

INNOVATIVE ACTIVITIES OF SMES¹ OF THE CROSS-BORDER REGIONS (LATVIA-LITHUANIA-BELARUS)

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Abstract

Innovative activity of small and medium-sized enterprises is one of the factors for effective business. The aim of the article is to determine the innovative activities of small and medium-sized businesses in the frontier regions of Latvia (Latgale region), Lithuania (Vilnius region, Alytus region, Utena region, Panevezys region, Kaunas region), Belarus (Vitebsk region, Grodno region, Minsk region, Mogilev region). The novelty of the research has a cognitive character: the authors have determined the level of innovation potential for small and medium-sized enterprises in the regions, which is characterized by a complex of various resources, the amount of the production of innovative product and innovative technology, service in the regions, the branch structure of innovations in the regions, dominance of certain models of innovative entrepreneurship on the basis of innovative process organization in the companies located in the frontier regions has been established. The following methods are used for the research: logical analysis and synthesis, monographic and analytical method for studying economic theoretical and empirical sources of the international level, quantitative and statistical methods of data processing – frequency analysis, sampling; for the collection of the initial primary data the instrument of questionnaire was used.

Key words: Innovative entrepreneurship, innovation potential, cross-border regions.

Introduction

Innovative entrepreneurship is a process of creation and commercial use of technical and technological innovations. One of the tasks for the entrepreneurs is to reform the production process by the implementation of inventions, but in a broader sense – by the use of new technological combinations for the production of either new or the same product, but using a new method, thanks to the discovery of new raw material source or new market for finished products – up to the reorganization of the previous one or the establishment of a new branch of industry (Шумпетер, 1982).

The aim of the article is to determine the innovation potential of small and medium-sized enterprises, which is characterized by a complex of various resources, as well as to define the models of innovative entrepreneurship and the branch structure of innovations in the frontier regions.

In order to achieve the aim, it was necessary to solve the following tasks: to choose a corresponding research methodology, to describe the methods of collection and processing of empirical data, as well as research limitations.

Materials and Methods

According to a narrow interpretation, innovations mean: a radical updating (invention), technological product, innovative process. According to Porter (Porter, 1990), innovations can be defined in a broader sense, i.e., they include advancements in technologies, methods or ways of operation, which may result in the changes in the products, technologies, new marketing approaches, etc. A broader interpretation of

innovations may include also those changes, which are new for a certain company despite the fact that other companies have already implemented such changes. The authors give preference to a broader approach to innovations as it allows to focus on the study of the frontier regions in periphery (Storhmmar, 2003). Small and medium-sized enterprises give a strong impulse for the increase of employment and economic growth in the regions due to their innovative activity (Keizer, 2002). Innovative activity is one of the most important means with the help of which small and medium-sized enterprises foster economic growth – innovations are even more crucial for small and medium-sized companies than for large companies (Fritz, 1989).

Innovations serve as a specific entrepreneurship instrument, which is aimed at the search for novelties. “Entrepreneurs are distinguished by the innovative way of thinking. Innovativeness is a special entrepreneurship instrument” (Дрыкер, 1992). Innovative potential of an enterprise is necessary in order to carry out innovative activity, which is characterised as a complex of various resources.

Innovation – it is a new or significantly improved product or service at the market (BIS..., 2014).

Product innovation – it is an innovation involving the creation and subsequent introduction of new or improved products (goods), or already implemented in the production practice of other enterprises and distributed through the technological exchange (non-patent licenses, consultations) and ensuring the growth of profits, broadening of market share, maintenance of clients and increasing prestige. Incremental innovations are modifications of already

¹ Small and medium-sized enterprises

existing platforms and products. Radical innovations are products, which are new both to the market and to the company (Jovanović et al., 2008).

Technology innovation – it is an innovation involving elaboration and implementation of either new, or considerably improved production processes which provide for the application of new production equipment, new methods for the organization of the production process or a set of these methods aimed to raise the productivity of labour and the economy of resources which, in turn, allows to increase the profits of a commercial organisation, improve the labour safety, and ensure the effective use of intra-company information systems.

In the glossary of the Central Statistical Bureau of Latvia, there is a following definition of innovation: «An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the enterprise» (Economically..., 2015).

Depending on the opportunities and strategic goals, the enterprise may purchase innovations from the other party or develop them itself. In the first case, it is recommended to establish a strategic partnership with specialized scientific research or designing organization. In the latter case, it is preferable to organize own specialized innovative subdivisions.

Thus, on the basis of the ways of organizing the innovative process in the company, three models of innovative entrepreneurship can be distinguished:

- 1) innovative entrepreneurship on the basis of the internal organization, when an innovation is created and adopted within the company by its specialized subdivisions on the basis of planning and monitoring of their interaction within the innovative project;
- 2) innovative entrepreneurship on the basis of the external organization by the way of contracts, when an order to create and adopt innovations is placed among the outside organizations;
- 3) innovative entrepreneurship on the basis of the external organization, when the company founds subsidiary venture capital companies which attract additional external financing.

The basic data for the analysis of the cooperation among small and medium-sized companies in the researched frontier regions are collected with the help of the survey of 620 entrepreneurs of small and

medium-sized businesses in the frontier regions of Latvia (Latgale region), Lithuania (Vilnius region, Alytus region, Utena region, Panevezys region, Kaunas region), Belarus (Vitebsk region, Grodno region, Minsk region, Mogilev region) within the period from April to July, 2014². The survey was made in the basic languages of communication in the regions: in Latvian and Russian for Latvia, in Lithuanian – for Lithuania, and in Russian for Belorussia. The design of sample according to the type of selection – combined, according to the method – unrepeated, according to the way of sampling – stratified by the main directions of the research. The survey was carried out anonymously with the help of a questionnaire available in paper format, as well as on-line on the internet.

During the working process with the database in SPSS programme, the data of the questionnaire were subjected to weighting according to the main directions of stratification; as the result, the deviations of the parameters of sample from the parameters of general population made up less than 6%. One of the limitations of the empirical study is different methodological approaches for the determination of the scale of business in the EU and Belarus; therefore, the EU criteria (Department..., 2015) were used for weighting sample of the enterprises in the regions of Lithuania and Latvia, but in the regions of Belarus – criteria established by the legislation of the Republic of Belarus (Законодательство..., 2015), as weighting is based on the statistical data, but the subsequent analysis of the obtained data from the questionnaire is based on the EU methodology. The method of frequency analysis was used for data processing.

Results and Discussion

Results

It was found that all the regions have most of the difficulties with financial potential of small and medium-sized enterprises. In *Vilnius region* difficulties with financial resources were found (11.3% of the enterprises “have a shortage” or “have an absolute shortage” due to the ineffective exploitation in 1.2% of the enterprises), 9.2% of the enterprises have a shortage in temporary resources due to the ineffective exploitation in 1.2% of the enterprises, 1.2% of the enterprises have a shortage in human resources, although they are exploited effectively. Other resources are also exploited effectively.

In *Alytus region* difficulties with financial resources were found (29.3% of the enterprises “have a shortage” or “have an absolute shortage” at the effective exploitation in all the enterprises), 11.7%

2 The survey done within the framework of the project „The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus „European Neighbourhood and Partnership Instrument 2007-2013”

of the enterprises have a shortage of technological resources due to the ineffective exploitation in 2.6% of the enterprises, 2.7% of the enterprises have a shortage in human resources, 2.6% of the enterprises have a shortage in temporary resources. The effectiveness of exploitation of human, energy, finance, information, and temporary resources are rather high.

In *Utena region* 12.3% of the enterprises have difficulties with financial resources, 5.3% of the enterprises have a shortage in human resources, 3.9% of the enterprises have a shortage in temporary resources, 2.9% of the enterprises have a shortage in energy and technological resources. 2.9% of the enterprises exploit information resources ineffectively. The effectiveness of exploitation of human, energy, finance, technological, and temporary resources are rather high.

In *Panevezys region* most of the difficulties concern financial resources: 32.2% of the enterprises "have a shortage" or "have an absolute shortage", 9.1% of the enterprises have a shortage in temporary resources, 6.5% - technological, 3.7% - information, 1.9% - human resources. However, the effectiveness of exploitation of all the resources is rather high (except information resources – 5.8% of the enterprises exploit them ineffectively).

In *Kaunas region* there are no serious problems neither with resources nor with their effective exploitation. Very slight difficulties are observed concerning financial resources: 7.2% of the enterprises "have a shortage" or "have an absolute shortage", 6.7% of the enterprises have a shortage in temporary resources, 5.1% - energy and information resources, 4.2% - technological resources. The effectiveness of exploitation of all the resources is very high.

Thus, the enterprises in *Latgale*, as well as in *Belorussian regions* have serious difficulties both with the resource potential, and with the effective exploitation of resources. In the *regions of Lithuania* there is the most advantageous situation with the effective exploitation of resources, as well as with the resource potential.

Depending on the opportunities and strategic goals, enterprises are either developing innovations on their own by establishing own specialized innovative subdivisions, or purchasing innovations from the other party by establishing strategic partnership with specialized scientific research or designing organization.

The authors have found that innovative entrepreneurship *on the basis of internal organisation*, when innovations are created and (or) adopted within the company by its specialized subdivision on the basis of planning and monitoring of their interaction within the innovative project is characteristic in the

following regions: the answers "partially agree", "agree", and "totally agree" to the corresponding questions were received from 67.8% of the enterprises in *Latgale region*, 69.4% of the enterprises in *Kaunas region*, 43.6% of the enterprises in *Utena region*, 62.4% of the enterprises in *Vilnius region*, 33.6% of the enterprises in *Alytus region*, 39.9% of the enterprises in *Panevezys region*, 46.6% of the enterprises in *Vitebsk region*, 24.6% of the enterprises in *Grodno region*, 23.9% of the enterprises in *Minsk region*, 58.7% of the enterprises in *Minsk*, and 67.9% of the enterprises in *Mogilev region*. An important precondition for success here is the level of scientific treatment, its perception at the market, knowledge about the potential customers and clients, availability of team members with innovative management skills.

Innovative entrepreneurship *on the basis of the external organization by the way of contracts*, when an order to create and (or) adopt innovations is placed among the outside organizations is characteristic in the following regions: the answers "partially agree", "agree", and "totally agree" to the corresponding questions were received from 38% of the enterprises in *Latgale region*, 51.1% of the enterprises in *Kaunas region*, 28.6% of the enterprises in *Utena region*, 36.3% of the enterprises in *Vilnius region*, 12.3% of the enterprises in *Alytus region*, 16.3% of the enterprises in *Panevezys region*, 22% of the enterprises in *Vitebsk region*, 15.2% of the enterprises in *Grodno region*, 38.3% of the enterprises in *Minsk*, and 67.3% of the enterprises in *Mogilev region*.

Venture enterprises³ are functioning mainly on the stages of the development of a new product or technology. They assess market perspectives of innovations at the development stage, but, as a rule, they are not dealing with the production or organization of the production of products, but deliver a final product to large companies. The foundation of venture companies implies availability of the following components: innovation ideas, public demand and venture capital for financing (own or external capital). Innovative entrepreneurship *on the basis of external organization with the help of ventures* is characteristic in the following regions: the answers "partially agree", "agree", and "totally agree" to the corresponding questions were received from 25% of the enterprises in *Latgale region*, 31.9% of the enterprises in *Kaunas region*, 10.5% of the enterprises in *Utena region*, 10.2% of the enterprises in *Vilnius region*, 6.1% of the enterprises in *Alytus region*, 2.1% of the enterprises in *Panevezys region*, 14.8% of the enterprises in *Vitebsk region*, 11.7% of the enterprises in *Minsk region*, 14.7% of the enterprises in *Minsk*, and 50.5% of the enterprises in *Mogilev region*.

³ Companies with „a high risk level”

Table 1

Number of enterprises by regions having 5 to 75% of innovative product or service (percent)⁴

Region	Latgale Region	Vilnius Region	Alytus Region	Utena Region	Panevezys Region	Kaunas Region	Vitebsk Region	Grodno Region	Minsk region	Minsk	Mogilev Region
A	6.3	8	0	0	44.4	7.8	0	5.8	7.9	1.7	2.3
B	0	0	0	0	0	0	2	0	0	0	0
C	9.4	2	0	0	0	9.8	25.5	9.6	31.7	6.8	9.1
D	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	1.6	0	0
F	7.8	6	0	0	11.1	7.8	2	9.6	15.9	3.4	9.1
G	26.6	20	33.3	0	44.4	27.5	21.6	40.4	17.5	52.8	45.5
H	1.6	2	0	0	0	9.8	3.9	3.8	4.8	2.8	4.5
I	1.6	3	0	0	0	2	2	1.9	0	1.1	4.5
J	10.7	2	0	0	0	9.8	2	1.9	0	2.3	11.4
K	1.6	0	0	0	0	0	0	0	0	1.7	0
L	10.9	40	66.7	100	0	15.7	0	5.8	0	0	0
M	7.8	6	0	0	0	0	2	0	0	0	0
N	0	0	0	0	0	3.9	2	1.9	0	1.7	0
O	0	0	0	0	0	0	7.8	7.7	0	6.3	0
P	6.3	4	0	0	0	3.9	11.8	0	0	5.7	2.3
Q	1.6	3	0	0	0	2	3.9	0	3.2	1.7	2.3
R	0	0	0	0	0	0	0	0	0	0	0
S	7.8	4	0	0	0	0	13.7	11.5	17.5	11.9	9.1

Source: authors calculations in SPSS according to the survey data in 2014 within the project „The Establishment of the United Entrepreneurship Support and Networking System for the Sustainable Latvia, Lithuania and Belarus Cross Border Cooperation” (B2B) funded by the cross-border cooperation programme Latvia-Lithuania-Belarus „European Neighbourhood and Partnership Instrument 2007-2013”.

It was found that the share of innovative product in the revenue of the enterprise in Vilnius region makes up 31.6%, in Mogilev region – 26.8%, Kaunas region – 26.4%, Utena region – 25.4%. Slightly lower indicators are in Panevezys region – 20.7%, Latgale region – 18.9%, Alytus region – 16.8%, Minsk – 15.2%. The smallest share of innovative product in the revenue of the enterprise have the enterprises in Vitebsk region – 10.2%, Grodno region – 8.1% and Minsk region – 7.4%.

Concerning the branch structure of innovations, the authors have found that the largest development of innovations is characteristic for wholesale and retail trade and car and motorcycle repair (G): from 5 to 75% of innovative product or service have the companies in Minsk – 52.8%, in Mogilev region – 45.5%, in Panevezys region – 44.4%, in Grodno region – 40.4%, in Alytus region – 33.3%, in Kaunas region – 27.5%, in Latgale region – 26.6%, in Vitebsk region – 21.6%, in Minsk region – 17% of the companies. Further,

according to the level of innovation development, comes the branch of real estate operations (L): from 5 to 75% of innovative product or service have all the companies in Utena region, in Alytus region – 66.7% of the companies, 40% of the companies in Vilnius region, in Kaunas region – 15.7%, 10.9% of the companies in Latgale region, 5.8% of the companies in Grodno region. Next comes the branch of manufacturing industry (C): from 5 to 75% of innovative product or service have 31.7% of the companies in Minsk region, 25.5% of the companies in Vitebsk region, 9.6% of the companies in Grodno region, 9.8% of the companies in Kaunas region, 9.4% of the companies in Latgale region, 9.1% in Mogilev region, 6.8% of the companies in Minsk. Innovations in agriculture, forestry, fisheries are more developed in Panevezys region – 44.4% of the companies have from 5 to 75% of innovative product, next comes Minsk region – 7.9% of the companies have from 5 to 75% of innovative product, then Kaunas region –

4 (A) Agriculture, forestry, fisheries, (B) Mining industry and opencast pit management, (C) Manufacturing industry, (D) Electric energy, gas supply, heat supply and air conditioning, (E) Water supply; management and treatment of sewage and waste, (F) Construction, (G) Wholesale and retail trade; car and motorcycle repair, (H) Transport and storage, (I) Accommodation and catering industry (hotels, etc.), (J) Information and communication services, (K) Financial and insurance activities, (L) Real estate operations, (M) Professional, scientific and technical services, (N) Activity of administrative and maintenance services, (O) State administration and security; obligatory health insurance, (P) Education, (Q) Health and social care, (R) Art, entertainment and recreation, (S) Other services.

7.8%, Latgale region – 6.3%, Grodno region – 5.8%. Innovations exist also in construction (F): the leader is Minsk region – 15.9% of the companies have from 5 to 75% of innovative product, in Panevezys region 11.1% of the companies have from 5 to 75% of innovative product, in Grodno region 9.6% of the companies have from 5 to 75% of innovative product, in Mogilev region 9.1% of the companies have from 5 to 75% of innovative product, 7.8% of the companies in Kaunas and Latgale region have from 5 to 75% of innovative product. In Vitebsk region the sphere of education (P) has also an innovative character: 11.8% of the companies have from 5 to 75% of innovative product or service. In the sphere of information and communication services (J) 11.45% of the companies in Mogilev region have from 5 to 75% of innovative product, in Latgale region 10.7% of the companies have from 5 to 75% of innovative product, in Kaunas region 9.8% of the companies have from 5 to 75% of innovative product (see Figure 1).

Discussion

The notions of „innovations” and „innovative activity” are rather vague, not very clear: “An innovation is a new or significantly improved product or service on the market”. How does a significantly improved product or service differ from slightly improved product or service? Is there any difference between the notions “a new product” and “an innovative product”? Thus, the criteria for the assessment of innovations and innovative activity are also vague and unclear; they require deeper clarification and detailed elaboration. Because of the unclarity of the above mentioned definitions, there arises a question about the objectivity of the assessment of innovations and innovative potential of small and medium-sized enterprises in the scientific researches. In Latvia, according to the data from 2008 to 2010, on average 31.7% of the companies are innovative, among the small-sized enterprises – 28.4% of the companies, among the medium-sized enterprises – 36.9% of the companies, among the large-scale enterprises – 66.1% of the companies (Number., 2015), in the UK in 2013 on average 44% of the companies are innovative (Fritz, 1989). Therefore, the assessment of the number of innovative companies in the frontier regions by the authors of the research (with the indicated limitations) is rather adequate, introducing specification of the number of innovative companies in the small frontier regions. Predominance of the innovative entrepreneurship on the basis of the internal organization, considering

the problems with the resources, in all the frontier regions (irrespective the location in various states), probably, is not the most effective. It would be more logical to develop entrepreneurship on the basis of the external organization by the way of contracts, which would allow in part to merge the resources and to avoid shortages. Venture business in the frontier area is poorly developed (with the exception in several regions) – it is clear, there are few resources, very high degree of risk irrespective the support from business incubators and other instruments.

The data obtained by the authors conform to the researches done by other researchers, in which the second variant is more characteristic for the countries of the former Soviet Union and Russia, while in the countries with the developed innovative economy more predominant is the variant of the attraction of venture resources.

Conclusions

1. For the objectivity of the researches, the definitions of the main notions in the research field such as „innovations” and „innovative activity” require deeper clarification and detailed elaboration.
2. The existence of serious difficulties both with resource potential and with its effective exploitation is established for the enterprises in Latgale and Belarus, the enterprises in the regions of Lithuania are in the most advantageous situation with the effective exploitation of the resources as well as resource potential. The problem of small and medium-sized enterprises, which have rather serious intellectual potential, as a rule lies in the fact that in order to create sophisticated patterns, they need expensive material and technical base.
3. The authors have discovered that the innovative entrepreneurship on the basis of the internal organization predominates among small and medium-sized enterprises almost in all the regions. However, there are some exceptions – the models of innovative entrepreneurship on the basis of the external organization by the way of contracts and innovative entrepreneurship on the basis of the external organization with the help of ventures are more developed in the enterprises of Mogilev and Kaunas region.
4. The research on the branch structure of innovations has revealed that business prefers to be engaged in those fields that guarantee profits, for example, trade, real estate than to invest financial resources in the high-risk innovation projects.

References

1. Fritz W. (1989) Determinants of product innovation activities. *European Journal of Marketing*, 23(10), pp. 32-43.

2. Keizer J., Dijkstra L., Halman J. (2002) Explaining Innovative Effort of SMEs. An exploratory survey among SME in the mechanical and electrical engineering sector in the Netherlands'. *Technovation*, 22, pp. 1-13.
3. Porter M. (1990) *The Competitive Advantage of nations*. London: Macmillan, pp. 12-20.
4. Storhammar E., Virkkala S. (2003) The emergence of innovation strategy and local milieu: theoretical starting points for empirical study. *43th Congress of The European Regional Science Association*. Jyväskylä, Finland, pp. 27-30.
5. Sweeney G. (1983) *New Entrepreneurship and the Smaller Firm*. Campus, Frankfurt, New York, pp. 54-61.
6. BIS PERFORMANCE INDICATORS. Proportion of firms who are innovation active OCTOBER 2014. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/367675/Proportion_of_firms_who_are_innovation_active_Oct_2014.pdf, 9 January 2015.
7. Economically active statistical units by statistical region, city and district 2004-2008. Available at: http://data.csb.gov.lv/pxweb/en/uzreg/uzreg__ikgad__01_skaits/?tablelist=true&rxid=6d80318d-abbe-49fb-ae7b-81c644d38214, 9 January 2015.
8. Department of Trade and Industry Website: Small and Medium Enterprise (SME) Statistics - Definitions. Available at: www.dti.gov.uk/SME4/smehome.htm, 9 January 2015.
9. Законодательство Беларуси. Правовая библиотека: Закон Республики Беларусь от 16.10.1996. N685-XIII «О государственной поддержке малого предпринимательства в республике Беларусь» (Legislation of the Republic of Belarus - Act No. 685/XIII of 16 October 1996 on State support to small enterprise). Available at: <http://old.bankzakonov.com/rep2010/vse15/str21n.htm>, 9 January 2015.
10. Number of innovation cooperations as a percentage of innovative enterprises by type of partner, 2008–2010.
11. Number and share of innovative enterprises by type of innovation. Available at: http://data.csb.gov.lv/pxweb/en/zin/zin__inovac/IN0040.px/table/tableViewLayout1/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8, 9 January 2015.
12. Allocation of science and research funding 2011/12 to 2014/15. Available at: <https://www.gov.uk/government/publications/allocation-of-science-and-research-funding-2011-12-to-2014-15>, 9 January 2015.
13. Друкер П.Ф. (1992) Рынок: как выйти в лидеры (How To Become Leaders, Practice and Principles). Практика и принципы: пер. с англ. / П.Ф. Друкер. –М.: Бук Чембер Интернешнл, 351 с. (in Russian).
14. Шумпетер Й. (1982) *Теория экономического развития* (Theory of Economic Development). М.: Прогресс. (in Russian).
15. Jovanović A., Zakić N., Stamatović M. (2008) External and Internal Factor Affecting the Product and Business Process Innovation. *Economics and Organization* Vol. 5, No 1, 2008, pp. 17-29.