

# INFORMATION, INNOVATION AND CONNECTION – LIMITATION IN THE CLUSTER DEVELOPMENT IN PANNONIAN CROATIA

*Mirjana Radman-Funarić*<sup>1</sup>

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## **Summary**

*The paper presents an analysis of the precondition to create or the potential for the establishment of clusters in the Central and Eastern (Pannonian) Croatia. The starting point of the paper is a theoretical elaboration of the need for entrepreneurs to organize through the cluster model and the definition of terms of their self-actualization, related to the importance of traditional values in terms of benefits, social capital, and the assessment of a company's present situation, in order to prove the need to create its own identity in terms of clustering. For this purpose, the paper uses part of the data collected for the study and exploitation plan of clusters in the broader region of Central-South Slavonia with main focus on Brodsko-Posavska and Požeško-Slavonska County. Because of the institutional dimensions of social capital where the public sector has the best role in creating the social structure of clusters, and social dimensions of social capital in terms of trust, cooperation and networking, the paper analyses to what extent trust and coherence are present in dealings between companies in Brodsko-Posavska and Požeško-Slavonska County, expressed through the readiness to be included in clusters in the NUTS II region - Central and Eastern (Pannonian) Croatia as a homogeneous economic entity, with the emphasis on limiting factors that stand in the way of greater competitiveness.*

**Key words:** *Analysis of potential, Cluster, Region.*

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<sup>1</sup> Mirjana Radman-Funarić, M.Sc., Senior Lecturer, Polytechnic of Požega, Croatia, E-mail: radmanfunaric@vup.hr

## 1. INTRODUCTION: CLUSTER MODEL-THE NEW GLOBAL MODEL OF DEVELOPMENT

Competitive advantages are classified differently in economic literature, but the main determinants of the competitive advantages today are:

- cost leadership, whose main goal is achieving the lowest costs in the production and distribution, and
- differentiation, the aim of which is “to be different” in relation to competition, not just through lower prices, but also other characteristics of products or services, a prestige brand, company reputation, etc. (Tipurić, D., Alfirević, N. Bahtijarević-Šiber, F. [et al.] (1999,p.12).

These guidelines of competitiveness are related to all enterprises, including small and medium-sized, for which economic literature, local and international, states that the most important development constraints are difficulties related to financing, together with difficulties due to the lack of managerial knowledge and experience, expertise and adequate labour force, the difficulties of small supply, manufacturing and selling series, and incompetence.

Can we overcome the competitive difficulties with clusters model as a new global model of development of economic entities? Can clusterisation of Croatian enterprises increase the economic efficiency of operations and market competitiveness of the Croatian economy?

These are the questions to which most experts responded positively (Porter, 1990; Porter, 1998; Vlačić, Tišma i Maleković, 2005; Stoerring, 2007; Rabellotti, 1995).

## 2. UNDERSTANDING CLUSTERS

Clusters are geographically concentrated, interrelated economic entities, specialized suppliers, service providers and associated institutions in a particular area that are representing a region or a state (Porter, 2000). In the entrepreneurial economy, cluster is defined as a joint action of several related groups within a social activity. The term itself denotes a process which is conducted by adding something to the group, which from the economic point of view means union of other business entities that seek to achieve common goals. Cluster can be defined as a set of economic activities, economic entities, institutions, concentrated geographically (locally or regionally), that establish formal or informal relations between each other, horizontally and vertically, favour an industrial sector through which they exchange information, knowledge and goods for the development of a common product (Markusen, 1996; Porter, 1998; Buturac i Rajih, 2006; Möhring, 2005; Horvat i Kovačević, 2004). Within the cluster entrepreneurs can more accurately plan production processes, reduce production costs, introduce information systems in the whole process and respond quickly to changes in the environment. Organizational structure of the cluster-system has been successful in terms of the interconnectedness of individual small, medium or large companies

that accept new forms of business thought and action, and above all, create a new business philosophy (Porter, 1998). By saying that, we should especially emphasise that the competitiveness of each business entity depends primarily on its ability to accept a new world of knowledge and application of scientific achievements. In the theoretical sense now we can distinguish between national, international and regional clusters (Enright, 2000). Involvement of Croatia in the trend of international economy would allow increased exports. The clusterisation process of the Croatian economy has just begun, and is developed only regionally.

## 2.1. Regional cluster

Regional cluster can be defined as a geographically associated concentration of independent companies (Porter, 1990). Later in his work, as an element that creates a cluster, Porter includes institutions, referring to examples from practice where some clusters contain institutions, and others do not (Porter, 1998). Essential features of the cluster are active channels for business transactions, dialogue and communication. Without active channels, associated companies do not create a social system and therefore do not operate under the auspices of the cluster. The success of some regional clusters redirected attention to the creation of external economies and the role of knowledge and local communities in enhancing competitiveness of related businesses. There are two main criteria that determine regional clusters. First, regional cluster constrains the geographical area with a relatively large number of companies and employees within a small number of related industrial activities. Second, although economic entities in regional clusters are collaborating with other companies and research and development institutes, they are part of local networks, particularly the production system and therefore they are called regional innovation networks. According to the European Commission, Observatory of European SME's, Regional Cluster in Europe, there is a hierarchy of three concepts in the frame of clustering: **Regional clusters** are concentrations of independent companies within the same or similar industrial sectors in a small, limited area, a **regional innovation network** is more organized, contracting cooperation between companies, encouraged by trust, norms and agreements in order to encourage innovation activities, **regional innovation systems** represent the collaboration of different companies and organizations for the development and dissemination of knowledge.

These systems tend to connect subjects and also include horizontal cooperation. The concept of regional innovation systems encourage innovation process flow of ideas, information and knowledge within the clusters through co-operation with companies, educational institutions such as universities, colleges, course centres, institutes, agencies for technology transfer and financial institutions. These organizations possess important competencies, gather workforce and collect the necessary funds to support regional innovation. (Porter 2000). The most frequently mentioned four approaches to interpreting the processes of regional clusterisation are: Industrial zone, California school, Nordic School and Porter's concept of industrial clusters. Porter believes that the company capital gains competitive advantage in regional clusters because of better

access to specialized and experienced workers, suppliers, specialized information and public goods, encouraging competitiveness and attracting customers.

## 2.2. Way of clustering together

Industry cluster includes companies and related industry vertical (buyer-supplier) or horizontal (common consumers, technology, etc.). In Croatia, vertical specialization in trade and export of lower quality is dominant. (Buturac and Rajih, 2006).

An important document that supports the bottom-up approach to development is the Croatian Regional Development Strategy (Strategy and Capacity Building for Regional Development). The strategy is based on standard European aspects in developing strategies: compliance with local interests and projects, partnership approach, linking the interests of private, public and civil sectors. The strategy highlighted the need to reduce the gap in development among regions with the need for faster development of underdeveloped counties. A way of creation and functioning of clusters is based on the primer organizational features of entrepreneurship, or the definition and classification of activities required to achieve strategic goals and business plans, grouping these activities in accordance with the available human and material resources, optimal allocation of available resources according to groups of activities, awarding each group of activities with an authorized and qualified leader to oversee and implement these activities, the horizontal and vertical linking group activities, the awarding authority coordinators of business, ensuring the smooth flow of information from top to bottom of the organizational structure and vice versa.

In European countries, different approaches to the development of clusters are present. Countries like Denmark, France, the Netherlands, Portugal and Great Britain have different political clusters on national and regional levels, Ireland has had a long tradition of competition in which clusters have a special place, Sweden among the developed countries was last to launch a national program of development of clusters, and Belgian and Spanish cluster policy explicitly defines the regional level. Germany, Italy, Austria, Belgium and Denmark have their own specific cluster policy. But it is crucial that cluster policies are implemented to promote economic development and structural changes, often by increasing (regional) innovation capacity, based on advanced business cooperation and networking that may require stimulation of social processes, policies that also include connecting companies with a regional technological infrastructure, education and facilities for research and development. In the process itself, it is important to seek introduction of new technologies in regional networks of small and medium enterprises, and creation of regional innovation systems. Policies are emphasizing the role of public and half-public organizations as intermediaries in encouraging the creation of entrepreneurial networks and joint projects. Especially in the initial stage of creation of clusters the presence of a third party is required in order to help build mutual trust of members of clusters and formation of business networks. All policies emphasize the need to increase innovation capacity and knowledge management in companies. Particularly important are policies that focus on essential encouragement of the creation of specialized factors and specialized knowledge in regional clusters.

### 2.3. Roll of social capital in the creation of clusters

Under what circumstances will entrepreneurs join physical and human capital is something that will be determined by the level of social capital, whose significance, especially in post-communist countries is two-sided, where the level of social capital depends on the level of human capital. Social capital is defined as features of social organization such as networks, norms and social trust that facilitate coordination and cooperation to mutual benefit. (Putnam, 1993). Just like Porter's definition of clusters is often cited and incorporated into many further studies, Putnam's definition of social capital is, in initial analysis, no meter if the other authors are supporting his approach or not. Social capital is defined as a network with common standards, values and knowledge that facilitate collaboration within and between groups. (OECD, 2001; Cengic, 2002; Šalaj 2004;). This definition is applied to specific groups, business clusters, which include entrepreneurs, companies, intermediaries, local authorities, suppliers, distributors, and the notion of trust is indirectly connected with this definition. Confidence is expressing reciprocity and a relationship of trust between companies and institutions. In the case of clusters the confidence and respect of other entrepreneurs are of extreme importance and respect of the way they do business directly affects the decision on joining the collaboration. Social connections between individuals are a positive resource for our society and economy (OECD, 1999). The central idea of social capital is that networks and norms of reciprocity have adopted value. The role of social capital at the micro level, and its impact on business firms and regional clusters is more than the sum of social interaction, but also a source of competitiveness. (Putnam, 2000; Rus, 2002). Social capital can directly affect the function of clusters in two ways: by supporting innovation and reducing operational costs, potentially increasing efficiency and growth.

Criticism of the concept of social capital and its negative impact on clusters is investigated and presented in many publications (Storper, 1997; Rosenfeld, 2002, Portes and Landolt, 1996), but its positive aspect is also shown on the macro and the micro level. (Putnam, 1993; Helliwell, 1996; Fukuyama, 1995; Paldi and Svendsen, 2000). In the discussion of social capital in transition countries two types are observed, where one type of social capital stems from general trust between individuals and trust in public institutions to be built at the level of association, and the second type of social capital comes from informal networks and exchange of services and goods between people who can handle corruption and opportunistic behaviour by themselves. (Ionescu, 2005).

OECD played the central role in promoting clusters and social capital, as a key element of economic recovery of post-communist Central, Eastern and South-eastern Europe (CESEE) and constructed a strong link between clusters and social capital. (Redžepagić and Stubbs, 2006). Social capital consists of three dimensions. The first is trust, meaning the initial willingness to cooperate not only with family members or companions. Second dimension is to associate. Association and adequate joint action allow direct experience of cooperation and its benefits, such as realization of interests that are outside the scope of individual effort. The last, third dimension, respect

for norms, which can be called civilized, at the same time is the result of the first two dimensions and their support. (Štulhofer, 2003). Social capital in the real world of economy is a kind of entry ticket to business. Social capital is more expressed on global rather than regional level. (Cook and Clifton, 2002). Because of institutional dimensions of social capital where the public sector has the best role in creating the social structure of clusters, and social dimensions of social capital in terms of trust, cooperation and networking, the paper analyses how much entrepreneurs recognize their business and relationship with other participants in the business environment in Brodsko-Posavska and Požeško-Slavonska County, and it is expressed through the readiness of inclusion in clusters with emphasis on limiting factors that stand in the way of greater competitiveness.

In the recommendations for increasing competitiveness, regional development and development of clusters (NCC<sup>2</sup>, 2004), cluster policy in Croatia highlights the following goals: uniformity of regional development, human resource development, with the intent to keep the population in a particular area, opening prospects of labour and employment, strengthening the competitiveness and economic restructuring in order to facilitate access to technology, information resources, finance and market information. Recommendation is to promote local development initiatives and instruments of regional development, as well as to establish a network of regional development agencies, encourage the already existing "self-developed" local development and entrepreneurial initiatives, establish development agencies / centres with a particular purpose, aimed at specific sectors and the needs of local industries, to develop agencies for technological development and research centres, analyse possible areas for development of clusters and cluster-train managers. Research has shown that positive changes are present in the period 2002-2005 in entrepreneurial activities in all regions, mostly in Slavonia and Baranja, Lika and Banovina, and northern Croatia, which led to the reduction of differences between regions. (Singer, GEM, 2006). Institute for International Relations, in the meaning of clusters, can hardly say that in Croatia there are clusters in general (Vlacic, and Tišma Maleković, 2005). According to the Ministry of Economy's database (3rd International conference on clusters, 2009), the Ministry started co-financing the project "Clusters - a joint product" in 2005, and has so far launched 46 clusters and cluster initiatives in which 404 entrepreneurs were associated with about 25,000 employees. Clusters are originating from different regions in Croatia and in various industries such as wood, medical equipment, manufacturing equipment, utilities, food and metal. Most clusters are located in Zagrebačka, followed by Varaždinska, Osiječko-Baranjska, Istarska and Međimurska County. In order to support the establishment of clusters, between 2005 and 2009 the line ministry has allocated 17 million kuna, and in 2009 five million kuna. There is a clear message to the cluster policy, institutional support and communication structure in Croatia, but there is no feedback connection from the level of local entrepreneurs to the national level. Clusters remain rather an empty concept with a lot of initiatives that rely on external funding and

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<sup>2</sup> Nacional Competitiveness Council

consultants, so there are no clear lines of responsibility. The importance of government incentives for small and medium enterprises in clusterisation is recognized, and established as one means of achieving that goal. Unfortunately, the general problem of bureaucracy and inefficient public administration is present in Croatia, combined with the lack of common strategy and inefficient system of introducing the policy. Entrepreneurs and local business interests as crucial participants in the process of clusterisation are absent from the political process and have no clear communication channel with the relevant authorities. The cluster policy does not mention possible recognition of the importance of social capital.

Results of extensively conducted research in Denmark, Ireland and Wales (Cook and Clifton, 2002), and research in 12 regions in the UK (Cooke, 2003), which were carried out in order to promote cooperation between medium and small businesses with the aim of improving the capacity of innovation, has shown that the level of social capital is associated with the level of economic effects.

Despite all recommendations, experiences of different countries and regions, it is clear that clusters are not uniform, that competitive advantage can work in specific circumstances, and this is usually the case when cluster was built on a well established natural resource or industrial capability. In the Croatian case, there are examples that offer potential for clustering at the regional level (CEA, HIV, 2009). Existing conditions can be used at the regional and local level, starting with a systematic revision of the base of small and medium-sized enterprises in selected sectors and their links with local training and technical infrastructure. In this sense, it is necessary to determine whether there are preconditions to create or the potential to establish clusters in Brodsko-Posavska and Požeško-Slavonska County that on the regional level.

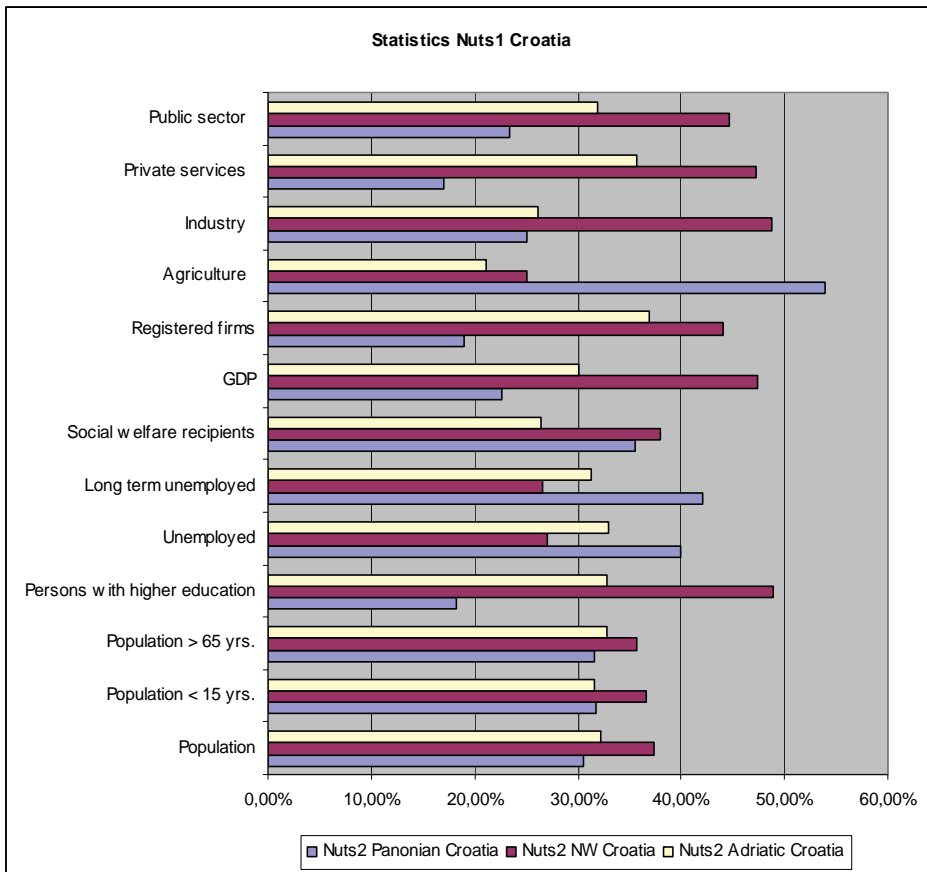
### **3. OVERVIEW OF MAJOR ECONOMIC INDICATORS IN THE BRODSKO-POSAVSKA AND POŽEŠKO- SLAVONSKA COUNTY**

Data shown in Figure 1 and 2 are collected from various official sources<sup>3</sup> which allow a good overview of the state economy in the Brodsko-Posavska and Požeško-Slavonska County.

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<sup>3</sup> Central Bureau of Statistics, Republic of Croatia, Croatian Chamber of Economy, Croatian Employment Service, 2007

**Figure 1:** A national overview of important indicators which allow comparison of three different NUTS II regions in Croatia (Croatia=100%)



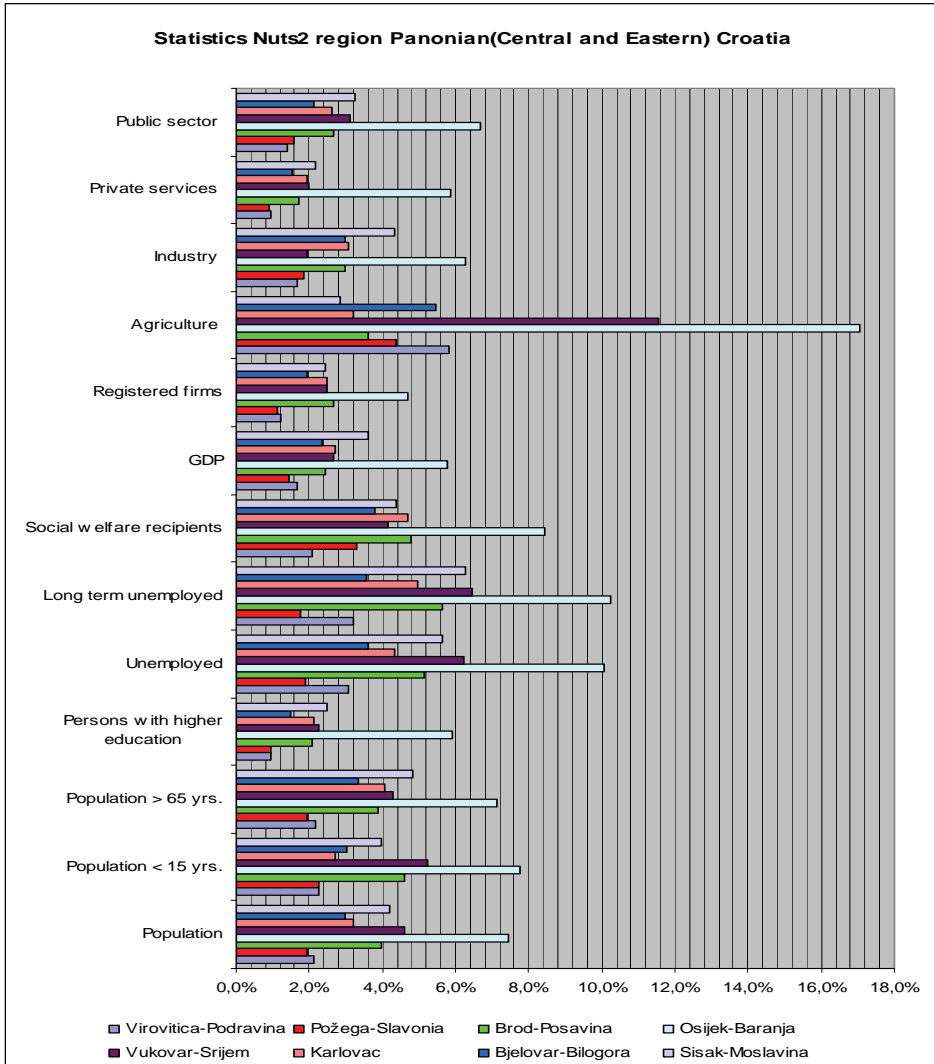
Source: Data obtained from Brodsko-Posavska County, Department for Development and European Integration

The economy of Central and Eastern (Pannonian) Croatia, compared with other two NUTS II regions have the worst indicators, as shown by data in Figure 1. In addition to other applicable criteria<sup>4</sup>, such as the criteria of population and financial criteria (Lovrinčević et.al., 2005; Radman-Funarić, 2009b) in the formation of NUTS II regions in Croatia, homogeneity criteria was of particular importance because it makes a consistent basis for managing regional politics (Lovrinčević et. al., 2005). It can be concluded that the economic structures in all Counties of the same NUTS II regions are approximately similar.

<sup>4</sup> Minimum and maximum number of inhabitants, as a criterion of Eurostat - the expected value of available funds from the EU structural funds, which enable faster economic development and removal of regional disparities - economic homogeneity.



**Figure 2:** A national overview of important indicators which allow comparison of eight different counties in NUTS II regions, Central and Eastern (Pannonian) Croatia (Croatia=100%)



Source: Data obtained from Brodsko-Posavska County, Department for Development and European Integration

Pure economic power of Central and Eastern (Pannonian) Croatia is a reflection of war devastation, a consequence of the transition (Radman-Funarić, 2003) and it is linked with various forms of distrust (Pavic, 2003; Šundalić and Barkovic, 2007), which is not characteristic only of Pannonian Croatia, but it is most evident in this area.

The downside of economic structures of eight counties in the NUTS II regions - Central and Eastern (Pannonian) Croatia is presented in Figure 2. Despite poor economic indicators there are still industries present in the county on which Counties traditionally relied for subsistence. Many traditional industries can become drivers of development at the regional and national level by increasing competitiveness. In Brodsko-Posavska County and Požeško-Slavonska County these are furniture manufacturing industry, wood processing and metal industry and metal processing industry. Clusterisation is one of the possible processes that can increase competitiveness in important self-organization requirements. Are there preconditions to create or the potential to establish clusters in Brodsko-Posavska and Požeško-Slavonska County is to be seen in present traditional industries, which are representing a form of state for other counties within the region because of their homogeneity.

#### 4. METHODOLOGY

For the purposes of this analysis and with the aim to research whether there is potential for the establishment of clusters in the area of Brodsko-Posavska and Požeško-Slavonska County, as part of a homogeneous statistical areas of Croatia (Radman-Funarić, 2009) - Central and Eastern (Pannonian) Croatia<sup>5</sup>, part of the data used has been collected for the study and exploitation plan of clusters in the broader region of Central and South Slavonia with the main focus on Brodsko-Posavska County and Slavonia-Provincia.<sup>6</sup>

The research is based on qualitative and quantitative methodologies. The study was conducted on a sample of entrepreneur representatives in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County where the survey method was used. In both counties the background of survey was presented in organized seminars. After the presentations, discussions were opened and individual interviews were performed. The questionnaires for the research were then distributed by email and fax in order to reach a critical sample of 50<sup>7</sup>. For certain analyses the results were incomplete and the sample needed sometimes to be reduced to 35<sup>8</sup>. The aim of the questionnaire was to find connections that respondents identified as existing in their companies, business or organization.

<sup>5</sup> Bjelovarsko-Bilogorska County, Virovitičko-Podravska County, Požeško-Slavonska County, Brodsko-Posavska County, Osječko-Baranjska County, Vukovarsko-Srijemska County, Karlovačka County, Sisačko-Moslavačka County

<sup>6</sup> Brodsko-Posavska County, Department for Development and European Integration, 2008.

<sup>7</sup> When analysing the data, 15 samples were considered invalid in connection to questions on business links and 20 for the "missing cluster co-operation" questions.

<sup>8</sup> Calculations were performed with SPSS 9.0 and Excell

## 5. RESEARCH RESULTS – LINKAGES AND STRUCTURES OF CO-OPERATION

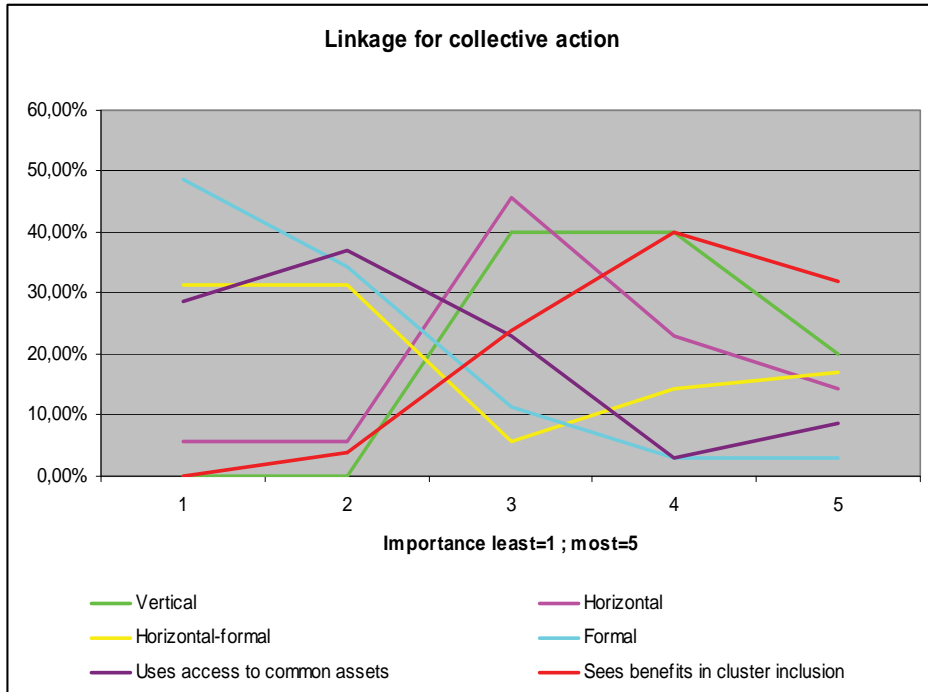
Among the participants, the average age of representative companies was 26.8 years, the most common age of the company was 16 years; the median was also 16 years. 76.7% of the companies existed for less than 20 years. The average number of employees in the companies examined was 107.47 employees, the median was 50 employees, and 76.7% of companies had fewer than 140 employees.

In addition to questions about the general data of the survey respondents (company size, number of employees, type of activity, year of foundation) answered the following questions: What kinds of relationships, in what intensity exist in your business, company or organization, grade 1 = nothing of above is present; 5 = strong / high presence. Definitions and description of the link collective activities were presented to respondents.

Linkage for collective action	Definition and description
Vertical supplier links	Relationships with individual customers or suppliers used to provide a better service. These are usually based on interpersonal relationships although they can be supported with contracts
Horizontal supplier links	The ability to contact other firms for information, assistance, referrals and learning. Built up through reciprocity over time and previous knowledge of each other. They are seen by businesses as a safety net and a "bank of goodwill"
Horizontal formal collaboration	Collaboration between a smaller numbers of companies (less than ten) for joint activity. Relationship supported by formal agreement or contacts
Formal associations	Membership clubs, trade associations and networking groups that are set up by service providers
Gaining access to common assets and resources	Government bodies (local, regional, national and international) that provide services, education and infrastructure which individual companies could not provide themselves. Some private sector organisations can provide these goods if there is demand from companies (e.g. training colleges)

The results of this part of survey are shown in Figures 3 and 4, which show the vertical orientation of doing business in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County.

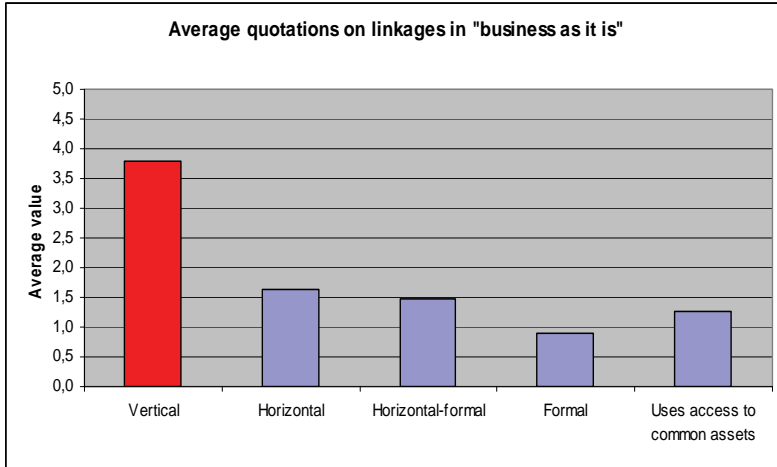
**Figure 3:** Linkage for collective action in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County



Source: Data obtained from the Brodsko-Posavska County, Department for Development and European Integration

In Croatian intra-industry trade, vertical specialization is dominant (Buturac G., Rajih E., 2006), as well as low-quality exports. The same results were found in analysing the returned questionnaires. Although the „Horizontal-formal-linkage“ was not considered important, at least four companies indicated an involvement in a network, sometimes wrongly identified as a cluster. There were no correlations found between the size of the companies and the number of employees with the type of linkage. Over 70% of respondents saw the benefits of their company being included in clusters.

**Figure 4:** Average quotations on linkages in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County

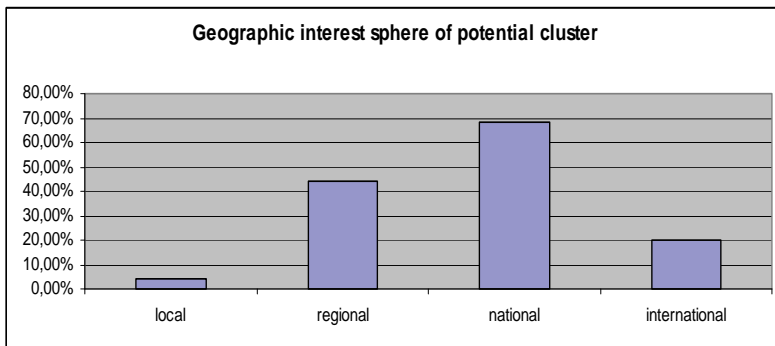


Source: Data obtained from the Brodsko-Posavska County, Department for Development and European Integration

Figure 4 shows that average values extracted from given quotations indicate a clear vertical orientation.

The answer to the question of whether they saw their cluster on a local (county level), regional (various neighbouring counties), national or international level shows that the sphere of the interest for a potential cluster lies primarily on the national, then on the regional level.

**Figure 5:** Geographic interest sphere of potential cluster in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County

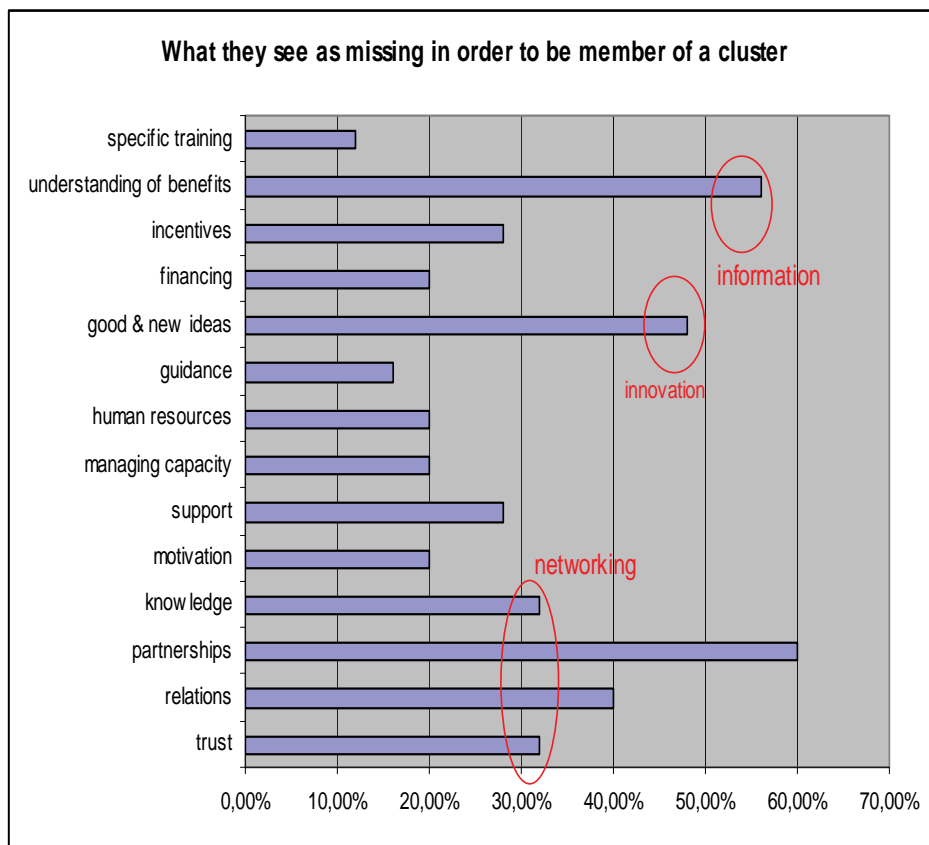


Source: Data obtained from the Brodsko-Posavska County, Department for Development and European Integration

Only 20% indicated a broader cross-border view. The summarised value of all four options is >100% due to the fact that some answers indicated more than 1 level, mainly regional and national.

The answer to the question of what you believe is missing that would've been a part of the beginning of the creation of a cluster, with the rounding of one or more questions, is shown in Figure 6.

**Figure 6:** The lack that prevents inclusion in clusters in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County



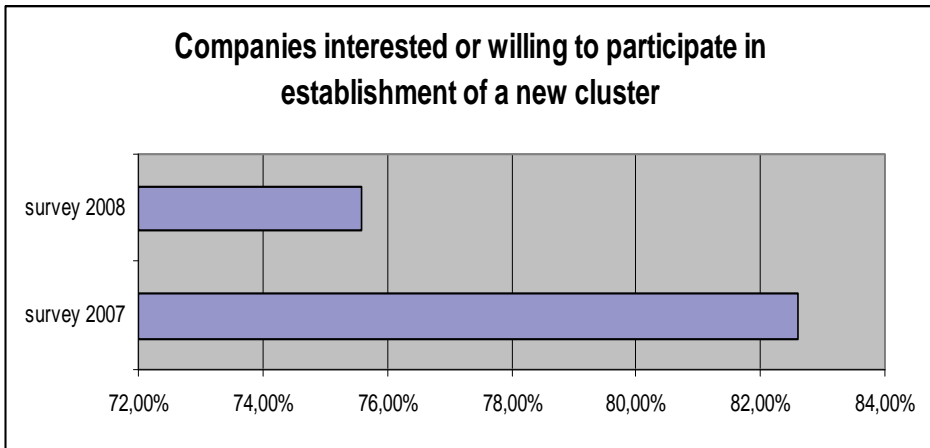
Source: Data obtained from the Brod-Posavina County, Department for Development and European Integration

Figure 6 shows that the respondents expressed a lack of information, innovation and connectivity, which is an indicator of the level of social capital as the base for inclusion in the cluster. The issues of networking, innovation and information need to be tackled if one wants to prepare the grounds for the establishment of a cluster in the

Brodsko-Posavska and Požeško-Slavonska County and in the other counties in Pannonian Croatia. One should understand the relation between four elements in Figure 6; trust, relations, partnerships and knowledge, which is the simplest view of the level of social capital. Knowledge needs to be shared. In order to share something with someone else you need to have trust in the other. If there is no trust, one is not able to create relations and without relations there is no establishment of partnerships. Innovation is a known driver of development, and the lack of new ideas should be eliminated by establishing clusters independently of the activities in which they are created. Understanding of the benefits can be solved through good information which is based on communication. In general, the questionnaire shows that elements of human capital are not lacking; the survey participants expressed satisfaction about motivation, managing capacity, human resources, guidance and specific training ( $\leq 20\%$ ). Finally, the survey researched the willingness or interest to participate in the establishment of a new cluster. Figure 7 shows that the majority of consulted companies showed an interest in participation in the establishment of a cluster (75,7%), unlike the results achieved in the survey conducted in 2007 when 82,6% consulted companies expressed an interest in participating in cluster establishment.

The 2007 survey was conducted among metal processing companies, while the 2008 survey also included companies from the metal processing sector (40%) and the wood and furniture processing (60%) sector. Figure 7 shows interest.

**Figure 7:** Companies interested or willing to participate in establishment of a new cluster in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County



Source: Data obtained from the Brodsko-Posavska County, Department for Development and European Integration

It was not possible to define what caused the differences between the results of the two surveys. One hypothesis is the fact that in the 2008 survey not only interest but also willingness for participation had been included in the questionnaire.

Conducted research provides basic recommendations for cluster management in metal and wood processing in Brodsko-Posavska and Požeško-Slavonska County, with possibilities of extended activities to the NUTS II level, Central and Eastern (Pan-nonian) Croatia through the need for further research and encouraging pooling of the subjects in an acceptable way: Building up a critical mass of information, knowledge, skills and technology in order to allow groups of companies to seize new organisational models and technologies as viable business opportunities

- Invest in **network management and social capital building** through the training of network mediators and the selection of cluster managers, among other things.
- Increase **productivity** through joint communication and information links, specific education and training programmes and local supply chains.
- Increase **innovation** through joint research and development and outsourcing of research and development.
- Enhance openness by enabling new members to bring in new knowledge, resources, technology and experience and by encouraging linkages with international network structures.

## 6. CONCLUSION AND IDEAS FOR FURTHER RESEARCH

The theoretical basis of clusters and global practices in the creation of clusters with initial activities in Croatia show that clusters are self-organizing systems. While many tend to mimic a sustainable competitive advantage that the industrial cluster represent, these dynamic systems cannot be imitated and require development time with support of all stake holders, whether at national or local governmental levels, as well as of educational and scientific institutions and commercial entities. The purpose of some cluster initiatives lies in informing and motivating entrepreneurs, potential members of the cluster creating greater mutual trust and potential for competition and development. Both wood and metal sector should find an incentive for such a start.

In order to be competitive, a cluster should provide for its partners:

- Market monitoring: permanent market observation
- Benchmarking: permanent comparison with colleagues within the sector
- Strategy checks: development of the appropriate strategy
- Innovation: bundling of cluster know-how and its transformation in marketable products
- Co-operation fairs: follow-up of the strategy used by others
- Framework building: intervention on important issues or decisions on decision-making levels
- Public relations: effective representation of partners to the public



Keeping in mind the action plan with its work load, management and HR, cost level and time plan, seen in the European development strategies for regions, it is recommendable to think about a cluster on the level of NUTS II, Pannonian Croatia. Smaller entities or cluster initiatives can be members of the regional cluster.

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## INFORMACIJE, INOVACIJE I VEZE – OGRANIČENJA U RAZVOJU KLASTERA U PANONSKOJ HRVATSKOJ

*Mirjana Radman-Funarić*<sup>9</sup>

### **Sažetak**

*Rad predstavlja analizu preduvjeta za stvaranje i potencijal za uspostavu klastera u Središnjoj i Istočnoj (Panonskoj) Hrvatskoj. Predstavlja teoretski osvrt o potrebi poduzetnika za organizacijom kroz model klastera i uvjetima njihovog samoostvarenja, povezano s važnošću tradicionalnih vrijednosti po pitanju koristi, socijalnog kapitala i procjene o poziciji kompanije, kako bi se dokazala potreba stvaranja vlastitog identiteta u pogledu klastera. U tu svrhu koristi se dio podataka sakupljen za studiju i plan korištenja resursa klastera u široj regiji Središnje i Južne Slavonije, uz najveću pažnju posvećenu Brodsko-posavskoj i Požeško-slavonskoj županiji. Zbog institucionalne dimenzije socijalnog kapitala u kojem javni sektor ima najbolju ulogu u stvaranju socijalne strukture klastera, te socijalne dimenzije socijalnog kapitala u pogledu povjerenja, suradnje i umrežavanja, analizirat će se u kojoj mjeri postoji povjerenje i usklađenost između kompanija u Brodsko-posavskoj i Požeško-slavonskoj županiji, izraženoj kroz spremnost uključivanja u klastere u regiji NUTS II – Središnja i Istočna (Panonska) Hrvatska, kao homogenim gospodarskim subjektima s naglaskom na ograničavajuće faktore koji sprječavaju razvoj konkurentnosti.*

**Ključne riječi:** *analiza potencijala, klaster, region.*

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<sup>9</sup> Mirjana Radman-Funarić, M.Sc., Viši predavač, Veleučilište u Požegi, Hrvatska, E-mail: radmanfunaric@vup.hr