

Assessment of the Region Investment Attractiveness in Complex Relationship with Sustainable Development on the Basis of the Balanced Scorecard

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Abstract: The purpose of the article is to justify the need for possible applying the balanced scorecard for identifying the region investment problems. Investment attractiveness of the regional economic system of the Arkhangelsk region of the Russian Federation is taken as a research object. It should also be noted that over a long period of time the balanced scorecard has been applied as the efficiency management tool of certain organizations. However, no attempts were made to develop valuation techniques for the investment attractiveness of economic systems using the balanced scorecard. Besides the balanced assessment methodology has not been applied for studying regional issues before. The authors of the present research improved the integrated approach to the assessment of the investment environment (that was implemented by means of methodology of Council for the Study of Productive Forces) by supplying it with achievements of the balanced approach which was suggested by R. Kaplan and D. Norton. The article proves the importance of developing a mechanism for coordinating the interests of various participants of the investment process. The authors show the opportunity of creating that sort of mechanism based on the balanced scorecard for assessment of the region investment attractiveness taking into consideration the information needs of every group of participants. The application of the balanced score card may become the basis for developing an effective strategy of improving investment attractiveness of the region.


1 INTRODUCTION

The regional investment policy capable of providing the rise in the investment attractiveness of every Russian region for its development should become an indispensable structural unit of the integral legislated system of investment activity government regulation that reflects peculiarities of the federal structure of the country. From our point of view, the regional investment policy should be understood as the system of measures that is carried out by the regional public authorities responsible for the mobilization and effective use of domestic and outward investment

resources of all forms of ownership in order to guarantee the stable economic growth of the region.

The authors of the article conducted the study on investment attractiveness of regional sectoral economic systems which is one of the key development challenges of the regional economy and their research is based on a wide range of theories and practices. A large number of different methods of interregional investment comparison are used both in Russia and abroad. Foreign rating valuation techniques for investment environment and investment attractiveness such as «Doing Business», valuation techniques of expert agencies like «Moody's», «Standard&Poor's», «Fitch Ratings» and

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others have become best known in Russia for being included into various scientific reviews. The development of an entrepreneurship toolkit for region investment attractiveness assessment is based on the analysis and generalization results of both foreign (specifically pointing out the elements that can be adopted within the economy of Russia) and domestic experience in attracting investments (Hoque, 2000). The domestic methodology of interregional investment comparison has come a long way by now. The challenges faced in assessing investment attractiveness have been studied by such scientists as A. Folomiev, I. Grishina, I. Royzman, A. Shakhnazarov (Grishina, 2013; Hoque, 2000). In accordance with the majority of approaches, the main factors that differentiate territories in terms of investment attractiveness are not only non-specific factors (shared for all regions) but also specific regional factors. T. Rakhimov suggests classifying the present investment environment valuation according to the set of characteristics including: technique origin; technique application area; coverage of investment environment elements; a number of levels in investment environment assessment; a presentation form of results; investment environment valuation techniques employed; dynamism of the set of specific indicators; scope of investment environment assessment.

In our opinion the availability of a great number of valuation techniques is also determined by the difference between goal setting in research and approaches to the interpretation of the concept «investment attractiveness» and «investment environment», determination of relations, and structure of these categories. The concept «business environment» is mainly used in foreign researches (Becker, 2012; Belitski, 2016; Berkowitz, 2015; Besley, 2015; Fernandes, 2015; Myakshin, 2019). R. Anderson offers to differentiate the notions of «investment environment» and «business environment». He gives his preference to the second notion because in the author's opinion the notion «investment environment» may create a misconception about the contribution of the private sector into economic growth (Anderson, 2004).

In our view, the evolving of domestic valuation techniques for investment attractiveness has followed the path of differentiation and complexity of the assessment scorecard, and the introduction of mainly qualitative (static) indicators. Nevertheless, methodological approaches to investment attractiveness assessment, factors influencing the assessment, the structure of assessment indicators are reconsidered by their authors on a time basis

according to objectives of conducted researches and a change in conditions of economic development. It should be noted that the indexes of the assessment of the region investment attractiveness currently applied in economic studies do not fully meet the needs of different groups of participants of regional investment processes to the above-mentioned assessment. The new methodological approach is based on the scorecard of indexes independent from dynamics of investment attractiveness of other regions and would allow meeting initially different information needs of various participants of the investment process.

The major conceptual innovation of the suggested balanced approach allows for a shift in priorities towards achieving compliance of the assessment results with the interests of all parties (i.e. investors, population, state administration bodies) when assessing the investment attractiveness.

2 METHODOLOGY AND METHODS OF RESEARCH

In order to reflect current economic conditions more precisely and to take into consideration the present improvement of the static observing system, the authors have participated in modifying the methodology of integrated comparative assessment of investment attractiveness of Russian regions that has been developed at the Council for the Study of Productive Forces (CSPF). Moreover, the new system of assessment indicators for two main elements of investment attractiveness (investment potential of a region and a regional investment risk) has been presented. Despite the change in the structure of specific indicators and their valuation techniques, the most important feature of the integrated methodological approach of CSPF has been preserved. The feature consists of considering regional investment attractiveness in complex relationship with investment activity within the regions (Grishina, 2013). On the results of the experimental assessment of investment attractiveness of the constituent entities of the Russian Federation that were obtained with the application of the suggested method (on the basis of the statistical accounting for 2010), investment attractiveness of the Arkhangelsk region has been estimated at 0,754 (i.e. 0,25 percentage points below the Russian average, because the Russian average was considered to be 1,00). According to the calculated results, the Arkhangelsk region held the 56th place out of 83

studied constituent entities of the Russian Federation in terms of investment attractiveness (Hoque, 2000). Moreover, pursuant to the conducted research on the investment activity level of regional private investors (according to the data from 2012, that was done in order to keep the time lag for investment attractiveness realization described in 2010), the Arkhangelsk region was assessed to be of the third group of regions with middle investment activity level (0,985). The following level is just a little below the Russian average and provide the relatively high 31st place among all Russian constituent entities. It shows us the influence of unaccounted factors on the investment attractiveness valuation technique and consequently the presence of reserves for its further development towards ensuring compliance with investment attractiveness assessment and investment activity assessment of every region. The balanced scorecard (BSC) that originated at the beginning of the 90s of the XX century as an evaluation system, has turned into an efficiency management tool owing to long-term improvements in the works of R. Bhagwat, E. Daniel, F. Figge, Z. Hoque, D. Kaplan, R. Norton, P. Niven, N. Olve (Bhagwat, 2007; Daniel, 2012; Figge, 2002; Kaplan, 1996, 1998, 2000; Martinsons, 1999; Niven, 2011; Olve, 2011). Therefore researches that are aimed to develop the practice-oriented balanced scorecard for investment attractiveness assessment of the region could be ranked as new ones on setting. In developing the BSC to assess the region's investment attraction, we used the basic principles outlined above, which belong to

the correct methodological approach of the CSPF. The basis for the formation of the BSC is the relationship of the key factors of investment attractiveness with the key indicators that have been selected with the use of the criterion «maximal representation and investment value». The opportunity of quantitative identification of indicators on the ground of the current assessment was taken into account while making maximum use of the data from government statistics. The integral indicators of investment attractiveness are suggested to be estimated with the help of the multivariate average formula. However, regional target values of indicators are offered to be used as the basis for rationing values of the individual indicators in preference to the national averages estimated throughout the Russian Federation that are followed by many studies. The matrix of integral indicators is formed on the ground of the calculations carried out.

3 RESULTS

According to the data of the authors' empiric research on the investment attractiveness level of the Arkhangelsk region that has been carried out with the help of the developed balanced scorecard, principal directions of improving investment attractiveness have been analyzed (Table 1, Figure 1). The results of such researches could be required by the current practice of state regulation of the economy.

Table 1: Composition of the balanced scorecard for the investment attractiveness assessment of Arkhangelsk region* (2011-2018).

Name of the indicator	Target value	Indicator value							
		2011	2012	2013	2014	2015	2016	2017	2018
Integral indicator for production and financial perspective		0,51	0,31	0,46	0,38	0,68	0,64	0,65	0,86
1. Integral indicator for the section "Financial development"		0,60	0,62	0,60	0,60	0,69	0,76	0,75	0,77
<i>1.1. Share of profitable enterprises, percentage</i>	<i>0,9</i>	<i>0,63</i>	<i>0,63</i>	<i>0,65</i>	<i>0,64</i>	<i>0,67</i>	<i>0,71</i>	<i>0,66</i>	<i>0,68</i>
<i>1.2. Indicator of balancing budget revenues and expenditures of the region, percentage</i>	<i>1</i>	<i>0,92</i>	<i>0,93</i>	<i>0,93</i>	<i>0,91</i>	<i>0,97</i>	<i>0,93</i>	<i>0,99</i>	<i>1,04</i>
<i>1.3. Share of overdue accounts payable in the total amount of external accounts payable, percentage</i>	<i>0,01</i>	<i>0,06</i>	<i>0,04</i>	<i>0,06</i>	<i>0,06</i>	<i>0,03</i>	<i>0,02</i>	<i>0,02</i>	<i>0,02</i>
2. Integral indicator for the section "Environmental safety"		0,74	0,63	0,77	0,73	0,84	0,76	0,75	0,77
<i>2.1. Share of the detected and detoxified pollutants in their total number from all stationary pollution sources, percentage</i>	<i>0,8</i>	<i>0,75</i>	<i>0,76</i>	<i>0,77</i>	<i>0,72</i>	<i>0,74</i>	<i>0,73</i>	<i>0,73</i>	<i>0,76</i>
<i>2.2. Share of environmental protection investments in total investment amount as a percentage of the region's investment capita, percentage</i>	<i>0,02</i>	<i>0,01</i>	<i>0,00</i>	<i>0,01</i>	<i>0,01</i>	<i>0,01</i>	<i>0,01</i>	<i>0,01</i>	<i>0,10</i>
<i>2.3. Forest reproduction indicator of forest reserves, percentage</i>	<i>1</i>	<i>0,78</i>	<i>0,76</i>	<i>0,85</i>	<i>0,98</i>	<i>0,94</i>	<i>0,64</i>	<i>0,67</i>	<i>0,64</i>

Continuation of table 1.

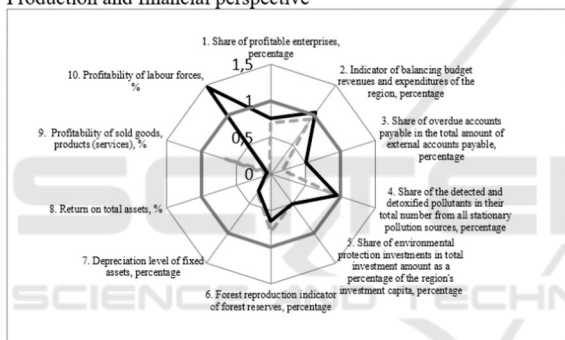
3. Integral indicator for the section “Efficiency of the production and financial activity of the region”		0,26	-0,17	0,13	-0,05	0,54	0,32	0,38	0,65
3.1. Depreciation level of fixed assets, percentage	0,15	0,48	0,47	0,46	0,45	0,48	0,50	0,51	0,53
3.2. Return on total assets, %	10	0,40	-1,30	0,40	0,40	2,80	0,46	0,37	0,73
3.3. Profitability of sold goods, products (services), %	10	6,50	-4,30	0,00	-7,10	5,00	0,84	0,79	0,60
3.4. Profitability of labour forces, %	10	0,28	-4,50	1,37	1,37	10,76	14,66	13,79	14,69
Integral indicator for the development perspective		0,66	0,68	0,62	0,51	0,55	0,39	0,37	0,40
1. Integral indicator for the section “Intellectual potential”		0,57	0,65	0,61	0,65	0,65	0,40	0,39	0,40
1.1. Share of employees with higher education, percentage	0,4	0,23	0,26	0,24	0,26	0,26	0,28	0,27	0,27
1.2. Indicator of advanced staff training, percentage	0,5	-	-	-	-	-	0,01	0,01	0,01
2. Integral indicator for the section “Innovative capacity”		0,70	0,71	0,65	0,47	0,53	0,44	0,42	0,46
2.1. Research and Technological Development cost component, percentage	0,1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2.2. Technological innovations cost component, percentage	0,05	0,01	0,02	0,02	0,01	0,00	0,00	0,00	0,01
2.3. Use of information technology indicator, percentage	1,5	1,44	1,11	0,77	0,77	2,31	1,03	0,60	1,03
2.4. Indicator of replacement of fixed assets	0,15	0,10	0,11	0,11	0,08	0,05	0,06	0,06	0,06
2.5. Indicator of investment requirement of sold products	0,2	0,33	0,33	0,29	0,22	0,13	0,21	0,23	0,21
3. Integral indicator for the section “Infrastructural capacity”		0,50	0,52	0,53	0,53	0,53	0,08	0,08	0,08
3.1. Communication lines density, km/ thousand sq km	60	30,00	31,00	32,00	32,00	32,00	59,00	59,00	59,00
Integral indicator for natural resource perspective		0,67	0,66	0,67	0,69	0,74	0,74	0,79	0,82
1. Integral indicator for the section “Resource provision”		0,70	0,70	0,71	0,73	0,81	0,69	0,76	0,80
1.1. The economic activity of the population level, percentage	0,75	0,55	0,53	0,53	0,52	0,52	0,51	0,51	0,50
1.2. Deposits of natural hydrocarbon (gas and oil), million equivalent tons	3000	2954,70	2954,70	2954,70	2954,70	2954,70	2954,70	2954,70	2954,70
1.3. Deposits of mineral resources (except for hydrocarbon deposits), million equivalent tons	2000	1039,60	1039,60	1039,60	1039,60	1063,50	1063,50	1063,50	1063,50
1.4. Forest reserves area, million hectares	35	28,82	28,83	29,29	29,29	29,31	29,31	29,31	29,31
1.5. Indicator of provision enterprises of the region with their own financial resources, percentage	0,5	0,23	0,24	0,25	0,32	0,50	0,39	0,39	0,44
2. Integral indicator for the section “Geographic location”		0,71	0,71	0,71	0,71	0,71	0,71	0,71	0,71
2.1. Region geographic location	7	5	5	5	5	5	5	5	5
3. Integral indicator for the section “Climatic conditions”		0,43	0,43	0,43	0,43	0,43	0,43	0,43	0,43
3.1. The level of region favorable climate	7	3	3	3	3	3	3	3	3
Integral index for political - economic and social perspective		0,64	0,57	0,60	0,59	0,60	0,49	0,51	0,52
1. Integral indicator for the section “Economic growth potential of the region”		0,47	0,46	0,50	0,49	0,50	0,56	0,59	0,60
1.1. Volume of the Gross Regional Product, billion rubles	320	273,69	315,40	326,92	356,43	399,52	377,99	418,46	464,91
1.2. Dynamics of the Gross Regional Product, percentage	110	110,10	104,00	102,00	101,10	100,10	99,20	103,80	102,90
1.3. Inflation rate in the consumer sector, %	0,5	5,50	6,00	6,80	13,00	13,00	104,80	101,50	104,00
1.4. Inflation rate in the industrial sector, %	0,5	3,60	6,50	2,10	4,60	21,10	105,60	109,80	112,60
1.5. Indicator of property relations in the region	0,8	0,48	0,49	0,50	0,51	0,51	0,29	0,30	0,37
1.6. Indicator of the entrepreneurial development degree	0,3	0,13	0,11	0,11	0,12	0,12	0,13	0,15	0,14

Continuation of table 1.

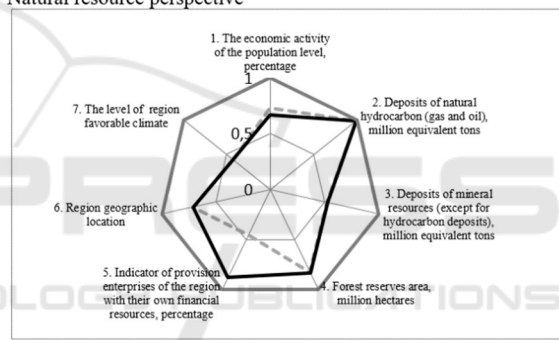
1.7. Openness of the economy, thousand dollars per person	8	1,37	1,20	1,99	2,02	1,81	1,86	2,17	2,69
2. Integral indicator for the section “Social security”		0,48	0,48	0,48	0,48	0,48	0,30	0,30	0,32
2.1. Overall morbidity rate, the number of disease incidences per one thousand people	100	1061,10	1041,31	1047,47	1013,30	995,19	1015,90	1002,20	998,50
2.2. Job safety level	1	0,99	1,00	1,00	1,00	1,00	118,90	122,40	122,00
2.3. Number of recorded crimes per one thousand people	7	20,43	20,51	20,71	20,90	21,07	17,76	17,31	15,18
3. Integral indicator for the section “Employee satisfaction”		1,05	0,84	0,86	0,86	0,87	0,51	0,53	0,52
3.1. Social sector financing	0,5	0,66	0,66	0,67	0,66	0,67	48,03	49,55	56,39
3.2. Number of inhabitants with income above the poverty line	0,99	0,89	0,86	0,87	0,86	0,86	0,86	0,86	0,88
3.3. Unemployment rate, percentage	0,02	0,02	0,06	0,06	0,06	0,08	0,07	0,06	0,06
3.4. Indicator of the ration between growth rates of labour productivity and growth rates of average wages	1,1	1,07	0,95	0,96	1,01	1,10	0,93	0,98	0,91
IN THE BALANCED SCORECARD IN TOTAL		0,61	0,54	0,58	0,54	0,64	0,55	0,57	0,64

*The Balanced Scorecard has been developed and the calculation has been carried out by the authors

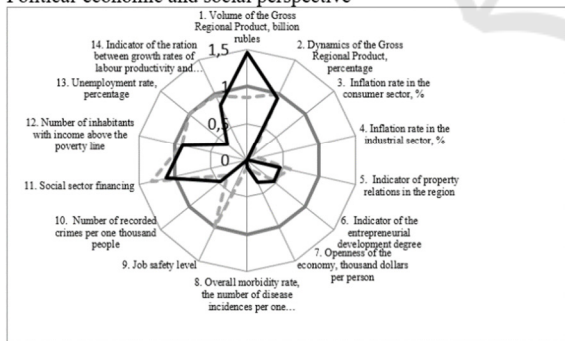
Production and financial perspective



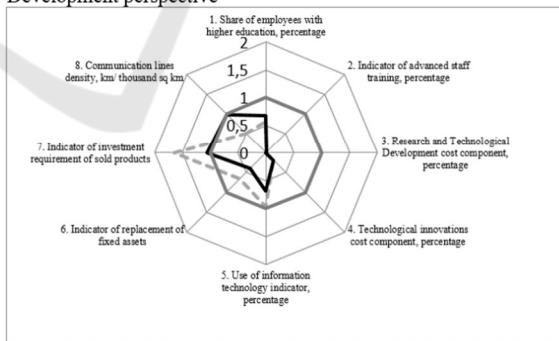
Natural resource perspective



Political-economic and social perspective



Development perspective



(Symbols in the Figure:

— Target value

--- 2011 year,

— 2018 year.)

Figure 1: Diagram for key indicators of investment attractiveness of the Arkhangelsk region from different perspectives for 2011-2018*

*The diagram has been developed by the authors

While implementing practical assessment of the investment attractiveness level of the Arkhangelsk region, the reality check of the developed method confirms the possibility of using the balanced scorecard as an instrument of quantitative identification of the investment attractiveness factors. The results of the assessment would be advisable to use when developing a strategy for improving the region's investment attractiveness.

4 DISCUSSION

It should be noted that the factors of financial development produced a positive effect on the investment attractiveness growth of the Arkhangelsk region. The research identified the increase of 28 p.p. (percentage points) in the financial development indicator due to similar growth of the share of profitable enterprises. The indicator of balancing budget revenues and expenditures has grown by 13 p.p., while the indicator value is close to the target one (1,04) which can be viewed as the positive aspect. From 2011 to 2014 there was an obvious tendency of a decrease in the indicators characterizing the efficiency of production and financial activity. However, 2,5 times increase of the integral indicator of this section was observed in 2018 in comparison to 2011. It happened due to an increase of the indicator «Return on total assets» by 1,8 times, a considerable increase of the indicator «Profitability of labour forces» that exceeded some certain target value (14,69). It is important to note positive dynamics in the integral indicator values of environmental safety of production facilities (growth is 4 p.p.) which is the result of increasing such indicators as «Forest reproduction indicator of forest reserves» and the conservative value of the indicator «Share of environmental protection investments». The stated factors have made a positive impact on the investment attractiveness of the Arkhangelsk region. Analysis of the integral indicator complex by four perspectives of the developed balanced scorecard has shown that the maximum value is the integral indicator value for natural resource perspective (0,80) under positive dynamics (increase constituted 14 p.p. over 5 years). The detrimental effect of the low value of the indicator which characterizes the climatic conditions of the Arkhangelsk region (0,43) is offset by the positive influence of the economic supportability with raw material resources factor on investment attractiveness. The volume indicators of forest reserves area and natural hydrocarbon deposits practically achieve the target values. The graphical

interpretation of the research results of production and financial perspective of the BSC (Figure 1) demonstrates minor deviations from the target values of the following indicators: «Balancing budget revenues and expenditures of the region», «Forest reproduction of forest reserves», «The profitability of labour forces». The diagram analysis shows that the relatively low value of the integral indicator of production and financial perspective is primarily determined by significant deviations from the target values of the indicators. On the ground of the analysis of the diagram that has been created for the key indicators of the natural resource perspective, it has been discovered that the indicator «Economic supportability of the region with raw material resources» and the indicator «Level of the economic activity of the population» are close to the target values. The indicator «Provision enterprises of the region with their own financial resources» almost achieves the target value. However, there is a negative impact of the factors of innovative social-economic development on the investment attractiveness of the Arkhangelsk region. In 2018 the indicator of fixed assets replacement was decreased by 1,7 times with a reduction of the indicator of investment requirement by 1,6 times. At the same time, the indicator of employee satisfaction was decreased by 2 times due to 3 p.p. reduction in the number of inhabitants with income above the poverty line and the increase of unemployment rate by 1,3 times (comparing to 2015). In comparison with 2011, the integral indicator of political-economic and social perspective was lowered by 1,2 times.

The integral indicator for the section «Social security» has a negative impact on the investment attractiveness level due to the influence of the following factors: the indicator «Number of recorded crimes per one thousand people» exceeds the certain target value by 2,2 times, while the indicator «Overall morbidity rate» exceeds the target value by 10 times. Negative dynamics of the integral indicator of the development perspective seems to be alarming: there is a 65 p.p. decrease in the integral indicator value comparing to 2011 respective data. Negative dynamics is primarily conditioned by 52 p.p. decrease of the innovative capacity indicator while the indicators for infrastructural capacity and intellectual potential have grown. It should be noted that for a long period of time the «Replacement of fixed assets» issue continues to be a challenge. Firstly, it concerns the assets component of fixed capital: the indicator «Replacement of fixed assets» experienced a reduction by 1,7 times while the depreciation of equipment was 48%. It is necessary to upgrade

production facilities of the region making it possible to produce the goods competitive at the international market. The important indicator of investment attractiveness reduction is 1,6 times decrease in the value of the indicator «Investment requirement of sold products». The integral indicator for the development perspective has got the lowest value among the perspectives of the BSC (0,40). The diagram of indicator values that are included into the section «Development» makes it possible to fairly demonstrate the deviation from the target values of the following indicators: «Research and Technological Development cost component», «Technological innovations cost component», «Index of replacement of fixed assets», «Index of investment requirement of sold products». Consequently, the integral indicator profile for the Arkhangelsk region shows that the integral indicator values for the development perspective and the government and social perspective are below the target values of rights. This restricted the management of investments in the Arkhangelsk region. The analysis of the results of the investment attractiveness assessment of the Arkhangelsk region on the basis of the balanced scorecard allows identifying principal directions of the investment policy of the Arkhangelsk region. These directions include: development of market institutions, specifically the creation of the conditions for private entrepreneurship and small businesses; improving the openness of the economy; infrastructure development; improving innovative capacity through cost increasing on Research and Technological Development, technological innovations, replacement of fixed assets; rising population incomes in order to increase consumer demand.

5 CONCLUSION

The elaboration and implementation of a balanced scorecard-based performance evaluation system represents an effective way for raising the investment attractiveness of the projects being deployed in the Arctic Zone of the Russian Federation. Further, the BSC-based assessment of a region's investment attractiveness can be seen as a way of harmonizing the interests of all stakeholders in an investment process. Implementation of the balanced approach to investment attractiveness assessment gives an opportunity to identify the principal directions of the regional investment policy. The suggested balanced approach is aimed at improving the scientific basis of state regulation of the investment sector at all levels.

The approach can be applied for comparative diagnosis of regions and developing directions of state regulation of investment activity at the macro level. At the meso level the approach can be used while forming the regional balanced economic system. Confirmation of the practical importance of the research results is the direct use of the balanced scorecard for investment attractiveness assessment of the Arkhangelsk region. Using the balanced scorecard as the information base of the study of public statistical data accounts for the possibility of applying the elaborations by public authorities of other regions. The balanced scorecard can be used as a set of tools for assessing the performance of government investment policies and for managing the administration of regional investment measures. The suggested balanced scorecard could become the base for the diagnostic system that could provide for identification of main investment problems and developing scientifically based investment policy in the constituent entities of Russia.

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