy in 2008/2009-2016/2017 and the index of innovativeness of the Russian economy in 2011-2016



Source: Adapted from (Schwab, 2017), (INSEAD, 2017).

Figure 1 does not show a clear connection between the studied indices, though they are both peculiar for slight growth over the viewed period excluding a quick decline in 2013. At that, it should be noted that the rate of formation of innovational economy in Russia is quicker than the rate of its clustering. This is shown by a large per cent growth of the value of the index of innovativeness of economy over recent six years (7.4%), as compared to -8.8% reduction of the index of cluster development of economy, and the difference in the ranking. Thus, according to the level of innovativeness of the Russian economy as of 2016, it is ranked 43rd among 128 countries of the world. Its position in the global ranking of the countries improved – it was ranked 56th in 2011. According to the level of cluster development of economy, Russia was ranked 110th in 2016. Its position in the global ranking of the countries aggravated, as compared to 2011 (95th position) and to 2008 (96th position).

At the same time, according to the 2016 data, clustering in Russia accounted for 3.1 points out of 6 possible (51.6%), while the level of its innovativeness accounted for 38.5 points out of 100 (38.5%), which shows the larger level of clustering than innovativeness. The results of the regression analysis allowed compiling the following model of the paired linear regression: $y=5.68x-0.06$, where y is the

dependent variable (function): index of cluster development of Russian economy, and x is the independent variable: index of innovativeness of the Russian economy.

The Economic sense of the received equation is brought down to the fact that the value of the index of cluster development of the Russian economy grow by 1 point with the growth of the value of the index of innovativeness of the Russian economy by 5.68 points – that is, there is connection between these indicators.

However, the results of the regression analysis showed that the change of y is explained by the change of x only by 40% (correlation coefficient equals 40%). Such results are expected, as cluster processes depend on many factors, including the level of competition in the sectorial markets, organizational specifics of entrepreneurial structures, state policy in the sphere of support for cluster initiatives, etc. That's why the 40% dependence on modernization processes, which constitute the basis of development of innovational economy in the context of this research, is considered substantial.

This means that in the process of formation of innovational economy in Russia the preconditions are created for realization of cluster initiatives in entrepreneurship. As to clustering of innovational entrepreneurship, the process of formation of innovational economy is basic, as the phenomenon of innovational entrepreneurship appears only in its conditions.

At present, the terminology of the R&D center that studies cluster processes in Russia – the Russian Cluster Observatory – does not have a notion of innovational clusters or clusters of innovational companies. Obviously, it is because it's a new phenomenon for the Russian economy. In the classification list, presented on the web-site of the Observatory, only the category “clusters in the sphere of new materials production” is related to innovative activity, though indirectly. Thus, there are only eight clusters in Russia (Russian Cluster Observatory, 2017):

- Smolensk compositional cluster;
- Moscow compositional cluster;
- Cluster of space and aviation technologies of polymeric composite materials and constructions of Kaluga Oblast;
- Troitsk innovational territorial cluster “New materials, laser and radiation technologies”;
- Innovational territorial industrial cluster of composite materials and items;
- Innovational territorial cluster for production of modern construction materials and high-purity chemical products on the basis of Svetloyarsk and Narimanov deposits of magnesium chloride in Volgograd Oblast;
- Innovational territorial cluster in the sphere of nanotechnologies of the Republic of Tatarstan;

- Association “Non-profit partnership ‘Altai polymeric composite cluster’”.

In the conditions of development of innovational economy, the possibilities are created for formation, establishment, and clustering of innovational entrepreneurship:

- formation and development of highly-qualified and creative human resources;
- creation of conditions for knowledge and technologies exchange within the economic system and outside of it (at the international level);
- institutional provision and infrastructural platform for establishment and innovational entrepreneurship;
- state support and stimulation for innovational activity of entrepreneurship in the activity of R&D institutes;
- formation of the national brand of innovational economy that provides social support for innovational entrepreneurship and loyalty of global consumers for it.

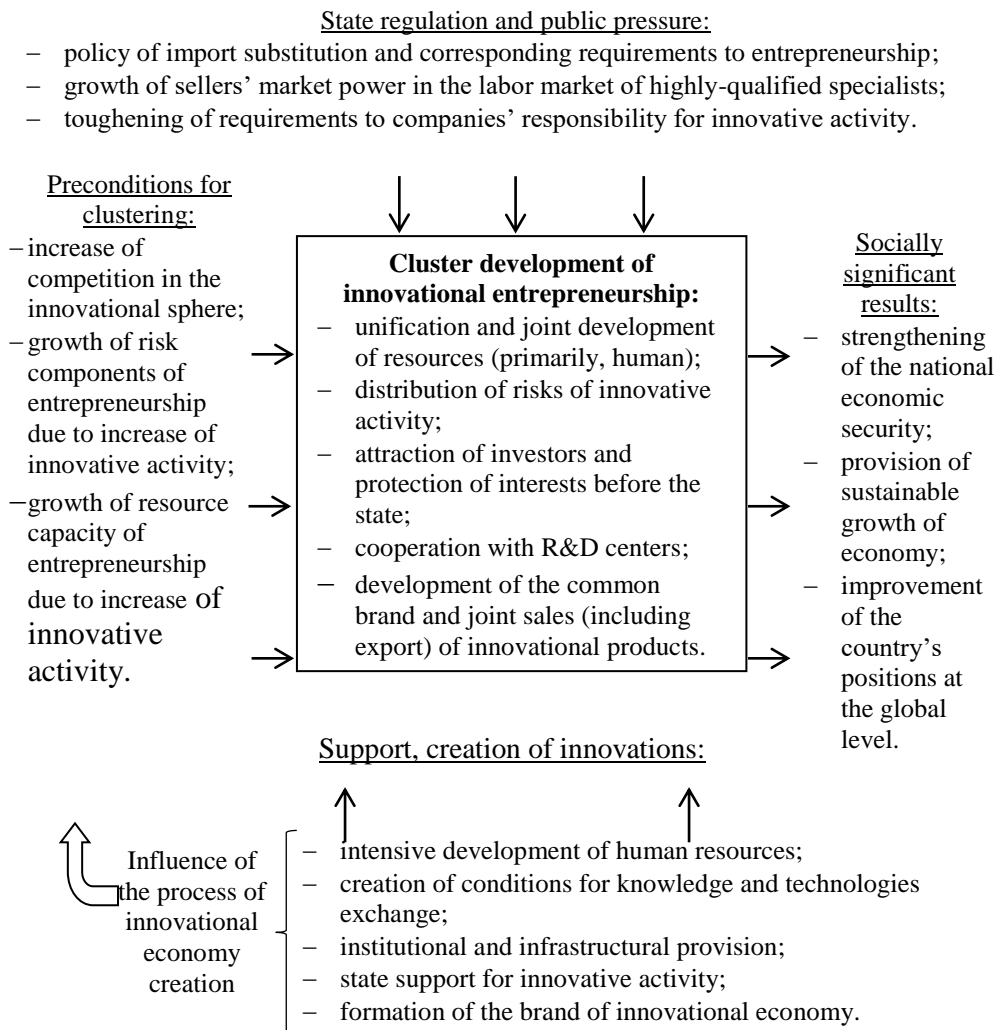
The priorities of cluster development of innovational entrepreneurship in the conditions of development of innovational economy should be the following:

- orientation at import substitution and development of export of innovational products;
- responsibility before employees and creation of favorable conditions for opening their intellectual and creative potential;
- responsibility before the society for the results of innovative activity.

These priorities are to bring down to the minimum the risks of innovational activity of entrepreneurship and maximize the advantages from it. Based on the above, we offer the following concept of cluster development of innovational entrepreneurship in the conditions of creation of innovational economy (Figure 2).

As is seen from Figure 2, in the process of creation of innovational economy, the conditions and preconditions (natural stimuli) for cluster development of innovational entrepreneurship are created. This is stimulated by the state policy of import substitution and the corresponding requirements to entrepreneurship, growth of sellers' power in the labor market of highly-qualified specialists, and toughening of requirements to companies' responsibility for innovative activity. Because of cluster development of innovational entrepreneurship under the influence of the process of innovational economy creation, such socially significant results as strengthening of the national economic security, provision of sustainable growth of economy, and improvement of the country's positions at the global level are improved.

Figure 2. *The concept of cluster development of innovational entrepreneurship in the conditions of the innovational economy creation*



Conclusion

Thus, the offered scientific hypothesis is proved. It is shown that development of innovational economy opens new possibilities for emergence, establishment, and cluster development of innovational entrepreneurship. For maximization of corporate and public profits from this process, it is advisable to observe the principle shown in this work.

The offered concept of cluster development of innovational entrepreneurship in the conditions of development of innovational economy poses certain value from the theoretical points of view in the role of development of fundamental provisions of

the economic theory of clustering and theory of innovations. It also poses the practical interest for innovational companies and state regulators as a guide for conduct and regulation of the process of cluster development of innovational entrepreneurship in the conditions of creation of innovational economy.

References:

- Aparicio, S., Urbano, D., Gómez, D. 2016. The role of innovative entrepreneurship within Colombian business cycle scenarios: A system dynamics approach. *Futures*, 81, 130-147.
- Bezrukova, T.L., Morkovkina, S.S., Russia, B.B., Shanin, I.I., Popkova, E.G. 2013. Methodological approach to the identification of predictive models of socio-economic processes for investment and innovative development of enterprises. *World Applied Sciences Journal*, 27(11), 1443-1449.
- Block, J.H., Fisch, C.O., Van Praag, M. 2017. The Schumpeterian entrepreneur: a review of the empirical evidence on the antecedents, behavior and consequences of innovative entrepreneurship. *Industry and Innovation*, 24(1), 61-95.
- Bogoviz, A.V., Veselovsky, M.Y., Kutukova, E.S., Ragulina, Y.V. 2016. Managing the financial mechanism of development of innovational territorial clusters. *Managerial sciences*, 4(1), 105-111.
- Foghani, S., Mahadi, B., Omar, R. 2017. Promoting clusters and networks for small and medium enterprises to economic development in the globalization era. *SAGE Open*, 7(1), 19-27.
- Frank, V.E., Mashevskaya, V.O., Ermolina, V.L. 2016. Innovational Mechanism of Implementation of Cluster Initiatives in Business. *European Research Studies Journal*, 19(1), 179-188.
- Havlíček, K., Thalassinou, I.E. and Berezkinova, L. 2013. Innovation Management and Controlling in SMEs. *European Research Studies Journal*, 16(4), 57-70, Special Issue on SMEs.
- INSEAD 2017. The Global Innovation Index: Russian Federation 2011-2016. URL: <https://www.globalinnovationindex.org/analysis-economy>.
- Kolchanova, A. and Kolchanova, P. 2016. Solving Enterprise Management Problem with Cluster Technologies and ERP – Systems (in the Context of Capital CSE System). *European Research Studies Journal*, 19(2), 299-306.
- Kravets, A.G., Gurtjakov, A., Kravets, A. 2013. Corporate intellectual capital management: Learning environment method. *Proceedings of the IADIS International Conference ICT, Society and Human Beings 2013, Proceedings of the IADIS International Conference E-Commerce*, 3-10.
- Leyden, D.P. 2016. Public-sector entrepreneurship and the creation of a sustainable innovative economy. *Small Business Economics*, 46(4), 553-564.
- Liapis, K., Rovolis, A., Galanos, C. and Thalassinou, I.E. 2013. The Clusters of Economic Similarities between EU Countries: A View Under Recent Financial and Debt Crisis. *European Research Studies Journal*, 16(1), 41-66.
- Matveev, Y.V., Trubetskaya, O.V., Lunin, I.A., Rousek, P., Kopnov, V.A. 2016. Clusters and their role in economic development. *International Journal of Economic Perspectives*, 10(3), 113-125.
- Meelen, T., Herrmann, A.M., Faber, J. 2017. Disentangling patterns of economic, technological and innovative specialization of Western economies: An assessment of the Varieties-of-Capitalism theory on comparative institutional advantages.

- Research Policy, 46(3), 667-677.
- Pociovalisteanu, M.D., Thalassinou, I.E. 2008. The beginning and some national particularities of liberalism. *Metalurgia International*, 13(2), Special Issue, 172-177.
- Rakhlis, T.P., Skvortsova, N.V., Koptyakova, S.V., Balynskaya, N.R. 2016. Development of microelectronics in the circumstances of the innovative and technological growth of the Russian economy. *International Business Management*, 10(4), 401-407.
- Ryzhkova, E., Prosvirkin, N. 2015. Cluster Initiatives as a Competitiveness Factor of Modern Enterprises. *European Research Studies Journal*, 18(3), 21-30.
- Santarelli, E., Tran, H.T. 2016. Young innovative companies: Are they high performers in transition economies? Evidence for Vietnam. *Journal of Technology Transfer*, 1-25.
- Schwab, K. 2017. World Economic Forum: The Global Competitiveness Report up 2008-2009 to 2016-2017. URL: http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf.
- Shabalov, M., Dmitrieva, D. 2017. Implementation of cluster scenario approach for economic development of the arctic zone of the Russian Federation. *International Journal of Applied Business and Economic Research*, 15(4), 281-289.
- Thalassinou, I.E. and Liapis, K. 2014. Segmental financial reporting and the internationalization of the banking sector. Chapter book in, *Risk Management: Strategies for Economic Development and Challenges in the Financial System*, (eds), D. Milos Sprcic, Nova Publishers, 221-255.
- Tyaglov, G.S., Kushnarenko, V.T., Khokhlov, A.A. and Qeropyan, A.M. 2017. The Development of Cluster Relations within the State and Business Structures in Terms of Strategy of Non-Primary Sector Import-Substitution. *European Research Studies Journal*, 20(1), 198-207.
- The Russian Cluster Observatory (2017). Map of Russia's clusters. URL: <http://clusters.monocore.ru>.
- Urbano, D., Aparicio, S., Querol, V. 2016. Social progress orientation and innovative entrepreneurship: an international analysis. *Journal of Evolutionary Economics*, 26(5), 1033-1066.
- Zakharova, E.N., Prokhorova, V.V., Shutilov, F.V., Klochko, E.N. 2015. Modern tendencies of cluster development of regional economic systems. *Mediterranean Journal of Social Sciences*, 6(5S3), 154-163.
- Zhukovskij, U.L., Vasiliev, B.U. 2016. Interdisciplinary research underlying education at the educational and scientific facilities for innovative economy. 2016 IEEE Conference on Quality Management, Transport and Information Security, Information Technologies, IT and MQ and IS 2016, 7751943, 262-264.