

## METHODOLOGY DEVELOPMENT FOR RATING THE INFRASTRUCTURE SUPPORT OF SMALL BUSINESS IN THE REGIONS

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The relevance of the study on small business infrastructure support rating issues in the regions is determined by the fact that such support at the regional and municipal level that is most often the main criterion for making a decision on the implementation of small business projects in a particular region. The purpose of this study was to develop an authoritative methodology for rating the infrastructure for supporting small business in the regions of the Russian Federation. The study was conducted out using methods of factor and structural analysis, data systematization, economic-mathematical methods and methods of correlation analysis. To create a new tool for rating the infrastructure, the authors of the article relied on the methods developed by the European Regional Innovation Scoreboard, the Independent Institute for Social Policy, the Agency for Strategic Initiatives, ExpertRA, the Institute of Higher School of Economics, RIA Rating. The authors of the article formulated the requirements for building the small business infrastructure support rating for and built a rating of small business infrastructure support rating referring to the regions of the Russian Federation. The article can be of interest to specialists of state and municipal authorities, potential and real investors implementing projects in the field of small business.

**Keywords:** small business, support infrastructure, system, infrastructure provision, rating, evaluation methodology, region

### INTRODUCTION

Currently, there are many researches on various issues of the organization and development of entrepreneurship, including the infrastructure that determines its activities, especially the development and evaluation of state support for small businesses. In these works, studies of individual elements of the infrastructure of entrepreneurship are presented: institutional, financial, property, consulting, innovation and others. At the same time, it should be noted that there is a very limited number of scientific papers devoted to the development of methods for assessing the infrastructural support of entrepreneurial activity (Rudenko *et al.*, 2016).

To select effective ways for developing small business and create optimal conditions for its activities, it is necessary to conduct an analysis of the infrastructure

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for supporting small businesses, to reveal the level of its development through the establishment of a rating.

The methodological basis for the methodology development for constructing a rating for the provision of infrastructure for small businesses was the methodology of the Independent Institute of Social Policy, the European Commission (Regional Innovation Scoreboard), ExpertRA, Investment ratings of regions, National rating of the investment climate in the subjects of the Russian Federation, , RIA Reiting, Rating of innovative development of the subjects of the Russian Federation (2014), Social atlas of Russian regions (2015), Rating of regions of the Russian Federation for quality of life (2016), Rating of socio-economic situation of regions - the results (2015). and individual authors (Abdrakhmanova *et al*, 2013, Bortnik *et al*, 2013, Gusev & Gusev, 2016, Ovsyannikova *et al*, 2015; Gnezdova *et al*, 2016).

## LITERATURE REVIEW

In accordance with the Russian law “on the development of small and medium-sized enterprises in the Russian Federation”, the infrastructure for supporting small business is understood to mean a system of “... commercial and non-commercial organizations that are established, operate or are attracted as suppliers (contractors) for procurement of goods, works, services to ensure state and municipal needs in the implementation of government programs (subprogrammes) of the Russian Federation, state programs (subprograms) of the subjects of the Russian Federation, municipal programs (sub-programs) that provide conditions for the creation of small and medium-sized businesses, and for their support. “([http://www.consultant.ru/Document/cons\\_doc\\_LAW\\_52144/](http://www.consultant.ru/Document/cons_doc_LAW_52144/)).

In the opinion of A.N. Alekseev (2015), the main function of the infrastructure for supporting small businesses is to meet the needs of small businesses, which arise when creating, operating and expanding business.

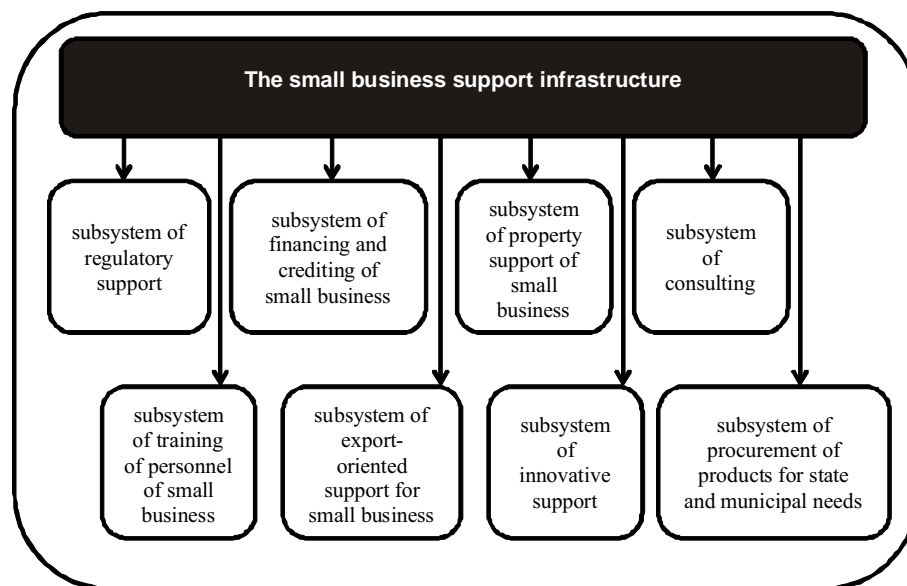
Various authors, including the authors of the article, differentiate the various subsystems and elements of the infrastructure for supporting small business:

- a subsystem of regulatory support that ensures the development of legislative and regulatory documents, monitoring the application of legislation, etc. (Rudenko *et al.*, 2016; Rudenko *et al.*, 2016; (Rudenko *et al.*, 2015);
- a subsystem of financing and crediting of small business, which includes microfinance, crediting, insurance, leasing (Averin, 2016);
- a subsystem of property support of small business, consisting of production and technology centers, business incubators, industrial parks, technoparks, etc. (Suptelo, 2016);
- a subsystem of consulting, which includes information and consulting support for conducting business activities (accounting and tax accounting,

legal services, etc.), receiving and processing information, etc . (Blinov, 2016);

- a subsystem of training of personnel of small business, providing training and retraining of personnel, training of personnel (Alexashina, 2016);
- a subsystem of export-oriented support for small business, which ensures the promotion of products on the markets of foreign states, the creation of favorable conditions for foreign economic activity (Zhidkov, 2016);
- a subsystem of innovative support for small businesses that provides financing for innovative projects at all stages of its implementation (Bortnik *et al.*, 2013);
- a subsystem of procurement of products for state and municipal needs from small business entities (Ovsyannikova *et al.*, 2015).

Summarizing all the above, the authors of the article compiled the following scheme of the small business support infrastructure (Figure 1).



**Figure 1:** The small business support infrastructure

Thus, the system of small business support infrastructure is a set of measures from the regulatory support to the training subsystem and the procurement system for state and municipal needs. The presence of such subsystems in the region contributes to the activation of small business.

## RESULTS

### **The methodology requirements for building a rating**

Summarizing the approaches to rating, the authors of the article in the construction of the rating of infrastructure support for small business in the subjects of the Russian Federation, determined the requirements for the methodology.

1. Since the regions vary greatly in scale (for example, volume and degree of concentration of resources, in particular, labor resources), the influence of selected factors is recommended to be minimized, so that the level of infrastructure provision corresponds to the scale of the region, i.e., it is proportional to it (Gnezdova *et al*, 2016).
2. Imperfection of infrastructure can be expressed in the form of an unstable system of indicators in the dynamics, therefore, a more stable characteristic - the infrastructure climate of small business support - the mid-annual indicator in the medium-term period should be considered. Therefore, it is advisable to estimate the averaged indicators over several years, for example, as suggested by A.V. Sorokina (2013): estimate the indicator as an average value of "... for two years preceding the year of the evaluation (in the absence of statistical data, the last two years for which estimates are available)". The use of averaged values makes it possible to level out dotted outbursts of individual indicators and to obtain a more unified distribution of indicators among RF subjects. In the author's juvenile, it is suggested to take a period of evaluation for three years (Rudenko & Karaulov, 2016).
3. It is necessary to assess the dynamics in a comparable assessment relative to the intragroup indicators, rather than the dynamics of the rating, as is usually done in studies of regional development.
4. It is expedient to build an integral estimation referring to group index, so that their contribution to the integral estimate is relatively the same, and their distribution is approximately symmetrical, close to the normal distribution.
5. Individual indicators are recommended to lead to a homogeneous series, where there are no abnormal - strongly (at times) differing from all other values. Otherwise, after normalizing the indicators, almost all observations can appear in a very narrow interval, for example, in the interval  $[0; 0,1]$ , and one observation will take the value 1.

### **The choice of indicators system for building the rating of the support infrastructure for small business**

An important step in constructing a rating for the development of a small business support infrastructure is the definition of an indicators system. The system of

indicators developed by L.G. Rudenko & V.V. Karaulov (2016) is taken as a basis for building an integral assessment but with some refinement and improvement.

For the purpose of rating building, three groups of five indicators were identified: the scale of small business, the performance indicators of small business and the financial support effectiveness indicators presented in Table 1.

TABLE 1: INDICATORS FOR CONSTRUCTING A RATING FOR INFRASTRUCTURE SUPPORT OF SMALL BUSINESS IN THE CONSTITUENT ENTITIES OF THE RUSSIAN FEDERATION

<i>Group</i>	<i>Indicator</i>
1 - Indicators of the scale of activity of the IB	IMD1 - the number of small businesses (including microenterprises) and IP per 1000 of population IMD2 - the share of employed in the MP and PI in the total number of employed IMD3 - the specific weight of the turnover of MT and IP in the total volume of turnover in the region IMD4 - the share of investment in the MT in the total investment in the region IMD5 - the ratio of the volume of subsidies to RF subjects from the federal budget to the turnover of the MP and IP.
2 - performance indicators of small businesses:	IED1 - the volume of turnover of MT and PI per employee in the MT and PI, expressed in the fixed consumer baskets of the subject IED2 – отношение объема инвестиций МП к обороту МП и ИП IED3 - the share of profit (net financial result) of the MP in the profit (net financial result of enterprises) of the entity IED4 - profitability of MT - the ratio of the net financial result of the MP to the turnover of the MT IED5 – the ratio of investment of the MP to the volume of subsidies given to the region by the federal budget.
3 - indicators of the effectiveness of the support of the MP	IRP1 - the ratio of the amount of microloans issued (thousand rubles) to the MT (under the SME support program) to the amount of subsidies given to the region by the federal budget IRP2 - the ratio of the amount of loans granted by the MP (thousand rubles) to guarantees of guarantee funds (under the SME support program) to the amount of subsidies given to the region by the federal budget IRP3 - the ratio of the value of contracts for the supply of goods, performance of work and the provision of services for state and municipal needs, concluded with the MP, to the volume of turnover of MP and IP IRP4 - the share of the value of contracts for the supply of goods, works and services concluded with the MP, to the total value of contracts for state and municipal needs of the region IRP5 - the number of residents of business incubators per 10,000 MP and IP.

*Source:* Compiled by the authors

### **Steps for the construction of a rating assessment of infrastructure support for small business in the constituent entities of the Russian Federation**

At the first stage, it is recommended to clarify the system of indicators and to conduct their preliminary preparation. Since the unemployment rate varies widely by region, the scale of activity of MP IMD2 is calculated as the share of employed in small business (including microenterprises and individual entrepreneurs) in the total economically active population of the region. In the indicator of the effectiveness of small business, the share of profit of the MP in the profits of the regions is very heterogeneous, as in many regions the balanced financial result turned out to be negative or close to zero (Ryabova & Chizhik, 2016). Therefore, if in any year the financial result in the region per one employed in fixed consumer baskets turned out to be less than 0.88, then the index of IDE3 was assigned a zero value. The choice of the 0.88 milestone was based on a comparison with the average Russian indicator, which exceeds it 10 times.

At the second stage, it is advisable to assess the homogeneity of all indicators used in the methodology. To do this, for each private indicator  $x$ , calculate the average value of  $\bar{x}$  for 2012-2014 and the standard deviation  $\sigma(x)$ . Taking into account the properties of the normal distribution of a random variable, it is recommended to define the upper and lower boundaries on the basis of the “three sigma rule”:

$$x_{\max} = \bar{x} + 3\sigma(x) \text{ и } x_{\min} = \bar{x} - 3\sigma(x).$$

If the average value of  $x$  for a given region was less than  $x_{\min}$ , then it was assigned the value  $x_{\min}$ . If this value was greater than  $x_{\max}$ , then it was assigned the value  $x_{\max}$ . After such a transformation, the averages of the form  $x$  appear in the interval of three sigma  $[x_{\min}; x_{\max}]$ , with anomalous observations falling within its boundaries.

In the third stage, it is proposed to normalize the partial (averaged) exponents  $x_i$ . For this it is recommended to find

$$x^{\max} = \max_i x_i \text{ и } x^{\min} = \min_i x_i,$$

where  $i = 1, 2, \dots, 85$  is the number of the region. According to this procedure, the segment  $[x^{\min}; x^{\max}]$  is contained in the interval  $[x_{\min}; x_{\max}]$ . In the future, this will allow obtaining ballroom scores of the indicator on a full scale - from 1 to 100 points.

In addition, it is suggested to perform a study on the homogeneity of the distribution of individual indicators for the subjects of the Russian Federation on the basis of graphical frequency analysis. In general, most of the individual indicators have a relatively symmetrical distribution. In the group of indicators of the scale of activity, a significant left-side distribution has an index of the share of small business investments in the region’s economy: in most of the regions, there are insignificant investments of small businesses, with an increasing proportion

corresponding to an even smaller number of regions. The same nature of the distribution of regions is observed in the group of effectiveness indicators of small businesses in relation to the investment in small business and the ratio of investment to the volume of subsidies, as well as in the group of effectiveness indicators of support for the MP - the number of business incubators per 10 thousand small (including micro -) enterprises and individual entrepreneurs.

At the fourth stage, it is expedient to find the group indices of IMD, IED and IRP on the basis of the arithmetic mean and to determine the integral estimate of the IOMM based on the geometric group average. To assess the quality of group (factor) indicators it is recommended to conduct a graphical analysis of the frequencies of their distribution, as well as a correlation analysis of their influence on the integral evaluation of IOMPP and on each other. Due to the calculations carried out by the authors, it was revealed that all three factors (group indicators) have approximately the same and significant correlation ship with integral indicators:

- 0.670 - for small business scale indicators;
- 0.686 - for performance indicators of small business;
- 0.691 – for effectiveness indicators of small business support.

It turned out that the inter-factor correlation relationship is much weaker than the correlation relation with the integral index:

- 0.381 - for the scale of activity and effectiveness of small business;
- 0.136 - for performance indicators and effectiveness of small business support;
- 0.158 – for effectiveness indicators of small business support and the scale of small business.

Thus, it can be argued that the selected factors act substantively and independently on the final index - the index of infrastructure support for small businesses.

At the fifth stage, the infrastructure of the small business support infrastructure is directly constructed in the constituent entities of the Russian Federation.

### **Results of the rating of the infrastructure for supporting small business in the regions of Russia**

On the basis of the integral index of IOMP and the group indicators of IMD, IED and IRP, the ratings of regions on the development of infrastructure support for small business were compiled (Table 2).

Thus, analyzing the results of the rating, you can see that the top five rankings included: the Republic of Altai, the Republic of Mari El, the Republic of Ingushetia, the Tver Region, the Ulyanovsk Region. The Republic of Tatarstan, the Nenetsky

TABLE 2: RATING OF INFRASTRUCTURE SUPPORT OF SMALL BUSINESS IN THE REGIONS OF THE RUSSIAN FEDERATION (FRAGMENT)

<i>Region</i>	<i>IOMP</i>	<i>Range</i>	<i>IMD</i>	<i>Range</i>	<i>IED</i>	<i>Range</i>	<i>IRP</i>	<i>Range</i>
Altai Republic	61,532	1	64,2	3	53,9	2	67,3	1
Mari El Republic	45,437	2	47,4	15	51,8	4	38,2	11
The Republic of Ingushetia	44,776	3	59,1	4	30,2	37	50,3	3
Tver region	43,790	4	37,4	49	41,8	10	53,8	2
Ulyanovsk region	42,380	5	47,3	17	53,0	3	30,3	20
...								
Saint Petersburg	31,571	32	44,8	24	27,8	48	25,3	35
...								
Moscow	27,748	52	26,5	78	28,0	47	28,9	25
...								
Moscow region	24,070	73	28,9	74	35,6	19	13,6	79
...								
Leningrad region	23,546	76	27,1	77	23,5	65	20,4	56
...								
Republic of Tatarstan	20,432	83	39,2	41	27,2	51	8,0	84
The Nenetsky Autonomous Area	11,556	84	6,7	85	20,6	76	11,2	83
Chukotka Autonomous District	9,726	85	16,8	83	6,9	85	8,0	85

*Source:* Compiled by the authors

Autonomous Area, and the Chukotka Autonomous District are at the end of the rating list.

## CONCLUSION AND RECOMMENDATIONS

As a result of the study, a methodology was developed for constructing a rating of infrastructure support for small business in the regions of the Russian Federation, and the requirements for it are formulated. When constructing the infrastructure security rating, it is suggested to identify three groups of integrated indicators: small business scale performance indicators, small business performance indicators, and financial and financial support effectiveness indicators at the federal and regional levels. The use of averaged values in the method of constructing the rating over the course of three years made it possible to level out dotted outbursts of individual indicators and to obtain a more unified distribution of indicators among the subjects of the Russian Federation. The built rating assessment of the regions made it possible for the first time to assess the state of infrastructure support for small business in the constituent entities of the Russian Federation. As a result of the conducted research, it was revealed that there was a considerable scatter in the positions of the regions in terms of group indicators. Thus, in the first ten of the rating, in some regions the spread according to group ratings is more than 30 positions, which indicates the imbalance in the infrastructural support of small business in the regions.



The presented rating can be useful for the development of new programs for the development of small business at the regional level within the framework of the “Strategy for the Development of Small and Medium-Sized Enterprises in the Russian Federation for the period until 2030” approved by the Russian Federation Government Resolution No. 1083, as well as for practical application in the activities of state and municipal authorities, investors implementing projects in the field of small business.

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