Innovative strategy for the development of a depressed region

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Abstract. The problem of choosing a strategy for the development of depressed regions is of particular importance both from the point of view of ensuring economic security and improving the dynamics of the national economy. At the same time, most regions trapped in depressiveness during the period of market reforms, cannot reach the trajectory of sustainable economic growth. One of the reasons for this situation is the underestimation of the importance of the innovative strategy. The purpose of the work is to develop methodological aspects of the formation of an innovative strategy and the justification of effective tools for its implementation. The official statistics of Rosstat, as well as the strategies of socio-economic development of the regions of the North-Western Federal District are used as the information base of the study. The research methodology is based on the systematization of effective tools to support the economy of depressed regions, presented in the scientific literature, as well as the analysis of the regional practice. The paper systematizes the principles of strategy formation, the priority of human capital development is among the most important, as well as the need for an ecosystem approach that ensures effective interaction of all participants in the innovation process. The systematization of regional practice made it possible to identify the declaration of innovative strategy in the strategic documents of depressed regions. Thus, the importance of integration tools that make it possible to use external resources and compensate for the problem of insufficient own scientific and technical potential is underestimated. The results of the study contribute to the development of strategic planning methodology at the regional level.

1 Introduction

Reducing the differentiation of the level of socio-economic development of the entities of the Federation has been declared for decades as one of the priorities of both regional policy and ensuring economic security. At the same time, many key indicators of depressed regions remain at a level significantly lower than the average values for the corresponding federal district. Meanwhile, the factors that generate depressiveness and the tools to overcome it are evolving. In the 1990s, as well as in the early 2000s, they were caused by transformational processes of transition from a planned to a market economy. At present, after more than two
decades of fairly stable development in a market economy, the situation has changed significantly. It is no longer possible to attribute everything to the difficulties of the transition period. Priority attention should be given to identifying the actual factors of regional depressiveness and the tools to overcome it adequate to the current socio-economic situation.

Furthermore, such depressive factors as structural changes in the economy, a decrease in the competitiveness of products of the specialization industry and, as a result, a decrease in its investment potential; depletion of the mineral resource base do not lose their significance.

At the same time, depressed regions in most cases have a sufficient level of social infrastructure development, have highly qualified human capital and generally have a certain development potential.

The presence of a large number of depressed regions and a high level of socio-economic differentiation of regions is one of the key problems of ensuring economic security. As the reason for this situation, we can single out insufficient methodological support for the formation of a regional development strategy adequate to its potential and socio-economic problems, as well as a template approach to the choice of tools. In these conditions, the need to develop innovative strategies for the development of depressed regions and the use of relevant tools is actualized.

Among the most common tools for the development of depressed regions are the following: attracting corporate investors and implementing effective public-private partnership models, government programs, cluster projects, industrial sites and technology parks, as well as, if there are certain conditions for the creation of territories of advanced development.

Meanwhile, traditional support tools for depressed regions are not always effective. Thus, in the work it is noted that the support of manufacturing industries implemented by the state does not cause significant changes in the activities of the industry. The positive impact is mainly due to the growth of production volumes. At the same time, the impact on investment and innovation activity is insignificant. O.A. Demidova comes to similar conclusions regarding instruments for stimulating investment activity. According to the author, an increase in investment and a decrease in investment risk affects, first of all, the growth of rich regions. However, investments in poor and medium-sized regions do not provide the expected effect. At the same time, the spillover effects that occur with the growth of neighboring entities have a positive effect on poor and medium-sized regions. In this regard, great attention should be paid to the openness of the economy of depressed regions and the development of interregional cooperation, which will help to reduce the gap in the standard of living of the population of poor and rich regions.

The main factors of the depressed state of the regional economy are related to the problems of business development caused by both the lack of own resources and the inefficiency of their use. In this regard, integration tools are promising. Thus, the authors of the work consider the integration of the leading enterprises of the region into the strategic management system at the federal and regional levels, the integration of territories and its production business units into more developed network structures as a priority direction for the economic recovery of depressed regions. The application of integration tools creates conditions for increasing the efficiency of the use of resources of the territory, allows enterprises of the region to fit into the value chains, contributes to the distribution and minimization of risks.

The growing integration of the depressed region into the national and global economy creates conditions for the development of entrepreneurship, which plays a key role in the economic recovery.

Rapid penetration of digital technologies in all spheres of life creates favorable conditions for the development of integration tools. Thus, the work emphasizes the role of the ecosystem of digital innovation, which is a promising tool for implementing the innovative strategy of development of the region.
The development of territories, including depressive, is presented in the work [14]. Digitalization creates an opportunity to reorganize the production process and form an effective interaction of all participants of the digital ecosystem [2].

In a context of scarcity of domestic resources in depressed regions, it is important to use available external resources. Platform economy and open innovation offer new business opportunities [11]. These instruments provide incentives for entrepreneurship and innovation. At the same time, the expansion of innovation and entrepreneurial opportunities is accompanied by the emergence of new types of dependencies and risks, which are not yet well understood.

2 Methods

Official Rosstat statistics were used as an information base for the research. Indicators of GRP, investment activity and income are used to determine depressed regions. To analyze GRP, the value of the indicator per capita for 2020 was used, investment activity was estimated based on the indicator of investment in fixed assets per capita for 2021, income was estimated using the indicator of median wages. To ensure comparability, GRP indicators, investments and incomes were normalized according to the average value of the corresponding indicator for the Northern-Western Federal District. The dynamics of human capital was estimated by the average value for the period 2012-2019 of the balance of migration inflow (outflow) of specialists with higher education per thousand of the population of the region. To analyze the dynamics of GRP and investments, growth indices over a ten-year period were used. On the basis of this index, the average annual growth rates of GRP and investments were calculated.

At the first stage, the systematization of effective tools for supporting the economy of depressed regions, presented in the scientific literature, was carried out. At the second stage, the analysis of socio-economic processes in the regions of the Northern-Western Federal District was carried out and depressive regions were identified. At the third stage, the systematization of the practice of strategic planning of the depressed regions of the Northern-Western Federal District was carried out, strategies and development tools were defined. At the fourth stage, recommendations are formulated to improve the management efficiency of depressed regions.

General scientific methods are used in the work: analysis, synthesis, systematization.

3 Results

The systematic application of tools and measures to support depressed regions is carried out within the framework of the socio-economic development strategy, which should be formed on certain principles. These include the following: efficient use of resources, stimulating the development of innovations, the use of tools adequate to the peculiarities of the socio-economic development of the region. The most important principles also include the principle of the need for an ecosystem approach, which involves coordinating the goals of socio-economic and innovative development, the interests of participants in the innovation process, the systematic use of integration tools, networking of participants, ensuring their diversity and competition [6].

The specifics of innovation activity are high risks and a large number of participants, including enterprises of the real and financial sector, universities, scientific organizations, authorities. In this regard, the principle of coordination of interests is important, which involves the creation of structures within which the interaction of participants in the innovation process is carried out. As a tool for the development of interaction and competencies of participants in the innovation process, the work [10] considers the creation...
of a Regional BAT competence center, which will allow participants to increase their export potential, increase innovation activity, reduce risks and enter regional and foreign technology markets.

The main resource for implementing an innovative strategy is human capital. An important role in its formation is given to the regional education system. At the same time, the possibilities for the development of human capital and its implementation in professional activities are determined by the level of economic diversification and the presence of high-tech industries in the region. In most depressed regions, such conditions do not exist, which leads to an outflow of highly qualified specialists. The result is a decrease in the region’s ability to escape from a depressive state [12]. At the same time, metropolitan regions, which have a capacious and diversified labor market and good conditions for business development, stimulate the migration of highly qualified specialists, thereby undermining the possibilities for poor regions to emerge from their depressed state [3]. Creating conditions in the region for the implementation of human capital in the professional sphere is an important factor for the implementation of an innovative development strategy and recovery from their depressive state. Thus, the recovery of the regional economy from a depressed state is associated with the implementation of an innovative development strategy, which can create conditions for the professional implementation of highly qualified specialists, prevent their migration to more prosperous regions and increase the competitiveness of the economy.

Due to the shortage of internal resources, it is important to maximize the use of external resources using the following integration tools:

- development of interregional economic cooperation, including the creation of interregional clusters,
- use of various forms of government support,
- integration of leading enterprises of the region into the strategic management system at the federal and regional levels,
- integration of territories and its production business units into more developed network structures.

Tools for integration and effective use of internal resources for innovative development are also important:

- tools for coordinating the interests of participants in the innovation process,
- tools for developing interaction and competencies of participants in the innovation process,
- participation of enterprises in open innovation,
- creating conditions for the development of human capital in the professional field,
- business development within the platform economy.

Thus, we examined the feasibility of using an innovative development strategy for depressed regions, as well as effective tools for its implementation. Next, we will identify depressed regions using the example of the constituent Federal entities of the Northwestern Federal District. As criteria for the depressiveness of regions, we will use indicators of GRP and investment in fixed capital per capita, income level and innovation activity. In addition, we will use migration indicators. Indicators of GRP, investment and income are presented in Fig. 1. The Pskov region has the minimum values of all three indicators in the Northwestern Federal District. Thus, income in the region is 58% of the average level. Thus, the indicators of this region lag significantly behind the average values of the federal district, which indicates a depressed state of the economy. The Novgorod region is in second place in terms of depressiveness level.
When analyzing the state of depressiveness of the regional economy, it is advisable to take into account not only the current values of indicators, but also their dynamics (Fig. 2). In this case, it becomes possible to predict the transition of the region’s economy into a depressed state and take proactive measures.

The economy of the Murmansk region showed the best dynamics of GRP and investment. The economy of St. Petersburg developed stably and at an average pace. The Komi Republic has negative dynamics for both indicators. The region has big problems in the investment sector. Over the course of 10 years (2012-2021), the average annual decline in investment was about 10%, and GRP decreased at a rate of 1.4%. Thus, despite the relatively high current per capita indicators, the Komi Republic must be considered as a depressed region. In many ways, a similar situation is observed in the Arkhangelsk region.

Based on the analysis, we identified four depressed regions: Pskov, Novgorod and Arkhangelsk regions, as well as the Komi Republic. Let’s consider the level of innovation activity in the regions of the Northwestern Federal District, including depressed regions (Fig. 3).
Fig. 3. Share of innovative goods, works, services, % (Data source: Rosstat)

Among depressed regions, the Arkhangelsk region has the highest level of innovation activity (4%), and the Pskov region has the lowest (0.9%).

At the next stage, we will analyze their strategic documents in order to systematize priorities, strategies and tools for its implementation. The Strategy for Socio-Economic Development of the Pskov Region until 2035 presents problems typical for a depressed region:

- the lowest GRP per capita in the Northwestern Federal District, as well as income indicators,
- high level of poverty,
- population decline due to natural causes, and also as a result of interregional migration.

The Strategy identifies four scenarios for the socio-economic development of the region:

- inertial,
- conservative,
- industrial and innovative.

The document defines an innovative scenario as a target, which will ensure the highest rates of economic growth and recovery from the depressed state.

The implementation of the innovative scenario assumes:

- increasing the competitiveness of the manufacturing industry using the following tools: clusters, special economic zones and industrial parks;
- preservation and enhancement of human capital;
- development of a system for commercializing scientific and technological results and supporting the transfer of scientific knowledge to the real sector.

In the Strategy for the socio-economic development of the Novgorod region until 2026, the existing traditional industrial-agrarian structure of the economy is formulated as the main problem. In addition, the following problems are outlined:

- high proportion of incapacitated population,
- unfavorable conditions for the development of human capital,
- low rates of improvement in the well-being of the population,
- ineffective use of industrial potential.

The target development option for the region involves accelerating economic growth by increasing investment in fixed assets. In addition, within the framework of the target version of the forecast, it is planned to accelerate the growth of industrial production. Industrial development involves the creation of knowledge-intensive industrial clusters in the Novgorod region. Thus, the Novgorod region declares the implementation of an investment development strategy, which is due to the extremely unfavorable dynamics of investment in the region (Fig. 2). The index of physical volume of investment in fixed capital for the period 2012-2021 amounted to 56.7%, which corresponds to an annual decrease in investment by an average of 5.5%. 

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**Fig. 3.** Share of innovative goods, works, services, % (Data source: Rosstat)
The Strategy for the Socio-Economic Development of the Arkhangelsk Region until 2035 highlights the development and preservation of human capital as the main problems, including:

- reduction in the working age population,
- migration outflow of highly qualified specialists and graduates of higher educational institutions.

The main priority in the Strategy is the preservation and development of human capital. In this regard, it is planned to implement an investment and innovative development strategy in the region. Stimulating innovation will make it possible to realize the current potential of human capital and create conditions for its development. The tools are expected to include:

- stimulation of entrepreneurial activity based on the creation of a competitive institutional environment,
- formation of a favorable investment climate,
- development of special economic zones, technology parks and business incubators.

The Strategy for Socio-Economic Development of the Komi Republic until 2035 also highlights the preservation and development of human capital as the main problems. In this regard, it is planned to implement an investment and innovation development strategy, and the priorities include the development of human capital and the creation of a competitive economy with high investment and innovation potential.

The Strategy defines the use of traditional tools: development of entrepreneurship, creation of clusters (industrial, scientific-production, territorial), industrial parks, industrial technology parks.

In addition, the document formulates the use of such an integration tool as strengthening the connection between science and production and, on this basis, increasing the efficiency of using innovative potential.

Thus, all depressed regions, having low indicators of innovative activity of organizations, declare an innovative development strategy. At the same time, insufficient attention is paid to modern methods and tools for its implementation.

4 Discussion

Based on the conducted research, we can conclude that the reasons for the presence of depressed regions include a declarative approach to the formation of an innovative strategy and the choice of tools for its implementation. The insufficient level of scientific and technical potential (as well as its ineffective use) determines the small share of the high-tech sector in the economy and the low innovative activity of organizations. The lack of opportunity to develop human capital in the professional sphere leads to an outflow of highly qualified specialists, which undermines the prospect of getting out of a depressed state. Indeed, in the Northwestern Federal District, all depressed regions have a negative balance of migration of specialists with higher education, and the situation with human capital is developing according to a negative scenario. Regional authorities are aware of the importance of this problem. As the analysis of regional practice has shown, the preservation and development of human capital is considered in strategic documents as a top priority. The documents also note the importance of the innovative strategy and the role of human capital in its implementation. At the same time, the lack of the necessary methodological support does not allow to fully realize the capabilities of integration tools that allow the use of external resources and compensate for the problem of insufficient own scientific and technical potential.

5 Conclusion
Theoretical studies, as well as an analysis of regional practice, have shown that one of the reasons for the depressed state of the economy in a significant part of the regions of the Russian Federation is the underestimation of the role of integration tools, and the digital transformation of the economy provides new opportunities for their use. Our research systematizes integration tools that allow the use of external resources, as well as increasing the efficiency of internal potential. The systematic application of these tools should be carried out within the framework of an innovative strategy. Among the leading principles of its formation, our study highlights the principles of priority for the development of human capital and the ecosystem approach. As a direction for further research, we can highlight the systematization of theoretical provisions and practical experience in the use of integration tools, assessment of their effectiveness and the development of methodological aspects of the use of these tools in the management of depressed regions.

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