Supporting Enterprise Innovation by Cooperation with Business Environment Institutions in Poland and Belarus

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Abstract Effective implementation of innovation in the context of economy globalization requires entering into cooperative relationships with other companies and market participants. Business environment institutions (BEI) constitute one of the most important elements of efficient innovation system. They support companies and facilitate the flow of knowledge and technology between science and businesses. There are not many research on cooperation between enterprises and BEI carried out in regional context, especially on cooperation between Polish and Belarusian companies. The research problem refers to a small impact of cooperation between enterprises and BEI on the possibility of effective implementation and supporting innovation development in Podlasie region in Poland. This article presents the results of studies which took into account factors that affect the level of cooperation between BEI and companies representing the leading branches in north-eastern Poland and in Belarus. The methods of critical analysis of the literature and statistical analysis of data have been used. It was found out that the existing forms of mutual cooperation between businesses and BEI are not used effectively enough to support innovation. In order to increase the innovative activity of enterprises it may be necessary to develop cross-border cooperation, inspired by the cooperation programs developed by local authorities.

Keywords Cooperation · Innovation · Competitiveness · Business environment institutions · Poland · Belarus

1 Introduction

Competition is a driving force of technological progress that influences development of regions and states. The increase in competition has led to increased interest in relationships in which competition is intertwined with relationships based on

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partnerships. The idea of benefiting from the collective actions of economic actors is increasingly common. It can be assumed that in modern economy cooperation of enterprises with business environment institutions can be a way of increasing innovativeness of enterprises and regions.

Companies are not able to implement innovations themselves in conditions of globalization and increased competition. Implementation of innovative projects for new technologies, products and services development requires establishment of contacts with a number of external partners i.e. other companies and different market participants. Promoting innovative projects creates a market for a new type of service and develops economic environment that supports entrepreneurs. This includes creation and development of specialized business environment institutions (BEI). These institutions are therefore an important element of an effective system for supporting the development of innovation. In this context, the role of international links with business environment institutions is also important. It applies in particular to border regions like Podlasie in Poland, which is an element of the Baltic Sea Region. Podlasie is one of the four regions in Poland located along the external border of the European Union. The ability of its cooperation and networking will be decisive for opportunities and directions of its development. Strengthening the competitive potential of the outermost regions is possible by growth through external factors, in particular through the development of cross-border cooperation (Fratesi 2015; Smętkowski et al. 2017). Formation of various forms of inter-organizational linkages has a positive impact on increasing the level of economic development of a region. An extensive network of links between business entities is one of the most important factors of their competitiveness, also international (Leigh and Blakely 2013; Daniluk 2017).

Researches on business environment institutions in different regions are characterized by considerable variations in scale and scope. Factors affecting the tendency to cooperate in central regions are not always relevant to cross border regions. There is no study on the impact of business collaboration with business environment institutions on development of innovation. This also applies to Podlaskie voivodeship, which is one of the last in the ranking of innovations in Poland. Analysis of research results indicates that there is no detailed research on regional level of cooperation with business environment institutions in the cross-border context. This article presents the results of studies which took into account factors affecting the level of cooperation between companies and business environment institutions in Podlaskie voivodeship in Poland and in neighboring regions of Belarus. The context of the research was implementation of innovation in Podlaskie region in Poland. The author assumes that the research results will contribute to the growing knowledge on the forms of business cooperation. They will also contribute to the development of innovativeness and increase of competitiveness potential of the region.

2 Review of the Literature

Enterprises must evolve constantly, change business processes and introduce new products in order survive in rapidly evolving reality. Such innovative development is the main driving force for the economic growth of states and regions (Skawińska and Zalewski 2009; van der Zwan 2016). Development of companies is influenced by many factors related to both the internal resources and environment in which the company operates. Contemporary development processes are becoming more and more frequent in a specific system of interconnections between different entities. Growing globalization on the one hand forces competition between companies, on the other hand necessitates cooperation. As a result, networks are created by enterprises, public administration units, research units and non-government organizations. Networking facilitates exchange of information and generation of new ideas. Collaboration between businesses is becoming increasingly important and networking becomes a typical way of functioning in the business world (Sroka and Cygler 2014).

Literature highlights the diversity of forms of cooperation between organizations (Bouwen and Taillieu 2004; Schruijer 2006; Wybieralski 2015). Cooperation should ensure that partners meet their individual goals as well as the goals of joint organizations. We can find a definition of cooperation as a relationship in which individuals, groups and organizations interact. This includes sharing or transfer of complementary skills and resources as well as the development of these resources to benefit collaborating stakeholders (Gnyawali et al. 2006). In dynamic terms cooperation is an activity that involves the coordination of partial tasks. These tasks result from a fixed division of labor or relations between economic entities. The scope of coordination is determined on the basis of contracts and agreements that facilitate fulfillment of specific tasks from the formal point of view (Połomska-Jasieńowska 2010). The results of various organizations' combined efforts are mutual learning and common problem-solving. It should be mentioned that joint efforts do not always lead to positive solutions. In the case of a number of alliances made by cooperating companies their stated objectives were not achieved and the intended benefits were not gained (Kale and Singh 2009; Lunnan and Haugland 2008; Keasler and Denning 2009). Different forms of cooperation between companies make currently one of the ways of business operations. Cooperation is a permanent mechanism for allocation of resources. And strategic partnership for a long time is a requirement for effective management. Many authors express the view that in the process of cooperation organizations cooperate and form relationships based on mutual benefits. One of them—the increase in innovation and cooperation between organizations is regarded a facilitator of innovations (Florida 2007; Tu et al. 2014; Emami and Dimov 2017). Literature highlights the diversity of forms of cooperation between organizations (Bouwen and Taillieu 2004; Schruijer 2006). They include classic forms such as strategic alliances and innovative forms such as technology clusters or enterprise networks. The mechanisms of creating new organizational forms are important for creating potential links between organizations.

Human aspects are an important issue in the case of cooperation. They concern actions aimed at enhancing creativity, entrepreneurship and innovation. An innovative company, in order to survive on the market, must constantly monitor the market situation, anticipate changes to respond to them and use them as opportunities. The effect of these actions may be an increased efficiency of regional and local growth factors (Porter 1998; Tu et al. 2014). As defined by the OECD in the Oslo Manual innovation is the introduction or application of a significantly improved product (or service), process, new marketing method or organizational business practice, work organization or external relations (OECD 2005). Innovation implementation processes can be strengthened through geographic proximity, linkages and collaboration between actors (Lęcznar 2007).

The main factors influencing effectiveness of innovation implementation are human capital (knowledge), structural capital (learning capacity) and relational capital (Porter 2001). Relational capital is defined as a set of relations between entities in the region. The cultural similarity of subjects and the awareness of belonging to a given community are important. Capitalization can lead to increased cooperation of companies with suppliers and customers and greater mobility of human resources (Kowalski 2010; Maennig and Ölschläger 2010). The concept of open innovation is the process of systematic generation of new ideas and products and assimilation of the existing knowledge. This is done through constructive interaction in a dynamic environment of competent organizations and specialized staff. This concept is based on combining new ideas that are complementary to the existing research and development projects (European Commission 2008; Ciriaci et al. 2016).

Regions that occupy top places in the rankings of competitiveness are also regions with high levels of innovation. In order to improve the competitive position of the region, it is necessary to create favorable conditions for the generation of innovation (Hollanders et al. 2012; Porter 2001). As a prerequisite for sustainable economic development of the region, it is capable of creating knowledge and innovation. In order to achieve a high level of regional competitiveness, investments in a knowledge-based economy, such as human capital development and institutional support, are needed (Martin and Sunley 2003). Growth in business innovation is necessary to improve their market competitiveness (Ejdys et al. 2015). The need for innovation is evident not only at the enterprise level. Also in the European Union policy is increasing awareness of the importance of the role of innovation in the development of regions and the need to take into account the regional conditions of business development. As a consequence, the absorption of innovation becomes one of the key elements of economic and social cohesion policy at the level of regions and states of the European Union (Barska 2014). An important element of the regional innovation support environment is business support institutions, business development organizations, innovation centers and many others. Many business support instruments are offered by specialized business environment institutions. These include business support centers, business organizations, service companies and financial institutions (Lisowska 2013).

The role of raising entrepreneurs' awareness should be taken over by the business environment institutions (BEI), whose task should be primarily emphasizing the long-term benefits resulting from cooperation. The role of business environment institutions in implementing innovation is important because of their close cooperation with local entrepreneurs. This enables direct actions such as counseling, lending, business information, and indirect influence on awareness and improvement of local entrepreneurship through training and courses. The form of message transmitted by the BEI is very important in this process. The language of benefits should be spoken when promoting an offer for cooperation between enterprises. It should be emphasized that participation in joint studies, group shopping or activities in the area of joint promotion can lower costs for companies or save time. Entrepreneurs do not have too many opportunities to communicate with each other. Most entrepreneurs work on their own or in small groups sometimes (Leigh and Blakely 2013). Business environment institutions (BEI) offer services that primarily affect the local and regional environment outside the enterprise business.

Today studies of national range and regional studies can be distinguished, mostly relating to the situation in individual provinces. According to research results, there are relatively small number of business environment institutions in the Podlasie region. At the same time, entrepreneurs point out that the BEI offer is not fully adapted to their needs. More professionalization of BEI's activities is required, which should translate into improvements in the quality of BEI's services. The result should be increased transfer of knowledge, innovation and technology, especially to small and medium enterprises. In a poorly-developed low-income region, such as the Podlaskie Voivodeship, it is necessary to target BEI's activities to initiate and incubate businesses and to empower existing businesses by providing funding at an early stage of their development (Urząd Marszałkowski Województwa Podlaskiego 2015).

3 Methodology

The article includes a number of quantitative studies which covered 381 Polish companies from leading industries in the Podlaskie Voivodeship (including food industry, wood and furniture industry, metal and machine industry, construction industry) and 121 companies from Republic of Belarus (from similar sectors). Targeted companies were selected in order to limit the research to specific actors whose opinion was authoritative and most desirable. The study was not representative. The main objective of the research was to define relations between business entities and business environment institutions in the context of innovativeness development in the Podlaskie Voivodeship. The survey was addressed to business owners or senior executives. The subject literature analysis and team discussions have identified the factors that may influence cooperation between businesses and business environment in the context of enhancing innovation (Strzyżewska 2011; Górzyński 2006; Bengtsson and Kock 2014; Ford and Håkansson 2013). It has been

assumed that undertaking some forms of mutual cooperation between companies and business environment institutions may increase the propensity for innovative development.

The research problem was presented in the form of questions concerning current and future level of cooperation between the surveyed companies and business environment institutions. Responses were interpreted from the perspective of the impact of individual factors on the ability to implement innovation. Interpretation of results and comparative analysis of Polish and Belarusian companies was conducted. The key question was: How do respondents assess the current level of cooperation between the companies and business environment institutions? The answer was further explained by indicating the degree of companies' interest in strengthening their cooperation with business environment institutions in the near future. The questions were aimed at identifying a general approach to cooperation with business environment institutions in Poland and Belarus. In order to deepen the analysis, the question of the extent to which individual factors influence the current level of cooperation between respondent enterprises and business environment institutions was asked. Verified was also to what extent the positive changes in factors can contribute to improve the cooperation in next 2–3 years. The focus was mainly on factors affecting the implementation of enterprise innovation.

Respondents evaluated factors in a 7-point scale (1—means total absence, 7—very significant). Interpretation was carried out using basic statistical measures: measures of central tendency—mean (x), median (Me) and dominant (D). Spearman's rank correlation was used to indicate the interdependence of ratings. The group of analyzed companies in Poland and in Belarus is presented in Table 1.

In the group of analyzed enterprises in Poland, a quite similar share of particular industries can be noticed. It amounted to 19.95% for construction and the metal and machine industry, 21.52% for the wood processing industry and furniture production, up to 21.79% for the food industry. The largest share of enterprises from the food industry and wood processing and furniture production is primarily due to the agricultural character of the region and the long tradition of functioning of such enterprises. Small and medium enterprises dominate in these industries. According to the size of the enterprise, the largest share was held by small and medium companies (38.32% and 28.87%, respectively). These are mostly entities with a stable position that have been operating on the market for over 10 years. Research confirms that such enterprises strive to strengthen their market position. They also actively seek partners for cooperation in the field of innovation implementation. The goal of these activities is primarily development towards competitors.

The structure of the analyzed companies in Belarus is different. The largest share is held by companies representing construction (55.37%), followed by companies from the wood industry. It seems that this is due to the specificity of the Belarusian economy, which is focused on the implementation of industrial facilities. In the last dozen years we can observe, acceleration of construction and housing construction investments. This structure of the economy is also a remnant of the long-term dependence on the influence of the Soviet Union and later Russia. It also affects the size structure of companies, where the largest share is held by large enterprises

Table 1 Characteristics of the analyzed companies

	Companies				
		Including industry			
	Total N (%)	Construction N (%)	Food N (%)	Metal and machine N (%)	Wood and furniture N (%)
Poland					
Company size—measured by the number of employees					
<10 people	85 (22.31)	20 (26.32)	8 (9.64)	10 (13.16)	25 (30.49)
10–49 people	146 (38.32)	23 (30.26)	40 (48.19)	26 (34.21)	42 (51.22)
50–249 people	110 (28.87)	27 (35.53)	26 (31.33)	23 (30.26)	10 (12.19)
>249 people	40 (10.50)	6 (7.89)	9 (10.84)	17 (22.37)	5 (6.10)
Total N (%)	381 (100)	76 (19.95)	83 (21.79)	76 (19.95)	82 (21.52)
Belarus					
Company size—measured by the number of employees[a]					
<16 people	17 (14.05)	6 (8.96)	1 (10.00)	1 (7.69)	7 (24.14)
16–100 people	36 (29.75)	24 (35.82)	6 (60.00)	3 (23.08)	3 (10.34)
101–250 people	18 (14.88)	12 (17.91)	3 (30.00)	0 (0.00)	6 (20.69)
>250 people	50 (41.32)	25 (37.31)	0 (0.00)	9 (69.23)	13 (44.83)
Total N (%)	121 (100)	67 (55.37)	10 (8.26)	13 (10.74)	29 (23.97)

Source: Own study

[a]Differences in employment intervals in enterprises are due to different statistical data collection systems in Poland and Belarus

employing over 250 people (41.32%). In this case, the largest number of companies operating on the market over 10 years, sometimes even over 30 years. In large part, these are state-owned entities or transformed from state-owned enterprises. In their case, the tendency to risk and implement innovations is much lower.

4 Analysis of the Results

The innovative potential of enterprises is strongly influenced by the tendency to interact with other market participants. This applies in particular to cooperation with institutions that support development opportunities. Therefore, from the point of view of the possibility of implementing innovations in enterprises in Poland and Belarus, it was important to assess the perception of enterprises by the current level of cooperation with business environment institutions. The degree of assessment of the possibilities of future cooperation was also taken as an important factor.

Table 2 Current and future cooperation whit business environment institutions in the respondents' opinion (Polish companies/Belarusian companies)

Specification	Mean	Median	Dominant
Declared level of cooperation with business environment institutions			
Food companies	3.42/4.40	3.00/4.50	3/3–5
Metal and machine companies	3.09/3.62	3.00/4.00	3/3–5
Wood and furniture companies	2.77/4.72	3.00/5.00	1/7
Construction companies	2.84/4.10	3.00/4.00	1/4
Degree of interest in strengthening cooperation within the next 2–3 years			
Food companies	3.64/4.50	4.00/4.00	4/4
Metal and machine companies	3.97/4.38	4.00/5.00	3–5/5
Wood and furniture companies	3.41/4.59	3.00/4.00	3/4
Construction companies	3.68/4.10	4.00/4.00	3/4
Correlation of Spearman's rank (r_s) between the current level of cooperation and possibilities of its strengthening in the future (significance level of 0.05)			
	Spearman'rank (rs)		
Food companies	0.5502/0.5206		
Metal and machine companies	0.6704/0.2892		
Wood and furniture companies	0.7243/0.8493		
Construction companies	0.6308/0.5710		

Source: Own study

A statistical analysis was carried out to determine if there is a correlation between the level of assessment of areas of existing cooperation and the assessment of these areas in the future. Enterprises were asked for self-assessment, taking into account factors considered important in terms of their impact on the ability to implement innovations (Table 2). The research results are not optimistic—Polish respondents assessed the low level of existing cooperation between their companies and business environment institutions, while the average ratings for individual industries are slightly different.

The analysis of Spearman's correlation coefficient indicates that in all industries studied in Poland and Belarus there is a positive correlation between the evaluation of the current level of cooperation and the possibility of strengthening this cooperation in the future. This means that the higher the surveyed enterprises assessed the level of existing cooperation at present, the higher are the assessments of the possibilities to strengthen this cooperation in the near future. Assessment of the correlation strength of ratings in the case of Polish enterprises indicates a strong dependence in the wood industry and moderate dependence in other industries. This may indicate some concern about cooperation at the moment. He also indicates a positive attitude to the possibility of undertaking such cooperation in the future. Polish companies are primarily concerned about political turmoil and the dependence of the Belarusian economy on Russia. The studies indicate that in the woodworking and furniture industries as well as in the construction industry, most of the analyzed companies have not yet started cooperation with business environment institutions.

The assessment of the current level of cooperation between Polish companies and business environment institutions is the lowest in the case of the wood industry (average rating 2.77), and the highest in the food industry (average 3.42). However, these are not optimistic values and point to the pessimistic attitude of enterprises to obtain positive effects with these institutions. The dominant and median value is 3 for all industries studied. This is surprising, because in the case of the construction industry it is often required to establish cooperation with other institutions to implement the investment. To explain such behavior, one should look deeper than just economic theory. The analyzed areas are a mixture of many cultures and nations. They were shaped by numerous war experiences and political domination of foreign systems. It causes uncertainty about possible future directions of development and limits readiness to undertake commitments that result from cooperation in the longer term. Current turbulent political events at the interface between Western Europe and Russia are also not conducive to economic stabilization. It can be said that political, social and economic conditions have shaped the climate that is unfavorable for cooperation in various areas of the public sphere. Authors of other studies (Wasiluk 2017; Tomaszuk 2016) also notice a dominant attitude, which includes preferences of their own benefits nowadays, careful contacts, low trust in contacts with other entities. This limits the openness to new ideas and innovative solutions.

A slightly greater optimism in the cooperation of Polish enterprises with business environment institutions can be observed in the respondents' declarations regarding the near future. The average marks in various industries also differ slightly. However, these differences are not statistically significant. Although the diversity of assessments is lower than in the case of current cooperation, it still remains high. The analysis of Spearman's correlation coefficient indicates a moderate (in the case of the food industry), and even high (in the case of other sectors) dependence of assessments of current cooperation on the possibilities of strengthening it over the next 2–3 years. The higher the respondents assessed the current level of their cooperation with these entities, the more willingness to strengthen it in the future was declared. This is due to the growing awareness of the surveyed companies regarding the benefits of such cooperation in the face of challenges posed by the environment. The experience and the results of such cooperation in the past also have an impact.

In the case of enterprises from Belarus, the results of the evaluation of the current cooperation with business environment institutions are slightly higher. The assessment of the growth of such cooperation in the future is also more optimistic. Belarusian enterprises see to a greater extent assisting institutions as more helpful. This approach applies in particular to the wood industry (average rating 4.72) and the food industry (4.40). It also translates into a higher assessment of the possibility of closer cooperation in the future. Again, the decisive role here seems to be played by the greater confidence of Belarusian companies in all types of institutions. This results from the experience of many years of functioning in a centrally planned economy. In such conditions, the continuity of operation in a stable environment counts, implementation of innovation is not a priority.

A higher assessment of the current level of cooperation is linked to bigger interest in increasing this cooperation in the next 2–3 years. This is due to the positive effects of such cooperation. It also depends to a large extent on the actual and expected benefits of cooperation. Taking into account the earlier results of the analysis of the issues in question (Wasiluk and Daniluk 2013) it seems that the companies in Poland focus on cooperative forms which allow for immediate effects. Therefore they are not the forms conducive to development of innovation in the long term. The pro-innovative reasons analyzed in this text were not in the respondents' opinion the primary ones to undertake cooperation with business environment institutions. They contributed establishing contacts between two spheres of economic life to a small degree only. For the majority of sectors the dominant remained at level 1, which proves that the highest percentage of respondents have never undertaken any cooperation in this area. The most active in cooperation with business environment institutions were food companies and metal and machine companies, while the most frequent reason was the possibility to get aid in the transfer of technology. There were no statistically significant differences between the analyzed sectors in their ratings of reasons (Table 3).

Analysis of the mean values of the current level of Polish companies' cooperation shows that there have been only two indications above 4 (on a 7-level scale). This applies to factors such as access to financial institutions and support programs. These are indications of the food industry companies only. Most of the other factors have been rated below 4 by all sectors. The higher values refer to aspects of cooperation related to access to financial institutions and implementation of support programs, business consulting and business development assistance—both for construction and industrial companies. However, it should be borne in mind that the indicated areas do not require deep engagement in business cooperation and the potential effects do not apply to areas of innovation implementation. In this context, concerns about areas that have a particularly significant impact on innovation development may be of concern. Cooperation mechanisms related to implementation of innovations require high involvement of company's own resources and high level of trust in the cooperating actor. The low ratings of cooperation with business environment institutions indicate a lack of willingness on the part of enterprises to develop deeper cooperative relationships. They may also point to a low assessment of BEIs' service offerings or low awareness of entrepreneurs about the scope of the existing offer and the potential benefits when using the opportunities available to engage their resources. These results fit into the stereotypical image of Podlasie entrepreneurs as very distrustful in their mutual relations. This also applies to research on innovation and collaboration with business environment institutions (Daniluk 2016). The obtained results also show that Podlaskie companies rarely undertake R&D activities in cooperation with other entities. Companies in Podlaskie Province do not trust potential partners. The main reason is the fear of losing technology, customers and employees. A small group of entrepreneurs in Podlaskie Province express their desire to take advantage of BEI's offer in the future. It should be stated that the Podlasie entrepreneurs do not cooperate with BEI because they do not see the potential benefits of such activities.

Table 3 Descriptive statistics for the assessment of the impact of various on the level of existing cooperation with business environment institutions (Polish companies/Belarusian companies)

Specification	Mean	Median	Dominant
	Food companies Metal and machine companies Wood and furniture companies Construction companies		
The possibility of joint research and development projects	3.05/4.00	3.00/4.00	2/3–4
	3.13/3.38	3.00/4.00	3/4
	2.73/3.72	2.50/4.00	1/1
	2.95/3.37	2.50/3.00	1/3
Access to research centers/research infrastructure	3.28/4.10	3.00/4.00	1/4
	3.25/3.69	3.00/4.00	3/4
	2.65/3.97	2.00/4.00	1/1–5
	2.80/3.64	2.50/4.00	1/4
Access to financial institutions and support programs	4.02/5.10	4.00/5.00	5/4
	3.91/3.54	4.00/4.00	3/2–3
	3.27/3.79	3.00/4.00	1/1
	3.51/3.54	3.00/3.00	1–3/3
Consultation/Business Consulting	3.71/4.80	4.00/4.50	3/5/7
	3.55/4.38	3.50/5.00	4/5
	3.30/4.62	3.00/5.00	1/6
	3.28/4.40	3.00/5.00	1/5
Commercialization of research results	3.13/4.30	3.00/4.00	3/3
	3.01/3.77	3.00/4.00	3/4
	2.66/3.55	3.00/4.00	1/1
	2.76/3.30	3.00/3.00	1/1–3
Access to databases	3.31/5.20	3.00/5.50	3/7
	3.05/3.77	3.00/3.00	3/2–3
	3.05/4.38	3.00/5.00	1/6–7
	3.22/3.85	3.00/4.00	1/3
Help in business development	3.89/5.20	4.00/5.00	4/7
	3.53/3.92	3.00/4.00	3/2–4–5
	3.43/4.52	3.00/5.00	3/7
	3.47/3.96	3.00/4.00	1–6/4
Assistance in technology transfer	3.58/5.20	4.00/6.00	4/6–7
	3.45/4.08	3.00/4.00	3/4
	3.27/4.34	3.00/5.00	1/6
	3.09/3.93	3.00/4.00	1/1
Past experience with cooperation	3.53/4.60	4.00/4.50	4/7
	3.32/3.69	3.00/3.00	3/2
	3.15/4.55	3.00/5.00	1/6–7
	3.07/3.99	3.00/4.00	2/3

Source: Own study

These conclusions are consistent with other studies in Poland (Kamińska 2011; Bąkowski and Mażewska 2014; Pietruszewska-Cetkowska and Zygmont 2014). It seems that the attitude of business environment institutions is very conservative. These institutions define their offer without seeking to know the potential customer better. In this way, the offer often goes to a random recipient who is not interested in its scope. Therefore, the promotion of BEI services is also ineffective and information addressed to entrepreneurs does not go to fertile ground. It is necessary to change this attitude, which may require BEI's information and promotion activities focus more on business benefits for specific groups of companies. This also applies to the increased capacity to implement innovation. The study results are not very optimistic also in the area of Polish and Belarusian companies' assessment of cooperation with business environment institutions in the next 2–3 years (Table 4).

Analyzing the intensification of co-operation in the next 2–3 years, no particular relationship was found. Most companies, both in present, as well as in the future declarations, do not see the need for closer cooperation with BEI. This applies to both Polish and Belarusian companies. The declared willingness to start cooperation is higher from its current level, but a large percentage of the companies do not intend to undertake such cooperation in the near future. In respondents' opinion the positive changes, especially with respect to help in technology transfer, would influence the improvement of companies' cooperation with business environment institutions to the greatest extent. Improved possibilities for implementation of joint research and development projects and easier access to research facilities or infrastructure would also be significant. A positive change in helping to commercialize research would have a relatively smaller impact. This seems to be due to the fact that Polish companies rarely undertake research and development and if they do it is only for their own needs. This is primarily due to the closed nature of the Polish-Belarusian border and the resulting lack of information on potential areas and benefits of cross-border cooperation. Another reason is the stereotypical perception of the Belarusian economy as backward, devoid of innovative potential.

5 Conclusion

Research has shown a low level of willingness to establish relations with business environment institutions in the case of Polish as well as Belarusian companies. This concerns both the current cooperation and readiness to strengthen it in the next 2–3 years. These are not optimistic conclusions from the point of view of innovation. It is significant that the assessments of most factors with a direct impact on innovation did not exceed level 4 in a 7-level scale. Neither Polish nor Belarussian companies see the need for cooperation and economic benefits they can achieve in long-term business. For Polish and Belarusian companies the benefits are of prime importance. They mainly concern the possibility of expanding sales to new markets and improving quality of products and services. This is mainly due to the existing model of cooperation. Most business environment institutions cooperate with businesses in a

Table 4 Descriptive statistics for the assessment of the impact of various on the level of *future cooperation* with business environment institutions (Polish companies/Belarusian companies)

Specification	Mean	Median	Dominant
	Food companies Metal and machine companies Wood and furniture companies Construction companies		
The possibility of joint research and development projects	3.60/3.20	4.00/2.50	5/2
	4.04/4.15	4.00/4.00	3/3–4
	3.39/3.83	3.00/4.00	2/1–2–6
	3.62/3.64	3.50/3.00	2/2
Access to research centers/research infrastructure	3.61/3.90	4.00/3.50	4/3
	4.11/4.15	4.00/5.00	5/5
	3.53/3.93	3.00/4.00	1–4/5
	3.41/3.87	3.00/4.00	3/3
Access to financial institutions and support programs	4.27/4.60	5.00/4.00	5/4
	4.37/3.92	4.00/4.00	3/3
	4.02/4.03	4.00/5.00	4/5
	4.28/3.82	4.00/4.00	3/3
Consultation/Business Consulting	3.40/4.80	4.00/4.50	4/4–6
	3.95/4.46	4.00/5.00	6/4
	3.88/4.38	4.00/5.00	4–5/7
	4.00/4.46	4.00/4.00	4/6
Commercialization of research results	3.52/4.60	4.00/4.50	4/4–6
	3.43/4.38	3.00/5.00	3/3–6
	3.28/3.83	2.00/5.00	1/1–6
	3.43/3.90	3.00/4.00	4/5
Access to databases	3.65/4.80	4.00/5.00	5/5–6
	3.80/4.46	4.00/4.00	4–53
	3.62/4.83	3.50/5.00	1–3/6–7
	3.57/4.19	3.00/4.00	3/6
Help in business development	4.22/5.20	4.00/5.00	5/5–7
	4.03/4.92	4.00/5.00	4/4
	4.20/4.93	4.00/5.00	4/7
	4.24/4.18	4.50/4.00	5/2–4
Assistance in technology transfer	4.08/5.10	4.00/5.50	5/6
	3.88/4.69	4.00/4.00	4/3
	3.96/4.83	4.00/5.00	4/6–7
	3.88/4.36	4.00/5.00	4/6
Past experience with cooperation	3.69/4.80	4.00/5.00	5/4–7
	3.64/4.46	3.00/4.00	3/4–6
	3.46/4.76	3.50/5.00	3/5
	3.45/4.18	3.00/4.00	3/3

Source: Own study

standard way, to a very limited extent. This makes their help less effective and does not meet the needs of entrepreneurs dealing with nonstandard problems.

As a result, the low level of cooperation between business and business environment institutions hinders creation and effective functioning of the regional innovation system. This applies to both the Podlaskie Voivodeship and Belarusian side. The proposed measures contributing to more efficient support for entrepreneurs in the region of Podlasie that can be provided by business environment institutions:

1. Coordination of activities between Polish and Belarusian parties through creation of a council-based body for business environment institutions. The mutual cooperation of business environment institutions on both sides of the Polish-Belarusian border would allow entrepreneurs to benefit from a system of coherent and comprehensive services.
2. Creation of specialized structures that could collaborate with businesses more in line with their current needs. This applies in particular to regional and local production organization systems. Taking into account the requirements of globalization it would be possible to strengthen regional institutions on the domestic market.
3. Creation by the regional authorities of common, cross-border support programs for entrepreneurship, innovation and development of small and medium-sized enterprises. The programs can be useful first and foremost in developing the potential of enterprise innovation at international level. An important aspect of creating such programs is to take into account the experience of existing contacts and to draw attention to the needs of the target support groups.
4. Creation of support instruments adapted to the level of enterprise development in the region. These instruments should take into account the differences in potential and possibilities of absorption of services by enterprises and the implementation of innovation.
5. Encouraging cooperation of innovation centers at regional level within regional innovation systems. They should create cross-border networks between administrations, research institutions and business centers. Initiation and strengthening of cooperation between actors within the regional innovation system should be one of the main tasks of local authorities. The result of their activities should be the creation of cross-border Polish-Belarusian cooperation networks.

Business environment institutions in Podlaskie Voivodeship are not prepared to provide more advanced services to a larger group of stakeholders. There is not enough cooperation between the group of these entities in the Podlaskie Voivodeship and in Belarus. This negatively affects the level of innovativeness of Podlasie enterprises and the entire region. It is necessary to integrate innovation centers from both regions—Poland and Belarus. Increasing the regions innovation potential requires improving the cooperation with business environment institutions, especially at the local level.

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