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Key Factors in Shaping the Investment Attractiveness of the Arctic Zone of the Russian Federation

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ABSTRACT

The relevance of developing practical tools for assessing the impact of key factors on investment attractiveness, corresponding to the current socio-economic context, stems from the existence of significant challenges in the formation of the investment attractiveness of the Russian Arctic region, as well as its global geopolitical significance. The purpose of the study is to develop, based on the concept of a balanced scorecard, methodological tools for evaluating the influence of investment-significant factors on the investment attractiveness of the Arctic regions. The scientific novelty of this study lies in the methodological approach proposed by the authors, which allows for a comprehensive assessment of the investment attractiveness of the Arctic regions in a factorial context. The methodological basis for the study is the concept of the investment climate, which allows us to view the region as a partially self-contained system, whose investment attractiveness is determined by the influence of regional factors on attracting investments. Additionally, we use the balanced scorecard concept, which guides our study of the Arctic territories' investment attractiveness in conjunction with key regional development factors. The main result of the study is the development of system for assessing the degree of influence of key investment factors on the attractiveness of the Arctic regions for investment. Based on the testing of the developed methodological tools, we have identified key investment factors that have a significant impact on the investment attractiveness of the Arctic regions. These factors include production and financial indicators for five specific regions, and natural resource factors for three of them. Regarding the development component that determines the prospects for investment activity, the overall indicator for six regions has a minimum value, due to the insufficient level of innovative, infrastructural, and institutional factors. A classification of key factors influencing the investment attractiveness of Arctic territories in the context of changes in the natural, climatic and socio-economic environment is presented. Based on the generated information, a study was conducted to identify directions for changing the level of investment attractiveness of the Arctic regions in a factorial context. The use of the developed methodological tools will allow us to formulate a set of measures aimed at increasing the investment attractiveness of the Arctic zone of the Russian Federation.

Keywords: the Arctic zone of the Russian Federation; investment climate; investment-significant factors; investment attractiveness; balanced scorecard; region

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INTRODUCTION

The research is aimed at solving the problem of scientific substantiation of the implementation of one of the national priorities of the Russian Federation — increasing the investment attractiveness of the Arctic zone.

The results of a structural and dynamic analysis of investment processes in the regions of the Arctic zone of the Russian Federation (AZ RF) indicate an increase in structural imbalances due to the predominant investment in the most developed export-oriented raw materials industries. Among the subjective reasons for the structural imbalances is the lack of sufficiently effective indicators on the basis of which it would be possible to determine the priority areas of investment. It is necessary to create methodological tools to more accurately determine the impact of key factors on the investment attractiveness of the Arctic regions and identify areas for its improvement.

The object of the study is the subjects of the Russian Federation, whose territories fully or partially belong to the Arctic zone.

The subject of the study is the influence of key investment significant factors on the investment attractiveness of the Arctic regions.

As the analysis shows, the sectoral structure of the economy of the Arctic regions is mainly determined by natural resource factors, which determines the priority importance of the natural resource component in the formation of investment attractiveness. The remoteness from the central regions of the country, extreme climatic conditions cause underdeveloped infrastructure, limited human resources and market capacity, and a significant increase in heating and electricity costs [1].

At the same time, the subjects of AZ are heterogeneous, they differ in the level of socio-economic development and investment activity. This is due to the differentiation of the investment attractiveness of the Arctic

regions: the minimum value of the integral indicator in the whole assessment system in Nenets Autonomous Okrug (NAO) is 2.0 times less than the maximum value in Murmansk Region.

One of the main reasons for the insufficient effectiveness of investment regulation is the lack of practice-oriented methodological tools that make it possible, in conditions of limited investment resources, to identify key investment-relevant factors and, on this basis, predict priority investment directions, which determines the relevance of the study.

A significant impact on the development of the domestic methodology for studying the investment attractiveness of regions was provided by methodological approaches developed by H. Hensler, F. Kotler, P. Walters, B. Toyne, and the Harvard Business School, who used the terms “investment attractiveness”, “investment climate”, and “investment risks” in research at both the regional and national levels [2–4].

The application of the basic principles of the investment climate concept in the course of the study makes it possible to consider the increase in investment activity in the Arctic regions, on the one hand, as a consequence of the investment climate in the Russian Federation, on the other hand, as a result of the growing investment attractiveness of the region as a partially autonomous system under the influence of regional factors favorable for attracting investment, which determines the content of this work.

The investment attractiveness of the region can be considered, on the one hand, as a key element in the formation of investment flows, on the other hand, as a result of the combined impact of investment-significant factors (*Fig. 1*).

The concept of an investment climate involves a combination of market self-regulation mechanisms with government regulation of investment attractiveness, taking into account the specifics of the Arctic territories, which necessitates a comprehensive assessment of the factors

involved determining the investment attractiveness, and on this basis the choice of control parameters.

When developing an investment strategy for a region, it is necessary to take into account the degree of influence of investment attractiveness factors. In modern economic research, various classifications of factors of socio-economic development of regions are presented, classification features, the formation of qualitative and quantitative composition of factorial features are determined mainly by the objectives of the study.

The analysis of methods for assessing investment attractiveness reveals a significant differentiation of the structural elements of the factorial groups proposed by the authors [5–7].

In [8], the factors are divided into external, determining the investment climate, and point-based, forming the investment attractiveness of the proposed investment object.

In the source [9], investment attractiveness factors are divided into groups depending on the rate of change of factor characteristics:

- dynamic, undergoing changes over a short time interval (individual elements of labor and demographic factors);
- low-dynamic, which require a long-term period to change (innovative, infrastructural factors);
- conditionally constant, practically unchanged (climatic, geographical, natural resource) factors.

In foreign studies of investment attractiveness, attention is mainly paid to creating business conditions (business climate, economic policy measures, laws and institutions conducive to the effective functioning of business), the influence of factor characteristics of the “business climate” on economic and financial results is investigated [10–13].

The conducted analysis showed the insufficient formation of methodological tools for identifying and evaluating factors

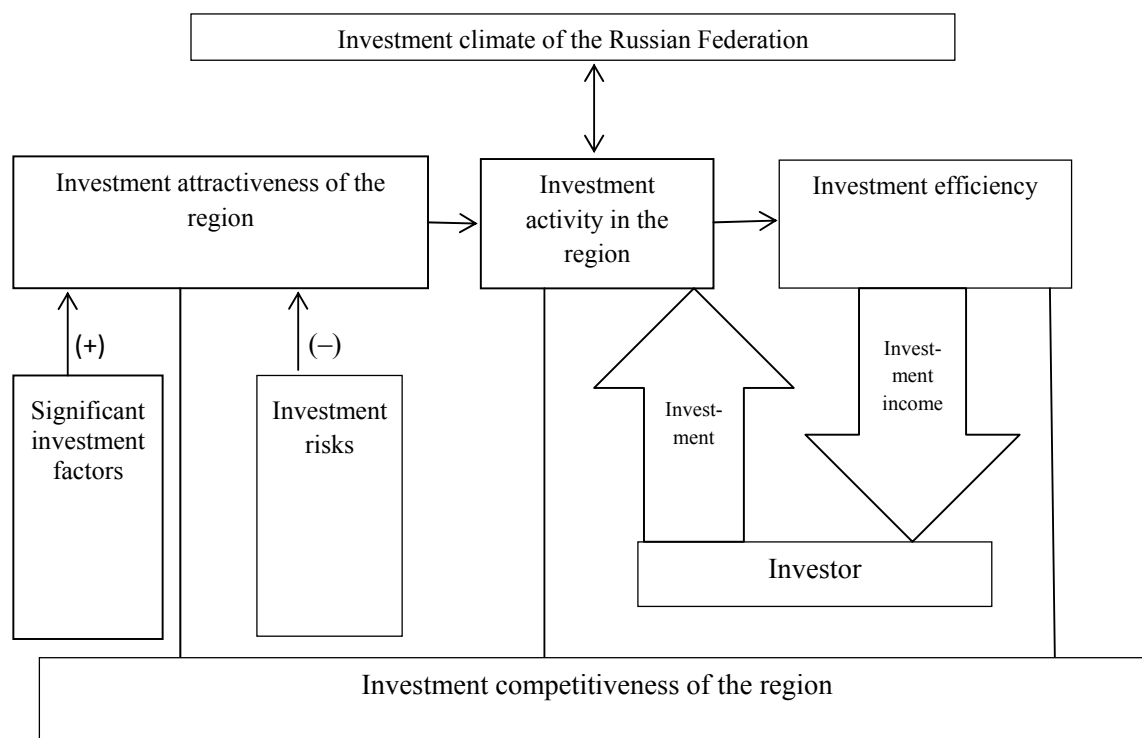


Fig. 1. The Investment Attractiveness of the Region Within the Framework of the Structural Elements of the Investment Process

Source: Compiled by the authors.

of investment attractiveness of regions in modern conditions of socio-economic development. Research does not pay enough attention to the study of the industry aspect of investment attractiveness, the identification of key investment attractiveness factors from the proposed aggregates, and the study of the relationship between assessment indicators and key investment-significant factors. This determines the relevance of research aimed at improving a multifactorial approach to assessing the investment attractiveness of regional industry systems in the direction of identifying key investment-significant factors and assessing their impact on changes in investment attractiveness.

It should be noted that there is an objective need for effective practical tools for assessing the impact of investment-significant factors on the investment attractiveness of the regions of the AZ of the Russian Federation, corresponding to the current socio-economic situation.

The solution of the identified methodological problems is possible based on the application of a balanced scorecard (BSC), developed on the basis of the Balanced Scorecards (BSC) concept proposed by Norton and Kaplan [14, 15]. In the process of testing this assessment system using the example of the Arctic regions, the possibility of using the BSC as a tool for a comprehensive assessment of investment-significant factors was confirmed.

The improvement of the methodology for assessing investment attractiveness based on the BSC is due to the need to adjust investment policy in accordance with the objectively changed priorities of investors. The development of a balanced assessment system is carried out as part of the formation of new institutional mechanisms to support the economic development of the Arctic zone. In modern conditions, the relevance of research related to changes in social, political and economic relations is increasing. The use of BSC will help solve the problem of the economy's immunity to innovation, evaluate

investments in human capital and show their advantages.

In this study, an assessment system has been developed that takes into account the socio-economic conditions of the development of the Arctic territories. The prospects of its application as a tool for assessing the impact of key factors on investment attractiveness are substantiated.

The results of the study will help to respond to important challenges in a timely manner and strengthen Russia's position in the economic development of the Arctic region.

METHODOLOGY AND RESEARCH METHODS

The concept of a balanced scorecard is the methodological basis of this study. The BSC was developed by D. Norton and R. Kaplan and evolved from an evaluation system to a strategic performance management system. The authors of the concept justified the possibility of using a balanced scorecard as an organizational basis for the successful implementation of the organization's strategy [16]. A significant contribution to the development of the methodology of balanced assessment of economic systems at various levels was made by M. Brown, P. Niven, N. Olve, and others [17–19].

In accordance with the goals of scientific research, several methods were employed: an integrated approach when assessing the investment attractiveness of Arctic regions; graph-analytical methods for visualizing the results of the study; statistical analysis methods for analyzing the information set of investment attractiveness indicators calculated based on a balanced evaluation model and determining the causes and potential consequences of imbalances; expert assessment methods for determining target values for key indicators and interpreting a number of evaluation metrics; and multidimensional average methods for calculating integral evaluation indicators. Methods of systematic and comparative analysis were also utilized in addressing

scientific research challenges. The investment attractiveness of the regions is formed under the influence of a combination of investment-significant factors, the relationship of which with the assessment indicators is reflected in *Table 1*.

The main principles of forming a system of indicators for assessing the impact of key factors on investment attractiveness are the following: determining the configuration of the BSC and selecting indicators within each component based on their relationship with investment-significant factors; determining the target values of the BSC indicators based on causal relationships with the goals of increasing investment attractiveness.

The components of the BSC and integral indicators for assessing investment-significant factors are presented in *Table 1*; the specific indicators within each component are shown in the diagrams (*Fig. 2–5*).

Assessment of the level of investment attractiveness implies an assessment of key investment-significant factors. The diagnostic method “performance testing” was used to study the interrelationships between investment-significant factors and indicators. To determine the correspondence of indicators and investment — significant factors, a multi-criteria matrix is proposed, the columns of which are key investment-significant factors, and the rows are evaluation indicators selected based on general requirements for economic indicators, economic feasibility, economic and informational significance, compliance with the information needs of the actors of the investment process, the possibility of using statistical information to calculate indicators. To assess the degree of correlation of indicators with investment — significant factors, a scale from 0 to 3 points was used: 3 — strong correlation, 2 — medium, 1 — weak, 0 — lack of correlation. The selection of key indicators is based on the final rating assessment, defined as the sum of quantitative measures of the relationship with significant investment factors. To increase the objectivity of the method for selecting

indicators, a wide range of experts should be involved. The inclusion of only key indicators in the assessment system is due to the need and importance of determining trends in their values and the degree of deviation from the target.

The assessment of regional investment processes is carried out on the basis of a comparison of the calculated and target values of the private indicators of the MTSP, determined on the basis of monitoring investment processes in the Arctic regions. An important stage of the assessment is the justification of the target values of the indicators.

The target values of the indicators should reflect the goals of increasing the investment attractiveness of the Arctic regions. The actual values of the indicators characterize the level of investment attractiveness (the degree of achievement of goals). The target values of the indicators should be determined taking into account three dimensions (the results of the previous period, the current state, and the prospects for the future) [20].

The target values of the indicators are determined based on an analysis of the investment activities of the subjects of the Russian Federation, whose territories partially or completely belong to the Arctic zone, in comparison with international practices in this region.

The multidimensional average formula is used to calculate integral indicators. When carrying out the standardization procedure, the values of the private indicators of the BSC are correlated with the selected target values, which makes it possible to assess the investment attractiveness of the region under study, regardless of the dynamics of the factor indicators in the aggregate (in the Arctic zone as a whole or in the Russian Federation) [21].

The degree of achievement of the goals of increasing the investment attractiveness of the Arctic regions is determined by comparing the actual and target values of the indicators. Significant deviations of the actual values from the target (>25%) make it possible to

Table 1

The Relationship Between Key Investment-Relevant Factors and Indicators for Assessing the Investment Attractiveness of the Arctic Regions

| Balanced scorecard perspectives | Integrated indicators within a perspectives framework | Key factors of the investment attractiveness |
|---------------------------------|---|--|
| Production and financial | Financial development | Financial: – the effectiveness of production and economic activities; – the ratio of overdue and total accounts payable; – the ratio of revenue and expenditure parts of the budget |
| | Efficiency of production and financial activities | Production: – the state of fixed assets; – industry specialization of the region; – labor productivity |
| | Environmental safety | Environmental: – environmental safety; – environmental protection; – Restoration of natural resources |
| Socio-economic | Prospects for the economic development of the region | Economic: – development of property relations; – openness of the region's economy; – the degree of entrepreneurship development |
| | Employee satisfaction | Social: – ensuring social security; – employee satisfaction with working conditions |
| | Social security | |
| Natural resource | Resource security | Natural resources: – economically active population; – availability of natural, labor, financial, and information resources; – geographical location in terms of realizing export potential and forming interregional ties; – climatic conditions and their impact on economic development |
| | Characterizing the geographical location | |
| | Characterizing climatic conditions | |
| The component of development | Intellectual potential | Labor (intellectual): – composition of labor resources; – education; – qualifications |
| | Innovative potential | Innovative: – conducting scientific research; – introduction of information technologies; – modernization of production processes based on innovative technologies; – updating of fixed assets |
| | Infrastructural potential | Infrastructural: – social infrastructure; – production infrastructure; – investment infrastructure; – market infrastructure |

Source: Compiled by the authors.

identify the problems of investment activity and, on this basis, identify priority areas for increasing investment attractiveness.

The algorithm for assessing the impact of investment-significant factors on the level of investment attractiveness of regional economic systems provides for the following steps:

1. Identification and classification of investment significant factors, taking into account the specifics of the Arctic regions.

2. Selection of evaluation indicators based on the relationship with investment significant factors.

3. Assessment of the degree of influence of investment significant factors on the formation of investment attractiveness based on a comparison of actual and target values of indicators.

4. Identification of the main investment problems and priority investment directions based on the analysis of the revealed deviations of the actual values of indicators from the target (more than 25%).

The developed algorithm allows identifying the main problems of investment activity, to scientifically substantiate the regional investment strategy.

RESULTS AND DISCUSSION

The developed methodological tools have been tested in the process of assessing the impact of investment-significant factors on the investment attractiveness of the subjects of the Russian Federation, whose territories fully (Yamalo-Nenets, Chukotka, Nenets Autonomous Okrugs, Murmansk Region) or partially (the Republics of Sakha (Yakutia), Komi, Karelia, Arkhangelsk Region, Krasnoyarsk Territory) belong to the AZ of the Russian Federation.¹

The use of data from the Federal State Statistics Service of the Russian Federation as an information and analytical research base makes it possible to minimize the

modification of the proposed BSC to take into account the regional specifics of economic systems.

A positive trend in the level of investment attractiveness was revealed for all the subjects studied (with the exception of Nenets Autonomous District).

A significant increase in investment attractiveness was noted for Yamalo-Nenets Autonomous District (1.9 times), Murmansk Region (1.7 times), and the Chukotka Autonomous District (1.6 times).

Production, financial and socio-economic factors had a priority positive impact on the investment attractiveness of Yamalo-Nenets Autonomous District and Murmansk Region: the integral indicators for these components for Yamalo-Nenets Autonomous District increased by 9.7 and 1.9 times, for Murmansk Region — by 2.9 and 1.7 times.

The increase in the investment attractiveness of Chukotka Autonomous District is primarily due to the positive dynamics of the indicators for production and financial (6.3 times growth) and natural resource (1.4 times growth) components.

Positive dynamics is also observed in Karelia, Komi, Sakha (Yakutia) and Krasnoyarsk Territory. This is due to the improvement of production and financial indicators, as well as the development of infrastructure and human resources. In Karelia and Krasnoyarsk Territory, the growth was 4.3 and 1.8 times, respectively, in Sakha (Yakutia) — 2.2 times, and in Komi, due to increased resource provision, by 1.7 times. Arkhangelsk region also showed improvement in all indicators.

The level of investment attractiveness of Nenets Autonomous District decreased, primarily due to the influence of two components — production, financial and development. Integral indicators according to these indicators fell 5.0 times and 2.9 times, respectively, while resource provision indicators increased 1.5 times.

As the data in *Table 2* show, the first, second and third places in the investment

¹ Federal Law No. 193-FZ dated June 13, 2020 “On State Support for Entrepreneurial Activity in the Arctic Zone of the Russian Federation” (with Amendments and additions).

Table 2

Integral Indicators of the Level of Investment Attractiveness of the Regions of the Russian Arctic in 2021

| Integral indicators | Regions Whose Territories are Fully or Partially Within the Arctic Zone of the Russian Federation | | | | | | | | |
|--|---|-------------------------------|-------------------------------|--------------------------------|---------------------|---------------|-----------------|--------------------|--------------------------------------|
| | Arkhangelsk region (without NAO) | Nenets Autonomous District | Chukotka Autonomous Region | Republic of Sakha (Yakutia) | Republic of Karelia | Komi Republic | Murmansk Region | Krasnoyarsk Region | Yamalo-Nenets Autonomous District |
| In terms of production and financial aspects | 0.64 | 0.05 | 0.63 | 0.86 | 1.15 | 0.95 | 1.98 | 1.89 | 1.65 |
| In terms of the development aspect | 0.37 | 0.34 | 0.71 | 0.53 | 0.42 | 0.35 | 0.45 | 0.46 | 0.44 |
| In terms of the natural resources aspect | 0.94 | 1.26 | 0.77 | 0.81 | 1.10 | 1.02 | 1.17 | 1.08 | 1.15 |
| In terms of the socio-economic aspect, | 0.46 | 0.74 | 0.61 | 0.49 | 0.47 | 0.45 | 0.52 | 0.48 | 0.67 |
| In general, according to the BSC, | 0.576 | 0.511 | 0.664 | 0.655 | 0.761 | 0.675 | 1.019 | 0.969 | 0.954 |

Source: Compiled by the authors.

attractiveness rating belong to Murmansk Region, Krasnoyarsk Territory and the Yamalo–Nenets Autonomous District, the outsiders of the rating are the NAO and Arkhangelsk Region.

For the Republics of Sakha (Yakutia), Karelia, Komi, and Chukotka Autonomous District, the integral indicator in the assessment system as a whole ranges from 0.6–0.7, which allows these subjects of the Republic of Kazakhstan to consistently occupy middle places in the rating tables.

Based on the assessment results for each of the components of the BSC, we will analyze the degree of influence of investment significant factors on the dynamics of the investment attractiveness of the regions of the AZ of the Russian Federation.

An analysis of the indicators of the natural resource component allows us to conclude that the investment attractiveness of the four regions of the AZ of the Russian Federation

(Arkhangelsk Region, Komi Republic, Nenets and Chukotka Autonomous Districts) is largely determined by resource factors that compensate for the negative impact of insufficiently favorable climatic conditions. As follows from the diagram (Fig. 2), the indicators of electricity production per capita (with the exception of Arkhangelsk Region), availability of their own financial resources, and communications (with the exception of Chukotka Autonomous District) are almost reaching their target values.

Positive dynamics of the level of economically active population was revealed for all regions of the AZ of the Russian Federation (with the exception of Krasnoyarsk Territory and the Republic of Sakha (Yakutia)), which can be considered as an indicator of increasing the effectiveness of human resources activities.

The maximum value among the regions of the AZ of the Russian Federation is taken by

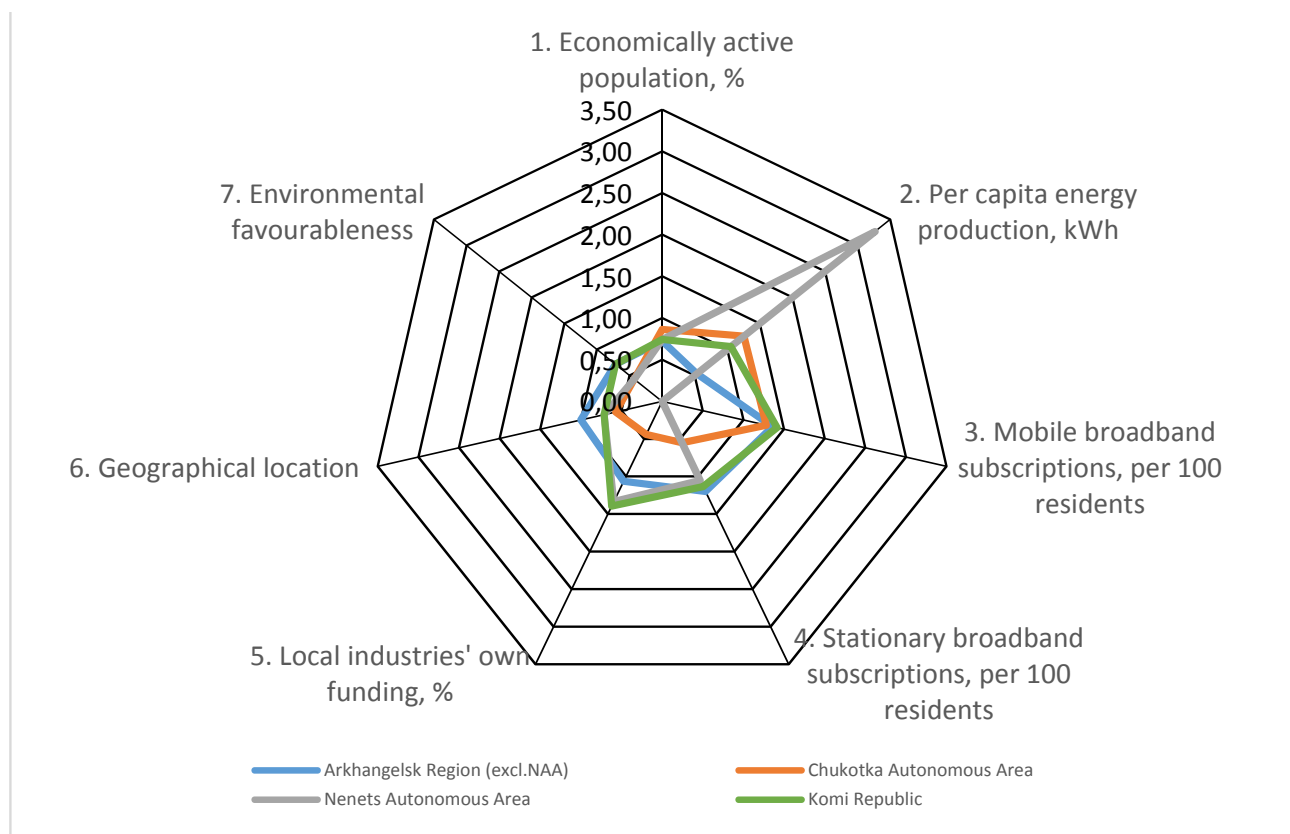


Fig. 2. Indicators of the Natural Resource Component for the Arkhangelsk Region, Nenets Autonomous Okrug, Chukotka Autonomous Okrug, Komi Republic for the year 2021

Source: Compiled by the authors.

the integral indicator for this component for the NAO, which exceeds the target value by 1.6 times. A positive factor for this region is the 1.6-fold increase in per capita electricity production, which exceeded the target value. The provision of the subject with its own financial resources increased 1.6 times, exceeding the target value by 33 percentage points. The problem of staffing the NAO economy was identified (the deviation of the indicator of the economically active population from the target value exceeds 25%).

Based on the analysis of the indicators of the production and financial component, a conclusion was made about the priority of the influence of these factors on the investment attractiveness of five regions of the AZ of the Russian Federation (Yamalo-Nenets Autonomous District, Krasnoyarsk Territory, Republic of Sakha (Yakutia), Karelia, Murmansk Region). The positive dynamics of the share of profitable enterprises was noted, profitability indicators for foreign

economic activity “Manufacturing” (with the exception of the Republic of Sakha (Yakutia)), “Mining” (with the exception of Yamalo-Nenets Autonomous District, Krasnoyarsk Territory), labor resources (with the exception of the Republics of Karelia, Sakha (Yakutia)), indicators of regional balance were close to the target values. budgets (with the exception of the Krasnoyarsk Territory), environmental safety (Fig. 3).

The maximum value for the production and financial component in 2021 is assumed by the integral indicator for Murmansk region, exceeding the target value by almost 2 times. The instability of the financial condition of the region is indicated by the fluctuations in the values of this indicator revealed during the analyzed period. The negative dynamics of private indicators for 2012–2016 led to a 2-fold decrease in the integral indicator, starting in 2020. The growth of the integral indicator was noted due to an increase in profitability for foreign economic activity “Manufacturing”,

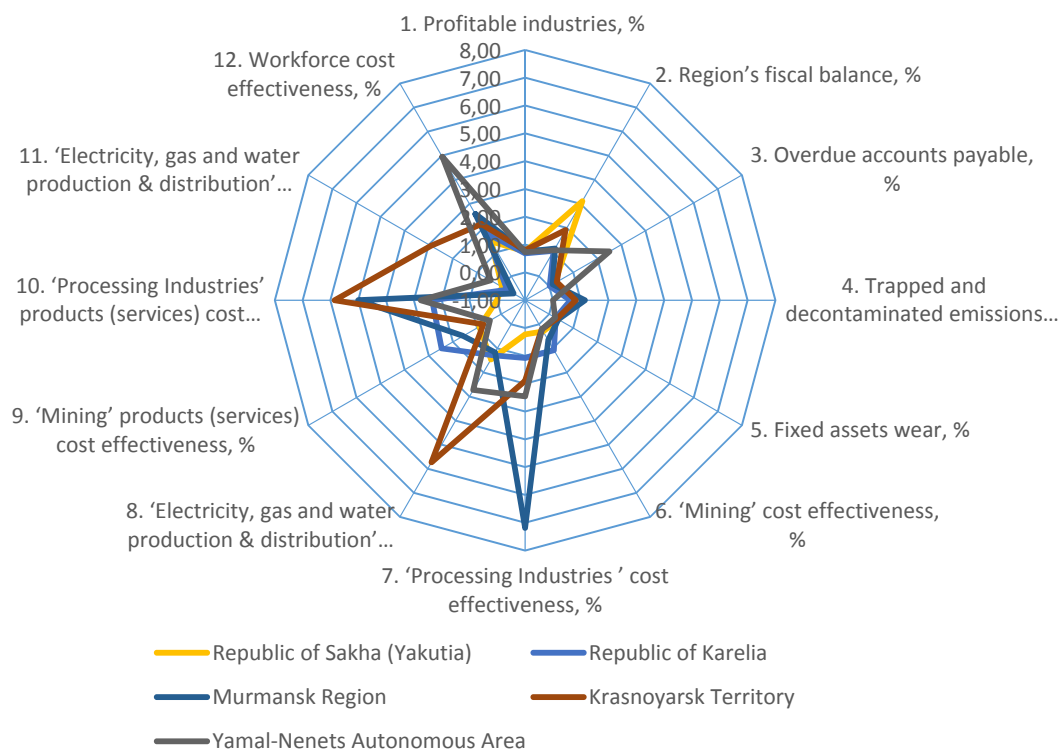


Fig. 3. Indicators of the Production and Financial Component for the Republics of Karelia, Sakha (Yakutia), Krasnoyarsk Territory, Yamal-Nenets Autonomous Okrug, Murmansk Region for the year 2021

Source: Compiled by the authors.

“Mining”, labor resources, and the balance of the regional budget. The deviations of the actual values of particular indicators from the target values are illustrated in Fig. 3. The share of profitable enterprises is 1.2 times lower than the target value, with some upward trend. The proportion of overdue accounts payable remains quite high (more than 7 times higher than the target value). The indicator of environmental safety of production is close to the target value. The depreciation rate of fixed assets, with a decrease of 3 percentage points compared to the base period, remains high (2.6 times higher than the target). The low value of the profitability indicator for mining is alarming (1.5 times lower than the target).

The integral indicator for this component for the NAO (0.05) has the minimum value among the regions of the AZ of the Russian Federation, mainly due to the low efficiency of production and financial activities. All subjects fully or partially related to the Arctic zone of the Russian Federation are

characterized by fluctuations in the integral indicator due to changes in the efficiency of production activities, which hinders the growth of investment attractiveness.

For the Autonomous Republic of Komi, a negative trend in the share of profitable enterprises was revealed with a significant deviation of this indicator from the target value.

For all subjects of the AZ of the Russian Federation, the level of depreciation of fixed assets remains high compared to the base period, and the proportion of overdue accounts payable remains quite high.

Among the integral indicators of the BSC calculated for the six regions that make up the Arctic zone, the indicator for the development component that determines the prospects of the economy takes on a minimal value due to the low level of infrastructural and innovative potentials, the coefficients of renewal of fixed assets, and the training of qualified personnel. The analysis of the indicators reveals the

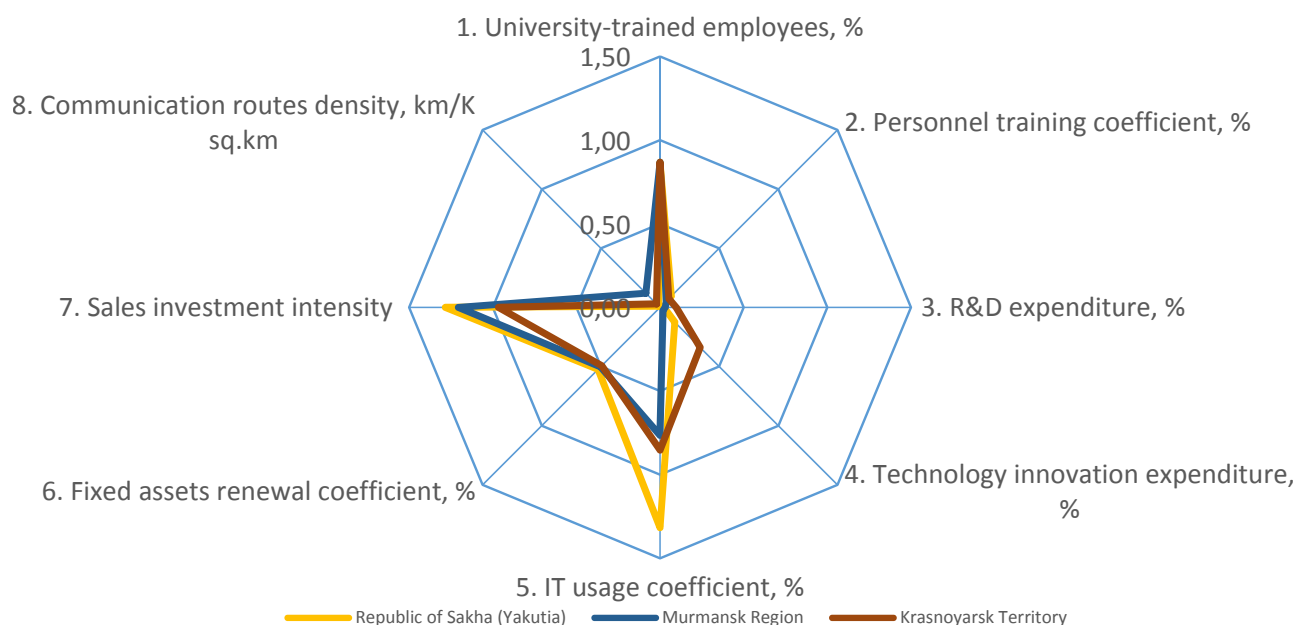


Fig. 4. Development Component Indicators for Murmansk Region, Krasnoyarsk Territory, Republic of Sakha (Yakutia) for the year 2021

Source: Compiled by the authors.

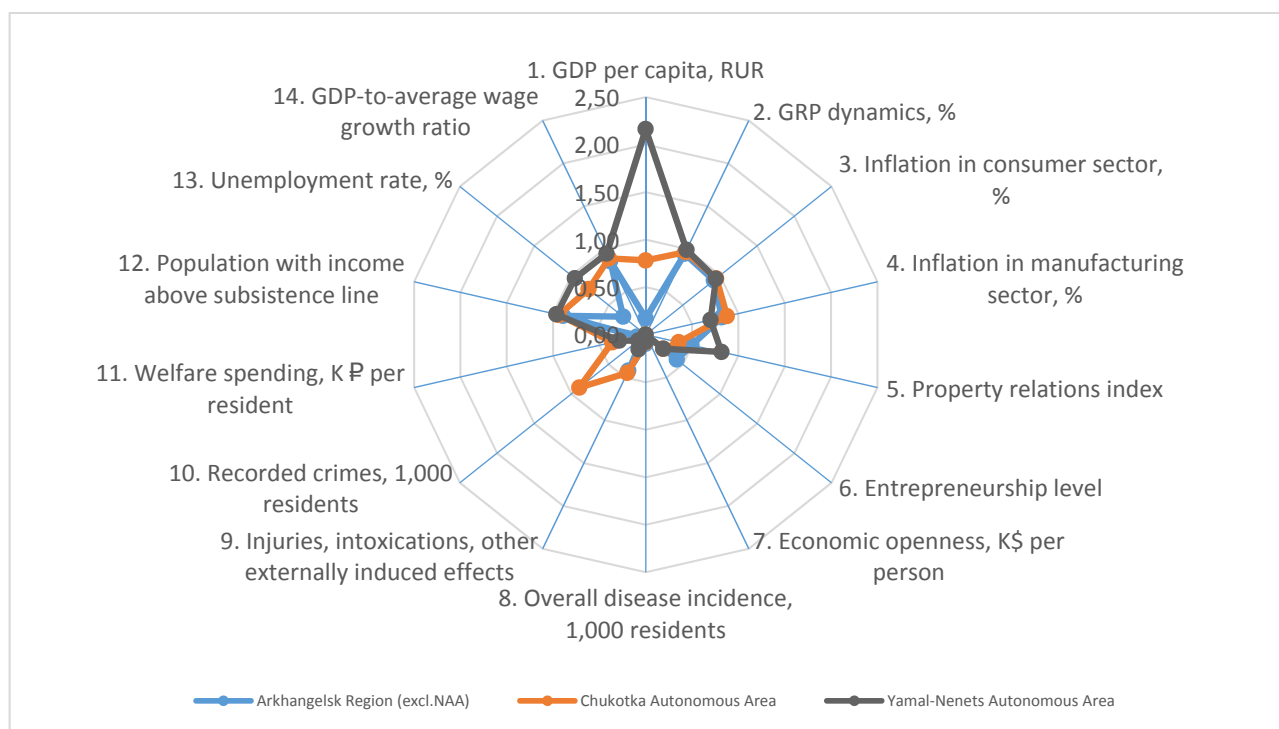


Fig. 5. Indicators of the Socio-Economic Component for the Yamal-Nenets Autonomous Okrug, Chukotka Autonomous Okrug, Arkhangelsk Region for the year 2021

Source: Compiled by the authors.

weak development of transport infrastructure, low efficiency of innovation activities, the problem of modernization of fixed assets, and the inconsistency of personnel policy with the needs of economic branches of specialization. The coefficients of the investment capacity of the products exceed (or are close to) the target values for these regions.

The low value of the integral indicator for the NAO (0.34), the minimum among the regions of the Republic of Kazakhstan, is due to the low value of indicators of the infrastructural potential of using information technologies and the cost of technological innovations.

Innovative, infrastructural, and personnel factors had a positive impact on the investment attractiveness of Murmansk Region, Krasnoyarsk Territory, and the Republic of Sakha (Yakutia) (Fig. 4).

The value of the integral indicator for this component takes the maximum value among the subjects of the AZ of the Russian Federation for the Republic of Sakha (Yakutia) (0.53). The negative dynamics of the investment capacity coefficient has been revealed, which is an indicator of a decrease in the investment activity of the region in the future. The integral indicator of intellectual potential in 2016–2021 remains at a rather low level (0.48). With a significant increase in the share of employees with higher education (0.87), the coefficient of training qualified personnel decreased by 2.5 times, its value since 2016 is 10 times less than the target. The revealed disparity necessitates the adjustment of personnel policy. The consistently low value of the infrastructural potential is noted.

Social and economic factors had a significant impact on the investment attractiveness of Yamalo-Nenets Autonomous District, Chukotka Autonomous District, and Arkhangelsk Region (the integral indicator increased by 1.9 times, 1.2 times, and 1.7 times, respectively) (Fig. 5).

Within the component, the lowest value is the integral indicator for the section “Social security”, which is due to the high level of

overall morbidity exceeding the target value by 10 times. The reason for the rather low value of the employee satisfaction index remains the high unemployment rate (3.1 times higher than the target). The positive dynamics of indicators of the formation of market institutions in these regions has a positive effect: the values of indicators reflecting the openness of the region’s economy, property relations and the degree of entrepreneurship development have increased by 2 times. The GRP dynamics indicator is close to the target value, while the per capita GRP indicator is lower than the target value with a slight annual growth rate of 6–7 percentage points (the exception is Arkhangelsk Region) (Fig. 5).

For the remaining six regions, the negative dynamics of the integral indicator for the socio-economic component was revealed.

The integral indicator for the socio-economic component takes values in the range of 0.45 (Komi Republic) to 0.74 (NAO). The average position among the components of the BSC is primarily due to the weak development of market economy institutions: indicators characterizing property relations and the degree of entrepreneurship development (except for the Republic of Karelia, Krasnoyarsk Territory, and NAO) are more than two times lower than the target. With a high value of the indicator of GDP dynamics (exceeding 0.90), the per capita value of this indicator is significantly lower than the target, with the exception of the Republic of Sakha (Yakutia), NAO.

The low value of the integral indicator of social security negatively affects the investment attractiveness. The unemployment rate remains high (with the exception of Krasnoyarsk Territory) and the per capita level of social sector financing remains low, with the integral employee satisfaction indicator being two times lower than the target.

The analysis of the research results showed that resource, natural, financial, and production factors had a positive impact on the investment attractiveness of the regions of the AZ of the Russian Federation. The negative

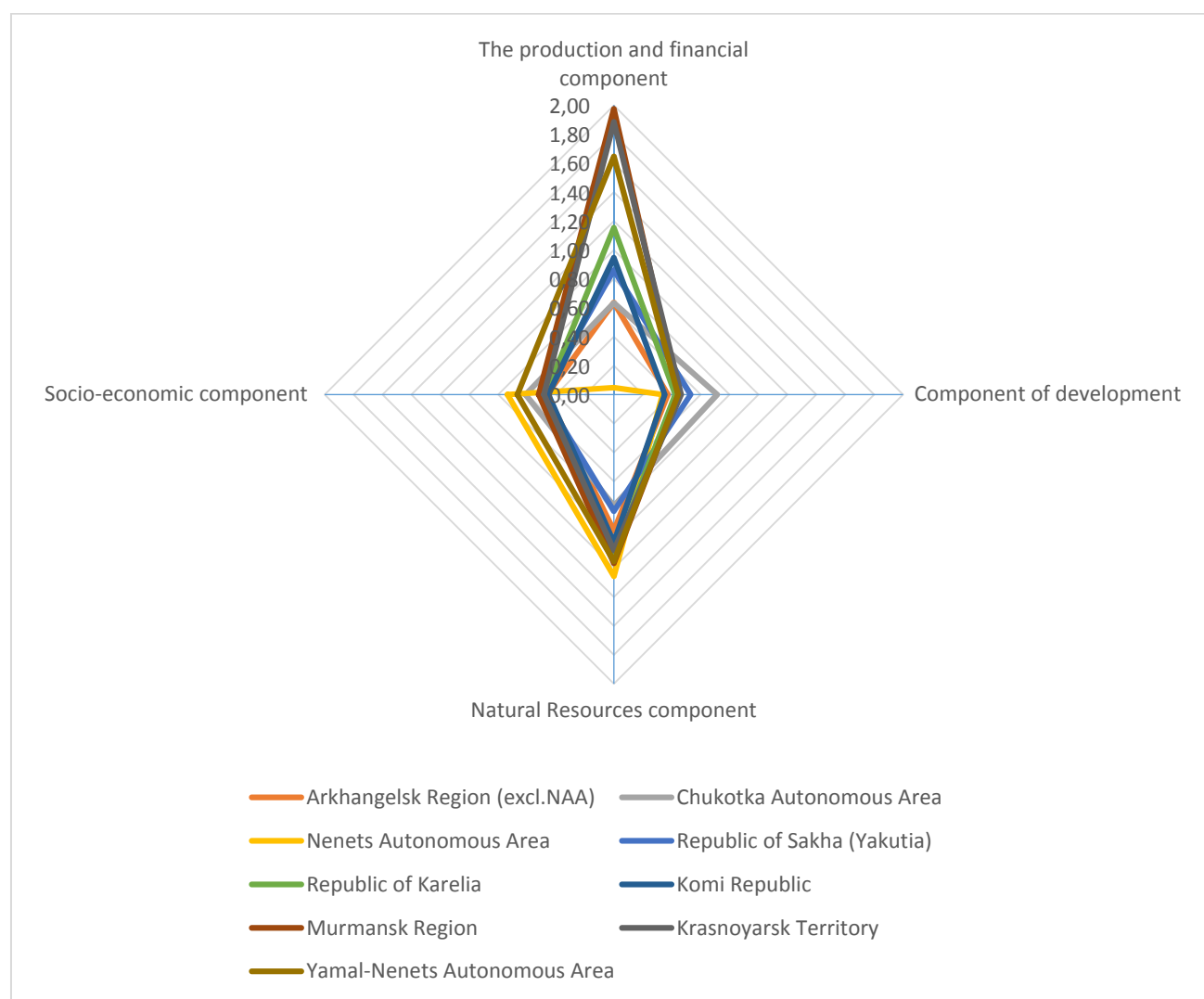


Fig. 6. Chart of Integral Indicators of the Investment Attractiveness of Arctic Regions for the year 2021

Source: Compiled by the authors.

impact was caused by the development component, the integral indicator of which assumes a minimum value for six out of nine subjects. This is due to the low level of human resources, innovation and infrastructure potential (Fig. 6).

The socio-economic component occupies an average position among the rest due to the insufficient development of market institutions, low social security, and high unemployment.

To increase the investment attractiveness of the regions of the AZ of the Russian Federation, it is necessary to develop a set of measures aimed at forming an effective employment system (providing employment guarantees for various social strata of the

population), create conditions for the priority development of healthcare (in order to prevent and reduce morbidity), and develop market institutions whose activities are aimed at developing entrepreneurship and property relations in the regions, increase financing of the social sphere, develop transport infrastructure, ensure that products, works, and services comply with international standards by updating fixed assets and introducing technological innovations.

CONCLUSIONS

The main outcome of the research is the development of a system for assessing the impact of key factors on investment attractiveness in the Arctic zones of the

Russian Federation. This system allows us to determine the degree of influence these factors have on the investment climate in these regions and to identify priority areas for investment.

Based on the specific socio-economic characteristics of the Arctic, we have classified the factors that are most significant for investment. The use of these findings allows us to create a diagnostic tool for identifying key problems in investment activity in these areas.

The novelty of this research lies in the development of a toolkit for assessing the impact of significant investment factors in the regions of Astrakhan Region (AZ) of the Russian Federation. An algorithm has been proposed for assessing the degree of influence of these key factors, including methodological techniques and a system of metrics based on target values for indicators related to increasing investment attractiveness.

This research also introduces a new approach to assessing investment attractiveness, which

involves a balanced approach that can be seen as the development of methods to evaluate the investment potential of regional economic systems.

The development and implementation of a modern monitoring system using advanced methodological tools could enhance the investment attractiveness of projects in the Arctic region of the Russian Federation. This is especially significant in light of the National Entrepreneurship Initiative, which seeks to create an environment conducive to business and investment, as well as the national rating of the investment climate in the constituent regions of Russia.

Research into developing a mechanism to increase the investment attractiveness of regions in the Arctic is a promising area. This could take into account key investment-relevant factors.

The significance of this study lies in the development of conceptual foundations for a balanced approach to assessing investment attractiveness in Arctic regions.

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