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TRANSBOUNDARY MARKET ESTABLISHMENT AS A STRATEGY OF THE PHARMACEUTICS DEVELOPMENT IN RUSSIA UNDER SANCTIONS

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Abstract
The subject of the article is the strategy for the pharmaceutics development under sanctions in Russia, taking into consideration the possibility to create the transboundary pharmaceutical market with the participation of Russia and China. The approach is believed to be relevant because currently Russia depends on imported pharmaceutical products and, although the sanctions have not affected pharmaceutical products, however, the high importance of pharmaceutical products imported from Western countries makes Russia to think about possible consequences of further expansion of the sanctions for national security. Currently the Russian market is reacting to the possible situation if foreign companies leave the market in case of toughening sanctions, and these apprehensions make the authorities and the national pharmaceutical business search for new ways of economic integration, realizing that the resulting synergistic effect may become the most important "growth point" for the Russian pharmaceutical industry. Development of transboundary cooperation between Russia and foreign participants of the pharmaceutical market seems to be one of the possible strategic decisions contributing to a synergistic growth of the pharmaceutical industry in Russia. The issue urgency determined the research directions. The possibility of transboundary cooperation between China and Russia based on public-private partnerships, and of the transboundary pharmaceutical market creation has been substantiated herein; recommendations on the transboundary pharmaceutical cluster establishment in China and Russia have been developed; the significance of the factors determining the possibility to build the clusters and to restrict this process have been identified; recommendations regarding the participants of the build cluster have been formulated.

Keywords: pharmaceutical market, sanctions, cooperation, transboundary market, production cluster, public-private partnership, synergy, factors, space.

INTRODUCTION

Economic sanctions announced by the United States and other Western countries against Russia in 2014, and the Russian government's response significantly complicated the possibility of mutual economic cooperation between Russia and its foreign partners. In these conditions, despite the sanctions do not apply to the Russian pharmaceutical industry, the market seems to be affected by their indirect impact (Kostromin, 2015; Reprintseva, 2018).

Although restrictive measures have not covered the pharmaceutical products, nevertheless Russia has been thinking over possible consequences of further expansion of the sanctions for the national security due to high share of imported goods from the Western countries (Zhdanova, 2016; Kvon et al., 2019; Novikova et al., 2020).

Currently the Russian market is reacting to the possible situation if foreign companies leave the market in case of toughening sanctions, and these apprehensions make the authorities and the national pharmaceutical business search for new ways of economic integration (Shinkevich et al., 2020), realizing that the resulting synergistic effect may become the most important "growth point" for the Russian pharmaceutical industry.

Development of transboundary cooperation between Russia and foreign participants of the pharmaceutical market seems to be one of the possible strategic decisions contributing to a synergistic growth of the pharmaceutical industry in Russia. First of all, we are talking about cooperation between Russia and China in the development of national pharmaceutical industries, using the scientific, organizational and production potential of both countries.

Thus, the purpose of the article is to justify the strategy for the pharmaceutics development in Russia under sanctions based on the transboundary pharmaceutical market formation.

RESEARCH METHODOLOGY

2.1. Research Methods

Scientific methodology was used during the research, particularly, the following methods: theoretical, structural and system analysis, cluster analysis, mathematical statistics methods, the method of cognitive modeling of economic processes.

2.2. Research Experimental Base

A pilot testing of the developed proposals was conducted at the Institute of Economics, Management and Finance of the Russian New University, through reviewers' discussion. As a result of the discussion, the proposed approach was recognized to contain elements of novelty, to describe possibilities of building transboundary pharmaceutical clusters, taking into consideration the factors of their spatial organization.

2.3. Research Stages

The research was conducted in several stages:

- analysis of researches (Dambayeva, 2019; Danilova & Litvinova, 2017; Loginov, Shkuta & Ėriashvili, 2018; Fomin, 2018) on possibilities of transboundary cooperation in the pharmaceutical industry and building inter-state cluster associations;
- development of recommendations on building a transboundary pharmaceutical cluster in China and Russia, based on the analysis of research data;
- the last stage included the cluster analysis methodology, which allowed to identify the importance of the factors which determine the possibility to build the clusters and to restrict this process; and recommendations regarding the participants of the cluster build.

RESULTS AND DISCUSSION

Prospects for the transboundary pharmaceutical market in Russia and China. Developing globalization processes in the world at the beginning of the 21st century led to competition aggravation on the commodity markets, including the pharmaceutical market that requires new management solutions for development (Klunko, Sirotkina & Krasnonosova, 2019).

In this context, it should be noted that recently, pharmaceutical companies able to manufacture competitive pharmaceutical products have appeared in Russia. Thus, import takes 75% of the total budget for public drug procurement, and the sanctions against Russia makes the government support domestic manufacturers, develop import substitution, seek ways and models of faster innovative development of the economy sector to form the basis of the pharmaceutical security in Russia in case of more sanctions pressing on the pharmaceutical market.

According to experts, despite the striving of the Russian pharmaceutical industry for independence from the world market, it is actually impossible to develop the domestic pharmaceutical market without interaction with foreign markets and manufacturers due to a shortage of promising developments in Russia with an urgent need to increase the new medicine production, export growth, geographic expansion for pharmaceutical products sales (Voitenko, 2019).

The situation made Russia an outsider (comparing to China and India) by the external pharmaceutical product trade scope in spite of its BRICS membership (Fig. 1).

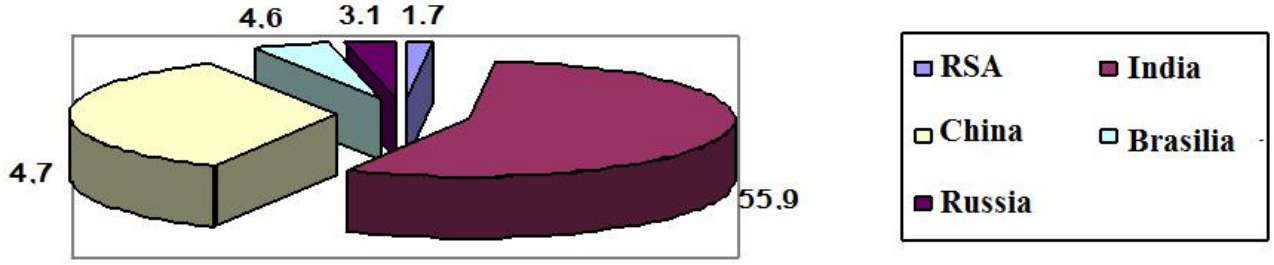


Figure 1. The structure of pharmaceutical product exports by BRICS countries (Pharmaceutical Industry in BRICS Countries, 2019).

The issue of how to improve competitiveness involves a certain balance between "closedness" and "openness" of the Russian pharmaceutical market, considering obstacles by the sanction pressure for its development.

In this regard, a promising direction for the national pharmaceutics development is in experience of cooperation between the two countries which can be improved by studying the possibilities of transboundary pharmaceutical markets.

The transboundary pharmaceutical market should be formed because of objective and subjective reasons. First, the factors of sanction pressure, globalization, integration, and mesointegration play an important role as a complex of specific connections and relations between neighboring regions and countries. In any case, international resource flows become more intense thanks to concluded agreements on cooperation. Thus, they imply not only the flows of goods, but also services due to the high population's mobility with fast travelling. The human resources are intensively moving in the form of migration. The same applies to intergovernmental flows of information and knowledge.

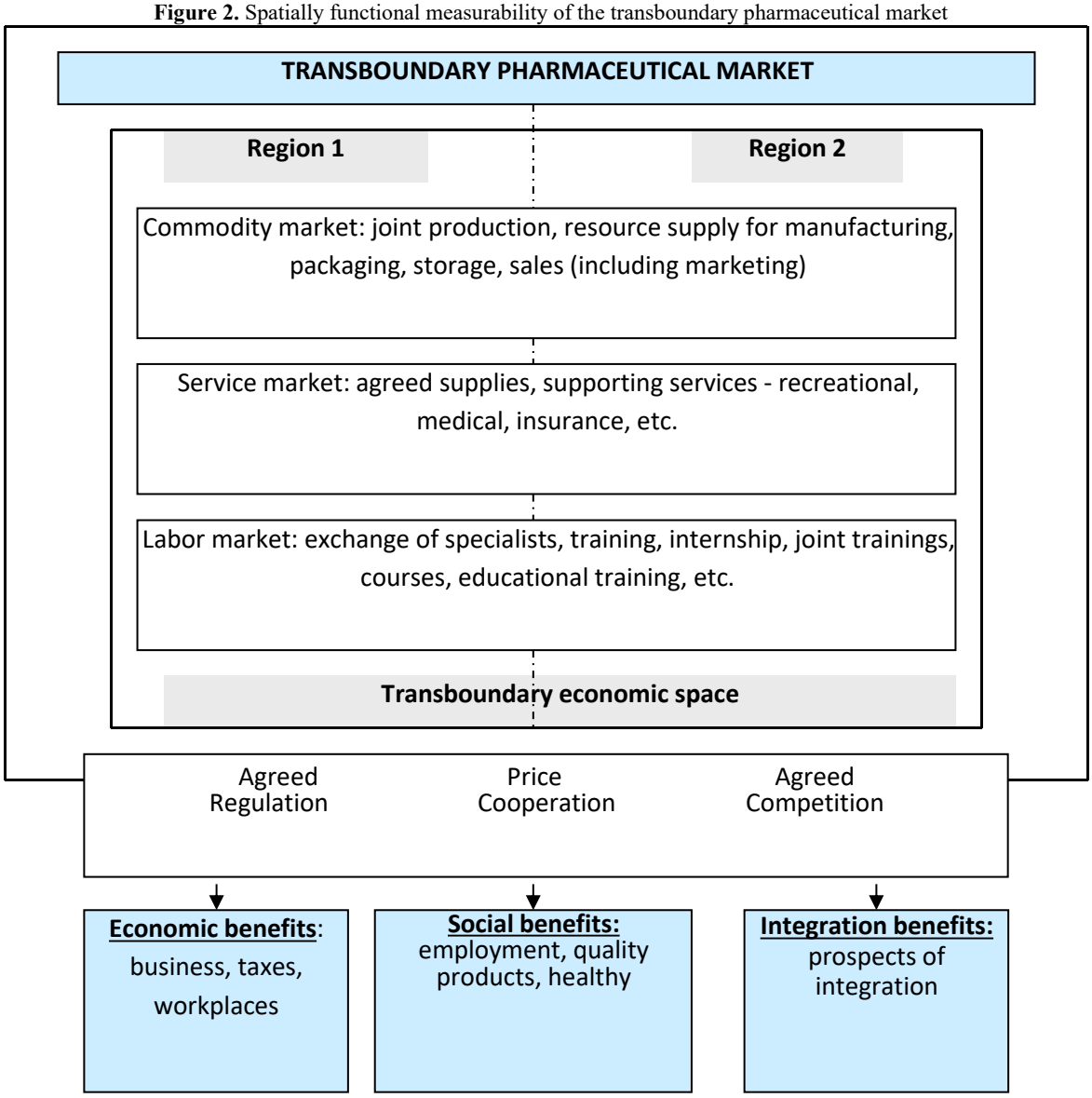
Against the background of these processes, the pharmaceutical market development is in the field of the intensification of intergovernmental resource movements:

- finished pharmaceutical products - in the form of export and import, and medicine movement by individuals for personal consumption or consumption in another country during a temporary stay (treatment, recreation, etc.);
- raw materials - for the purpose of further production of pharmaceutical products;
- finances - for the purpose of purchasing pharmaceutical products or raw materials for it, both for commercial purposes and for personal consumption;
- human resources for the purpose of employment, internships, training in pharmaceutical, related fields (health care, recreation, agriculture, chemical industry, research or educational institutions, etc.);
- in order to move pharmaceutical products or other resources for their purchase (including through shuttle migration), or to gain knowledge in the relevant field;
- knowledge and information - for the purpose of learning new technologies, methods of production, trade, innovation, and etc.

The intensification of such resource movements between the regions of neighboring countries gives grounds to tell about formation of a transboundary pharmaceutical market within their economic space.

Under successful market functioning, border regions can provide the country with important advantages of economic, social and integration nature (Figure 2).

Figure 2. Spatially functional measurability of the transboundary pharmaceutical market



Undoubtedly, regions bordering with the People's Republic of China (PRC) seem to Russia as the most promising for formation of the transboundary pharmaceutical market.

The China's interest to cooperate with Russia in the pharmaceutics is high because of common problems of national pharmaceutical markets. Despite the rapid economic growth, China has never been among the top countries for the innovative pharmaceutics development, its market mostly has been for generics. Recently, however, this industry has focused upon a strong innovative development in this high-tech production (Sheikha, 2018).

Similar problems characterize the pharmaceutical sector development in Russia; therefore, the Russian government is taking active measures for the pharmaceutics development in innovation, especially for Far Eastern region in this process. The state program "Development of pharmaceutical and medical industries," contains a special "Far Eastern section" with identified measures to support projects focused upon the technological modernization of production facilities, including the drug manufacture in the Far Eastern Federal District (GMP News, 2018).

Union of the two countries in the accelerated innovation development of the pharmaceutical industry is definitely able to create preconditions for strengthening the competitive position of China and Russia in the global pharmaceutical industry within a short period of time.

Formation of transboundary cluster associations as an important part of the strategy for the transboundary pharmaceutical market. Formation of transboundary cluster associations has to be an important element in formation of these markets, which currently seems to be promising for the Russian eastern regions, referring to the possibility of cooperation with the Chinese drug manufacturers.

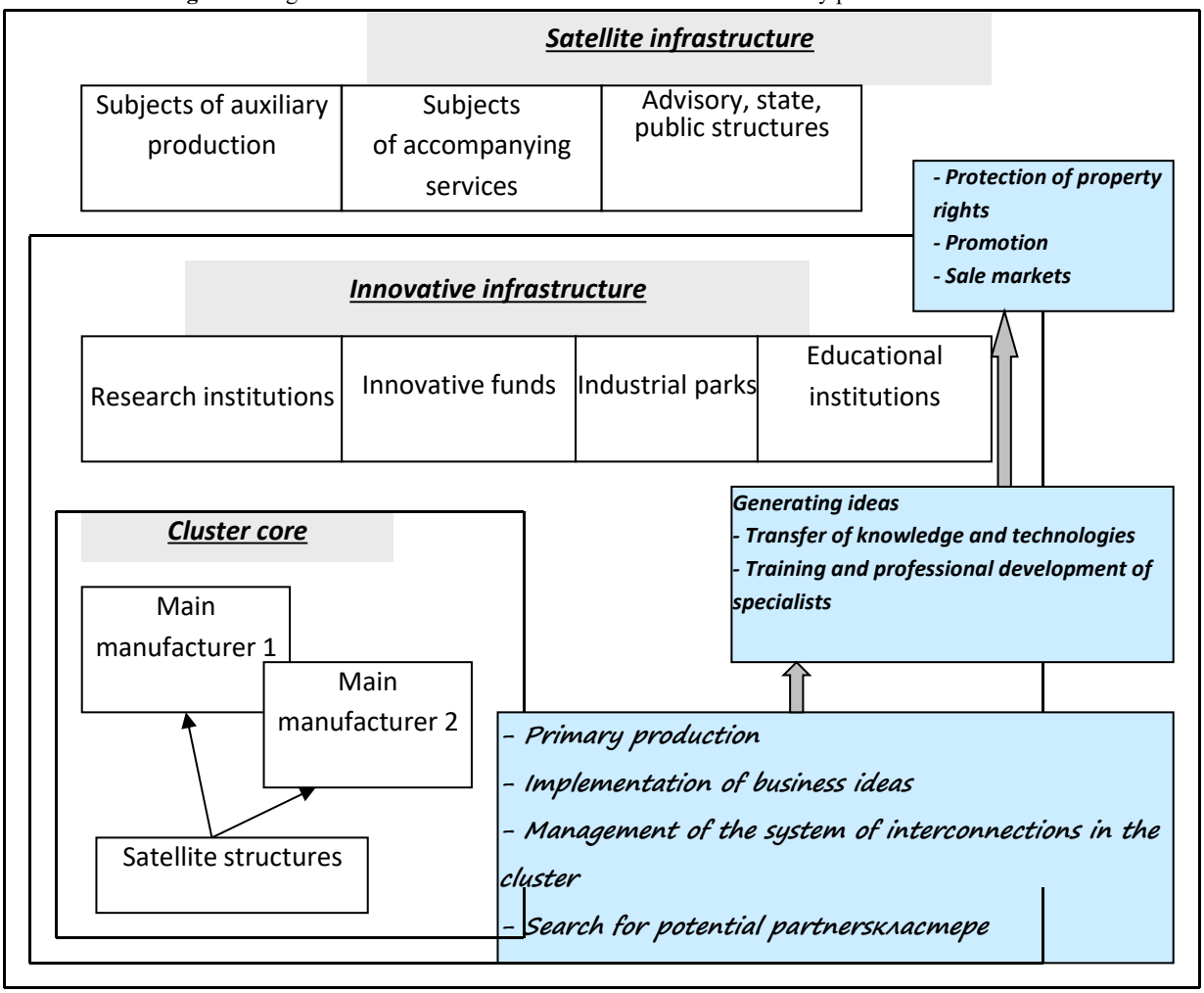
The strategy would contribute not only to mutual business relations between China and Russia in the field of pharmaceutics, but also to engaging in export, and would provide an opportunity for the technology exchange between the two countries, as claimed by Russian and Chinese experts (Astakhova & Zhihui, 2016).

Russia has experience in establishment of domestic clusters and this form of pharmaceutics organization has proven its efficiency (Klunko, 2013). At the same time, the cluster issue is currently not in the field of view of experts in pharmacy management, and the mechanism used in transboundary

cooperation may give a new dynamic to the organizational form and lower sanction pressure (Klunko et al., 2019).
Let us substantiate what the theoretical and applied basis for the establishment and functioning of a transboundary pharmaceutical cluster should be.

Figure 3 shows the organizational and functional structure of the transboundary pharmaceutical cluster. Depending on the dominant nature of interaction mechanisms (industrial, financial, economic, etc.), its participants are in the three-level cluster structure with spatial transboundary delimitation.

Figure 3. Organizational and functional structure of the transboundary pharmaceutical cluster



According to the traditional cluster concept, it is based on the core - the main production entities closely cooperating with so-called satellite structures, regarded as potential growth reserves, because in the future they can occupy a niche of innovative ideas forming with the cluster development.
Next, we characterize the vertical and horizontal links of a production nature arising in the main entities that form the cluster core (Tables 1, 2).

Table 1. Characteristics of the horizontal links of the main participants in the transboundary pharmaceutical cluster

Main manufacturer of region 1	**Main manufacturer of region 2**	**Synergistic effect**
- implementation of business ideas based on innovative principles; - manufacture, product sales in new or acting markets; - transition to the GMP-standards and their improvement; - activation of cooperation with international pharmaceutical companies (market leaders).		Optimization of resource use, higher commercial results, possibility of implementation social projects
Research, educational institutions in region 1	**Research, educational institutions in region 2**	**Synergistic effect**
- generation of innovative ideas; - access to information, better material and technical support; - knowledge diffusion, exchange of specialists, students; - motivation of specialists (including future ones) to develop, master new technologies of scientific research.		Enhancing applied importance of innovation, research activities
Satellite structures region 1	**Satellite structures region 2**	**Synergistic effect**
- search for partners in related areas of management; - additional motivation to improve the quality of products (services); - production diversification taking into account the main customer's needs		Optimization of resource use
Advisory, state structure in region 1	**Advisory, state structures in region 2**	**Synergistic effect**
- effective implementation of transboundary cooperation programs with the prospects for further joint financing, incl. with the participation of international organizations;		Formation of the region image as attractive for investments,

- profitability of local budgets; - effective social policy in terms of creating new job places, learning motivation, population development, innovation, improving public health.	as having a high development potential

A synergy orientation should be an important advantage of their organization. It reflects the entities' benefits from cooperation, growing with joint participation in enhancing intergovernmental cooperation, entering new markets, collaboration with leading pharmaceutical companies in neighboring countries.

Optimization of resource use is also mutually beneficial, especially for pharmaceutical manufacturers. Also, connections within the transboundary cluster provide invaluable image advantages which can be used both in the business entities' marketing policy, and in the municipal, regional marketing mechanisms - in terms of the development of innovative and investment activities, improvement of the regional attractiveness for commercial structures and for the population, in order to attract people with high intellectual and labor potential.

The system of vertical links (Table 2), shown for the manufacturer - the cluster member, contains the possibility of power delegation to the satellite structures.

Table 2. Characteristics of vertical links of the main manufacturer of the transboundary pharmaceutical cluster

Cooperation subjects	Main manufacturer	Synergistic effect
Additional manufacturers (satellite structures)	- power delegation (production, sales, storage, etc.), incl. for generic drugs	- resource concentration in technologically complicated production processes; - increasing the affordability for the population to high-quality products in high demand
Manufacturers in related areas	- consumption of related services and products; - joint production, sale of food additives, baby food, special nutrition for certain categories of patients	- organization of a balanced supply of raw materials (provision of services); - import substitution of substances from third countries (India, South Korea, etc.)
Research institutions	Access to innovative information	- implementation, development of innovative, intellectual and labor potential
Educational institutions	- practical training of specialists; - research works	- formation, development of intellectual and labor potential
Public organizations (consumer representatives, manufacturers)	- recommendations for production rationalization, product innovation, organization of the communication system within and outside the cluster	- price regulation improvement; - higher purchasing power due to import substitution from third countries
Advisory state structures	- participation in tender purchases, tenders for government orders; - participation in exhibitions, presentations; - reimbursement (partial) of the cost of drugs	- institutionalization of the region's image as innovative in pharmaceutics; - increasing the export, innovative potential of the region

It should be noted that the cluster can be formed basing on the public private partnership, meaning that the neighboring countries (Russia and China) should create conditions for this structure, provide support for this initiative at the legislative, institutional, financial levels. This form of organization would contribute to increasing mutual trust among participants of the transboundary cooperation project (Ponomarenko, 2014).

In general, the formation and development of the transboundary pharmaceutical market as controlled and regulated process should have its legal, organizational, logistical and institutional framework. The latter means that the regional pharmaceutical market subjects (mainly, manufacturers) should be interested in deepening cooperation, they should have a common understanding of the ethics of doing business, of production and sale orientation. Also, an essential aspect of these structures should be their spatial layout forming conditions for transboundary cluster development.

Study of factors of spatial layout of the transboundary pharmaceutical cluster. At the same time location of the transboundary clusters should be scientifically justified, in particular, to determine how the spatial arrangement of a regional industrial complex contributes or prevents location of these integration structures.

To evaluate the factors of the spatial arrangement of the transboundary cluster acting in Russia and China, a survey was conducted involving 37 scientists of the Institute of Economics, Management and Finance of the Russian New University. They are specialists in regional economics and spatial arrangement of production. The survey was aimed to determine the expedience and feasibility of the transboundary cluster model in Russia and China.

In the survey, we asked to evaluate the factors of the spatial arrangement of the pharmaceutical complex by parameters from the works (Balashov, 2012; Timofeyeva, 2013).

The factors of spatial arrangement were assessed by the experts on a five-point scale, while the main condition for the assessment was the expediency of the production cluster organization within the transboundary cooperation. At the first stage, in accordance with the chosen methodology, the "factor weight" (F_w) was estimated from the point of view of its relevance for the cluster formation; at the second stage, the functional factor development level ($F_{d.}$) was estimated in regions meant for the cluster formation. The resulting indicators (R_i) were calculated as the arithmetic mean of the sum of the products of points and the number of the experts who gave a particular point (Tables 3, 4).

Table 3. Data for the analysis of the "weight value" of the factors of the spatial layout of the transboundary pharmaceutical cluster in Russia and China (points)

No.	Elements	Distribution of the experts' answers about the "weight" of factors					Fw (∑mean)
		1	2	3	4	5	
1	The geographical location of the region, which can ensure the rapid delivery of	0	1	1	1	3	4.78

	pharmaceutical products to the European markets					4	
2	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the Asian markets	2	1	1	32	1	3.78
3	Sale network in the region for the effective marketing of medicines and pharmaceutical goods	1	1	1	31	3	3.67
4	The cluster members' access to financial resources to ensure its development	3	2	1	27	4	3.73
5	Enterprises manufacturing equipment and technological lines for the drug production in the region	1	1	2	3	30	4.62
6	Experience in transboundary cooperation in the region	2	1	23	4	7	3.35
7	Regional pharmaceutical enterprises that can be the basis for the cluster association	5	2	25	4	1	2.83
8	Specialized public administration structures that can implement projects on establishment and development of public-private-partnership-based pharmaceutical clusters	3	2	30	1	1	2.94
9	Regional enterprises producing substances and materials for pharmaceutical products	4	3	22	4	4	3.19
10	Regional enterprises producing equipment and technological lines for the drug production	0	0	0	0	37	5.0
11	Regional transport system able to ensure the cluster functioning	2	2	30	2	1	2.94
12	Regional logistics centers distributing pharmaceutical products	2	3	25	5	2	3.05
13	The research base that should become a factor in the innovative development of the pharmaceutical cluster	5	32	1	1	1	2.18
14	Regional labor resources able to ensure the pharmaceutical cluster functioning	3	4	24	4	2	2.94
15	Regional training base able to meet the staffing needs of the pharmaceutical cluster	26	4	3	4	0	1.7

Table 4. Data for the analysis of the level of functional development of the factors of spatial location of the transboundary pharmaceutical production cluster in Russia and China (points)

No.	Elements	Distribution of the experts' values on development factor functions					Fw (∑mean)
		1	2	3	4	5	
1	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the European markets	0	1	1	1	34	4.83
2	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the Asian markets	2	1	1	32	1	3.78
3	Sale network in the region for the effective marketing of medicines and pharmaceutical goods	1	1	7	20	8	3.89
4	The cluster members' access to financial resources to ensure its development	3	2	1	27	4	3.72
5	Enterprises manufacturing equipment and technological lines for the drug production in the region	1	1	2	3	30	4.89
6	Experience of transboundary cooperation in the region	2	1	23	4	7	3.36
7	Regional pharmaceutical enterprises that can be the basis for the cluster association	5	2	25	4	1	2.83
8	Specialized public administration structures that can implement projects on establishment and development of public-private-partnership-based pharmaceutical clusters	3	2	30	1	1	2, 94
9	Regional enterprises producing substances and materials for pharmaceutical products	4	3	22	4	4	3.02
10	Regional enterprises producing equipment and technological lines for the drug production	4	4	1	6	22	4.02
11	Regional transport system able to ensure the cluster functioning	2	2	30	2	1	2.94
12	Regional logistics centers distributing pharmaceutical products	2	3	22	8	2	3.12
13	The research base that should become a factor in the innovative development of the pharmaceutical cluster	5	32	1	1	1	2.18
14	Regional labor resources able to ensure the pharmaceutical cluster functioning	3	4	24	4	2	2.94
15	Regional training base able to meet the staffing needs of the pharmaceutical cluster	26	4	3	4	0	1.59

Table 5. Generalized data for the analysis of the factors of the spatial layout of the transboundary pharmaceutical production cluster in Russia and China (points)

No.	Elements	F_w	F_d	R_i
1	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical	4.78	4.83	23.08

	products to the European markets			
2	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the Asian markets	3.78	3.78	14.3
3	Sale network in the region for the effective marketing of medicines and pharmaceutical goods	3.67	3.89	14.2
4	The cluster members' access to financial resources to ensure its development	3.72	3.72	13.8
5	Enterprises manufacturing equipment and technological lines for the drug production in the region	4.62	4.89	23.0
6	Experience of transboundary cooperation in the region	3.35	3.36	11.2
7	Regional pharmaceutical enterprises that can be the basis for the cluster association	2.83	2.83	8.0
8	Specialized public administration structures that can implement projects on establishment and development of public-private-partnership-based pharmaceutical clusters	2.94	2, 94	8.6
9	Regional enterprises producing substances and materials for pharmaceutical products	3.19	3.02	9.6
10	Regional enterprises producing equipment and technological lines for the drug production	5.0	4.02	20.1
11	Regional transport system able to ensure the cluster functioning	4.78	2.94	14.05
12	Regional logistics centers distributing pharmaceutical products	3.78	3.12	11.8
13	The research base that should become a factor in the innovative development of the pharmaceutical cluster	2.18	2.18	4.8
14	Regional labor resources able to ensure the pharmaceutical cluster functioning	2.94	2.94	8.6
15	Regional training base able to meet the staffing needs of the pharmaceutical cluster	1.7	1.59	2.7

According to the chosen methodology, the further analysis involves the calculation of the resulting indicator (R_i) from the point of view of its importance and development for the spatial organization of the marketing cluster regarding its "weight" and functional development, which can be calculated by the formula (Khalafyan, 2007):

$R_i = (F_{w1} \times F_{d1}); (F_{w2} \times F_{d2}); (F_{w\,15} \times F_{d15})$ (1)

In order to assess the importance of these factors in combination with their development level, an analysis is recommended using the clustering method with the Statistica 6.0 software (Khalafyan, 2007) (Fig. 4).

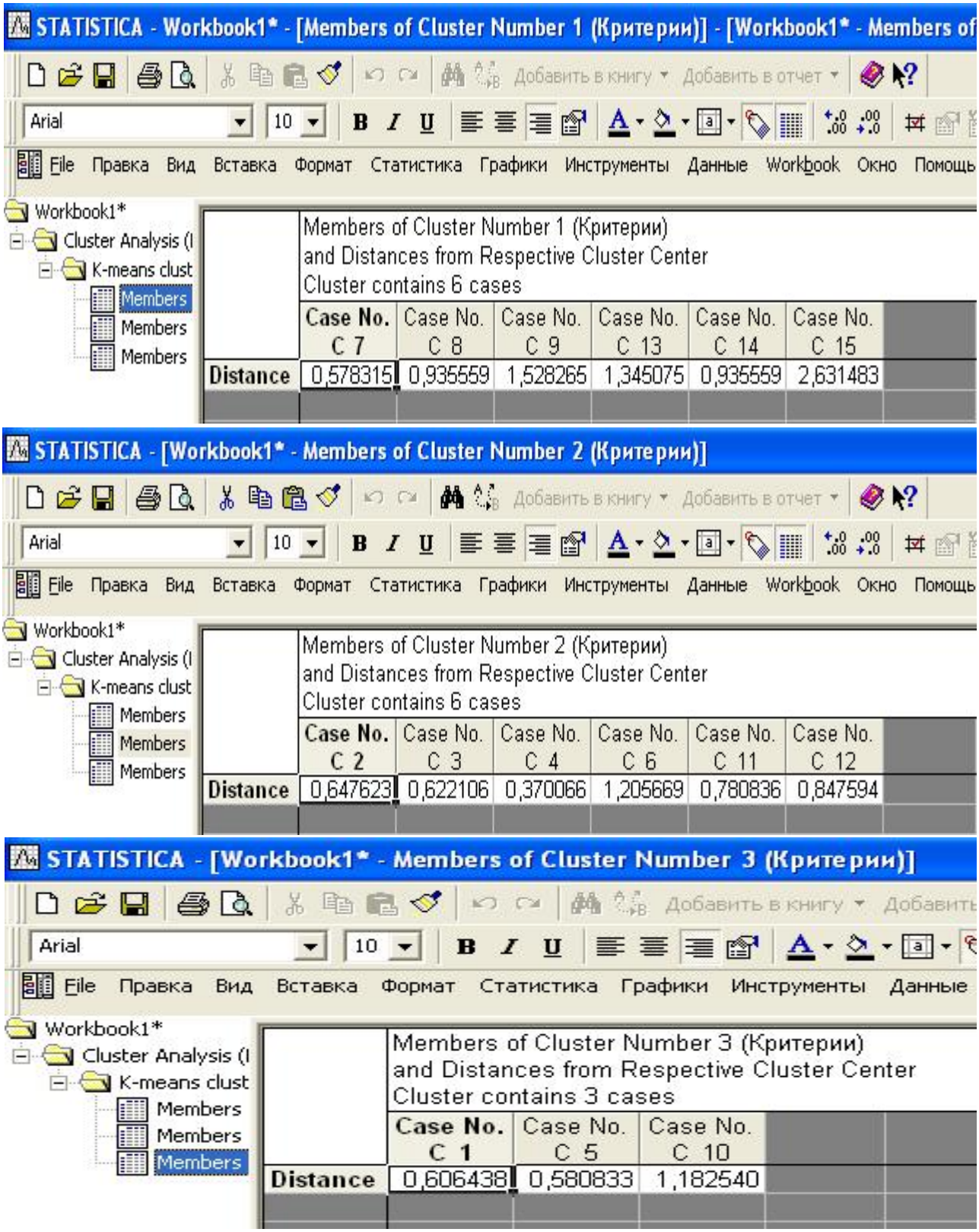


Figure 4. Results of the cluster analysis of factors determining the spatial conditions for the establishment of transboundary clusters in Russia and China

According to the results of analysis, let's find statistical characteristics and cluster size and composition (Table 6).

Table 6. Distribution of factors determining the spatial conditions for the establishment of transboundary clusters in Russia and China (k-mean)

No.	Factor	k - mean
Segment 1		

7	Regional pharmaceutical enterprises that can be the basis for the cluster association	0.578315
8	Specialized public administration structures that can implement projects on establishment and development of public-private-partnership-based pharmaceutical clusters	0.935559
9	Regional enterprises producing substances and materials for pharmaceutical products	1.528265
13	The research base that should become a factor in the innovative development of the pharmaceutical cluster	1.345075
14	Regional labor resources able to ensure the pharmaceutical cluster functioning	0.935559
15	Regional training base able to meet the staffing needs of the pharmaceutical cluster	2.631483
Segment 2		
2	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the Asian markets	0.647623
3	Sale network in the region for the effective marketing of medicines and pharmaceutical goods	0.622106
4	The cluster members' access to financial resources to ensure its development	0.370066
6	Experience of transboundary cooperation in the region	1.205669
11	Regional transport system able to ensure the cluster functioning	0.780836
12	Regional logistics centers distributing pharmaceutical products	0.847594
Segment 3		
1	The geographical location of the region, which can ensure the rapid delivery of pharmaceutical products to the European markets	0.606438
5	Enterprises manufacturing equipment and technological lines for the drug production in the region	0.580833
10	Examples of successful implementation of cluster initiatives in the region	1.182540

The first segment consists of factors, currently most contributing to the transboundary cluster establishment in Russia and China, the second segment consists of factors to be developed later in the cluster functioning, the third segment consists of factors complicating the transboundary cluster establishment in Russia and China.

Basing on our research and the analysis of the factors of the spatial layout of transboundary clusters, we can recommend the establishment of these associations between the pharmaceutical enterprises, located in the east of Russia (OAO Dalkhimpharm, Khabarovsk region, the enterprise is among ten leading Russian pharmaceutical manufacturers, produces a wide range of finished medicines; ZAO "East-Pharm", located in the city of Ussuriysk, a high-tech pharmaceutical company engaged in the infusion solution production in accordance with international GMP quality standards) and pharmaceutical companies of China located in the province of Heilongjiang and Guangdong (Hayao Group Corporation Pharmaceutical Plant, manufacturing over 1000 varieties of antibiotics, chemicals, health products, medicines, biological agents, animal vaccines, and veterinary drugs; HeiLongJiang ZBD Pharmaceutical Co., Ltd, a modern enterprise manufacturing pharmaceutical products, food products, packaging and marketing).

The cluster activity can be ensured by the enterprise from China Qiqihar Xiaoqing Medical Instruments Co., Ltd. manufacturing various medical devices and considering Chinese manufacture able to launch manufacturing equipment for the pharmaceutical products; and from Russia, the transboundary cluster can be attended by Perm National Pharmaceutical Academy (the city of Perm), the Pharmacy and Biomedical Department at the Far Eastern State Medical University (the city of Khabarovsk).

This integration form may result in the transboundary cluster association in Russia and China, combining science, production and technical maintenance of the production.

CONCLUSION

To wind it up, it should be noted that the establishment of the transboundary pharmaceutical market, consisting of pharmaceutical clusters, offers to the pharmaceutical sector of the economy promising fields for mutual penetration in the domestic markets, and for active expansion into the third countries' markets. This strategy seems to be prospective to counter against various forms of trade, financial and economic discrimination not only of Russia, but also China as well.

In this sense, the author's opinion is that modern pharmaceutical market in Russia and its subjects have a significant potential, known to partners, foreign pharmaceutical companies (particularly, from China), not supporting the sanctions.

This situation increases the chances for active public-private partnerships and funding programs of transboundary cooperation between participants of the pharmaceutical market, for establishment of cluster associations incentive for the development of the pharmaceutical sectors of the integrating economies on the basis of synergies arising objectively in the case of combining the joint efforts of the transboundary cooperation subjects in the field of establishment, production and sales of pharmaceutical products.

Therefore, the proposed project to establish a transboundary pharmaceutical cluster in the eastern region of Russia in cooperation with China may become a real chance for an innovative breakthrough in this area through the mobilization and pooling of resources. The cluster development would improve the social and economic situation in the regions of Russia and China and contribute to an innovative breakthrough at the level of national economies as a whole.

REFERENCES

1. Astakhova, E.V. & Zhihui, W. (2016). Trade relations between Russia and China in the pharmaceutics development. *Azimuth of scientific research: economics and management, 5*(4), 23-25.
2. Balashov, A.I. (2012). *Formation of a mechanism for sustainable pharmaceutics development*: Doctoral Dissertation. St.Petersburg.
3. Dambayeva, N.P. (2019). The concept of a cluster approach to the economy development in the border region. *Bulletin of the Transbaikal State University, 25*, 93-102.
4. Danilova, V.A. & Litvinova, E.V. (2017). Prospects for industrial clusters in the Russian regions. *Service in Russia and abroad, 2,* 57-73.
5. Fomin, M.V. (2018). Spatial development and

transboundary cooperation. *Greater Eurasia: Development, security, cooperation, 3*, 337-342.
6. GMP News. (2018). *The pharmaceutical industry of the Far East to be supported at the government level*. URL: https://gmpnews.ru/ 2018/01/farmpromyshlennost-dalnego-vostoka-budet-podderzhana-na-pravitelstvennom-urovne/
7. Khalafyan, A.A. (2007). *Statistica 6. Statistical data analysis*. Moscow: Publishing house: LLC "Binom-Press".
8. Klunko, N.S. Globalization's Impact on Development of the Russian Pharmaceutical Complex. *World Applied Sciences Journal, 23*(2), 252-257, 2013.
9. Klunko, N.S. Sirotkina N.V. & Krasnonosova, O.M. (2019). Strategic Management in Pharmaceutics Development under World Economic Globalization Transformations. *Journal of Environmental Treatment Techniques, 7*(3), 404-417.
10. Klunko, N.S., Sirotkina, N.V., Minenko, I.A., Tischenko, A.L. (2019). Development of a pharmaceutical cluster in the Russian Federation under sanctions. *EurAsian Journal of BioSciences, 13*, 2425-2432.
11. Kostromin, P.A. (2015). Ensuring sustainable development of Russian pharmaceutical enterprises under external economic sanctions. *Theory and practice of social development, 9*, 73-79.
12. Kvon, G.M., Prokopyev, A.I., Shestak, V.A., Larionova, A.A., & Shikh, E.V. (2019). Features of cost advantages from implementation of energy-saving projects. *International Journal of Energy Economics and Policy, 9*(3), 53–58.
13. Loginov, E.L., Shkuta, A.A. & Ėriashvili, N.D. (2018). Transboundary contour of business activity management in Russia and China as a tool of macroeconomic stabilization in critical inequality of the world economy. *Bulletin of Economic Security, 4,* 228-234.
14. Novikova, G.P., Ilkevich, K.B., Ovchinnikov, O.M., Zhdanov, S.P., Tsechoyev, V.K., Shuaipov, M.M., & Vezirov, K.T. (2020). Social goals and social essence of human resources management: on student youth employment problem. *Eurasia Journal of Bioscience, 14*(2), 4079-84.
15. Pharmaceutical Industry in BRICS Countries. (2019). URL: https://www.worldofchemicals.com/668/chemistry-articles/ pharmaceutical-industry-in-brics-countries.html)
16. Ponomarenko, E.E. (2014). Public-private partnership in the development of innovative clusters. *Theory and practice of social development, 5*. URL: https://cyberleninka.ru/article/n/gosudarstvenno-chastnoe-partnerstvo-v-razvitii-innovatsionnyh-klasterov/viewer
17. Reprintseva, E.V. (2018). Analysis of the pharmaceutical market development under the sanctions. Economic Research, *4*(18). URL: https://www.erce.ru/internet-magazine/magazine/56/767/
18. Sheikha, I. (2018). China has set a course for innovation in the pharmaceutical industry. URL: https://rg.ru/2018/05/21/kitaj-vzial-kurs-na-innovacii-v-farmacevticheskoj-otrasli.html
19. Shinkevich, M.V., Mashkin, N.A., Ishmuradova, I.I., Kolosova, V.V., & Popova, O.V. (2020). Management of sustainable consumption of energy resources in the conditions of digital transformation of the industrial complex. *International Journal of Energy Economics and Policy, 10*(5), 454-460.
20. Timofeyeva, S.V. (2013). *Actualization of scientific potential for the purpose of innovative development of the pharmaceutical cluster of St. Petersburg*: Doctoral Dissertation. St.Petersburg.
21. Voitenko, B.A. (2019). Main barriers and risk factors in improving the Russian pharmaceutical industry. *Moscow Economic Journal,* URL: https://cyberleninka.ru/article/n/osnovnye-bariery-i-faktory-riska-v-protsesse-sovershenstvovaniya-rossiyskoy-farmatsevticheskoy-promyshlennosti/viewer
22. Zhdanova, K.V. (2016). Opportunities for the development of Russian-Chinese trade in medicines. *Russian foreign economic bulletin, 6*, 119-127.