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Clusters – an attempt to respond to the globalisation challenge? The case of furniture cluster in Wielkopolska

Abstract: The study starts with a review of possible channels of a cluster's influence on the competitiveness of companies-cluster members. Next, using the literature and the results of their empirical research, the authors describe Wielkopolska's furniture cluster.
The research shows that co-operation is clearly underappreciated and perceived mainly as a competitive game strategy within the confines of industries. The companies under study are afraid to enter into co-operative relationships, especially with competitors. They do not see either the benefits accruing from co-operation with rivals or a connection between locally available resources and their competitive position.
Keywords: cluster, globalisation, Poland, competitiveness, co-operation, rivalry.
JEL codes: L11, L14, L68.

1. Introduction

Globalisation, which manifests itself as an increasing market harmonisation – i.e. deregulation and liberalisation of international transfer of goods, services, and factors of production – increases the significance of a company's immediate environment for its market success, a fact which may seem paradoxical. These phenomena escalate business entities' propensity for concentration: firms conducting similar activities concentrate in certain countries, regions or locations Patel, Pavitt (1991), Amendoa et.al. (1992), Patel, Vega (1999). Among other things, this manifests itself in the creation of clusters. Porter defines clusters as: "geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries (e.g. universities, standards agencies, trade associations) in a particular field that compete but also cooperate Porter (1998)." That means that all functions of a value chain are distributed and represented by a number of enter-

prises and other organizations within a region that are linked by commonalities and complementarities.

The discussion of clusters in the economies of countries which have undergone economic and systemic transformation, especially Poland, is rather limited. This is why the authors attempt to present what has been found so far on the subject of clusters in Poland, with particular emphasis laid on a furniture cluster in the region of Wielkopolska. The discussion starts with a brief review of the possible channels of a cluster's influence on the competitiveness of companies-cluster members. Next, using data presented in the literature and professional press, and the results of their empirical research, the authors describe Wielkopolska's furniture cluster, with special emphasis laid on:

- first, the significance of companies' cluster membership for their competitive potential, in other words, a set of those features of the company which are crucial to the implementation of a given strategy and achievement of a desired position in the market (amongst its rivals) Competitive gap at the company level (2002),
- second, its significance for the competitive behaviour and competitive position of the companies under study. A company's competitive position can be identified with the competitive strategy it pursues, that is, the adopted way of exploiting its competitive potential in a given environment; it is an effect of having a given level of competitive skills/competence Competitive gap at the company level (2002).

2. The influence of a cluster on the competitiveness of companies – cluster members

The question of how clusters influence the competitiveness of the companies that constitute it bothers many a researcher. Sources of the competitive advantage of companies which constitute a cluster lie, on the one hand, in their competitive potential, and on the other, in their immediate environment, which is typical of the viewpoint put forward by Porter. A company's activity within a cluster enables it to use both approaches to the building of a competitive advantage, and the cluster itself enhances their complementary character. On the basis of empirical data, Audretsch (1998) and Porter (1998) have demonstrated that a geographical concentration of rivals increases company competitiveness, stimulating innovativeness, company growth and new entries into the cluster.

Table 1 presents those views on a cluster's influence on the competitiveness of its member companies which are most often quoted in the literature. A closer analysis of the advantages of cluster membership suggests that the most common area of

a desired influence is company competitive potential. Cluster membership first of all expands, transforms and gives a new quality to elements of company competitive potential; secondly, it determines the character of relational competitive strategies, thus creating a wide field for co-operation with rivals - other cluster members. Therefore, the scope of the cluster's immediate influence concerns two out of three determinants of company competitiveness. The third one – company competitive position – experiences some sort of indirect influence.

Table 1. The main advantages of cluster membership and their connection with the determinants of company competitiveness

Advantages of cluster membership	Interpretation	Determinant of competitiveness
Access to specialised and highly advanced resources, such as key skills and risk capital	Basic, uncomplicated, usually material resources are available through purchases in the global market or through companies' foreign direct investments; specialised resources are usually immobile	Competitive potential
Access to specialised suppliers, services, and infrastructure	Positive impact on industry specialisation, improvement in its effectiveness, stimulating technological spillover	Competitive potential
Access to demanding customers whose needs anticipate changes in the international market	The needs can be identified and responded to earlier; changes in customer needs exert pressure on innovativeness	Competitive strategy
Proximity of market rivals who fight for industry leadership	Factor which exerts pressure on innovativeness, especially in industries where competition has a non-price character	Competitive strategy
Proximity of innovative related industries, supporting industries, and related institutions	Similarities in technologies, skills, customers, infrastructure, suppliers and functions played have a positive impact on technological spillover.	Competitive potential
Proximity of other intsitutions connected with the cluster	Positive influence on co-operative processes, e.g. proximity enables a better risk management connected with innovations	Competitive strategy

S o u r c e : Own study, based on Marshall (1949), Porter (1998), Freeman (1991), Zander, Sölvell (1995).

There seem to be two key ways in which a cluster can influence company competitiveness:
– first, spillover effects observed in the cluster,
– second, relations existing among institutions constituting the cluster.

The other possible channels of influence are a consequence of the relations among companies and of spillover effects.

2.1. Knowledge spillover effects as a symptom of the cluster's influence on company competitiveness

The issue of spillover effects and their relationship with the location factor was raised by Marshall (1949) who indicated that one of the objects of a spillover is knowledge. The problem of knowledge spillover with the consideration of the geographical space factor is also discussed by many contemporary researchers.

Knowledge spillover effects are an inseparable element of a cluster. This spillover can occur even if relations between companies are non-existent. It should be pointed out at this point that in the related literature we can find two different views on whether relations among companies enhance the influence of spillover effects on company innovativeness and growth. The view represented by Marshall (1949), Arrow (1962) and Romer (1986) is characterised by a positive attitude towards monopoly, which, in their opinion, is conducive to increased innovativeness and growth. Monopoly enables a dominating company to maximise the return on innovations, which is impossible in a competitive environment. On the other hand, Jacobs's (1969) point of view indicates a desirable influence of competiton on innovations and growth. Jacobs's perspective was developed by Porter who emphasises the significance of local competition for innovativeness and stimulation of knowledge spillover effects. Continuing Jacobs's and Porter's argument, it could be stated that knowledge within a cluster is determined by interrelations among companies operating in the same location - Henry, Pinch (2002). Storper (1993, 1995) similarly explains that the acquisition of knowledge occurs thanks to relationships among companies which have nothing to do with a market exchange typical of knowledge acquisition through licensing, alliances or takeovers.

Attempts are even made to build a knowledge-based theory of regional geographic clusters Maskell (2001), Morgan (1997). Maskell (2001) finds the key cause of cluster creation in the fact that companies appreciate it that such solutions generate knowledge. There are even instances of creating a "community of practice", characterised by its own identity and certain specificity Brown, Duguid (2001). By operating within this "community", companies develop their know-how and, thanks to the relations existing among them, share tacit knowledge with each other. Cluster-level knowledge is similar to industry routines, recipes for success and how to perform particular activities Spender (1989). While studying Taiwanese high-tech companies, Tsai (2005) found that intra- and inter-industrial spillover effects in the field of R&D have a greater significance from the viewpoint of production growth than individual companies' efforts in the field of R&D do.

2.2. Interactions as a manifestation of relations among cluster members and their significance for company competitiveness

With reference to the second kind of influence which a cluster has on its member companies' competitiveness, it can be stated that the consequences of spillover effects are accompanied by implications arising from the fact that companies enter into relationships. Therefore, rivalry and co-operation among companies within a cluster can act as a corrective mechanism for their competitiveness. This thesis is clearly inspired by Porter's opinion that the company's immediate environment, particularly the relations among companies in geographical proximity, are of great importance for the competitiveness of an organisation.

An interesting interpretation of external sources of competitive advantage was put forward by Dyer and Singh (1998), who attempt to endorse what is called a relational approach to competitive advantage. In their opinion, relations among companies are increasingly often a source of above-average profits. The analysis which the two authors conducted suggests that resources which are crucial for gaining a competitive advantage may lie in routines and processes developed among companies. Their approach is a continuation of earlier research focussed on the issue of companies' co-operation as a method of getting economic benefits in such forms as the acquisition of knowledge and skills, i.e. learning from others, lowering transaction costs or having access to certain resources Hamel (1991), Larson (1992), Powell, Koput, Smith-Doerr (1996).

Asanuma (1989) was one of the first researchers to demonstrate how capabilities rooted in relations among existing companies affect competitiveness. Using Japanese suppliers and car manufacturers as an example, he explained how these relations led to the co-operating companies' financial surpluses and competitive advantage. Saxenian (1994) found that Hewlett Packard and other Silicon Valley companies considerably improved their position by developing long-term relations with suppliers located in geographical proximity. Dyer (1996) pointed to a positive relationship between suppliers and car manufacturers investing in the construction of a network of relations and their market position. Many researchers also demonstrated that physical proximity, which is connected with companies making investments in certain locations, stimulates co-operation and co-ordination among companies, thus improving their competitive position Enright (1995).

3. Poland's experiences with regard to cluster initiatives

Interest in cluster issues can be observed nowadays not just in the "old" but also in the "new" EU countries, including Poland. However the OECD states that nothing has been done in Poland to promote clusters OECD (2005, p. 5).

In 2004, under the auspices of the Competitiveness Institute, research was carried out into cluster initiatives on a global scale. The research results were presented in the "Green Book of Cluster Initiatives". The list of 238 undertakings of this type which were investigated in 2003 featured one from Poland – Tarnów Industrial Cluster "Plastic Valley". In Poland, it is the Institute for Market Economics (IBnGR) that has devoted a lot of attention to clusters. As early as 2002, the Institute launched a research project to study and determine the possibility and method of exploiting the economic cluster conception with a view to increasing the competitiveness and innovativeness of the Polish economy. The research managed to identify an industrial automation quasi-cluster in Gdańsk, a printing cluster in Warsaw and a construction cluster in the Świętokrzyski region. The beginnings of a cluster structure can also be found in the Warsaw agglomeration, in industries such as farmaceuticals and cosmetics (NACE 24.4, 24.5 and 73.1), electronics, information technology, and telecommunication. These industries require access to well-qualified labour and a technologically advanced scientific base, which justifies their concentration around Poland's capital.

As for the industrial automation quasi-cluster in the Gdańsk region, this grew next to the shipbuilding industry, which accounts for a large proportion of Pomerania's exports, Szultka, Wojnicka (2003). Shipyards' core activity seems to have given rise to a sector of companies dealing with industrial automation - approximately sixty companies in all, nearly half of which (22) are manufacturing firms, 19 provide only services in the fields of design and implementation of industrial automation systems, another seven are manufacturing and services firms, and nine are strictly trading firms. The industry employs about 2,200 people. A great majority of the firms are SMEs (only some of them are micro-firms employing up to 10 people) – only two firms employ more than 500 people.

Results of a questionnaire concerning operation of industrial automation companies in the Gdańsk region show a positive attitude of these institutions towards co-operation. Within this quasi-group we can observe the formation of new firms ("spin-offs"), which is conducive to the cluster's specialisation and increasing self-sufficiency. As a result, these companies maintain a high competitive position which gives them the capacity to compete with strong international companies in the Polish market; in the recent years they have been increasingly often entering foreign markets with their products.

One pro-cluster initiative seems to be the move made by aerospace industry entrepreneurs: on 11 April 2003, they set up the Aviation Valley Association of aerospace-industry entrepreneurs (http://www.paiz.gov.pl/index/?id=955cb567b6e38f4c6b3f28cc857fc38c). The majority of companies involved in the project are situated in the Podkarpackie province. The main aim of Aviation Valley is to transform south-eastern Poland into a leading European aerospace-industry region which will provide the most demanding customers with various aerospace-industry products

and services. At present, the Aviation Valley Association consists of 36 members based in the region; other candidates are going through the application process. Within the next few years, the association intends to increase the number of members to 100. Last but not least, a study carried out by IBnGR has shown that there is a concentration of furniture companies in the region of Wielkopolska. Findings concerning this cluster will be presented in the next parts of this paper.

4. Furniture cluster in the region of Wielkopolska

4.1 Findings to date

The empirical research conducted by the present authors among members of the furniture cluster in Wielkopolska was preceded by relevant literature studies. The Polish furniture industry is considerably diversified in terms of size, form of ownership, and organisational structure, Zarzycka (2005, p. 390). In 2001, as many as 93% of approximately 23,000 businesses were micro-firms. However, the 15 biggest entities accounted for 75% of the sales value. The private sector's share was 95%, while the share of companies controlled by foreign capital amounted to 50%. In its analysis of clusters' potential and development opportunities, IBnGR identified a concentration of furniture-industry businesses, Report about SME (2001, pp. 223-224).For the purposes of the above-mentioned research, IBnGR used the location quotient (LQ)[1], which in Poland was found to have reached the highest value (1.25) in the Wielkopolska province, which is proof of high concentration and specialisation in this field , Report about SME (2001, pp. 223-224). The furniture sector shows clear connections with raw-materials industries and with industries horizontally connected with timber processing. On the basis of statistical analysis, IBnGR found that at the county level the location of furniture-industry companies (NACE 36.1) is clearly and positively correlated with the location of companies representing industries from lower levels of the value creation chain (NACE 0.20 – forestry and logging). Wielkopolska's furniture cluster is made up of furniture companies

[1] The Location Quotient has been calculated using the formula $L = \frac{A}{B} : \frac{C}{D}$, where A – employment in the furniture industry (NACE 36.1) in a given region, here in Wielkopolska, B – total employment in the whole region (here in Wielkopolska), C – national employment in the furniture industry (NACE 36.1), D – total national employment. The employment figure can be replaced with the number of companies, sales revenue, export revenue or net profits. If LQ=1, then a given region, here a province (voivodship), has the same share of employment in a given industry as the national economy does. LQ>1.25 is usually seen to indicate a given region's specialisation in a certain industry. The quotient enables the identification of locations with an above-average concentration of businesses in a given industry.

which, in the field of R&D, co-operate with the Wood Technology Institute of the Poznań University of Agriculture, REMONDEX (a furniture-industry development institute), the Poznań Academy of Fine Arts, and Poznań Technical University. An important role in the cluster is played by the Poznań International Fair. The cluster has an enormous development potential, which results from the furniture industry's outstanding export performance and its extremely positive impact on the volume of Polish exports in general. Information available at the Wielkopolska Centre for Interregional Economic Co-operation, affiliated to the Marshal's Office in Poznań, suggests that companies appreciate the significance of co-operation for improvement in their innovativeness.

Evidence of the existence of a furniture cluster in Wielkopolska includes not only a concentration of the above businesses but also the presence of large, pre-1989 furniture companies which have been divided as a result of economic restructuring. The Wielkopolska region's furniture industry is dominated by micro-firms, which also seems to prove the existence of a pro-cluster environment in the region. Since 1990, this dominance has been clearly visible especially in Wielkopolska's district of Swarzędz. The structure of Wielkopolska's furniture industry, which makes the region a suitable location for a furniture cluster, results from several facts, Stryjakiewicz (1999, p. 153):

- weakened competitiveness of businesses in Swarzędz, caused by Poland's furniture industry being taken control of by German investors (we have also seen an inflow of Swedish, American and Swiss capital to the Polish furniture industry),
- increase in timber prices, caused by a higher demand for this raw material and higher imports of the material,
- chance to activate the district of Swarzędz through the development of SMEs whose activity would be based on tradition, experience and existing connections in the value-added chain.

The local carpentry tradition "goes back to the seventeenth century, and its strongest development took place in the nineteenth century". According to Stryjakiewicz, the characteristic features of the furniture-company cluster in the Swarzędz district are:

- high specialisation within sections,
- high quality of products,
- flexibility to meet customer needs,
- manufacturers' good skills,
- presence of a local entrepreneurship culture.

In spite of this, the early 1990s saw a slump in exports, then in production, which forced companies to limit their production capacity. This was an effect of increased foreign and domestic competition, and of using the wrong development strategy. The strategy was based on an extensive range of traditional products, own distribution system, and expensive logistics. The network of connections with the environ-

ment was developed only to a small extent. Therefore, the development of a cluster initiative in the region seems to be particularly valuable. These needs are met by the initiative named "Support for the Development of the Wielkopolska Furniture-Industry Cluster", implemented as part of the Integrated Operation Programme for Regional Development 2005–2007, and financed by the European Social Fund. The project is conducted by Wielkopolska Agencja Rozwoju Przedsiębiorczości Sp. z o.o. (WARP, or Wielkopolska Entrepreneurship Development Agency). WARP acts as a cluster "broker" responsible for communication and initiation of new projects. So far, WARP has created a database of information about Wielkopolska's furniture companies, selected furniture-industry suppliers and purchasers, research and development centres, and schools (secondary and tertiary) related to the industry. It has also established contact with approximately a thousand firms, provided them with promotional information on the project, and sent them a questionnaire concerning the cluster initiative. Thirty-seven businesses returned the questionnaire, declaring participation in the cluster initiative.

4.2. Empirical research among members of the furniture-industry cluster

4.2.1. Object of research

The furniture-industry cluster also became an object of the present authors' research.

In the present paper, the authors focus on the significance of cluster-membership for the competitive potential, competitive position and competitive strategy of the companies they investigated in the furniture industry, as well as in related and supporting industries.

4.2.2. Research method

The empirical research into the role played by clusters in supporting international competitivenes and the internationalisation of Polish companies, in particular Wielkopolska's furniture-industry cluster, was carried out in July and August 2006. The main criterion for sample selection was first of all a company's location in the region of Wielkopolska and second, its activity. A key factor was company representatives' consent to participate in the research. The most important thing was to select companies which are based in Wielkopolska and which operate in the furniture industry broadly understood, and in supporting or related industries. Another requirement for the research was to involve companies whose activity covers different links of the value chain: suppliers of raw materials and components, producers of finished goods, companies dealing only with marketing or the sale of certain products.

An address list of potential questionnaire respondents was prepared in conjunction with the Wielkopolska Entrepreneurship Development Agency (WARP).

The selection criterion for industries to be included in the research was that they should be industries with observable co-operation and internationalisation tendencies, because activity in the international market, which in addition to the domestic market also includes foreign markets, is a test of the company's international competitiveness. When selecting companies for the research, the authors used the most typical case of non-random sampling – deliberate selection, which consisted in a rather formal and subjective selection of items for the sample, with the hope of obtaining information that is as detailed as possible. Above all, company selection was determined by practical considerations – belonging to the industries selected for the research, and company location. The company-selection method that was used has an impact on the interpretation of the results obtained. The sample size (31 companies) and the sample selection method prove its low representativeness. Therefore, the research results cannot be generalised to refer to the whole population since they describe only the situation within the group of companies investigated.

In the research, the authors used the individual in-depth interview method. Selected pre-trained people (students and academics) conducted interviews using a previously developed questionnaire, which was a basic research tool during the interview. Having conducted the interviews, the research team and the interviewers checked the formal accuracy of the completed questionnaires.

In the next stage of the research, the raw data in the form of completed sheets were subjected to encoding and statistical processing.

4.2.3. Questionnaire

The tool used in the research was a questionnaire consisting of 21 scaled questions, grouped according to subject into six parts. The first part contained questions enabling the respondent generally to characterise the company under study in terms of: employment figures, legal status, percentage of public (including foreign) capital, sales revenue, and financial performance (for the years 2000–2005).

The second part of the questionnaire was titled "A cluster and competitive potential". Responses to the questions set in this part enabled the authors to determine the reasons why the companies under study are based in Wielkopolska, and the significance of this fact for the size and quality of their competitive potentials.

The aim of the third part of the questionnaire was to identify the relationship between cluster membership and the competitive position and competitive strategy of the firms investigated. Questions focused on the relations which the firms under study enter into so as to determine whether their industries are characterised by co-operation in addition to rivalry. In another part, respondents were requested to answer a question about the consequences of co-operation from the viewpoint of company competitiveness. Next, respondents were asked to indicate co-operation areas.

The fourth part of the questionnaire concerned the relationship between the cluster and company internationalisation. First, respondents were asked about their export involvement – they were requested to specify the share of export sales in their total sales. Next, the companies under study evaluated the significance of co-operation with selected businesses for their internationalisation.

The fifth and sixth parts of the questionnaire concerned the tasks of economic self-government and economic policy instruments, respectively. Respondents were to evaluate many tasks and instruments from these areas in terms of their usefulness and implementation.

4.2.4. Research sample

The research involved 31 companies. The largest group was that of companies which are part of the furniture industry broadly understood – class 36 of the Statistical Classification of Economic Activites in the European Community - Nace Rev.1.1. They included especially businesses operating as part of the following sub-classes:

36.11. Z – Manufacture of chairs and seats,
36.12. Z – Manufacture of other office and shop furniture,
36.13. Z – Manufacture of kitchen furniture,
36.14. A – Manufacture of other furniture, excluding services,
36.14. B – Finishing of furniture.

In addition to manufacturing and services companies from class 36, the research also involved businesses from related industries and industries supporting the furniture industry, especially those representing the following sub-classes:

52.44.Z – Retail sale of furniture, lighting equipment and household articles n.e.c.,
20.20.Z – Manufacture of veneer sheets, boards and plywood,
51.15.Z – Agents involved in the sale of furniture, household goods, hardware and ironmongery,
51.53.A – Wholesale of wood,
51.18.Z – Agents specialising in the sale of particular products or ranges of products n.e.c.,
51.90.Z – Other wholesale.

In terms of the number of employees, the majority of the sample are small businesses. More detailed information on the number of employees is presented in Table 2.

More than half of the companies under study employ from 50 to 99 people. The research involved one company employing over 1,000 people.

In terms of legal status, 58% of the firms investigated are sole traders, 29% are commercial code companies, most of which are limited liability companies, but there are also registered partnerships. Approximately 6% of the firms under study have a legal status other than those listed in the questionnaire – civil partnerships.

Table 2. The number of employees in the companies investigated

Number of employees	Number of companies	Percentage of responses
50–99	17	55
100–249	6	19
250–499	2	6.5
500–999	1	3.2
1,000 and more	1	3.2
No data available	2	6.5
Total	31	100.00

S o u r c e : Own study, based on questionnaire survey.

The questionnaire respondents included also two state-owned companies, one of them employing over 250 people. The companies' characteristics in terms of legal status are presented in Table 3. Table 4 shows detailed data, taking into consideration the share of foreign capital in the ownership structure of the group investigated. A characteristic feature of the respondents is not only the dominance of private capital in their ownership structures but also the practical absence of foreign capital. The majority of the companies under study are Polish firms with a 100% share of Polish capital in the ownership structure. The research involved only three institutions with foreign capital, which in one case amounted to 100% (see Table 4).

Table 3. Legal status of the firms investigated

Firm's legal status	Number of firms	Percentage of responses
Commercial code company	9	29.03
State-owned company	2	6.45
Co-operative	0	0.00
Sole trader	18	58.06
Others	2	6.45
No data available	0	0.00
Total	31	100.00

S o u r c e : Own study, based on questionnaire survey.

Polish companies account for over 96% of the whole group. This by no means reflects the situation on the Polish market. The furniture industry is experiencing a considerable expansion of foreign investors, including German investors, who control 80% of the industry's biggest companies Okrzesik (2001). The main aim of the project is to investigate the significance of operating in a real/potential cluster for Polish companies' competitiveness and internationalisation tendencies – this is why such characteristics of the sample seem to be adequate. The majority of the companies selected for the sample were of Polish origin.

Table 4. Percentage share of public capital and foreign capital in the ownership structure

Share of public capital, as %	Number of companies	Share of foreign capital, as %	Number of companies
0	30	0	28
1–10	0	1–10	0
11–24	0	11–24	0
25–49	0	25–49	1
50–74	0	50–74	0
75–99	0	75–99	1
100	1	100	1
Total	31	Total	31

S o u r c e : Own study, based on questionnaire survey.

As part of sample description, respondents were also asked to provide data concerning the sales revenues and financial performance for the years 2000-2005. However, these questions did not draw a positive response from many respondents, most of whom were reluctant to impart relevant information for the years 2000, 2002, 2004 and 2005. Questions related to financial issues very often meet with a negative reaction from companies – therefore it is difficult to receive answers to them. Tables 5 and 6 present the sales revenues and financial performance, respectively, of those companies that agreed to provide relevant data. Very frequently, respondents gave data only for the years 2004–2005. Only 10 companies, or approximately 30% of the sample, provided full information, stating the value of sales in the years 2000, 2002, 2004 and 2005. The response rate is even poorer in the case of information concerning financial performance, only six companies (less than 20%) having exhaustively answered the question set.

Table 5. Sales revenues for the years 2000–2005

	A	B	C	D	E	F	G	H	I	J
Number of companies	10	1	10	8	10	1	5	3	3	4

S o u r c e : Own study, based on questionnaire survey.

A. number of full answers given, i.e. for the years 2000, 2002, 2004 and 2005,
B. increase in 2002 on 2000,
C. increase in 2004 on 2002,
D. increase in 2005 on 2004,
E. decrease in 2002 on 2000,
F. decrease in 2004 on 2002,
G. decrease in 2005 on 2004,

H. no change in 2002 on 2000,
I. no change in 2004 on 2002,
J. no change in 2005 on 2004.

The data obtained suggest that especially the 2002–2004 period was one of growth in sales revenues. The majority of the companies that answered this question pointed to growth in sales revenues in just those years. The same period was also the most prosperous in terms of financial performance.

Table 6. Financial performance in the years 2000–2005

	K	L	M	N	O	P	Q	R	S	T
Number of companies	6	3	6	3	3	0	4	3	3	3

S o u r c e : Own study, based on questionnaire survey.

K. number of full answers given, i.e. for the years 2000, 2002, 2004 and 2005,
L. increase in 2002 on 2000,
M. increase in 2004 on 2002,
N. increase in 2005 on 2004,
O. decrease in 2002 on 2000,
P. decrease in 2004 on 2002,
Q. decrease in 2005 on 2004,
R. no change in 2002 on 2000,
S. no change in 2004 on 2002,
T. no change in 2005 on 2004.

4.2.5. Competitive potential of the companies under study

During the research, the authors attempted to identify the channels through which the company's membership in a potential/real cluster influences its competitiveness. The influence is exerted by the specific context in which a company-cluster member operates. The context is closely related to the quantity and quality of the resources, broadly understood, which are available to a cluster member. The issue was covered by questions 6 and 7 of the questionnaire. In question 6, respondents were asked to assess a list of eight reasons why their companies are based in the region of Wielkopolska. Additionally, they could give another reason, not included in the questionnaire. The assessment was made with the use of a five-step scale, starting with 0 – "no significance", through 1 – "minimal significance", 2 – "moderate significance", 3 – "considerable significance", to 4 – "very considerable significance". Results for eight of the reasons listed in the questionnaire are between 1 and 2, which suggests that the reasons for locating a company in Wielkopolska which the questionnaire mentions are, at best, of moderate significance. Were we to select the most important one, it would turn out to be proximity of key customers (1.90).

Proximity of strategic market rivals ranks second (1.86). However, as many as 77% of the respondents cited as a very significant reason their family running a similar business in Wielkopolska in the past, which the questionnaire did not list explicitly. Representatives of the companies investigated wrote such an answer on their own in the section headed "Other". Table 7 presents reasons for locating the companies under study in the Wielkopolska region.

Table 7. Significance of reasons for locating the company in Wielkopolska

Reasons	Percentage of responses	A	SD
1. Access to the market in general	90	1.46	1.43
2. Proximity of key customers	94	1.90	1.47
3. Availability of labour	94	1.69	1.23
4. Educational base – schools and professional training institutions	94	1.21	1.35
5. Availability of cheap resources – local suppliers can achieve economies of scale	94	1.31	1.23
6. Availability of specific resources, typical of a given location	94	1.21	1.21
7. Proximity of strategic market rivals – easier observation and benchmarking	94	1.86	1.33
8. Great significance of the local context/environment – interception of local knowledge and information from the environment	94	1.34	1.14
9. Other (e.g. historical determinants, family business).....	77	3.50	0.93
A – Average, SD – Standard Deviation			

S o u r c e : Own study, based on questionnaire survey.

Also question 7 attempted to identify the influence of a real/potential cluster on company international competitiveness. Companies were asked to estimate the extent to which Wielkopolska's resources and their features satisfy the company's needs. The resources were assessed on a five-step scale, where 0 signifies that given resources do not satisfy company needs at all, 1 – satisfy them minimally, 2 – satisfy them moderately, 3 – satisfy them to a large extent, 4 – satisfy them to a very large extent. The respondents stated that the resources listed satisfy their needs at best to a moderate extent. Personnel availability, skills and costs were assessed best (2.38). The availability and costs of venture capital received the lowest mark (1.07); however, only 90% of the companies investigated expressed their opinion on the issue, compared with as many as 97% of respondents who assessed material resources.

Table 8. Extent to which Wielkopolska's resources satisfy company needs

Resources	Percentage of responses	A	SD
1. Personnel availability, skills and costs	94	2.38	0.98
2. Availability and quality of material resources	97	2.07	1.14
3. Scientific, technical and market knowledge	97	2.00	1.26
4. Availability and cost of venture capital	90	1.07	1.25
5. Quality and cost of infrastructure (including institutions and public goods)	94	1.66	1.17
A – Average, SD – Standard Deviation			

S o u r c e : Own study, based on questionnaire survey

4.2.6. Strategy and competitive position of the companies under study

A characteristic feature of clusters is confrontational/co-operative relationships among their members. The majority (nearly 70%) of the respondents are of the opinion that in their industry, in addition to rivalry, one can find instances of co-operation. The companies under study were asked about local and non-local institutions they co-operate with. It was found that the respondents formally co-operate with all of the institutions listed (see Table 9). The largest percentage of respondents co-operate with suppliers (nearly 84% of those questioned); customers ranked second (61%). What is worrying is an extremely small percentage (3%) of companies co-operating with local government. Formal co-operation takes the form of joint provision of services, joint marketing activity, and contracts for the supply of raw materials.

As for informal co-operation with local institutions, the largest percentage of responses mention customers (45%). In the second place were not suppliers but competitors, with nearly 39% of responses. The respondents' answers show that formal co-operation with local institutions is much more popular than informal co-operation with Wielkopolska's organisations. Table 10 shows responses of the companies investigated concerning informal co-operation with institutions from Wielkopolska.

As far as co-operation with institutions from outside Wielkopolska is concerned, this proved to be less popular than co-operation with institutions from Wielkopolska. The largest percentage of respondents pointed to non-local customers and non-local suppliers as the most frequent co-operation partners (see Table 11). Three companies cited institutions from outside Wielkopolska which are other than those listed in the questionnaire, but with which they co-operate, namely marketing agencies.

In question 13, the authors attempted to establish the significance formal/informal co-operation with the listed institutions from Wielkopolska has/may have for company competitiveness. With this aim in mind, respondents were asked to use

Table 9. Local institutions co-operating formally with the companies under study

Institution	Number of responses	Percentage of responses
1. Competitors	4	12.90
2. Industry organisations	11	35.48
3. Suppliers	26	83.87
4. Customers	19	61.29
5. Research and development institutions	10	32.26
6. Market research and analysis agencies	9	29.03
7. Distribution and marketing organisations	7	22.58
8. Local government and other institutions	1	3.23
9. University and other schools	7	22.58

S o u r c e : Own study, based on questionnaire survey.

Table 10. Local institutions co-operating informally with the companies under study

Institution	Number of responses	Percentage of responses
1. Competitors	12	38.71
2. Industry organisations	8	25.81
3. Suppliers	11	35.48
4. Customers	14	45.16
5. Research and development institutions	6	19.35
6. Market research and analysis agencies	4	12.90
7. Distribution and marketing organisations	4	12.90
8. Local government and other institutions	4	12.90
9. University and other schools	3	9.68

S o u r c e : Own study, based on questionnaire survey.

a five-step scale, where 0 stood for "no significance", 1 for "minimal significance", 2 – "moderate significance", 3 – "considerable significance", 4 – "very considerable significance". It was found that co-operative relationships are at best of moderate significance for the competitiveness of the companies investigated. In the opinion of the companies surveyed, what is most important from the viewpoint of competitiveness is co-operation with customers (2.39) and suppliers (2.23). Co-operation

Table 11. Non-local institutions co-operating with the companies under study

Institutions	Number of responses	Percentage of responses
1. Non-local customers	20	64.52
2. Non-local competitors	6	19.35
3. Non-local suppliers	20	64.52
4. Other.....	2	6.45

S o u r c e : Own study, based on questionnaire survey.

with local government and universities/other schools received the lowest marks: 0.71 and 0.81, respectively. Such low assessment of the significance of co-operation for the competitiveness of the companies under study may suggest that co-operation as a competitive game strategy is clearly underestimated. As indicated by interviews with their representatives, the companies surveyed are afraid to enter into co-operative relationships, particularly with competitors, and very frequently do not perceive the benefits accruing from co-operation, especially with rivals. Table 12 shows responses given by the companies under study concerning the significance of co-operation for their competitiveness.

Table 12. Significance of co-operation with selected institutions for the competitiveness of the companies investigated

Institution	Percentage of responses	A	SD
1. Competitors	100	1.45	1.43
2. Industry organisations	100	1.48	1.39
3. Suppliers	100	2.23	1.41
4. Customers	100	2.39	1.56
5. Research and development institutions	100	1.52	1.34
6. Market research and analysis agencies	100	1.29	1.30
7. Distribution and marketing organisations	100	1.03	1.33
8. Local government and other institutions	100	0.71	1.30
9. University and other schools	100	0.81	1.38
A – Average, SD – Standard Deviation			

S o u r c e : Own study, based on questionnaire survey.

As part of the research conducted, the authors also attempted to determine what are/what can be, in the respondents' opinion, the consequences of co-operation with competitors, suppliers, customers, industry organisations, research and development institutions, market research and analysis agencies, distribution and marketing institutions, local government, and universities and other schools both from Wielkopolska (i.e. local institutions) and from outside the region (see Table 13). The authors set a question about the significance of specific consequences of co-operation for the competitiveness of the companies surveyed. The assessment was made on a five-step scale, where 0 stood for "no significance", 1 for "minimal significance", 2 – "moderate significance", 3 – "considerable significance", and 4 – "very considerable significance". Practically all the companies under study expressed an opinion on all the consequences listed in the question. The only exception was "strengthening one's position in relation to local/non-local competitors", where not all the respondents presented their opinion – the percentage of responses was 87% and 94%, respectively. Co-operation with local institutions, particularly

Table 13. Consequences of entering into co-operation with selected institutions

Consequences of co-operation	LI			NLI		
	Percentage of responses	A	SD	Percentage of responses	A	SD
1. Taking more advantage of market opportunities	100	2.00	1.46	100	2.06	1.41
2. Improved position in relation to local competitors	100	2.16	1.51	94	1.66	1.42
3. Improved position in relation to non-local competitors	87	1.78	1.34	100	2.32	1.42
4. Cost reduction	100	2.45	1.21	100	2.26	1.44
5. Improved innovativeness	100	2.13	1.43	100	2.16	1.44
6. Increased product range	100	2.35	1.50	100	2.58	1.57
7. Distribution network development	100	1.77	1.41	100	2.16	1.49
8. Achieving economies of specialisation	100	1.68	1.30	100	1.74	1.32
9. Improved position in relation to suppliers	100	2.13	1.52	100	2.10	1.45
10. Improved position in relation to purchasers	100	2.19	1.64	100	2.39	1.61
11. Achieving economies of scale	100	2.03	1.33	100	2.03	1.28
12. Easy way of obtaining information about the co-operator – former competitor	100	1.84	1.37	100	1.58	1.34
13. Improved product quality	100	2.58	1.41	100	2.58	1.48
14. Improved organisation and management	100	1.94	1.34	100	1.90	1.30
15. Acquiring financial resources	100	2.06	1.59	100	1.84	1.53
16. Opportunity for companies to complement each other's activity	100	1.77	1.33	100	1.65	1.33
17. Other.....	-	-	-	-	-	-
LI – Coperation with local institutions, NLI – Cooperation with non-local institutions, A – Average, SD – Standard Deviation						

S o u r c e : Own study, based on questionnaire survey.

Table 14. Areas/forms of co-operation of the companies studied

Area/form of co-operation	Currently – Percentage of responses)		In the next three years – Percentage of responses	
	LI	NLI	LI	NLI
1. Supply of raw materials and components	67.74	70.97	74.19	74.19
2. Supply logistics	51.61	54.84	61.29	64.52
3. Production operations	35.48	35.48	48.39	38.71
4. We commission production under our brand / accept a commission to produce under another company's brand* (*delete as appropriate)	25.81	29.03	25.81	29.03
5. Technology development	51.61	51.61	54.84	51.61
6. Product research and development	38.71	38.71	48.39	48.39
7. Human resources management (e.g. temporary employment, staff leasing, training)	19.35	16.13	32.26	25.81
8. Company infrastructure / Management support systems	19.35	16.13	29.03	22.58
9. Distribution logistics	25.81	29.03	29.03	29.03
10. Marketing and sales	45.16	45.16	54.84	48.39
11. After-sales service	38.71	41.94	48.39	48.39
12. Strategic alliance (to carry out a project, usually without establishing a new company)	22.58	29.03	35.48	45.16
13. Export activity – expansion into foreign markets	29.03	35.48	48.39	51.61
14. Other forms of co-operation……	-	-	-	-
LI – Coperation with local institutions, NLI – Cooperation with non-local institutions				

S o u r c e : Own study, based on questionnaire survey.

with local rivals, is perceived first of all as a good method of improving the quality of the products offered or services provided. The significance of the fact for the competitiveness of the companies investigated was assessed as almost "considerable" (2.58). Decreased costs rank second (2.45), and increased product range third (2.38). As for co-operation with institutions from outside Wielkopolska, the issues of the greatest significance for company competitiveness were product improvement and increased product range (2.59), improved position in relation to purchasers ranked second (2.39), while decreased costs ranked third (2.32).

All the listed consequences of co-operation with both local and non-local institutions were seen as issues of moderate significance for the competitiveness of the companies investigated – the significance of the listed consequences of co-operation with both local and non-local institutions was assessed at 2.05 and 2.06, respectively.

In addition to partners and consequences of co-operation, the authors attempted to identify the basic areas where the companies surveyed enter into co-operation

(see Table 14). The questions concerned areas of co-operation with local and non-local institutions, and, additionally, the time factor was introduced – the point was to indicate areas of co-operation at present and in the next three years. At present, the largest percentage of the companies under study (approx. 70%) co-operate in the supply of raw materials and components – this refers to co-operation with local and non-local institutions. It is anticipated that in the next three years even more companies will start co-operation in this area. In the second position is supply logistics. At present, co-operation in this field with local institutions is declared by nearly 52% of the respondents, and with institutions from outside Wielkopolska – by almost 55% of those surveyed. The next three years will see increased co-operation in the field, because the intention to start co-operation in supply logistics is declared by over 60% of the respondents. An important place in the list of co-operation areas is occupied by technology development. Within this area, co-operation with both local and non-local institutions is conducted by over 50% of the companies investigated, and within the next three years the number of companies interested in this area of co-operation with local institutions is expected to grow (currently about 52%, in three years' time nearly 55%). Marketing and sales rank third. Co-operation in this area is conducted by 45% of the respondents. The next three years will see a marked increase in the number of companies ready to co-operate in the area of marketing and sales with other local institutions (nearly 55% of the companies investigated).

5. Conclusion

Analysis of information available in the literature on the beginnings of cluster structures in Poland suggests that there are conditions conducive to the implementation of this idea. However, the research conducted to date shows that the idea of clustering needs more promotion in Poland.

Only 31 furniture companies from the region of Wielkopolska decided to participate in the research conducted by the authors. It is necessary to encourage more companies to join the cluster initiative. The number of enterprises involved in the process of clustering is crucial for the flow of information and tacit knowledge. In order to facilitate this flow the companies should participate in trade fairs and seminars concerning the idea of clustering and promoting innovative ideas in the furniture industry as well as in the supporting and related industries. In the region of Wielkopolska there is International Poznan Fair which can help to achieve the goal. It seems that the furniture cluster needs a kind of broker – an institution that will take care of the crucial problems of furniture firms, as the majority of them are micro and small enterprises. The Wielkopolska Entrepreneurship Development

Agency (WARP) could act as the cluster broker and represent the participants in debates concerning the desirable form of state policy.

The research conducted by the authors shows that co-operation is on the one hand perceived by the companies investigated as a competitive game strategy within the confines of their industries, but on the other hand, it is clearly underappreciated. The companies under study, as indicated by interviews with their representatives, are afraid to enter into co-operative relationships, especially with competitors, but they also do not see the benefits accruing from co-operation with rivals. One may conclude that the furniture firms do not understand the rules governing economic clusters and running the business within a cluster. The unwillingness of furniture firms to co-operate with other companies, with educational organisations like universities and with local government is a strong barrier that has to be overcome. However, it is very difficult to change the perception of collaboration between firms. Maybe some benchmarking studies presenting successful furniture companies from foreign clusters could be useful. Moreover, the majority of the companies surveyed do not see a connection between locally available resources and their competitive position, indicating that the key reason for their doing business in Wielkopolska is that their families conducted a similar activity in the past (a reason referred to as "family business"). In this context, a very important role seems to be played by social capital and the cultural context that can support or hinder business entities' endeavours to create cluster structures, which would exploit unique local sources of competitive advantage.

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