Evaluation Methodology and Analysis of the Infrastructure of the Business Systems in the Russian Federation

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Abstract. The competitiveness of the national economy is defined by the development of entrepreneurship, small and medium-sized enterprises in particular. It additionally requires friendly environment, simple and clear-cut organization procedures and availability of the well-developed infrastructure in the regions. The institutional infrastructure of the business networks is a key factor in building an efficient system of tools of business stimulation and better adaptation of small and medium-sized enterprises. The article studies the practicality of the infrastructural modernization in the regional businesses and focuses on the methodology of its development within the theory of regionalism. It deals with the range of theoretical issues characteristic of the approach in the framework of the economic science in Russia. The study presents a method of evaluating the infrastructure of business systems and defines the level of infrastructural development of the Russian regions.

1. Introduction

Stimulation of the national economy’s competitiveness is defined by the business development, that of small and medium-sized enterprises in particular, conditioned by the simplicity of starting and winding up a business, as well as by the developed business infrastructure in the regions of the country. Undoubtedly, it is the institutional basis of the business networks infrastructure that plays a key role in forming an efficient system of means responsible for the stimulation of business activity and adaptation of the small and medium-sized enterprises to the market conditions.

Nevertheless, the adaptation of the business network infrastructure to the international regulations and domestic practice in the regions remains a hard task in the short run due to a number of social and political reasons as well as institutional flaws. To a certain extent, it may be explained by the ambiguity of the methodological research base applied to the processes of formation, development and use of the business network infrastructure subject to the regional management and insufficient study in the field of theoretical and methodological approaches to the analysis of correlation between infrastructure and business activity, evaluation of its efficient use and development of the modernization strategy and means of its implementation under the influence of globalization[1].

2. Background

It is needless to say that enterprises perform an important role as the subjects introducing technologies VI and VII of the technological paradigms; however, it is noteworthy that it is the business
infrastructure development that allows the most efficient use of the resource potential and provides for
the competitiveness on the global and interregional markets [2,3].

The relevance of the regional infrastructure in maintaining sustainable economic growth also
originates from the definition introduced by I. Butyrskaya, according to which infrastructure is an
inseparable structural unit of the economic complex of the region providing for the common
conditions of the efficient management of regional development and functioning of all types of
activities within [4]. Thus, each market is characterized by a specific infrastructure defined by the
needs and potential of the region. Among other things, we should not dispute the fact that reforming
and constant improvement of each separate segment of the infrastructure, their compatibility,
correlation and harmonious cooperation would provide for the adequate efficiency of the national
economy market mechanisms [4].

As we study infrastructural development at the regional level, it is necessary to differentiate the
infrastructural elements depending on their initiators that include [5,6]:

1) Local, regional or federal public authorities (employment bureaus, economic councils).
2) Non-governmental organizations (unions, consultative and training centers, information
consulting services, charity funds, etc.).
3) Privately owned capital in the form of business entities (banks, brokers’ boards, leasing
companies and funds, consulting and audit companies and others). The collaborative engagement
of these segments in the form of public-private partnerships (PPP) reinforces the synergetic effect of each
element’s competitiveness.

We maintain the opinion that the infrastructure development of the market and business in
particular, conditioned by the integrative processes, should be initiated on the regional level; for this
reason the problem of discovering the best suitable forms of cooperation between the federal
authorities, their representative bodies and local government administrations remains topical in respect
to the management of the regional infrastructure system. A. Devyatkin states that the quality of the
infrastructure is considered to be one of the determinative factors of territorial development and results
in the qualitative change in the regional economy structure and increase in its competitiveness while
functioning as a facilitator of the regional socio-economic space [7,8].

The infrastructure involved in the business activity can be compared to a musculoskeletal system
(comprised of governmental and non-governmental organizations) responsible for the formation of the
specific institutional environment favorable for business activity and fast adaptation of the business
actors to the market conditions. According to S. Varnaliy and A. Panasyuk, its basic function lies in
creating environment for efficient business activity and solving the problems related to the lack of
knowledge and experience of running businesses and management as well as access to credit and other
information [9,10].

Growing regional stratification and market differentiation urge searching for the ways of molding
the infrastructure of the regional business systems. From A. Laptev’s perspective, there is an
immediate need of transforming the business environment, i.e. infrastructure, so that domestic
businesses could take on the role of a strategic factor and internal source of economic self-
development – primarily, for the purpose of stimulation of efficient business activity [11]. According
to our reckoning, this requires, first of all, harmonization of the business interests with those of the
government and local development priorities in the process of forming the infrastructural sector of the
economy. The regional infrastructure system is in need of transforming certain elements of its
institutional infrastructure in general and certain elements of the market infrastructure of regional
business activity in particular [12,13]. Additionally, this issue has a bigger relevance as it presupposes
correlation of national, regional and business development goals while taking into account the
specifics of the globalization process.

Below, we examine the case of small and medium-sized enterprise (SME) development in foreign
countries.

SME development in the developed world economies goes at a faster pace as governments
recognize the significant role such enterprises play and stimulate their development by various means

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including special support programs and privileges. In many developed economies SME make an important socio-economic stratum representing the middle class, serve the foundation of the steady economic development and provide employment for the majority of the population. In such economies the ratio of the GDP produced by SME equals 50-70% [14,15].

Governmental control and support of SME are usually implemented via the administrative institutional method (direct financing, emergency loans, grants, tax advantages, investment allowances, etc.) and special-purpose program method (the government orders products and services of SME and performs the role of a customer). These methods have the following enabling mechanisms:
• legal framework;
• specialized institutions;
• government programs.

Further on, we will be considering the level of SME development and mechanism of business activity support in a number of economies[16].

The table below shows the statistics reflecting performance of SME in the developed economies with the highest ratio of SME input in the total GDP as well as the data on the SME financing and infrastructure.

| Table 1. Key indicators of SME in the developed economies. |
|-----------------------------------------------|
| **SME ratio in the country’s GDP, %** | **USA** | **Canada** | **Japan** | **Germany** | **France** | **Italy** | **Great Britain** |
|---|---|---|---|---|---|---|---|
| SME ratio in the total, % | 52 | 43 | 51.6 | 57 | 49.8 | 55 | 52 |
| SME ratio in the total of the enterprises, % | 97.6 | 99.8 | 99.2 | 99.3 | 97.6 | 99.2 | 99.1 |

| Financial backing of SME (billion in US dollars) |
|-----------------------------------------------|
| **Infrastructure:** |
| **Credits:** | **Guarantees:** | **Credit and financial services:** |
|---|---|---|
| 1.67 | 3.36 | **There is an active national multi-branch net of banks, funds, investment and insurance companies** |
| **SME development centers** | **Business incubators and technology parks** | **Centers of export marketing activities** |
| 1100 | 330 | 20 |
| 521 | 186 | 15 |
| 313 | 11 | network |
| 374 | 182 | network |
| 600 | 216 | 26 |
| 1200 | 26 | 123 |
| **450** | **471** | **60** |

Small enterprises are the engine of growing business activity in the majority of the economies around the world. Each of the economies has certain peculiarities in terms of SME organization and
operation. They are defined by the macroeconomics, the country’s GDP, political environment inside of the country and on the global arena, domestic and foreign trade and national policy of SME support. The largest ratio of SME input in the national GDP is characteristic of the EU economies as it amounts to over 50% whereas in Russia this index only reaches 13%, i.e. it is five times lower.

3. Focus of the research
The economic necessity and practicality of the business infrastructure modernization in the regions requires elaboration of the methodological basis of its development in the context of globalization and the theory of regionalism. In the national economy such scientific approach remains at the stage of transformation as more and more theoretical problems and tasks arise [17,18].

It is hardly disputable that the formation and development of the national and regional infrastructure is a complex process affected by a number of objective and subjective factors, including institutional support of business activity, available financial resources, social situation of the citizens and science and technology safety of the region’s economy. Systemic approach to the formation and development of the business infrastructure can be implemented in the systemic-functional context, resource-related systemic context and systemic-constructive context [19].

Having undertaken the theoretical and practical study, we have elaborated the further stages of evaluating the infrastructure of businesses.

The first stage is dedicated to finding the place and determining the role of the infrastructure of business structures. The ratio of the infrastructural complex of the business sector in the gross regional product and the ratio of enterprises and organizations of the infrastructural complex can function as the indices in the process of evaluation.

For this purpose, the following criteria should be met:

• The enterprises of the infrastructural complex are selected as per the types of economic activity, i.e. trade companies, transport and communications companies, financial and insurance companies, real estate companies and educational establishments.

• Certain infrastructural indices are defined; for instance, in trade it is the trade turnover per 1 thousand rubles of the GRP (gross regional product) whereas the availability of other infrastructural elements is reflected by the indices as per 1 thousand people.

• The funding ratios of different regions in Russia are calculated as per specific elements of the infrastructure according to the following formula:

\[
K_{ij} = \frac{P_{ij}}{P_i} \quad (1)
\]

where \(K_{ij}\) is the funding ratio of region \(j\) as per the infrastructural element \(i\); \(P_{ij}\) is the index showing condition of the infrastructural element \(i\) in region \(j\); \(P_i\) is the average value of the condition of infrastructural element \(i\) in the region.

The second stage is dedicated to the evaluation of the quantitative representation of the infrastructure. The indices are defined as per the number of the infrastructural elements in the business sector. Such indices include the ratio of the trading companies in the region, the ratio of the transport and communications companies, the ratio of financial and insurance companies and the ratio of educational establishments. The indices (ratios) are calculated as a correlation of the number of the infrastructural enterprises of a corresponding group to the total number of the enterprises.

2. The optimal value (standard) is defined as per each index (ratio).

3. The standardization of the indices is carried out by dividing each of them by the optimal value (standard) according to the following formula:

\[
K_{ij} = \frac{a_{ij}}{r_{efj}} \quad (2)
\]

where \(K_{ij}\) is the standardized indices of the infrastructure of region \(j\); \(a_{ij}\) are the indices (ratios) as per each region; \(r_{efj}\) is the optimal value (standard).
4. The ranking of each region of the Russian Federation is calculated according to the formula:

\[ P_j = \sqrt{\sum_ig_i(1+aij)^2} \] (3)

where \( P_j \) is the ranking of region \( j \); \( g_i \) is the weight coefficient of index \( i \). The weight coefficient is defined as a ratio of the enterprises in the infrastructure of the business sector in Russia[20].

4. Solutions, results and recommendations

The statistic data are used to calculate the values of the indices for the period from 2015 till 2017. The three year period was selected on purpose to find the sustainable features in the infrastructure of the business structures in the midterm. Further on, the mean value of each index is calculated – the average over the three year period.

At the next stage, the average indices are modified by means of linear scaling into the indices ranging from 1 to 100. The minimal index in the scaling process corresponds to the minimal value over the three year period and the maximum index corresponds to the maximum value within the same period. Therefore, after averaging-out the indices, the worst performing region gets the index slightly higher than 1 whereas the best performing region gets the index smaller than 100. The scaling of the indices per each year separately allows for the evaluation of the dynamics of the development in the period under review.

At the final stage, the integrated index – the infrastructural index of SME in the region – is calculated on the basis of the preliminary scaled indices. According to this calculation, the first ten regions in the rating include: Republic of Ingushetia (integrated index of 38,051), Republic of Altai (35,061), Penza Oblast (32,197), Tver Oblast (29,359), Mari El Republic (28,998), Ulyanovsk Oblast. (26,072), Chuvash Republic (25,522), Tambov Oblast. (23,772), Kamchatka Krai (23,580) and Kimerovo Oblast. (23,499).

At the bottom of the rating, there is Arkhangelsk Oblast (14,705), Yamalo-Nenets Autonomous Okrug (13,658), Republic of Tyva (12,970), Nenets Autonomous Okrug (9,053) and Chukotka Autonomous Okrug (6,595).

5. Conclusion

To our reckoning, formation and development of the business infrastructure shall be based on the systemic approach as per each separate industry, according to its goal (function) and structure (hierarchy of the constituent elements). It also presupposes the horizontal and vertical integration characterized by:

1) grouping of the infrastructure elements according to the types of activity while taking into account their purpose (e.g., production, social or institutional infrastructure);

2) the specifics of the economic contents of the infrastructure within the certain areas of the cluster at the different hierarchical levels (e.g. infrastructure of the region, of a separate field, of an enterprise).

It is noteworthy that research of the business environment shall be carried out not only at the national level, but also at the level of regional economy. Unlike the whole nation, a region has a number of minor geographic, social, demographic and cultural peculiarities and more or less stable specialization, which allows defining the relations between the elements of the business system and the impact of the external factors. Due to this fact, it is possible to formalize the interconnections and determine the interdependencies for the purpose of better understanding of the category under study. Essentially, business activity has certain integrated systemic features and consists of:

- business actors in the small, medium-sized and big business;

- interconnections between the actors (production, trade, cooperation in the field of financing, etc.).
- secondary elements of their relations, i.e. business infrastructure (informative, financial and credit, innovative and expert elements);
- internal and external factors (institutional basis of the economy, the governmental system and supranational system, the global economy, specifics of the regional development, conditions on the world markets of goods, services and production resources as well as the unspoken rules and norms).

Development of the business in the region requires growth of the secondary infrastructure and, vice versa, the infrastructure can only be developed if attention is paid to the regional specifics of business activity.

The research of the developmental peculiarities and use of the infrastructure claims special attention in the context of the globalization processes.

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