Networks and Clusters in Conditions of the Globalization

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Abstract

The entrepreneurial network represents certain form of entrepreneurship which is realized on cooperative relations between entrepreneurial and other entities. Companies cooperate and build networks because of doing such entrepreneurial activities which they could not realize individually. Clusters of economic activity are becoming magnets for new technology, skilled personnel and research investment. In many countries, clusters of innovative firms are driving growth and employment.

Key words: network, cluster, cooperation, globalization

1 Introduction

Mutual contacts of firms within a framework of international cooperation are the symptom of management´s globalization. International connections of firms are on the principle of mutual benefits, regardless of location. There is also the necessity of economic partners´ existence among different cultures, different system of law etc. We can talk about a gradation of internationalization of activity but the fact of proceeding resume of enterprises´ globalization is unquestionable. Firms are unable to resist the pressure of globalization without adequate reaction. The reaction is clusters (networks, alliances, chains) [2].

2 Networks and Clusters

The entrepreneurial network represents certain form of entrepreneurship which is realized on cooperative relations between entrepreneurial and other entities. Companies cooperate and build networks because of doing such entrepreneurial activities which they could not realize individually. Clusters of economic activity are becoming magnets for new technology, skilled personnel and research investment. In many countries, clusters of innovative firms are driving growth and employment. These groups of enterprises tend to be well established and stable, innovating through strong backward and forward linkages with suppliers and customers. Co-operation in clusters has increasingly become a requirement for success. Moreover, co-operation offers a direct way to improve economic performance and reduce costs. In some countries are clusters supported by government or by local authorities.

According to Europen Commission “clusters are geographically close groups of interconnected companies and associated institutions in a particular field, linked by common technologies and skills. They normally exist within a geographic area where ease of communication, logistics and personal interaction is possible. Clusters are normally concentrated in regions and sometimes in a single town” [6].

The cluster concept is, in fact, a specific type of a much larger family of "systems of innovation" approaches which have systems analysis as their common-starting point but which differ in the object and level of analysis (supranational, regional, sectoral or technological systems of innovation, clusters). Clusters can be interpreted as reduced-scale national innovation systems: The dynamics, system characteristics and interdependencies are similar to those for national innovation systems. Economic clusters emerge most often where there is a critical mass of firms allowing economies of scale and scope, a strong science and technology base, and a culture conducive to innovation and entrepreneurship [7].

In some cases, clusters also encompass strategic alliances with universities, research institutes, knowledge-intensive business services, bridging institutions (brokers, consultants) and customers. Clusters are usually cross-sectoral (vertical and/or lateral) networks and contain dissimilar and complementary firms specialized around a specific link or knowledge base in the value chain.

The cluster has a positive influence on innovation and competitiveness, skill formation and information, growth and long-term business dynamics. Clusters are generally built up spontaneously by the local business players, who want to take advantage from the synergy of several factors existing in the geographic area: the presence of customers and suppliers, the access to qualified labour force and know-how, the availability of specific natural resources and infrastructure, low transaction and communication costs due to geographical proximity, the vicinity of universities, training centers and research institutes, and the presence of financial institutions and other private and public organizations.

3 Identification of Potential Clusters

Clusters can be identified at various levels of analysis. Table 1 presents the levels of analysis, using variations on the cluster concept and a different focus of the analysis. Cluster analysis offers a new way of thinking about the economy and organizing economic development efforts; it overcomes some of the limitations of traditional sectoral analysis. Cluster analysis accounts better for the changed nature of competition and market-based innovation systems and the main sources of competitive advantage. It captures important linkages in terms of technology, skills, information, marketing and customer needs that cut across firms and industries.

Cluster methodologies also differ in their use of techniques. There are used various research techniques:

- Input-output analysis, focusing on trade linkages between industry groups in the value chains of the economy,
- Graph analysis, founded in graph theory, identifying cliques and other network linkages between firms or industry groups,
- Correspondence analysis (for instance, factor analysis, principal components analysis, multi-dimensional scaling and canonical correlation). These techniques aim to identify groups or categories of firms or industries with similar innovation styles,
- The qualitative case study approach along the lines of the Porter studies conducted in the various countries.

The first group of techniques can be used to identify network linkages of production or innovation (using input-output tables or innovation interaction matrices), while the latter group of techniques can be used to identify different styles of innovation and division of labour in innovation. Although the latter approach differs fundamentally from the value chain approach, the methodologies can be combined.

Table 1: Cluster analysis at different levels of analysis

Level of analysis	**Cluster concept**	**Focus of analysis**
National level (macro)	Industry group linkages in the economy as a whole	• Specialization patterns of a national/regional economy • Need for innovation and upgrading of products and processes in mega clusters
Branch or industry level (meso)	Inter- and intra-industry linkages in the different stages of the production chain of similar end products	• SWOT and benchmark analysis of industries • Exploring innovation needs
Firm level (micro)	Specialized suppliers around one or more core enterprises (inter-firm linkages)	• Strategic business development • Chain analysis and chain management • Development of collaborative innovation projects

Source: Skokan, K.: Konkurenceschopnost, inovace, …2004

Finally, it should be noted that the case study approach has been utilized in a number of countries (including Denmark, Finland, Italy, the Netherlands, Sweden and the United States), mainly using Porter's diamond network approaches as a framework for analyzing the competitiveness of the local production structure [3]..
Another way of identifying clusters is based on ***location quotient*** (LQ). By the value of location quotient we can figure the concentration of some industry in region in comparison with state level. For calculation of LQ is used this scheme [4]:

$$LQ_i = \frac{e_i / e}{E_i / E}$$

LQ_i = location quotient,
e_i = employment in some industry and region,
e = total employment in a region,
E_i = employment in some industry and country,
E = total employment in a country

An industry with an LQ of 1 has the same share of employment as the country. The branches with LQ higher than 1,2 and employment above 0,2 % of labour force in region were considered. An initial method is LQ calculation defined according to OKEČ.

4 Potential Clusters in Žilina Region

For identification of clusters in Žilina region were used the statistic data from Statistical Office of the Slovak Republic from the year 2002, 2003, 2004 and 2005. On the basis of the calculation of LQ were identified potential clusters in Žilina region (Table 2). Manufacture of communication equipment is spread in districts as Liptovský Mikuláš, Námestovo and Tvrdošín. Manufacture of motor vehicles and transport equipment is concentrated in Martin district. Potential cluster of automotive industry has a very good assumption because there is a localization of KIA Motors Co in Žilina region [5]..

Several projects aiming to identify and support potential clusters have been launched. In some countries have started studying the possibility of integrating the cluster approach in their policy.

Table 2: Potential clusters in Žilina region

Potential cluster	Industry	LQ			
		2002	2003	2004	2005
Textile and leather products	Manufacture of textile	1,77	1,85	1,91	1,50
	Manufacture of leather products	1,26	1,39	1,02	1.20
Wood, paper and furniture	Manufacture of wood and wood products	1,68	1,64	1,93	2,03
	Manfacture of pulp, paper and paper products	3,06	2,93	3,10	2,79
	Publishing, printing	1,52	1,48	1,44	1,08
	Manufacture of furniture	2,00	1,89	1,72	1,85
Machinery, equipments and metal products	Manufacture of metal products	0,88	1,03	1,05	1,00
	Manufacture of machinery and equipment	1,55	1,61	1,76	1,87
Manufacture of communication equipment	Manufacture of radio, television and communication equipment	3,36	3,75	4,24	2,81
Automobile	Manufacture of motor vehicles	0,77	0,58	0,33	0,65
	Manufacture of other transport equipment	1,39	1,37	1,42	1,26

Source: Štofková, K.

In the Czech Republic, Hungary, Latvia and Slovenia, for example, programmes to establish and develop regional clusters have been running since 2000. The main players as regards cluster and networking policies are the national and regional governments. Also European Communities support and have helped national governments to tackle the advantages of clustering in studies carried out under EU programmes.
In the framework of the European Charter for Small Enterprises, the Slovak Ministry of Economic Affairs has initiated an implementation plan aiming at strengthening the technological capacity of small-sized enterprises. Clusters and networks are seen as a useful mean to foster technology co-operation between small enterprises, research and higher education institutions and to disseminate knowledge.

5 Conclusion

The operation program „Competitiveness and economic growth“, measure 1.2. – „Support of common services for entrepreneurs“- consider with measure „clusters“. There could be developed better conditions for collaboration of entrepreneurial sector with universities, entrepreneurial and innovation centers in connection with developing potential in regions through the development of clusters in the Slovak Republic.
In regional scale our university solves a project Žilina Innovation Policy. The goal of the project is to raise awareness of innovation issues through the region among companies, public bodies, private sector organizations and the regional or local authorities, to improve levels of networking, collaboration and co-operation within and outside of the region etc.

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