

Anna LEWANDOWSKA¹
Mateusz STOPA²

INNOVATION STRATEGIES IN SMEs. SOME EVIDENCE FROM THE CASE OF PODKARPACKIE, POLAND

The aim of this paper is to provide a detailed account of the strategy for growth through innovation of the SME's sector in Podkarpackie Voivodship in Poland. In analyzing this case, we raise the following two questions: (1) what are the types, structure, and quality of innovation strategies of SMEs in Podkarpackie?; (2) what are the key factors and dynamics leading and limiting to innovation activity, as well as to the growth of this innovation strategy?

Generally, there are three theoretical types of innovation strategies: a. creation, b. interaction and c. reaction. In the first case innovation is a natural and internal type of thinking about company development. Interaction describes innovation as strategic resource of the company. The 'reaction' type is for these companies that treat innovation as external compulsion. The type of innovation strategy is determined by quantity and quality of innovations implemented: numerous and original innovations indicate the strategy we call "creation" while the opposite results in quantity and quality are more likely typical for "reaction" type.

The empirical bases for the analyses are derived from various sources: historical documents, statistical data, and in-depth interviews with key individuals in SME's. The analysis presented in this article is the result of CATI carried out among 419 out of 820 enterprises researched in the project.

Keywords: innovation, innovation strategies, SMEs, entrepreneurship, Podkarpackie Voivodship

1. INTRODUCTION

Innovations are considered to be one of the most progressive determinants of socio-economic growth, also in the territorial, regional and local perspective^{3,4,5,6,7}. The high level of innovation has a positive impact on productivity at the firm level [business per-

¹ Anna Lewandowska PhD, Department of International Economic Relations, University of Information Technology and Management, 35-225 Rzeszów, ul. Sucharskiego 2, e-mail: alewandowska@wsiz.rzeszow.pl

² Mateusz Stopa, PhD, Department of Social Sciences, University of Information Technology and Management, Rzeszow, Poland

³ I. R. Petrariu, R. Bumbac, and R. Ciobanu: *Innovation: a path to competitiveness and economic growth. The case of CEE countries*, Theoretical and Applied Economics, Vol. 20, No. 5, 2013, pp. 15-26.

⁴ J. Priede and E.T. Pereira: *Innovation as a key factor in the international competitiveness of the European Union*, European Integration Studies, No. 7, 2013, pp. 212-221.

⁵ Bottazzim, L. and G. Peri: *Innovation and spillovers in regions: Evidence from European patent data*, European Economic Review, Vol. 47, 2003, pp. 687-710.

⁶ P. Niedzielski, I. Jaźwiński: *Absorpcja i dyfuzja innowacji jako czynnik intensyfikujący rozwój regionalny*, Zeszyty Naukowe WSZ „Oeconomicus” PTE w Szczecinie „Gospodarka – rozwój i zmiany” 2002, No. 2.

⁷ R. Sternberg and O. Arndt: *The firm or the region: What determines the innovation behavior of European firms?*, Economic Geography, Vol. 77, 2001, pp. 364-382.

formance⁸] and consequently also on the economic results at regional or national level [economic performance⁹].

The aim of this paper is to contribute to a greater understanding of the research on strategy for growth through innovation in peripheral regions by providing a detailed account of the case of the SME's sector in Podkarpackie Voivodship in Poland. In analyzing this case, we raise the following two questions: (1) what are the types, structure, and quality of innovation strategies of SMEs in Podkarpackie?; (2) what are the key factors and dynamics leading and limiting to innovation activity, as well as to the growth of this innovation strategy?

2. LITERATURE REVIEW

There are different perspectives on what is and what is not an *innovative activity* and how *innovativeness* can be stimulated (what are a *determinants of innovation*)^{10,11}.

According to GUS (Central Statistical Office in Poland), and according to international statistics – innovation is: “introducing into the market a new or better product, as well as introducing a new process or updated process of production, with the product or process new from the perspective of enterprise that implements it”¹².

A modern way to perceive innovation moves away from perceiving it as the only one event, but a complex of events or phenomenon that make new patterns, goods or technologies in the area of production and services. Innovations are made in the specified expanse with a system of linkages¹³, that is called *innovation system*. It contains production and scientific sub-systems, institutional solutions and interdependent relationships among them¹⁴. They are characterized by the level of innovativeness of the particular region¹⁵.

In a broad sense, innovation is positive change, which is effective from the point of view of economic and financial accounts, and as a result - the competitiveness of enterprises.

Investment in innovation cannot be easily defined. It is impossible to say that investment in innovation is, for example, the purchase of technology or a new device. So as to form an innovation, it is necessary first of all to implement or contribute to the implemen-

⁸ S. Bhaskaran: *Incremental innovation and business performance: Small and medium-size food enterprises in a concentrated industry environment*, Journal of Small Business Management, Vol. 44, 2006, pp. 64–80.

⁹ W.R. DiPietro and E. Anoruo: *Creativity, innovation, and export performance*, Journal of Policy Modeling, Vol. 28, 2006, pp. 133–139.

¹⁰ J.L. González-Pernía, I. Peña-Legazkue, and F. Vendrell-Herrero: *Innovation, entrepreneurial activity and competitiveness at a sub-national level*, Small Business Economics, Vol. 39, 2012, pp. 561-574.

¹¹ D. Doloreux and S. Dionne: *Is regional innovation system development possible in peripheral regions? Some evidence from the case of La Pocatière*, Canada, Entrepreneurship & Regional Development, Vol. 2, 2008, pp. 259-283.

¹² OECD & Eurostat, *Oslo Manual: The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*. OECD Publications Service, <http://www.oecd.org/dataoecd/35/61/2367580.pdf> [dostęp: 5 marca 2012].

¹³ M. Anderson and B. Johansson: *Innovation Ideas and Regional Characteristics: Product Innovations and Export Entrepreneurship by Firms in Swedish Regions*, Growth and Change, Vol. 39, 2008, pp. 193-224.

¹⁴ H. Prange: *Explaining varieties of regional innovation policies in Europe*, European Urban and Regional Studies, Vol. 15, No. 1, 2008, pp. 39-52.

¹⁵ H. Pinto and P. Rodrigues: *Knowledge Production in European Regions: The Impact of Regional Strategies and Regionalization on Innovation*, *European Planning Studies* Vol. 18, No. 10, 2010, pp. 1731-1748.

tation of the production of a particular investment. Because the implementation is carried out after the purchase of the investment, it is not possible in advance to name investment - investment in innovation. Thus some investments could potentially be investing in innovation and after implementation - investments are becoming investment in innovation. Investment in innovation is an investment that creates the basis for being innovative, and then it is implemented or contributes to the implementation of new products, processes or organizational solutions.

According to the OECD definition, a competitive advantage is made, among others, by improving the company's ability to be innovative (by increasing the ability to develop new products or processes, or increase and the creation of new knowledge)¹⁶.

Over the past few years we have seen an increase of press releases directly aimed at innovation policies in Poland, this indicates its growing popularity. Empirical research on factors that determine innovation are however still very scarce. We follow the footsteps of Acs and Audretsch¹⁷, Hansen¹⁸ as we link innovation with the size, range of activities, and dynamics of development in an enterprise. According to Hansen¹⁹, company's size should be responsible for innovation. A brief glance on the dataset and questionnaire suggested that 'innovative investments' have been related to production, process, organizational or marketing innovation, the same as in Vaona and Pianta²⁰ research.

There aren't many empirical studies examining the relationship between the companies' dynamics of growth and their self-assessed economic situation and innovation. The hypothesis that there is a positive relationship between the growth, the economic situation of the enterprise and innovation has been tested in literature with wavering findings. Baldwin and Johnson²¹ suggest that faster-growing entrants are more innovative than slower-growing ones.

Some authors look value added on the network or cooperation with other entities such as R&D centers, in terms of access to complementary resources (knowledge, information, finance, and other various resources), joint projects, risk sharing, and synergies of resource sharing²². According to Heunks²³ innovation depends on cooperation with other firms and on the availability of external capital, but this regards mainly marketing innovation. In other words, firms cooperating with other firms and using external capital tend to

¹⁶ OECD & Eurostat, *Oslo Manual: The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*, OECD Publications Service, Paryż, 2012, s. 16.

¹⁷ Z.J. Acs and D.B. Audretsch: *Innovation in Large and Small Firms: An Empirical Analysis*, The American Economic Review, Vol. 78, No. 4, 1988, pp. 678-690.

¹⁸ J.A. Hansen: *Innovation, Firm Size, and Firm Age*, Small Business Economics, Vol. 4, No. 1, 1992, pp. 37-44.

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²⁰ A. Vaona and M. Pianta: *Firm Size and Innovation in European Manufacturing*, Small Business Economics, Vol. 30, No. 3, 2008, pp. 283-299.

²¹ J.R. Baldwin and J. Johnson: "Entry, innovation and firm growth." In *Are small firms important?* edited by Z. J. Acs. Kluwer, 1999, p. 53.

²² H.L. Smith and R. Waters: *Scientific Labour Markets, Networks and Regional Innovation Systems*, Regional Studies, Vol. 45, No. 7, 2011, pp. 961-976.

²³ F.J. Heunks: *Innovation, Creativity and Success*, Small Business Economics, Vol. 10, No. 3, 1998, pp. 263-272.

innovate their commercial systems more than others. Lewandowska and Stopa²⁴ in other study have observed an interesting correlation. This is the dominant approach to innovation, characterized as ‘pragmatic’. Cooperation with companies constituting the competition arises after the implementation of innovation in the company, which is in fact the strengthening of market position. Then follows the need for specialization and a wider cooperation so that the innovation makes sense – so that the innovation at least breaks even and certainly to be profitable. The sole administrator of the innovation is only the company that has implemented it.

A group of reasons, which stresses the productivity advantages of clustering or generally cooperation with other entities, include better and/or cheaper access to such inputs as components, machinery, business services or personnel, better and/or cheaper access to information, and knowledge²⁵. He finds that SMEs may rely more heavily on external knowledge networks as an input to innovation than do large firms. For example, Audretsch and Vivarelli²⁶ finds out that small firms – those with less than 100 employees – appeared to benefit more from external research than large firms. Other researcher Cornett²⁷ stressed the one way to enforce a sustainable growth (firms and region) is to stimulate the linkages between the knowledge sector and the business sector. This is similar conclusions in Kaufmann and Tödting²⁸: “firms cooperating with science increase their ability to realize more radical innovations and to introduce products which are new to the market”. According to them each form of cooperating (e.g. universities and firms, profit-oriented contract research institutions) is basically viable, important is the well-working inter-systemic exchange.

3. INNOVATION STRATEGIES

Starting point of our understanding of “innovation strategy” is an ideal type of enterprise that constructs its functioning on innovativeness²⁹. As it was mentioned above, innovation is a process and this process may become the core of functioning of the firm, that is interested in constant original innovations, based on internal R&D and/or tight cooperation with external R&D institutions, with the full use of external support of institutional system. Such innovations create new interactions within widely understood enterprise's environment. The enterprise's products or services do not follow customers' needs – they rather create the needs, ahead of demand. Of course, such innovations do not have to be breakthrough, but in their number and quality they are foundations of new and changing

²⁴ A. Lewandowska and M. Stopa: *Innovation Quality. Qualitative Perspective of Innovation Leaders in Podkarpackie Region, Poland*, World Academy of Science, Engineering and Technology, No. 81, Rome 2013, pp. 1049-1055.

²⁵ M. Rogers: Networks, Firm Size and Innovation, *Small Business Economics*, Vol. 22, No. 2, 2004, pp. 141–153.

²⁶ D. Audretsch and M. Vivarelli: *Small Firms and R&D Spillovers: Evidence from Italy*, CEPR Discussion, Paper No. 927, 1994.

²⁷ A.P. Cornett: *Aims and strategies in regional innovation and growth policy: A Danish perspective*, Entrepreneurship & Regional Development, Vol. 21, No. 4, 2009, pp. 399-420.

²⁸ A. Kaufmann and F. Tödting. 2000. *Science-industry interaction in the process of innovation: The importance of boundary-crossing between systems*. Paper presented at the 40th Congress of the European Regional Science Association, August 29–September 1, Barcelona, pp. 1-25.

²⁹ L. Woźniak, A. Lewandowska, R. Pater, M. Stopa, and M. Chrzanowski: *Po co nam innowacyjność? Problem innowacyjności w regionie peryferyjnym na przykładzie woj. podkarpackiego*. Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2015.

relations with customers and cooperatives, as well as with institutional surrounding. We called such approach “creation,” assuming internal consistent structure of this strategy.

At the other extreme there is strategy for surviving – reacting on changes in the environment: innovations are external and a kind of “forced,” usually by the closest competitors or customers. In this type of approach innovations are not the consequence of systematic reflection. They are rather a reaction to new situation, therefore much more random. As the opposite ideal type, there is no originality in innovation – the novelty of products/services/processes applies only to enterprise's level. The cooperation with R&D institutions is from case to case, usually as the argument for additional public financial support. The quantity and quality of innovations are secondary characteristics, depending on market demands and possible external support, therefore we call this type of approach a “reaction.”

Between these two extremes there is the strategy of “interaction,” where the innovation is not the main paradigm for the enterprise but is important enough to be developed and supported by occasional cooperation with external R&D institutions and the utilitarian approach towards public financing of the innovation.

It is crucial to know and understand the approach(es) towards innovations among enterprises, because it determines regional level innovativeness and describes the effectiveness of institutional support system.

4. METHODOLOGY

A computer-assisted telephone interview survey was conducted in 2014 within research project titled “The Study of the Impact of Investments in Innovation on the Competitiveness of the SME sector in Podkarpackie Voivodship.” Two random samples were constructed, taking into account the fact whether the enterprise introduced at least one innovation between 2004-2011 (419 companies) or did not (401 companies). Actually, the questionnaire consisted of seven parts: SH: innovation introduction (filtering companies into two main groups), A: innovative products, B: innovative technological processes and organizational innovation, C: research activity, investment and spending, D: the effects of investment in period 2008-2012, E: sources of financing the investment, F: obstacles in innovation, and X: independent data. The questionnaire included 232 variables (mostly on nominal and ordinal scale), but next 25 variables were constructed for analysis presented in this paper (by recoding and indexing).

The sample itself had random characteristics, though due to the structure of the SMEs' sector in Poland (micro-sized enterprises represent the vast majority) and due to the topic of the research two strata had to be identified: the size of the enterprise and the sector of its activity. Therefore, the research was conducted on a stratified sample. Finally, 820 companies were covered by the study, that gives 3% of maximum error (at confidence level $\alpha=0.95$ and 0.50 fraction – main characteristic divided the researched companies into two equal groups). However, the paper presents the results of analysis of the data only for these enterprises that introduced at least one innovation in period 2004-2011. Therefore, the maximum error for interpretations and conclusions is 5% (still at confidence level 0.95 and 0.50 fraction – unknown distribution of characteristics).

As for the statistical analysis of the data, the main statistical test for relationships and dependencies was the chi-square independence test. To arbitrate whether there were statistically significant differences between averages in innovation quantity and quality scale

due to different factors among enterprises, analysis for variance (H Kruskal-Wallis' test for k independent samples) procedure was implemented.

5. THE QUANTITY SCALE OF INNOVATION

The companies' representatives who declared that between 2004-2011 any kind of innovation had been implemented were asked about 26 different actions within innovation: development (of new products, technologies, patents, utility models, computer software, technical know-how), purchases (of technologies, automatic and computerized production lines, ICT technologies, licenses, computer software), modernization (of ICT technologies, production line) and involvement (in employees' training, marketing actions, projecting and new organizational solutions). In each case, respondents could choose either "yes" (1) or "no" (0) answer. Next step was to index all 26 answers for each respondent to receive the quantity scale of innovation in 2004-2011 period. Theoretical distribution is between 1 and 26, but empirical data show that maximum for researched companies was 15 (for 396 respondents out of 419) – the distribution is chi-square like (Fig. 1).

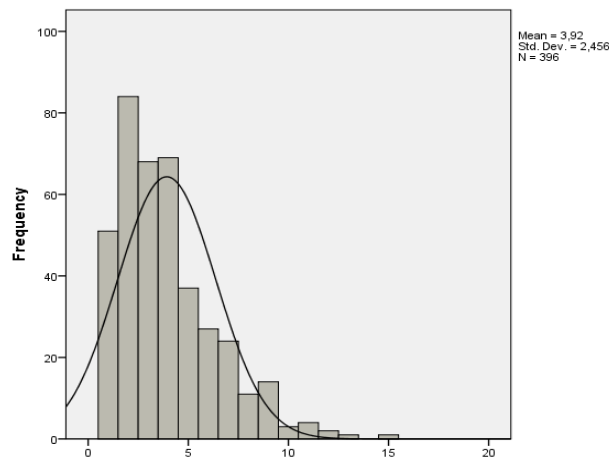


Figure 1. The distribution of the quantity scale of innovation (N=396)

Source: *Own studies.*

The final result in the quantity scale of innovation could depend on the size of the enterprise, its scale of activities (local vs global) and, of course, the amount of money invested. These factors might be called "hard". On the other hand, enterprise's interest in research and development, cooperation with external R&D or other subjects of environment (customers, suppliers, consulting firms, NGOs etc.) and institutional support (financial, consulting or information) might influence the quantity scale result for each enterprise. Such factors could be called "soft", because they depend on enterprise's involvement in innovation (additional actions, extra sections etc.).

The independent factors consisted of three variables from X section of the questionnaire: the range/scale of activities (local/regional within country, local/regional across borders – up to 50 km, within country and international), the value of investment in

2011/2012 (from 0 up to 5 million and more zlotys) and the number of employees in 2011/2012 (in intervals: 0-9, 10-49, 50-249). These variables described the condition of each enterprise in the research.

The dependent factors consisted of three variables from C section of the questionnaire: engagement in research and development (only internal, internal with external, only external, none), cooperation index (as number of parties in research and development cooperation – for 32 enterprises that declared such cooperation) and institutional support index (as the number of institutions supporting innovation in researched enterprises). These variables described the readiness for innovation of each enterprise in the research.

Due to the chi-square distribution of the quantity scale of innovation, H Kruskal-Wallis' test for k independent samples was implemented to test if there was statistically significant differences in the quantity scale of innovation resulting from "independent" and "dependent" factors' influence. The table 1. presents the p value of the test for every factor indicated above.

Table 1. P-value of H Kruskal-Wallis' test for k independent samples

Hard factors	p value	Soft factors	p value
range/scale of activities	.000	engagement in R&D	.203
value of investment in 2011/2012	.000	cooperation index	.154
number of employees in 2011/2012	.000	institutional support index	.065

Source: *Own studies*

The score of the quantity scale innovation depended on "objective" factors and this relation had linear character, meaning that the more international range of enterprise's activities, the bigger scale of investment and the bigger enterprise itself, the more activities within innovation were implemented in 2004-2011 period. These dependencies were not surprising at all, because innovation is an expensive process that only enterprises in good economic condition may afford. However, what could concern was that environmental support, cooperation and even own research and development unit did not differ the quantity of innovations. In other words, in case of Podkarpackie Voivodship and it's SMEs, differences due to the market condition were not mitigated by institutional support. This had to result in petrification of differences between strong and weak companies.

The lack of influence of the institutional support also showed the weaknesses of the actual innovation support system. At least in quantity dimension. Of course, there is still question on quality of innovation – answered in next section of the paper.

6. THE QUALITY SCALE OF INNOVATION

Within the quality of innovation three different aspects were included (questions from section A and B of the questionnaire): whether the innovation (new/improved product/service or new/improved process) was original or not; if the innovation was not original – who inspired it (local, regional, national and abroad enterprises); and who was responsible for final implementation of the innovation (enterprise itself, enterprise in cooperation with other companies, enterprise in cooperation with R&D institutions, mainly other companies).

The questions on originality of the innovation were on nominal scale – dichotomous (“yes/no”). Therefore, potential soft factors: “engagement in R&D,” “cooperation index” and “institutional support index” were to be recoded into dichotomies, too. If there was at least one point in the index, it received value “yes”, if “0” - value “no.” Thanks to such solution, it was possible to use chi-square independence test and phi correlation factor. In case of “hard” variables: “range/scale of activity,” “value of investment in 2011/2012” and “number of employees in 2011/2012” chi-square independence test and Kendall's tau-c factor were used.

Once again the tables 2-3 present the p-value of the test for every factor indicated above for originality of new/improved products/services and processes.

Table 2. P-value of chi-square independence test for originality of new/improved product/services

Hard factors	p value	Soft factors	p value
range/scale of activities	.009	engagement in R&D	.040
value of investment in 2011/2012	.244	cooperation index	.090
number of employees in 2011/2012	.096	institutional support index	.879

Source: *own studies*

Table 3. P-value of chi-square independence test for originality of new/improved processes

Hard factors	p value	Soft factors	p value
range/scale of activities	.388	engagement in R&D	.155
value of investment in 2011/2012	.348	cooperation index	.454
number of employees in 2011/2012	.814	institutional support index	.867

Source: *Own studies*

Originality of product/service innovation depended on the engagement in R&D and the range/scale of activities. In other words, enterprises that did have their own R&D section or cooperated with external R&D institutions and operated on wider level than local or regional, more often introduced original product/service innovation. Actually, these two factors were the only ones that correlated significantly. What is more, process innovations did not depend on any of indicated factors. It is worth to add, that 65 (N=419) representatives declared that their enterprise had implemented completely new product or service (unknown to other companies) and 42 completely new processes (also unknown to other companies).

The majority of surveyed representatives of SMEs that introduced any innovation in 2004-2011 period declared that these innovations had been implemented in other companies before (57% for new or improved products/services, with 24% of “don’t know” answers; and 50% for new or improved processes, but with 30% of “don’t know” answers). These competitive enterprises that introduced the same innovations earlier were mostly from the region (from 59% for products and services to 64% for processes – according to declarations). These results proved that innovative SMEs in Podkarpackie Voivodship were clearly local in their perspective of everyday functioning and competing and that the innovations were forced by changing of that local environment – trying to catch up with

the pace rather than setting the pace itself. What was more, the less cooperation with R&D institutional system declared, the more local was innovation inspiration – in both cases (products/services: p-value .040: Kendall's tau-b = -.140 and processes: p-value .013: Kendall's tau-b = -.212).

7. CONCLUSIONS

On the basis of conducted analysis, it could be assumed that socio-economic growth of the regions, and Podkarpackie Voivodship is highly subjected to the factors connected to innovations and the level of innovativeness. Simultaneously, the development strategy in the SME's is gradually directed towards strengthening the regional innovativeness. The innovation strategies in SMEs are quite differentiated. Generally, there are three theoretical types of innovation strategies: a. creation, b. interaction and c. reaction. In the first case innovation is natural and internal type of thinking about company's development. Interaction describes innovation as strategic resource of the company. The 'reaction' type is for these companies that treat innovation as external compulsion.

The type of innovation strategy is determined by quantity and quality of innovations implemented: numerous and original innovations indicate the strategy we call "creation" while the opposite results in quantity and quality are more likely typical for "reaction" type. Of course, factors such as own R&D or at least cooperation with external R&D institutions as well as the use of public support also indicate more systematic approach towards innovation.

The research results showed that the more international range of enterprise's activities, the bigger scale of investment and the bigger enterprise itself, the more activities within innovation were implemented in 2004-2011 period. Originality of product/service innovation depended on the engagement in R&D and the range/scale of activities: enterprises that did have their own R&D section or cooperated with external R&D institutions and operated on wider level than local or regional, more often introduced original product/service innovation. But such enterprises were very few. Most of so called innovative enterprises represented rather "reaction" strategy – trying to catch up with the pace rather than setting the pace itself.

REFERENCES

- [1] Acs, Z. J. and D. B. Audretsch: *Innovation in Large and Small Firms: An Empirical Analysis*, The American Economic Review, Vol. 78, No. 4, 1988, pp. 678-690.
- [2] Anderson, M. & Johansson, B.: *Innovation Ideas and Regional Characteristics: Product Innovations and Export Entrepreneurship by Firms in Swedish Regions*, Growth and Change, Vol. 39, 2008, pp. 193-224.
- [3] Audretsch, D. and Vivarelli, M.: *Small Firms and R&D Spillovers: Evidence from Italy*, CEPR Discussion, Paper No. 927, 1994.
- [4] Bhaskaran, S.: *Incremental innovation and business performance: Small and medium-size food enterprises in a concentrated industry environment*, Journal of Small Business Management, Vol. 44, 2006, pp. 64-80.
- [5] Baldwin, J. R. and J. Johnson, J.: "Entry, innovation and firm growth." In *Are small firms important?* edited by Z. J. Acs. Kluwer, 1999.
- [6] Bottazzim, L. and Peri, G.: *Innovation and spillovers in regions: Evidence from European patent data*, European Economic Review, Vol. 47, 2003, pp. 687-710.

- [7] Cornett, A. P.: *Aims and strategies in regional innovation and growth policy: A Danish perspective*, Entrepreneurship & Regional Development, Vol. 21, No. 4, 2009, pp. 399-420.
- [8] Doloreux, D., and S. Dionne: *Is regional innovation system development possible in peripheral regions? Some evidence from the case of La Pocatière, Canada*, Entrepreneurship & Regional Development, Vol. 2, 2008, pp. 259-283.
- [9] DiPietro, W. R. and Anoruo, E.: *Creativity, innovation, and export performance*, Journal of Policy Modeling, Vol. 28, 2006, pp. 133-139.
- [10] González-Pernía, J. L., Peña-Legazkue, I. and Vendrell-Herrero F.: *Innovation, entrepreneurial activity and competitiveness at a sub-national level*, Small Business Economics, Vol. 39, 2012, pp. 561-574.
- [11] Hansen, J. A.: *Innovation, Firm Size, and Firm Age*, Small Business Economics, Vol. 4, No. 1, 1992, pp. 37-44.
- [12] Heunks, F. J.: *Innovation, Creativity and Success*, Small Business Economics, Vol. 10, No. 3, 1998, pp. 263-272.
- [13] Kaufmann, A., and F. Tödtling. 2000. *Science-industry interaction in the process of innovation: The importance of boundary-crossing between systems*. Paper presented at the 40th Congress of the European Regional Science Association, August 29-September 1, Barcelona.
- [14] Lewandowska, A. and Stopa, M.: *Innovation Quality. Qualitative Perspective of Innovation Leaders in Podkarpackie Region, Poland*, World Academy of Science, Engineering and Technology, No. 81, Rome 2013, pp. 1049-1055.
- [15] Niedzielski, P., Jaźwiński I.: *Absorpcja i dyfuzja innowacji jako czynnik intensyfikujący rozwój regionalny*, Zeszyty Naukowe WSZ „Oeconomicus” PTE w Szczecinie „Gospodarka – rozwój i zmiany” 2002, No. 2.
- [16] OECD & Eurostat, *Oslo Manual: The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data*. OECD Publications Service, <http://www.oecd.org/dataoecd/35/61/2367580.pdf> [dostęp: 5 marca 2012].
- [17] Petriariu, I. R., Bumbac, R., and Ciobanu, R.: *Innovation: a path to competitiveness and economic growth. The case of CEE countries*, Theoretical and Applied Economics, Vol. 20, No. 5, 2013, pp. 15-26.
- [18] Pinto, H. and Rodrigues, P.: *Knowledge Production in European Regions: The Impact of Regional Strategies and Regionalization on Innovation*, “European Planning Studies” 2010, Vol. 18, No. 10, pp. 1731-1748.
- [19] Prange, H.: *Explaining varieties of regional innovation policies in Europe*, European Urban and Regional Studies, Vol. 15, No. 1, 2008, pp. 39-52.
- [20] Priede, J. and Pereira, E. T.: *Innovation as a key factor in the international competitiveness of the European Union*, European Integration Studies, No. 7, 2013, pp. 212-221.
- [21] Smith, H. L. and Waters, R.: *Scientific Labour Markets, Networks and Regional Innovation Systems*, Regional Studies, Vol. 45, No. 7, 2011, pp. 961-976.
- [22] Sternberg, R. and Arndt, O.: *The firm or the region: What determines the innovation behavior of European firms?*, Economic Geography, Vol. 77, 2001, pp. 364-382.
- [23] Vaona, A., and M. Pianta: *Firm Size and Innovation in European Manufacturing*, Small Business Economics, Vol. 30, No. 3, 2008, pp. 283-299.
- [24] Woźniak, L., Lewandowska, A., Pater, R., Stopa, M., and Chrzanowski, M.: *Po co nam innowacyjność? Problem innowacyjności w regionie peryferyjnym na przykładzie woj. podkarpackiego*. Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2015.

STRATEGIE INNOWACYJNOŚCI PRZEDSIĘBIORSTW SEKTORA MSP W WOJEWÓDZTWIE PODKARPACKIM

Celem pracy jest prezentacja strategii rozwoju firm poprzez innowacje sektora MSP w województwie podkarpackim w Polsce. Analizując ten przypadek, możemy podnieść następujące dwa pytania: (1) Jakie są rodzaje, struktura i jakość strategii innowacji MŚP na Podkarpaciu?; (2) Jakie są kluczowe czynniki i dynamika prowadzenia i ograniczenia aktywności innowacyjnej, a także do wzrostu tej strategii innowacji?

Na przykładzie kilkuset przedsiębiorstw pokazano określone sposoby podejścia do innowacyjności. Dzięki czemu przy uwzględnieniu specyfiki szerszego kontekstu, tj. warunków społeczno-ekonomicznych województwa podkarpackiego, możliwe jest lepsze zrozumienie czynników wpływających na jakość innowacyjności i potencjalnych barier dalszego stosowania strategii nastawionej na wdrażanie innowacji w przedsiębiorstwach.

Ogólnie rzecz biorąc, istnieją trzy teoretyczne typy strategii innowacji: tworzenie, b. interakcja i c. reakcja. W pierwszym przypadku innowacja jest naturalna i wewnętrzny typ myślenia o rozwoju firmy. Interakcję opisuje innowacja jako strategiczny zasób przedsiębiorstwa. Typ "reakcja" jest dla tych firm, które traktują innowacje jako zewnętrzny przyrządek. Typ strategii innowacji zależy od ilości i jakości realizowanej innowacji: liczne i oryginalne innowacje wskazują na strategię nazwaną "tworzenie", podczas gdy przeciwstawne wyniki co do ilości i jakości są bardziej prawdopodobne i typowe dla typu strategii "reakcja".

Podstawą dla analiz empirycznych są różne źródła: dokumenty historyczne, dane statystyczne oraz wywiady pogłębione z kluczowymi osobami w MŚP. Analiza prezentowana w artykule jest efektem badań CATI zrealizowanych wśród 419 spośród 800 podkarpackich firm objętych badaniem.

Słowa kluczowe: innowacje, strategie innowacji, MSP, przedsiębiorczość, woj. podkarpackie

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