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Clusters on the road to internationalization - evidence from a CEE economy

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Clusters on the road to internationalization – evidence from a CEE economy

Clusters on
the road

395

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Abstract

Purpose – This paper aims to respond to the call for empirical research on cluster internationalization to learn more about the mechanism of cluster internationalization and the intensity of this process in a Polish context, which is specific due to Poland.

Design/methodology/approach – The authors provide a conceptual model of cluster internationalization and show results of their own primary, empirical and quantitative research on cluster internationalization in Poland.

Findings – The study reveals that Polish clusters are at the beginning of the internationalization process, particularly of the outward internationalization. The most popular mode of internationalization is exports. The level of Polish cluster internationalization operations is relatively low.

Research limitations/implications – Data were provided by cluster managers, but none of the cluster organizations had a reliable monitoring system for the international involvement of cluster members. These results are merely a snapshot; therefore, a longitudinal study should also be carried out.

Social implications – The research demonstrates that cluster companies can take advantage of internationalization operations performed by cluster organizations. The attempts of Polish government should be directed to push the internationalization of micros and small and medium-sized enterprises via cluster initiatives on the one hand and on the other hand to develop some kind of incentives for large companies to participate in cluster organizations as in reality exports are dominated by large firms.

Originality/value – The main value added of this paper consists in developing the conceptual model of cluster internationalization and applying the model in empirical research on the internationalization of Polish clusters. The study bridges the theory of firm internationalization, especially the approaches to firm internationalization with the theory of clusters. It offers insight into internationalization of clusters in Poland.

Keywords Internationalization, Poland, Emerging market, Cluster, Cluster organization

Paper type General review



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Introduction

The internationalization of clusters is an important issue in the discourse of researchers and practitioners. The topic of internationalization in the context of clusters from European emerging economies has up till now been discussed while presenting the tasks of cluster organizations (COs), previous links of them with international or foreign

partners, indicating the need to integrate the clusters with international production chains or even innovation networks (OECD, 2005). The impact of clusters on the internationalization of cluster firms has been the subject of some empirical studies. These include papers published by Xu and McNaughton (2006), Prashantham (2008), Pla-Barber and Puig (2009), Carneiro Zen *et al.* (2011) and Richardson *et al.* (2013). In the Polish literature, there are publications by Gorynia and Jankowska (2008), Jankowska (2010, 2011, 2012) and Ślepko (2012). However, the above-mentioned studies present often particular cases of clusters and in this sense are not comprehensive. The topic still needs investigation, as the globalization and the economic crisis from 2008 have changed the business landscape. The cooperation among companies and organizations from the R&D sector, service providers and local or regional public administration may help to create value in a faster and more efficient way.

Clusters are a characteristic phenomenon in local or regional markets, but their function is to build a competitive advantage for cluster members on a larger scale – not only national but international. According to Porter (1998, 1998a, pp. 148-154), clusters are the right environment for companies with active, outward internationalization ambitions.

This article expands research on cluster internationalization by examining the involvement of cluster members and COs in international operations. Specifically, it is argued that cluster internationalization is a multidimensional phenomenon. Internationalization is the domain of cluster firms as well as of COs. The paper is a response to the call for primary empirical research on cluster internationalization. We aspire to learn more about the mechanism of cluster internationalization and the intensity of this process in the context of an emerging economy like Poland.

First, we attempt to provide a model of cluster internationalization. Second, we present the findings of research on cluster internationalization in Poland. Third, we show results of our own primary, empirical, quantitative study on cluster internationalization in Poland. The research was conducted according to the proposed conceptual model of cluster internationalization. Our findings indicate that Polish cluster internationalization reflects the features of company internationalization stage and network approach models.

The main value added of this paper consists in developing a model of cluster internationalization and applying the model in the research on the internationalization of Polish clusters. The study offers insight into internationalization of clusters in Poland. It demonstrates that cluster companies can take advantage of internationalization operations performed by COs. It shows that it is justified to recognize clusters as true company internationalization vehicles.

Theoretical background and model development

The concept of clusters and their internationalization

The phenomenon of clusters has been discussed by many researchers, who define the concept in a similar way (Enright, 2000; Gordon and McCann, 2000; Porter, 2000; Sölvell, 2002; Andersson, 2004; Ketels, 2004; Yehoue, 2005). The most common is the definition proposed by Porter (2000, pp. 15-34), who describes a cluster as a:

[...] group of companies existing in a geographical neighbourhood along with the organizations which are related to them and deal with a particular activity, connected by similarities and competing with one another.

The notion of a cluster corresponds with the notion of an industrial district (ID). IDs are characteristic for the Italian approach to clusters initiated by Giacomo Becattini (2004) and later developed by many researchers (Bagella and Becchetti, 2000; Belussi *et al.*, 2003).

Researchers have been trying to identify the most typical features of clusters (Waits Mary Jo, 2000; van Dijk and Sverrisson, 2003). Ketels and Memedovic (2008, pp. 375-392) indicate three pillars in the definition of a cluster: geography, creating value and the business environment. Geography refers to proximity – clusters as groupings of entities are concentrated in one region within a larger nation, or in one town. Creating value means that clusters include different industries, being networks of supportive and related industries engaged in bringing value to the customer. The functioning of clusters is connected with creating a specific business environment which is the result of the cooperation between the business sector, R&D entities and the public sector. The processes within the whole value chain are divided among many firms located within a restricted geographical area. Coordination of their activities is possible because of trust and face-to-face interactions. Companies operating within clusters enjoy a variety of advantages due to their embeddedness in the local social and cultural context.

Traditionally, clusters are perceived as a phenomenon characteristic of local markets (Porter, 2000; Audia and Sorenson, 2000; Keeble and Wilkinson, 2000; Martin and Sunley, 2003; Hervas and Albors, 2007). Clusters strengthen and stabilize local economies by establishing specialized regional or local networks. Nowadays, locally generated benefits arising from clusters can be exploited by companies so as to be integrated into global value chains (Humphrey and Schmitz, 2002; Sturgeon, 2003; Nadvi and Halder, 2005; Belderbos *et al.*, 2008; Mudambi and Swift, 2011). In case cluster firms integrate into global value chains, the whole cluster experiences internationalization.

The issue of clusters' internationalization has been broadly discussed in the context of Italian IDs. There is a vast empirical literature exposing the internationalization strategies of Italian IDs (Rabellotti *et al.*, 2009; Chiarvesio *et al.*, 2010). The studies focused on ID's internationalization have been facilitated by the globalization that manifests itself through the integration of trade at the global level, growing importance of offshore production and the formation of global production networks (Feenstra, 1998). The Italian IDs have experienced inward and outward forms of internationalization. As noted by Sammarra and Belussi (2006), some of the IDs have been penetrated by foreign direct investment of multinational enterprises. The outward internationalization is related to the outsourcing of manufacturing activities of IDs' companies and to the relocation of distribution and branding operations (Nassimbeni and Sartor, 2005; Belussi and Sammarra, 2010). Activities creating lower-value are relocated abroad by means of foreign direct investment and offshore outsourcing (Coro' *et al.*, 2005; Grandinetti *et al.*, 2009). However, the findings of the research conducted by DiMarchi *et al.* (2014) on the integration of IDs into the global value chains in the period of the economic crisis 2008-2009 demonstrate that IDs react differently to globalization using their downstream and upstream internationalization strategies. The differentiation of internationalization patterns even just within the Italian IDs prompts for the research

focused on clusters' internationalization embedded in different institutional settings, in the institutional context of emerging economies among others.

Internationalization models and their implications for clusters

Dynamic clusters – characterized by numerous and sophisticated interactions among cluster members as well as between them and outside entities – tend to internationalize (Sölvell, 2009, pp. 18-19). In the literature, there are many definitions of internationalization. Some of the approaches point to the foreign origin of the operations or actors. Welch and Luostarinen (1988, p. 36) defined internationalization of a firm as “the process of increasing involvement in international operations”. Cluster internationalization can be defined in the same way. However, as far as the internationalization of clusters is concerned, it is crucial to underline the distinction between clusters, cluster initiatives and COs.

Nowadays, the development of clusters is supported by cluster initiatives that comprise all the activities undertaken by a group of enterprises, including the public administration and research sector, with the aim of cluster development (Lindquist *et al.*, 2013, p. 1). A cluster initiative is formalized through the emergence of a CO which has a legal personality and represents the interests of its members. Thus, it becomes a platform for cooperation, and its activities help to reduce information asymmetry, as well as limit opportunistic behaviour. A CO is a tangible manifestation of cooperation between cluster members, though it usually does not include all the cluster inhabitants (entities located in the same area, operating in the supportive and related industries and being interdependent). The set of activities performed within a cluster initiative can comprise activities aimed at the internationalization. Particular tasks focused on the internationalization of clusters can be undertaken by a CO that represents a cluster. COs can work like an intermediary between cluster companies and different business, R&D and public administration entities from different countries. Due to the activities of COs, links can be created between them, which means that international cooperation can develop between COs from different countries. The actions of a CO can support the internationalization efforts of cluster companies. These activities are expected to help companies gain access to foreign markets through identifying potential business partners as well as organizing foreign business trips and trade missions. Thus, cluster members can promote their products without incurring large costs, and the cluster brand which a CO uses can also be very helpful in this respect. A CO can also supply information about foreign markets obtained through market research, as well as representing its members in business negotiations with larger and stronger business partners.

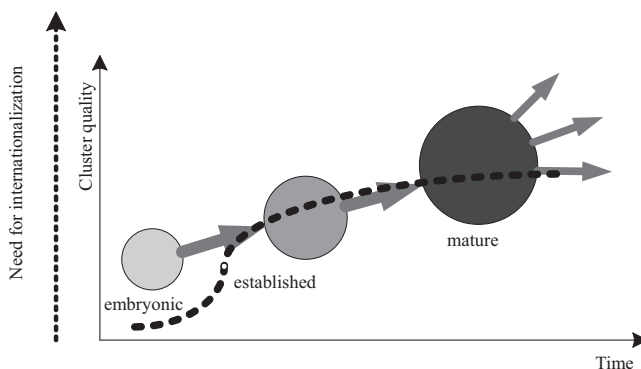
In defining and describing cluster internationalization, it is useful to look at various approaches to firm internationalization. The traditional explanation of firm internationalization is related to the stage approach. The latest explanations are built on the foundations of the stage approach and developed within the network approach.

The models within the stage approach converge on the idea that internationalization is a linear and sequential process. According to the literature, we can distinguish two types of analysis within this approach – the Uppsala model (Johanson and Vahlne, 1977) and the group of innovation-related internationalization models (Bilkey and Tesar, 1977; Czinkota, 1982; Reid, 1981; Korth, 1985). The Uppsala model indicates that at first, the firm does not have any regular exports. Then, it moves towards direct exporting. In the

next step, it establishes a sales subsidiary in a foreign market. Finally, it opens a production facility in a foreign market. Although the Uppsala model has been criticized and modified (Gankema *et al.*, 2000; Axinn and Matthyssens, 2002; Pope, 2002; Johanson and Vahlne, 2009), its principal concepts – the learning process and psychological distance – are helpful in understanding cluster internationalization. Clusters experiencing internationalization are involved in a gradual learning process, and such gradually gained experience is exploited to increase the level of internationalization. This statement stays in line with the assumptions presented by zu Köcker and Buhl (2007, p. 9). In their view, cluster internationalization develops over time during the life cycle of a cluster. The more mature a cluster is, the more it is involved in internationalization. Many researchers describe the life cycle of a cluster (Steiner, 1998; Andersson, 2005; Smith, 2008; Sölvell, 2009). Zu Köcker and Buhl (2007) present in a graphical way how the needs of cluster members regarding internationalization change over time (Figure 1).

The psychological distance, defined as the set of the cultural and linguistic differences having an influence on the information flow and decision-making in international transactions, determines the internationalization of COs. Initially, COs look for partners – other COs in the “neighbourhood”. An example can be the European Cluster Collaboration Platform.

The innovation-related internationalization models consider internationalization as an innovatory activity. These models provide some hints on how to distinguish between passive and active cluster internationalization. This distinction is important not only in the case of companies but also of clusters. In defining the distinction the model developed for example by Korth (1985) can be helpful. He distinguished four stages of internationalization, depending on the advancement of foreign operations, and a passive approach is characteristic only of the first stage. Korth associated passive internationalization with a passive approach to foreign markets, whereby foreign orders are fulfilled via import or export intermediaries and tackled by existing departments of the firm. Active internationalization starts in the second stage and is marked by an active search for foreign customers and suppliers, with these activities being dealt with by a dedicated department. In the next two stages, the company involvement in foreign markets increases and export operations are accompanied by international subsidiaries



Source: zu Köcker and Buhl (2007, p. 9)

Figure 1.
Importance of
networks depending
on their phase of
development
(simplified,
schematic illustration
without regard to
other important
determining factors)

managing foreign operations. In this context, we can state that passive cluster internationalization occurs when foreign firms enter a cluster or cluster companies are involved in importing. Active cluster internationalization means that cluster firms develop their export operations and activities directly within foreign markets. Another instance of active internationalization can occur when there is a CO that becomes a partner in international cooperation agreements. COs build consortia and together implement particular cooperative projects.

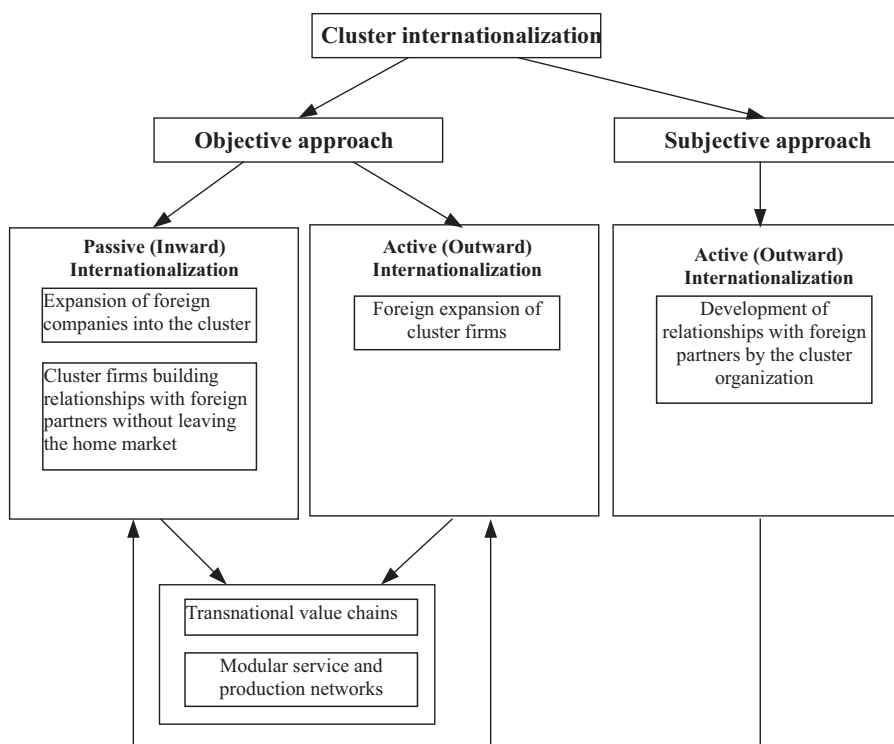
In the network approach, internationalization means a network development through the commercial operations carried out by firms with foreign partners (Johanson and Mattson, 1988). Johanson and Mattson (1988) pointed to three stages in this development: prolongation, penetration and integration. Prolongation happens when a firm decides to join a particular network. Penetration can be associated with the development of a firm's position within a network and an increase in the engagement of the firm's resources. Integration refers to the coordination of a firm's position within several networks. The three stages of network development can be observed in the case of cluster internationalization. Prolongation – clusters represented by a CO can join other clusters represented by other COs. This can be the first step in developing metaclusters [The Role of Clusters and Metaclusters in the New Programming Period (2014-2020), Findings and Recommendations of ClusterCOOP, (2014)]. Penetration – a particular CO can increase its involvement, in terms of various resources, in cooperation projects with other COs. Integration – a CO – can look for complementarities between the different cooperation agreements it is involved in. The network approach to firm internationalization that can be used to explain the cluster internationalization exposes the role of relationships with network partners in fostering the firm internationalization. The relationships may work as a “springboard mechanism”. In the context of the network approach, the so-called “springboard mechanism” will work when thanks to the previous relationships firms create and develop their relationships with network partners in different foreign markets (Welch and Welch, 1996; Chetty and Blankenburg-Holm, 2000). The accelerating nature of this mechanism can be transplanted to the context of clusters. They are specific types of network where local firms and organizations are interrelated. The above-mentioned prolongation, penetration and integration processes that are associated with the internationalization experienced by particular cluster companies can function like a springboard for other cluster firms, and later on for the whole cluster (Zombori, 2012).

From the above considerations, there arise some conclusions. The sequential character of firm internationalization described by the Uppsala model and other stage approach models is reflected in the internationalization of clusters. The notion of psychological distance works not only in the case of firms but also in the case of clusters as well. The significance of relationships in the internationalization of a firm exposed by the network approach is reflected in the internationalization of clusters. The confirmation for that statement can be experiences of Italian IDs among others. The terminology and concepts in the field of firm internationalization like active, passive, inward or outward internationalization can be adopted while explaining cluster internationalization. The approaches to firm internationalization presented in this section provide the foundations for the development of a model of cluster internationalization.

The conceptual model of cluster internationalization

On the basis of the above discourse focused on cluster internationalization, it is possible to present the conceptual model of cluster internationalization. The model was used by the authors in the primary, empirical research among Polish clusters (Figure 2). Cluster internationalization can be experienced by clusters with or without COs. In the case of clusters not represented by COs, cluster internationalization means that cluster firms exploit active or passive modes of internationalization. Additionally, a cluster internationalizes as foreign investors establish their facilities within the cluster location. In this context, we can observe that clusters are objects of internationalization. In the case of clusters represented by COs, the internationalization of cluster firms is accompanied by the internationalization activities of COs. Clusters represented by COs are not only objects but also entities – subjects in the internationalization process as well.

A useful test for the effectiveness of cluster internationalization via COs is the intensity and diversity of the internationalization of cluster firms. Clusters represented by clusters organizations have relatively more opportunities to become international and to join transnational value chains than clusters without formal representation.



Source: Based on Jankowska (2013)

Figure 2.
Model of cluster
internationalization

Some empirical evidence on internationalization of Polish clusters in the light of European clusters' internationalization

In Europe, there arises the necessity of cooperation among clusters. The cooperation is the strategy to develop world-class clusters ([The Emerging of European World-class Clusters, 2010](#)). European economy needs such clusters to successfully cope with the competitive pressure coming from the Asian economies like China or India or American economies, especially South American markets and from the USA.

As [Ketels \(2014\)](#) noted, cluster initiatives are increasingly exploited by governments nowadays to foster the internationalization of cluster companies. Attempts by different national governments to push the internationalization of clusters, and thus cluster firms through particular tasks implemented within cluster initiatives, is a manifestation of the combination of "local buzz" with "global pipelines" ([Bathelt et al., 2004](#)).

In 2007 and 2010, the Institute for Innovation and Technology conducted empirical studies among clusters from Austria, Croatia, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, Luxembourg, Norway, Poland, Spain and Sweden ([zu Kölker et al., 2011](#)). Among 122 networks, there were 110 possessing experiences in cooperation with foreign partners. In the set of internationalization activities that were initiated by the managers of COs, there were indicated attempts to develop international network of clusters (40 per cent of indications) and international R&D projects (around 29 per cent of indications). The European Cluster Collaboration Platform investigated the level of internationalization of COs in 2012. The on-line survey was directed to 287 of COs. Most responses came from CO from Spain (45 surveys), Germany (37 surveys) and France (29 surveys). Polish clusters were represented by 19 organizations. The study revealed that the majority (54 per cent) of the COs are not much involved in international operations. The main foreign markets were the European Union (EU) markets, BRICS and the USA. Eighty-seven per cent of COs followed the stage approach to internationalization. Only 20 per cent possessed the internationalization strategy. In the opinions of clusters managers, 25 per cent of small and medium-sized enterprises (SMEs) from the studied clusters exploited the CO to foster their own internationalization.

The internationalization of Polish clusters was investigated within the researches focusing on the internationalization of other European COs. There are some studies regarding the internationalization of Polish clusters. However, they tackle the international involvement of particular clusters ([Gorynia and Jankowska, 2008](#); [Jankowska, 2010, 2011, 2012](#); [Ślepko, 2012](#)) and in that sense they are still not comprehensive. An exemption are the benchmarking studies of Polish clusters conducted by the Polish Agency for Enterprise Development (PAED) Benchmarking klastrów w Polsce ([Hołub-Iwan and PARP, Warszawa, 2012](#); [Plawgo and PARP, Warszawa, 2014](#)). The research involved cluster managers representing 35 COs in Poland. According to the PAED experts, those 35 COs are the best operating COs in Poland. To evaluate the internationalization intensity of these clusters, the following indicators were used:

- the number of foreign markets (countries) that are target markets of cluster firms;
- the share of exports in total sales for cluster products;
- the number of formal cooperative agreements with foreign partners (other COs, firms, R&D entities); and

In 2014, there was added one more indicator:

- the number of international networks the cluster is involved in.

The first two indicators assess the internationalization of cluster firms. The next two are directly related to internationalization efforts of COs. In the evaluation, an ordinal scale was used from 0 to 10, where 1 was the lowest and 10 was the highest rank. The average level of cluster internationalization in 2010 and 2012 assessed by means of the first three indicators that were combined in a synthetic indicator of cluster internationalization was 1.96 and 2.56, respectively. The benchmark for both years was 7.6. In 2014, the synthetic indicator was at the level of 1.92. The benchmark level was 10. The decrease of the synthetic indicator in 2014 was determined by the decline in the number of foreign markets in which the cluster firms operate. The number of foreign markets was at the level of 3.87 in 2010, 2.84 in 2012 and 2.48 in 2014. The mean values for the share of exports in total sales for cluster products reached the level of 2.50 in 2010. In 2012, this indicator increased to 3.53, and in 2014, there was a small drop to 3.46. The third indicator – the number of indicator – the number of formal cooperative agreements with foreign partners scored a drop – from 0.91 in 2010 through 1.30 in 2012 to 0.46 in 2014. The fourth indicator was used for the first time in 2014 and reached the level of 2.21, but it is impossible to conclude about the tendency. The results of benchmarking studies reveal that Polish cluster internationalization calls for improvement. However, worth noticing is the fact, that the evaluation of the share of exports in total sales of cluster products improved. This means that export propensity of cluster firms increased. The decline of indicators directly related to the internationalization activities of CO may signal that their efforts awoke the internationalization ambitions of cluster firms and from now on cluster companies will foster the cluster internationalization. At the beginning, the CO is the main actor fostering cluster internationalization. As the CO matures, the initiative to expand abroad shifts to cluster firms. This more intense involvement by cluster enterprises in internationalization is partially the result of the previous internationalization efforts of the CO. But to be sure, we have to monitor the tendency in the next years.

Authors' primary study on internationalization of Polish clusters

Research questions and methods of data collection

The authors' study on the internationalization of clusters in Poland was conducted among COs representing particular clusters. The number of COs in Poland differs between data sources. Forty-five Polish COs are registered in the European Cluster Observatory (www.clusterobservatory.eu), which are now followed (and researched) by the PAED. The PAED, in turn, established an interactive map of clusters in Poland (www.pi.gov.pl/PARP/data/klastry/index_en.html), which includes 145 COs.

Focusing our research on clusters whose members had decided to formalize their cooperation in the form of COs was necessary to collect data relevant to the scope of the study. This enabled the authors to conduct this research among cluster managers who are supposed to be familiar with the internationalization of cluster firms (cluster as an object of internationalization) as well as the activities of COs that are aimed at fostering internationalization (cluster as an entity in the internationalization process). In this way,

it was possible to investigate the internationalization of clusters according to our conceptual model.

This conceptual model of cluster internationalization was the foundation for formulating the main research questions:

- RQ1.* What are the internationalization modes of cluster companies?
- RQ2.* Which type of cluster member initiated active cluster internationalization? – companies, R&D organizations or local/regional public administration?
- RQ3.* Has the CO been supporting cluster firms in their foreign market expansion?
- RQ4.* Has the CO been looking for business or R&D partners among foreign entities?
- RQ5.* What are the target markets for the CO?
- RQ6.* Has the CO been looking for foreign direct investors interested in locating their businesses in the cluster area?

We conducted our empirical research on cluster internationalization in Poland in May 2014. As a research tool, we used a structured, multiple choice questionnaire, which was initially sent to cluster managers via e-mail and supplemented by telephone calls to the respondents.

Characteristics of the sample

As the interactive PAED CO map does not allow direct contact with each of the 145 COs, the authors had to independently prepare the database of COs that can be directly contacted. In our database, there were 94 COs. We e-mailed the questionnaire to them. Sixty-six respondents confirmed receiving the e-mail and 49 of them sent back the questionnaire. This constitutes a highly response rate of 74 per cent and represents 54 per cent of the identified population. Among the respondent clusters, there were organizations from each region of Poland. The legal forms of these organizations were formal co-operative agreements (32 respondents), associations (14 respondents), limited liability companies (2 respondents) and one cluster represented by a chamber of commerce that formally functions as an association. The industrial specializations of the clusters represented by COs that participated in the research were as follows: metallurgy (six COs), construction (six COs), energy (five COs), tourism (five COs), food (four COs), IT (four COs), logistics (three COs), recycling (three COs), design and other creative industries (three COs), advertising (two COs), the chemical industry (two COs); and one CO from each of the following: business services, aviation, the exhibition industry, life sciences, education and furniture. Though numerically small, as a percentage of all Polish COs the sample is considered satisfactory, because in the cluster benchmarking studies conducted by PAED in 2012 and 2014, for example, there were only 35 COs.

Internationalization of Polish clusters – results of authors' own empirical research

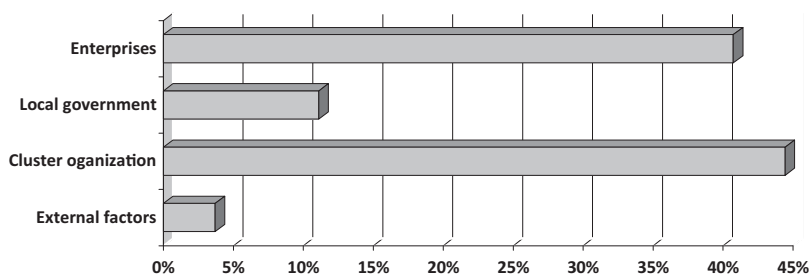
The study revealed that the promotion of foreign expansion among cluster members is more common than attracting newcomers to clusters from abroad. Sixty-nine per cent of COs stated that they had supported their members' expansion into foreign markets and indicated the form of these foreign operations. This means that active, outward

internationalization is perceived as more important for cluster development and cluster members than passive, inward internationalization.

The main cluster actors who insisted on COs to foster the cluster internationalization were cluster enterprises (41 per cent). In more cases – 44 per cent of COs, cluster managers were the entities convinced about the significance and necessity to go international by the cluster. In some cases – 11 per cent of COs local government motivated cluster managers to develop relationships with foreign partners. But sometimes (4 per cent), the inspiration to internationalization came from R&D COs, state government or contacts developed by the cluster manager during an international conference (Figure 3).

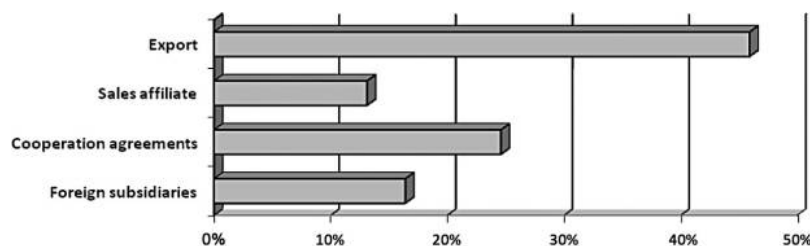
The main mode of internationalization of cluster companies is export (46 per cent of respondents) (Figure 4). Thirteen per cent of respondents indicated operations of a sales representative in a foreign market. Twenty-five per cent of respondents are aware of developing sustainable business relations in foreign markets by cluster firms. Foreign subsidiaries of cluster firms are established by 16 per cent of respondents.

Fully 54 per cent of cluster managers had been looking for foreign partners in the R&D sector. Among them there were COs with the highest number of participants (at least 99 entities) representing metallurgy, IT, the chemical industry, aviation, the exhibition industry, construction and tourism. Characteristic features of these specializations include a strong focus on innovative products, which requires R&D cooperation with partners, preferably those operating in different circumstances (countries), so as to more quickly recognize alternative creative solutions.



Source: Authors' own study

Figure 3.
Entities fostering
cluster
internationalization



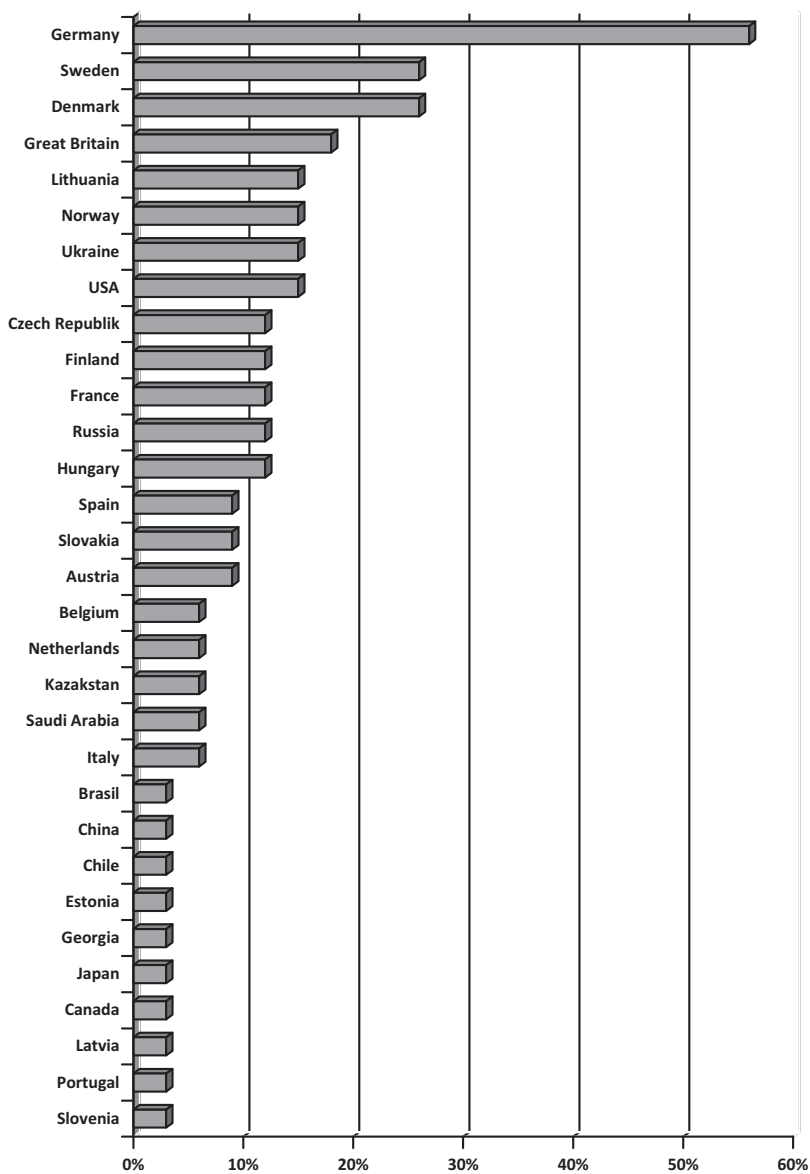
Source: Authors' own study

Figure 4.
Internationalization
modes of cluster
firms

More than 90 per cent of respondents involved in foreign expansion indicated EU markets among their target markets. In the set of EU markets, the top position goes to Germany – 56 per cent of cluster managers (Figure 5). This is not surprising as Germany is the main foreign business partner of Poland – in the period from January to September 2014, 26 per cent of Polish exports were sent to the German market (GUS 2014, p. 76). Second place goes to Sweden and Denmark with half as many indications. Eighteen per cent of respondents pointed to Great Britain. Poland's eastern neighbours – Lithuania and Ukraine – are next in the “ranking”; followed by Norway and the USA with 15 per cent of indications each. Only 12 per cent of COs mentioned the Czech Republic, Russia, Finland, France and Hungary. Among the group of foreign target markets, there is a visible dominance of neighbouring markets, characterized by a close cultural distance. There is a great number of Central East European (CEE) markets. This could be a sign that cluster firms behave according to the Uppsala model, especially when we combine the direction of their foreign expansion with their main mode of internationalization – exports. However, in the portfolios of Polish cluster firms there are Nordic markets such as Norway, Denmark and Sweden, too. They are relatively a greater challenge for Polish firms than CEE countries as their institutional background is different. And there are companies trying to establish themselves in more remote markets – like the USA. This could mean that some Polish cluster companies are quite competitive and are able to expand into markets which are difficult from the perspective of Polish companies (Figure 5).

Passive and inward internationalization is a feature of 76 per cent of COs. Foreign partners are characteristic in COs representing the food, IT and aviation industries. Cooperation of these clusters with foreign partners is not surprising. Polish food producers had to undergo deep restructuring to adjust their operations to EU standards. They have the ability to cooperate with foreign partners and compete in foreign markets as Polish food products are high quality products. The IT industry in Poland is characterized by, on the one hand, many micro and small companies (including start-ups that operate like *born globals*) and, on the other hand, by companies with a high potential to develop international R&D and commercial projects. This potential is based on the in-depth competences of Polish IT specialists and Polish R&D entities (e.g. the Poznan Supercomputing and Networking Center).

Actions aimed at attracting foreign direct investment to Polish clusters have been implemented by 49 per cent of COs. These activities have relied more on promoting a cluster's products than on promoting its location. Among all the COs that participated in the study, only 18 per cent tried to attract new companies to invest. Among them there were COs representing the following specializations: IT, recycling, the chemical industry, logistics, aviation, metallurgy and life sciences. In most cases, these COs represent clusters with a high critical mass (number of companies). The manager of one of these COs stated that he was encouraged by both regional and state government to attract foreign investment in the cluster. Only 15 per cent of respondents confirmed the presence of foreign investors in the cluster area. These respondents operate within the following specializations: metallurgy, IT, life sciences, the chemical industry and recycling. But to present the complete picture, we should add to the list the biggest aviation cluster in Poland – the Aviation Valley. This CO was invited to participate in the research but unfortunately did not respond to the survey. The Aviation Valley in the South-East of Poland encompasses the area of Special Economic Zone (SEZ). It offers favourable investment conditions. There established their facilities such



Source: Authors' own study

Figure 5.
Target foreign
markets of cluster
firms

foreign investors like for example: MTU Aero Engines, Borg Warner, OpTeam, ZELNAR and Goodrich. We could mention two more specializations that are highly internationalized – Polish furniture industry and Polish automotive industry. Both industries are concentrated in some parts of Poland. As far as the automotive clusters are concerned, they are developed

within SEZs. There is the platform Silesia Automotive located within the Katowicka SEZ or Lower Silesia Automotive Clusters in Legnicka SEZ. But these clusters operate without formal CO. They are projects of the SEZ. Polish furniture industry is famous for its international expansion and furniture clusters possess formal representation for example the Furniture Design Cluster in Greater Poland. However, within the members of furniture clusters' organizations, there are almost only firms with the Polish capital. Their internationalization strategies are exports.

The internationalization of cluster firms is supported by specific actions undertaken by COs. Sixty-nine per cent of COs organized the participation of cluster firms in foreign fairs, and 63 per cent arranged business trips abroad. Some COs promoted the cluster in the media of target markets, organized individual B2B meetings or C2B meetings, and helped cluster firms to participate in foreign conferences, workshops or international research projects. Finally, some COs supported cluster firms in applying for financial assistance for the purpose of international expansion (such as the Passport to Export – an activity financed within the Innovative Economy Programme co-financed from EU resources). Activities focused on internationalization are undertaken in most cases spontaneously. Only 27 per cent of COs declared the implementation of a deliberate foreign market expansion strategy.

It may be that COs do not carefully monitor FDI inflow into the clusters they represent, or are not sufficiently interested in creating links between local companies and foreign ones operating in the Polish market.

Discussion and conclusions

In this study, we investigated the internationalization of Polish clusters represented by clusters organizations. We attempted to answer certain research questions relating to some aspects of cluster internationalization. We deliberately focused our research on internationalization of cluster operations, particularly on exports and foreign direct investment. These aspects of internationalization are exposed in the firm internationalization models that we used to develop the conceptual model of cluster internationalization.

This work applies the stage approach models – like the Uppsala model and innovation-related models of firm internationalization to the specificity of industrial clusters. The research presented in this paper demonstrates that the network approach to firm internationalization is the appropriate approach while explaining not only the firm but also the cluster internationalization. The study bridges the theory of firm internationalization, especially the approaches to firm internationalization with the theory of clusters. The main result of the bridging procedure is the conceptual model of cluster internationalization. The model depicts how the internationalization issue can be incorporated in the concept of a cluster. The added value of the paper is the model of cluster internationalization that in our opinion is universal. It can be used as a framework in studies focused on internationalization of clusters in other countries than Poland.

Our study reveals that Polish clusters are at the beginning of the internationalization process, especially when we think about the outward internationalization. Cluster managers and cluster firms are aware of the internationalization needs of their clusters. That is why these entities are the main movers of “going international”. The fact that enterprises and cluster managers are motivated to increase the international

involvement of the clusters they represent is a good forecast for the future. Currently, the activities aimed at fostering foreign expansion and cooperation with foreign partners are undertaken spontaneously since only a little more than one fourth of COs follows a deliberate internationalization strategy. This is an area that calls for improvement. But at the same time, it should be noted that according to the Uppsala or innovation-related models of company internationalization functioning without a deliberate internationalization strategy is typical for the first stage of internationalization. We can expect that the more experience in foreign cooperation that a CO collects, the greater will be the pressure to develop an internationalization strategy. In other words, it seems quite obvious that at the beginning COs operate without any strategy. The most popular mode of internationalization is exports. This is in line with the mentioned stage approach models of internationalization.

The study demonstrates that the assumptions and principles of company internationalization presented by Johanson and Mattson in the network approach, work in practice. Due to their local relationships, cluster firms and R&D entities can develop their involvement in international operations with COs working as a kind of intermediary. Cluster entities, directly or indirectly via the activities of their CO, join specific foreign networks and increase their involvement in international markets. Using the terminology of the network approach, one can observe prolongation and in a few cases penetration. Integration, however, is currently beyond the reach of Polish clusters.

The relatively low level of Polish cluster internationalization confirms in a way the thesis of [zu Kölker and Buhl \(2007, p. 11\)](#) that the needs of internationalization are quite low in the case of embryonic clusters but a little greater in established clusters. Polish clusters are at the embryonic or established stage, which is why their operations are not particularly directed towards foreign markets. The age of Polish clusters and their characteristics, such as the low intensity of their interactions, and sometimes their low critical mass, differentiates them from clusters in Western European economies, for example from the Italian districts. The latter are experiencing the processes of relocation and involvement in international value networks. However, Italian districts have internationalized mainly through export activities ([Rabellotti et al., 2009](#); [De Marchi et al., 2014](#)) just like Polish clusters. The phenomenon of Italian districts was observed by Becattini in post-war Italy. The phenomenon of Polish clusters is a new one in this context, with Polish clustering only dating back to 1990 when the Polish economy began its transformation. And the emergence of COs in Poland started even later, in the first decade of the twenty-first century.

It is noticeable that some of the COs that participated in the study had not undertaken any internationalization activities. As exports are the domain of large enterprises, their reluctance to join clusters may to some extent explain the relatively low level of the internationalization of Polish clusters. Big companies in Poland perceive themselves as self-sufficient, and they prefer to develop international cooperation without being involved in clusters. While [Mariotti et al. \(2008\)](#) showed through an econometric analysis, that among Italian districts the likelihood of positive internationalization depends on the presence of large firms and the intensity of domestic rivalry. Additionally, the lack of intense internationalization efforts by Polish cluster firms can be explained by their small size and the related difficulties in devoting organizational, managerial and financial resources to expand abroad and invest in more distant

countries. This brings to mind once again the situation in the above-mentioned Italian districts (Barba Navaretti and Castellani, 2004).

In the light of the results of the study, cluster firms and their representatives could wonder if it is really useful to be involved in COs to internationalize. As already explained, Polish clusters are a relatively new phenomenon. Haahti *et al.* (2005) as well as Zhou *et al.* (2007) showed in their studies that SMEs using cooperative strategies to enrich their knowledge base about export markets can consequently improve their performance. Zhou *et al.* (2007) argued that home-based social networks play a mediating role in the relationship between inward or outward internationalization and company performance. The explanation for the positive impact of social networks lies in their ability to obtain information relating to potential opportunities in foreign markets, mutual consultancy and experiential learning, as well as promoting trust and solidarity between the cooperating enterprises. Hessels and Parker (2013) investigated how SMEs can capitalize on different types of external coalitions, including trade relationships and inter-firm collaborations, to achieve growth in the face of constraints. Their studies show that SMEs involved in inter-firm collaborations can gain access to valuable resources such as knowledge about foreign markets and the methods of operating in these markets. Research conducted by Hessels and Parker indicates that an internationalization strategy is more effective if SMEs cooperate in a formal manner – i.e. via COs. The research presented in this article shows clusters represented by COs as true company internationalization vehicles.

To facilitate even more, the internationalization of clusters a reliable monitoring system for the international involvement of the members of CO may be helpful. This kind of monitoring would be useful not only for research purposes but even more for practitioners – firms, cluster managers and public administration. Cluster companies will get the opportunity to observe how the internationalization efforts of COs contribute to their performance which is the priority for business entities. Cluster managers will get the feedback for their internationalization activities. Public administration may exploit the data while offering any measures fostering internationalization.

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