

# *Open innovation as a basis of development of new industrialization*

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**Abstract**—The article is devoted to the research of processes of formation of open innovation in the Russian economy and the economies of the regions with the aim of dynamizing growth on the basis of the development process of new industrialization. The authors proceeded from the hypothesis that open innovation, actively implemented in Western countries, will become a strategic resource for sustainable development of economic systems at various levels, and a reserve to overcome the crisis in the economic life of the country and the regions.

To this end, the theoretical section of the article substantiates the need for the introduction of open innovations and the state of their use in the national economy. However, the analysis showed a low degree of distribution of open innovations in the economic activities of the country and the regions, as well as the lack of understanding of the importance of this category of innovations among specialists and managers of enterprises and the lack of sources of innovation financing.

From this it follows that representatives of economic science, government officials and managers need to purposefully carry out appropriate work to improve knowledge among business leaders and professionals in relation to open innovation, as well as to provide them with the necessary sources of funding. The indicator of the open innovation development must be introduced in the state statistical reporting.

**Keywords**— *open innovations; strategic resource; sustainable development; region.*

## I. INTRODUCTION

The need to overcome the crisis in the Russian economy and ensure economic growth requires the search for new areas of mobilization of domestic reserves in different sectors of the economy. The new industrialization which is actively discussed in the scientific community, business and

government can become such a reserve. The new industrialization is also a condition for the renewal of the production sector through the introduction of innovations and advanced technologies. In our view, the so-called open innovations, which function effectively in most highly developed countries and have limited use in Russia, are of particular importance here.

## II. LITERATURE REVIEW

The essence of these innovations was first identified by the American scientist H.W. Chesbrough, as an imperative for the gaining profit from technology [1]. At the same time, it should be noted that after the publications of H.W. Chesbrough, many foreign researchers paid close attention to the content and evolution of the categories of open innovations.

The German scientist U. Lichtenthaler highlights the importance of open innovation as a process of acquiring knowledge and technology sources outside the firm itself for later use in its internal activity [2].

J. Wit, B. Dankbaar and J. Vissers define open innovation as a form of cooperation and knowledge exchange between companies that can ensure their further long-term activity [3]. A number of foreign scientists, in particular T. Weiblen, distinguish the category of open business models of innovation, considering that they are also closely related to open innovation [4].

O.Gassmann, E.Enkel and H.W. Chesbrough pay attention to the processes of dissemination of open innovations, noting their incoming, outgoing and mixed procedures, which ultimately lead to the exchange of knowledge and accelerate their introduction to the market [5,

6]. There is a significant number of other publications of foreign authors devoted to open innovations.

As for the Russian-language publications in Russian editions of both Russian and foreign authors, their number is relatively small. The journal "Innovations" pays more attention to the topic of open innovations. It has published more than a dozen works since 2009. For example, A. I. Kashirin reveals the content of this work in State Corporation "Rostec". He notes that the open innovation models have a significant impact on the change in the organization of research work within the companies belonging to the Corporation, as well as the fact that open innovation makes companies look for new forms of organization of research work both with employees and through the organization of interaction with external groups of employees [7].

V. A. Dreshchinsky argues that the introduction of the concept of open innovation based on network technologies can allow high-tech companies to quickly get a significant scientific and technological effect and maximum profit if they acquire the results of research, involving interested organizations in the development [8].

A. A. Nikonova summarizes that the openness of innovation contributes to the involvement of the innovation process, even those firms that are outside the organization, which will reduce the disparity between the regions already rich in innovation, and only developing them [9].

T. M. Brasser., K. Strauss and A. Mladenov from the University of Vienna believe that open innovations have a direct positive impact on the success of business models of innovation. The involvement of external partners in the processes of innovative business modeling can improve both the quality of the created business models and the efficiency of companies [10].

G. Prause and T. Turner note that the consumer community is the driver of open innovation, and companies, interacting with innovative communities that unite consumers with different needs and rich experience, have the opportunity to integrate distributed knowledge, which allows them to improve their products [11].

N. N. Bek and L. R. Gadjeva believe that the innovating strategy innovation which is based on the principles of crowdsourcing strategy, involves knowledge of a large number of people, experts and communities to solve specific problems or obtain unique ideas [12]. It is characterized by a high degree of use of external sources and can lead to the creation of a new valuable proposition.

Thus, our analysis showed that the vast majority of researchers see in the category of open innovations the most important strategic resource that will allow to dynamize economic processes, increase the incomes of enterprises and budgets of the regions, make them able to strengthen their positions in the domestic and foreign markets, to ensure the welfare, quality and standard of living of the population.

At the same time, the challenge of using open innovation should be not only to increase the competitiveness of companies to ensure economic growth and sustainable socio-economic functioning of the firms themselves and the regions in which they are located, but also to create conditions for the transition of the economy to a higher level of scientific

and technological progress, taking into account the solution of problems of new techno-economic paradigm formation.

### III. RESEARCH METHODOLOGY

The problem of using open innovations in the economy is very important, but unfortunately, in our conditions they need wide coverage. The need to apply innovations has sufficient understanding only in some Russian corporations, smaller, medium and, in fact, small businesses and even a certain layer of scientists do not always represent their role in the economy and especially the prospects of implementation as the basis for the development of new industrialization.

Therefore, the main purpose of this article is to reveal the importance of the use of open innovation for sustainable development of economic systems at different levels, including regions, and to give an idea of the areas in which it is necessary to focus attention so that the problem becomes relevant for scientists, business and government. The problem is complicated by the fact that there are simply no statistics describing the state of open innovation in Russia and the regions. Therefore, our research will be based on empirical observations, on survey of the heads of enterprises and on the materials of the dissertation of Y.S. Burets. Open innovations were chosen as its theme and Y.S. Burets makes assumptions that the exchange and attraction of technologies and scientific achievements by the regions can be perceived as the use of open innovations.

### IV. PRACTICAL SIGNIFICANCE, PROPOSALS AND RESULTS OF THE IMPLEMENTATIONS, RESULTS OF EXPERIMENTAL STUDIES

The problem of introducing open innovations continues to be topical. This can be confirmed by analyzing the results of the survey of managers. On June 1, 2018, Vladimir state University together with the regional chamber of Commerce and industry conducted a survey of participants of the VI Interregional economic forum, which was held on the initiative of the administration of the Vladimir region. The main participants of the forum were enterprises of the main region, but also about 20 enterprises of neighboring territories. The survey was attended by 278 representatives of different levels of organizations of participants. 212 people passed the questionnaires. All the questions included in the questionnaire primarily concerned the use of innovations in production activities.

We will briefly describe their results. 11 people or 5% of respondents positively answered the question whether you are familiar with open innovations. 18 people answered that they do not see the difference between open and closed innovations, 36 people confirmed the application of innovations in their organizations. 72 managers replied that they would like to apply innovations in their production, but due to the lack of funds and high interest rates on Bank loans, which are not even allocated to the main economic activity willingly, they are not able to use innovations. All this suggests that open innovation is very limited in the regions.

Meanwhile, some researchers, for example, Y. S. Burets, based on the analysis of indicators of innovative activity of the Russian Federation, provided in the statistics collection HSE

2017, concludes that the maximum share of joint research and development (in her terminology - open innovation) are observed in high-tech industries, where it is 49.6%. The prevalence of innovation openness decreases with decreasing level of technological effectiveness in industries (mean-tech – 33%, low-tech to 12.7%). The development of innovations by third-party organizations, on the contrary, increases with the decrease in the level of technological effectiveness of industries (12.6%; 19.3% and 22.5%, respectively).

Further, in order to illustrate and confirm the findings, Y.S. Burets analyzes the indicators of innovative activity of the regions included in the Association of innovative regions of Russia (AIRR). Assuming that the interaction of regions within the Association will lead to the introduction of open innovations, however, our comparisons have allowed us to draw attention to some contradictions and the conclusions made earlier by the author on these examples are not fully confirmed (Table 1) [13].

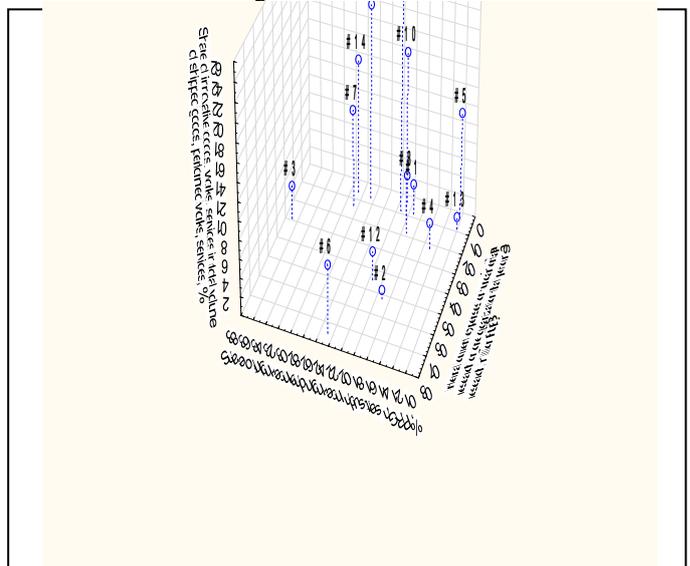
TABLE I. STATISTICAL BASE OF THE AVERAGE OF REGIONS INCLUDED TO AIRR TO ESTIMATE THE LEVEL OF INNOVATIVE DEVELOPMENT FOR THE PERIOD 2010-2015

| Region         | Indicator                   |  |  |  |  |   |
|----------------|-----------------------------|--|--|--|--|---|
|                | <i>rub. GRP per capita,</i> | <i>industries in GRP, % Share of science-intensive and high-tech</i> | <i>Innovative activity of organizations, %</i> | <i>organization performing research, million rub. Internal current expenses on fundamental research on one</i> | <i>Share of innovative goods, works in the total volume of shipped products, %</i> | <i>Development of advanced production technologies, units</i> |
| Altai region   | 155 066,6                   | 19,3   | 10,5   | 8,27   | 3,3  | 1,8   |
| Irkutsk region | 299 016,9                   | 19,1   | 7,4  | 52,09  | 1,0  | 28,4  |
| Kaluga region  | 263 368,3                   | 36,9   | 9,5  | 29,39  | 3,7  | 39,2  |

|                        |           |      |      |       |      |      |
|------------------------|-----------|------|------|-------|------|------|
| Krasnoyarsk region     | 428 331,9 | 15,0 | 10,0 | 22,30 | 2,8  | 25,4 |
| Lipetsk region         | 264 473,0 | 12,2 | 13,8 | 3,01  | 11,5 | 1    |
| Novosibirsk region     | 260 809,9 | 24,8 | 8,4  | 74,83 | 7,4  | 32,6 |
| Perm region            | 317 592,9 | 28,7 | 14,3 | 13,60 | 10,5 | 18,4 |
| Bashkortostan republic | 263 836,3 | 19,2 | 12,1 | 18,46 | 6,3  | 5    |
| Mordovia republic      | 165 603,4 | 21,3 | 14,0 | 8,84  | 23,7 | 6,2  |
| Tatarstan republic     | 364 802,5 | 20,0 | 18,7 | 12,12 | 18,1 | 28   |
| Samara region          | 289 996,5 | 26,6 | 7,9  | 7,19  | 20,8 | 23,6 |
| Tomsk region           | 343 228,3 | 21,5 | 14,8 | 45,08 | 3,1  | 6,4  |
| Tumen region           | 545 248,3 | 12,1 | 10,4 | 8,90  | 1,4  | 8    |
| Ulianovsk region       | 184 999,5 | 28,8 | 6,8  | 6,33  | 14,6 | 21   |

Source: compiled by the authors on the basis of the data of the application D of the dissertation of Y.S.Burets.

In order to compare the previously obtained data from the HSE statistics collection with the actual performance of the AIRR, we built a scatterplot. It clearly characterizes a significant spread of indicators reflecting the innovative achievements of the regions included in the Association.



|   |                    |    |                        |
|---|--------------------|----|------------------------|
| 1 | Altai region       | 8  | Bashkortostan republic |
| 2 | Irkutsk region     | 9  | Mordovia republic      |
| 3 | Kaluga region      | 10 | Tatarstan republic     |
| 4 | Krasnoyarsk region | 11 | Samara region          |
| 5 | Lipetsk region     | 12 | Tomsk region           |
| 6 | Novosibirsk region | 13 | Tumen region           |
| 7 | Perm region        | 14 | Ulianovsk region       |

Fig. 1. Assessment of the level of innovative development of the regions of the Central Federal district

The main conclusion that can be made by studying this diagram is that not only individual enterprises, but also regions, even those included in the Association of innovative regions have insufficient resource potential and have different

opportunities for the organization and development of open innovation.

#### V. CONCLUSIONS, DISCUSSIONS OF RESULTS

Thus, the problem of application of open innovations at the enterprises of the Vladimir region and, apparently, through Russia remains not a short-term prospect, but requires considerable study. Today only large corporations and network structures, as well as organizations that cooperate with them have the opportunity to apply open innovations. The main reason for the weak use of innovative developments and technologies is limited access to them and the lack of financial sources for their acquisition. The situation is such that in order to increase production and economic growth it is necessary to use innovations, but because of unstable production and unavailability of loans, investments in innovations are quite difficult to implement.

Linkages between enterprises, even those included in a single production chain, are more investment-oriented and less conducive to open innovation. There is not enough scientific research that reveals the content, practical significance and economic benefits of the introduction and use of this category of scientific knowledge. All this is taking place against the background of low innovation activity of enterprises and lack of sources of innovation financing. Therefore, the actions of the authorities and the scientific community to spread open innovations and provide them with sources of funding are necessary. At present, the issue of open innovations should be raised as a strategic resource for ensuring the processes of new industrialization. Indicators of the use of open innovation should be included in the state statistical reporting.

### References

- [1] Chesbrough, H.W. (2003) Open Innovation: The new imperative for creating and profiting from technology, *Boston:Harvard Business School Press*.
- [2] Lichtenthaler U. (2011) Open Innovation: Past Research, Current Debates and Future Directions, *Academy of Management Perspectives*, Vol. 25, №1, pp. 75-93.
- [3] Wit J., Dankbaar B., Vissers G. (2007) Open Innovation: the New Way of Knowledge Transfer? *Journal of Business Chemistry*, Vol. 4, №1.
- [4] Weiblen T. (2014) The open Business Model: Understanding an Emerging Concept, *Journal of Multi Business Model Innovation and Tecnology*, Vol. 1, pp. 35-66.
- [5] Gassmann O., Enkel E. (2004) Towards a Theory of Open Innovation: Three Core Process Archetypes, *R&D Management Conference (RADMA)*, Lisabon.
- [6] Enkel E., Gassmann O., Chesbrough H. (2009) Open R&D and open innovation: the phenomeon, *R&D Management*, № 39(4), pp. 312-313.
- [7] Kashirin, A. I. (2013) Open innovation, *World practice and experience of rostec Corporation. Innovations*, No. 13, pp. 10-17 (17).
- [8] Dreshchinsky V.A. (2013) Open innovation as a mechanism of networking organizations creating knowledge, *Bulletin of educational and methodical Petersburg "LETI"*, No. 8, pp. 86-92.
- [9] Nikonova A. A. (2017) The use of open innovation principles for the transition to new energy technologies, taking into account spatial factors, *Management Sciences in the modern world*, Volume 1, pp. 381-385.
- [10] Brasser T. M., Mladenov A., Strauss K. (2017) Open innovations in the field of business models: review of literature and directions of further research, *Business-Informatics*, No. 4, pp. 7-16.
- [11] Prause G., Turner T. (2014) Consumer Community, foresight, Vol. 8. No. 1, pp. 24-32.
- [12] Bek N. N., Gadzhieva L. R. (2018) Open innovative business models and strategies: features, problems, development prospects, *Bulletin of Moscow University*, Ser.6, Economics, No. 1, p. 140-159.
- [13] Burets Yu.S. (2018) Development of innovative processes on the basis of interregional integration, *Thesis for the degree of candidate of economic Sciences*, Tomsk, Appendix G, p. 198.