

COOPERATION BETWEEN SCIENCE, BUSINESS AND ADMINISTRATION IN THE LIGHT OF THE INFLOW OF FOREIGN DIRECT INVESTMENTS TO POLAND

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Purpose: Innovation strategies and the cooperation between three groups of entities contribute to the development of the institutional environment, e.g. business incubators or science parks. The existing relations within the framework of joint project implementation by science, business and administration environments, including investments in development, technology and research, facilitate the process of knowledge transfer, network connection and innovations. The objective of the present paper is to assess the readiness of foreign investors investing capital in Poland to initiate cooperation with the scientific and administrative environment, as well as formulate recommendations for business representatives in order to improve the efficiency of external cooperation.

Design/methodology/approach: This is a research paper and the author utilized survey method and elements of descriptive statistics.

Findings: Before writing the paper we put a hypothesis stating that there will be a dynamic inflow of foreign investments to Poland, and investors will participate in the cooperation networks, thus creating a coherent ecosystem of innovation in the economy.

Originality/value: The research was carried out in foreign enterprises in provincial capitals (seats of Voivodeships) of Poland.

Keywords: science, business, administration, cooperation, investments.

Category of the paper: Research paper.

1. Introduction

Globalization of processes taking place in the economy is conditioned by scientific and technical progress, the increasing competition for necessary resources in the form of investments, and also by liberal economic policy. The competitiveness of the Polish economy and local economies are also significant. Competitiveness of the location is conditioned by the specific economic situation related to, for example, natural conditions and production factors such as human resources. The overriding motive for making investments is to provide the

company with development and the possibility of establishing lasting relationships with the business environment. When the development of the country is considered, there are potential opportunities to use the openness of economies to improve its competitiveness, thanks to the inflow of capital from external sources. From the investor's point of view, after making the decision to invest capital on a foreign market, there arises the need to select the right destination for the future investment. Changing environmental conditions for business activities of enterprises make them create a network of connections with entities operating in their environment. A characteristic of contemporary enterprises is that they are functioning in a network with other entities on the basis of mutual partnership. H. Håkansson and I. Snehota (Håkansson, Snehota, 1989, pp. 187-200) define operation in a network as existence of specific relations between two or more entities. In the narrow perspective these relations can be perceived through the prism of the industry, and in wider perspective through the prism of links with various types of business support units in the further and closer environment.

What plays crucial role in the contemporary economy is knowledge, both that collected by enterprises and that obtained from external sources. Knowledge is now considered the basic source of innovation, and the ability to develop and implement new technologies is gradually becoming an integral part of the strategy, not only of enterprises but also of entire economies. What becomes significant for the economies receiving foreign investments, particularly in times of dynamic foreign investments, is the issue of the most effective use of the potential of the science, business and administration environment. An economy characterized by favourable investment attractiveness attracts foreign investors who are involved in a network of relationships involving these three environments. The subject of research in this article is to assess the readiness of investors, who have located capital in Poland, to take an active part in a cooperation network based on mutual relations between the science, business and administration environments.

2. Direction and dynamics of foreign direct investments

Foreign direct investments are one of the main factors favouring the globalization of economic life and the most visible effect of world globalization. P. Krugman and M. Obstfeld describe foreign direct investment as an international capital transfer in order to establish a branch in another country and exercise control over it (Krugman, Obstfeld, 2000, pp. 167-171). Analysing investment flows according to (World Investment Report, 2018), the flows of global foreign direct investments dropped by 23% in 2017, totalling USD 1.43 trillion, as compared to USD 1.87 trillion in 2016. The decrease was caused partly by a 22% drop in the value of cross-border mergers and takeovers. When we discount the large one-off transactions and corporate restructuring, which inflated the figure for foreign direct investments in 2016,

the drop in 2017 remains in a significant and clear contrast to other macroeconomic variables such as GDP and trade, which were characterized by accelerated growth. The drop in the net value of cross-border mergers and acquisitions, whose nominal value amounted to USD 694 billion in 2017, was noticeable when we compare it to USD 887 billion in 2016. The value of greenfield investments as an indicator of future trends fell by 14% to USD 720 billion. Inflows of foreign investments recorded lower values in developed economies and economies in transition period, remaining stable in the developing countries. In the result, emerging economies accounted for a growing share in global FDI inflows in 2017, absorbing 47% of their total value, compared to 2016, when they accounted for just 36% (World Investment Report, 2018, pp. 2, 184). The opening of the borders of countries that had lower market saturation and competitive prices of labour and production means caused a growing interest of foreign investors in Central and Eastern Europe, and Poland in particular.

In the Tholons Services Globalization Country Index ranking (Tholons, 2017) Poland ranked 9th among 50 digital economies, in terms of availability and qualifications of the staff, catalysts for running a business, costs incurred, quality of life and infrastructure (Tholons, 2017, p. 6).

Table 1.

Foreign direct investments inflow to Poland, 2012-2017 (in millions of dollars)

Years	Value of foreign investments
2012	12 424
2013	2734
2014	14 269
2015	15 271
2016	13 928
2017	6434

Adapted from: World Investment Report. Investment and New Industrial Policies 2018, United Nations, New York and Geneva 2018, p. 184.

Analysing the flows of foreign investments to Poland, we observe that in 2013, the FDI inflows to the economy were halted compared to the previous year. The total capital inflow amounted to USD 2 734 million, which is as much as 78% less than in 2012. The drastic drop in the value of foreign investments was caused by a significant outflow of capital in transit, limited investments by foreign direct investors in Europe and the situation in the banking sector (sale of shares to portfolio investors). In 2014 the investment condition improved and the inflow of foreign capital amounted to USD 14,269 million. Despite the downward trend in the inflow of FDIs in the world and in Europe in 2014, according to UNCTAD, Poland ranked 20th in the ranking of the largest recipients of foreign direct investments worldwide. Poland was overtaken by economies of countries such as the United States, Great Britain, Canada, Australia, the Netherlands, Spain, Switzerland, Finland and France (World Investment Report, 2018). This trend continued until 2016. A year later another decline in investment flows to the level of USD 6 434 million occurred. In 2017, the value of inflow of foreign direct investment fell to the levels previously recorded during the financial crisis of 2008/2009 or the 2013 debt crisis

in Europe. The National Bank of Poland and the Ministry of Enterprise and Technology stated that the value of total investments was largely influenced by reinvestments made by previous direct investors (Ministerstwo Przedsiębiorczości i Technologii, 2018, pp. 1-4)¹.

The inflow of investments to Poland is a factor stimulating the development of the economy and a secure direction for further development of cooperation. Investors involved in the cooperation network with the science and local administration environments constitute a new direction for the development of cooperation and capital flow.

3. Conditions for cooperation between science, business and administration in Poland

The striving to increase innovation and competitiveness of cities resulted in interest in instruments for intensifying cooperation between science, business and local administration. The contemporary economy is oriented towards adopting diversified directions of inflow of foreign direct investments. The economy is based on innovative capabilities that depend on network-organized cooperation with the characteristics of regional systems linking the science, business and local administration environments. The result is the development of a regional partnership for the economy and the formation of cooperation based on the triple helix, i.e. a system based on the cooperation of entities representing the three environments: public administration, science and business. The subject literature (Bednarzewska, 2016, p. 38) coined the term 'triple helix' for cooperation of these three spheres, and the triple helix theory refers to a chain consisting of spirally coiled and complementary chains characterizing a particular model of cooperation. In the framework of such cooperation the representatives of each of the circles bring certain resources, expecting added value from the cooperation undertaken. An important issue are the factors conducive to or inhibiting cooperation. The results of research conducted by (Cohen, and Levinthal, 1989, pp. 569-596, Cohen, and Levinthal, 1990, pp.128-152) indicate that enterprises in sectors with high levels of investment in research and development or scientific and technological activities have a higher tendency to cooperate with universities. The ability to absorb innovations in the sector can significantly affect the willingness of enterprises to utilize scientific knowledge. An important factor that fosters cooperation between science and business is the development of intermediary institutions and

¹ It is worth noting that in 2016 the inflow of net direct investments to Poland amounted to PLN 54.9 billion. It consisted of reinvested profits in the amount of PLN 34.2 billion, inflow of capital in the form of shares and other equity in the amount of PLN 8.4 billion and inflow of net capital in the form of various debt instruments amounting to PLN 12.3 billion. The largest inflow of foreign direct investments was recorded from the Netherlands (PLN 20.2 billion), Germany (PLN 13.7 billion) and Luxembourg (PLN 8.7 billion). De-investments (withdrawal of investors) were recorded, among others, for investors from Ireland (PLN – 2.3 billion) and Italy (PLN – 1.6 billion). Narodowy Bank Polski (2017). *Zagraniczne inwestycje bezpośrednie w Polsce w 2016 roku*. Warszawa, p. 2.

those supporting innovation and entrepreneurship. These include technology transfer centres, business incubators, technology, science and industrial parks as well as training and research centres (Rózański, 2013, p. 27).

The question whether foreign enterprises investing capital in Poland are able to take an active role in cooperation networks and moderate joint projects at the level of science, business and administration in order to create a coherent ecosystem of the economy in which they have invested, remains a significant issue. What remains important is the extent to which they are able to adapt to economic conditions, while creating added value in the form of the highest return on investment, and whether they are prepared to take part in the implementation of the cooperation network.

4. Research methods and characteristics of the research sample

The main research tool used for the purposes of the article was the survey questionnaire for readiness to function in the system of the following environments: public administration, science and business. The survey is built of questions about project solutions and joint initiatives focused on four dimensions: leadership, management, competence and technology. The readiness assessment survey uses the 5-point Likert scale to assess 20 factors. The development of the authorial concept of Triple Helix Readiness was preceded by an analysis of factors that could form a source of competitive advantage for enterprises. The concept is based on the Net Readiness concept by A. Hartman, J. Sifonis and J. Kador (2001, p. 3). The readiness assessment survey was used to assess the degree of preparation of business representatives for cooperation with the science and administration environments.

Based on the research results, enterprises were qualified to one of the predefined groups of readiness (please refer to the scoring in: Pastuszek, 2007, pp. 150-153) to operate as part of the triple helix model depending on their point scores. Scoring is the sum of individual columns².

Table 2.

Scoring results based on the readiness survey for functioning under the triple helix model

Groups	Number of points	Characteristics
Visionary of cooperation	90-100	Enterprises demonstrating the best preparation for functioning under the triple helix model
Cooperation expert	75-89	Enterprises, whose readiness to operate as part of the triple helix model is high, but there are still some elementary deficiencies

² Respondents answered questions using the 5-point Likert scale. The readiness assessment survey contained 20 statements. The sum of points was calculated as $\sum_{n=1}^n = \frac{x_1+x_2+x_3+x_4+x_5+\dots+x_{20}}{n}$.

Cont. table 2.

Sense of cooperation	60-74	Enterprises with an above-average distance from cooperation under the triple helix model
Awareness of cooperation	45-59	Enterprises that are conscious, yet have low willingness to function as part of the triple helix model
Agnostics of cooperation	0-44	Operation within the triple helix model is beyond the sphere of interest of these enterprises

Source: own elaboration based on: Hartman A., Sifonis J., Kador J., E-biznes. Strategie sukcesu w gospodarce internetowej, Wyd. K.E. Lider, Warszawa 2001, p. 3.

The concept defines four elements that determine the ability of enterprises to effectively operate in e-business and implement projects that have a very large impact on the shape of the organization (Pastuszak, 2007, pp. 150-153). In the proprietary Triple Helix Readiness concept, the areas of leadership, management style, competence and technology are treated as measures of preparedness of the business environment to use economic conditions to establish and expand cooperation, demonstrating its readiness to implement the model based on the triple helix concept. The research regarding the readiness to establish and expand cooperation with the science and local administration environments was extended to enterprises from the business process outsourcing sector operating in the provincial capitals of Poland. The electronic survey questionnaire was sent to 340 companies located in cities such as: Białystok, Bydgoszcz, Gdańsk, Katowice, Kielce, Kraków, Lublin, Łódź, Olsztyn, Opole, Poznań, Rzeszów, Szczecin, Warsaw, Wrocław and Zielona Góra. An additional city qualified for the survey was Toruń due to the growing number of investments located in the city. In each of the cities the surveys were sent to 20 foreign enterprises. We received feedback from a total of 109 companies. No enterprises operating in Białystok and Kielce took part in the research. The return rate of the questionnaires was 32%. Enterprises were represented by persons employed as directors dealing with foreign investments in the business processes outsourcing sector.

5. Research results

Leadership was the first of the investigated areas (Table 3). Organizations face phenomena that arise from the increased variability and complexity of the environment in which they have to function. In some industries, especially in modern technologies, the economic environment is characterized by discontinuity, i.e. breakthroughs (e.g. technological) appear, causing distortion of the competitive position of enterprises on the market (Mrówka, 2005, pp. 16-19). Economic changes may refer to both negative external factors in the form of threats and positive ones in the form of opportunities.

Table 3.
Leadership assessment (%)

Statements	Scale					In total
	Strongly disagree	Rather disagree	Neutral position	Rather agree	Strongly agree	
The management staff is aware of the opportunities and threats that accompany the implementation of cooperation projects	2.8%	17.4%	21.1%	38.5%	20.2%	100%
Currently implemented projects are well integrated with the company's strategy	3.7%	6.4%	33.0%	42.2%	14.7%	100%
There is an efficient information policy operating in the company	0.9%	2.8%	13.8%	54.1%	28.4%	100%
The company has a clearly defined and accepted multi-year cooperation development plan	1.8%	8.3%	35.8%	42.2%	11.9%	100%
The company's involvement in the implementation of cooperation projects puts more emphasis on their strategic, long-term significance	0.9%	9.2%	32.1%	44.0%	13.8%	100%

N = 109.

Source: our own elaboration.

The majority of the management staff expressed the opinion that they are aware of the conditions accompanying the implementation of partner projects (20.2% and 38.5%). The neutral position was expressed by over 20% of investors, while the vast minority (2.8% and 17.4%) have no knowledge about the factors stimulating or demoting cooperation. Collaborative projects are well integrated into the companies' strategies. In total, 56.9% of investors agree with this statement. When establishing cooperation, it is necessary to know about the planned possibilities of its establishment. Without the efficient flow of information in the enterprise, it would prove impossible. 28.4% of entrepreneurs define their information policy as decidedly efficient, and the next 54.1% as fairly efficient. When establishing cooperation with partner entities, since it usually has a long-term character, it is important to properly plan time, human and financial resources for this purpose. 54.1% of the investors confirm that they have a long-term cooperation development plan. Other enterprises (35.8%) cooperate dynamically using the emerging opportunities, availability and the area of their interest. These entrepreneurs, who attach great importance to the strategic, long-term dimension of mutual relations when engaging in common projects, are in vast majority (Table 3).

Another area assessed was the management style (Table 4).

Table 4.
Management style assessment (%)

Statements	Scale					In total
	Strongly disagree	Rather disagree	Neutral position	Rather agree	Strongly agree	
The company has a standard administrative process for organization of work in the area of cooperation projects	3.7%	14.7%	33.9%	34.9%	12.8%	100%
The company has stable indicators for impact assessment of cooperation projects outcomes	3.7%	14.7%	39.4%	29.4%	12.8%	100%
The company has clearly defined functions, duties, responsibilities and controls in relation to cooperation projects	3.7%	16.5%	20.2%	50.5%	9.2%	100%
Cooperation projects are carried out by appropriate people for whom appropriate incentives are used	2.8%	17.4%	25.7%	36.7%	17.4%	100%
The unit for cooperation with external entities is perceived as a business partner	1.8%	14.7%	37.6%	31.2%	14.7%	100%

N = 109.

Source: our own elaboration.

The organization of work in the implementation of projects is perceived as a standard administrative process. It is implemented by 47.7% of surveyed enterprises. An efficient organization of cooperation also requires evaluation of the effects of cooperation. Specific indicators for assessing these effects are applied by 42.2% of investors. It is extremely important to develop the scope of duties and the required competences and skills at work positions involved in project management. This was confirmed by 59.7% of the respondents. The function of management, which is motivating, is realized by applying appropriate incentives in order to achieve the assumed objectives. This was confirmed by 17.4% of respondents, while a slightly lower rating was given by 36.7% of companies. The staff employed in the organizational unit supporting projects based on cooperation with external entities is perceived as a business partner that provides consultations on the appropriate use of competencies required to build a model based on cooperation between the science, business and administration environments. This opinion is shared by 45.9% of respondents. When we analyse the research results we notice the high percentage of investors, who expressed a neutral position both in the organization of work on projects (33.9%), assessment of the effects of projects (39.4%) and trust in personnel dealing with projects (37.6%). This may indicate problems in the area of management and incomplete implementation of its functions, such as planning, organizing, motivating and controlling company resources (Table 4).

The third area assessed were the competences (Table 5).

Table 5.*Competence assessment (%)*

Statements	Scale					In total
	Strongly disagree	Rather disagree	Neutral position	Rather agree	Strongly agree	
The company is able to function in the environment of fast and ongoing changes	0%	10.1%	29.4%	34.9%	25.7%	100%
Cooperation projects are carried out efficiently	3.7%	13.8%	26.6%	39.4%	16.5%	100%
Project managers have technological knowledge, and technology managers have substantive knowledge in the field of project management	1.8%	17.4%	23.9%	28.4%	28.4%	100%
The company has experience in the field of simultaneous management of many relationships	0.9%	9.2%	31.2%	35.8%	22.9%	100%
The company establishes and solves cooperation with partners in the field of constructing and managing the triple helix model	0.9%	9.2%	42.2%	30.3%	17.4%	100%

N = 109.

Source: our own elaboration.

Most of the surveyed organizations, 60.6% (34.9% and 25.7%) in total, have the ability to react quickly to economic changes. This is particularly true for implementation of projects involving these three different environments, which requires additional vigilance. Initiatives undertaken were assessed by entrepreneurs as definitely efficient and rather efficiently implemented (25.7% and 34.9%, respectively). The implemented projects require specific knowledge in the field of project management. Substantive and technological knowledge are interrelated. In the opinion of 56% of the respondents, project managers have knowledge of the conditions for their implementation. The lack of awareness (23.9%) about employees' competences is disturbing, and it may negatively affect the quality of initiatives undertaken. Lack of control over the implementation of projects when it comes to their cost and timeliness has an impact on the increase in the number of failed projects. The company should have experience in managing multiple relationships at the same time. Flexibility in this respect was confirmed by 58.7% of investors. Establishing and resolving cooperation with external entities is conditioned by various factors. Most often, the respondents decide to terminate the cooperation due to failure to comply with the terms of the contract, unreliability and untimely payment or even the complete lack thereof. As it turns out, this was not the easiest task for entrepreneurs, and less than half of the respondents (47.7%) are able to flexibly manage relationships. The remaining enterprises report difficulties or a neutral attitude to controlling the network of relationships they participate in (Table 5).

Technology was the fourth area subjected to our research (Table 6). Technology is understood as technical and technological infrastructure held by the company, and solutions adapted to the needs of stakeholders.

Table 6.
Technology assessment (%)

Statements	Scale					In total
	Strongly disagree	Rather disagree	Neutral position	Rather agree	Strongly agree	
The company has a stable, standard infrastructure for project management, covering the entire organization	0%	21.1%	34.9%	33.0%	11.0%	100%
The company holds the necessary technological structure (equipment, security systems)	3.7%	15.6%	33.0%	26.6%	21.1%	100%
The company has solutions that are flexible enough to face the coming change	0.9%	3.7%	34.9%	39.4%	21.1%	100%
The company has solutions that can be adapted to the changing needs of stakeholders	0.9%	0.9%	25.7%	46.8%	25.7%	100%
Most enterprise solutions are focused on external cooperation	0.9%	9.2%	30.3%	44.0%	15.6%	100%

N = 109.

Source: our own elaboration.

The technical infrastructure management in the area of IT environments includes planning and supervision over the portfolio of infrastructure projects, supervision over maintenance services and IT administration in the field of IT systems and IT equipment for workplaces and IT infrastructure. 44% of the surveyed companies have stable infrastructure in the field of project management. Enterprises should have solutions that are sufficiently flexible in the face of changes. Majority of enterprises in Poland (60.5%) implements such solutions. Maintaining direct relationships with external entities in the implementation of joint ventures requires the analysis and adaptation to the reported needs both from the partners and from market expectations. 72.3% of the entrepreneurs declared flexible solutions in this respect. Enterprises are oriented towards functioning in relation networks. Access to them through participation in the network can be more effective and innovative. More than half of enterprises (59.6%) direct most of their solutions to establish external cooperation.

In order to assess the respective cities, we applied a suggestion sourced from subject literature (Hartman, Sifonis, Kador, 2001, p. 38; Pastuszek, 2007, p. 151), but modified for the purposes of the article. Using the results obtained from the readiness assessment survey, the business entities were assigned to the respective groups of readiness to function within the triple helix model. For all entities we calculated their total score³. The table presents the scores awarded by the business environment, in descending order.

³ Respondents answered questions using the 5-point Likert scale. The readiness assessment survey contained 20 statements. The sum of points was calculated as $\sum_{n=1} = \frac{x1+x2+x3+x4+x5+\dots+x20}{n}$.

Table 7.
Scores awarded by the business environment

City	N	Median	Min	Max	Total score	Group of readiness to cooperate
Kraków	6	91.00	79.00	96.00	89.83	Cooperation expert
Wrocław	6	88.00	84.00	92.00	88.00	Cooperation expert
Poznań	6	84.50	81.00	87.00	84.33	Cooperation expert
Gdańsk	6	83.00	77.00	88.00	82.83	Cooperation expert
Warsaw	10	86.00	69.00	96.00	81.30	Cooperation expert
Szczecin	6	64.00	60.00	93.00	72.83	Sense of cooperation
Toruń	5	72.00	68.00	77.00	72.40	Sense of cooperation
Katowice	7	64.00	61.00	90.00	71.14	Sense of cooperation
Łódź	6	70.50	68.00	74.00	71.00	Sense of cooperation
Lublin	23	74.00	35.00	84.00	70.78	Sense of cooperation
Olsztyn	8	59.00	54.00	69.00	61.87	Sense of cooperation
Rzeszów	5	59.00	57.00	64.00	59.40	Awareness of cooperation
Bydgoszcz	6	55.00	53.00	71.00	57.50	Awareness of cooperation
Opole	5	56.00	54.00	59.00	56.40	Awareness of cooperation
Zielona Góra	4	41.50	39.00	45.00	41.75	Agnostic of cooperation
Białystok	–	–	–	–	–	–
Kielce	–	–	–	–	–	–

– lack of data; N = 109.

Source: our own elaboration.

In order to group cities according to their similarity in preparation for cooperation with external entities, hierarchical cluster analysis was used with the use of Ward's algorithm (the Ward cluster method). The data from the readiness report was used for analyses⁴. The separation of groups was carried out on a distance equal to 2 (using the re-scaled distances). Cluster analysis was performed for the business environment to which 15 provincial capitals were qualified. Business representatives are included in the cooperation system, and groups of cities are presented in the following dendrogram (Figure 1).

⁴ The readiness survey. It uses a 5-point Likert scale, applied to 20 factors. On the basis of the results obtained, the entities received a total score, which is the sum from individual columns. Each entity could receive a maximum of 100 points, and a minimum of 20 points. In the case of acquiring results from several respondents in the business group in a specific location (city), the arithmetic mean was adopted as the variable.

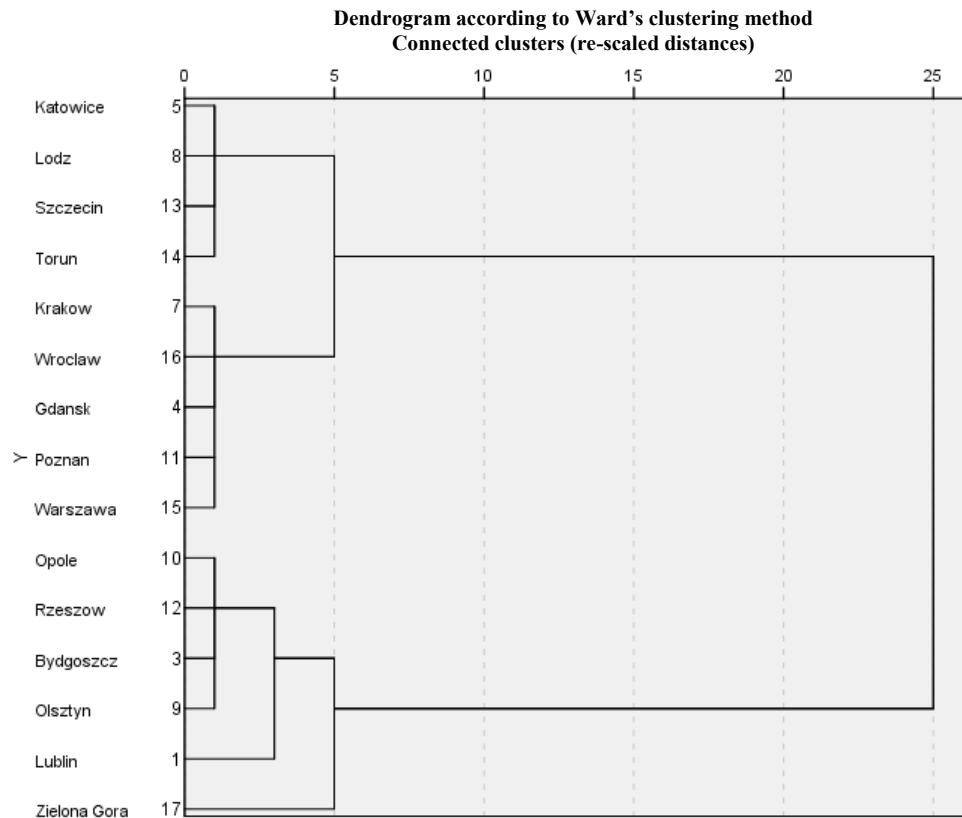


Figure 1. Dendrogram of city classification to cooperation readiness groups in the opinion of the business community. N=15. Source: our own elaboration.

The first group is the business environment located in cities such as Kraków, Wrocław, Gdańsk, Poznań and Warsaw, demonstrating the highest preparation for starting cooperation. Factors determining the efficient course of ventures in the areas of leadership, management style, competence and technology are at an above-average level. Business representatives operating in the described locations point to a certain barrier regarding requirements related to the implementation of projects with the science, business and administration (credit conditions, eligible costs, keeping separate accounting documentation, own funds) financed from European Union funds, which are characterized by their high degree of difficulty. The discussed cities are similar to each other in terms of preparation for establishing external relations and were all qualified to the group of cooperation experts.

The second group, with slightly lower level of preparation for the cooperation processes are Katowice, Łódź, Szczecin and Toruń. Business representatives pointed out that there are inhibitory factors that disrupt the establishment of external relations. In most enterprises, the method of measuring the impact of cooperation projects on the level of their competitiveness has not been determined. Business representatives also pointed out that patents and inventions are not practical in the local economy. These cities were qualified to a group of locations with a sense of cooperation.

The third group of cities are locations with low preparation for cooperation. Determinants of the style of management, leadership, competence development and technology are not conducive to the dynamics of establishing relationships with scientific, business and administration entities. None of the companies operating in Opole, Rzeszów, Bydgoszcz and Olsztyn has determined how to measure the impact of cooperation projects on the level of company's competitiveness. Few companies also have plans to manage changes in assumptions and strategies in the scope of cooperation projects implemented within the environment of science, business and local administration. Interestingly, these locations were all qualified to the group indicative for readiness for cooperation, and these are entities with high awareness of cooperation, but with low preparation for its implementation.

Another assessment of cooperation by the city authorities meant that Lublin could not be connected to the resulting clusters. Enterprises investing in Lublin have different characteristics when compared to enterprises located in other cities. Respondents agreed that they do not conduct market analyses and do not have complete information on whether investors conducting business in other cities use similar project ideas. Few of the enterprises notice synergy effects resulting from cooperation. Interestingly, the score of Lublin locates it in the group of cities with a sense of cooperation.

The conducted research also pointed to a city whose characteristics indicate low preparation for the cooperation processes – Zielona Góra, which was qualified as an agnostic of cooperation. The factors hindering the development of cooperation are related to insufficient qualifications and skills of employees hired on the labour market, lack of noticeable synergy effects, and lack of perception of cooperation between the science, business and administration circles as determinants of the competitive advantage of the city.

6. Conclusion

Foreign enterprises that have invested capital in Poland demonstrate an average commitment to implementing projects based on mutual cooperation between the science, business and administration environments. Enterprises implement projects including support for commercialization solutions as well as promotional projects for cities in which they conduct business. Literature review indicates that the factors of city competitiveness, on the basis of which investors make decisions about locating capital in a given location are, in addition to mutual relations with external entities, also the labour costs, market size, prospects for economic growth, labour supply, the ability to reduce production costs, property guarantees, legal security and favourable conditions for running a business.

Based on the results of our research, we can formulate recommendations concerning the activities that the business representatives should focus on when engaging in the cooperation processes. The recommendations that have been formulated for business representatives include those focused on the effect measurement area of tripartite cooperation and control. Enterprises implementing joint ventures are not always driven by the priority they have in their perception. It often happens that for some of the investors this cooperation forms the background for their core business, as they are guided by the principle saying that joint ventures represent a certain added value, yet most of the company's activities are not oriented towards establishing external relations. Enterprises feel appreciated by city authorities, which – as part of creating a friendly investment climate – include investors in a cooperation network, even inviting them to joint meetings on the development of a given industry. The support also consists in assisting in the selection of land for investments, clarification of legal and tax issues as well as promotional activities. It can be concluded that entrepreneurs often join the cooperation system with the motives of shaping their image in the environment, as part of their public relations. A good practice would be to implement a system of indicators that would provide information on the measurable effects of cooperation translating into the competitiveness of enterprises, not only in the image dimension. An important clue is also the launch of control activities that would provide some improvement in the implementation of cooperation and give it a higher rank in the operations of companies. Currently, cooperation is treated as a side activity in business operations. Recommended actions also include development of a strategy for establishing and maintaining external relations, in which objectives of tactical relevance, with a temporal perspective of 3 to 5 years, are included. The assumed objective would allow the implementation of the area, which would increase the chance of acquiring qualified staff with skills dedicated to the needs of enterprises. This would help to avoid the migration of employees to other cities or countries.

The research results allowed for a positive verification of the hypothesis stating that in the next few years the interest in cooperation networks, and thus foreign investments in Poland, will grow due to favourable factors of investment attractiveness of the country, developing cooperation networks, economic openness and the still unsaturated market for implementation of joint ventures. Taking the aforesaid recommendations into account, business representatives have the opportunity to participate, in a more dynamic manner, in the innovation system of both local economies, and the whole domestic economy of Poland.

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