

Integral Assessment of Innovation Activity in the Municipalities of the Region

Z R Gabitova¹, E V Karavaeva¹, R A Nigmatullina¹, O V Ivanova¹, A I Lebedev¹

¹Ufa State Petroleum Technological University, Ufa, The Russian Federation

E-mail: gula_sh@mail.ru

Abstract. At present, the problem of finding business niches and opportunities within a specific territory, taking into account the current location of the productive forces, natural-geographic, resource, production and other potentials for the development of the region becomes urgent. In this regard, it is necessary to assess the entrepreneurial and innovative potential of specific territories, including from the perspective of favoring the development of small and medium-sized businesses. In the article the authors reveal the essence of the main methods for assessing the innovation activity of the regions: growth poles concept, methodology for drawing up the investment rating of Russian regions, investment newspaper methodology, the methodology for assessing the investment climate of the territory. The purpose of the article is to identify the innovation activity of municipal units in the Republic of Bashkortostan using the integral estimation of innovation activity. A consolidated list of indicators for assessing the management system of MUs is proposed. Comparison of MUs innovation activity indices and innovation policy made it possible to identify 4 groups of MUs. The materials of the article can be useful for local authorities. The development of a municipal unit on the basis of the wide use of technical, technological, organizational, economic and other innovations in various spheres of its life will improve the quality of public services, life quality in the territory of MUs, improve the environmental situation in the MUs, create the developed infrastructure necessary for the functioning of enterprises.

1. Introduction

Innovations play a key role in economical development. They form competitive advantages for enterprises, contribute to the progressive social and economic development of the territories. Innovative activity of the territory is the main factor of its competitive development, and innovative inertia is a factor of its collapse. The innovative economic development is restrained by a number of problems, the main of which is the lack of understanding of innovative development prospects. The need to develop a systemic concept of innovative economic development has become urgent; and in this case formation and further increase in innovation activity of municipal entities become more relevant.

Innovative policy is a set of state and municipal enforcement actions aimed at innovation activity support.

An innovative and active MU is the municipal unit in which the local community, using the material and infrastructure facilities of the territory, develops in the direction of the wide application of new technologies and other innovations, the creation of high-tech jobs, further training of local personnel and the formation of civil society for the welfare of the population of the territory [5].

The innovation activity of MUs is characterized not only by the widespread use of innovations and new technologies in various spheres of their activity, but also by the creation of new high-tech jobs for the production of competitive, high-tech products and the provision of qualitatively new services. Orientation to the use of the latest scientific and technological achievements in the process of high-tech production makes it possible to effectively use available resources in the territory, as well as realize the accumulated innovative potential. The development of municipalities in this direction implies not just the use of various types of innovation in the main spheres of economic entities activity, but the creation of new jobs based on the active use of technical, technological, organizational, economic and other innovations.

2. The integral assessment of innovation activity in the municipal units of the Republic of Bashkortostan

The main law in the field of science and innovation in the Republic of Bashkortostan is the Law of the Republic of Bashkortostan of December 28, 2006 No. 400-z “Innovation activity in the Republic of Bashkortostan” [1]. This legislative act doesn’t stipulate for any norms to define the types of objects and subjects of innovation activity, forms of state regulation, the responsibility of entities and the activity of innovation funds [4].

In the context of the search for entrepreneurial opportunities in the municipal units of the Republic of Bashkortostan, one can talk about the resource (investment, entrepreneurial) potential of the territory, consisting of several private potentials. Each of them, in turn, is characterized by a whole group of indicators:

- natural-resource and tourist-recreational (provision with basic types of natural resources, availability of natural monuments, specially protected natural areas, availability of tourist attractions, etc.);
- demographic and labor (demographic state of the territory, labor resources and their educational level);
- production (aggregate result of the economic activity of the population in the region, the level of industrial, agricultural and constructive development);
- financial (tax base volume, the region’s enterprises profitability and personal income);
- consumer (aggregate purchasing power of the region’s population);
- institutional (development degree of the leading market economy institutions);
- infrastructural (economic and geographic position of the region and its infrastructural security);
- social sphere development (health, education and culture institutions).

Almost all municipalities have programs to support small and medium-sized businesses; 41 municipalities of the Republic of Bashkortostan have adopted or are developing municipal programs (plans) for innovative development of the territory.

The implementation of innovative projects is bound to specific territories that provides municipalities with immediate administrative proximity to investment objects and requires considerable concentration of the functions of administrative intermediaries between the regulatory bodies whose spheres of competence are not under the charge of local administrations.

The level of innovation activity in a particular municipal entity is often not connected with the innovation policy of the relevant government bodies and is not conditioned by it. Moreover, about a third of municipalities do not have municipal programs and innovation-driven development plans at all.

There are good reasons to draw a line between the assessment of innovation activity and innovation policy in municipalities.

At the same time, the assessment of innovation activity is an element of the personal component of entrepreneurship, as it reflects the entrepreneur's ability to innovate (his innovativeness), his propensity for risk.

We propose the following key parameters of innovation activity assessment in the municipalities of the Republic of Bashkortostan:

- quantity of innovatively active entities per 100 thousand people of resident population, units / 100 000 people;
- volume of innovative products per capita, rubles / person;
- innovations costs per capita, rubles / person;
- share of innovations costs in the total volume of shipped products ,%;
- share of products assimilated within 2 years, in the total volume of shipped products,%.

The functioning municipal control structure efficiency study [2] can be built on the filling the matrix shown in Table 1. Therefore, in order to enhance innovation activity formation efficiency and accelerate innovative process development in the MU's territory, such tools of innovation management as reengineering and strategic planning should be used.

Table 1. Consolidated list of indicators for assessing the management system of the MU.

Disadvantages of the management system
The presence / absence of a clear MU concept
Compliance / excess of span of management over chief executive officers (more than 8 subordinates)
Presence / absence of clear subordination ties and their consummation in the order (resolution)
Presence / absence of equal municipal and regional governments' responsibility principle in the periods of recovery
Presence / absence of a conflict between regional and municipal authorities when dealing with personnel issues, reorganizing power structures
Structure centralization assessment
Excessive / insufficient number of administration staff, the presence / absence of scientifically based calculation of the number of employees
Overloading of management personnel with management functions it is not in charge of, the excessive length of the working day
Bureaucratization of the staff: delayed decision-making, long agreement period
A large number of management levels – from ordinary employees to administration chief
Violations of one-man management and management centralism principles in view of the large number of deputies and assistants
Reflection of goals and objectives, modern requirements for economic and social development in MUs, as part of the administration units
Economic (non-economic) structure, insufficient (excessive) management costs
Duplication of management functions by various units and the lack of a clear functional specialization
Management functions are clearly/unclearly distributed between management staff and units
Weak/adequate scientific forecasting and development strategy projects expertise
Absence/presence of a holistic system approach to the analysis of a specific situation
Insufficient/sufficient management computerization

As a rule, the most significant shortcomings in the activities of MUs administrations are: lack of a clear municipal management concept, bureaucratization of administrative staff, excessive or, vice versa, insufficient number of employees in some units, duplication of the management functions of different administrative units, etc. A similar picture is typical for many Russian municipalities. The formation of their innovation activity should begin with management system optimization, that is, with the reengineering of MUs control system.

In order to boost the innovation activity of MUs, legislative mechanisms can also be used (adoption of targeted innovation programs and strategic projects for social and economic development

of MUs, municipal innovation policy, etc.). Of particular relevance is the creation and further development of the legislation regulating the issues of MUs innovation-driven development, consolidating the powers of local governments to stimulate the innovation-driven development of the entities operating in the MUs. Of great importance is the improvement of tax legislation (the introduction of statutory, but absent in tax legislation, tax incentives encouraging innovation activity of entities).

An important mechanism for encouraging the innovation activity of MUs is information mechanism – the creation of information databases of the entities, which carry out innovative and research activities, innovations used, etc. Municipalities can be united on functional grounds for the purpose of information cooperation, experience exchange, joint solution of pressing problems.

To ensure the process of intellectual resources renewal in the territory, local authorities can also use personnel mechanisms (provision of communal services allowances to scientists and workers engaged in innovation sphere, assistance to innovation-active entities and research institutions in solving the housing problem of their workers, cooperation with higher educational institutions in order to upgrade the skills of municipal employees, etc.).

3. Results and its discussion

These indicators were calculated for the municipalities of the Republic of Bashkortostan based on the materials of the republican contest among administrations of municipal and urban districts for the best organization of work on the encouragement of innovation activity.

The regression analysis of the relationship between these indicators and the amount of expenditure on innovations per capita shows a high value of the deterministic coefficient ($R^2 = 0.63$) that means that the amount of innovations costs per capita depends on the selected indicators.

The comparison of the MUs innovation activity and innovation policy indices is shown in the figure. As can be seen from the figure, four MUs groups are distinguished:

Group 1 – with below the average indices of innovation policy and innovation activity (56 MUs);

Group 2 – with an innovation policy indices below the average level, but with an innovation activity index above the average level (2 MUs);

Group 3 - one MU with an innovation policy index above the average and an innovation activity index below the average;

Group 4 - one MU with the values of both indices above the average.

MUs group 1 can be designated as innovatively depressive, 2 – as innovatively potential, 3 – as innovatively active and 4 – as innovatively inefficient.

The grouping of municipal entities of the Republic of Bashkortostan by the integral development level index, entrepreneurship development potential, innovation activity, innovation policy is following:

Group 1 (46 MUs): potential, entrepreneurship development level, innovation activity and innovation policy index is below the average level: Abzelilovsky, Alcheevsky, Arkhangelsk, Askinsky, Aurgazinsky, Baimaksky, Bakalinsky, Baltachevsky, Belokotayskiy, Bizhbulyaksky, Buraevsky, Birsky, Blagovarsky, Blagoveshchensky, Burzyansky, Gafuriyevsky, Davlekanovskiy, Dyurtyulinsky. Duvansky, Yermekeevsky, Zianchurinsky, Zilairsky, Iglinsky, Ilishevsky, Ishimbaysky, Kaltasinsky, Karaidelsky, Karmascalinsky, Kiginsky, Krasnokamsky, Kugarchinsky, Kushnarenkovsky, Kuyurgazinsky, Mechetlinsky, Mishkinsky, Miyakinsky, Nurimanovsky, Salavatsky, Sterlibashevsky, Tatyshlinsky, Ufimsky, Fedorovsky, Khaybullinsky, Chekmagushevsky, Chishminsky, Sharansky.

Group 2 (2 MUs): potential, entrepreneurship development level, innovation activity and innovation policy index is below the average, whereas innovation activity index above the average: the city of Salavat; Belebeevsky district.

Group 3 (10 MUs): entrepreneurial development level index is above the average, entrepreneurial potential, innovation policy and innovation activity indices are below the average: Beloretsky,

Buzdyaksky, Meleuzovsky, Tuimazinsky, Uchalinsky, Yanaulsky, the cities of Agidel, Oktyabrsky, Sibay, Sterlitamak.

Group 4 (1 MU): entrepreneurship development and innovation policy levels indices are above the average, entrepreneurial potential and innovation activity indices are below the average level: Neftekamsk;

Group 5 (1 MU): development level, entrepreneurial potential, innovation policy and innovation activity indices are above the average: Ufa.

Conclusion

Thus, local authorities are able to influence innovations development in the territory. The development of the municipal unit on the basis of the wide use of technical, technological, organizational, economic and other innovations in various spheres of its life will improve the quality of public services, living standards in the territory of MUs, improve the environmental situation in MUs and create developed infrastructure necessary for the operation of enterprises, ensure and intensify municipalities' innovation activity. This requires an active position of the local authorities on the creation of institutional conditions in which it will be possible to form and develop innovation activity of MUs.

Innovation policy indicators for the municipal units of the Republic of Bashkortostan should include:

- 1) organizational:
 - management structure effectiveness;
 - creation of information databases of the entities engaged in innovation and research activities and innovations used;
 - number of innovation infrastructure objects;
 - creation of an expert (innovative) council under MUs administration;
 - number of conferences, meetings and seminars held on innovation issues;
 - number of publications in the mass media;
 - etc.
- 2) Regulatory:
 - availability of programs (plans) for municipal development;
 - introduction of tax incentives encouraging innovation activity of entities;
 - etc.;
- 3) encouraging:
 - placing an order for goods, works, innovative services for municipal needs;
 - the amount of funds allocated for the implementation of innovation-driven development programs (plans);
 - the amount of local budget funds aimed at the implementation of investment and innovation projects.

References

- [1] Law of the Republic of Bashkortostan of December 28 2006 No 400-z "Innovation Activity in the Republic of Bashkortostan"
- [2] Valtukh K K , Dynkin A G, Granberg A A 2005 Innovation-driven and technological development of the Russian economy: problems, factors, strategies, forecasts: monograph et al. ex. ed. V V Ivanter *Moscow: MAKS Press* 592
- [3] Ugryumova A A , Medvedeva E I, Kroshilin S V 2012 Innovative economy in the regional society: monograph (Kolomna)
- [4] Kobzeva A Yu, Chernukha D S 2016 Resource supply of innovative economy in the region (the case of the Republic of Bashkortostan) *Molodoy Uchyonyy* **12** 1285-1290
- [5] Naumov I V 2004 The concept of formation and growth of municipalities' innovation activity Ekaterinburg: Institute of Economics, the Ural branch of Russian academy of sciences 79
- [6] 2017 Science and information technologies in the Republic of Bashkortostan: statistical

- collection *Ufa: Bashkortostanstat* 90
- [7] Degtyarev A N, Solodilova N Z, Tayupov R I 2010 Monitoring of innovation activity in the Republic of Bashkortostan *Economics and management: scientific and practical journal* **1** 62-69
- [8] Solodilova N Z, Malikov R I, Grishin K E 2017 Institutional configuration of the regional business environment *Economic Policy* vol 12 **3** 134-149
- [9] Solodilova N Z 2008 Conditions and factors of innovation-driven development of the region *Economics and management: scientific and practical journal* **3** 109-114
- [10] Solodilova N Z 2010 Principles and methods for selecting priorities for scientific, technological and innovation-driven development of the region In the book: Socio-economic risks: diagnosis of causes and predictive scenarios of neutralization
- [11] Korovkin A G, Dolgova I N, Korolev I B, Nizhegorodtsev R M, Kuklin A A, Agarkov G A, Albrecht E G, Bystray G P, Vasilyeva E V, Gurban I A, Denisova O A, Dushin A V, Makarova I V, Mezentseva E S, Naydyonov A S, Nekrasova E V, Nikulina N L, Pavlov B S, Pykhov P A, Romanova O A et al. Edited by V A Chereshev, A I Tatarkin 2010 (Ekaterinburg) 465-476
- [12] Solodilova N Z, Degtyarev A N, Tayupov R I, Kazykhanov R R The forecasting of scientific, technical and innovation-driven development of the region (the case of the Republic of Bashkortostan) In the book: Forecasting the socio-economic development of the region
- [13] Tatarkin A I, Chereshev V A, Glaziev S Yu, Romanova O A, Kuklin A A, Agarkov G A, Bystray G P, Litovsky V V, Shorikov A F, Chistova E V, Gurban I A, Denisova O A, Krutikova M A, Naidenov A S, Nekrasova E V, Nelyubina T A, Nikulina N L, Pykhov P A, Suvorova A V, Vasilieva A V 2011 Russian Academy of Sciences, Institute of Economics of the Ural Branch of the Russian Academy of Sciences, Institute of Immunology and Physiology of the Ural Branch of the Russian Academy of Sciences (Ekaterinburg) 971-1013
- [14] Solodilova N, Malikov R, Sabirova R 2013 Formation of tools for infrastructural support of entrepreneurial activity *Society and Economics* **1-2** 188-200
- [15] Shaykhutdinova G F, Nikonova S A, Karachurina R F, Sharipova I M, Korotkova L N, Sultanova L F 2017 Stimulating of entrepreneurs' innovative activity in the republic of Bashkortostan *Journal of Fundamental and Applied Sciences* **9** **7S** 1005-1015
- [16] Strategy of innovation-driven development of the Russian Federation for the period up to 2020 <http://www.rusnor.org/pubs/reviews/7456.htm>
- [17] Lebedev A, Usmanov I, Matveeva L, Shcherbakov A, Shaikhudinova G, Kepin D 2018 Cultural heritage sites in the russian southern Urals landscape: rational maintenance aspects *Terra Sevus* **10** 425-440
- [18] Zakirova I R, Zainasheva Z G, Shaikhutdinova G F, Ibragimova N U, Korotkova L N, Mukhametova D D 2018 A modern approach to comprehensive competitive potential assessment for service providers *International Journal of Engineering and Technology(UAE)* **7** **4.36** 209-212
- [19] Shaikhutdinova G F, Zhidkova E V, Minisheva L V, Nikonova S A, Sharipova I M 2015 Actual problems of youth entrepreneurship at the modern stage *Journal of Advanced Research in Law and Economics* vol 6 **2** 378-385
- [20] Ford D, Paladino A 2013 Enabling innovation through strategic synergies *Journal of Product Innovation Management* **30(5)** 821-836
- [21] Laukkanen M, Patala S 2014 Analysing barriers to sustainable business model innovations: Innovation systems approach *International Journal of Innovation Management* **18(6)**
- [22] Tidd J 2014 Conjoint innovation: Building a bridge between innovation and entrepreneurship *International Journal of Innovation Management* **18(1)**