An Overview of Hungary's Accredited Innovation Clusters as regards Cooperation and Communication

István Kovács
Budapest University of Technology and Economics
Ildikó Petruska
Budapest University of Technology and Economics

Cite as:
Kovács István, Petruska Ildikó (2020), An Overview of Hungary's Accredited Innovation Clusters as regards Cooperation and Communication. *Proceedings of the European Marketing Academy*, 49th, (63404)

Paper from the 49th Annual EMAC Conference, Budapest, May 26-29, 2020.

An Overview of Hungary's Accredited Innovation Clusters as regards Cooperation and Communication

Abstract:

Hungarian and international research on sectoral and regional clusters typically explores the engines, characteristics and advantages of cluster organisation within a single sector or region. The aim of our study is to explore throughout all accredited innovation clusters in Hungary what innovation and market advantages can be gained from cluster membership, and what solutions managements use to ensure they are realised, with particular attention to information flow and communication.

Our research confirmed that Hungarian entrepreneurial attitudes are still characterised by a reluctance to share information and knowledge, which has a constraining effect particularly on the relations of competing members within a cluster.

Our study highlights managerial solutions, which promote and support the development of cooperation within innovation clusters, and also analyses and introduces what communication tools and strategies can be used to reach the target groups of the clusters.

Keywords: accredited innovation clusters, cooperation, cluster management, communication, innovation

Track: Innovation Management and New Product Development

1. Introduction

Hungarian (Horvát, Kerekes, and Patik, 2013; Dobronyi, Halmos, and Somosi, 2012), and international literature (Bell, Tracey, and Heide, 2009; Örjan, 2009) both emphasise that knowledge, learning and innovation are essential for economic growth, and for maintaining and improving competitiveness. The studies also agree that one prerequisite for the success of enterprises with advanced innovation activities is that they should be members in different types of networks, such as for example strategic alliances and innovation clusters (IC). These forms of networks enable access to information and knowledge and positively influence corporate performance, particularly in the area of innovation (Bell and Zaherr, 2007).

ICs as network forms are significant engines of innovation and promote its successful implementation through the cooperation they generate, for which reason their role is now at the centre of attention both in business practice and theoretical research. This study aims to map out what innovation and market advantages can be realised by joining ICs, and what solutions the management organisation uses to achieve these in particular with view to information flow and communication.

2. Literature review

2.1 Definition of Clusters

Clusters opened new avenues for a certain structural transformation of the economy in response to globalisation challenges, and may be considered the basic units of global competition today. Most literature defines different clusters as a network of different enterprises (Huggins and Johnston, 2010), the members of which are enterprises from similar areas or in the narrowest sense areas linked to a given industry. They are also geographically located close to each other (Batenburgh and Rutten, 2003), and their goals are defined by economic and social factors (Rocha, 2004). Other scientists highlight that the cluster is the centre of knowledge generation (Tallman et al., 2004), characterised by a sharing of knowledge and information between the member enterprises. Geographical proximity makes the exchange of knowledge easier in regional clusters, in particular between member enterprises and their affiliated companies (Bell and Zaheer, 2007). It makes cooperation easier, as relationships are more easily created and maintained between local actors, and because they operate in the same environment, it is more likely that they also face the same problems during their activities (Kohlbacher, Weitlaner, Hollosi, Grünwald, and Grahsl, 2013).

As the above also shows, the definition of clusters varies, but shared elements can also be identified. These include interaction between the member enterprises, shared resources and

abilities, geographical proximity, institutional ties, economic specialisation. It is the underlying goal of ICs to promote the development and placing on the market of knowledge-intense products as a result of joint research and development. Cooperation may from a market point of view promote the improvement of the domestic and international competitiveness and an increase of the market results of the cluster members, and from the perspective of research and development may contribute to the increase of the ratio of applied research and the number of patents. Hungarian experts on the topic highlight that promoting the employment of researchers who have achieved significant results is also not a negligible aspect (Dobronyi et al., 2012). ICs are heavily dependent on their region. Several research projects found that regions where there is a high level of cluster activity are also leading in terms of innovation (Horvát et al., 2013; Mag ZRT, 2012).

All in all we can say that ICs are network entities relying on knowledge networks and cooperative innovation systems. Their spread and growth has a favourable effect on converting open innovation based on a wide knowledge-base and R&D achievements into market success and the market-orientation of innovation.

2.2 Flow of Information

One of the key elements of innovation development is the flow of information and knowledge. Clusters are natural incubators for information sharing. According to Lengyel (2002) information sharing has the advantage even for competing companies that they can evaluate their performance level compared to an objective benchmark (benchmarking). The unobstructed flow of information between the members within the shared value chain also has several benefits. Sharing information increases the efficiency of cooperation within the individual organisations and also between companies, which improves the aggregated performance of the value chain. It contributes to confidence building, which is a key element for the quality of entrepreneurial culture and business relations. It helps to form collective identity within the cluster. As the members of a cluster can have different geographical locations and may be active in different sectors, Deák (2002) says that belonging to a cluster also means adopting its identity. Also Taylor and Raines (2001) say that the collective identity of a cluster represents an excellent communication platform which attracts new investors and members to the cluster.

Information flow within a cluster has several dimensions. Between the members of closely cooperating organisations (especially in the early stages of the cluster's existence, when the number of members is relatively low) the system of informal relations represents the backbone

of information sharing. Even though this aspect never loses its relevance, sharing information through informal channels is no longer efficient in larger clusters, for which reason an institutionalised system of relations is also needed. In their assessment of cluster development, Taylor and Raines (2001) reason for the parallel development of the informal and institutionalised communication network. We can observe several solutions for implemented formal channels. Hungary's Fashion Cluster created a central infrastructure in an internal initiative, which ensures coordination and exchange of information between the members of the cluster (Santoro and Bifulco, 2005). According to a proposal of the European Commission (EC, 2002) it is possible to involve a neutral mediator/coordinator, especially if it is justified by a low level of trust between the members of the cluster. Pelle and Imreh (2002) suggest based on an example from Italy that the government may also assume a coordinating role. The involvement of the government may be local, regional or even national depending on the size and geographical concentration of the cluster.

3. Aim of Our Research and Description of the Sample

In accordance with EU regulations, we focussed on accredited innovation clusters (AIC) in our research, while our sample consisted of ICs and their member companies, which were registered or renewed their registration as AICs during the term of our research. The research has been ongoing since July 2014, during which time we conducted sixty in-depth interviews with selected actors. This report contains our observations based on the analysis of these in-depth interviews.

In our research, we looked for answers to questions like what innovation and market advantages can be achieved in relation to cluster membership, what solutions the management organisation uses to promote these – in particular as regards information flow and communication –, what are the levels of cooperation, and what unique characteristics Hungary's clusterisation process shows. In the first half of the qualitative phase of our research we strove for a complete census in the area of cluster management, but failed to reach one respondent. As a result, we only succeeded in conducting personal in-depth interviews with 95% of the respondents (20 cluster managements). The distribution of Hungarian ICs in our sample shows a dominance of the IT sector and the health industry.

In the second half of the qualitative phase of our assessment we conducted in-depth interviews with cluster members, and managed to reach 40 companies, which are members of AICs (approximately 5% of our total sample). Most of these companies are active in the plastics industry, the environmental industry, ICT and the health industry.

4. Presentation of the Research Findings

As it became clear from the above, clusters create a wide platform for cooperation. Cooperation may form between cluster members, between clusters and external actors (e.g. managing, interest representation or local authorities).

4.1 Cooperation Levels and Actors

The aim of cooperation in clusters only consisting of micro, small and medium-sized enterprises is the improvement of bargaining power and joint market presence. Small companies basically want to realise advantages that large companies have, as they could not enter global markets without cooperation, or could not compete with global companies present in their own markets. It is worth pointing out that new start-up companies appearing in ICs are practically 'born global', as they can use the opportunity to access global markets, and have access to different resources already in an early stage of their development.

Where the presence of large companies is considered desirable in the choice of members and in catalysing projects, it is primarily market aspects that determine this. Innovative ideas usually originate in micro- and small enterprises, and they are also the ones to take charge of prototyping. Adapting to a new solution is more difficult in large companies, but they can significantly contribute to a successful market entry. Due to their size, they can be potential customers for the developments in their cluster, either by using those themselves or by including the product or service in their portfolio. It is also common practice that large enterprises identify areas or market segments where they intend to grow, and consciously look for innovative ideas and new products that match these. A great advantage of this solution is that the innovative ideas of small enterprises can be linked to already clearly defined market opportunities.

Universities, research organisations and other institutions promoting the extension of university research activities and the economic utilisation of their intellectual products (e.g. Innovation Centre Corvinus University of Budapest, BME Viking Rendszertudományi Zrt.) are important elements in the network of relations within an innovation cluster. If good relationships form, the cluster will be able to communicate to the universities what knowledge it needs, which serves as an orientation for the direction of R&D activities – just like with technology-oriented companies – promoting their utilisation in the market, and may even make the training of experts more targeted. The business community can then contribute to the high level of know-how required for successful innovation. The involvement of universities and research organisations improves the quality of work performed within the cluster, and thereby boosts

confidence in the cluster. Clusters generally tend to be open towards universities and may even encourage their involvement by cancelling their membership fees.

Universities and research organisations may have the following major motivations to join clusters: more inquiries from industries, joint developments; new partnerships, even with actors outside the sector; novel approach to multidisciplinary challenges and research questions; political ties, lobbying opportunities; access to application procedures only available to clusters; access to information; awareness of development topics motivated by industries; uncovering new market opportunities; PR advantages, directing attention to the capacities and competences of the research organisation by joint activities. One way of cooperation for companies, universities and research organisations is when corporate innovation is based on ideas conceived at universities, which perhaps could not even be realised were it not for the network of business connections provided by the cluster. Another option is when research and development are built up on existing corporate results with the involvement of the intellectual capital of the higher education institution. As mentioned before, clusters may be performing incubation activities for spin-off or start-up companies. The experts at partner universities may be users at the same time, who may generate innovative ideas by formulating their expectations or highlighting problems arising during use. The manufacturing of medical devices is typically such an area. Students may also get involved in the cooperation with universities. It even happened that the idea, which gave rise to an innovation project in a cluster was first conceived in a student's thesis.

Further actors of the cooperation, like venture capitalists may be important actors in the cooperation, their role is particularly significant from the point of view of the successful placement on the market of innovations and prototypes. If as a result of successful projects the cluster can gain the confidence of investors, the members of the cluster – unlike in the case of EU applications – may not only have access to resources, but may also realise international market advantages through the investors' network of contacts. The role of the cluster management is decisive in the cooperation with the investors.

Professional, interest representation and management organisations and local governments may be further partners. The latter may be able to support the cluster enterprises settling in the given region with auxiliary services, and the opportunity also arises to observe entrepreneurial needs in local city and economic development concepts. The work of clusters may also be supported by consultancy firms as members or as external partners. Their involvement may be significant in establishing clusters, training cluster management, but they may even help already developing clusters with training, supporting applications for funds (e.g. with budget

templates). The significance of these services is further underlined by the fact that the successful implementation of R&D projects in Hungarian clusters is still not rarely hindered by the lack of certain competences, knowledge and skills (e.g. language skills and application writing).
In terms of external relations, we have to mention the events held by the Cluster Development Office of MAG Zrt. (Hungarian Center for Economic Development), which offer an opportunity for both cluster management organisations and cluster members to become aware of other similar organisations. This has a stimulating effect on networking, and encourages information flow between the participants.

4.2 Information Flow and Communication

As we mentioned earlier, an atmosphere of confidence and the sharing of information and knowledge based on that are prerequisites of efficient cooperation. For this reason, we dedicate special attention in our research to mapping out the directions and channels of information flow. Considering the complex network of internal and external relations of clusters, it is not an easy task. Information flow and communication both have several directions and levels in intercluster relations and also external relations. This characteristic of cluster communication on the one hand stems from the fact that members include different types of organisations and institutions. On the other, the different actors involved in the cooperation in joint projects or outside of these also represent a wide array of professional knowledge, competence and job positions (small entrepreneurs, leaders of large corporations, university lecturers, researchers, developers, marketing experts, coordinators, consultants, etc.). Due to the different competences and professional cultures it is not easy to 'speak the same language' in some projects.
The most active flow of information takes place within the cluster, between the members, where the cluster management has a bridging role. On the one hand, this manifests in promoting the exchange of information and communication between the internal actors, and on the other in linking external and internal actors. The bridging role of the cluster management in external relations may involve business of non-profit organisations within and outside the sector, or financial, governmental and managing bodies and other – domestic and international – cluster organisations. At the same time, members may also engage in an independent exchange of information and communication with these external actors depending on their level of influence and network of connections.
In terms of internal relations, the main goal of communication is promoting cooperation, and supporting the exchange of information needed for this. The goals of project and idea

generation, and the recruiting of members are also important, as new members are often accepted based on the recommendations of existing members. The goals of information sharing and promoting cooperation are also significant in relation to external actors, but shaping or reaffirming the image and reputation of the cluster also play an important part in communication here. As it is the government that determines accreditation processes and the directions for cluster development (Mag Zrt.), lobbying is an important part of external communication. Representing sectoral interests in addition could also play an important part here.

The different cluster management organisations apparently use tools similar to other institutions' but in the case of certain clusters (e.g. Mobility and Multimedia) informal communication tools have a more significant role in the interest of forming an atmosphere of confidence. Such an informal meeting is for example HighTechPub, which is an event of the Mobility and Multimedia Cluster where the members of the MMCluster – and its invited guests – can have discussions in an informal way – with a beer in hand – getting to know new members or each other's projects. The use of new online communication tools is also wide-spread, which e.g. includes supporting the flow of information between members with community-building tools (Facebook, LinkedIn). Publications, catalogues, brochures as tools of external communication are aimed at introducing the cluster's activities and the profile of the cluster's members to interested parties. Flyers can be used to advertise the products and services of the cluster. Taking on a role at different professional events also has great significance.

One of the cornerstones of a successful a communication strategy is measuring efficiency. They mostly measure the efficiency of internal communication based on implemented cooperation and the number of joint projects. Several management organisations conduct their own satisfaction surveys on communication tools. The efficiency of external communication may be assessed based on feed-back in relation to the cluster events (e.g. how many articles were published on the event), or by assessing the reputation of the cluster (e.g. by analytical media monitoring, press monitoring, etc.).

There are still significant reserves at the clusters as regards the development of communication. Universities for example reported that even though they do receive information about opportunities for applications, an information channel (e.g. newsletter) which would provide up-to-date information on what developments cluster members need is not available to them. Communication between clusters is also quite poor, even though there would be demand for exchanging experience e.g. in relation to how to efficiently motivate members.

5. Conclusion

As regards Hungarian ICs it is the accreditation process itself that represents a milestone, as it sets the prerequisites of high innovative performance and export potential for all clusters applying for accreditation in order to encourage the implementation of significant development projects made possible by the efficiency of cooperation.

Our research found that clusters create a wide platform for engaging in cooperation. Cooperation may appear between cluster members, between clusters and external actors. The cluster management organisation attempts to encourage cooperation between cluster members in different ways and by different solutions (e.g. securing financial resources, management services, organising informal meetings, etc.). When assessing domestic or foreign ICs, we must always keep in mind that one of the most important prerequisites of efficient cooperation is an atmosphere of confidence and the sharing of information and knowledge based on that. For this reason, we dedicated special attention in our research to mapping out the directions and channels of information flow. We found that ICs accredited in Hungary still have significant reserves in relation to the development of communication. We established that Hungarian entrepreneurial attitudes are still characterised by a reluctance to share information and knowledge, which has a constraining effect particularly on the relations between competing members within a cluster.

As one of the most important aspects of cooperation is establishing and maintaining an atmosphere of confidence, we believe that it is necessary to assess the network competences of the management organisations of ICs (Netcomp), and the relationship marketing orientation of member organisations, the intensity of which has a great influence on the implementation of R&D cooperation.

References

- Batenburg, R. & Rutten, R. (2003). Managing innovation in regional supply networks: a dutch case of "knowledge industry clustering". *Supply Chain Management: An International Journal*, 8(3), 263-270.
- Bell, G. G. & Zaheer, A. (2007). Geography, networks, and knowledge flow. *Organization Science*, 18(6), 955-972.
- Bell, S., Tracey, P. & Heide, J. B. (2009). The organization of regional clusters. *The Academy of Management Review*, 34(4), 623-642.
- Deák, Sz. (2002). A klaszter-alapú gazdaságfejlesztés. [Cluster-based economy development]. In: Hetesi. E. (ed.) A közszolgáltatások marketingje és menedzsmentje. SZTE Gazdaságtudományi Kar Közleményei. Szeged. 102-121. (in Hungarian).

- Dobronyi, T., Halmos, L. & Somosi, É. (2012). *Klasztermenedzsment Magyarország [Clustermanagement in Hungary].* Complex Kiadó, Budapest (in Hungarian).
- EC (2002). *Regional Clusters in Europe.* Observatory of European SMEs No.3 Enterprise Directorate-General. Luxembourg.
- Horvát, M., Kerekes, I. & Patik Dr., R. (2013). Elemzés a magyar klaszterfejlesztés elmúlt 4 évéről (tények és tanulságok) [An analysis of the past 4 years of Hungarian cluster development -facts and leBatessons learned]. Retrieved from http://klaszterfejlesztes.hu/content/cont_51d4102c8c68e4.02287351/elemzes_a_magyar_klaszterfejlesztes_elmult__4_everol.pdf (Last accessed 05 August 2016) (in Hungarian).
- Huggins, R. & Johnston, A. (2010). Knowledge flowand inter-firm networks: The influence of network resources, spatial proximity and firm size. *Entrepreneurship & Regional Development*, 22(5), 457-484.
- Kohlbacher, M., Weitlaner, D., Hollosi, A., Grünwald, S. & Grahsl, H-P. (2013). Innovation in clusters: effects of absorptive capacity and environmental moderators. *Competitiveness Review: An International Business Journal*, 23(3), 199-217.
- Lengyel, I. (2002). A klaszterek alapvető jellemzői [The basic features of clusters]. In: *A hazai építőipari versenyképességének javítása: a klaszterek szerepe a gazdaságfejlesztésben*. Régió Art, Győr, 99-124. (in Hungarian).
- Mag Zrt. (2012). A magyar klaszteresedés elmúlt 3 éve az akkreditált innovációs klaszterek példáján keresztül [The past 3 years of Hungarian clustering through an example of accredited innovation clusters]. Retrieved from http://magzrt.hu/nyomtatvanyok/Klaszteriroda/Klaszterek_elemzese_2012.pdf (Last accessed 12 August 2015].
- Pelle, A. & Imreh, Sz. (2002). A vállalkozásfejlesztés intézményrendszerének kihívásai napjainkban. [The challenges of the institutional system of enterprise development]*"Szervezeti változások és nemzetközi alkalmazkodás – új kihívások az ezredfordulón"*. Budapest, Hungary. 2002. Március 22 – 24. (in Hungarian).
- Rocha, H. O. (2004). Entrepreneurship and development: The role of clusters. *Small Business Economics*, 23(5), 363-400.
- Santoro, R. & Bifulco, A. (2005). Survey of Industry Case Studies. In: Camarinha-Matos et al. (ed.). *Virtual Organizations: Systems and Practices.* Boston: Springer Science + Business Media
- Tallman, S., Jenkins, M., Henry, N. & Pinch, S. (2004). Knowledge, clusters, and competitive advantage. *Academy of Management Review*, 29(2), 258-271.
- Taylor, S. & Raines, P. (2001). Learning to Let Go: The Role of Public Sector in Cluster Building in Scotland and the Basque Country. International RSA Conference 'Regional Transitions: *European Regions and the Challenges of Development Integration and Enlargement'*, 15th -18th September, Gdansk, Poland.
- Örjan, S. (2009). *Clusters – Balancing Evolutionary and Constructive Forces*. Second edition. Ivory Tower Publishers, Sweden.