



PARTICIPATION IN CLUSTERS AND BUSINESS INTERNATIONALIZATION

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Abstract: In the paper an attempt has been made to discuss two economic issues, seemingly loosely related to each other: the concept of cluster and the process of internationalization. The cluster is a modern form of responding to the changing competitive conditions. In many cases, it is an effective form of development. The decision on selecting a business internationalization strategy is accompanied by similar motivations. Internationalization is undertaken by enterprises also in order to increase the effectiveness of operations and to achieve a favorable competitive position. It should be emphasized that internationalization can be regarded both at the level of individual enterprises operating within cluster as well as the whole cluster.

The objective of the paper is to identify the benefits of and opportunities for simultaneous implementation of activities by companies within the cluster as well as strategies for the internationalization of business operations. In the paper, the subject literature available to the authors and the research results in the field of the functioning of clusters in Poland have been used. The methods typical for such cases of literature studies as well as analysis and synthesis methods have been applied. The most important conclusion coming from the paper is the observation that the combination of the activity within the cluster structure along with simultaneous implementation of internationalization strategy may contribute to a synergy effect.

Keywords: cluster, internationalization, management, strategy

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Introduction

The concept of the cluster as an effective form of business activity organization is gaining popularity. In the simplest terms, a cluster is understood as a flexible form of cooperation, particularly between three groups of entities: enterprises, scientific-research units and public authorities. These structures create a specific environment characterized by favorable conditions for cooperation and other types of interaction, being a type of a catalyzer of technological and social innovation. At the same time, they contribute to the development of the region and thus to the whole domestic economy.

The most important characteristics of clusters include the existence of internal relationships and ties, which have a systemic nature and the simultaneous occurrence of both cooperation and competition between individual entities, which is defined as *coopetition* in the economic literature (Cygler 2009). This type of

relationships can be understood as a common strategy for value creation and competition while sharing this value in conditions of partial convergence of objectives and changing structure of the positive-sum game (Dagnino et al. 2008).

The cluster research results indicate a range of resulting benefits. The most important ones are: the creation of specialized production factor markets (knowledge and high quality human capital), scientific infrastructure development, stimulation of the flow of knowledge, emergence of new enterprises, an increase in location attractiveness for investments and the creation of an attractive labor market. Obviously, the functioning of clusters may also be associated with potential negative effects, such as the possibility of clusters transforming into cartels, a negative impact on the natural environment, which results from a high concentration of production companies, the danger of the emergence of an economic monoculture resulting in perception of the region through the prism of a specific business profile.

The reason for approaching the topic of the paper is the assumption that effectively operating clusters may positively affect the competitive position of the enterprises that are a part of them, in particular the ones from the sector of small and medium-sized enterprises (SMEs). These entities, connected in clusters, have easier access to essential production factors, modern knowledge and sales markets with a high level of concentration.

The cluster in the modern economy

The concept of the cluster is not a new phenomenon, though, not until recently was it recognized as a formalized, clearly understood economic category. The oldest known cluster comes from the period of 4000-3500 BC. It was located in the area of modern Southern Iraq. The cluster included Sumerian cities along the valley between the Euphrates and Tigris rivers. There were some districts which had specifically defined business areas and specialized markets (Morosini 2003).

The first research into clusters, understood in the way adopted contemporarily in the subject literature, is attributed to A. Marshall, who proposed the concept of an *industrial district*, which was the result of the tendency of production companies to locate and focus their activity near their competitors, suppliers and customers (Rudzka, Góralski 2012). Consequently, the so-called *external economies of scale* (Grycuk 2003, p. 8) came into being, which resulted from the presence of a group of suppliers and customers in a specific area, development of the local labor market and flows between enterprises.

In the economic literature, the concept of cluster was used for the first time and popularized by M.E. Porter. His definition is the following: "A cluster is a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities" (Porter 2009, pp. 226-227). In his opinion, clusters provide the economy with a range of benefits since they:

- increase the productivity of enterprises operating within the cluster,
- contribute to an increase in the level of innovativeness of enterprises,

- create favorable conditions for the emergence of new companies. The cluster means a new way of thinking about creating the competitiveness of the economy (Porter 2001). It is a unique creation; on the one hand, it enables and fosters cooperation, and on the other, by maintaining full autonomy and independence, allows competitive actions.

Due to the complexity of the phenomenon, there are many definitions of the cluster (Brodzicki, Szultka 2002). Some of them focus on specific areas of interdependent enterprises operating in the same or related sectors (Rosenfeld 1997; OECD 2000). In contrast, Doeringer and Terkla (1995) emphasize the interactions and functional links between enterprises and cross-sectoral dimension of the cluster. In turn, Jacobs and de Man (1996) highlight the significance of the social and cultural factors essential for the efficient transfer of information within the cluster.

Clusters emerge practically in all sectors of the economy, obviously differing in terms of the level of innovativeness, technological advancement and development strategies. In different types of clusters different competences are required. Anderson, Schwaag-Serger, Sorvik and Hansson underline (2004, p. 106) that in the area of services, interpersonal skills and the ability to operate in complex ambiguous conditions are becoming particularly important.

An effective cluster translates into increased productivity of local enterprises, which results from relatively easy access to specialized production factors. On the other hand, the presence of other entities stimulates the innovativeness of enterprises. Clusters prevent the isolation of enterprises (Ffowcs-Williams 2000, p. 8). They also require redefining the ways of managing risk (Gorzeń-Mitka 2018). In addition to the listed benefits, M. Enright and I. Ffowcs-Williams (2000, p. 3) highlight the possibility of using the advantages of a small company, while benefiting from economies of scale (due to cooperation).

A growing number of studies concerning clusters indicates a range of potential benefits for the economy at the local, regional and even national level. It includes primarily: increasing the competitiveness of the participating enterprises, creating innovative environments (Sipa 2015), creating conditions for the diffusion of knowledge as well as conditions for the emergence of social capital (Skibiński 2017). In the Polish economy, clusters are a relatively new phenomenon as several years ago they did not actually exist. The first clusters began to come into being in 2003, although their actual development began in 2007.

General characteristics of clusters in Poland

In Poland, systematic research into clusters using the benchmarking method has been conducted by the Polish Agency for Enterprise Development (PARP) since 2005. PARP independently for the first time carried out an inventory of clusters operating in Poland in 2015. Generally, 134 entities were identified, which in line with the adopted definitions and research assumptions, can be called clusters. 106 entities possessing the characteristics which allow them to be referred to as *potential clusters* were also distinguished. The research results are included in *Table 1*.

Table 1. Number of clusters and entities creating clusters by region

No.	Voivodeship	Number of clusters	Percentage of clusters (%)	Number of entities in clusters	Percentage of entities (%)
1.	Śląskie	28	20.90	1190	20.28
2.	Mazowieckie	13	9.70	608	10.36
3.	Podkarpackie	12	8.96	488	8.32
4.	Wielkopolskie	12	8.96	499	8.50
5.	Dolnośląskie	11	8.21	554	9.44
6.	Lubelskie	11	8.21	443	7.55
7.	Małopolskie	10	7.46	354	6.03
8.	Podlaskie	8	5.97	272	4.64
9.	Zachodniopomorskie	6	4.48	359	6.12
10.	Pomorskie	5	3.73	427	7.28
11.	Kujawsko-Pomorskie	4	2.99	125	2.13
12.	Lubuskie	4	2.99	82	1.40
13.	Świętokrzyskie	4	2.99	190	3.24
14.	Łódzkie	3	2.24	120	2.04
15.	Warmińsko-Mazurskie	2	1.49	137	2.33
16.	Opolskie	1	0.75	20	0.34
Total:		134	100.00	5868	100.00

Source: Based on (PARP 2016)

There is a total of 5868 entities operating in the surveyed population. The number of entities in a cluster ranges from 8 to 171, on average, there are 44 entities. The largest number of clusters is in the Śląskie Voivodeship - over 20% of all the clusters in Poland. This voivodeship is also characterized by the largest number of entities in clusters (1190), which amounts to more than 20% of all the entities.

The structure of clusters in Poland consists of enterprises, business environment units, scientific units and other entities. The most numerous group is enterprises - 4578 entities, which amounts to 78% of all the participants. Almost half - 47% of all the cluster participants is microenterprises, small enterprises - 27%, medium-sized enterprises - 18% and large enterprises - 8%. Most clusters operate in the ICT sector - 19%, the energy and renewable energy sources sector - 16%, construction - 12%, medical sector - 10% and tourism - 10%.

The number of clusters in Poland remains on an average level. The clusters operating in Poland are small structures and they belong to the smallest concentrations of this type in Europe. In Poland there are 44 entities per cluster co-creating it. It is just like in Sweden, Spain and Norway (respectively: 40, 50 and 60 entities). Nevertheless, in Germany and Denmark, it is already 100 on average, in France – 170, in Austria – 220, and in Finland – as many as 260 entities (Müller et al. 2012, p. 17).

Business and cluster internationalization

The ongoing process of globalization of the world economy has changed the face of competition once and for all. Nowadays, all enterprises, irrespective of the scale of their activity, even microenterprises, are forced to operate in the conditions of global competition. Even if the company does not plan expansion abroad, it comes across foreign competitors in its own domestic market. The enterprise is forced to compete for scarce resources and shrinking markets with rapidly growing and increasingly stronger foreign competitors. Paradoxically, in addition to risks and limitations, globalization is associated with specific opportunities. This is primarily access to a larger market of resources, in particular exclusive technological and organizational knowledge, as well as a huge sales market (Brzozowska et al. 2017).

Along with the ongoing globalization, it is becoming increasingly difficult to achieve the desired competitive position. The concept of clusters has brought a new way of creating the competitiveness of enterprises and entire national economies, as clusters are an effective way to search for the synergy effects arising from cooperation of the entities being a part of the triple helix, i.e. entrepreneurs, scientific institutions and public authorities.

The strongest cooperation and most interactions take place between the participants of clusters at the regional level. However, the globalization process forces cluster participants to behave in a manner so as to internationalize their operations. This is encouraged by favorable conditions for the free movement of resources and increasing specialization of the value chain. Moreover, clusters have the potential to attract foreign capital since they create investment attractiveness of the specific location.

Cluster structure and internationalization

Internationalization understood in the simplest way means going with one's own operations beyond the borders of one's own home country in order to gain better opportunities for development. Jankowska (2010, p. 19) proposes understanding internationalization in a similar way – as building ties with foreign partners or markets. Since internationalization is a complex and multidimensional process, including economic aspects as well as sociological, cultural and political ones, referring to one, generally accepted definition is not possible. Depending on the research needs, this concept is defined through the prism of different categories and approaches.

Internationalization can be considered at the level of enterprises creating clusters or at the level of entire clusters. Przybylska (2005, p. 73) defines cluster internationalization as:

- the process of increasing the involvement of the cluster in operations at the international level, including both active forms (export, contractual cooperation, foreign direct investments - FDI) and passive ones (import, purchase of licenses, foreign cooperation),
- the process of cluster reorientation from national to international,
- a gradual increase in the involvement of the company in foreign markets.

The basic reasons for cluster internationalization include the willingness to strengthen the significance and recognition of the organization at the international level, bypassing the barriers to access to target markets and gaining *know-how* from foreign partners.

According to Jankowska (2010, p. 23), the activities fostering cluster internationalization include:

- creation of formal and informal forms of cooperation with foreign partners,
- selective relocation,
- replicative relocation,
- common R+D projects with foreign partners,
- organization of joint purchases and distribution,
- cooperation with foreign partners in the field of subcontracting.

If cluster members are foreign entities, they can be a good source of information. This affects a reduction in the costs of obtaining information on the functioning of foreign markets and allows the mutual sharing of experiences in the field of expansion, managerial skills and distribution channels (Kinas 2013, pp. 134-137). In cluster structures, mutual trust is very important since it contributes to a reduction in operational risk. It is particularly significant in the international competitive environment, which is characterized by great variation and uncertainty of the operating conditions.

A challenge for enterprises operating in clusters is reorientation of the knowledge distribution system. It is necessary to direct its flow not only to the inside of the organization but also outside it (Brojakowska-Trzaska 2016, p. 41).

Internationalization of clusters operating in Poland

The benchmarking cluster studies conducted in Poland by PARP (2012; 2014; 2016) indicated that internationalization is a very important area of the functioning of clusters. In accordance with the research results published in 2014, internationalization occupied the second position in terms of strategic goals in the group of examined enterprises (being a part of 35 clusters). The rise from the sixth position in 2012 may prove the increasing orientation of clusters towards internationalization and anticipating the increasing benefits from international cooperation (Lis, Romanowska 2016).

The cluster research in Poland was carried out on the basis of three main indicators: the number of supported foreign markets, share of export in sales, and the number of formal cooperation agreements with foreign entities. According to the research results, most clusters are moderately internationalized. Better results were achieved by large clusters and the ones in which an active role in the process of coordinating activities was played by universities and research and development units. However, the conclusions from the research included the statement that clusters represent a lower level of internationalization than is possible since not all the clusters fully exploit the opportunities provided by the environment.

The most recognizable Polish cluster at the international level is the "Aviation Valley" cluster, which is located in south-eastern Poland. It was established in

2003 and it comprises 120 members now. Its mission is to strengthen the role of the region as one of the most important regions of the aviation industry in Europe, to create an efficient and reliable network of sub-supplies and a cost-effective supply chain (Bembenek 2014, p. 45). Decision makers take numerous actions aimed at cluster internationalization. They may include (Hołub 2012, p. 51):

- cluster members actively searching for appropriate partners from among foreign companies,
- systematic organization of *face-to-face* business meetings with foreign companies, foreign clusters, embassies, industry associations for cluster members,
- setting up a cluster cooperation network, currently associating more than thirty aviation clusters under the name of EACP - European Aerospace Clusters Partnership,
- building wide cooperation with aviation clusters from different countries, among others with Aero Montreal (Canada), AsTech (France), Hegan (Spain), the Hungarian Aerospace Cluster (Hungary), BBAA (Germany) and ClusterAvatik (Switzerland),
- periodically organized participation of cluster members in international events: study visits, training, conferences etc.,
- organization of international fairs “Aviation Valley Expo Day & B2B Meetings”,
- publications in the world economic and trade press (Financial Times, Flight, Aviation Week),
- participation in the prestigious project - 7 PR. CARE-Clean Aerospace Regions,
- effective cooperation with foreign scientists in different prestigious projects.

Intensification of the cluster internationalization process is significantly affected by reputable and recognized transnational corporations, e.g. the American United Technologies Corporation and Sikorsky Aircraft Corp., the French Hispano-Suiza, the German MTU Aero Engines, the Canadian Vac Aero, and the Italian-British Augusta Westland. These companies, through direct investments, contribute to the building of cluster relationships with foreign partners and they strengthen the effect of technological and knowledge spillovers to the inside of the cluster.

Conclusions

The ongoing process of globalization has changed the face of competition once and for all. The barriers to capital flow and also to access to foreign production factor markets and sales markets have been significantly reduced. These circumstances have made each enterprise a participant of the processes of internationalization and globalization of the economy, if not an active one then at least a passive one. The changing competitive environment requires reorientation of the classic paradigm of enterprise management.

The response to these changes can be the organization of enterprises into clusters. Cluster structures have many advantages. They allow an increase in the

productivity of enterprises operating within it, contribute to an increase in the innovativeness of enterprises, and create favorable conditions for the emergence of new companies. These effects can be significantly intensified through the internationalization of activities of enterprises functioning within the cluster or the internationalization of entire clusters, which translates into benefits coming from this process to individual cluster members.

The main motivation for business internationalization is the willingness to make use of broadly understood foreign production factor markets, both tangible and intangible, particularly taking into account knowledge, technology and know-how as well as foreign sales markets.

The present paper is an attempt to logically link the concept of the cluster with the concept of internationalization. The result is the conclusion that it is possible in this case to obtain a synergy effect. Since cluster structures are increasingly represented in the economy, and the level of internationalization of enterprises operating in clusters as well as entire clusters is increasing, one may hope that further research in this field will be intentional, significant and necessary.

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UCZESTNICTWO W KLASTRACH A INTERNACJONALIZACJA DZIAŁALNOŚCI GOSPODARCZEJ

Streszczenie: W artykule podjęto próbę dyskusji nad dwoma problemami ekonomicznymi, pozornie luźno ze sobą powiązanymi: koncepcją klastra oraz procesu internacjonalizacji. Klastr stanowi współczesną formę odpowiedzi na zmieniające się warunki konkurencji. W wielu przypadkach jest to skuteczna forma rozwoju. Podobne motywacje towarzyszą decyzji o wyborze strategii internacjonalizacji działalności. Internacjonalizacja podejmowana jest przez przedsiębiorstwa również w celu zwiększenia efektywności działań i uzyskania korzystnej pozycji konkurencyjnej. Należy podkreślić, że internacjonalizację można rozpatrywać zarówno na poziomie poszczególnych przedsiębiorstw działających w ramach klastra, jak i całego klastra.

Celem pracy jest identyfikacja korzyści oraz możliwości jednoczesnej realizacji przez przedsiębiorstwo działalności w ramach klastra oraz strategii internacjonalizacji działalności gospodarczej.

W pracy wykorzystano dostępną autorom literaturę przedmiotu oraz wyniki badań w zakresie funkcjonowania klastrów w Polsce. Zastosowano typowe dla takich przypadków metody studiów literaturowych, a także metodę analizy oraz metodę syntezy.

Najważniejszym wnioskiem płynącym z pracy jest konstatacja, że połączenie działalności w ramach struktury klastrowej z jednoczesnym realizowaniem strategii internacjonalizacji może przyczynić się do powstania efektu synergii.

Słowa kluczowe: klaster, internacjonalizacja, zarządzanie, strategia