

# BARRIERS TO INTER-COMPANY COOPERATION IN CLUSTERS

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## **Abstract**

Clusters have proved to be an important source of competitiveness for the economic development of regions within the European Union. One of the main goals of cluster development is to stimulate cooperation between companies in one or a few related sectors. The stakeholders of a cluster, as well as the local economy, can derive many benefits from such cooperation. However, there are numerous barriers, which make it difficult for the companies within clusters to cooperate. This article addresses the need to develop a cluster-specific approach to inter-company cooperation.

The aim of the article, on which this article is based, was to analyse the current cooperation efforts of Polish cluster initiatives and identify the main challenges that arise from organising such cooperation within clusters. The significance of cooperation between companies, for the strategic development of a cluster, is discussed and a set of tools to enhance this cooperation is proposed. Furthermore, reflecting the outcomes of the study, cluster policy actions are recommended.

**Key words:** cluster, cluster initiative, cluster development, cluster policy, cooperation.

## **1. Introduction**

Beginning in the 1990s, clusters have emerged as one of the central concepts within regional, industrial and innovation policies. “Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region.” (Porter, 1990). This definition of clusters, as used in this article, is without doubt the most widely accepted.

The presence of strong clusters is positively associated with a range of performance outcomes in the region: average wage, employment growth, patenting and the formation and growth of new businesses. (Delgado et al., 2011, 2012). Additionally,

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a strong cluster affects not only its core constituent industries but also industries in related cluster categories (Porter, 2003; Delgado et al. 2012).

The companies operating in a cluster are independent – they compete and simultaneously cooperate in certain areas. The benefits for companies located in developed clusters have been widely discussed in literature (Porter, 1998; Morosini, 2004; Etzkowitz, 2002): bigger local markets for products and services, reduction of transport costs, easier access to resources, a competitive environment for enhancing motivation, specialised skills pools. Clusters play a critical role in innovation processes among firms (Furman et al., 2002). When there is a critical mass in a location of a sector new ideas are formed in both planned and unplanned meetings and interactions. But critical mass is not enough; the actors must be connected in various ways and there must be mobility of resources and skills, including technological spill-overs.

The efficiency of firms benefitting from clustering depends on cooperation mechanisms (Zahra et al. 2002; Tsai 2009). These mechanisms can facilitate the sharing and eventual exploitation of knowledge between firms in the cluster. They can be either informal (social networks) or formal (e.g. use of coordinators). The advantage of informal mechanisms is that they promote spontaneous sharing of ideas. The use of formal mechanisms of coordination, on the other hand, makes information sharing more systematic.

Cluster initiative, which is an organizational form gathering key cluster players for the sake of developing the cluster (Sölvell et al., 2003), can play a crucial role in leveraging collaboration and cooperation within a cluster. It is also a certain form of partnership established in order to define and implement actions and undertakings relevant for the development of a given agglomeration of companies and support institutions. The functioning of a cluster initiative has a significant meaning for generating the flow of information and knowledge and striking new contacts – i.e. stimulating interaction within the cluster as well as with the outside environment. As a result, new partnerships and cooperative links are initiated or joint projects implemented by particular companies or their consortia.

It is symptomatic that the discussion on clusters was initially based mainly on conceptual arguments. Over the years the experience with cluster initiatives has generated much richer data to draw on although the availability of comprehensive data remains a challenge. There is a vast amount of literature addressing how cooperation within cluster may contribute to the competitiveness of firms. However, most of this literature focus on macro- and meso-level factors. Little is known about how companies cooperate in cluster initiatives, while remaining competitors and what barriers they have come across perusing that kind of cooperation.

Inter-firm collaboration, for the purpose of this article, is defined as the positive externalities that create specific benefits, as a result of active participation between collocated firms (Felzensztein C. et al., 2012) This type of cooperation captures many types of inter-organizational cooperative arrangements, including: contractual and non-contractual joint ventures, research activities and, specifically, joint

marketing activities. The cooperation can be vertical (with buyers and/or suppliers) or horizontal (across different value chain activities).

Strong internal inter-firm linkages are becoming a key issue for the long term survival and future competitiveness of clusters. International studies, such as those brought up in Cluster Initiative Greenbook (Sölvell et al., 2003) have highlighted that enhanced cooperation is strongly related to improved competitiveness of clusters.

Unfortunately, most clusters don't look like this in reality. In many cluster initiatives, cooperation between the different kinds of actors is massively flawed. Barriers that they come across are quite persistent and have great implications for innovation and competitiveness. It means that clusters, despite their great potential for dynamic interaction between actors, often only exploit a small share of their potential. It is not difficult to understand that these barriers will not disappear spontaneously. With some additional effort put into coordination and collaboration, companies could benefit greatly.

Although academics and practitioners perceive efficient collaboration between companies as indispensable for cluster development, the available literature in this field, that takes into account practical side and day-to-day reality of cluster initiatives, is very poor. In this regard, the need to discuss and develop this topic still remains.

According to a recent benchmarking of clusters in Poland (PARP, 2012), there are more than 180 cluster initiatives in the country, 45 of which are strong and very active. The main sectors represented are IT/ICT, aviation, eco-energy, construction, medical, food, tourism. Initiatives have been undertaken mostly through bottom up development. Implementation of joint cooperation projects is one of the main strategic objectives of cluster operations. The most successful activities undertaken by initiatives are in regard to market activity, marketing, training and infrastructure. The smaller effects of cooperation are seen within the scope of technical and organisational innovation, but have significantly improved since the previous benchmarking study two years earlier. More and more cooperation projects are being undertaken but most of the initiatives still face barriers that hamper successful cooperation.

The aim of this article is to explore barriers faced by Polish cluster initiatives in pursuing intra-firm cooperation. On the basis of these findings, specific actions are proposed to support cluster stakeholders in successful collaborations and their sustainable growth to meet the innovation challenges. Furthermore, this article gives recommendations for cluster policies concentrating on fostering cluster development in Poland.

## 2. Methodology

The findings of the study, presented in this article, are based on several data sources. The first source comprised information gained from surveys conducted among the members of two cluster initiatives, representing the IT sector and trans-

port and logistics sector. CATI and CAVI methods were used to conduct the survey. In total 97 questionnaires were completed by cluster companies. Surveys were conducted as a part of cluster potential analysis and included couple of questions relating to barriers to cooperation within cluster initiatives perceived by companies.

The second source of information comprised series of in-depth structured interviews with representatives of five cluster initiatives operating in: transport and logistics, wood and furniture, IT and biotechnology – both relatively traditional and high-tech sectors, competing on a global scale. The interviewees represented various stakeholders involved in cluster activities: cluster management teams, cluster companies, regional and local authorities, investment promotion agencies and academia players. In total 25 structured interviews were made.

Significant insights relating to the topic were also uncovered during discussions at four interactive workshops that were held within the cluster development projects of cluster initiatives. Furthermore, academic literature and practitioner-oriented reports in the field were thoroughly reviewed. In order to be able to directly describe the reality of cluster activity, it was decided to anonymise the regions and the cluster organizations throughout the article.

There are significant differences between studied clusters with regards to e.g. innovative performances of companies. From this perspective, the technological level of the industry in which clusters specialise seems to play a role. The clusters that were researched differ also in as to how the initiative is governed, its degree of specialisation, the role of public institutions and the organisation of innovation and cooperation processes. In some initiatives the activities are concentrated primarily on cost cutting activities and vocational learning, whilst others have a stronger focus on R&D activities and higher education. Differences also include active business involvement in the use of services, participation in events organized by the cluster and cooperation within the cluster.

The initiatives are performing well and in line with the objectives that were set up. There is a strong potential for further growth as the initiatives develop further. However, as the article revealed, most initiatives struggle with similar barriers that hamper their cooperation potential.

### **3. Barriers to inter-company cooperation in clusters**

Some cluster initiatives clearly perform better than others by almost all accounts, also in the field of stimulating cooperation. There are differences that underlie cluster initiative performance: primary being the strength of the cluster as an economical phenomenon in a particular region. The general observation is basically that the stronger the cluster, the easier it is to foster networking and cooperation. This might also be explained by differences in cluster management quality, differences in support from local and regional government and so on. This research has concen-

trated on the barriers to cooperation that most of the initiatives in Poland is facing, regardless of specific conditions.

Paradoxically, lack of trust, the number one issue brought up in literature concerning cooperation within clusters, was one of the least indicated barriers in the initiatives. Even in sectors suffering from ultra-high competition, companies concentrated more on the possible benefits that could be gained from cooperation rather than on the possible risks. The competitive advantage of most companies nowadays is based more on experience, customer relations and ability to innovate: aspects that can't easily be copied or "stolen" by a competitor. The confidence of cluster members was based on their own procedures for protecting their interests rather than on measures introduced within clusters, although transparent regulations concerning e.g. working groups proved to be working in favour of eagerness to cooperate.

The barrier most commonly indicated by cluster stakeholders as hampering the cooperation of firms, within initiatives that were studied, was lack of interest. In-depth interviews with cluster members revealed however, that companies which were offered concrete propositions of cooperation projects with clearly stated benefits and scope were very interested in joining. This implies rather a set of different barriers that are blocking the cooperation potential rather than declared lack of interest and shouldn't be treated by cluster management teams as a indicator of reluctance to cooperation per se.

The most important barrier, that seems to hamper the cluster collaboration is weak communication. On one hand information flow is seen to be one of the fundamentals of cluster development – indispensable for the benefits of clustering to occur. On the other hand, the everyday practice of cluster initiatives in the field of communication is more than unsatisfactory. None of the initiatives that were researched had a defined, comprehensive communication practice that includes the needs of different stakeholders, as well as appropriate forms and channels of communicating with them. Both members and cluster partners complained about insufficient information regarding, e.g. other members and their competencies, cluster market activities, success stories, projects, etc. This information was perceived as particularly important in the context of showing the best practice and benefits of members involvement in cluster activity in relation to their contribution of time and money.

Many cluster initiatives have quite a complex organisation and inner structure. The popular legal forms of cluster – associations and foundations have more recently been supersede by civil agreement with one of the members taking the role of coordinator. This kind of form offers much more flexibility and allows for broader cluster cooperation. The initiatives that have been researched represent different approaches in this field. It is noticeable, however, that the open structure of a civil agreement, if not properly managed by additional internal regulations and procedures, creates major challenges, on both organizational and strategic levels. The challenges include: identifying and modifying goals, a multi-level activities and conflicts of interests. This type of structure makes the benefits of being in the cluster initiative relate

strongly to members' high involvement. This is a challenge in the reality of Polish cluster initiatives where only some of the members are actively engaged and proposing new activities.

Most of the cluster initiatives that were researched do not have strong and dedicated management teams in place. A major problem in the development of cooperation between partners in the initiative is attracting the right cluster manager/cluster team: who will facilitate this process appropriately. At the beginning, this role is often voluntary taken on by the initiator but with the expansion of the scale of cooperation, a need arises to employ someone full time. Hired managers have rarely the necessary knowledge, skills and both formal and informal authority to undertake this difficult task in a professional manner. Few initiatives that were researched have found a suitable person/people, but there still is a risk of vulnerability through over dependence on a few key people.

One of the factors, identified in the research as influencing the cooperation within cluster initiative is its age. Older clusters have muscled-up and, now, deliver real results to member firms. Emerging clusters tend to have weaker connections and struggle to make any noticeable impact. Some of new cluster initiatives will never develop widely and will disappear quickly. Regardless of other factors this is often connected to the public co-financing of cluster projects. The initiatives that originated in the period of time when these kinds of funds were more easily acquired have had the time and resources to develop critical mass and are still benefiting from that. This has been observed in other countries as well (Sölvell, Williams, 2013) and is an argument for support policy aimed at giving initiatives a chance to show that they are capable of creating lasting results.

The specifics of a the organisational concept of a cluster imply that each cluster activity involves multiple stakeholders, who benefit differently from it. This is connected to tendencies, widespread among initiatives, of companies to expect much more from their membership than would be proportional (taking into account their low involvement in cluster activities). However, it shouldn't necessarily be seen to be a problem, but rather that expectations are set very high. Member firms lack awareness of how they can influence cluster activities and the use of cluster resources. This gives rise to a situation in which, despite a large number of cluster activities, members are not aware of the opportunities presented and, consequently, the related benefits. Such a situation calls for an upgrade in cluster management and communication processes within the initiative.

Another challenge that could have affected cooperation, is low market activity of initiatives. This is mainly due to a lack of both expertise and resources to analyze which actions will have a direct commercial impact, but it is also because the management teams often focus on activities, that take into account the entire population of the cluster members and not particular companies or their consortia.

The initiatives that have been researched are very diversified when it comes to members competencies. They try to capture broad scope of partners, in fields that

differ greatly from each other in terms of both technology and markets. Initiatives have limited capacities to act as a facilitator across all areas. None of the studied initiatives have actually considered focusing tightly on niche markets where there is an opportunity to gain a leading position.

Similarly, neither innovation nor new products/services creation was sufficiently supported by the initiatives that were researched, to stimulate cooperation. Few initiatives made investments in any of the important processes e.g. physical infrastructure (test beds, prototype labs etc.). The challenge for the initiatives is to start those processes and to secure a flow of ideas between members, that could lead to new products and services or new businesses.

In several initiatives, despite their efforts, the large impact from cluster activity has not come in the expected area (e.g. cooperation within joint innovation projects) but in other areas (e.g. vocational learning and specialised seminars). In many cases, firms expected that joining the cluster initiative would lead to establishing more contacts with other firms, but cluster activities in effect, got them involved in policy dialogue that they had never accessed before. This unexpected benefits should be treated in favour of initiatives but the underdelivery of the promised effects should not be neglected.

A successful cluster should have suitable recognition to attract attention in a number of dimensions. It should attract customers and new investment to the cluster and it should foster the acquisition of funds by cluster projects. Within the cluster itself, suitable recognition should have a positive impact on attracting cooperation partners and on the members being proud of being part of it. Despite several actions undertaken by initiatives to promote clusters and their members, it seems that the area of promotion and marketing is not fully developed in relation to the potential of the clusters. In some initiatives, not even the regional stakeholders knew the significance of the cluster (i.e. to the regional economy). In Poland, only a few cluster are recognisable at national level. Similarly, the vast majority these cluster initiatives are not recognisable in Europe, let alone globally, which makes it extremely difficult to attract partners for cooperation projects. The websites of most of the initiatives are in Polish only. While the cluster may well have firms and academic institutions that are active globally, this broad reach is not reflected in cluster activities.

Joint projects, in the field of R&D, are an important element of the strategies of all Polish cluster initiatives. In most of the initiatives that were researched, after several years of operating, an increased interest of companies in R&D projects was observed. This, however, resulted directly in a significant increase in the number of companies starting collaboration in the R&D area. Companies, which had already been engaged in such cooperation (have had organizational experience in this area) benefited from the opportunities offered by the initiative and undertook further joint projects. This took place however only with partners which were already open to this type of cooperation.

Companies interested in R&D cooperation often withdrew from the project after estimating the full cost (financial, personal and time related). Some firms, despite their willingness to cooperate, have no absorption capacity, organizational skills or industry experience to effectively cooperate in that field. Another drawback in this field was a lack of established procedures for collaboration among partners within initiatives, especially in the sensitive area of IPP protection. Each of the cluster initiatives, that were researched has a developed academic knowledgebase, some are well recognised within Poland. However, most of the initiatives are still reactive, hesitant and unnecessarily cautious in making contact with potential external knowledge bases.

Maintaining successful activity and stimulating collaboration without a stable financial situation is a difficult task that most cluster initiatives have to deal with every day. The funding structure of all initiatives that were researched is weak. Due to difficulties in obtaining support from public funds, initiatives often have to operate based only on members fees and on the volunteer work of cluster teams as well as cooperating experts. A number of cooperation activities have had to be postponed or abandoned because of limited capacities. A few initiatives try to channel promising projects, which they cannot support to partners in the innovations system but this is not always successful.

#### **4. Advancing the cooperation**

The outcomes of the article clearly show a need for upgrading the processes within cluster initiatives, as well as the need for stimulating members activity, which is necessary to perform effective cooperation. The several years of experience in cluster development gained by some initiatives allows for both formulating best practise and defining the tools to support the cooperation process.

In this respect it seems essential that the initiatives create conditions for cooperation (that motivate members to be involved in the activities within the cluster and with external partners) and for the members to actively contribute to the communication process.

Effective communication requires effective tools and support measures. The performance of the website and communication channels could be improved significantly in most of the initiatives that were researched. The content could be considerably enhanced and more focused on the needs of specific and general groups of users, including member companies.

In order to attract internal and external cooperation partners initiatives could use more sophisticated, extraordinary ideas than on high expenditure marketing measures. For example, social media channels can offer a cost-effective and powerful medium for cluster members to share information, to connect with interested parties and firms, and to brand themselves in the global market. To be able to cooperate effectively initiatives would need setting up of professional tool for acquiring



information about products/services of member companies, their resources and competences (e.g. laboratories available) as well as contacts for the appropriate persons. Such a dedicated tool could be introduced in the form of multi-functional database.

Putting more effort into the support of members along the way (e.g. when writing a business plan or by mentoring cooperation processes) may be considered in order to ease the formation of collaboration projects.

Within studied initiatives a risk was identified, where the actions and small resources might be scattered and spread in non-priority directions instead of achieving cooperation that would really boost business growth within the cluster. It is necessary for the initiatives to develop a way in which different competency areas within the cluster can be organized into complementary pools for more complex cooperation undertakings, for integration of technologies and for finding new gaps and market opportunities. One way to do that is to seek to augment current competencies by collaborating with other networks through EU or other relevant places.

It is crucial for the development of clusters, that the initiatives kick-start the process of internationalisation. Initiatives appear to be somewhat inward looking, and should put greater emphasis on supporting companies to cooperate with the aim of entering foreign markets. This can be pursued e.g. through benchmarking, providing information about markets, organising missions, etc. To boost international competitiveness, ultimately, initiatives can also carry out or outsource competitor analysis to either identify the possibility to win on the long-term or to partner with one of the leading players.

A cluster initiative requires competent and dedicated management that has to be able to operate at a high level. Cluster specific trainings will help the team to strive for excellence, especially in the area of: strategic focus, empowering others and good social skills.

Developed business models are needed for the sustainability of the initiatives. It means that at some point members of the initiatives will have to financially contribute to the initiative, for it to successfully coordinate the collaboration process. Cluster initiatives also need to strengthen the ability to acquire funding from different sources, such as the Polish government, local authorities and member fees. A further possibility that has to be taken into account is funding offered by EU structural funds, and by EU framework programmes. However, during the article it remained unclear if additional funding will be sufficient to fulfil the needs of initiatives to sustain their level of activity. The initiative should therefore develop plans how to extend the portfolio of cooperation partners and service providers in the region that could support the initiative in its activity.

In order to promote and support members in R&D cooperation initiative can consider becoming a sector dedicated service centre. It is important that cluster managers to understand the ever increasing competition stimulated by high expenditure research. Cluster initiatives should empower cluster members, especially SMEs, to

make the best use of R&D cooperation possibilities offered both within or outside the region.

The proposed tools do not comprise a closed list but are, rather, examples of ways to upgrade the cooperation processes within cluster initiatives and, as such, need to be developed further. Some of the proposed interventions can be developed by initiatives themselves, but should be reinforced by an appropriate cluster policy.

## 5. Recommendations

Based on the outcomes of the article, it is possible to propose following recommendations regarding cluster policy on regional and national level to further the development of cooperation in clusters in Poland. The proposed recommendations are consistent with the concept of smart specialisation proposed by the European Commission. It postulates that every country and region should concentrate efforts and resources on a specific small number of priorities or economic specialisations with a significant innovative potential in which it has real competences, resources and can achieve prominence and competitiveness on a global scale.

Cluster policy constitutes an answer to the problem of market failure related to limitations existing in Poland with respect to initiating the cooperation between enterprises as well as between enterprises, the R&D sector and administration. Public support – due to the so called external effects – will benefit the whole cluster and cluster entities that are not part of the initiative. It is therefore proposed that future cluster policies include support for clusters in broad areas of activity e.g. R&D, international expansion, stimulating sector cooperation and creation of new enterprises.

One of the pillars of cluster policy is mobilising the development of clusters by supporting cluster initiatives and cluster coordinators. Support for cluster coordinators should serve the following functions: coordination of activities in the cluster, development of different types of interactions, promoting joint undertakings and developing new products and innovative services. However, the optimal cluster policy model is much more than the sustainability of cluster initiatives. It is, most of all, the coordination of policies and public instruments (e.g. on infrastructure, R&D or education) around clusters with the biggest competitive potential. Such a policy should effect also specific framework conditions paramount for the development of a given cluster (i.e. proper infrastructure, specialised human resources, conducive regulations etc.). Cluster based strategies – as part of industry, innovation, regional and science policy – should account for both a rejuvenation of established industries, as well as paving the ground for new emerging industries.

However, although public policy programs in Poland and throughout Europe are recognising the importance of clusters, they are not fully addressing the challenges faced by cluster initiatives in pursuing cooperation between members and partners. Further study should, therefore, include follow-up work in order to develop tools, strategies and policy support programs to meet cluster-specific needs.

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