Miesięcznik TNOiK
Założył Karol Adamiecki w 1926 r.

THE ROLE OF VOIVODESHIP AUTHORITIES IN CREATING AN INNOVATIVE ENVIRONMENT: CASE STUDY OF THE SILESIAN VOIVODESHIP

<https://doi.org/10.33141/po.2019.06.04>

Organization Review, No. 6, 2019, Vol. 953, pp. 30-39

www.przegladorganizacji.pl/en

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Introduction

An increase in the innovativeness level of Polish enterprises, regions, and the country at large requires the knowledge about the significance of factors that create an innovative milieu. The generation, diffusion, and commercialisation of innovation can be aided through the creation of a strong innovative environment (Markowski, 2005). The innovative environment (or *innovative milieu*) is created by enterprises, research and development centres, financial institutions, associations, and public administration (Maillat, 1998). The creation of a strong innovative environment implies a need to engage all entities (actors) of the milieu in the process.

The purpose of the paper is to demonstrate, on the example of the Silesian voivodeship, how and to what extent the factors of a regional innovation milieu affect the innovativeness of enterprises¹.

Due to the ever-growing importance of knowledge and non-material factors for innovation processes, the following factors significant to the innovative environment of a region were studied: the contribution of local authorities to the development of human capital, the promotion of entrepreneurial and innovative attitudes in the region, the increases

in the capacity for innovation in public administration and improvements in the functioning of public administration, the creation of knowledge centres in the region and providing free access to information².

The research included an exploratory study of the subject literature, a survey augmented with partially structured in-depth interviews with the management of the businesses, and statistical methods (Spearman rank correlation analysis, analysis of variance, Tukey's test).

A region as a stimulator of innovativeness – theoretical and legal aspects

Most frequently quoted modern development concepts that make reference to innovation include the theory of innovative milieus, learning regions, networks, clusters, and systems (Nowakowska, 2011; Siłka, 2012). This work merely signals the nature of modern concepts while highlighting the role of local government in shaping the innovativeness of enterprises.

The aforementioned concept of an innovative milieu was created in the 1990s and is based on relationships between entities. The precursor of milieu research is P. Aydalota (1986), who concluded that innovation comes from the milieu; his work is continued by the Groupe de Recherche Européen sur les Milieux Innovateurs (GREMI), which investigates interactions between local development and innovation. An innovative milieu helps increase the local innovative capacity through a synergic and collective process of subject learning (Camagni, Capello, 2005), which is characteristically dynamic and tailored to the needs of the changing market. Inasmuch as any individual actors in the environment make independent decisions, they are connected by a common goal. An innovative environment is characterised by non-occasional cooperative relations between partners based on mutual trust, shared norms, rules, and values (Pietrzyk, 2001, pp. 63–64; Maennig, Ölschläger, 2011; Słupińska, 2016, p. 30) and aimed at generating innovation.

Geographic and socio-cultural proximity of entities forming an innovative milieu in a region helps establish contacts, form lasting ties resulting in mutual learning, synergy, resource replenishment, and, crucially for small and medium enterprises in particular, a decrease in risk related to the introduction of innovation. In his concept of a *learning region*, R. Florida (1995) treats the region as an area that creates appropriate environmental and infrastructural factors for the creation and diffusion of knowledge, innovative ideas and solutions.

The key element of a learning region is access to human resources characterised by permanent improvement through life-long learning. Declaring knowledge to be the source of innovation and a factor in the development of the country, region, and enterprise induces a need to consciously create it in organisations and regions as well as filling in any possible gaps in it through cooperation with the surroundings. Creating a regional supply of knowledge requires the participation of all actors of the region's innovation sector (business, scientific institutions, local government, business support institutions) and the use of regional infrastructure. The role of local government is to provide organisational, financial, promotional, informational, and educational support for the activity of institutions that create, accumulate, and utilise knowledge (Kamińska, 2017b).

According to R. Florida (2002), a creative society constitutes an inherent feature of an innovative milieu. The concept of the „creative class” points to advantages stemming from encouraging a creative society to settle in a given area and become active in science, culture, and art through the use of its skills, creativity, and talent. It requires the local authorities to create appropriate circumstances by reinforcing factors that the creative class expects as inducements to move into a place with friendly conditions and creative jobs. Creative areas have three key traits: technology, talent, and tolerance (3T). This means that creative regions attract outstanding, talented individuals, offer diversity (tolerance), and thus inspire the development of technology, altering the economy of the

region and assuring its innovative development. In turn, the presence of the creative class is perceived as a factor making the region more attractive and motivating highly-qualified representatives of various professions to move to the area. This creates a cluster of dynamic, innovative professionals, who stimulate the diffusion of innovation.

Regional learning and innovativeness of enterprises are stimulated by the following factors (Lorenzen, 2001): (1) tools supporting learning in enterprises (training, support for research and creation of spin-off businesses), (2) instruments stimulating learning between enterprises (support for creation and maintenance of networks of connections, clusters, creating the atmosphere of cooperation and trust), (3) tools promoting the creation of knowledge centres and interregional cooperation (e.g. development of higher education and technology transfer centres). Voivodeship local authorities have the power to shape all of these factors.

Clusters, which are also widely analysed in the literature (Porter, 2001; Martin, Sunley, 2003) and constitute an example of an innovative network, fit well within the subject matter of regional catalysts of innovation and contribute to making enterprises and regions more competitive. The idea of innovation systems provides the most complex outline of factors influencing innovativeness. A national innovation system is a network of cooperating public and private institutions that interact in ways conducive to the creation, importation, modification, and popularisation of new technologies (Freeman, 1987, p. 4). Regional innovation systems are an inherent part of national innovation systems (Cooke, 1992); in Poland these are still nascent (Plawgo et al., 2013).

D. Marinova and J. Phillimore (2003, pp. 44–53) note the critical role of the region and business environment institutions in introducing innovation when they describe the innovation milieu model as a sixth-generation model. They stress that an innovative environment facilitates contact between business partners operating in the same social and cultural circumstances and contributes to building trust, which translates into introduced innovation.

Voivodeship local government plays a key role in shaping regional innovation systems. A voivodeship local government, acting in accordance with Ustawa o samorządzie województwa („Act on Voivodeship Local Government”), „performs public duties described in acts of parliament in its own name and is responsible for them; it operates voivodeship property and independently manages its finances based on its budget” (Ustawa ..., Art. 6, p. 1). The task of voivodeship local government is to „determine the development strategy of the voivodeship with special consideration to the following objectives: 1) nurturing Polish identity and developing and shaping national, civic, and cultural identity of the citizens, as well as nurturing and developing a local identity; 2) stimulating economic activity; 3) increasing the level of competitiveness and innovativeness of the voivodeship's economy; 4) preserving the value of the cultural and natural environment with consideration to the needs of the future generations; 5) shaping and maintaining spacial order” ((Ustawa ..., Art. 11, p. 1).

Under the aforementioned legislation, modern strategies for regional development focus on supporting innovativeness, and voivodeship local authorities are obligated to stimulate the innovativeness of the region as a whole, including businesses. In particular, a voivodeship local authority should, under its development policy, support the development of sciences and collaboration between science and the economy, as well as support technological progress and innovation (Ustawa ..., Art. 11, p. 2).

The functioning of innovation systems is regulated by innovative policy, which aims at creating an effective system of connections between science, business, administration, and the markets, as well as supporting innovative activity at various levels of the economy. In most developed countries innovative policy lies within the purview of regional policy-makers, as it is on the regional level that the most appropriate conditions for creating a good atmosphere for entrepreneurship and innovativeness can be found (Okoń-Horodyńska, 2017). Regional innovative policy includes support for innovative activity of enterprises and various entities that function within the region, influence on relationships between those entities, as well as creation and reinforcement of other non-material and material elements of the innovative potential, such as the development of human and social capital, development of appropriate infrastructure for supporting the realization of innovative projects, and stimulating demand for innovation through public tenders (Kamińska, 2017a). Therefore, following the evolution of the innovative process (from the linear model to more complex concepts, such as the chain-linked model or the systemic model), the idea of innovative policy also changes, and its instruments adopt a more systemic and interdisciplinary character.

Creating, absorbing, and commercialising innovation requires a strong innovative milieu that stimulates innovative processes. The new edition of the Oslo Manual defines an innovation as „a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)”. This edition includes the new Chapter 7: External factors influencing business innovation, highlights this fact. The chapter identifies the main elements of external factors that can influence business innovation. There are five main elements: spatial and locational factors, markets, knowledge flows and networks, public policy, and society and the natural environment (Oslo Manual, 2018). These elements may function at the country (macro) level or the voivodeship (meso) level.

Impact of local government authorities on the innovative milieu – own research

Research method

The empirical research was conducted through a survey. The research tool was a survey questionnaire developed by the author, administered by the Public Opinion Research Center (CBOS) polling institute. The survey questionnaire was prepared based on an analysis of the subject literature and the author's own experience in business.

The research was conducted by using the CATI (Computer Assisted Telephone Interview) method, a quantitative research method consisting of a telephone interview between the interviewer with the respondent, which is then processed with computer programs allowing for a filtering of questions for a more efficient survey work. The advantage of CATI is that it limits the influence of outside factors on the work of interviewers, allowing for the interviews to be more standardised. The CATI method is recommended for interviews with respondents who are otherwise difficult to reach, such as members of the higher-level management, who were featured in this study.

The research procedure followed statistical standards and included a pilot study, verification of the research tool, and clearing up ambiguous formulations. With regard to survey research standards, it began with a pilot study on a sample of 10 enterprises. The pilot study allowed to assess the research tool and resolve all the ambiguities.

Moreover, the author has conducted three partially structured in-depth interviews with higher-level managers, which allowed for a better understanding of the analysed issues and improvements to the surveys.

The study included 259 small, medium, and large enterprises in the Silesian voivodeship. The sampling frame was the database of the Polish National Official Business Register REGON, maintained by Statistics Poland. The sample was random within quotas, with an intentional element. Initially, the database was layered by enterprise size³ and Polish Classification of Activities sections. Next, within each of these layers, a proportional, random sample without replacements was taken.

Based on the research experience of CBOS and considering the refusal of some enterprises to take part in the study, the randomised sample was 2.5 times the size of the actual research sample. The subject groups that eventually took part in the interviews and the ones that did not, were not notably different from each other in the statistical sense with regards to features such as location, type of activity and size of the subject.

The main research goal is served by the following specific research goals:

1. Determining the innovativeness level of the investigated enterprises;
2. Determining the impact of specific factors on innovativeness of enterprises;
3. Comparing the significance of the impact of the factors included in the research in entities at various levels of innovativeness, differing in size and in their field of activity.

Accomplishing the principal goal and specific goals of the study was served by the search for an answer to the following research question: How strongly and in what ways do factors of the regional innovation milieu affect innovativeness of the studied enterprises?

Due to the subject matter and goals of the research, most of the survey recipients worked in the management. 36.2% of the respondents were owners and co-owners of businesses, 34.8% were CEOs and directors in charge of a whole enterprise, and 28.9% were high-ranking managers in charge of a part of an enterprise.

The structure of the surveyed businesses was proportional to the population structure of Silesian voivodeship companies. Small enterprises accounted for 85.5% of the total sample, medium enterprises for 12.3% of the total, while large for 2.2% of the total. Microenterprises were omitted due to their relatively low innovativeness, impossibility of researching a representative sample, and their characteristic traits, such as the very limited resource base available to them.

Considering the type of activity, the largest share of the sample consisted of industrial enterprises (41.7%), then services (32.4%), trading companies (22.4%), and mixed activity businesses (3.4%). The most frequently represented sections of the Polish Activity Classification were, due to the structure of the region's economy, industrial processing (24.5%), retail and wholesale trade (23.0%), and construction (14.8%).

Results of own research

One of the goals of the study was to determine the innovativeness level of investigated enterprises. The most important marker of the innovativeness level were: the number of products, processes, marketing, and organizational innovations introduced between 2013 and 2015, the degree of novelty of the innovations based on a five-grade scale (novel for the enterprise, locally novel, regionally novel, novel for the country, novel internationally), and a subjective assessment of the company's innovativeness level by the survey respondent. Based on these criteria, every enterprise in question was assigned to one of six groups: very high level of innovation, high level of innovation, medium level of innovation, low level of innovation, very low level of innovation, non-innovative enterprise (Kamińska, 2017b).

The results demonstrate, mirroring the findings of the research by GUS (2018), that companies in the Silesian voivodeship are characterised by a low level of innovative-

ness. More than half (56.1%) of the surveyed enterprises did not introduce a single innovation in 2013–2015 and were rated as non-innovative. One in five companies (21.2%) introduced in those three years up to three innovations novel for the enterprise (very low level of innovativeness). An entity was considered to be at a low level of innovativeness if it introduced between 1 and 3 innovations novel at the local or regional scale; they accounted for 13.9% of the sample. 7.3% of enterprises reached a medium level of innovativeness and only 1.5% of all enterprises can claim to have high or very high innovativeness (Table 1).

The survey sought to assess the significance of the following select factors dependent on the actions of local government: 1) local authorities' contribution to the development of human capital (through providing grants and scholarships, organising training, discovering and developing talent, adjusting the profile of public education to fit the needs of the region etc.), 2) increases in the capacity for innovation of public administration and improvements to the functioning of public administration, 3) promotion of entrepreneurial and innovative attitudes in the region (through organising contests, assigning grants, introduction of educational programs etc.), 4) creation of knowledge centres in the region, and providing free access to market analyses, databases, information sources etc.

The surveyed have graded the impact of each of these factors on the innovativeness of enterprises on a five-point scale („very high,” „high,” „average,” „low,” „doesn't matter”). These were then converted into number grades (where 5 stood for „very high” and 1 stood for „doesn't matter”) and averaged. Worth noticing are the relatively high average grades of individual factors – the average is above 3.0 (Table 2), testifying to their significance for improving innovativeness.

The analysis of the answers indicates that the largest importance is attributed to local government actions aimed

Table 1. Criteria of division of enterprises and the structure of the sample of enterprises surveyed in terms of the level of innovativeness (N = 259)

Level of enterprises' innovativeness	Criteria for assessment of the level of enterprises' innovativeness		Sample's structure	
	Number of innovations implemented in 2013–2015	Scale of innovation's novelty	No. of enterprises	% of N = 259
Non-innovative enterprises	0		145	56.1
Very low level	1–3	novelty at the enterprise's scale	55	21.2
Low level	1–3	novelty at the local, regional scale	36	13.9
Medium level	1–3	novelty at the scale of the country	19	7.3
	4–10	novelty at the scale of enterprise, local, regional, country's scale		
High level	more than 10	novelty at the scale of enterprise, local, regional, country's scale	4	1.5
Very high level	at least one	novelty at the international scale		

Source: own research

at developing human capital. It was that factor that was rated highest for significance, at an average of 3.60. Such a high position for actions of local government aimed at developing human capital shows that the entrepreneurs are aware of the key importance of knowledge and skills of their employees for stimulating innovativeness. The respondents support assigning grants and scholarships, hunting for talent, organising training, and adjusting the educational profiles in public schools to better fit the needs of the region.

The entrepreneurs rank the need to create knowledge centres in the region and to provide free access to various analyses and auxiliary data helpful in accomplishing innovative goals as the second most important of the listed factors. Half of the answers attributed a large or very large significance to it, and on average assigned it a rating of 3.38. Only 1.1% of the surveyed believe such an activity from the local government is insignificant.

Promoting entrepreneurial and innovative attitudes in the region was given an average rating of 3.29, with 46.1% of respondents attributing to it a large or very large signif-

icance for increasing innovativeness of enterprises. It has to be stressed that many projects undertaken to promote innovativeness and entrepreneurship, such as paying out grants or holding contests, are not costly and the main factors determining whether or not they will be attempted are the good will and initiative of local governments. Promoting innovative attitudes and behaviours contributes to creating an innovative culture in the region and shapes an atmosphere that promotes activity in its inhabitants.

Increases in the capacity for innovation of public administration and improvements to its functioning have been placed fourth with an average rating of 3.23. This result is surprising, as almost one in ten respondents (8.7%) claimed this factor is inconsequential. At the same time, nearly half of the total (49.8%) consider the capabilities and effectiveness of public administration to have large or very large impact for stimulating innovativeness.

The analysis regarding the significance of selected factors influencing the innovative milieu of a region was expanded by comparing the assessments between enterprises of different sizes of different sizes (based on the

Table 2. Significance of select factors influencing the innovative milieu of a region – average ratings

The type of factor	Average ratings
Local authorities' contribution to the development of human capital	3.60
Creation of knowledge centres in the region, and providing free access to market analyses, databases, information sources etc.	3.38
Promotion of entrepreneurial and innovative attitudes in the region	3.29
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	3.23

Source: own research

Table 3. Significance of the select factors influencing the innovative milieu of a region (% of answers)

	Number of employees	Doesn't matter	Low	Average	High	Very high
Local authorities' contribution to the development of human capital	10–49	1.5	9.5	30.2	45.6	13.2
	50–249	0.0	5.8	37.1	49.4	7.7
	250 and more	10.1	0.0	13.6	62.7	13.6
	Total	1.5	8.8	30.7	46.5	12.5
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	10–49	7.4	12.5	32.2	45.7	2.2
	50–249	12.7	9.9	17.5	55.9	4.0
	250 and more	37.3	0.0	0.0	49.1	13.6
	Total	8.7	11.9	29.7	47.1	2.7
Promotion of entrepreneurial and innovative attitudes in the region	10–49	1.3	17.5	35.8	43.6	1.8
	50–249	2.8	10.4	35.1	43.9	7.8
	250 and more	0.0	37.3	20.5	42.2	0.0
	Total	1.4	17.1	35.4	43.6	2.5
Creation of knowledge centres in the region, and providing free access to market analyses, databases, information sources etc.	10–49	0.9	14.3	33.0	45.5	6.3
	50–249	2.8	17.2	39.6	40.4	0.0
	250 and more	0.0	22.6	44.2	33.2	0.0
	Total	1.1	14.8	34.0	44.6	5.4

Source: own research

number of employees), of different activity profiles (manufacturing, services, trade, mixed), and of different levels of innovativeness (as above). The results support a claim that there are differences in assessing the studied factors depending on the size of the surveyed company are insignificant (Table 3). Only in one case there is a statistically relevant correlation between assessing the significance of the factors and the size of the business (Table 4). Smaller entities give a higher rating to the need for knowledge centres and free access to research results and any information necessary for innovative activity (Spearman's rank correlation coefficient $r_s = -0.132$ with significance level of 0.035). This is understandable and stems from the smaller enterprises having a reduced capacity to purchase goods of this kind due to their limited financial resources. Small and medium enterprises perceive ongoing financial support as one of the most influential factors in the creation of their innovative potential, which allows for effective creation and commercialisation of innovation (Zastempowski, 2011, pp. 153, 179).

An analysis of the assessments of significance of the listed factors based on the level of innovativeness of the surveyed enterprise produces interesting conclusions. It appears that regardless of the level of innovativeness most businesses rate the investigated factors fairly highly (Table 5) and the calculated Spearman's rank correlation coefficients do not indicate any sort of connection between the level of innovativeness and the assessment of the listed factors. This is important information for voivodeship authorities – increasing activity in these fields is important for all enterprises, regardless of how innovative they are.

An analysis of the significance of these factors for enterprises of different activity profiles allows us to note significant differences in the assessment of the first factor – the contribution of local government to the development

of human capital (Table 6). Companies operating in trade, manufacturing, or services value this element more highly. This is also reaffirmed by the analysis of variance (Table 7).

This diversity of assessment also applies to two other factors – promotion of innovative and entrepreneurial attitudes in the region and increases in the capabilities of public administration, which are seen as less important by mixed-activity enterprises.

To conclude, businesses in the Silesian voivodeship see the listed factors as relatively important for introducing innovation. The contribution of local government to the development of human capital is perceived as the most important element in this group for conditioning the innovativeness of enterprises.

The companies perceive the significance of the factors in question as relatively large regardless of their own level of innovativeness.

Conclusions

The level of innovativeness of enterprises surveyed, determined on the basis of number and level of novelty effect in innovations implemented, confronted with subjective assessment of innovativeness of enterprises made by respondents, can be considered low. Over half of enterprises have not introduced any innovation in three years, which according to standards defined in the *Oslo Manual* means that they are non-innovative ones. Taking into account the number of surveyed enterprises and total number of innovations implemented, it can be concluded that average number of innovations implemented in 2013–2015 by one enterprise in the Silesian voivodeship is only 0.97, which, referring to Eurostat data, is a low and unsatisfactory result.

Table 4. Spearman rank correlation coefficients for correlations between the assessment of significance of the select factors influencing the innovative milieu of a region and the size of enterprises and the level of innovativeness of enterprises

	r_s / p	Correlations between the size of enterprises and the assessment of the importance of specific factors	Correlations between the innovativeness level of enterprises and the assessment of the importance of specific factors
Local authorities' contribution to the development of human capital	r_s	-0.029	0.052
	p	0.645	0.407
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	r_s	0.013	-0.049
	p	0.830	0.433
Promotion of entrepreneurial and innovative attitudes in the region	r_s	0.025	0.018
	p	0.693	0.774
Creation of knowledge centres in the region, and providing free access to market analyses, databases, information sources etc.	r_s	-0.132*	-0.089
	p	0.035	0.154

r_s – Spearman's rank correlation coefficient, p – significance level

*The correlation is significant at the level of 0.05

Source: own research

Table 5. Significance of select factors influencing the innovative milieu of a region vs the level of innovativeness of enterprises (% of answers)

	Innovativeness level	Doesn't matter	Low	Average	High	Very high
Local authorities' contribution to the development of human capital	Non-innovative	1.4	9.2	33.6	45.2	10.5
	Very low	1.1	9.3	32.6	41.0	16.0
	Low	3.6	3.4	26.8	51.8	14.5
	Average	0.0	9.7	14.1	63.2	13.0
	High and very high	0.0	28.4	17.1	37.3	17.1
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	Non-innovative	4.6	13.6	28.5	51.4	2.0
	Very low	20.9	12.2	31.9	31.2	3.7
	Low	5.3	7.2	39.7	47.8	0.0
	Average	6.5	9.7	20.6	56.7	6.5
	High and very high	34.3	0.0	0.0	48.6	17.1
Promotion of entrepreneurial and innovative attitudes in the region	Non-innovative	1.9	16.2	36.8	44.0	1.0
	Very low	0.0	26.9	31.2	39.6	2.4
	Low	0.0	10.7	28.7	53.5	7.1
	Average	0.0	3.8	46.1	43.7	6.5
	High and very high	20.2	34.3	45.5	0.0	0.0
Creation of knowledge centres in the region. and providing free access to market analyses. databases. information sources etc.	Non-innovative	1.4	15.6	28.0	47.9	7.2
	Very low	0.0	18.5	46.4	31.0	4.1
	Low	0.0	10.3	37.7	48.3	3.7
	Average	0.0	6.4	35.7	57.9	0.0
	High and very high	20.2	17.1	45.5	17.1	0.0

Source: own research

Table 6. Significance of select factors influencing the innovative milieu of a region vs the type of activity of an enterprise (% of answers)

	Activity type	Doesn't matter	Low	Average	High	Very high
Local authorities' contribution to the development of human capital	Manufacturing	2.4	13.1	27.8	42.4	14.4
	Services	0.7	6.5	26.8	60.1	6.0
	Commerce	1.3	1.3	40.6	36.5	20.4
	Mixed	0.0	28.8	38.0	33.2	0.0
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	Manufacturing	9.8	9.8	35.0	41.1	4.3
	Services	6.5	8.3	18.3	66.0	0.9
	Commerce	10.2	10.1	40.7	36.4	2.6
	Mixed	7.3	82.1	0.0	10.7	0.0
Promotion of entrepreneurial and innovative attitudes in the region	Manufacturing	0.0	19.7	43.3	33.4	3.6
	Services	1.1	15.2	27.3	54.9	1.5
	Commerce	2.6	15.3	29.2	50.4	2.6
	Mixed	14.9	13.9	55.4	15.9	0.0
Creation of knowledge centres in the region. and providing free access to market analyses. databases. information sources etc.	Manufacturing	1.2	16.6	45.4	31.9	4.8
	Services	1.1	8.9	24.6	62.0	3.5
	Commerce	1.3	15.3	31.8	41.5	10.2
	Mixed	0.0	44.6	0.0	55.4	0.0

Source: own research

Table 7. Link between the assessment of select factors influencing the innovative milieu of a region and the type of activity of enterprises – results of an analysis of variance

	Fisher-Snedecor's F-distribution	Significance level
Local authorities' contribution to the development of human capital	1.961	0.120
Increases in the capacity for innovation of public administration and improvements to the functioning of public administration	5.701	0.001
Promotion of entrepreneurial and innovative attitudes in the region	2.427	0.066
Creation of knowledge centres in the region, and providing free access to market analyses, databases, information sources etc.	3.237	0.023

Source: own research

Creating an innovative milieu requires knowledge and contribution not only from employees of businesses and business environment institutions, but also from the public administration. Effectiveness of modern innovative processes is conditioned to an ever increasing extent by non-material factors, including cooperation and knowledge exchange between business partners. Local government authorities are an important creator of the innovation milieu, as they can stimulate or hinder innovative processes in enterprises and the region.

Entrepreneurs in the Silesian voivodeship assign a high rating to the four studied factors dependent on the actions of voivodeship local government.

Local government involvement in the development of human capital was rated the most important factor. Considering the growing importance of knowledge for innovative processes and problems in finding employees with appropriate range of skills, entrepreneurs see the need for local government actions to stimulate the development of human capital. Organising conferences, training, and courses to spread knowledge on innovativeness and enterprise management are only a few examples of possible local government actions.

Local government should seek to tailor school and university education to the needs of their region. The dissemination of knowledge is supported by organising talent hunting contests and affording grants and scholarships to talented individuals.

Creation of knowledge centres in the region and providing free access to data and information necessary for the development of enterprises was rated the second most important factor for the growth of innovativeness. This factor was rated particularly highly by small businesses, for whom their limited financial capacity is still one of the most important barriers for introducing innovation.

The role of local government is to create an atmosphere in their region that would be appropriate for entrepreneurship and innovativeness. Promotion of entrepreneurial and innovative attitudes is, according to the respondents, the third most important factor contributing to increasing innovativeness of enterprises. This is aided, amongst other actions, by competitions

and creating preferential conditions for introduction of innovation.

The surveyed entrepreneurs are aware that increasing the innovativeness of enterprises is not possible without increasing the skill level of public administration. Excessive bureaucracy, complicated procedures and overly long time of processing affairs in government offices are still important barriers to the functioning of enterprises (*Doing Business*, 2019).

An important conclusion to be drawn from the study is the lack of statistically relevant correlations between the assessment of the investigated factors and the level of innovativeness of enterprises. Therefore, involvement of local government authorities in the aforementioned activities is of high (between 3.23 and 3.60 on a scale of 1 to 5) importance for all of the surveyed businesses.

Meanwhile, considering the type of economic activity we can conclude that manufacturing enterprises rate the importance of local government involvement in the development of human capital higher than others, which is related to the high needs of these enterprises during the introduction of product innovations.

The conclusions presented here may be conducive to building a strong innovative environment by the interested entities – businesses, research and development facilities, public administration, and business support institutions. It is in the interest of local governments, enterprises, and other actors that the local authorities take advantage of their capabilities and legally-outlined powers more broadly and effectively.

Subjectivism of respondents in assessing the significance of regional determinants for enterprise innovation represents a limitation of presented research, although I tried to minimize the bias of response by, among others, selecting respondents from the management team.

Undertaken considerations allow to set new directions of research, which constitute an extension and continuation of presented issues, among which learning about the impact of other regional factors determining innovation of enterprises, including, inter alia, region's innovation culture, and determining the impact of regional conditions on effectiveness of enterprises, seem particularly important and interesting.

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Endnotes

- 1) For the purposes of this work, the region is considered to be equivalent with the voivodeship area.
- 2) The results presented here are part of a broader research presented in: A. Kamińska (2017b).
- 3) Similarly to the principle applied by Statistics Poland, Eurostat, and subject literature, enterprise size was determined based on a simplified criterion – the number of employees.

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Rola samorządu wojewódzkiego w kreowaniu środowiska innowacyjnego – studium przypadku województwa śląskiego

Streszczenie

Samorząd województwa, realizując szereg zadań publicznych, zobligowany jest ustawowo do stymulowania innowacyjności regionu. Celem artykułu jest przedstawienie siły i sposobu oddziaływania czynników regionalnego środowiska innowacyjnego na innowacyjność przedsiębiorstw na przykładzie województwa śląskiego. Ocenie poddano znaczenie następujących czynników zależnych od wojewódzkich władz samorządowych: zaangażowanie samorządu w rozwój kapitału ludzkiego, podnoszenie kwalifikacji administracji publicznej

w zakresie innowacji oraz poprawy funkcjonowania administracji, promocja postaw przedsiębiorczych i innowacyjnych w regionie, tworzenie centrów wiedzy w regionie i nieodpłatne udostępnianie informacji. Wnioski oparto na wynikach badań ankietowych przeprowadzonych metodą CATI (*Computer Assisted Telephone Interview*) na próbie 259 przedsiębiorstw z województwa śląskiego. W celu określenia współzależności pomiędzy oceną znaczenia badanych czynników a wielkością, poziomem innowacyjności oraz profilem działalności przedsiębiorstw zastosowano metody statystyczne.

Słowa kluczowe

innowacyjność, region, środowisko innowacyjne, władze samorządowe