
Problems of Innovative Development of the Northern Territories of Russia

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Abstract:

The main goal of the paper is to study the problems of innovative development of the economy of Russia's oil and gas producing regions, the economic evaluation of innovative benchmarks for the development of the regional economy, and the substantiation of the priority directions for the development of clusters.

The paper covers theoretical, methodological and practical aspects of the development of innovative potential of the northern oil-producing regions.

Based on the analysis of indicators of innovative development in the northern territories, the priorities for their development are substantiated.

Keywords: *Innovative development, natural resource potential, clusters, elements and parties of cluster, high-tech park, mechanism, priorities, innovative infrastructure, economic stability.*

JEL Classification: *O10, O14, O31, O35.*

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1. Introduction

The Strategy for Innovative Development of the Russian Federation until 2020 has set ambitious long-term development goals for Russia, which consist in ensuring a high level of public well-being and securing the geopolitical role of the country as one of the leaders in the global economy. In this case, the only possible way to achieve these goals is the transition of the economy to an innovative socially-oriented model of development (Order of the Government of the Russian Federation No. 2227-r, 2011). The formation of society assumes the basic role of intellectual potential in the processes of innovative development of the economy and social sphere.

2. Methods

Scientific research on the creation of methodological bases for the development of innovative clusters at the regional level is supposed to be done using economic methods of comparative and system analysis and statistics, applying general economic methods of situational analysis and forecasting economic processes: the scenario method and simulation of economic situations. As the main research method, it is supposed to use methods of analysis, diagnostics and forecasting of the process of creating a regional system of innovative development based on the program-target method of governmental support.

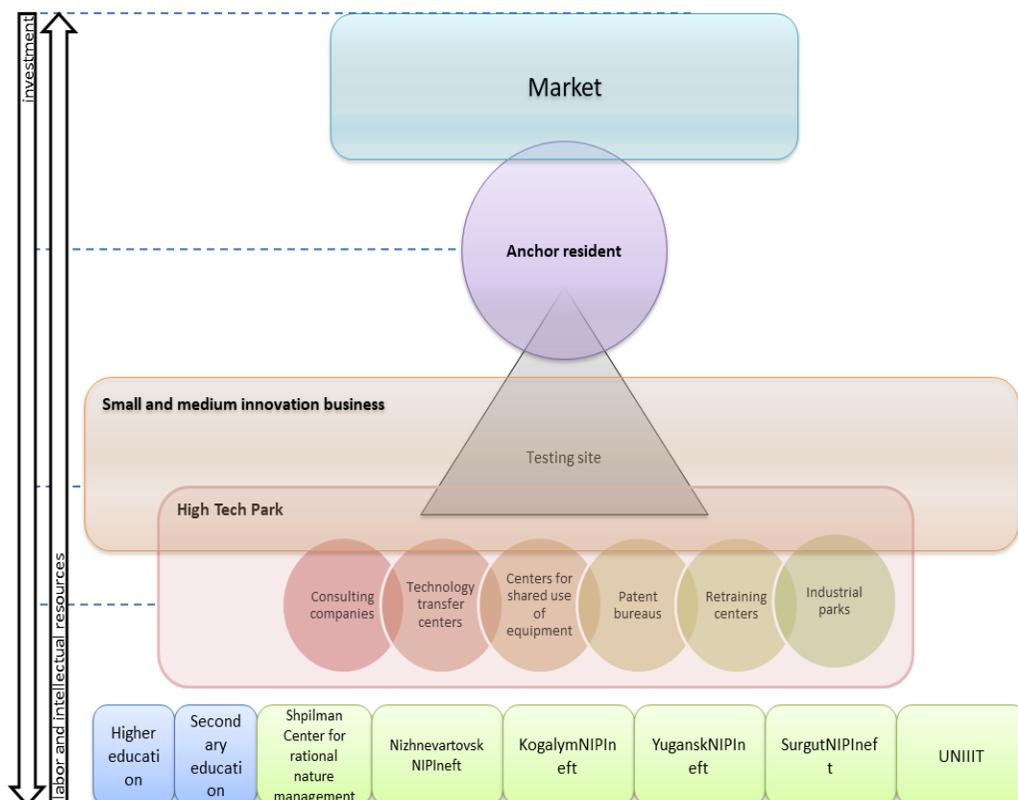
3. Results

A balanced system of innovative development of the region's economy and an innovative cluster may be created based on governmental support. The expected results of the formation and development of an innovative cluster will be:

- ✓ a regional system of new knowledge-intensive industries with a high level of profitability;
- ✓ developed intellectual resource of the region;
- ✓ experimental innovative projects involving innovation technologies significant for the region from other regions of the country;
- ✓ developed fundamental and applied R&D.

As a result of governmental support of innovative development in Yugra, a regional innovation system will be created that will integrate research and development, higher education, engineering business, innovation infrastructure, institutions of the intellectual property market, mechanisms for stimulating innovation in the interests of developing clusters and the entire region. At the same time, it is known that currently there are 137 structures in Russia that have some signs of industrial clusters (as of 2017) only 25 of them have confirmed compliance with the requirements of the Ministry of Industry and Trade of Russia and are included in the register of industrial clusters.

Figure 1. Place and role of elements of innovation infrastructure within the framework of intracluster interaction in the formation of an innovative product



One can note the all-Russian trend, when clusters connected with the oil and gas sector are created not in the field, but in the distance: out of six clusters, only one was created directly in the region specializing in oil and gas – Yugra. Together with the timber industry cluster, these are the first two clusters created in Yugra, where, according to the strategic guidelines, it is planned to bring the total number of clusters to nine by 2030.

4. Main research

But over the years of the implementation of the Strategy for Innovative Development of the Russian Federation until 2020, the development of innovative economy in Russia has faced several serious obstacles. In many respects, the difficulties of large-scale development of innovative processes are associated with the lack of integrated system solutions that are universal for various regions of the Russian Federation, as well as with the underdeveloped theoretical base and the isolation from the system of making managerial decisions.

As a result, the set of systemic paradoxes has shown up (Kushnikov, & Pelikhov, 2010; Order of the Government of Khanty-Mansiysk Autonomous Okrug – Yugra 101-rp, 2013), when:

- key elements of emerging regional innovation systems (triple helix (Dezhina and Kiselyova, 2018): science, business, regional authorities) cannot self-organize for effective cooperation;
- authorities of the regions of the Federation ignore the real needs of the management environment, or impose unsolicited regulatory technologies and forms of their management;
- target installations of most regions do not contain in their structure any characteristics that reflect the development of their budgets on the basis of innovative processes;
- there is still no innovative legislation in Russia (in the context of terminology, the issue is solved through the Federal Act No. 127 "On Science ...", in terms of prospects – through the Strategy for Innovative Development);
- innovative infrastructure is created without an analysis of the needs of small and medium-sized innovative enterprises, but as a result of initiatives of higher authorities or institutions of federal and international scales;
- the decisions made, and the connections formed are of a short-term nature and cannot affect the solution of strategic tasks;
- elements of innovation infrastructure either are directed to the implementation of all competencies, including those beyond their basic level, or independently try to occupy an empty niche to increase the efficiency of the system as a whole; etc.

Thus, it is obvious that the solution of such a complex and voluminous task as the formation of a national innovation system in the long-term development perspective faces quite definite problems, and during the implementation of the said Strategy for Innovative Development of the Russian Federation until 2020, the all-Russian problems practically did not change (Table 1). Among significant and unsolved problems, the following remain over the years: immunity to innovation and its inefficiency, and lack of interaction of the elements of the innovation system.

Table 1. Comparison of the problems of development of scientific and innovation environment on the basis of strategic development documents in Russia

SID 2020 (Petrenchenko et al., 2010)	SSTD (Decree of the President of the Russian Federation No. 642, 2016)
low innovation activity [note by the authors: all parties from individuals to business]	the directions of research and development largely correspond to those relevant for the last decades of the last century
excessive bias toward the purchase of finished equipment abroad at the expense	significant differentiation of scientific and educational organizations in terms of the

of the introduction of own new developments	results and efficiency of work, and geographical location
low demand for innovation in the Russian economy	donating human capital for the global science
low return on technological innovation	immunity of the economy and society to innovation
insufficiently developed public-private partnership system in the implementation of innovative projects	low efficiency of Russian research organizations (in comparison with the leading countries)
inadequacy of the system of state statistics to the goals of managing innovation development	weak interaction of the research and development sector with the real sector of the economy
state regulation of entrepreneurial activity is not competitive enough	inconsistency of priorities and instruments to support the scientific and technological development of the Russian Federation at the national, regional, sectoral and corporate levels

For comparison, the problems abroad do not coincide with those identified in Russia. For example, the US is characterized by:

- ✓ narrow horizon of decision-making by politicians, limited by their electoral cycles;
- ✓ high lobbying activity in the implementation of the policy of the US administration;
- ✓ imperfection of information, including that used to make court rulings, when courts are often forced to make decisions on technologies that have not yet been tested by the market;
- ✓ inconsistency of actions of various departments/agencies in the field of innovation policy.

Nevertheless, the prospects for development of the Russian economy are associated with the so-called "big challenges" that are relevant for Russia in a strategic perspective to ensure the competitiveness of the economy at the global level, including:

- ✓ exhaustion of Russia's economic growth opportunities, based on extensive exploitation of mineral wealth, against the backdrop of the formation of the digital economy and the emergence of a limited group of leading countries that enjoy new production technologies oriented towards the use of renewable resources;
- ✓ demographic transition caused by the increase in life expectancy of people, the change in their way of life, and the resulting aging of the population, which together leads to new social and medical problems, including the growth of threats of global pandemics, increased risk of new infections and the return of disappeared infections;

- ✓ an increase in anthropogenic pressures on the environment to the extent that threatens the reproduction of natural resources, and increased risks to life and health of citizens associated with their inefficient use;
- ✓ need to ensure food security and food independence of Russia, competitiveness of domestic products in world food markets, reducing technological risks in the agro-industrial sector;
- ✓ a qualitative change global and local energy systems, the growth of importance of the energy-saving economy and an increase in the volume of energy generation and conservation, its transfer and use;
- ✓ new external threats to national security (including military threats, threats of the loss of national and cultural identity of Russian citizens), caused by the growth of international competition and conflict, global and regional instability, and strengthening their relationship with internal threats to national security;
- ✓ need for effective development and use of areas, including through overcoming disproportions in the socio-economic development of the country's territory, as well as strengthening Russia's position in the field of economic, scientific and military development of space and air, oceans, the Arctic and the Antarctic.

5. Discussion

Among the regions of Russia, northern territories are distinguished, among which Khanty-Mansiysk Autonomous Okrug – Yugra is distinct for its regional development specifics, its main merit being related to mineral wealth. The regions of the Far North stand out with special climatic conditions and are characterized by common social, economic, legal and other factors. Harsh climatic conditions, large distances require the participation of the state in shaping industrial infrastructure (road traffic networks, power grids, etc.) (Bogomolova *et al.*, 2017; Dobrova *et al.*, 2018; Bibarsov *et al.*, 2017).

Yugra is an export-oriented region and its export accounts for 95.6% of the total volume of external trade turnover while import accounts for only 4.4%. Crude oil is 99.4% of the total export volume. The amount of goods and services imported into the region increased by 8.4% within the last year (Khanty-Mansiysk Autonomous Okrug – Yugra: Official Site of the Public Authorities, 2016). Yugra is the sector-specific oil and gas producing region with a limited number of basic industries represented in its regional economy and well developed additional and auxiliary industries. In a geopolitically volatile environment and sanctions applied, an importance is given to regions that are able to promptly reorganize their economies in order to develop the resource potential capable to provide the population with own-produced goods and services. Due to recent geopolitical developments, Yugra has faced new tasks and objectives that involve maintaining the high standard of human welfare based on balanced sustainable economic growth as well as on import substitution of goods, labor and services (Bogomolova *et al.*, 2015).

Meantime, innovative guidelines for the development of Yugra's economy, reflected in the strategic documents (Order of the Government of Khanty-Mansiysk Autonomous Okrug – Yugra No. 101-rp, 2013), as well as active participation in the implementation of innovative pilot projects such as the creation of Russia's first children's technoparks, the introduction of lean manufacturing technologies, etc., indicate a desire to overcome systemic problems in order to approach a qualitative reassessment of innovations as a factor of economic growth and development of the northern territories.

Table 2. Development of innovation in Yugra

Indicator	2015	2016	Growth rate, %
Domestic expenditure on research and development, million rubles (Federal State Statistics Service, 2017)	2,805.9	2,800.4	99.8
The volume of innovative goods, works, services, million rubles (Federal State Statistics Service, n.d.)	10,274.4	12,815.1	124.7
Innovative activity of organizations (the share of organizations that carried out technological, organizational, marketing innovations in the reporting year in the total number of organizations considered), %	5.0	6.3	126
Share of innovative goods, works and services in the total volume of goods shipped and works and services performed, %	0.3	0.3	100
Costs for technological innovation of organizations, by regions of the Russian Federation, million rubles	57,166.6	61,874.6	108.2
Share of costs for technological innovation in the total volume of goods shipped and works and services performed, %	1.9	2.1	110.5
Submitted patent applications (patents for inventions, utility models, industrial designs), units	81	70	86.4
Titles of protection issued (patents for inventions, utility models, industrial designs), units	55	51	92.7
Advanced production technologies developed, units	0	0	0
Advanced production technologies used, units	1,309	1,969	150.4

The development of innovative activity in Yugra has positive growth dynamics, so, with practically the same internal costs for research and development over the past two years, the region increased the volume of innovative goods, works, services by 24.7% or by 2,540.7 million rubles against the background of the increasing innovative activity of entities that carried out technological, organizational, marketing innovations, the share of which in the total number of them increased by 26% over two years.

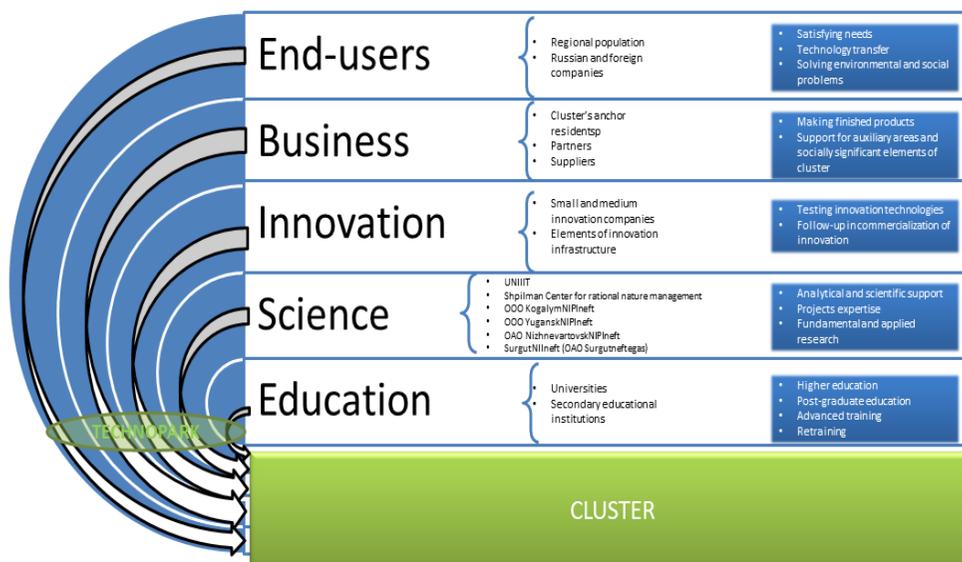
The main principle underlying the strategic priorities of the social and economic development of Yugra for the long-term perspective is to provide the conditions for the implementation of the innovative scenario, in which a special role in solving

the task of diversifying the region's economy and moving to an innovative development path is assigned to processes of economic clustering.

It is planned that the cluster structures of the economy will bring several advantages (Guskova *et al.*, 2018; Zedgenizova and Ignatyeva 2017; Ablaeu, 2017) related to:

- ✓ integration of the resource potential of participants (information, scientific, production, personnel, financial and other);
- ✓ providing a sharp increase in the innovative component of the economy;
- ✓ consolidation of capital and organizational and managerial capabilities;
- ✓ lobbying the interests of cluster participants in public authorities;
- ✓ increasing the national and regional economic competitiveness;
- ✓ a decrease in the degree of centralization of management and the number of hierarchy levels;
- ✓ strengthening the importance of horizontal links between its participants;
- ✓ increased mobility of resources;
- ✓ wide spread of subcontractual relations;
- ✓ ensuring the synergy effect in performance.

Figure 2. Structure and elements of Yugra's cluster

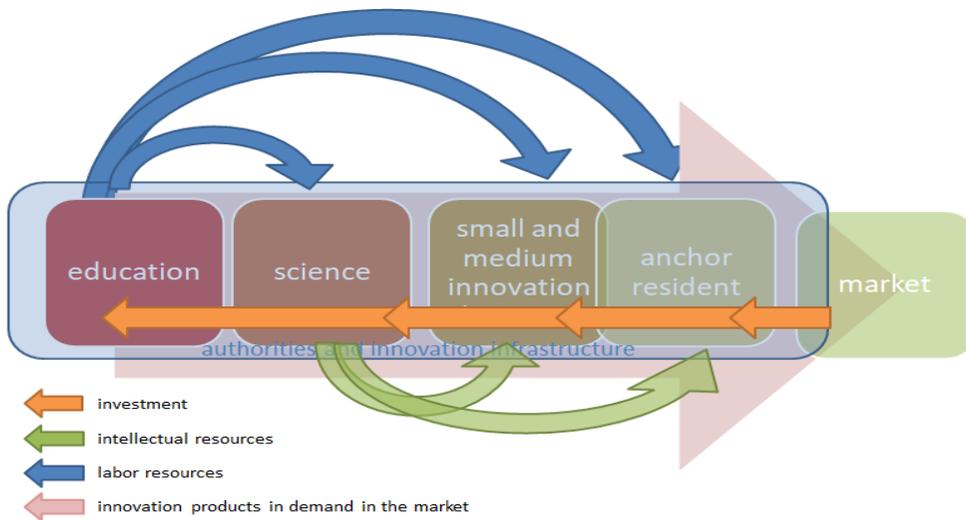


The creation of clusters can be an effective form of uniting the efforts of stakeholders, first – innovative companies, in increasing economic and trade

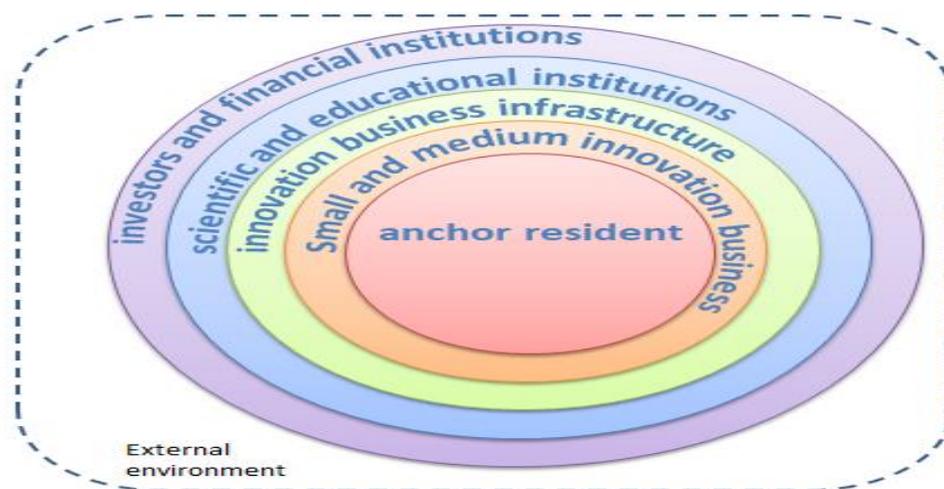
potential, enhancing environmental sustainability, etc. Innovative clusters will ensure the activation of innovative processes in industries and the commercialization of scientific and technological developments. The key players in the innovation cluster can be:

- ✓ large business (anchor residents);
- ✓ small and medium-sized innovative companies;
- ✓ profile departments of government bodies;
- ✓ scientific organizations and educational institutions;
- ✓ elements of innovation infrastructure, including investment institutions.

Figure 3. Resource flows of key elements of the regional innovation system



The role of the Technopark as a coordinator of cluster activities, primarily innovative, is to ensure the progressive operation of the cluster, mainly by providing new technologies approved by small and medium-sized innovative companies; to forecast, analyze and clarify the needs of the cluster in human resources and to cooperate in this context with the regional educational system (Figure 4). Currently, the High-Tech Technopark is a structure that can provide the innovative component of the Yugra's cluster, as evidenced by high innovation performance and established systemic links with companies belonging to the innovative cluster of Yugra.

Figure 4. *The interaction field of cluster elements*

6. Conclusion

The implementation of these projects will contribute to the development of the innovation system of Yugra and the accumulation of the necessary base for the progressive development of the innovative cluster of the region. Thus, to solve the main tasks of this direction, the following will be necessary:

- development of a strategic partnership system and expansion on its basis of the volume of scientific research by the orders of enterprises and organizations that are part of the emerging innovation cluster of the region;
- development of intersector relations of the territory with enterprises in order to develop the intellectual potential;
- development of sustainable links between science, education and industry of the region;
- development of technologies and methodologies to search for promising high-tech areas based on the creation of advanced technologies;
- study of the needs of high-tech sectors of the economy and social sphere with a view to assisting in ensuring their competitiveness;
- expansion of opportunities for infrastructure support of the process of creating the final market-oriented product;
- strengthening the belt of innovative companies around the leading universities in the region.

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