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DAYS OF CLUSTERS
Creating Cluster-Based Economic Development for a Sustainable Region
Conference Proceedings

Ohrid – the city of clusters in the Balkans 2016

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DEVELOPERS OF CLUSTER SYNERGY IN
THE BALKANS

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Dear participants,

It is my great pleasure to welcome you in the Macedonian and Balkan pearl, our spiritual and cultural centre, the city of Ohrid.

I am pleased that the regional initiative started six years ago in Nis, Serbia by Cluster House became a leading cluster event in South-East European countries and continuously confirms its international character. The success of this initiative is further affirmed by this 7th Balkan and Black Sea Conference which offers an excellent opportunity to participants from more than 30 countries to share best practices and experiences, to gain insight in the cutting-edge knowledge and to learn the latest achievements.

At a time when the world still recovers from the global economic and financial crises, it is more than obvious that the only manner in which we can successfully overcome the crisis and create sustainable economy based on free market, competitiveness and quality, is to encourage the successful work of cluster organizations, which are the driver for private-sector development of every prosperous country.

Cluster organizations have long been known for their positive contribution to local, national, and regional development. They facilitate engagement with a diverse group of stakeholders for acting on underlying policy issues jointly. The development of such joint platform of private and public sector stakeholders is crucial for starting comprehensive economic reform processes in developing countries. This approach enables the policy debate and actions to be more strategic and incremental, focusing not only to competitiveness and growth, but also toward sector-specific challenges for leveraging additional benefits of positive knowledge spillovers. Hence, I believe that the clusters are essential for the development of every national economy, while opening doors to regional and international collaboration.

The 7th Balkan and Black Sea Conference “Days of Clusters 2016: Creating Cluster-Based Economic Development for a Sustainable Region” represents a platform for such exchange and triggers the synergy among the scientists, the policy-makers and the private-sector practitioners, on national and regional levels. These efforts surely contribute to the fulfillment of the vision of European Union and symbolize the dedication of the Republic of Macedonia to further regional and European integrations.

Therefore, I wish the participants of this important international conference successful work and fruitful cooperation.

Dr. Gjorge Ivanov
Почитувани ученици,

Особено задоволство ми е да ви йосакам добредојде во Македонија и Балканскиот бисер, нашата духовна и културна преценлива, градој Охрид. Срекен сум што регионалната иницијатива ойлочнашта прет шести години во Ниш, Србија, од стирана на Cluster House, јерасна во водечки насип за класистери во земјите од Југословенска Европа во консултација и йоизкушувајки ја својата меѓународна природа. Успехот на оваа иницијатива е доопштително афиширан со оваа 7. Балканска и црногорска конференција која им нуди уникатна можности на учеснициите од Јовеке од 30 земји да споделат најдобри прифатки и искуства, да добија увид во најновите врви наука и да се зазознаат со последиците досиенуван. Во време кога светот се уште закривува од глобалната економска и финансиска криза, Јовеке од очигледно е дека единствеността начин на кој ќе можеме усмени да се спирачиме со кризата и да создадеме одржлива економија заснована врз начелата на слободен тргов, конкуренција и квалитет, е да се охрабри успеената работа на класистерските организации, кои се движеа вода на развојот во Јриватностниот сектор на секоја најнепена земја.

Класистерските организации веке долго се Јривактливи по својот Јозаншен Јривонец кон локалниот, националниот и регионалниот развој. Тие го омесуваат работен веќе со разновидна група на чинијели за здравствени активности со спречена Јолициа. Развојот на една Јавна здравствена платформа на чинијели од Јриватност и Јавниот сектор е од супериконско значење за ойлочнување на социјални економски реформски процеси во земјите во развој. Овој Јриван е многу важен за рацификација на врската со Јолициите, како и конкуренцијата активности, да бидат Јостраини и Јобројни, насочени не само кон конкуренцијата и рацификација, што и
сектоарските призиви за обезбедување постојни иригибики и йеренос на знаење.

Општа, верувам дека класифицира се од суштинско значење за развојот на секоја национална економија, иригиби општофакти на врвот за регионална и международна сојузност. 7. Балканска и стипенска конференција: „Денови на класифицира 2016: создавање на економски развој заснован на класифицира за одржив регион“ алтернативна платформа под мерка за шта дека размена и ја йош интегрира синергизама помеѓу научнициите, креаториите на йош интегрира и иригибицијата секција на национално и регионално ниво. Овие начини, сеакога, ќе йош недозволата код остварување на визијата на Европската Унија и ѝа символизираат Још вешест на Република Македонија за Још вешест на регионална и европска интеграција.

На сите учесници на оваа важна мировна конференција им йосекуваат усилена работа и йолна сојузност.

ге Горге Иванов
Dear Cluster Family,

The best way to predict the future is to create it. We are here to contribute in creation of future in the Balkan and Black Sea (BBS) Region.

Welcome to the 7th Balkan and Black Sea Conference DAYS OF CLUSTERS!

Welcome to Ohrid – city of clusters in the Balkans in 2016!

We will have the great opportunity to exchange knowledge and experience, meet each other, create new partnerships and all of those together with enjoying in Macedonian hospitality, delicious food, wine, history, nature, music... If you want to fall in true love come to Macedonia.

The “Days of Clusters” conference is a leading cluster event in the Southeast Europe, which has been held in Nis Serbia 2010 – 2012; Sofia, Bulgaria 2013, Tekirdag, Turkey 2014 and Brasov, Romania 2015.

The Cluster House Nis Serbia is a founder and a co-organizer of the conference. The National Centre for Development of Innovation and Entrepreneurial Learning NCDIEL Skopje Macedonia is a host of this year’s conference. Conference co-organizers are the Ministry of Economy of the Republic of Macedonia and the Faculty of Mechanical Engineering, Ss. Cyril and Methodius University Skopje.

The conference Days of Clusters 2016 is organised under the patronage of the President of the Republic of Macedonia H.E. Prof. Dr. Gjorgje Ivanov. The Conference is supported by the Macedonian Academy of Sciences and Arts, Prof. Dr. Taki Fiti, President and the Governance of the Cyril and Methodius University, Skopje, Macedonia.

Mission of the “DAYS OF CLUSTER 2016” is to strengthen cross cluster collaboration between countries in the Balkan and Black Sea Region with aim to maximize the cluster concept capitalization in their economies.
The conference contributes to:

- Socially balanced economic development and employment creation in the BBS region.
- Enabling business environment for SME development based on collaboration between public sector, academia, financial organizations, media and business community.
- Establishment of the public-private dialogue for advocating for the needs of SMEs.
- Exchange of knowledge and experiences in the cluster based economic development in developed countries, countries in transition and developing countries.
- Transnational cross clusters networking.
- Efficient approach to EU and other development funds.

This year’s conference consists of three main tracks:

- Practitioners track for cluster managers, managements and companies;
- Academic track with focus on academics and researchers, reviewed by Scientific Committee members from 16 countries, 2 continents, and
- Macedonian clusters track.

Cluster development is a unique concept that pro-actively includes the human side of management – emotions, humour, fun… Let’s play cluster-based economic development game in our region and make the successful Balkan and Black Sea cluster story, and the region of proud people.

Clusters and their members from the Balkan and Black Sea Region, as drivers for economic development, will be able to present their successful stories and good practices. Special focus this year is devoted to tourism, wine and textile.

This year’s conference gathers 65 cluster-based economic development experts from 4 continents: Asia with Oceania, North America, Africa and Europe; 21 countries: New Zealand, South Korea, USA, Malawi, France, Denmark, Germany, Austria, Check Republic, Poland, Slovenia, Hungary, Croatia, Romania, Bulgaria, BiH, Albania, Greece, Turkey, Macedonia and Serbia.

We will have an opportunity to attend two specially created cluster development workshops facilitated by Mr. Vedat KUNT, VEGO Consulting Izmir Turkey, a member of the Global TCI Network and Mr. Ifor FFOWCS-WILLIAMS, Cluster Navigators New Zealand, a member of the TCI Advisory’s Board. After two-days conference we will continue our learning on the Wine Cluster Study Trip to Tikves Region, the oldest wine production region in the Balkans.

From our special guest Prof. Dr. Geunwoo Ryu, Keimyung University from Daegu South Korea, we will have an opportunity to hear how associative models, such as network, clusters, hubs, parks, can foster innovation in Korea, specifically the experience of KICOX, Mini-clusters in Mega Regional Economic Areas in the Republic of South Korea.

Cluster brokerage events will bring us closer and will make us more open for new partnerships and projects.
For locally acting and globally promoting we would like to thank for promotional support to the European Clusters Collaboration Platform, the Global TCI Network from Barcelona, Hungarian International and Cluster Unit of the Ministry for National Economy; Romanian Clusters, Czech NCA, Turkish VEGO, France Clusters and the Balkan & Black Sea Cluster Network.

We hope that our efforts and love for the conference preparation will contribute to better life in the region through creation of plenty new friendships and partnerships, businesses and projects.

Wishing you a fruitful cluster days in Ohrid,

Your co-chairmen of the conference:

Dr. Danka Milojkovic
Director of the Cluster House Nis Serbia
Member of the TCI BoD Barcelona Spain

Doc. Dr. Nikolina Trajanoska
Head of Unit for Industrial policy
MofE of the Republic of Macedonia

Prof. Dr. Radmil Polenakovik
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A SUMMARY OF INNOVATION MODELS THAT PROMOTE CLUSTERING

Ljubica Stefanovska Ceravolo¹, Radmil Polenakovik², Misko Djidrov³

¹,³ Faculty of Mechanical Engineering, Goce Delcev University, Stip, Macedonia, ¹ljubica.stefanovska@ugd.edu.mk, ³misko.djidrov@ugd.edu.mk
²Faculty of Mechanical Engineering, Ss. Cyril and Methodius University, Skopje, Macedonia, ²radepole@mf.edu.mk

Abstract:

The literature on innovation models shows six known and widely accepted generations of innovation models on both company and economy level. Three out of six generations of innovation models explain the importance of networking and clustering. In this paper we give a summary of the generations of innovation models and show the transformation from linear to system, networking and open innovation models. The main goal is to give a framework that will be used as a foundation for creating a theoretical innovation model which should increase the company’s innovation activity by using the concept of clustering and networking as a concept for improving the country’s innovative performance. Companies can be clustered by regions (this will enable easier engagement and enrollment) and by industry (smaller and less competitive companies will be enabled to innovate) with a possibility of including government bodies and educational institutions in the process. Clusters have a certain dynamic and they need to be fit for long term adaptability within the regions, foster building trust and a continuous culture for innovation. The cluster policy also has an effect on the National Innovation System (NIS). For countries with low innovative activity as well as decreased funding and expenditures for research and development (R&D), it is of great importance that an innovation model is created which would help companies increase innovative activities, network and share not only the expenses, but knowledge and resources as well.

Keywords
Clusters, Generations of innovation models, Innovation, Innovation models, Networking.

1. Introduction

Regional innovation clusters have been mentioned throughout the literature dating back to the 1970’s [1]. The importance of the geographic location in order to generate knowledge has proved to be a great motivator for companies to build their premises in places where technologies are being developed. Porter defines innovation clusters as a group of firms that are in a close geographic proximity [2]. According to OECD [3], the concept of the clusters is connected to the networking of the firms and enabling knowledge transfer. Clusters are associated with certain natural, human and other resources that are present in the region. We can also find terms such as “learning regions” and “collective learning” in the literature for clusters [4]. Before we start thinking of clustering and networking, we need to think of the reasons why stakeholders would want to collaborate in a cluster initiative. Cluster initiative is defined as an organized effort to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community [5].
the further reading we will present the six generations of innovation models, give their transformation and focus on the models of networking and clustering.

2. Transformation of innovation models through generations

Innovation models help companies manage the order in which innovation activities are happening. They define resources and responsibilities, and also help in determining which methods and tools the companies will use. Innovation as a process has a very dynamic character, and that is why the models of innovations have transformed throughout the years. Although today there are six known generations of innovation models, there is also a seventh generation of innovation models being mentioned by Kotsemir et, al. that has “emerged” but is “not formed yet” [6]. Rothwell is the first one to introduce the initial five generations of innovation models, where he actually gives a historical perspective of innovations management which shows the path of transformation of innovation models from linear to complex interactive models [7]. Different researchers give their own typologies of innovation models that mainly use the chronology of Rothwell’s five generations of innovation models. In his classification Rothwell gives an approach to innovation management which relates to the evolution of organizations, the strategies of innovations management under various socio-economic and political circumstances. This doesn’t include the substantive development of the innovation models themselves [8]. Rothwell’s typology is based on models of innovation on a company level. Marinova and Phillimore present another typology of innovation models and explain their six generations of innovation models [9]. For this classification they use technological models that apply to the overall economy, with a theoretical background of the generations of the innovation models, as well as their positive and negative sides. Table 1 shows the generations of innovation models by Rothwell [10], Marinova and Phillimore [11] and Kotsemir and Meissner (also company level models) [12].

Table 1 Generations of innovation models, author’s adaptation of Rothwell (1992), Marinova and Phillimore (2003) and Kotsemir and Meissner (2013)

<table>
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<th>Generation</th>
<th>Period</th>
<th>Rothwell</th>
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<td>The black box model</td>
<td>Technology push model</td>
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<td>SIN (Systems integration and Networking Model)</td>
<td>Evolutionary models</td>
<td>Networking model</td>
</tr>
<tr>
<td>6</td>
<td>Innovation milieu</td>
<td>Innovation milieu</td>
<td>Open innovation model</td>
<td>Open innovation model</td>
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</table>

The transformation of the linear models occurs in the 3rd generation of innovation models on a company and economy level, where interaction and coupling of functions and phases take place. This evolves and transforms throughout the 4th generation of innovation models where we have the interactive models on a company level and systems models on an economy level. In the 5th and 6th generation of innovation models the networking is still an inevitable and crucial characteristic and element of the innovation models. To better understand how this happened we will explain briefly the characteristics of all the generations of innovation models, and then focus on the models that promote networking and clustering.

3. Linear models of innovation and interactive models

The linear model of innovation (technology push) model is a first generation innovation model on a company level and second generation model (together with the market pull model) on an economy level. This is a simple model, has no feedback loops, has predetermined phases and is of a consecutive nature (Figure 1). The main phases of this type of models are: 1) basic
science/fundamental research; 2) design and engineering; 3) manufacturing; 4) marketing and 5) sales [13] [14]. With emphasis put on R&D in companies, it was believed that the more R&D is done, then more new products will be out, which did push innovations forward, but did not give enough attention to the transformation process or the needs of the market place and the consumers [15] [16]. Similar innovation models are still being used by some companies mainly for defining the process of product and service development, and collaboration with suppliers. The second generation of innovation models or the linear innovation model (market pull/demand pull/need pull) is not much different from the first one, it lacks feedback loops, but does take the market and consumer needs in consideration by recognizing the fact that the only way to help drive performance is to include the market/consumer needs [17]. Both models are shown in Figure 1 and these are the technology push and need pull models suggested by Rothwell.

"Technology-push" model:

 BASIC SCIENCE → APPLIED SCIENCE AND ENGINEERING → MANUFACTURING → MARKETING

"Need-pull" model:

 MARKET NEED → DEVELOPMENT → MANUFACTURING → SALES

Figure 1 Rothwell’s Diagram (Source: Godin, 2013)

The stage-gate model is one of the most popular practical innovation model on a company level of the second generation of innovation models in the USA, which was predominantly used by NASA in the 1960’s. This model, further simplified and suggested by Cooper [18] consists of five relevant phases or stages (Figure 2). The decisions happen at the gates which are the added controlling element, positioned after each phase. This is done in order to be sure to follow the fulfillment of predetermined strict criteria before the process continues onto the next stage [19]. Research shows that this type of model has been adopted and used by many other companies as well [20]. Still of a linear nature and no feedback loops, it lacked to capture the dynamic characteristic of the innovation process.

Figure 2 Cooper’s Stage Gate Model (Source: Cooper, 1994)

The third generation of innovation models on both, company and economy level, are given the name Interactive models. They take into account the interaction feedback between marketing, R&D and manufacturing. This generation of innovation models treats innovation as a combination of technology pushes and market pulls [21]. They recognize the interaction between elements and feedback in the innovation process as a key for innovation’s success [22]. These models could not differentiate the need from the demand [23]. The Coupling model of Mayers & Marquis (as shown in Figure 3) is a company level innovation model where the innovation activities are divided in subcategories under each phase, and are interacting [24].
Rothwell and Zegveld explain the innovation process as a complexed network of communication paths inside an organization as well as outside of it, connecting the different inter organization functions and the company with the broad scientific and technological environment and the market. In this 3rd generation of innovation models we notice a change of approach towards knowledge and awareness for current technical knowledge throughout all of the innovation activities.

4. Models of innovation systems and networking as pre determinants of clustering

The fourth generation of innovation models is enriched by multiple feedback loops and interaction between stages, putting an emphasis on the validation of the knowledge gained in the innovation process [26]. This generation of innovation models are the replacement of the linear models with a model that truly reflects the complex innovation process [27]. These models are also functionally integrated innovation models. They achieved integrating the suppliers, customers and partners in the development process, and companies were focused on creating links and strategic alliances with other organizations [28]. Below on Figure 4 is the Chain-Linked Model developed by Rosenberg and Kline (1986) which is a fourth generation innovation model on a company level. On an economy level, in this generation of innovation models we have the System models which argue that firms that do not have the resources to develop innovation in-house can benefit from establishing relationships with a network of other firms and organizations [29].
The importance of networking and clustering is starting to become a crucial element for the success of innovation. This transfers onto the *fifth generation of innovation models* which was developed in times when the information systems became the next big thing especially in expediting communication within the company's network and process automation [29]. Rothwell’s *SIN (Systems Integration and Networking)* model on a company level which is a fifth generation model incorporates the higher integration inside companies as well as with the outside entities such as suppliers, consumers, universities and authorities [30]. This is also a time where there have been many R&D cost cut downs, so companies had to network to fulfill their innovative ideas [31]. We can notice integration of the different activities within the innovation process, but they also appear simultaneously with overlapping functions and feedback. There is a strong focus on improvement of the efficiency in the knowledge transfer (Figure 5).

Marinova and Phillimore put *evolutionary models* of innovation in this fifth generation of innovation models as an overall economy models. These evolutionary models “analyse the behaviour of big number of firms in the context of the environment which is more or less common to all firms” [33]. *The sixth generation of innovation models* has two models in the literature: *The Open Innovation Model* (according to Kotsemir and Meissner & Chesbrough) and the *Innovation milieu* (according to Marinova and Phillimore). The open innovation models have been implemented by large companies, and some SME’s as well, primarily for market related motives such as meeting customer demands and keeping up with competitors, where the biggest challenges lie in organizational and cultural issues as a consequence from dealing with increased external contacts [34]. This model promotes networking (Figure 6) and is created and introduced by Chesbrough [35]. It also promotes using outside knowledge, such as suppliers, competition, entrepreneurs, scientists etc. [36]. The whole idea of the open innovation concept is that R&D is being done by outside partners which reduces or transfers the costs for R&D, and also that ideas can occur while developing a new product/service which can change the course of the process. In order to generate more ideas this model uses outside sources such as universities, research centers, suppliers, competition, government bodies and consumers [37], and promotes transparency as a key for a successful innovation.
According to Shefer and Fenkel, there are two major groups of variables that are likely to affect the rate of innovation of firms: internal (such as size, age, ownership type, location, type of industry to which the firm belongs and the extent of R&D activities taking place in the firm) and external (such as the rate of local innovation, the degree of cooperation and collaboration among the firms and the degree of economies of localization and agglomeration – these create the local innovation milieu) [38]. The innovation milieu models are “focused on separate firm locations within regions” [39]. Innovation in clusters comes from the territorial organization and is a combination of a cumulative general creative know-how. One element of cluster initiatives is trust that “proved to be a complex but important element of the social capital engagement in cluster initiatives” [40] [41]. Actually, the ease of contact and trust between partners is a major feature of a successful innovation milieu environment just because they reduce uncertainty in development of new technologies and prove to be a source of exchange of tacit knowledge [42]. The local innovative milieu is considered as a “cost reducing agent/factor that diminishes uncertainty, increases production efficiencies and enhances the innovative capability of firms” [43] [44]. According to Nicolov and Badulescu, innovation seems to be a localized phenomenon with an intrinsically territorial point of view, which is dependent on the specific location of resources linked to certain places and impossible to replicate elsewhere [45].

5. Discussion and conclusion

Innovation networks are networks comprised of all of the actors involved in the innovation process and the ties or relationships that connect them [46]. There are many elements to consider when planning a networking and clustering initiative like distance, industry type, size of companies, type of ownership, R&D activities, rate of innovation etc. It has been found that there were clusters located nearby universities, that have enormous innovation capacity but show disappointing results, according to the predetermined internal and external variables that affect the rate of innovation of firms, because the faculty staff was focused on teaching instead of research [47]. For companies to become more innovative, they need to be ready for a change and to have set up mechanisms that will support the process. This can be expedited through clustering. As a beginning of the new innovation model we can say that generating ideas is the most important part, as well as planning a reliable and safe funneling and distribution of the same ideas. Clusters can encourage all involved sides to share knowledge and ideas, which will help smaller companies thrive and larger companies use some fresh new ideas that do not come only from their employees. The next stage should be the selection stage, where companies can determine whether their ideas have the potential for realization or not with four mandatory components: marketing, legal, economical and developmental component, which can be used as controlling elements in order to determine whether a company should proceed with the next stage or not. The selection process of innovative ideas should be done by strict criteria and very carefully, and the model should be able to recognize whether the time is right to introduce a certain innovation on the market. Being a part of a cluster should make it easier for these stages to be finalized, and this will result with a larger innovative activity, collaboration, transparency of the innovation process and quicker learning experience. Next stages of the innovation process are
planning and realization, diffusion and marketing, and of course the feedback (because the feedback loops were lacking in the first and second generation of innovation models, and customer’s feedback is an essential element of innovation), which should be considered as a part of every stage of the innovation process. Clusters enable companies to easily adapt to a networking environment, handle interaction, know the competition and easily identify new sources of ideas. Therefore, findings show that in order to increase the innovative activity of a region, networking and clustering are the main things to consider especially by putting the focus on knowledge gain and on maintaining the knowledge level of the companies that are involved. The clusters should be knowledge oriented and focused on creating a continuous and active learning culture. Clusters can achieve more innovation activity by using a semi-formalized innovation model that will be based on the open innovation model and will put a specific focus on generating ideas, selection of the ideas and their realization. Choosing the right stakeholders is crucial, but also transforming them could be an option, because it would be beneficial for both the cluster and the entity.

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EMERGENCE OF THE NORTH AMERICAN CENTER OF EXCELLENCE FOR TRANSPORTATION EQUIPMENT

Richard Gottschall\textsuperscript{1}, Aleksandar Karaev\textsuperscript{2}

\textsuperscript{1} State University of New York at Plattsburgh  
\textsuperscript{1}gottscrl@plattsburgh.edu  
\textsuperscript{2}German Organization for International Cooperation (GIZ)  
\textsuperscript{2}Sustainable and Inclusive Regional Economic Development in Macedonia (LEIWW+)  
\textsuperscript{2}aleksandar.karaev@giz.de

Abstract:

Following the closure of Plattsburgh Air Force Base in 1995, the north-eastern region of New York State faced an unprecedented economic development challenge. Like many rural areas, the region's relevance in the larger economy has been declining. While the quality of life seems high, the population is shrinking and job growth is stagnant. Isolated geographically by Lake Champlain (Sister Lake of Ohrid) to the East, the Adirondack mountains to the South and West, and long distances to southern economic centers in the state, the region has looked north of the Canadian border and positioned itself as "Montreal's US suburb". Economic developers have crafted bi-national agreements between regional organizations, improved infrastructure, and enhanced educational institutions for the purpose of attracting Canadian manufacturers to the region. In 2015, the North American Center of Excellence in Transportation Equipment was launched and six new companies have joined the cluster, doubling its size; and perhaps providing a critical mass for synergistic growth. Manufacturing jobs are likely to grow for the first time in more than 20-years. Theorist argue that the emergence of a competitive cluster is difficult to discern, with caution, we suggest that the North American Center of Excellence for Transportation Equipment is interesting because it has the potential for eminent emergence. We offer a conservative assessment that the anticipated job growth may not be a sufficient sign of cluster-emergence. What further policy actions might help the cluster develop competitive, regionally-based competencies?

Keywords:
Aerospace, cluster-specific knowledge, international clusters, cluster lifecycles, transportation equipment
1. Introduction

Following the end of the Cold War, Plattsburgh Air Force Base ceased operations in 1995 and became a primary focus of regional economic development in Northeastern New York [1]. Lying on the shore of Lake Champlain, with the Adirondack Mountains behind it and the Canadian border to its North, the region's rich geographical resources isolate it. The area was, and remains, one of the less prosperous regions of New York State [2]. The closure of the air base and the region's geography have given shape to a persistent economic development strategy of positioning the region in a global economy [3]. In 2015, an emerging transportation equipment manufacturing cluster spanning the US and Canadian border has promise to positively impact the level of productivity and prosperity in the region [4]. Recent increases in manufacturing establishments are poised to provide the first increase in manufacturing jobs in 20 years. Given these developments, it may be an appropriate time to evaluate the developmental stage of the region's transportation cluster and consider implications for its future development.

Regional clusters are at the core of the local economic development strategy [5]. Beyond integrated supply chains, clusters may include education, financial, and governmental institutions [6]. The emergence of a cluster can be difficult to discern as independent firms and institutions come together to compete, collaborate, and create competitive products [7]. Competitive clusters emerge as they foster knowledge spillovers, innovation, and entrepreneurship [8], but as the industry changes, cluster evolution can lead to stagnation, and disintegration [7].

In this paper we use publicly available information and interviewed two economic development professionals to analyze the three pillars of the regional economic development strategy, which are business attraction/job creation, proximity to Montreal/Quebec, and the cluster approach [5]. After 20 years of persistent redevelopment efforts, an institutional environment has formed that is aligned with the areas unique resources. Through this period, employment and population loss have stabilized as the regional economy has changed. Now, the number of transportation equipment manufacturers is poised for rapid growth. With the recent attraction of six manufacturing firms, the cluster has doubled in establishments and may be on the verge of achieving critical mass. With the planned opening of a new titanium parts firm later in 2016, manufacturing employment in the region is expected to grow in excess of 10% in 2017, the first increase in over 20 years.

2. Robust economic development institutions

There is a strong institutional environment where local, regional, state, and federal agencies collaborate to provide a range of programs supporting private sector development. The depth and sophistication of these institutions are vital to developing and implementing the strategy, but are beyond the scope of this paper, which is focused on strategic cluster development, not the strategy makers. This strong support of policy makers for cluster development is largely justified by job creation and retention [5]. These strong institutions and their successful initiatives are evidence of policy makers' support for the transportation equipment manufacturing cluster, which is an important factor for cluster for competitiveness [10]. Since 1997, the city of Plattsburgh has been highly ranked by "Site Selection" magazine as a small town, with less than 50,000 people, to locate your business, and was ranked as high as number two in 2004 [1]. "FDI" magazine ranked Plattsburgh the number four and two of US city to invest in with less than 100,000 people in 2012 and 2014 respectively [9].

3. Regional geography, resources and constraints

Much of the economic development strategy is based on regional resources and constraints. In the map below, it can be seen the Northeastern New York region is surrounded by natural resources that also isolate it from the East and West. There is a national border 20 miles to the north that represents a barrier to and opportunity for trade. Albany, 150 miles to the south, and New York City, 300 miles to the south, are not oriented to the North.
Mountains to the west - The Adirondack Mountains have been home to two Winter Olympic Games in Lake Placid New York. The Adirondack Park Agency restricts development in its six million acres and much of the private economic activity is in forestry, agriculture, and recreation/tourism. About 130,000 people live in the park’s 103 towns and villages, which have experienced a population decline of 1.3% over the last 20 years, compared to growth of 2.2% in New York state [11].

Lake to the east - Lake Champlain is the 6th largest fresh water lake in the US at 120 miles (193 kilometers) long and twelve miles (19 kilometers) wide. In 1997, agreements were signed making Champlain a sister-lake of Ohrid. Of the 571,000 inhabitants living around the lake, about 68% live in Vermont, 27% in New York, and 5% in Quebec. Two bridges connect New York and Vermont at the very ends and only one year-round ferry crossing connects the sparse populations on both sides [12].

Border to the North – The US-Canadian border is the longest unprotected border in the world and separates the globes two largest trading partners [13]. Montréal’s population in 1995 was 3,324,000 and has grown to 4,060,700 in 2015 [14]. Since the 1920’s aircraft have been produced in Montreal, one of the only cities in the world where an entire aircraft can be designed and built [15]. The aerospace industry alone employs over 40,000 people in Montreal, which is almost double the population of Plattsburgh, NY [16]. While NAFTA has made trade easier, crossing the border for business is still a daunting task for most small businesses [17, 18].

4. Figure 1

5. A Regional Economic Development Strategy

The 2015 regional economic development strategy begins with, “Builds on growth in the aerospace, transit equipment, ... and manufacturing industries, ... will Leverage our gateway to Canada, ... Attract and nurture entrepreneurs, ... and invest in community development infrastructure” [5] These pillars of the strategy can be traced to initiatives dating back to the closure of the base. In 2001, the regional chamber of commerce exclaimed that “To achieve great things, small areas must determine what it is that is bigger than themselves that they can make themselves a contributing part of;” and branded the region as “Montréal's US suburb” [19] The development strategy includes the development of bi-national agreements, infrastructure enhancements, and education and workforce development. The execution of the strategy can be seen below in diagram 2.

Bi-national institution development - The Québec - New York Corridor agreement was signed in 2001 to facilitate economic relations [19], giving Northeastern New York a role in the multi-billion dollar annual trade between Quebec and New York State. In 2013, Quebec’s Delegate General to New York, Mr. Boisclair, explained that the relationship “helps Quebec companies export to the United States but also helps create more jobs in this region ...the two sides are not fighting for a larger share
of the economic pie, but looking for ways to make a larger pie” [20]. The North American Center for Excellence in Transportation Equipment was announced in June 2015 [21]. About one dozen transportation companies meet on a monthly basis to identify and fill gaps in the regional supply chain [21].

Infrastructure - At the first summit priorities were placed upon continued summits, rail enhancements, border crossing improvements, expansion of the airport in Plattsburgh, and further down the road, a high-speed rail link between Montréal in New York City [19]. To date, all of these projects have been completed with the exception of the high-speed rail line.

Educational institutions - A feature of innovative clusters is knowledge creation and spillovers, where firms get knowledge from other firms and institutions [8]. There are a number of secondary and two post-secondary education institutions in Plattsburgh. To date, there have been three major institutional educational initiatives, in addition to a variety of smaller training and workforce development initiatives. First, at SUNY Plattsburgh the Supply Chain Management program began in 2006, then Plattsburgh Aeronautics Institute was founded at CV-Tech, and most recently a Center for Advanced Manufacturing has been launched at Clinton Community College [21].

6. Analysis of manufacturing tiers in the transportation cluster

In diagram 2, we identify twelve firms in the transportation equipment cluster and classify them by their roles in the manufacturing process. Most large equipment manufacturing clusters consist of tiers of firms that perform the functions of design, sales/marketing, assembly, and parts production [15]. Using aerospace as an example [cf. 15], top tier firms design, market, and finalize assembly of aircraft. Second tier firms supply tier 1 firms with larger subassemblies, such as jet engines or landing gear. Third tier firms supply smaller subassemblies like fuel supplies for engines or braking systems for landing gear. Tiers 1-3 are highly specialized, are few in number but global in scale. In the fourth tier there are 100’s of firms that supply parts for subassemblies and often serve diverse industries. The top tier drives the cluster’s overall activity. Diagram 2 shows that most of the firms in Tiers 2-4 are tied directly to either Bombardier and/or Nova Bus.

Diagram 2 displays formation of the cluster over time and its recent dramatic growth that is largely related to tier-1 firms, Bombardier and Nova Bus. While some tier-2 companies followed Nova Bus simultaneously, most of the lower-tier companies took a few years to start operations. Nova Bus has initiated more lower-tier activity than Bombarier and was associated with the opening of IMECO and Delastek, who serve both companies. Pratt and Whitney’s testing facility was not associated with other firms in the cluster and moved to Montreal in 2008. Norsk, which is a tier-4 parts producer, will be looking to develop relationship higher in the cluster and may not attract other manufacturers [22]. The implication of the diagram is that further growth of the cluster (beyond Norsk) may be related to additional Tier 1 entrants, related to Demmer’s recent start, and/or growth generated by Bombardier and Nova.

7. Cluster emergence analysis

The development of specialized institutional support, industry focused bi-lateral agreements, improvements in infrastructure, new education programs, and the attraction of a growing number of related manufacturers may constitute the early stages of cluster formation [7]. It may be that a critical mass of companies has located in the region for the building of a competitive cluster. There is a potent mix of world class manufacturers, specialized supply chain members, and more recently, entrepreneurial start-ups that are developing innovative technology. Like any lifecycle phenomenon, as clusters emerge and develop, they can also atrophy and disintegrate when firms fail or leave the
The further development of competitiveness in these 12 cluster-firms are likely to result from cluster-specific knowledge creation, leading to innovation in products, services, process, new sources of supply, and new markets [8]. Entrepreneurship would be seen in the creation of spin-offs and new ventures that are tied to the cluster [8]. To date, intra-cluster innovation and entrepreneurship have not manifested in a publicly discernible way [23]. There may be a critical mass building of institutions, firms, and employees but regionally-based innovation and entrepreneurship associated with a competitive cluster have yet to emerge.

8. Catalyzing cluster emergence

Supporting the further development and emergence of a competitive manufacturing cluster may include continued efforts to attract more tier-1 firms and/or fill gaps in the supply chain with additional lower-tier firms. However, to develop regionally-based competitiveness facilitation of knowledge creation, innovation, and entrepreneurship are necessary [8]. Leveraging existing educational institutions has been focused primarily on skilled labor and supply chain management, which are likely to produce incremental improvements in processes that, over time, can significantly enhance competitiveness [24]. SUNY Polytech, an Albany, NY based school, will manage the Norsk Titanium facility and may bring more advanced technologies and product innovation capabilities to the cluster. Moving forward, the further development of educational programs and their integration with the technology equipment manufacturing cluster may provide the best opportunities for the development of cluster-specific knowledge and regionally-based competitiveness.

9. Tied to the global travel equipment industry

The transportation equipment manufacturing industry is mature, technologically advanced, highly concentrated, globally scaled, and competitive. Agglomeration of manufactured in northeastern New York reflects a dispersion of activity at the global level, just as automobile manufacturing has become less centralized in Detroit in the US [15]. Well-developed technologies are now delivered electronically and reduce the benefits of physical proximity, allowing companies perform activities in proximity to strategic suppliers or customers. Currently, much of the regional-cluster's activities are driven by global forces.

Clusters and supply chains may be adversely affected by weaknesses/problems experienced by key members [27]. Bombardier has experienced production problems at their Plattsburgh facility and have failed to deliver on a major contract with the Mass Transit Authority in New York City [25]. Bombardier is also struggling with development of the C-series jet and has received billions of dollars in investment from different Canadian and Quebec-provincial agencies [26].

While the NAFTA agreement has been associated with growth in trade that is beneficial to both countries, it allows state and municipal governments leeway to favor US made content in their procurement processes. These provisions at the local-level are contrary to the spirit of the free trade areas [28] and may be the subject of review in future agreements between the US and Canada.
11. Table 1. Demographic data between 1995 and 2015

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<tr>
<td>Clinton County population</td>
<td>86,444</td>
<td>79,882</td>
<td>81,803</td>
<td>82,280</td>
<td>81,251</td>
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<tr>
<td>Clinton County manufacturing establishments</td>
<td>103</td>
<td>86</td>
<td>82</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Clinton County manufacturing jobs</td>
<td>5,455</td>
<td>5,052</td>
<td>3,578</td>
<td>3,322</td>
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<tr>
<td>Clinton Country Total Establishments</td>
<td>2,050</td>
<td>2,023</td>
<td>2,008</td>
<td>2,062</td>
<td>2,029</td>
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<td>Clinton Country Total Jobs</td>
<td>32,662</td>
<td>33,923</td>
<td>34,725</td>
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12. Conclusion

The strategic development of a transportation equipment manufacturing cluster may be a positive impact on the local population and economy. The potentially devastating impact of the base closure that was followed by a precipitous drop in population and the total number of jobs has substantially moderated (see Table 1). The recent attraction of manufacturing establishments may reverse these downward trends and produce the first growth in manufacturing employment in over 20 years. The anticipated employment of 400 people at Norsk Titanium may alone increase manufacturing employment by more than 10% barring layoffs at other manufacturers. However, attracting firms and the emergence of a competitive cluster are two different things [7]. Those who place job creation as the ultimate goal of economic development, may see little need to continue supporting a possibly emergent cluster operating in a challenging global environment.

With many key ingredients in place, now may be the time to focus policy efforts on fostering knowledge exchange between cluster members. These intangible aspects of economic development are more difficult to justify than job creation and require a keen understanding of how cluster-members’ interactions lead to increased innovation and entrepreneurship.

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COUNTRY ON DIFFERENT LEVELS AND ITS REGULATORY BODY AS AN IMPORTANT PLAYER CLUSTER

Aleksandra Jovanović

Fakultet za pravo bezbednost i menadžment "KONSTANTIN VELIKI", Niš, Srbija, aleksandra.aj17@gmail.com

Abstract:

Clusters in the EU are designated as one of the most important factors that influence the development of innovation, competitiveness and regional development. Due to the important role of clusters in both domestic and international market it is necessary to establish the same, accept and develop. The process of formation and functioning of the cluster must have the intellectual support from universities and institutes with supporting research and development programs and projects in order to justify and facilitate its long-term development. In Serbia, it is necessary to accept the concept of clustering and solve a number of deficiencies. The initiative for the establishment and development of clusters must be significant in the field of activity of the state with the appropriate supporting development policy. Taking into account the need for close cooperation with the Government of the cluster should enable the development of a legislative framework for the institutional business. The state should create an adequate environment and provide appropriate education, training centers, to ensure the efficient operation of state authorities, agencies and services that will be treated with priority clusters. State administration bodies should enable uninterrupted association of entrepreneurs. It is necessary to support SMEs which are important institutional frameworks, financial resources and legal regulations.

Keywords:
Clusters, country, state administration, legislation

1. Introduction

Clusters, based on systematic relationships between companies, usually geographically limited, aimed at improving the competitive advantage of the participants. Depending on the characteristics of enterprises, the participants and the areas in which they operate, clusters set your goals and priorities being formed formal links that will enable them and facilitate the realization of the objectives of the company of the same region. Since Michel Porter published a book in the 90s on the competitiveness on benefits of the nation, the concept of clusters has become an important instrument of structural and regional manner policy in Europe.

The concept of clusters has not defined clearly enough in countries in transition. How is the environment of businessmen known standard form of association with a certain grain of accepted clusters and their precise determination.
2. Clusters

The basic features of the cluster is mutual cooperation of all stakeholders, understanding the competition and awareness of competitiveness, strong economic ties, adequate local resources and support local institutions and develop entrepreneurial culture in a particular industrial environment.

2.1. Benefits of association

Joining the cluster brings a number of advantages: lower costs, developing new products and services, market expansion, diversification of the products, the introduction of new services, the possibility of execution of investment projects, access to various funds, easier access to specialized suppliers, a common interest of small enterprises, the output of small enterprises the domestic and foreign markets, the establishment of new business opportunities in the market, strengthening the competitiveness of enterprises, strengthening the competitiveness of the region, improving the structure of new technologies, restructuring of enterprises and networking of public, business and research projects.

Cluster should provide services to its members, such as:
- protection of the interests of companies in the sector,
- representing the interests of members in front of government bodies and organizations,
- promotion of education at different levels,
- training and upgrading skills of staff members through seminars, workshops, study tours and other forms of professional training,
- providing technical and advisory assistance to members,
- promoting the visibility of a member in the country and abroad,
- be the holder of rights and obligations in international cooperation with relevant organizations
- assistance in applying for funds,
- support in finding partners in cooperative projects and
- the conditions for the establishment of a unified system of informing members.

The cluster should monitor legislation and propose competent state bodies to download the necessary measures in the field of interest of the cluster. We should also popularize new scientific achievements. Also, its role in the development of mutual solidarity is importante. Important results will be achieved and the implementation of marketing activities and initiating and supporting cooperation between the companies, between companies and educational and development organizations and institutions.

2.2. Vision and missions cluster

It is preferred to have a growing number of enterprises in clusters and their connection with regional clusters, national and international clusters, clusters EU. They will give more favorable climate and variety of cluster organizations and cluster models. The development of the sector for clustering would allow better knowledge of clusters and providing adequate support and assistance. It is necessary to have a professional and highly skilled workers, trained managers and members of the cluster, or qualified individuals adequate resources. Represent the vision and innovation in clusters. Mission, among other things, is cooperation and networking between public, private and scientific research, rapid flow of information to the competent city as the basis for a rapid and effective response. One of the ultimate goals is to achieve high levels of investments of small and medium enterprises in technology. The introduction of a single economic system would come up to the level of an efficient labor market as well as the maximum utilization of financial resources. Substantial and continuous innovation in clusters, exchange of experiences that complements "know-how" base.

The need for the existence of the ethnic composition of the education cluster would be affected by a high level of activity clusters, strengthening the knowledge and skills for managing clusters and improve the management of cluster policy.
2.3. Klasteri, forming clusters and databases in Serbia

In Serbia, there is no single database or register of the cluster. Clusters are established as associations, companies or funds. They are guided by the register of associations at the Agency for Business Registers. This form of organization defined by the Law on Associations ("Official Gazette of RS", No. 51/2009) and the Law about Enterprises ("Off. Gazette of RS" No. 36/2011, 99/2011, 83/2014 - dr. Laws 5 / 2015). Associations can be established by at least three founders, with what one of the founders must have residence or headquarters on the territory RS. Association can not perform activities aimed at making profits, but only to achieve the common interests of all members. Repeatedly raised the issue of the problem of the lack of legislation on government cluster policy in terms of the number of members of the association because the association makes the most of a small number of members.

Ministry of economy and privatization in 2004 launched a project for the development of clusters in Serbia and supported with 115,000 euros for four cluster initiatives in the wood processing industry, textile industry, automobile industry and ICT. The following year, established in several clusters, we say it is more because it is difficult to determine the precise number. What we don’t have the answer to is the activities of existing clusters.

Until 2009, there was no legal basis for the regulation of the cluster and the same set up as associations, companies and foundations and registered with the Business Registers Agency, the Chamber of Commerce. The difference in the formation and organization of clusters could be noticed in 2009 and 2010, when the Cluster council was formed. In the year of 2011 even 911, mostly small and medium-sized enterprises networked in one of the clusters. In the future, namely in 2013 in the establishment or operational performance clusters, there were sixty and over 85 cluster initiatives and business associations.

In Serbia, the number of clusters increases from year to year. The largest number of centers of business clusters are located in Belgrade, Novi Sad, Nis, Subotica and Kragujevac and their members originate from several regions. Online clusters: textile, bakery production, organic farming, urban planning, turizum, creative institutions, agricultural machinery, wood processing companies, energy etc.

Most clusters are characterized by instability. Their financing depends on the membership fee, generally they wouldn’t have permanent staff, no office space (office space used by employees and some of the states). There are no precise financial data on the turnover of the cluster. There is a developed mutual trust and close ties with members. Another disadvantage is only voluntary and insufficient participation in the cluster. The biggest drawback is the small, almost non-existent financial and institutional support.

The programs of the Government of the Republic of Serbia for financial developing projects are modest. In the period 2007 to 2013 were the tallest of 2008 - 375,000 and the lowest in 2012 - 110.000. Despite the modest amount of funds a certain amount are not consumed because of complicated administrative procedures and the inability to secure additional funds to finance approved program cluster (Mijačić, 2011, 24).

National Agency for Regional Development through the support of innovative clusters supported cluster initiative. The government should take cluster policy, namely to support clusters and to enable successful management in line with the economic policy and public organizations and public-private organizations.

The structure of the cluster consists: the Management board, an advisory body, the administration and working groups. The articles about association signed by all members. Statute lays down the legal form, membership, rights and duties, authorities and bodies and their cluster responsibilities and goals. Association should have: the Statute, the decision on the establishment, a decision on the appointment of a representative in cooperation with the Ministry of economy and regional development of RS.

Regardless of the length of time since the formation of the first associations of clusters, clusters are still in the developing stage.
3. Participation of state and government in the formation and work of the cluster

The state does not participate in organizing and forming clusters. The initiative encourages the formation of entrepreneurs and companies. At the stage of the formation of clusters or operation of existing clusters it can help by creating adequate Association (schools, training centers, specialized infrastructure, appropriate database). The state can help by creating and developing educational institutions. Since the state would have expected investments of entrepreneurs which would not be able to realize themselves. It can help and influence the financing conditions.

Clusters must be handled by the state and the economy.

National authorities should ensure that the appropriate government departments and agencies are observed clusters and their needs are the priority.

For the efficient realization of the mission and vision and goals of the cluster, it is important to create the same planning that can be done only on a higher level.

The process of cluster development is a long-term socio-economic process by the Ministry of economy and regional development, the Ministry of Trade and Services, SIEP-A and other interested institutions recognized as a very important factor in the development of society and, in accordance with that creates a multi-year program of cluster development. One of the mechanisms of support for cluster development are non-refundable incentive funds by the Ministry of economy and regional development provides for investment in the development of innovation, of competitiveness and so on. Cluster development must be accompanied by the connection of science, universities and research centers, production and state apparatus.

Repeatedly there is an issue of the problem of the absence of legislation in terms of formation and organization of clusters which entails a number of other concerns and irresolvable issues. For example. The government supports the cluster initiatives that bring together at least 12 members, business entities (entrepreneurs 9 I 3 institutions) where they must participate in at least 60% of small and medium-sized enterprises. Cluster initiatives must be entered in the Register of Associations at the Agency for Business Registers.

The problems that interfere with the formation of clusters are:
- lack of awareness of the needs of these synergies,
- insufficient managerial capacity and knowledge on clusters,
- lack of appropriate knowledge partners,
- lack of geographical concentration of companies that operate within certain areas,
- lack of industrial-strength zone that dominated the local economy,
- vague and unrealistic expectations within the corporation,
- lack of cluster tightly connected with the university to deal with reasrch in certain scientific fields,
- lack of informal connections,
- lack of entrepreneurial spirit,
- a low level of confidence in korporacione partners,
- low level of trust in key institutions,
- small pervasiveness structure and corporate culture of partner companies,
- poor commercialization of scientific and technological development,
- lack of internationalization,
- lack of strategic engagement state,
- lack of legal conditions for cooperation
- lack of financial conditions and
- lack of adequate statutory regulations

Successful clusters are mostly consisted from 3 types of companies that complement each other:
- companies of significant market and technological forces that act on an international basis
- suppliers or subcontractors, are mostly too small and medium-sized enterprises
- a very innovative and dynamic professional institutions that are based on new knowledge (eg: research institutes, institutions of further education, specialized companies in the field of ICT).
4. Summary

One of the challenges in the global economy is the formation of a single world market. Across Europe cluster policy gains importance. Clusters in Serbia are still not sufficiently strong and can not compete with clusters EU. Encouraging and achieving economic growth and raising life standards indicates the need to increase productivity and competitiveness. To achieve this goal it is important that the participation of the state, its organs and clusters. A special role in the cluster must have formed local governments and especially the Agency for Regional Development. The organizational structure of the cluster must be in need of structural organization and not just a formal organization because in that way encourages interest in transparency and the obligation of the company. Elements of the organizational structure of clusters should be: its legal status, established system of authority and responsibilities, and the existence of adequate communication and business organization. It is necessary to adopt the Law on clusters because the clusters apply regulations related to SMEs.

Past practice in Serbia does not indicate the government's intention to create clusters but to create favorable conditions for enterprises in clusters.

Clusters and cluster association should be regarded as a legal entity.

References

 DOES BEING A CLUSTER MEMBER MAKE A DIFFERENCE? THE CASE OF BULGARIA, REPUBLIC OF MACEDONIA AND SERBIA

Aleksandar Karaev¹, Leslie T. Szamosi², Lenny Koh³

¹German Organization for International Cooperation (GIZ)
²Sustainable and Inclusive Regional Economic Development in Macedonia (LEIWW+)
³South East European Research Centre
⁴Research Centre of the University of Sheffield and City Liberal Studies
⁵University of Sheffield
⁶Management School
⁷S.C.L.Koh@sheffield.ac.uk

Abstract:

Purpose: There is an abundance of literature to support the argument that as a result of agglomeration effects, clusters produce benefits for its members which are not accessible for non-members. This is one of the reasons why many developing countries instead of providing sector-based government interventions, are embracing cluster based policies as a potential instrument for accelerating economic development. This research paper aims to explore whether the cluster initiatives are creating additional benefits which are not accessible to non-cluster members. The research has been conducted in three countries in South East Europe (Bulgaria, Republic of Macedonia and Serbia).

Research methodology/Approach: For collecting primary data, questionnaires were collected from 300 companies, 100 in each of the three countries – 50 cluster members and 50 non members.

Findings: The main findings are that cluster phenomenon in selected countries in SEE is very different from the one in industrialized countries and there is no statistical evidence that clusters receive significant additional benefits which are not accessible to the non-members. The main benefit that cluster members in selected countries receive is access to information, business partners and business supporting organisations, but those benefits have not resulted in an increase of their competitiveness. On the other hand the companies which are not involved in cluster initiatives, do not see any disadvantage as a result of “being out of the game”.

Originality: One of the key contributions of this paper is that it provides evidence about the influence of clusters on business performance of the cluster members in transition economies in the South East Europe. There is no other study in this part of Europe that compares cluster members with non-members with regard to received benefits or missed opportunities.

Keywords:
Clusters, SMEs, competitiveness
1. Introduction

The literature provides numerous examples that small and medium enterprises (SMEs) receive benefits as a result of participating in clusters. The cluster concept has been shown to be an efficient tool for many industrialized countries, but its applicability for improving the competitiveness of SMEs has yet to be examined. According to the literature based on experience in some industrialized countries, clusters contribute toward improving the performance of SMEs, and increasing the competitiveness of certain geographical regions and even nations themselves. This paper aims to explore whether the cluster initiatives are creating additional benefits which are not accessible to non-cluster members. The research has been conducted in three countries in South East Europe (Bulgaria, Republic of Macedonia and Serbia. After discussing the literature on cluster theory this paper presents the findings from a PhD research on comparison between cluster members and non-members in the transition economies. Since the term ‘competitiveness’ is frequently used in this study, it should be emphasized that it is understood as sustainable increases in productivity leading to improvements in the standard of living of an average person [1]. Recognizing their potential positive role and needs for assistance, many governments have been active in designing and implementing policies and incentives to support SME development through both financial and non-financial instruments.

2. Cluster definitions, competitiveness and business performance indicators

Despite the fact that numerous studies have been conducted in various countries, a common understanding of the cluster concept has yet to be achieved. According to Porter, widely considered to be one of the most prominent authorities in the field, national clusters are formed by firms and industries linked through vertical (buyer/supplier) and/or horizontal (common customers, technology etc.) relationships with the main players located in a single nation/state [2]. This definition was later expanded by including institutions (formal organizations) such as universities [3]. Accordingly, geographical proximity has been seen as a conduit towards facilitating the transmission of knowledge and the development of institutions, which in turn may enhance cluster effectiveness. According to Porter’s views, clustering can encourage an enhanced division of labour among firms with physical proximity among numerous competing producers, thereby encouraging innovation.

Other authors support that clusters refer to geographically bounded concentrations of interdependent firms, which should have active channels for business transactions, dialogue and communication [4]. Without active channels, even a critical mass of related firms is not generally perceived as a local production or social system, and therefore does not operate as a cluster per se [4]. Clusters consist of private enterprises of various sizes, including producers, suppliers, and customers, plus labor, government, professional associations, and academic, research or training institutes.

The United Nations International Development Organization (UNIDO) applies a cluster definition related to the sectoral and geographical concentrations of enterprises that produce and sell a range of related or complementary products and, face common challenges and opportunities. These concentrations give rise to external economies such as the emergence of specialized suppliers of raw materials and components or growth of a pool of sector-specific skills and can foster development of specialized services in technical, managerial and financial matters [5].

The main difference between industrial districts and the cluster approach is that the first is more input oriented, securing geographically available inputs for production, and the second is based on generating optimal competitive conditions for firms. [6]

Pouder et al. (1996) defined Hot Spots as “regional clusters of firms that (a) compete in the same industry, (b) begin as one or several start-up firms that, as a group, grow more rapidly than other industry participants (sales and employment levels), and (c) have the same or very similar immobile physical resource requirements in the long run”. (p.3) [7]

It is difficult to precisely determine which factors are prerequisites for cluster development and which are the result of the clustering process. The geographical proximity of markets and suppliers, the existence of a pool of specialized labour, the presence of input equipment, the availability of specific natural resources and infrastructure, low transaction costs due to geographic proximity among actors and access to information have been commonly cited as requirements for the creation for cluster
Clusters have also been identified as forming naturally form as a result of a perceived common interest of its members and the stakeholders are SMEs, business associations, local and regional governments, business service providers and supporting institutions and each participant in the process of cluster development needs to identify, articulate and realize its own role [8]. One of the factors that complicate comparisons between clusters is their varying geographical coverage. Some regional clusters are greater in size and population than national clusters in smaller countries. A cluster's boundaries depend mainly on the linkages between cluster participants and complementarities across industries and institutions that are most important to competition [3]. Cluster boundaries do not have to comply with political ones and can cover a cross-border area.

Cluster based economic development has proven highly successful, in both smaller and larger EU countries. Many successful case studies indicate that the coordination of economic activities – depending on the intensity of cooperation in the form of clusters – can also strengthen the competitiveness of, in particular, national economies.

The concept of clusters is always related to competitiveness [2], but a distinction should be made between the competitiveness of a nation, a region, an industry or a single company at a micro level. This distinction is important, since different indicators should be used for measuring the competitiveness at both micro and macro levels.

The competitiveness of a certain region depends on the nature of business environment in which firms or industries emerge [2]. In order to assess the competitiveness of nations, the World Economic Forum developed the Global Competitiveness Report, which defines competitiveness as the ability of a country to achieve sustained high rates of growth in GDP per capita [9]. Another definition [10], views competitiveness as a measure of the ‘levers’ that a country has to promote sustained improvements in its well-being, given the global competition. As it was defined in the EU Competitiveness Report (2003), competitiveness is the ability of an economy to provide its population with high and rising standards of living and a high level of employment for all those willing to work on a sustainable basis.

At the micro level a firm can gain competitive advantage over its rivals in two ways, namely cost advantage and differentiation [2]. While lower costs mean the firm is able to produce and sell comparable products more efficiently than its competitors, differentiation is the ability to fulfil customer expectations, through providing unique products or services. In any of these definitions at a macro or micro level, the central element is productivity.

Intellectual capital and its relation to innovation capacity are a common factor observed in the different schemes for the assessment of competitiveness [11]. Some authors [12] link sustainable competitive advantage with core competence and define it as an advantage that one firm has relative to competing firms. While most of the research focuses on identifying factors that determine an organisation’s [13] competitiveness, some approaches [14] focus more on a survival as a primary determinant of competitiveness.

The interaction between competitive and cooperative attitudes in a cluster has been identified as an important element of cluster dynamics [3]. As previously discussed, a cluster combines competing firms in the same industry as well as business partners with compatible competencies. Competitive pressure is an important driver for innovation. Cluster members cooperate along other cluster links (e.g., in a supply chain or an export promotion programme). Thus some cluster members interact as partners, other as competitors. These roles can change if market conditions require so.

These complex roles were explained by authors who underlined that firms of different sizes may find themselves working towards compatible interests when they target different, but related, markets [15]. Clusters influence competition first, by increasing the productivity of companies based in the cluster; second, by promoting the innovation, and third by stimulating the formation of new businesses, which expands and strengthens the cluster itself [3]. The competitive intensity within the cluster is emphasized by some authors [7] who argued that the competition may become more intensified among clustered than non-clustered firms, because cluster firms compete directly for human, financial and technological resources. A cluster creates benefits for cluster members that are not available for companies outside the cluster [16]. Although the market is a main regulator of competition in clusters, specialized institutions, and business associations can regulate certain aspects [17].
3. Research methodology

The research was started with developing theoretical framework through extensive literature review. The research involved secondary analysis of available information in academic journals, review articles, conference proceedings, advanced level text books, on-line databases, postgraduate dissertations and theses, official government reports and white papers. The findings from the literature review were used for developing conceptual Cluster Model, describing the cause effect relationship between the preconditions for cluster development, cluster benefits and competitiveness and provided valuable information for developing survey questionnaire in the later stages.

After developing theoretical framework, a mixed research method, using both quantitative and qualitative methodology was selected, based on deductive research approach. Survey questionnaire was developed based on the findings from the literature. During the process of designing the questionnaire, a telephone interview was conducted with pilot cluster members and cluster support institutions in order eventually additional input about preconditions, barriers, benefits and competitiveness indicators used in selected countries to be identified, which have not been derived from the literature. For that purpose the Act Frequency Approach was used. This was followed by distribution of the questionnaires to larger number of SMEs, thus making better generalization of the results.

In order to get comparable data regarding perceptions, behaviour patterns and firm’s performance, when selecting the cluster members, few main criteria, such as presence in all three countries, year of establishment, importance for the economy and level of activity, have been taken in consideration.

Regarding the non-members, they have been identified through databases of chambers of commerce, business associations, business support organizations and governmental institutions in Bulgaria, Republic of Macedonia and Serbia. The size of their sample was aiming to match the number of the cluster members, but it should be noted that they do represent much smaller percentage of the total population, than compared with cluster members.

After collecting information from 300 surveyed companies, 150 cluster members and 150 non-members, additional semi-structured personal interviews with sixty respondents of the questionnaire survey were carried out to verify the findings from the questionnaire and eventually to obtain additional, qualitative data, which might contribute for better answering of the research questions. Personal interviews were conducted with sixty managers (thirty cluster members and thirty non-members), twenty in each of the selected countries, which represent 20% from the total number of the previously surveyed companies.

4. Findings

Taking this paper as a research on impact of the clusters on competitiveness of participating SMEs in the selected countries in transition in SEE, the following conclusions can be drawn:

First Cluster members in all three countries have received only limited additional benefits from clusters which are not accessible to the non members. This is not completely in line with the literature which confirm that competitors within the cluster benefit from agglomeration effects in a way where they will gain cost advantages and have access to resources that are not available to competitors not located in the cluster.

Cluster members do, however, receive some benefits from participating in a cluster. The main benefit that cluster members receive from cluster is access to information. This is in line with the findings from the literature, which suggest that frequent exchange of information is most important for generation of economies of proximity and regard it as an important output of cluster activities, since information may provide the cluster members with new opportunities to build networks with potential partners. Cluster members also believe that they have better access to business partners and business supporting organisations as a result of being involved in cluster activities, but it is evident that they do not think that they have better access to raw materials and skilled labour, which are one of the most important benefits that clusters produce according to the literature and experience from industrialized countries. The benefits produced by the clusters in transition countries in SEE are not result of agglomeration effects, which is the case in countries where clusters are more of a
geographical phenomenon. It can be concluded that the clusters in transition countries in SEE produce only marginal positive effects in a form of improving the access to information, business partners and supporting institutions.

Cluster members in all of the countries do not see any positive correlation between being a cluster member and having better access to suppliers or official financial institutions. According to the both of the groups no particular change has occurred regarding their access to suppliers or financial institutions, as a result of being or not being a cluster member. They agree that the decision to buy from their suppliers is driven by business motives only, regardless if they are cluster members or not, which contradicts the findings from the literature that suggests that due to the concentration of more firms in an area, cluster facilitates the access to suppliers, specialized labour, research and development, technology, business infrastructure, finance, customers, business support organizations, etc.

Second, there is no statistical evidence that clusters in selected transition countries in SEE contribute to improving the competitiveness of cluster members. Although they produce positive effects in a form of improving the access to information, business partners and supporting institutions, in the selected transition countries they do not yet translate into increased productivity, higher level of innovation capacity and improving the competitiveness of its members. On the other hand the companies which are not involved in cluster initiatives, do not see any disadvantage as a result of “being out of the game”. For this question set of competitiveness indicators was used, but there is no difference between the answers on the cluster members and non-members. There is no pattern between both groups and they are neither more competitive as a result of being cluster members, nor more or less competitive as a result of staying out of the cluster. Thus, being a cluster member or not does not influence their competitiveness.

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Heritage trails in Dolenjska and Bela krajina, Slovenia –
a multi-stakeholder approach to tourism development

Marko Koščak

Faculty of Tourism Brežice, University of Maribor, Slovenia,
marko.koscak@um.si

Abstract:

One of the beneficial methodologies for growing and developing a level of tourism which is sustainable and enhances the totality of local and regional environments is a multi-stakeholder approach to tourism development. In this paper, we present the case of the “Heritage trails through Dolenjska and Bela krajina in SE Slovenia” by which sustainable rural development (we take this to include cultural & heritage, vinicultural & gastronomic, as well as ecological tourism) takes an integrated approach in terms of start-up, implementation and development and is supported by and benefits from the notion of a core of multiple stakeholders.

Clearly the model we are referring to, as demonstrated in the Case Study utilised in this paper, has a very precise local/regional orientation. The Heritage Trail of Dolenjska & Bela krajina Case Study has a rural base and is profoundly affected by the necessity to attract tourism inputs without damaging the sensitivities of the rural environment. It also has a strong multi-stakeholder approach which in many ways illustrates the impact in EU-funded programmes of the concept of subsidiarity.

Keywords:

Dolenjska & Bela krajina, Slovenia, integrated project Heritage Trail, multi-stakeholder approach & partnership, participatory planning, sustainable tourism;
1. Introduction

It is a paradox that the decade of the 1960’s - which saw the emergence of modern sustainable tourism, through the global movement for resource conservation and the limiting of development, also gave rise to a destructive counter-phenomenon! That counter-problem was the explosive rise in air-based international tourism, given added impetus as the result of the deregulation of airline routes in the European economic space. This revolution in low cost and accessible air transport which grew exponentially in the 1990’s with the emergence of low-cost budget carriers has become damaging to the environment and culture of many tourist destination-regions. It has taken 40 years to respond effectively to this demanding global process, and to start to achieve sustainable rural regional tourism products and realities.

The rural case-study presented is one of a region in Slovenia along the border with Croatia, where a track of a fifteen year process was evidenced, from a preliminary idea - to the operational reality of sustainable international tourism in a strategically-located destination-region.

2. Thesis, research & methodological platforms

Within the overall concept of socially, economically, and environmentally sustainable tourism, it is evident that European legislators are now greatly concerned to ensure that tourism is sustainable in economic, social, territorial, environmental and cultural terms. This takes cognisance of the fact that sustainably developed tourism is required to offer local economies (especially in disadvantaged regions) a long-term source of revenue, help in promoting stable employment structures, whilst at the same time safeguarding and enhancing the cultural, historical, landscape and environmental heritage.

Important future elements, in the light of the focus of this case study presented below, being on the Heritage trail model, are the EU-wide initiatives now in progress that seek to enhance the common cultural heritage, through the creation of a European heritage label. Cultural heritage, as we will see in the case study, also includes the protection of traditional culture, and in particular endangered folk arts, crafts, trades and knowledge. A further key element, related to the variety of stakeholders in sustainable tourism development, is the role of SME’s and particularly of micro- and smaller-sized enterprises. EU institutions share a common view that SME’s/MSE’s should have greater involvement in tourism-related entrepreneurship and that possibilities for simplifying procedures to obtain financial support should be found.

Another important element is to study the impacts on tourism upon host communities, as well as upon host cultures. “Culture” (Tylor, 1871) was defined as “culture or civilisation, taken in its wide ethnographic sense, is that complex whole which includes knowledge beliefs, arts, morals, law, customs, and any other capabilities and habits acquired by man as a member of society.” Malinowski (Malinowski, 1931) gave a more universal and less anthropocentric definition, namely “a culture is functioning, active, efficient, well-organised unity, which must be analysed into component institutions in relation to one another, and in relation to the environment, man-made as well as natural.” In the report (Jones & Travis, 1983) on Wales in 1983, the word ‘culture’ was taken to mean: “the system of values, beliefs, behaviours, morals, and other social phenomena shared by a group of people, based on their common experience of life, language and history.”

In order to address these important components of sustainable tourism development detailed carrying capacity study was part of the project activities. Carrying capacity can be defined as “the maximum number of people who can use a site without an unacceptable alteration in the physical environment and without an unacceptable decline in the quality of the experience gained by visitors”. (Mathieson & Wall, 1982)

The factors that need to be considered are:

* Physical impact of tourists
* Ecological impact of tourists
* Perceptions of overcrowding on tourists.
* Cultural and social impact on local people
The Heritage Trail is intended to be sustainable:

i) commercially successful (and therefore profitable)

ii) composed of local, small-scale enterprises - integrated into the local economy and contributing to "locally defined social, economic, environmental and cultural needs and objectives."

iii) respectful of the environment and designed to minimise environmental impacts through the use of existing structures and appropriate technology.

iv) be locally defined, owned, planned, and controlled.

The carrying capacity study is central to meeting these objectives, necessary in order to identify environmentally and culturally sensitive areas and ensuring that the Heritage Trail(s) are sustainable. The purpose of the carrying capacity assessment is to ensure that the tourists and day visitors attracted to the Heritage Trail sites will not have a deleterious impact on the cultural or natural sites; that overcrowding will not result in visitor dissatisfaction and that local people will not feel antagonistic towards their "guests". This is essential if tourism is to contribute to the conservation of cultural and natural heritage though the realisation of economic value and raising awareness of, and commitment to, the local patrimony.

Carrying capacity can be measured in a number of different ways, but in the development of Heritage Trails the major issues concerned the development of the local economy and the management of sites and whether or not particular sites should be excluded (on the grounds that the likely impact of additional visitors will be that of damage to the site or visitors being unwelcome to local people). Local people must be consulted in the assessment of landscapes and cultural and natural heritage assets. It is essential to ensure that the local impact of increased heritage tourism is brought within the process of developing and marketing tourism products.

3. Origins and catalysts

The thirty year period from 1960-1990, saw distinct phases of evolution in tourism, planning, conservation-focused thinking and actions in the Western World. This led to the concepts and processes of sustainable tourism planning. For example, in the UK, by the end of the 1980's a National Task Force on 'Tourism & the Environment' had been established in order to provide sustainable tourism guidelines for three problem categories:

a) the Countryside

b) Heritage Sites

c) Historic Cities and Towns

In the case of the Slovenia example explained in the case study, an additional factor is the multiple dynamic of international, national, regional and local agencies involved in the project. These were drawn from public, private and social sources, but the key actors and catalysts who can be identified in this story were the Slovenian Ministry of Agriculture, the Bavarian State Ministry for Agriculture, the Faculty of Architecture in Ljubljana, the European Commission's Tourism Directorate, a Regional Chamber of Commerce, a commercial tourism operator, and at later date, an international market research consultant.

4. Integrated rural community development project

The CRPOV Programme (Integrated Rural Development and Village Renovation), which commenced in 1990, was associated both with the UN Food & Agriculture Organisation (FAO) and with the Bavarian Ministry for Agriculture. Bavaria helped in the initial phase transferring experience and know-how. CRPOV was based on a bottom-up approach, involving an initial 14 local project-areas, starting in 1991. Two of the project villages were located in the Slovene municipality of Trebnje with around 500 local residents involved in the project. During this period some 250 local projects were developed in Slovenia, primarily aimed at development possibilities for rural economic diversification (Koščak, 2002).

The community development role of CRPOV involved many local village meetings, linked to the economic need for diversification of the rural economy. CRPOV worked together with an expert team on strategy and action. Critically, this case-study relates to a rural region which sits strategically...
between Ljubljana and Zagreb, on the international motorway from Belgrade to Ljubljana. This has a high location potential for selling locally-sourced food and wine products, as well as craft and tourism products. Tourism is based on the appeal of a gentle landscape of hills and river-valleys - for walking, horse-back riding, cycling, angling, rafting, or the simple enjoyment of its unspoilt character! (Koščak, 2009)

The CRPOV, as an Integrated Rural Community Development programme, led the way towards rural product development, and as a by-product, community-based sustainable tourism. Such tourism requires partnership and co-operation between the public, private and the NGO voluntary sectors. Co-operation of this sort was not common in the period 1992-1995 in Slovene tourism. It was clear, however, that sustainability - in Slovenia or anywhere else - requires community involvement together with the firm the commitment of local actors and producers of products and services. The appeal of such action is to add tourism products to the other rural products, which they complement (NB. Community-based rural development is thus an ideal starting point for sustainability, whether in agriculture, and /or in tourism. This creates an ‘environment’ in which new opportunities for economic diversification, new job-creation, added value to agricultural products, local guiding, and new farm-services can occur. In this process, institutions like an Agricultural Extension Service and others play a very important role, in terms of capacity-building, and of human resource development.) (UNEP / ICLEI, 2003).

5. International team Heritage trail consultancy

This background of the CRPOV programme, as well as the parallel development in terms of Wine Trails, prompted the Regional Chamber of Commerce of Dolenjska & Bela krajina to accept an invitation by a consortium (which had in 1996 secured European Union funding to launch two pilot projects in Slovenia and Bulgaria) to create Heritage Trails. The consortium included Ecotourism Ltd. (a British consultancy firm), PRISMA (a Greek consultancy firm) and ECOVAST (The European Council for the Village and Small Town). All of these were supported by regional and national institutions in the field of natural and cultural heritage.

The UK/Slovene Heritage Trail team conducted a ‘Tourist Resource Inventorisation & selection’, based upon natural, built and living cultural heritage resources in the selected region. Some 150 sites were identified and proposed by the different partners involved in the participation process for the Heritage Trail. From this large number, 28 sites were selected to be networked in a trail system for the area. The idea was to develop a tourist product which was capable of offering opportunities for stays of up to seven days in the region. Two key access-forms were used for the clustering of attractions, one a “flower structure”, and the other a “garland structure”. Existing tourist assets and potentials were the basis of these groupings (Koščak, 2009).

![Figure 3, 4: Flower and Garland model, (Source: Author’s archive)](image_url)

A major result of this work was the creation of a Regional Partnership of 32 organisations, from the public, private and NGO sectors, which signed an agreement to co-operate in the Heritage Trail’s implementation phases of marketing and product development. This partnership - working under the
umbrella of the Regional Chamber of Commerce – was in operation for 12 years, and was in 2009 transformed into the LEADER Local Action Group – LAG responsible for overall rural development in the region of SE Slovenia, including sustainable tourism. The partnership supports, co-ordinates and brings together the provider-partners. Work in general consists of marketing activities, product development, and training activities, where different combinations of partners, institutions, and individuals are involved.

For marketing purposes, a local commercial partner - Kompas Novo mesto - was invited into the partnership in 2001, in order to articulate a stronger and more effective assault on foreign markets. Kompas was engaged to act as the marketing agency, on behalf of the Heritage Trail partnership. Although the official launch of the product was in 1997, at the World Travel Market in London, followed in 1998 by a presentation at ITB/Tourist Fair in Berlin, there was no significant response. Foreign markets at that time had limited awareness about any Slovene tourist products, other than what can be described as the constantly featured traditional Slovene Tourist icons such as Lake Bled, Kranjska Gora ski resort, Postojna Cave, and Portoroz seaside resort (Travis, 2003).

The effective commercial launch of the Heritage Trail at an international level, with a foreign tourist industry adviser and a much greater professionally co-ordinated national approach, was delayed until 2002, in London. There, at the World Travel Market, the launch had the active support of the Slovenian Tourism Board, together with other relevant institutions.

6. Stages of commercial product adaptation and implementation

Despite the launch of the Heritage Trail in the domestic market, followed by the international launch at the World Travel Market in 2002, the level of response by foreign tour-operators and travel agents was weak. It became clear that external help was required to target appropriate foreign tourism-trade partners, as well as to identify and select niche markets. From the market research on Slovenia's key foreign markets, the special interest markets, with a focus on either cultural tourism or nature-tourism (eco-tourism), were selected. Independent and some major commercial operators were to be approached by phone, fax, or on-line. 200 firms were identified in seven European countries; of these, 60 firms were contacted by at least two contact modes, but only six showed some degree of interest.

The problem revealed was that though there is much interest in Slovenia as a high-growth destination country, it was seen by the international industry as one with three major attractions – the ‘tourism icons’ already mentioned – lakes and mountains, caves and sea. For a significant period of time, Slovene overseas marketing has tended to focus only on these well-known destinations!

By 2003, low-cost airlines made Slovenia easily accessible to high-spending markets. Air travel cannot be a basis for sustainability, but may have to be used as the initial opening-up phase for a new destination or product in the first place. Ultimately connected rail-travel access must be the longer term primary aim. However, as this initial stage of opening the Heritage Trail market, the transport access methodology was via the low-cost airline destination airports of Ljubljana (Easyjet), Klagenfurt (Ryanair) and Graz (Ryanair), with ground access transport routing via Ljubljana. In-depth contact with key operators by phone showed that there were two viable special-interest packages, which could appeal commercially (Travis, 2003):

a) A Heritage Trail Add-On Package to offers at Bled (Lakes & Mountains) or Ljubljana (City & Culture)
b) An Integrated new 'Highlights of Slovenia' holidays, which started with 25% of their time at two existing icons (Bled & Ljubljana), then the remaining 75% of the time allocation spent on the Heritage Trail (Travel Manuals, 2003)

Testing of this product with a group of six UK travel professionals was extremely successful. A second tour with tour-operators from Germany and the UK in 2004, was less successful. In 2005, a specialist walking-tour firm assembled its bespoke and individualised Heritage Trail offer, and, at the time of writing, Independent Tour Operator firms were preparing two individualised alternative packages for launching on-line.
7. Heritage trails and creative industries in case of Dolenjska and Bela krajina development

Already at a very early stage of HT development, a number of initiatives were taken in order to support and encourage the individual and private sectors to become important parts of this development. The major idea behind it was to create opportunities for new jobs and economic diversification in rural parts of Dolenjska and Bela krajina, in the SE region of Slovenia. With such initiatives and support of HT partnership in providing funding, some 600 individuals took different type of education and training, such as meat and milk processing, bakery, beekeeping, wine production and its marketing, tourist guiding, fruit drying in a traditional way, and many others. All these individuals received certificates that allow them to open their individual businesses and to satisfy all legislative requirements, on the one hand, and, on the other hand, to apply for further funding from Rural Development Programmes offered by the fact that Slovenia joins EU in 2004.

Different local thematic routes, such as wine, fruit, cheese and others were created where local entrepreneurs started to create new tourism products and through the marketing of HT partnership offer them on domestic and international markets. All above mentioned activities were conducted and implemented by HT partnership institutions, Chamber of Agriculture, which was responsible for the organisation of all trainings and certification based on the national curriculum for supplementary activities and Regional Development Agency which offers support and expertise in providing know-how on business plans and other entrepreneurial activities needed for application on tenders of various EU funding.

After this initial stage of certification, which was important in order to assure that business will operate on legal ground as well as according to new EU regulation and requirements, next stage of more innovative and robust initiatives were taken place. Some individuals and even group of partners decided to develop new product which has traditions back in past and give them fresh and new outlook as required on modern EU tourism markets (The Gallup organization, 2011).

Finally on many of new developments there are already guests which “brings” added value to rural economy of Dolenjska and Bela krajina. One of the best demanded and sold product is “vineyard retreats”, which is basically renting traditional wine cellars to guest as self-catering units. Nicely located buildings and its offer present unique and unforgettably rich experience, both in terms of rural accommodation, traditional food and opportunities for active holidays in rural SE Slovenia.
8. Thematic routes – next stage development...

From these well-accepted beginnings we seek further development of the product. Our thinking was guided by the facts that:

- More than 75% of tourists from foreign markets are seeking active holidays,
- More than 50% of reservations are made through the Internet,
- More tourists want to change destinations every couple of days, etc. (Koščak, 2012)

It was obvious that there is a need to create the product which:

- Can be used by individual travellers in the same manner as by tour operators
- Will connect actual tourist offers in the region
- Will be supported by all new common and used technologies
- Will support active holidays
- Should be different than other products in the field of active holidays.

In 2009 and with financial support of the European Regional fund, the abovementioned activities were successfully finished within the project, which fulfilled all those conditions. With the project the “backbone” was built with four main activities, namely hiking, biking, horse riding and rowing in the whole region. The routes are connecting natural and cultural heritage of the region with other tourist offers, such as accommodation, activities, information, services, etc. (Koščak, 2012)

Wholly digitalised and located by GPS, routes are now presented in the renewed portal http://www.slovenia-heritage.net/ and the newly-built mobile portal http://activeslovenia.mobi. The product is also presented on Facebook and YouTube. Biking and horseback riding routes are also visualised. The potential tourist can detail look and plan their holidays from home (internet). Once in the field, they can use Mobile, PDA, GPS devices (and printouts) to navigate the region. For those who do not have enough time to create holidays by themselves, the active tourist packages are (pre)-prepared and shown on the web as well.

9. Learning points

1. It is evident from the Case Study that the Heritage Recycling for Tourism phase was preceded by the work on Integrated Rural Community Development. This stimulated a community-based approach to development, in which context tourism was a part of the economic mix. This created a real hope of sustainability via the local communities support for a new mixed economy, thus indicating that sustainable development can underpin successful tourism, if the correct strategy is chosen.

2. The evidence from the project has also made it clear that heritage-resource based tourism development, if it is to be sustainable, must a) show respect for the carrying capacity of resource-zones - be they robust or fragile and b) have rural community involvement and commitment to tourism, because they have a stake in it, and have net gains from it.

3. Much of tourism development arises because the destination creates potential tourism products, because they wish economic gain from them. Rural tourism products have to be adjusted to fit the (internationally highly competitive) niche market demands. Thus, market awareness and understanding must be built-in early in the development process, or it becomes much longer and harder.

4. New tourist destinations are very difficult to launch internationally, even if they have high accessibility, unless they can be linked and tied in to existing tourism icons or magnets. This new Slovene offer had to be adjusted to do just that.

5. The "gateway" identification is critical in new product formulation. Whether this be a selected airport, seaport, railway station or whatever. If the gateway is the airport of an attractive heritage city (such as Ljubljana), then both add-on package possibilities, as well as links to a popular 'short-city break' destination, add great value.

6. Continuity of personnel in a development process is of real importance. The role of the Project Manager in initiation and continuity is critical and the continuing interactions with external partners who are supportive and share a belief in the integrity of the development, over the long term – are also valuable.
7. This model, ultimately, is one of community-based multiple-stakeholders, having the equal support of small rural operatives and major agencies. The support from several levels: local, regional, national, and international, has allowed the thirteen year development-cycle of the Dolenjska-Bela krajina HT project to be achieved.

10. Conclusion: Critical Success Factors

There are good reasons why the Slovene Heritage Trail model is being successfully adopted in several neighbouring countries as an initiative for rural regeneration through sustainable tourism, namely:

**Factor 1 - Economic regeneration**
A heritage trail is created as a tool for rural economic regeneration. The heritage trail extends tourism from existing centres into new and undervisited areas by increasing the number of visitors, extending their stay and diversifying the attractions and services offered to them: expansion, extension and diversification.

**Factor 2 - Contributing to regional tourism development**
The heritage trail is a tourism product which makes the natural and cultural heritage of a region the focal point of the offering. The development of such a product is, therefore, an integral component of the development of the whole region as a tourism destination. However, a heritage trail is only one product, and many regions have other tourism products on offer which may not be included in the trail. In creating heritage trails in Slovenia, there was frequently a temptation to include all tourism attractions and services in the region. But to give in to such a temptation would have been to lose the focus of a well-defined tourism product.

**Factor 3 - Complementing other tourism products**
Although a heritage trail focuses on only some of the attractions of a region, it can be complementary to other tourism products on offer. For example, it can contribute to economies of scale in regional promotion - in Slovenia, the heritage trail and spa tourism were promoted jointly, and costs of this shared. A heritage trail can also contribute to a wider choice of products for target markets. Taking the example of Slovenia again, spa tourists may be interested in the heritage trail product, and heritage trail tourists may enjoy the spa facilities.

**Factor 4 - Transferability**
The heritage trails concept is transferable to other regions and countries where there is sufficient natural and cultural heritage to attract tourists and where there is a local desire both to benefit from tourism and to safeguard that heritage. This is particularly the case in parts of central and eastern Europe where established settlement patterns and rural economies have developed similarly to those in Slovenia.

**Factor 5 - Sustainable tourism**
A heritage trail focuses on the natural and cultural assets of a rural region. This runs the risk of exposing some of the most vulnerable sites in a region to excessive numbers of tourists. The preparation of a heritage trail, therefore, must include a tourism “carrying capacity study” at each proposed tourism site. If a sudden increase in tourists risked damaging the physical or natural attributes of a site, or if it were to exceed the tolerance of the local people, it should not be included in the heritage trail until preventive measures can be implemented.
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SIGNIFICANCE AND ROLE OF EDUCATIONAL INSTITUTIONS IN PARTNERSHIP WITH CLUSTERS

Jelena Krstić¹, Aleksandar Damnjanović²

¹High Business School, Leskovac, Serbia, krbstic.jelena@vpsle.edu.rs
²High School Academic Study Dositej, Belgrade, Serbia adm.tfc@gmail.com

Abstract:

The aim of this paper is to show the role and importance of the partnership scientific and educational institutions with clusters of activities. The cooperation is desirable, but should be placed as imperative for both sides. Its importance is reflected most in adapting curricula to the market needs.

The first part of the paper describes the theoretical assumptions of the aforementioned forms of cooperation, the overall importance of the integration of businesses into clusters of modern economies, the role and activities of educational institutions in the cluster, an initiative to be taken by both sides, the new ideas that will refresh and strengthened joint work and partnership.

The fact is that clusters collaborate with customers, suppliers, competitors and research centers, in order to realize its objectives. In this connection, it is necessary that in the same manner and cooperate with educational institutions because only in this way creates and develops the basis for the development of new skills and adapting to the markets. Linking science and education with production and economy, has always been necessary in order to improve innovation processes, and faster economic development. It is no coincidence that the Government of the Republic of Serbia provides institutional support only those clusters that in its composition includes at least one scientific-educational institution.

The remainder of this paper, we describe the examples of good practice: concrete partnerships with clusters of educational institutions, ways and forms of support of education and science clusters, the benefits that cooperation is made and future activities to improve partnerships.

Key words:
Clusters, scientific and educational institutions, partnership, promotion of partnership

1. Cluster as a form of integration operating system

Cluster representational integration, economic (business) system, which allows members of a joint appearance on the market, which implies a significant reduction of costs and allows for better competitive position. Business entities are linked because they need to complement what they lack, for example: finance, knowledge, equipment, human resources, raw materials, technology.

Bound in the cluster, the members almost cease to be competitors; they are then provided with communication channels and collaborative working; cluster members are finding a common interest in the same business.

Just as they once had cooperative, clusters today are aimed at unity, cost reductions and team orientation.
"Clusters increase the economic performance of enterprises. For example, in Italy participated in the clusters increases the profits of firms in two to four percent. Companies grouped in clusters benefit from the joint business, the business services and finance. Ideas and information flow much easier, stimulating innovation."[1]

In practice confirms that clusters - associated member companies, operating at lower costs, which increased profits; savings in comparison with the previous cost of procurement of raw materials. Clusters are formed in both developed and underdeveloped countries.

"The preconditions for the existence of cluster development of infrastructure, legislation and national development strategies agreed with the European cluster policy documents." [2]

2. Situation in the republic of Serbia

A significant number of companies in Serbia, following the example of developed countries, integrated in clusters, recognizing the importance of such cooperation for their growth and development. However, the factor of sustainability and further development of the cluster, is the financial aspect of the business, financing of the operation of the cluster. The government in this aspect, sufficiently involved in the work of clusters, and foreign institutions and resources from IPA funds, appear as financiers of the projects, which are disposable.

Initially, research-educational institutions should establish cooperation with companies, be sure, that is regardless of whether they are unite in the cluster. Such integration would lead to faster development of innovation.

However, "One of the weaknesses in the field of innovation are real weak links between the scientific-research institutions and SMEs because, on the one hand, SMEs do not look at the scientific-research institutions, as potential partners, and on the other hand, the researchers do not recognize the SME sector the target group for the implementation of their innovation, technical solutions, inventions and patents and largely believe that the economy of Serbia there is no demand for their work. Therefore, it is very important, in addition to increased investment in science, establish a real functional link between industry and research institutions."[4]

There are indications that these connections in Serbia still carried out through various programs in terms of joint innovative projects of economic entity and scientific-research institutions, but it takes a lot more work on activities that promote knowledge and innovation.

3. Cooperation with educational institutions clusters

The fact is that educational institutions make scientific support clusters. Even the Serbian government recognized the importance of linking these entities, and to provide institutional support to a cluster, it is composed must have at least one scientific-educational institution.

3.1. Existing forms and proposals of future cooperation

In practice, clusters are associated with universities because they are engaged in research in various scientific fields; also are focused on the development of new technologies. Cluster members through the necessary new technologies and assistance in the development of innovation, in order to develop and realize a competitive advantage.

Another advantage of cooperation, is reflected in the fact that it contributes to foster employment because cluster members - business entities have the ability to select for young human resources - future employees, particularly through the functional connections and relationships with educational institutions.

Many clusters have recognized the importance of cooperation with scientific-educational institutions, while the initiative could start from the very educational institutions, in terms of adapting curricula to the market needs. On the other hand, it is essential that companies in all sectors of the economy provide sufficient practical training to students.
The teaching staff of educational institutions often says, professional practice in certain areas more difficult to organize and that business entity is more or less closed to cooperation. However, the situation is not always like that, confirms many clusters, knowing the importance of cooperation of clusters with educational institutions include in their work of this institution. On the basis of membership and mutual cooperation, students attend practice in enterprise cluster members.

"Management of the company cluster members, you should:

- Suggesting and/or actively participate in (re) designing curricula at each (re) accreditation of educational institutions,
- Enable and enrich the program of professional practice in their company,
- Recognizes and enforces the potential of young people who attend the practice,
- Provide financial assistance in the form of scholarships to advanced students,
- Selects promising human resources for future employees

Cooperation between clusters and educational institutions should be developed to our mutual satisfaction and benefit, and not only them, but also the wider community. It also means relying on positive experiences in the region, as well as cooperation with international organizations, institutions and funds, through various projects, provide funds for the operation and development of clusters."[3]

3.2. SWOT analysis of the importance of cooperation with educational institutions clusters

"The SWOT analysis is carried out analysis, assessments and internal factors combine with those coming from external sources in the market and business environment... Overall, SWOT analysis should stimulate thinking about how to activate the power to overcome weaknesses, exploit opportunities and avoid risks. "[6]

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<td>Harmonization of curricula to the needs of the market</td>
<td>Lack of information and knowledge on the importance of cooperation</td>
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<td>Reducing unemployment</td>
<td>Indifference clusters</td>
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<td>Provide practical training to students</td>
<td>There are not enough initiatives by educational institutions</td>
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<td>Cooperative relations between clusters</td>
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Figure 1 SWOT analysis

3.3. Forms of cooperation in specific examples

Given the fact that a cluster entity that connects participants from the famous triple helix: education, public sector and business, below was seen in the character interactions and focused forms of cooperation between educational institutions and clusters, through concrete examples:
Example 1:
High Business School Leskovac cooperates with the sector of the economy, with specific companies and clusters, on the basis of contractual relations. In fact, the benefit is mutual, in a way that enables entrepreneurs, professional practice in their business systems, while in turn, the teaching staff of the High School can get various types of training, consulting, market research, etc.
Also, this institution of higher education often chooses as a partner for projects in their programs focused entrepreneurship development.
In this regard, given its participation in the implementation of the following projects:
- *All youth, youth of all* - Partnership for activating the commercial market potential of young people in Jablanica District, 2013-2014;
- *Here is an opportunity* - development of a sustainable mechanism for encouraging and empowering unemployed young people to enter the world of work and business in the Jablanica District, 2015-2016;
- *Be different* - innovative approaches to improving employment and employability of young people in Jablanica District, 2016 (partner in the project).

High School included its resources through:
- Informing and mobilizing the public, IE. create a supportive environment for the development of clusters;
- Identify and analyze the potential for the development of regional clusters in the area of youth entrepreneurship;
- Participation in the multisectoral working group for clustering
- Facilitation in the process of converting the demand for services preduzetnučke support in effective demand;
- Participate in the design and implementation of programs of entrepreneurial training and professional practice stepped toward her business, build your career and mentoring program share their knowledge with young people who successfully completed 150 young entrepreneurs;
- Animation of current and potential entrepreneurs from the Jablanica region to join the cluster initiative;
- Developing and establishing a common understanding of the vision and mission of a new cluster;
- Defining the legal framework for the establishment of a new cluster;
- Membership in the cluster Activator

The High Business School participates in the development of multi-sectoral cooperation, improvement of established partnerships, particularly in the area of youth entrepreneurship, which is the essence of its participation in the work of the cluster activator, which is a member. This is a cluster of entrepreneurial activation of youth and increase their individual competitive ability, which aims to "production" of entrepreneurs. As the theory goes, a practice shows The more entrepreneurial people to foster economic development, cluster an identifier for young people with initial characteristics of entrepreneurs (willing to learn and work, rebellious, daring, risk Skolni...), through its education programs and training, conducted their upgrading. In this way, encourage such people to be (self) employed.

The business school contributes to the performance of work, training, as part of activities in cooperation with the cluster Activator.

Example 2:
*Aztecs cluster Novi Pazar realized the importance of cooperation with educational institutions and in their ranks included the International University of Novi Pazar, a cooperation is also carried out by the Textile School in Novi Pazar and College of Textile Design, Technology and Management in Belgrade. In addition to cooperation in the form of professional practice, students of Textile schools in member firms Asteks, realized the project for 20 students of that school, interested in studies in Belgrade. The Asteks besides scholarships for students (modelers and designers), and pay the basic costs of studying in Belgrade. In addition, on weekends and in the days of holidays provided they work with firms cluster members, for a free.*
The present project is funded by members of a cluster is planned to continue these positive practices, and the project will evolve into one continuous process. "[3]

Example 3:
Vojvodina ICT cluster is a gathering place for the best local companies in the information technology sector that employs over 3,000 professionals, a cluster used as a unique platform for cooperation and lobby. This association enjoys strong community support through institutions in the field of education, regional development and civil society.

The primary objectives of the cluster are:
• Promotion of IT education at different levels
• Training of staff employed by the Member States.

On the way towards the realization of the objectives, Vojvodina ICT Cluster was founded Cluster Academy, as a platform for education in accordance with the needs of Member States. The target groups of the activities of the Academy are primarily Cluster members as well as individuals, universities, secondary schools, other associations, civil and non-governmental sector, public institutions and companies. Cluster partners in these activities with international donors that are present in Serbia, educational institutions - primarily the University of Novi Sad, as well as other public and state institutions.

One of the many educational projects, Cluster, which he is going to meet the expected increase in jobs in this sector, is the search for donors to fund the education of novice programmers - unfinished students, high school students and the unemployed, who would after a one-year course could not find a job in IT companies.

„Many of our companies could not take all the jobs offered to them because they do not have enough staff," says Milan Solaja, director of the Vojvodina ICT Cluster, "If the double increase in the number of people who throw our educational institutions on an annual basis, we still do not meet the needs of the market. In the long run, the IT sector offers tremendous opportunity to our country, if the smart way we approach the development of this sector. The only way to be truly competitive and make dramatic progress is that we have more companies able to develop their own software solutions competing in the global market, which is a difficult task”(source: http://vojvodinaictcluster.org/sr/o-nama).

Example 4:
„Cluster fashion and clothing industry in Serbia - Facts Belgrade - works to develop human resources through collaboration with educational institutions. That cooperation reflects on the possibility of performing professional practice in member companies, as well as in providing job opportunities for students who want to build a career in the apparel industry to meet in five operating textile companies through practical work, gain experience and skills. Also, the company selects according to their needs and the benefits realized through the development of potential future of young qualified human resources, which in the future may contribute to achieving competitive advantage. The cooperation is established, unless and educational institutions, and with other clusters in the country, and especially abroad, to open possibilities for mutual product placement. "[5]

There are the other examples that demonstrate the operation of the concretization trinity in clusters. For example: "The Rector of the University of Nis, Miroljub Grozdanović PhD, pointed out that the University of Nis has signed 78 agreements on cooperation from 33 countries in Europe. He pointed out that more effective cooperation between the University and clusters contributed to the information available on the needs of clusters of human resources in order to adjust the directions of staff education needs of the market. "(Source: http://www.clusterhouse.rs/index).
Conclusion

The process of cluster development and tripartite relations within them, would have to give significant support to line ministries, while the research-educational institutions on their own initiative must include.

The government has started activities on the implementation of various measures aimed at linking science and economy, but it still does not show significant results, in terms of relief and improvement of business clusters.

When looking at the small and medium enterprises (SMEs) and their development, it is concluded that their relationship with research-educational institutions, unfortunately rather weak. It is known that these institutions are engaged in the development of innovation, so that the relationship between them and the administration of the SME sector in the implementation and commercialization of innovations. Therefore, it is necessary to make a stronger connection, and to build partnerships between the SME sector and educational research institutions.

In this respect, purposeful cooperation between SMEs and clusters and research-educational institutions are, and should be played so that each party individually examine the spheres of interest (Fig. 2):

**Figure 2** Interdependence clusters and scientific research and educational institutions

From the above concrete examples in practice, it can be concluded that one of the objectives of cooperation between educational institutions and clusters - providing practical training to students. In the Republic of Serbia, the planned establishment of the *dual system of education*, and given that now exists more theoretical education, until the establishment of dual, indispensable cooperation cluster of integrated enterprises and educational institutions, in terms of carrying through the necessary practical training and familiarization with the tasks for which students are formally trained.

On the other hand, education has to be closer to the market, and the interaction between educational institutions and clusters contributes to better awareness of the needs of the market. As a result, there are construction and implementation of plans and programs of education, according to the needs of the economy and employers.

In any case, there is a necessity of large scale organization, activation and sustainability cluster, significant participation of educational-research institutions in them, as well as the contribution of tripartite cooperation not only associated members and associates, but also through a broader view of development and well-being of the entire economic system.
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CLUSTERS AS INNOVATIVE PARTNERSHIPS FOR ECONOMIC GROWTH AND NEW JOBS IN ROMANIA

Christina Leucuta
Senior Advisor CLUSTERO – Romanian Clusters Association and Associate Researcher at Romanian Academy
christinaleu@yahoo.com ; christina.leucuta@gmail.com

Abstract

Clusters play an important role in driving competitiveness, innovation and jobs creation in the EU. All clusters are unique, differing in scope, number of SMEs, composition, size, trajectories of development and adjustment to external circumstances. Three factors are critical to cluster success: collaboration, skills and abilities of cluster management and capacity for innovation. The cluster policy in Romania was launched in 2009 as component of the industrial policy. Clusters have emerged naturally and “bottom-up” from the regional level being mainly industry driven ones. Today, in Romania there are 92 regional clusters and poles of competitiveness, majority being in embryonic and established stages. Romania has 8 clusters with silver label in agro-food, green energy, electronics, furniture, ICT and textiles and 26 clusters with bronze label based on a benchmarking exercise lead by the European Secretariat for Cluster Analysis. Cooperation, innovation mainly eco-innovation and internationalization are the main challenges for the Romanian clusters. The paper is focused on clusters as innovative partnerships for the smart development of the Romanian regions and on the cooperation between clusters in the South East Europe macro region.

Keywords:
triple helix; innovation; smart specialization; Romanian clusters

Introduction

Triple Helix Partnerships can support countries in boosting innovation by facilitating cooperation between academia, business and local administration. The main challenge in implementing Triple Helix Partnerships is to ensure effective communication between the three stakeholders, in light of their different priorities, environment and mindsets. European countries and regions have launched a wide range of cluster initiatives, Europe being now among the most active regions in the world economy. The European Cluster Observatory identified around 2500 clusters with up to 40% of the European workforce employed by companies in such clusters. Employees in strong clusters earn on average 11% higher wages than their colleagues in the same industries but located outside of clusters. This reflects the higher productivity that companies can achieve in clusters. Clusters should be open, flexible and attractive to the best talent and expertise available worldwide. Innovative clusters need to be understood!

An innovation cluster is a system of close links between firms and their suppliers and clients, and knowledge institutions, resulting in the generation of innovation. The cluster includes companies that both cooperate and compete among themselves. The links between firms are both vertical, through buying and selling chains, and horizontal, through having complementary products and services, and use similar specialized inputs, technologies or institutions and other linkages. Clusters are based on relationships among firms. The relationships can be built on common or complementary products, production processes, core technologies, natural resource requirements, skill requirements and/or distribution channels. Clusters become even more visible and attractive if they have strong linkages with related clusters in other regions and countries. According to Michael E. Porter “clusters are geographic concentrations of interconnected companies, often SMEs and research institutions in a particular field” in view to increase the growth and competitiveness within a region, involving also
public administration, banks and catalyst institutions. Successful cluster initiatives develop roadmaps to help understand where they are, where they want to be and how they plan to get there.

As Romanian cluster policy initiator I present in this paper the history of the clustering process in Romania and the main challenges for clusters and networks as sources of competitiveness and new jobs locally, regionally and nationally. I hope that this research paper will contribute to the knowledge of how cluster concept has evolved in recent years in Romania and help identify areas for cooperation within European regional networks.

Innovation actors in the Romanian clusters

Innovation means “the implementation of a new or significantly improved product-good or service-or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD 2012). Innovation is the driver of clusters, these dynamic public-private partnerships. In the cluster model, the roles of the three actors can overlap (i.e. universities can become more entrepreneurial through creation of spin-offs, companies, mainly SMEs can become more involved in research and evolve closer to academia, and the local administration can intervene in knowledge creation (through research programs and knowledge absorption). Innovation is to make things happen and it can’t be controlled.

The effectiveness of the innovation process is influenced by the main four factors: framework conditions, science and technology institutions, transfer mechanisms and SME-specific innovative drives. General framework conditions such as the macroeconomic environment, the fiscal system and access to finance shape the activities of SMEs and their ability to conduct innovative activities. The efficiency of science and technology institutions drives the accumulation of knowledge. Transfer mechanisms enhance flows of information and skills between the various stakeholders in the innovation system and are crucial to ensuring that innovation ideas are actually brought to the market and contribute to economic growth. Finally, SMEs themselves need to seek, identify and exploit the potential for innovations to reinforce the innovation process. These four factors correspond to specific areas of policy interventions. Governments need to design measures to address potential barriers in each of these four domains and to decide on the priorities that need to be set. Linkages between the innovation actors are very important for the innovation system. The modern cluster policies aim to put in place a favorable business ecosystem for innovation and entrepreneurship in which new winners can emerge and thus support the development of new industrial value chains and ‘emerging industries’. Modern cluster policies follow a systemic approach that combines different policies, programs and instruments.

The traditional innovation policy was primarily oriented towards research and development, that is the supply side of innovation. A current mainstream is the second generation of innovation policy which is oriented towards systems and clusters. The emerging third generation of innovation policy assumes that there is a potential for innovation which embedded in other sectors or policy domains. The potential can be realized by ensuring cross-sectoral optimization of the components of various sectors’ innovation policy through coordination and integration. Clusters are an important part of innovation eco-systems. Innovation eco-systems are similar to clusters, but do not have the same focus on specific sets of related industries. They tend to encompass all activities in a given location that are connected to innovation. In practice, this perspective can easily lead to a focus on research-driven innovation and the linkages between academia and business. It lacks the specificity of a distinct cluster, and often tends to have more of a supply-driven rather than a market-driven perspective.

Romania lags significantly behind other EU Member States, in terms of the level of resources it invests in research and development (R&D). Businesses’ expenditure on R&D was equivalent to 0.38 % of GDP in 2014 (R&D expenditure in the EU stable at slightly over 2% of GDP in 2014). The Innovation Union Scoreboard edition 2014 classifies Romania as a ‘modest innovator’, ranking it 25th out of the 28 Member States. Romania is the worst performing EU country in terms of the proportion of SMEs introducing product or process innovations (almost 65 % less than the EU average). The government has introduced a number of policy measures to increase the economy’s capacity for research and innovation. Some of these are, however, not yet in place or rarely used. Further action is therefore needed in this area. Possible measures for developing firms’ research and innovation capacity include providing SMEs with tailored high-quality services to facilitate innovation, supporting
knowledge-based start-ups, funding the development and launch of new products, and developing incentives for collaboration between large firms, innovative SMEs and universities.

The Ministry of Education and Scientific Research is in charge of issues such as education, science, technology, research, development, innovation and financing of innovative clusters while the Ministry of Economy, Trade and Relations with Business Environment is responsible for the areas of SME development, industrial and cluster policies and foreign direct investments. There are numerous bodies responsible for implementation of innovation policy in the broader sense of the word: universities, R&D institutes, Science and Technology Parks etc. In Romania there are 93 public and private universities, out of which 18 universities are members of clusters. Universities are encouraged to adapt management and education structures to sustain links with the business sector, but also to take an active role in developing their communities and local business. R&D Institutes, centers for technology transfer and formation centers are also members of clusters (i.e. Institute for Economic Forecasting that is part of the Romanian Academy is member in 3 clusters). Besides low base funding, further weaknesses of the research system are the lack of collaboration with companies and the lack of labor mobility. The Romanian State Office for Inventions and Trademarks (OSIM) is the body in charge of acquiring and protecting intellectual property rights.

Small and medium-sized enterprises (SMEs) are the weakest part of the national innovation system as demonstrated by a very small share of innovative SME’s. In 2015, 48.64% of the Romanian SMEs have allocated no resources for innovation activities, while 51.36% of the enterprises have directed at least 1% of the total investments towards innovation. In 2015, the main financing sources for R&D&I within SMEs were their own sources (71.35%), loans and credits (21.09%), European funds (2.04%) and public and local funds (0.59%). Romanian SMEs’ access to finance and to markets are affected by a number of non-cost factors, including product quality and design, after-sales service and the distribution network. They often struggle to perform well on these criteria due to their low profitability and lack of business sophistication. Romania is ranked 101st out of 148 countries for business sophistication in the World Economic Forum’s 2014 report on global competitiveness. Romania has introduced a number of measures to improve its export performance. In May 2014, it adopted a national export strategy for 2014-2020. Effective implementation of the strategy will require an action plan with clear priorities and an implementation timeline. The SMEs export development program was introduced to facilitate access to international markets. It provides services for trade missions, part-finances participation in international trade fairs, operates a trade portal and commissions market studies. There continue to be significant difficulties, however, in the implementation of these measures, and no evaluations have been carried out to assess their effectiveness. There is a low level of collaboration between SMEs and research entities demonstrated by only 1198 SMEs that are members in clusters. In today’s economy it is necessary for all SMEs to connect knowledge to the market successfully in order to remain competitive and clusters could be an opportunity for the Romanian SMEs.

Innovation is a complex process, which results from the interaction of many entities, public and private, over an extended period. It is critical that the public sector provides the leadership and vision to coordinate these efforts and to promote a culture of enthusiasm for innovation. In particular, public initiatives can create innovation platforms that bring together policy, enterprises, research perspectives and resources to generate innovative solutions to existing challenges. Overall, the Romanian government needs to do more to coordinate its policies in the areas of export, industry, innovation, clusters and access to finance, human resources development. Integrated policy measures are essential in order to allow SMEs to increase their value creation and competitiveness. Measures to promote both innovation and internationalization need to be used in combination, giving support in particular to emerging innovative business clusters. There was no public funding to support clusters till now, only European Funds were used for cluster management excellence, investments, R&D projects etc. Foreign companies and multinationals are investing comparatively more in R&D and innovation than domestic firms. Given the continued importance of clusters as a policy tool and the initiation of new cluster programs, policy action must strive to strengthen cluster initiatives and their business environment.

Many Member States have national/ regional policies and programs in support of clusters. Romania is currently developing a new industrial policy document with a main component of cluster policy and an action plan that will stipulate concrete measures for financing innovation in clusters, attracting foreign direct investments, cluster management excellence, facilitating the access of SMEs in global value.
chains, promotion of skills development, protection of intellectual property, promotion of technological upgrading etc. Romanian regions are on the way of smart specialization that needs to exploit regional diversity, stimulate cooperation between all stakeholders and open up new opportunities for regional innovation (clusters, SMEs sector) as well as for cultural and creative sectors which flourish at the local/regional level in a strategic position that link creativity and innovation.

**Cluster Development in Romania**

Clusters play an important role as drivers of economic growth and innovation locally, regionally and nationally. Clusters are today an important part of Europe’s economic reality. Clustering is a team activity, not a solo effort and its successful start requires a core of motivated enthusiasts who would also inspire others to join in.

The first cluster policy document and the Romanian cluster mapping were launched in 2009 to identify potential clusters in the eight development Romanian regions and to focus the re-industrialization process on clusters. In 2010, the Ministry of Economy-Directorate for Industrial Policies launched the Research Program for Industry- INOVCLUSTER projects to disseminate the cluster concept with all stakeholders (industry, mainly SMEs, R&D entities, public administration and catalyst institutions) and to elaborate a Guide for implementation the innovative cluster concept in Romania. This program had the aim of developing a systematic approach to cluster development in the eight regions of Romania, to promote and strengthen the cluster policy and to gain experience by exchanging best practices with other countries in the region. The specific objectives were to establish a platform to bring together partners from public research institutions, private sector and public administration in economic sectors like automotive, ICT, wood and furniture, mechatronics, energy, textiles and agro-food as well as to establish concrete partnerships between research, business and public administration around partnership projects. The mobilisation of the stakeholders and ultimately the success of the cluster strongly depend on clear objectives and benefits that are attractive to all participants. Building trust takes time. Another strong motivation to choose these economic sectors was the presence of SMEs that generally do not perform in-house R&D&I and would benefit from cluster cooperation. Clusters in Romania do not always have the necessary critical mass of enterprises and innovation capacity to sustainably face competition and to be world-class. SMEs can and need to work with partners in many locations to access the technologies and supplies they need from the best possible sources. But local partners play an unique role: the type of interaction that SMEs can achieve with local partners is much richer. And markets, especially for skilled labor, are by their nature local. SMEs therefore need to be present to tap into the local talent base.

Romania adapted the triple helix paradigm (industry-R&D- public authorities) to a so called „Four Clover Model”, the fourth actor being represented by catalyst institutions such as technology transfer centres, chambers of commerce, consultancy companies etc. Today, there are also clusters that adapted the quadruple model with banks as an important entity.

Identifying the relevant stakeholders in a cluster is a challenge in Romania. 60% of Romanian clusters have only fifteen active members out of which ten are productive SMEs but offer increased opportunities to attract external investment, including FDI. Large firms mainly multinationals (Renault; Ford; Continental, Siemens etc) within Romanian clusters play a catalytic role because they create a critical mass of experienced managers, they provide ideal conditions for high technology firms to grow and develop and they have multiplier effects in terms of a region’s local economy for materials and services. Clusters reflect today the cross-sectoral nature of value chains and innovation systems. Much of the dynamism they generate is related to economies of scope, i.e. benefitting from related industries and at the same time spurring growth in employment in these sectors.

Today, in Romania there are 92 regional clusters and poles of competitiveness (networks of minimum 3 regional clusters), majority being in embryonic and established stages and few of them are mature. 8 of these mature clusters gained silver label (Rosenc Timisoara, IND AGRO POL Bucharest, Green energy Sf. Gheorghe, Romanian Textile Concept Bucharest, ELINCLUS Bucharest, Agro Transylvania Cluj, iTechSylvania Cluj and Transylvania Furniture Cluj) and 26 bronze label based on a benchmarking exercise lead by the European Secretariat for Cluster Analysis. 3 regional consortia and 3 national networks (automotive, ICT and textiles) are also active in cluster
development and promotion. Romanian clusters are members of various European networks (South East Europe Network; Cluster House-Balkan and Black Sea Network; European Cluster Collaboration Platform, TCI network etc).

In Romania, clusters have emerged naturally and “bottom-up” from the regional level being mainly **industry driven** ones, out of which the most important examples are those of the **automotive sector** (Dacia Renault Pole of Competitiveness, AUTOMOTIVE Timisoara, Ford Automotive Sud Vest Oltenia, ETREC Sacele Brasov; PREL MET Cugir), **aerospace** (Transylvania Aerospace Cluster Brasov, Romanian Aerospace Bucharest), **agro-food** (IND AGRO Pol Bucharest, Agro-Food St.Gheorghe, IND AGRO Vest Arad; Agro Transilvania Cluj Napoca; Agro-food Tara Barsei Brasov, Agro Pro Oltenia; ALIMENT Transylvania Alba Iulia; Gusturi Transilvane Cluj Napoca), **energy and constructions** (ROSENC Timisoara, Green Energy St.Gheorghe, REN ERG Brasov, TREC Cluj Napoca, CONSTRUCT Oltenia; Breasla Constructorilor Ieseni; Green Solutions Lower Danube Galati; CERMAND Constanta), **creative sectors** (ASTRICO Savinesti, TMW Sud Est Focsani, Romanian Textile Concept Bucharest, Transylvania Textile & Fashion St.Gheorghe, Printing & Packaging Design Timisoara; ICONIC Iasi, Life Style Cluj Napoca), **wood and furniture** (Pro Wood St.Gheorghe; REGIOFA Odorheiu Secuiesc; Transylvania Furniture Cluj Napoca), **ICT** (iTechSylvania Cluj Napoca; IT Plus Miercurea Ciuc; EURONEST Iasi; Different Angle Bucharest; ICT Cluster Craiova, Smart Cluster Alliance Bucharest, Danube Security and medical agencies DACSA Galati), **tourism** (Transylvania Lands Alba Iulia; Bucovina Tourism Cluster; Balneo-touristic Cluster Transylvania St. Gheorghe; Tracialand network of clusters Bucharest); **health and medical sciences** (Regional Cluster Health Lower Danube Galati; Health Romania Cluster; BIO TECH Valea Prahovei Cluster).

Furthermore, advanced are also **clusters driven by universities and R&D institutes** (Cluj IT Cluster, ELINCLUS Cluster Bucharest, IMAGO MOL Iasi, BioROne Cluster Iasi, ELI-NP Magurele Bucharest; MECHATREC Cluster Bucharest; MED GREEN Pole Constanta, Cluster for Innovation and Technology Brasov; Romanian River Transport Cluster Galati; Dorothy Urban Logistics Cluster Craiova);

**The capacity of the Romanian regions to innovate** depends on many factors such as: the business culture, the skills of the workforce, the existence of effective education and training institutions, innovation support services, technology transfer mechanisms, R&D&I and ICT infrastructure, the mobility of researchers, business incubators, new sources of finance and local creative potential.

Good governance is also crucial. Performance in innovation and clusters varies markedly across Romania (North West, West, Center, Bucharest-Ilfov regions are in the top). **Smart specialization strategies** help regions to concentrate resources on a few key priorities (i.e. North West Region-development of Cluj Innovation city and clusters in ICT, agro-food, renewable energies and furniture). Clusters are used by regions as platforms bringing together and mobilizing local actors to design and successfully implement smart specialization strategies, attracting innovative companies and creating more jobs at local level. Clusters facilitate business opportunities and internationalization for SMEs that activate in the region.

**Good practices transfer** motivates the participants in clusters as it demonstrates that the concept can give results in similar settings. In Romania, good practices from Hungary, Germany, France, Wallonia, Italy, Austria and Spain were implemented and experience of Norway, Denmark and Poland by seminars organized in Romania was a benefit for Romanian clusters. Once good practice from foreign countries is transferred, the Romanian participants should be ready to generate clusters and participate in European projects like **Adriatic Danubian Clustering-ADC** [www.adcproject.eu](http://www.adcproject.eu) (South East Europe Program 2007-2013) with the aim to enhance the knowledge on the potential for cross-border cooperation and to promote it, granting greater visibility of the SMEs in the region, to facilitate networking in four sectors like agro-food, modern housing, mechatronics and logistics and to promote the Adriatic-Danube area as an integrated productive system for international investors; **ClusterIX-Clusters for European Innovation Cross-Linking** a project co-financed by the European Regional Development Fund and made possible by INTERREG IV C [www.clusterix.info](http://www.clusterix.info) and [www.ecoplus.at](http://www.ecoplus.at) with the aim to enable regional authorities to identify, analyze and explore the potential of strategic future cluster development through the exchange of experience and best practices between nine
partners from eight EU different countries; the overall objective of ClusteriX was to help increase the competitiveness of European regions and their innovation potential through the improvement and strategic reorientation of cluster policies by using smart specialization strategies; **SENECO-South East European Network of Excellence of Cluster Organizations**-a project co-funded by the Competitiveness and Innovation Framework Program (CIP) under the DG Enterprise and Industry for the European Commission [www.cluster-excellence.eu](http://www.cluster-excellence.eu) with the aim to promote the cluster management excellence by elaborating a set of "training tools" for trainers, a “benchmarking tool” of clusters performances based on a set of indicators and creation of a collaboration platform for clusters; **Cluster PoliSEE-Smarter Cluster Policies for South East Europe**-a project funded under the 3rd strategic call of the South East Europe Program [www.clusterpolisee.eu](http://www.clusterpolisee.eu). The overall objective of this project was to increase the competitiveness of European regions and their innovation potential through the improvement and strategic re-orientation of cluster policies by using smart specialization strategies. A specific Cluster Policy Learning Platform has been put in place with the aim of creating a competence centre for cluster stakeholders in South-Eastern Europe and a catalogue to promote South East Europe networks of clusters in the global value chain were the main outputs of this project.

Each Romanian cluster has an agreement/protocole of collaboration and a development strategy focused on research, development, innovation and technology; entrepreneurship; development of new business models; development of new production processes and conservation; education, training and qualification; marketing, branding and internationalization; management and leadership; protection of intellectual property; value chains development; sustainable cooperation etc.

**Cluster management organizations** are the legal entities of clusters that support the strengthening of collaboration, networking and learning in innovation clusters and act as innovation support providers by supplying or channeling specialized and customized business support services to stimulate innovation activities, especially in SMEs. They are usually the actors that facilitate strategic partnerships across clusters. **In Romania majority of clusters have not a legal form but the cluster management organization that could be an NGO (non-profit organization) or a business organization/consultancy company has a legal form.**

**Efficient, professional cluster management organizations** are critical for raising the quality of business support services and driving cluster initiatives towards self-sustainability. EU COSME Program encourages the Excellence of Clusters management through training and exchanges of best practices as well as the benchmarking exercise in view to obtain the basic bronze label. Romanian cluster management organizations are invited to improve their support services and better integrate innovative SMEs into clusters. Romanian clusters consider access to finance very important for their development. There was no public funding to support clusters and the European programs are very useful but insufficient for the cluster development and internationalization.

**CLUSTERO** - the Romanian Cluster Association [www.clustero.eu](http://www.clustero.eu) is created in July 2011 and brings together 35 clusters and individuals with the purpose to coordinate the sustainable development of clusters in the eight Romanian development regions. CLUSTERO exists to create a competent and long-term platform for the development of cluster organizations in Romania and an active interface for their internationalization. The role and activities of CLUSTERO are focused on: information, communication and knowledge transfer and networking; facilitator of the cross-cluster cooperation and internationalization; partner for the national, regional, European and international consortia in various projects; advisory point for new cluster initiatives formation and awareness building, training on cluster management and clusters promotion, helps clusters to develop a visible profile, lobbying etc. CLUSTERO is member in various European platforms (Balkan and Black Sea Cluster House Network; European Cluster Collaboration Platform; South East Europe Network, Danube Network etc). Annually. CLUSTERO organizes the Romanian Clusters Conference and it is co-organizer of several clusters events.

The internationalization of the Romanian clusters through networks covers a wide range of activities that influence both South East Europe region and country in which the cluster is located: access to knowledge, access to new markets, access to key infrastructures, access to new products and forms...
of collaboration. The exchange of best practices between networks of clusters created in various sectors contributes to identify specific issues for the region and specific measures for challenges. Transnational cooperation is more challenging than working on a national basis. Using cluster networks, Romania and the 8 regions prepare a knowledge base for cluster funding and developing a common understanding of the important role of clusters for the development of EU regions.

Cluster development is a market driven phenomenon where an entrepreneurial mindset is a key ingredient. Clusters offer a vibrant environment for SMEs (cooperation, infrastructure, skills). Enterprises, mainly SMEs, participate actively in cluster collaboration and innovative networks because this gives them access to new knowledge, new business partners and other advantages that can strengthen their innovation, sales and export. This is why the Romanian enterprises (especially the small and medium-sized) and their growth and development potentials are the focal point of the Romanian cluster policy. Many Romanian clusters are already focusing on areas with significant social challenges, for instance within energy, environment, welfare, health, transport, tourism, agro-food and modern housing. Romania is strongly in favor of a broad concept of innovation that includes not only technological innovation but also non-technological, social, institutional, organizational and behavioral innovation. Clusters could promote and support innovation as products and services. Design is also used as a term to describe particular approaches to innovation. Design is also meant to empower cluster members to invent together solutions to economic and social problems. Innovation within clusters go through four stages, from ideas, prototypes, implementation to a final stage that is to scale up so that the new approach makes a real impact and becomes part of the cluster strategy and work.

The key objectives of the Romanian cluster policy are focused on assisting Romania developing more world-class clusters in strategic economic sectors for the benefit of SME and promoting cluster cooperation at national and EU levels to facilitate SME promotion and internationalization and support the development of new world-leading competences.

Conclusions

Clusters and cluster policies do not offer an instant solution that will work in all circumstances. Good cluster policy requires strategic, consistent and concentrated efforts that are evidence-based and not constrained by various interests. But when these conditions are met and the cluster policy focuses on promoting cross-sectoral collaboration and value-chain linkages, it can help industrial transformation processes and be an important tool for designing and implementing smart specialization strategies.

Cluster programs at different levels (EU, macro-regional, national, regional, and local) are often uncoordinated and pursued in parallel. In Romania, clusters are essential, but to be effective they need the right framework of funding, commitment, and support for smart specialization and creating an open space for cross-fertilization. Building trust is critical for cooperation and involves focusing on strengths, adding value and connecting the right people in certain expertise domains.

Smart specialization needs to be broken down into concrete opportunities, as is reflected in the emphasis on niche and value-chain development. This involves a region identifying its own advantages, and becoming the starting point for internationalization and strategic partnering efforts. Clusters in priority sectors are an important component of the smart specialization strategies in the Romanian regions. Clusters determine the landscape of the territory economic evolution. Local policy makers have to intercept the evolution of the territory to create and consolidate regional branding strategies connected to the clusters’ ones. Cluster marketing and branding can be a powerful communication tool if it is in line with the regional innovation strategy for smart specialization.

High quality cluster management is a key element of successful world-class clusters. Strong management is crucial for cluster organizations for providing professional services to cluster SMEs, for assisting them to access global markets successfully, and for raising the innovation capacity and competitiveness of cluster firms. More than 50 Romanian cluster managers followed the training courses in Barcelona, Linz, Lyon or Copenhagen.

Exchange of best practices and cooperation between clusters improve their activities, strategy and services, internationalization and communication, marketing and branding, promotion in EU networks.
and partnerships for EU projects (Horizon 2020, KiCs calls 2016, COSME, INTERREG, Creative Europe etc), in particular trans-national cooperation raises the profile of clusters and makes them internationally more attractive.

In conclusion, this paper demonstrates the importance of clusters and cluster policy for economic growth and creating new jobs in Romania as well as the need of cooperation within European regional networks.

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“InventESEE“ – Inventory of Raw Materials in the East and South-East European Region

Alfred Maier

Chair of Mining Engineering and Mineral Economics, Montanuniversitaet Leoben, Austria
alfred.maier@unileoben.ac.at

Abstract:

Europe, compared to the United States, China or Russia is far back regarding mining of Critical Raw Materials (CRMs, 20 raw materials identified by the commission of the EU). China, Russia and the USA produce roughly 47% of CRMs whereas Europe only produces about 5.5% (World mining data 2013). These numbers not only pose strategic risks to the EU’s supply on CRM’s, but also to the future industrial and economic development of the EU. Within Europe especially the East- and South-East European Region harbours vast potential and this paper presents a strategy for an inventory of primary and secondary Raw Materials in the East- and South-East European Region (inventESEE), developed in order to tackle the above mentioned issue. The data includes active, inactive and potential sites for mining whereas detailed information on geological mapping, resources, mineability, and economic feasibility are key parameters. Within the “InventESEE” an international consortium is currently establishing a database and a geographical information system where each country is invited to add data according to specific pre-defined criteria. The system is under development at the lead partner Montanuniversitaet Leoben, but all members are delivering their expertise in various areas. At Montanuniversitaet Leoben the core competence lies in the Raw Materials value cycle: Mining, Metals, Materials, Manufacturing and Recycling. The overall aim of the project is to develop a database of all countries of the ESEE region (AL, AU, BA, BG, HR, CY, CZ, GR, HU, RKS, ME, MK, RO, RS, SK, SI) in order to build a very broad Inventory base.

The target is bridging the gap between high potentials and industrial activities and to expand and strengthen the scientific community for Raw Materials in the ESEE region.

Keywords: Community Building, Raw Materials, Mining, East and South-East Europe, Inventory
1. Background of the project

The East and South-East European (ESEE) region is very important for the European peaceful development. The present economic and political crisis hits the ESEE region particularly hard. As it is rich in raw material deposits it is important to identify the business opportunities to attract investors and business in this sector to help to stabilise and grow the regional economy.

In many of the countries of the ESEE region for primary resources there are very good geological surveys done but they are not easily available and miss the answer to the following questions: “From a business view: What is the quality of the deposit in terms of mining, processing and metallurgy? How much investment is needed for what return in what time?”

So the project idea is to raise this information and make available in a digital Inventory for the ESEE region. Based on the Austrian System IRIS – Interactive Raw Materials Information System (https://www.geologie.ac.at/en/services/web-applications/interactiv-raw-material-informationsystem/), which is the result for the work of the Austrian Academy of Sciences, the Bergmaennischer Verband Oesterreichs - Sektion Lagerstättenforschung and the Geological Survey of Austria, a special data set “InventESEE” will be created by the partners.

The European Minerals Knowledge Data Platform (EU-MKDP) “Minerals4EU” has done a very similar task for Europe http://minerals4eu.brgm-rec.fr/. But it is missing out data for most ESEE countries as shown in Figure 1.

![Figure 1](image_url) Not all Countries are covered by European Minerals Knowledge Data Platform

So InventESEE will add business opportunity information to those countries already covered by Minerals4EU and KAVA MineService by our Projectpartner Geological Survey of Slovenia. Special focus in INVENTESEE on the countries Croatia, Kosovo, Bosnia-Herzegovina, Serbia, Montenegro, Roumania, Bulgaria, Macedonia, Moldavia and Greece.

In the last decades, secondary mineral rescources became extremely important potential source of Raw Materials. Particularly, it corresponds to the mining and metallurgical waste sites. In many cases, due to old technological processes, only one or two minerals have been exploited from the polymetallic ore deposits which are rich with many trace elements. Deposited material therefore contains a high concentration of valuable secondary raw materials which represent a high demand in modern society. Thus, many technological innovations are based on those elements.

The main objective is to collect data from the ESEE region, containing the information about mining and metallurgical waste sites which will be later used in developed GIS-based database.
The database will be limited to participating countries, but we are planning to include all ESEE countries in the future. Such a database will improve the knowledge about the availability of potential secondary material in this part of Europe as well as it will be a good starting point for many companies that have interest for their exploitation. We will include the data from the FYR of Macedonia, which is not a member of the EU, and is not under the EU regulations defined by Waste Frame Directive at the moment. The task partner from Macedonia, Faculty of Natural and Technical Sciences, Goce Delcev University, Stip will support the project with requested data. As a matter of fact, the InventESEE project will bridge the gaps between several either ongoing or completed projects such as Minerals4EU, ProSUM, ProMine, EuroGeoResources. InventESEE must be linked with those projects and make a synergetic effect between them.

2. Project objective and strategic importance

In order to facilitate economic growth it is one of the tasks of RISESEE with its partners to create access to the Raw Material Resources information and create a Inventory of the business opportunities with data necessary for bankable feasibilities.

Europe, compared to the United States, China or Russia is far back regarding mining of mineral Raw Materials. China, Russia and the USA produce roughly 47% of global mining production whereas Europe only produces about 5,5% (World mining data 2013). These numbers not only pose strategic risks to the EU’s supply on raw materials, but also to the future industrial and economic development of the EU. Within Europe especially the East- and South-East European Region harbors vast potential and this paper presents a strategy for an inventory of primary and secondary Raw Materials in the East- and South-East European Region (INVENTESEE), developed in order to tackle the above mentioned issue. The data includes active, inactive and potential sites for mining whereas detailed information on geological mapping, resources, mineability, and economic feasibility are key parameters. Within the INVENTESEE an international consortium is currently establishing a database and a geographical information system where each country is invited to add data according to specific pre-defined criteria. The system is under development at the lead partner Montanuniversitaet Leoben, but all members are delivering their expertise in various areas. At Montanuniversitaet Leoben the core competence lies in the Raw Materials value cycle: Mining, Metals, Materials, Manufacturing and Recycling. The overall aim of the project is to develop a database of all countries of the ESEE region (AL, AU, BA, BG, HR, CY, CZ, GR, HU, RKS, ME, MK, RO, RS, SK, SI) in order to build a very broad Inventory base. The target is bridging the gap between high potentials and industrial activities and to expand and strengthen the scientific community for Raw Materials in the ESEE region.

Figure 2 shows some of the factors which needs to be into consideration in this Inventory, like type of deposits and political stability in the area on the example of Rare Earth Elements.

Figure 2 Example of Rare Earth Elements Resources by type of deposits and political stability (L. Weber & J. LIU)
The customer/user needs in this case are investors (public or private) with interest in raw materials business opportunities in the region. The needs have been investigated and validated by the management of RIS ESEE in many visits and contacts in the ESEE region and with the KIC Raw Materials in Europe.

The targeted output is a digital Inventory on Critical Raw Materials for the Region ESEE which contains the actual data which is necessary as the base for a bankable feasibility study for a raw materials and the necessary business contact around the local sites. This service will be offered by Geological Survey of Slovenia. The proposed digital Inventory on Critical Raw Materials will contribute in creating and supporting new business in that area.

3. Technical feasibility and IP

Based on the Austrian System IRIS – Interactive Raw Materials Information System (http://arcg.is/234hjjP), which is the result for the work of the Austrian Academy of Sciences, the Bergmannischer Verband Oesterreichs - Sektion Lagerstättenforschung and the Geological Survey of Austria, a special data set INVENTESEE with the needs of the KIC Raw Materials will be created in cooperation with the partners.

Special focus on the data collected will be on:
- Reserves, Resources according to JORC (if available)
- Type of mineralisation
- Age of mineralisation
- Tectonic position
- Regional facts
- Geopolitical facts

Both the Geological Survey of Slovenia and the IRIS Consortium of Austria will have leading roles in the technical part of the project.

The IP of the data will stay with the original providers from the different countries. The project will create a set of data needed by RIS ESEE for liaison with possible investors in raw materials business opportunities in the region.

4. Preliminary business opportunity assessment and innovativeness

Europe’s metal supply is dependent on imports to a very large extent. The supply of major mineral commodities is less than 5 percent of world production for most metals in Europe, less than 2 percent for most metals in the EU, and even zero for some of them. However, many countries in the ESEE region still maintain significant metal production and host significant metal resources. The metal potential of the region will be characterized by a web-based application based on a geological map and a deposit data base. Combination of different map layers will allow to establish spatial and temporal relationships of metal deposits, creating metallogenic provinces that may help in preselecting/ planning future exploration. In addition, evaluation of economic data using a common code will allow easier investment decisions. The geology of the ESEE region is very complex. It is an amalgamation of various terranes (areas that share a common geological history through some time in the past) that collided during distinct phases in Earth history, producing orogenic belts and mountain chains through a long period of time, e.g. from the Precambrian to the Cenozoic (from 550 million years ago to today). Each terrane is characterized by a special and distinct metallogenic history, and collision of two or more terranes produces an additional metallogenic province, thus resulting in a multitude of metallogenic signatures. Unravelling of metallogenetic evolution is best done using information recovered from regional literature/studies and combining this into a larger framework. Many of the raw materials defined as critical by the EU
Commission are metals that are geochemically associated with copper (Cu), zinc (Zn) and lead (Pb) ores; they include germanium (Ge), indium (In), cobalt (Co), gallium (Ga), antimony (Sb), and platinum-group metals (PGM). Others are found in association with granitic pegmatites, e.g. tantalum (Ta), niobium (Nb) and rare earth elements (REE). Ophiolites, i.e. former oceanic mantle and crustal complexes, have a high potential for chromium (Cr), PGE and nickel (Ni). Information on the resources of most of these metals in the ores of the ESEE region is non-existing. Therefore, INVENTESEE will assess the distribution of metallic raw materials in space and time in the ESEE region. Based on their availability on the world market and their importance for the European industries, the EU has assessed 20 raw materials as critical. As domestic supply is very limited, most of the materials are imported from outside of the EU. In addition, many critical raw materials occur as by-products of base metal (Cu, Zn, Pb) mining, which has decreased tremendously in most EU countries due to environmental reasons (e.g., pollution related to emissions containing sulfur, arsenic; acid mine drainage etc.). The EU has reacted to increasing concerns on the future raw material supply to the Europe-based industry by introducing a three-pillar strategy on raw materials. One of these pillars is the use of domestic resources. Exactly this point is addressed by InventESEE. A second pillar strengthens the importance of wastes; therefore, wastes and residues from mining, processing and metallurgical treatment will constitute major raw material sources. The additional recovery of critical metals from ores, as well as from residues (e.g., slags, slimes, dusts) and intermediate products (e.g., concentrates) will decrease Europe's dependence on imported metals and improve the competitiveness of the industry.

5. Outlook

Target customers are investors. During the Feasibility Study the Consortium will search for Investors and Businesses interested in the project. The value proposition of the Inventory of the ESEE Region is the access to data needed for a bankable feasibility study of a raw material projects. The access to the Inventory ESEE data base will be available for members – so the access will be linked to EIT KIC membership. The KIC membership fee will be the entrance fee. Further service will be sold via project participation from case to case.
Stimulating Innovation Cooperation in the Black Sea Region - Opportunities within BLACK SEA HORIZON

Ines Marinkovic¹, Martin Felix Gajdusek², Béla Kardon³ Francisco Rocha⁴

¹,²Centre for Social Innovation (ZSI), Vienna, Austria, ¹marinkovic@zsi.at, ²gajdusek@zsi.at
³RCISD - Regional Centre for Information and Scientific Development Ltd. (RCISD), Budapest, Hungary, ³bkardon@rcisd.eu
⁴Sociedade Portuguesa de Inovação, Consultadoria Empresarial e Fomento da Inovação, S.A. (SPI), Porto, Portugal, ⁴franciscorocha@spi.pt

Abstract:
BLACK SEA HORIZON (BSH) project has been designed to sustainably enhance bi-regional Science-Technology-Innovation (STI) cooperation between the EU and the Black Sea region. Clustering and cluster development has no rich history yet in this region, but recently we can see a major improvement. BSH project implements a series of concrete activities to contribute to this development, among others it aims to stimulate and encourage collaboration between research and innovation actors by supporting cluster policies and internationalisation of clusters in the Black Sea region. This paper introduces some of the BSH main objectives, ongoing activities, selected research findings as well as several opportunities for innovation cooperation that are currently open to research organisations and enterprises within the BSH project.

Keywords
Black Sea region, Clustering and networking, International STI cooperation, Internationalisation of clusters, STI policy dialogues

1. Introduction

Being an important economic and trading partner for the countries of the Black Sea region, the European Union (EU) was also active in the research and innovation areas in the region in recent years, notably through the framework programmes for research and innovation FP7 (2007-2013) and Horizon 2020 (2014-2020). To name just two, IncoNet Eastern Europe and Central Asia (EECA) and IncoNet Eastern Partnership (EaP), two consecutive IncoNet Projects, have been implemented in the region with the aim of creating a sustainable bi-regional policy dialogue, involving stakeholders of various levels and backgrounds (researchers from academia and private sector, policy-makers etc.). Another objective of these projects was to enable Eastern European researchers to participate in FP7 (and Horizon 2020) programmes and to raise the institutional capacities in order to facilitate the implementation of the abovementioned goals. The still ongoing IncoNet EaP (extended until December 2016) also provided twinning grants for research consortia that included participants from the EU Member States and Associated countries (EU MS/AC) and the EaP countries. BLACK SEA HORIZON builds upon such projects and pushes their achievements forward, continuing from where
they left off and implementing additional innovative actions not addressed by past projects such as for
example supporting bi-regional cluster cooperation or collaboration in the field of social, inclusive and
sustainable innovation.
In terms of policy dialogue (and underlying policies), the Black Sea region is addressed by a rather
large number of policies, policy dialogue fora and instruments, such as the EU-Black Sea Synergy, the
EU-EaP Panel on Research and Innovation, the Working Group on Cooperation in Science and
Technology (S&T) within the organisation of the Black Sea Economic Cooperation (BSEC) and others.
BSH actively cooperate and wherever possible and necessary involve stakeholders of different policy
fora in its activities with a view to ensure a maximum impact and follow-up of the project’s actions and
achievements.

This paper is used to introduce some of the BSH main objectives, ongoing activities, selected
research findings as well as several opportunities that are currently open to research and innovation
actors from the EU and Black Sea region. The vast majority of activities related to cluster cooperation
are to be implemented in the months to come, thus no detailed information about the project
experiences related to cluster collaboration is available yet. However, the conference “Days of
Clusters” provides a great opportunity to inform stakeholders from research based industrial clusters
from the EU and BSC on how to get involved in different project activities. One of the opportunities
offered is the upcoming seminar in Kiew which will take place in autumn 2016. The seminar is
targeting cluster managers and informs about best practices on establishing, managing, sustaining
and internationalising industrial clusters (backed up by corresponding guidelines).

2. BLACK SEA HORIZON in a nutshell

BLACK SEA HORIZON project is funded under Horizon 2020 for a period of three years and was
kicked off in February 2015 in Bucharest. It is one of the coordination and support actions that are
being used to step up the cooperation and coordination of research activities carried out at national or
regional level in the EU Member States and the Black Sea region.
The consortium is led by the Centre for Social Innovation (Vienna, Austria) and consists of 19
institutions from 16 countries, of which 10 represent the Black Sea region: Armenia (AM), Azerbaijan
(AZ), Bulgaria (BG), Georgia (GE), Greece (GR), Moldova (MD), Romania (RO), Russia (RU), Turkey
(TR), Ukraine (UA). The three main objectives of the BSH project are:

- to support the EU’s external relations with the target region by significantly contributing to ongoing
  bi-regional and regional STI policy dialogues, and by increasing the knowledge base about the
  EU’s external environment,
- to stimulate bi-regional STI cooperation and to strengthen the EU’s economic competitiveness
- to contribute to the establishment of supportive framework conditions by facilitating the pooling of
  resources and by identifying challenging thematic areas for mutual STI cooperation.

The sub-chapters below are structured around selected operational sub-objectives of the project and
present ongoing activities, selected research findings as well as the opportunities for cooperation.
Detailed information about the project is available online at https://blacksea-horizon.eu/. [1]

2.1 Supporting the EU’s external relations with the target region

As introduced earlier, BSH aims to contribute to the EU’s external relations with the Black Sea region
by actively cooperating with different ongoing policy dialogue fora and by providing specific services
and tools tailored to identify and eliminate existing cooperation obstacles and common problems in the
field of international STI cooperation. The main contribution of BSH in this regard will be a proposal for
an “EU – Black Sea Cooperation Programme in STI” consolidated with major stakeholders such as the
EaP Panel on Research and Innovation, the Strategic Forum for International Science and Technology
Cooperation (SFIC), the European Commission (esp. DG R&I), BSEC Working Group on S&T, Balkan
and Black Sea Regional Commission, Ad hoc Group of Experts on BSEC-EU Interaction,
EURONEST, EaP Civil Society Forum, EUSDR, etc.
Several activities within BSH are foreseen to establish such a programme. One of the activities is the organisation of a major bi-regional STI conference targeting stakeholders from the field of STI policy making, STI policy delivery and STI policy analysis. The conference will be used to reflect, discuss and endorse recommendations to improve the framework conditions and to mitigate remaining obstacles for STI cooperation. The conclusions will be used to further consolidate and finalise the “EU – Black Sea Cooperation Programme in STI”. This might also be the opportunity for cluster stakeholders to provide relevant input. The conference is envisaged for March/April 2017 and will take place in Athens; all details will soon be published at BSH Website.

2.2. Increasing the knowledge base

BSH includes also analytical work in order to substantiate the bi-regional STI dialogue in the Black Sea region. So far, two policy briefs including background papers and analysis have been prepared by BSH partners.

The first one is focusing on obstacles, drivers and opportunities to enhance EU-Black Sea STI cooperation. The survey conducted within the framework of this study shows that despite plenty of current initiatives within this strategic context, there is still a need for improvement. For example better exchange among the countries concerning experience in research management and capacity building and strengthening the linkages between research and business sector is recommended, as well as ensuring the funding for targeted S&T projects and innovative initiatives. [2] Please see the Box 1 for identified needs, obstacles and challenges for the STI cooperation.

The second policy brief discusses the thematic patterns of cross-border S&T cooperation based on co-patent and co-publication analysis. The analysis shows for example that the strongest co-publication partner countries of BSCs-based researchers are Germany, France, UK and partly Turkey (for Azerbaijan), Romania (for Moldova), Poland (for Moldova and Ukraine) and Italy (for Armenia and Turkey). The number of co-invented patent applications involving BSCs-based inventors is limited, which allows a comparison only for the few countries with the highest output. For them, co-inventors from EU are most frequently based in Germany, France, UK, the Netherlands, Italy and Finland (for Russia). A comparison of the shares of scientific field distribution in total and in co-publications with EU/AC (please see Table 1) shows the prominent position of Physics & Astronomy. The only other field that is more prominent in a BS country’s co-publications with the EU/AC (compared to its overall co-publications) is chemistry in the case of Moldova. Chemistry is also one of the few areas making up more than 10% of the thematic portfolio in the publication output in Azerbaijan, Moldova and Ukraine. Enabling & Strategic Technologies are of importance in the co-publication output (both generally and with the EU/AC) of Moldova and Ukraine. Clinical medicine is relative output strength in Georgia. [3]
Based on document analysis, survey and interviews conducted within BSH, the following needs, obstacles and challenges for the STI cooperation between the EU and the Black Sea Countries as well as within the region have been identified:

- The BS countries have a wealth of human capital and know-how that remains untapped. This is largely due to the lack of a coordination mechanism.
- All targeted countries have faced a dramatic decrease of their R&D intensity since the early 90s. That led to the shutting down or reorientation of many research branches as well as a significant decrease in the number of researchers.
- There is also a need to strengthen, stimulate and exploit remarkable long lasting expertise and creative potential as assets for national and regional development.
- Financing through public/private partnerships and/or external sources of funding is still low and should be further promoted.
- Despite the modest growth in innovation performance in some BS countries in recent years, the research system is still characterized by general decline because of inconsistent national research policies and inefficient use of funding for R&D activities.
- The optimum exploitation of the research results and in particular their transformation into innovative products and processes is partly very low. Complexity and continuously increasing costs for both high and mid-level research infrastructures lead to under development of innovative type of infrastructures. Furthermore, Innovation capacity is influenced by legal barriers such as IPR and industry.
- The gap between high-level political commitments and their actual implementation at the lower administrative and community levels, requiring increased stakeholder participation, should be bridged.
- All countries have launched ambitious national strategies to modernise and boost their research and innovation systems. In recent years, this resulted in the emergence of many technology parks and incubators, but their number in some countries is still very low.
- At EU level, there have been several communication platforms in the BS region that proved fruitful grounds for interaction among the countries, albeit with certain shortcomings and obstacles. Notable examples have been EC funded INCO (EECA and EaP) and ERA.NET (BS ERA.NET, SEE ERA.NET PLUS, ERA.NET RUS & PLUS) projects and the Black Sea Economic Cooperation (BSEC) Working Group (WG) on Cooperation in Science and Technology.
- Furthermore, the European Neighbourhood and Partnership Instrument (ENPI) has provided significant opportunities for the Organisation of the Black Sea Economic Cooperation (BSEC).
- Within the EU-Black Sea cooperation in education, science and innovation, the majority of funding instruments have been developed within the bilateral relations between different countries.

However, the STI cooperation with the BS region has a huge potential: 85 % of the respondents within the BSH survey have worked with BS countries and they will support a deepening of the STI cooperation. Sharing knowledge and experience and working together have been seen as a main driver for future activities.

**Box 1: Needs, obstacles and challenges for the STI cooperation between the EU and the BSC**
Table 1: A comparison of the shares of scientific field distribution in total and in co-publications with EU/AC

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<td>Enabling &amp; Strategic Technologies</td>
<td>12.52</td>
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<td>2.17</td>
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</table>
2.3 Stimulating bi-regional STI cooperation

In particular by increasing the participation of excellent R&D organisations in Horizon 2020, BSH also aims to stimulate the bi-regional STI cooperation, with a strong thematic focus on a limited number of Societal Challenges, which are, firstly, of pertinent importance for the EU and its partners in the Black Sea region and, secondly, for which STI potential and excellence is available to be jointly exploited by the EU together with non-EU Black Sea countries (abbr. non-EU BSC). Actions and services to support joint RTI activities are the following:

- The delivery of up-to-date relevant information, good practices and practical advisory through a series of dedicated webinars to facilitate participation of a large group of researchers both from academia and business in Horizon 2020. So far seven out of fifteen webinars have been organised and are online available as video files. This service is offered for free and it is also one of the opportunities that might be interesting for cluster stakeholders. Information about organised and upcoming webinars is available at https://blacksea-horizon.eu/news-events/webinars. [4]

- Through facilitating direct face-to-face meetings of researchers from the EU Member States and non-EU Black Sea countries BSH aims to contribute to an increased number of research proposals with partners from non-EU BS countries. To achieve that, among other actions, a competitive merit-based grant scheme (BS:MS) is implemented, which enables at least 25 experienced researchers from the non-EU BS countries to actively engage in EU brokerage events and conferences with the final goal to enhance participation in Horizon 2020 research projects. The first call was open until July 2016; the second round is expected to be launched in autumn 2016. The thematic priorities of the Call are the following three topics: ’Sustainable agriculture’, Resource efficiency in relation to water / water management’ and ’Applied chemistry & smart materials’. Maximum funding per grant is 1000 EUR. This again might be a good opportunity for cluster stakeholders from one of the partner countries (AR, AZ, GE, MD, RU, TR, UA) since the call is open to members or an employee of a research institution/organization and/or of a network of organizations and/or of a higher education institution and/or of an SME-enterprise working on research. All related information is available online: https://blacksea-horizon.eu/object/call/522. [5]

- One of the upcoming activities is also the organisation of a “HORIZON 2020 Summer School” in Yerevan that will train a group of 25 young researchers from the non EU BS countries preparing them to promote and back up future bi-regional STI cooperation.
2.4 Supporting cluster policies and internationalisation of clusters

In general, participation of researchers from the non-EU BS countries in EU projects is very unbalanced and, especially, the level of project collaboration between research organisations and SMEs is very low. However, a stronger partnership between private and public sectors is a key to materialize promising STI results from RTI activities. More specifically, research based cluster activities help scaling up research results, promoting excellent science and translating them into viable products, smoothing the transition from basic and applied research to demonstration, piloting and competitive manufacturing by providing customized support services. Research based industrial clustering also represents an efficient tool to simultaneously combine and exploit the strengths of different types of actors (scientific organisations, private companies and other support organisations) and to enable them to focus entirely on the project results – as the clusters may assume the administrative burden of coordination and management of projects.

In order to improve the collaboration between research organisations and SMEs, in one of its work packages BSH specifically focus on enhanced bi-regional research cluster cooperation that involves by definition both groups. Furthermore, this work package also targets inclusive, sustainable and social innovations and the integration of the civil society sector in STI agenda setting, which we believe is beneficial for a knowledge-based development of the Black Sea region. Therefore, the following structural and specific support activities within BSH are employed to stimulate and enhance bi-regional cooperation in this context:

• Supporting the capacities of selected Black Sea research clusters for enhanced cluster cooperation with EU research clusters through a training workshop and intermediation services;
• The implementation of a bi-regional clustering/brokerage meeting to enable direct business contacts between managers from research clusters located in the Black Sea region and the EU;
• Raising awareness on the side of research agencies, research organisations, social entrepreneurs and companies on the virtues of collaboration in the field of social, inclusive and sustainable innovation and their contribution to research agendas and impact-oriented research projects.

In measurable terms this includes:

• identification of at least 30 research-based industrial clusters in the non-EU BS partner countries, promoted through an online catalogue;
• training of a minimum of 15 research-based industrial cluster managers from the Black Sea region on establishing, managing, sustaining and internationalising clusters;
• establishing direct business contacts between 20 cluster managers from the target region and EU Member States;
• and training of a total of 25 social entrepreneurs, commercial enterprises, NGOs and public authorities on inclusive, sustainable and social innovation.

All of the above mentioned activities have just recently started or will start in the upcoming months under the leadership of SPI – a private consulting company from Portugal, RCISD – an innovative SME from Hungary and ARC Fund, leading Bulgarian research NGO, thus no detailed information about the project experiences related to cluster collaboration is available yet.

However, some online research was already conducted related to identification of research based industrial clusters in the BS region that give first insights about the online performance of clusters. As we all know, the internet has become the default point of call for business and individuals searching for goods, services and information. But also good online performance of organisations and businesses and professional websites present some of the most high impact means of expanding a client base and attracting potential (research) project partners. Furthermore, the multilingual website will continue to become a necessity for businesses and organisations as the process of internationalization increase. From the sample analysed within BSH, the following can be concluded: many cluster websites are only available in the local language and not in English; there are a lot of clusters that use out-of-date websites with poor designs and capabilities; more updates with relevant up-to-date news would be needed; many websites include only limited information on involvement in
the international projects. Thus, first insights about the online performance of clusters in BS region show unfortunately not very impressive picture, however the sample analysed so far is by no means exhaustive. It is interesting to mention that the main sectors form the clusters analysed are: production and engineering, food industry and ICT.

We will have more information about cluster activities and cooperation possibilities in the upcoming months. Interested readers and participants of the Balkan & Black Sea Conference “Days of Clusters” are invited to consult the BSH website for updates on this topic as well as to contact directly one of the authors of this paper.

3. Conclusions

Innovative clusters have a decisive employment impact, exhibit intensive import and innovation performance and are able to implement development projects, as well as to reach outstanding performance in a regional scenario. In the Black Sea region clustering and cluster development has no rich history yet, but recently we can see a major improvement. Establishment and effective operation of network-co-operations and clusters, the intensification of regional clusters and supplier networks are of utmost importance, especially for SMEs, as a vast majority of them is unable to enter the extra-regional or the international market individually. BLACK SEA HORIZON project is contributing to the identification of the overall potential of the region, existing gaps and possibilities to overcome them, strengthen the links between the actors in research and innovation, facilitate clustering and exploit cross-border synergies.

Acknowledgement

The authors and BSH project partners thank the organisers of the Balkan and Black Sea Conference “Days of Clusters” for invitation and are looking forward to the fruitful future cooperation related to cluster policies and internationalisation of clusters.

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Cluster development and best practice in tourism

Miša Mihajlović

Bussines school of Nis, Nis, Serbia,
mihaajlo@yahoo.com

Abstract:

According to a national strategy of tourism development in Serbia, there is a limited possibility for investments in national tourism development, at this moment, despite opportunities in geographical, ecological, environmental, technological and other relevant elements for growth in this sector. Same document state that, future position of Serbia depends of investments in developing local tourism clusters and networking within. Already, there are successful examples on local sites where smaller clusters, mostly based on services in tourism, start looking like organizations in much better economics and more developed economies for cluster networking. Particularly, connecting spa tourism and medical tourism in cluster based tourism is not new idea, but it can be fully implemented only if it is taken as a national agenda. Now it is up to a national strategy to develop sustainable program for future cluster based tourism development, where it is possible. When we compare tourism potential between more developed countries and less developed countries, there is little difference. However, differences emerge when we compare amount of investments and technical solutions, which point in a direction for national solutions in tourism and reaching its full potential and it is usually connected with strategy and direct investments in this sector. On local level it is much easier to implement successful practice from others, but fully developed industrial sector like tourism needs long term national strategy. Successful clusters in tourism can be national wide story if there is more support for local communities coming from government.

Key words:
Cluster networking, Investments, Strategy, Tourism.

1. Introduction To Clusters In Tourism

What is cluster, what are clusters in economy? Clusters are a new model of economic development that start as networking of economic and non-economic subjects and institutions in one area of work at the lower levels, up to a region. it is a new economic form and therefore there is a different approach to defining. Generally accepted definition is that they are geographically targeted a group of interconnected companies and institutions in a particular sector which binds unity and complementarity (Porter, M.E.)

In all economies clusters are an important part of the economy, primarily global, they raise primarily national competitiveness. Also, clusters may have different forms depending on the size of the development, but mostly includes manufacturers of final products or services. More important than the
definition of the process of connecting to the cluster through collective action and dialogue. The key advantage lies in multidimensional clusters close to all actors. The proximity allows sharing of power and resources, community-cal activities require a common vision, common goals, and personal and social relationships strengthen confidence and faster information. Just a sufficiently large number of participants can be obtained as critical mass of skills, knowledge, technology and resources, which will affect the performance of the company.

At the time of general globalization, the only direction that tourist industry, thus a tourist destination, can take is one that leads to the association and interconnection at various levels. It is necessary to connect the tourist product, so this strategy perfectly fits into the concept of clusters in economic development of a country. Clustering and management of this process has a lot of common elements with the construction of a tourist destination. For example, key elements in the same way intertwined in both cases: new jobs - joint projects - co-financing and risk sharing - building trust.

Given that tourism is an activity that works independently but in cooperation with many other activities, this means that a clusters in tourism contains many inputs. So the concept of tourism clusters can be defined as a collection of tourist attractions, amenities and activities, infrastructure, service and manufacturing companies located and acting on a certain geographical area where tourism activity is happening. According to a national strategy of tourism development in Serbia, there is a limited possibility for investments in national tourism development, at this moment, despite opportunities in geographical, ecological, environmental, technological and other relevant elements for growth in this sector. One of the main problems remain and it is lack of understanding on a national level for innovations. For example medical tourism is not a new idea and yet state didn't do much to make this as agenda. It is estimated that the medical tourism industry in the context of health care with the fastest growth, worth $ 40 billion.

Implementation of health tourism is supported not only by the large number of employers and insurance companies, but also of many government countries, both highly developed and those in developing and underdeveloped. Employers and insurance companies promote medical tourism in order to ensure the quality health care to their employees and customers at lower prices, while the government, through its ministries of tourism, health, for economic development and other stakeholders, promote their cities, regions or the whole country as destination for health tourism.

It is clear how much benefits can be in such clusters. And it is only one example, out of so many. In countries in transition, the situation is not great, given that the process of institutional preparations for the development of clusters is not entirely or not at all developed. Because of this, it is needed the appropriate microeconomic policies which support the development of clusters, as well as education policies and incentives for foreign investment.

2. Importance Of Government Support For Developing Cluster Network

European Commission has developed a policy framework which recognises the important role that clusters can play in economic development and particularly regional development. Increasingly though, the Commission has retreated away from a general support of clusters towards an agenda of cluster support based upon the concept of smart specialisation which is the use of EU Structural Funds in the period 2014-2020 and is therefore an important concept, particularly in terms of how it defines the role of government. Smart specialisation places at centre stage the role of entrepreneurs and the academic/research community in the process of discovery of a region's areas of specialisation.

State support for cluster development is necessary, through various measures: active support, the abolition of restrictions, facilitating financing ...
Government can distort the operation of markets and fail to deliver key public goods in areas such as science, basic education, product regulation and consumer protection and/or the judicial system. There is also the potential for “producer capture” where lobbying clusters distort policy for their own ends (e.g. protectionism and weakening environmental protection regulations). Cluster policies can also distort incentives leading to agency problems. Agency problems such as moral hazard (where government funds are not used as intended in the development of clusters) and adverse selection (where clusters are selected for support which should not be supported) can occur due to the cluster policy incentivizing changes in behavior (e.g. clusters being created solely for the purpose of getting government grants). Policy and intervention may therefore be justified in terms of correcting previous Government/Policy failure.

Each different policy has a different aim depending upon the stage of development of the cluster. Therefore, facilitation policy is focused at start-up of clusters and making it more possible for clusters to start. Development policy is aimed at consolidating specific clusters, and leveraging policy is aimed at consolidating and helping clusters to grow.

Given finite financial resources available to government, funding for clusters should be on the basis of clear criteria relating to the competitive potential of the cluster and a funding package which supports clusters over a period of time in return for the achievement of clear targets. These targets should relate to both the services provided to cluster members and the level of innovation and technology transfer achieved by the cluster. Support could and should also be targeted towards strengthening cluster organizations and improving their sustainability.

In most of the case studies, it was clear that cooperation between enterprises, government and the university sector were critical to the success of clustering initiatives. In Germany in particular, the university sector and research institutions have been working closely with clusters from the very beginning and have achieved significant results making Germany a world-class player in innovation and technology transfer.

On the other side, some other countries, Serbia included, does not have such support for innovations. The Ministry does not define in which areas need to be developed clusters, does not determine the strategy, rules, forms of organization and process management cluster. This leaves the participants themselves. Ministry, the measures provided for this program allows us to achieve the objectives of cluster development.

### 3. Cluster Networking And Best Practice In Tourism

Clusters themselves encourage the establishment and the entry of new companies, which are established within the cluster. For now, it is considered that the state cannot successfully establish clusters but can stimulate and encourage their formation, offer support to their development and improvement. The interventions of the public sector can be different depending on the position of the tourism cluster in the life cycle.

The tourism industry is mainly coming from small businesses, and one of them cannot be expected initiative to enter the cluster. Therefore, it needs the support of the public sector in terms of heightening awareness of the need for development, awareness, and so on.

Forecasts by the UN World Tourism Organisation suggest that international arrivals in the European area will increase by up to 717 million over the period 2007 to 2020, meaning that the number of international arrivals in Europe will have almost doubled over the two decades 2000-2020. However, European destinations will not be alone in competing for this expected increase in business. Other regions of the world are developing major competitive challenges to the position of the European
industry. Many EU members invest rapidly in tourism and putting great efforts in supporting clusters which leads to innovations in regional centers.

To investigate and understand best practice in tourism we don’t need to look only in powerful geopolitical and economic giants. Positive practice is existing in many countries, and for this purpose we can compare Czech Republic and Serbia.

Czech policy towards clusters was originally top-down but policy had shifted towards supporting bottom-up initiatives with financial support rather than the state seeking to form clusters. The policy of the Czech Republic can be seen to be supportive of bottom up cluster initiatives and encouraging the participation of SMEs within them since incentives are directed towards inter-firm cooperation and university-industry cooperation. It also supports development of the infrastructure for industrial research, technology development and innovation through establishing and developing science and technology parks and centers for technology transfer. The kinds of cluster projects that would receive funding from the Czech government include areas such as joint purchase and use of testing, measuring and laboratory equipment, joint seminars, workshops, exhibitions and marketing presentations. Under the current Cluster programme 2009-2013, by the end of 2010 €28 million had been spent supporting 18 cluster organizations around the country.

The principal aim of funded projects should be linked to joint product innovation processes based on links between companies. This is how it looks when state have good strategy and know how to support economy sector.

Serbian policy isn’t that well defined, but it doesn’t mean there is no good practice. Also money that Serbia can invest to support clusters is much lesser then some other countries, ie Czech R. Good example is cluster for medical tourism. The cluster currently has 38 members: companies, prominent professionals, entrepreneurs, educational and scientific - research institutions, travel agencies, local governments and non-governmental organizations focused on health, wellness and tourism. Cluster enables business cooperation between Member States and connect with professional business organizations and associations in the country, the region and the Member States of the European Union. Except lacking for sea, Serbia can be huge player in some other parts of tourism industry. Mainly, connecting spa tourism and medical tourism in cluster based tourism is not new idea, but it can be fully implemented only if it is taken as a national agenda. Now it is up to a national strategy to develop sustainable program for future cluster based tourism development, where it is possible. This is big opportunity for entire republic since there is many spa centers, well educated professionals and competitive prices for such services.

There are limitless possibilities for developing good successful clusters in entire tourism industry. A tourist attraction may wish to extend its season, but may be constrained because local hoteliers are unable or unwilling to extend their season. These relationships can easily become cumulative with particular tourism areas generating virtuous circles of innovation while others become locked into a downward spiral of collective failure to innovate and, ultimately there is opportunity to others.

4. Conclusion

Clustering, when performed well can lead to significant improvements in innovation, technology transfer, skills transfer and knowledge transfer leading to individual company performance improvements and also to economic growth for wider society. The key rationale for government intervention is related to addressing market failures in the market for knowledge creation and the need for supporting infrastructure to develop and disseminate new knowledge.
In looking at individual country cases, in smaller countries it is common for one Ministry to take a strong lead in developing and implementing cluster policy, although it may typically have an implementing agency supporting it in this role. The question of how limited financial and other resources might be allocated to clusters.

Complex of tourism is certainly unused potential in Serbia due to the fact that for objective reasons Serbia is not serious present in global tourist processes in the last 25 years, however, Serbia now has a comparative advantage in tourism. The question is whether is possible to make national agenda in support of already existing clusters that function well and make the atmosphere for future clusters.

There is a lot of opportunity for lesser developed economies for clusters, it can help national economy and it will bring innovations to a regional center. Clusters in tourism are relatively new approach, in modern terms, however they are existing long before tourism become industry. All it is needed is good national and regional strategy, education and investments so clusters in tourism become new mainstream in economic policy.

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Applied Hydroinformatics network as a form of cluster linking

Mladen Milanovic¹, Milan Gocic², Slavisa Trajkovic³

¹,²,³Faculty of Civil Engineering and Architecture, University of Nis, Nis, Serbia, ¹mmsmladen@gmail.com, ²mgocic@yahoo.com, ³slavisa@gaf.ni.ac.rs

Abstract:
Modern method in exchanging information, introducing new technologies, training research personnel and developing the educational process involves new innovative procedures such as the mobility of students and professors.

One of the programs that allows the academic exchange of students and professors in Central and Eastern Europe is called the CEEPUS (Central European Exchange Program for University Studies) program. Exchange in the CEEPUS framework is based on the cluster network of universities in the Danube region.

The paper presents a cluster-based approach to linking research organization in the new established CEEPUS network, entitled Applied Hydroinformatics.

Keywords:
Applied hydroinformatics, CEEPUS, cluster network, research organization, mobility of students and professors

1. Introduction
Rapid development of new technologies promotes steady improvements in living conditions and social standards. For this reason, many countries tend to connect their technologies with international technological opportunities.

Each country recognizes the importance of the educational process to its development. Academic institutions are obliged to constantly improve their scientific and research fields and to adapt them to the market’s needs. These institutions represent the first and major link between local and new technologies in the world. The linking and cooperation of universities in clusters is the only way which guarantees the constant improvement of science leading to the development of new technologies and the prosperity of communities. As one kind of university cooperation, and some kind of cluster organization, academy mobility was created, where students, researchers and teachers can improve the knowledge from their own universities at foreign universities. According to [1], student mobility is the most visible part of the internalization of education.

The paper presents the importance of students and professors’ mobility through a cluster of organized research institutions in a network. In addition, the aim is to present one of the CEEPUS (Central European Exchange Program for University Studies) networks, i.e. Applied Hydroinformatics network.
2. Academic mobility

One of the main elements of the Bologna Process is the mobility of students of bachelor and master studies, PhD students and professors, in order to improve the quality of higher education and research [2]. Academic mobility involves the exchange of research experience in academic institutions, students, administrators in charge of mobility programmes, directors and teaching staff, between cluster-connected higher education institutions (HEIs). Mobility can be carried out inside or outside their country or region, where students and professors will study or teach for a limited time period.

In the last two decades, student mobility has been intensified, and in 2004, 2.5 million students were outside of their countries. The number of student growth rose by 41% during the period 1999–2004 [1]. Figure 1 shows the number of international students worldwide.

![Figure 1](image)

**Figure 1** International students worldwide (Source: OECD Education at a Glance, 2014)

The main destinations of mobile students and their total number in the host countries is given in figure 2.

![Figure 2](image)

**Figure 2** Main destinations of mobile students (Source: Atlas of Student Mobility)

There are at least two main goals of higher education which stand out when it comes to student mobility [3]:

- International experiences help students to develop their personality and culture and
International experiences help students to improve their knowledge and the knowledge of foreign languages, to improve employment ability, especially in terms of international content. When incoming students come in contact with the local students, they spread their culture (internalization at home).

Mobile students and professors have an impact on strengthening of international cooperation between HEIs and on the development of new cluster networks between them. Furthermore, mobility improves the development of mutual understanding and tolerance between different international social groups. The development of mobility should lead to a balanced flow of outgoing and incoming students.

The main strategy for academic mobility is given in [4], where ministers of higher education in 46 countries of the Bologna Process call all countries to increase the mobility of their students. The reason for this is to ensure the high quality of studies. In [4], it is expected that, in 2020, at least 20% of graduated students in the European Higher Education Area (EHEA) should have had a study period abroad. It is said that mobility represents the symbol of the European space of higher education.

The Republic of Serbia recognizes the importance of academic mobility, and in its system of higher education, it introduced academic mobility as an element of quality studies, and an important factor for securing employment [5].

In order to develop the cooperation between more universities, i.e. to move the students and teaching staff from one university to another, it is necessary to have mobility programs which are organized by universities, research institutes, national governments and non-governmental organizations. Some of these programs are:

- Euraxess – Researchers in Motion,
- Marie Skłodowska Curie Actions – Research Fellowship Programme,
- DAAD – Deutsche Akademische Austauschdienst,
- Deutsche Forschungsgemeinschaft,
- Alexander von Humboldt-Stiftung,
- BAYHOST – Bavarian Academic Centre for Central, Eastern and South-Eastern Europe,
- AKTION Österreich – Tschechische Republik,
- Erasmus (European Region Action Scheme for the Mobility of University Students) and
- CEEPUS III (Central European Exchange Program for University Studies).

3. CEEPUS network

CEEPUS (Central European Exchange Program for University Studies) is an exchange programme for students and professors from Central, Eastern and South-Eastern Europe (www.ceepus.info). It is not a project of the European Union, but CEEPUS is based on the international agreement of the member states. The member states of the CEEPUS program are: Austria, Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Moldova, Montenegro, Poland, Romania, Serbia, the Slovak Republic and Slovenia (Figure 3). The central office of CEEPUS is located in Vienna, Austria, ensuring coordination, evaluation, program development and advertising. Each member country has a National CEEPUS office in charge of national implementation. The Joint Committee of Ministers represents an organization responsible for all the measures and decisions which allow the implementation of the agreement between members, as well as the approval of evaluation reports. The Joint Committee is composed of one representative of each of the Contracting Parties.
Under the CEEPUS program, mobility is carried out through the CEEPUS networks, which are established by related universities, i.e. CEEPUS represents the cluster organized network between universities. The network is comprised of at least three universities, which belong to different Contracting Parties. Networks are formed according to areas that have a common interest to all network members. These networks stimulate the academic mobility of students and professors, and promote university cooperation and work on joint projects [6]. The main objectives of the networks are to promote the understanding of the region and to help in the establishment of the EHEA. In addition, the aims of the CEEPUS networks are: operation of joint (doctoral) programmes, short-term scientific work and visits to summer schools.

4. Applied Hydroinformatics network

Hydroinformatics is a branch of informatics which uses simulation modelling and information technologies in addressing the problems related to water-based systems, which are most severe in the majority of the world. The scientific areas of hydroinformatics include the field of hydraulics, hydrology and environmental engineering. Hydroinformatics recognises the social nature of the problems with water and decision-making processes. The main work in hydroinformatics is based on the use of artificial intelligence, such as artificial neural networks, support vector machines and genetic programming.

The main goals of the Applied Hydroinformatics network are modernization and internalization, and it will be implemented through the cluster cooperation of partner institutions. The participants in the Applied Hydroinformatics network are: University of Nis (coordinator); BOKU – University of Natural Resources and Life Science – Vienna; University of Sarajevo; University of Architecture, Civil Engineering and Geodesy – Sofia; University Sts. Cyril and Methodius – Skopje; University of Montenegro; University of Novi Sad and University of Ljubljana (Figure 4).
The basic aim of this project is the promotion and implementation of the joint program in the field of applied hydroinformatics. The project should improve the international cooperation between partners through increased mobility, and to motivate the creativity of PhD students, so that they may interpret and publish their own results obtained during mobility through the network [7]. This network should connect experts from different fields of science who will exchange their scientific knowledge through the workshops and short excursions in order to achieve results in education and research on a higher level. The project objectives are:

- to establish a cluster network of universities with the focus on a joint study PhD program in the field of applied hydroinformatics,
- to promote the regional cooperation in education and research for the Danube region and
- to publish a special issue from the workshops with the selected papers of teachers and PhD students.

5. Conclusion

The paper presents the cluster organized networks for students and professors’ mobility on the territory of Central, Eastern and South-Eastern Europe (CEEPUS network). Special attention is directed at the newly established network entitled Applied Hydroinformatics.

The mobility of students and academic staff represents the basic component for the development and improvement of the higher education area. For this reason, many countries and the European Union encourage the development of cluster programs and networks for exchange. The problems with water and climate change increase the occurrences of hydrological hazards, and because of these, the development of the Applied Hydroinformatics network in the Danube region represents significant progress in water management. The main goals of the improvements are the exchange of scientific knowledge and experiences through the joint PhD study, workshops, excursions and publishing papers in scientific journals.
Acknowledgement

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Cluster-based cross-border cooperation program as an important vehicle to increase the SMEs competitiveness

Danka Milojkovic

Cluster House, Niš, Serbia, danka@clusterhouse.rs

Abstract:

Cluster organizations are the form of joining of companies that initiates innovations, productivity and competitiveness through cooperation between the business communities, educational – research and development institutions and public sector.

Cluster approach has a key role for small and medium enterprises (further referred to as SMEs) development since business cooperation in the form of clusters is the economic model which ensures decrease of costs, better access to specialised services, new technologies and new markets.

Across the Balkans there is a recognition that economic development is to take place through increasing cross-company collaboration, innovation and internationalization. The Cluster House www.clusterhouse.rs is a pioneer of the development of comprehensive cluster-based cross-border and transnational cooperation model in the countries with transitional economies. This comprehensive model consists of the six cluster development modules in the fields of organization, advocacy, services and communication. The model was developed within the Danish LEDIB Programme mission (2007-2012), improved during the EU IPA CBC BG-RS „Balkan Cluster“ project implementation (2015-2016). The model is implementing in the on going bilateral business development projects with the Czech Republic and Egypt (2016).

The Balkan and Black Sea Cluster Network, initiated and coordinated by the Cluster House, is a powerful cluster-based economic development tool for supporting and accelerating cluster development in the region with influence on economic development on the global level. The network fosters cluster-based cross-border and transnational collaboration through networking, B2B and matchmaking events, capacity building and advisory services, transfer of knowledge and promotion. It helps spur innovation by facilitating engagement between the cluster actors: public sector, academia and companies supported by media and financial organizations. It brings global market closer.

Keywords:
cluster, network, cross-border, model, competitiveness
1. Introduction

Cross-border cooperation programmes, such as EU pre-accession instruments PHARE, ISPA, SAPARD, Pre-Accession Financial Assistance Programme for Turkey, CARDS, INTERREG, IPA or bilateral transnational cooperation programmes such as the Danish Local Economic Development in the Balkans LEDIB Programme or the Czech Aid for Trade Programme, have been designed with aim to better adapt beneficiaries to the different objectives and thus providing a targeted and effective support according to their needs and evolution. Border regions are often facing disadvantages due to their peripheral geographical locations and relative isolation from national economies. At the same time the development of the internal market within the Union and the free movement of people, goods, services and capital, brought out the need for the balanced development and integration of the European territory.

The aim of cross-border programmes is to promote stronger integration of the territory thus providing a balanced and sustainable development throughout the entire cross-border region, promoting good neighborly relations fostering stability, security and prosperity in the mutual interest of both countries, encouraging their harmonious, balanced and sustainable development and supporting activities for economic and social development, by investing in the necessary small-scale infrastructures, human potential and supporting favorable business environment and social inclusion.

The cross-border projects must be designed in close cooperation of the partners from both sides of the border. This means that project proposals must clearly integrate the ideas, priorities and actions of stakeholders on both sides of the border. Activities must be carried out and coordinated among partners on both sides of the border. It is not enough that activities run in parallel. There must be clear content-based links between what is happening on either side of the border and regular contact between the two sides. The project should not duplicate functions on either side of the border. Therefore, regardless of where the person is located, there should be a joint project management. The staff will be responsible for project activities on both sides of the border. The budget should be divided between partners according to the activities carried out.

All cross-border partners in the development and implementation of their projects have:

- Equal opportunities in developing the project objectives, target groups, activities and results. Equal opportunities refer to preventing any discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation or on any other similar criterion.

- Sustainable development from the ecologic, economic and social point of view.

- Climate change in terms of raising public awareness to better protect overall environment.

- Innovation including in relation to technology, commerce, social systems, economic development, and policy construction, as new ways, new instruments and tools, new products, processes and even new partners. In economic terms it aims in increasing the value of a product or process driven by consumer demand. In the organizational context, innovation is linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning, etc. Networking with involvement of innovation oriented practices could also favor innovative results.

Cluster-based cross-border cooperation programme is an innovative approach for SMEs development which implies the providing added value, synergistic effects, and a partnership’s collaboration delivering more than the sum of its individual parts, in order to generate a positive impact on the state-of-knowledge.

The Cluster House, a business development membership organization for cluster-based economic development in the Balkan and Black Sea Region, based in Nis City in the South-Eastern Serbia, is a pioneer of the development of comprehensive cluster-based cross-border and transnational cooperation model in the countries with transitional economies. The model was initiated and developed within the Danish LEDIB Programme mission (2007-2012) building the bridge between Denmark and the Balkans and improved during the EU IPA CBC BG-RS „Balkan Cluster“ project implementation (2015 – 2016). The model is implementing in the ongoing bilateral business development projects with the Czech Republic „CZ-RS SME Trade Bridge CrossClustersNETworking“ project and Egypt.

The model aims at creating a platform for collaboration of cluster actors in the cross-border region of project partner countries with the following key project activities: stakeholders mapping; survey on cluster needs; cluster development educational program based on training, coaching and mentoring;
networking, matchmaking cross-clusters events and cluster learning trip; drafting of the cross-clusters collaboration strategy; advocacy agenda preparation with implementation; promotional and information cluster development activities (TV programme, newsletters, INFOCLUSTER magazine); interactive website with export-import data base of clusters, business organizations, SMEs and R&D institutions for increasing the efficiency of exchange of know-how and effectiveness of networking.

2. The Cluster-Based SMEs Development Challenges in the Balkans

For the survey on identification of main drivers of the cluster based SMEs development, the following methods of research were used: the SWOT analysis, questionnaires for clusters, individual interviews with cluster actors, business leaders and cluster-based economic development experts, a desk research method and personal experience. Representatives from 56 members of “The Balkan and Black Sea Cluster Network”, under the coordination of the Cluster House www.clusterhouse.rs, were interviewed. Generalizing research findings, it could be pointed out that SMEs in transitioning Balkan countries are in process of learning benefits from membership in clusters, becoming aware of using cluster member’ benefits into their practice. The biggest benefit cluster-based optimization of SMEs development strategy gives in fields of increase of innovation and competitiveness, quality management standard implementation, company’s image improving, energy efficiency and environment protection. The largest obstacle for a successful cluster-based optimization of SMEs development strategy realization is a lack of employees’ trust and motivation to behave in a new way: “think globally, act locally”, meaning that big changes are often started with smaller modifications on a local scale. There are more evident problems, such as lack of leadership skills, entrepreneurial culture and strategic management approach.

Geographically, the Balkan Peninsula forms a bridge between Europe and Asia. The biggest cities in this region are Athens, Istanbul, Sofia and Belgrade. The region is recognized for its agriculture - land cultivation, fruit production, farming and fishery; forestry, mining and industry sectors. Ethnic and cultural variety, various political influences and turbulent history resulted in that the majority of the Balkan countries are in the state of transition or post-conflict reconstruction.

In transitioning Balkan countries, SMEs play the essential role in the development of market economy with only a few big successful companies present, whereas former big socially-owned enterprises are slowly disappearing. SMEs are therefore considered the prime movers in creating new jobs and ensuring significant impulses for the economy. Additionally, SMEs play an important role in poverty reduction and vulnerable groups integration such as, refugees, internally displaced persons and other socially vulnerable groups of people.

The transition process from the state economy to the market economy in the development of the post-conflict Balkan countries was disrupted in violent ethnic conflicts escalating in the nineties of the last century, after disintegration of Yugoslavia. The results of the conflict were devastated infrastructure and private properties, as well as a significant number of refugees and internally displaced persons. The situation in the post-conflict Balkan countries is reflected in a high unemployment rate, lack of managerial skills and human resources, an inadequate approach to accessing funds and institutional support to the SMEs sector development. SMEs in these countries encounter numerous serious obstacles in their development, so that many newly founded SMEs, in case they survive, remain in the informal sector because entering the formal sector requires more resources than they are able to provide.

Some of the major problems and obstacles in the legal environment have been distinguished during the assessment:

• Laws, regulations, administrative procedures and policy are inadequate so that it is easier not to apply new regulations in the SME development at all, due to the bureaucratic establishment, inadequate services and administrative issues;

• Incapacity to access credits and capital prevents development of micro and small enterprises;

• Enterprises have no access to relevant business development institutions. It results in poor quality of products and inefficient production that block enterprises in reaching regional and international market;

• Lack of cooperation between correlated and associated enterprises prevents capacity building and cooperation among clusters at a local level.
To overcome these issues, one of the main goals of the state authorities and international donor organizations is SMEs sector development through implementation of the concept of development of the industrial clusters. One of the achieved results in a five year long implementation of the Danish Program for Local Economic Development in the Balkans LEDIB in cooperation with the District of Nisava and Clusters House from Nis is the concept of the model for the cluster development in transitioning and the post-conflict Balkan countries which contains practical instruments for the establishment and development of clusters in the specific context of economy of the Balkan region. The Cluster House model foresees implementation of six modules in the establishment of the simulative cluster development environment, as well as promotion, networking and cluster internationalization with the aim to optimizing the SME development strategy in the region.

A cluster is a model of small and medium size enterprises association driven by innovativeness, productivity, competitiveness through collaboration between business societies, education and research institutions and the public sector. The exact record of clusters in the Balkan and Black Sea region is unknown, but it can be approximated to more than 700 clusters and cluster initiatives. The impact of the implementation of the cluster development concept in the economy of a country in transition is reflected in the promotion of values such as the achievement of greater innovativeness, employment, economic development and entrepreneurial initiative. The economic and social significance of SMEs has been recognized by the Balkan and Black Sea countries and national strategies for the development of SMEs have been adopted at the same time when numerous supporting institutions and agencies on a central, regional and local level have also been established.

However, local authorities in the post-conflict Balkan countries are facing difficulties in meeting the new demands and in adapting to new political system requirements. Deficient legislative and legal framework susceptible to amendments create unfavorable environment for SMEs development. Bureaucratic procedures, high taxes, scarce infrastructure investments and general lack of transparency and responsibility also obstruct business development. Education system is obsolete and skills and knowledge of human resources are limited and outdated. This is not the way to develop SMEs sector.

In order to attain more proactive approach to access investments and entrepreneurial initiatives it is important for the local authorities to understand the needs and dynamics in the SMEs development, as well as to be actively engaged in creating business environment which in turn will stimulate the growth of competitive industrial clusters. Local authorities alone cannot create necessary conditions for the business development. Creating favorable business ambiance requires active participation of all relevant local community actors. Giving “voice” to all relevant actors improves the quality in decision making and a sense of unity develops among different groups and individuals. A low level in the social dialogue culture is still apparent, as well as in joint planning that should involve citizens, companies, business supporting institutions and local authorities, especially in the post-conflict Balkan countries. The future of the business environment of the Balkan region is reflected in the political projects of the Balkan countries where the SME development has an utmost priority. National focus on SMEs development ensures the starting point for the local actors in their cooperation to improve their business environment. EU integration process will ensure new market opportunities for SMEs. Cooperation among local actors has a good potential for upgrade of the industrial clusters, whereas current decentralization process taking place in the Balkan countries creates new opportunities for the local authorities to collaborate with local associations and citizens, thus enhancing favorable environment for a local economic development. Local authorities have opportunity to improve the framework for SMEs development, i.e. by adapting regulations and administrative framework, increase in the infrastructure investments, etc.

One of the crucial challenges in business environment in the Balkan region is mental barrier in the concept of the SMEs development among politicians, civil servants and local population, and their lack of understanding or motivation. Such a lack of motivation can represent a great challenge for the local self-government to achieve agreement and cooperation with local public authorities, local companies and social partners who share mutual business strategy. Business member organizations in general are rather weak regarding financial and human resources so that in spite of political intentions, internal capacities may challenge the development process. Restrictive experience in social dialogue also represents a challenge, as nongovernmental and other types of organizations have restrictive or no interaction at all with municipal authorities or associated sectors.

It is evident that the present day companies are not regarded as isolated entities but through the social context. It implies that they must be ready to respond to local social demands. If they want to establish business relations with foreign multinational companies, they will be expected to document their
business on a social and local level of functioning. The control of multinational corporations is no longer limited to their own preferences abroad. More and more they are managing working conditions and local influences through public tender procedures regardless of the fact whether or not the own or control the production process. In other words, more companies in the region will realize sooner or later that socially responsible conduct may be in their favor since it is a precondition for becoming a reliable partner in the global distribution chain.

Lack of capital resources and limited access to bank funds are needed to develop SMEs. Conventional financial institutions consider SMEs too big a risk which is time consuming. Unskilled management and bookkeeping in micro enterprises and SMEs are some of the arguments. Special problem for SMEs is the absence of long-term credit benefits since the loans are available through micro-credit organizations and banks on a short-term basis for the period of 12 to 18 months, unless supported by donor funding. Present situation in the region is such that local entrepreneurs rely on their own resources or on family and informal funding. This creates serious problems for their business prospects and clearly shows the difficulties in business dealing with the bank sector. Because of the administrative costs, banks are often reluctant to approve loans in the value lower than 40-50,000 euros. Micro crediting organization may approve loans in the amount of 5-10,000 euros but most of granted loans are below 5,000 euros. Even though there is some turnover, these funds are less than sufficient to cover the costs in the range of 10-50,000 euros thus preventing micro enterprises become small enterprises which could represent a significant step in the increase in employment rate as well as for enterprise transformation from the informal into formal ones. The concept of industrial cluster development has great importance to SME sector as a support in obtaining credit benefits. It should be mentioned that the experience from EU and other countries show that it is not realistic to expect that the regional development agencies could sustain their role of the agency with public obligations without some kind of financial support from some central or local authority. Enterprises lack skills, information and know-how to improve their products and production to meet requirements imposed in future.

The need to develop the systematic approach to the development of clusters in the Balkan and Black Sea countries is of immense importance because they are one of the most efficient instruments in supporting the SMEs sector development. They contribute to better information exchange, networking, promotion and capacity building in SMEs sector and supporting institutions. It implies direct and continual cooperation with businessmen in the field.

3. The Cluster House Model

The Cluster House Model for economic development in the Balkan and Black Sea Region has been conceived on feasible and good result practice rather than on any doctrine or specific style. It is based on a comprehensive model, methodology and global practice framework.

The Cluster House Model was specially inspired by two perspectives:

- Sustainable economic development

  The objective of the sustainable economic development is to build economic capacities at the regional level in order to improve overall economic future and quality of life. It is a process gathering various partners from the public, business and nongovernmental sector in their joint effort to create better conditions for economic development and increase employment.

- Cluster development

  Cluster represents a concept of establishing relations among companies that are driven by innovativeness, productivity and competitiveness through collaboration among business organization, education and research institutions and public sector as an instrument in achieving economic growth both in developed countries and in countries in transition.

In spite of the fact that the concept of the Cluster House Model originates from well-organized economic models, it can be stated without any exaggerations that it comes from the practical experience rather than from the theory. It is efficient, operative and well tested model.

There are few serious challenges related to the sustainability of this model.
The first and probably most important one is the support from the authorities and decision makers. The second challenge is the period of support and specific sector of focus of the international donor organizations. The third challenge is the available capacities and commitment on the part of members involved in the implementation of the model.

On the territory of the Balkan region, especially in the post-conflict countries, frequent changes in political structures are common which further implies that insufficient knowledge and understanding of cluster development as an instrument in the support to SMEs sector of the decision makers may endanger the concept. Great obstacle in progress achievement is too many researches, analyses and strategies are produced without implementation of the action plan and objectives defined in the strategy. The problem of feasibility is present in almost all segments of development.

The role of international donor organization is immense in initiating local economic development, cluster development respectively. The outcomes of development programs may seem feeble or cannot be achieved due to the lack of synergy among donors’ programs operating in the same area, vast size of the territory where program is implemented, time limited missions that are not extended and program activities that surpass the possibilities and needs of the community.

The very status of the cluster organization and achievements depend mostly on the available capacities and commitment on the part of the team members implementing the Cluster House Model. The team consists of cluster manager and cluster management who play an crucial role in the cluster development and should:

- Act as agents of change,
- Emphasize the need for change and promote innovative cooperation among cluster partners
- Accumulate knowledge on clusters and global changes clusters are encountering
- Use data and facts gathered from the cluster members as inputs in their strategic approach
- Build bridges to connect clusters at the regional, national and international level through continual promotion of new cooperation and innovative alliances among cluster members.

Cluster manager acts as an coordinator in cluster development of a specific industrial cluster. His/her task is to consider all possibilities and needs of the industrial cluster through assessment of capacities and demands of cluster members and to establish internal and external network. Internal network includes horizontal and vertical networking of cluster members and supporting institutions within the sector, whereas external implies possibility of cross-border cooperation and networking with similar organizations, initiatives and partners who may contribute to further cluster development.

### 3.1. The Cluster House Model: six cluster development modules

The Cluster House developed methodology involving 6 modules in the cluster development from the very concept to the implementation, based on a five year experience in the SE Europe in combination with best practice studies from Europe, Asia and North America.

There is no universal recipe for the successful cluster development concept. In accordance with the environment and economic sector, various methods are used, whereas the instruments for the cluster development are the same and can be applied individually to each specific cluster. Experience shows that in the Balkan countries, agro clusters are established in a concentrated area where majority of the agro or similar producers are situated, whereas construction clusters search for group of companies that are ready to join them as new partners. Textile cluster is not defined by the territory but by wide range of products and need to create common brand. In all cases of cluster establishment, a “bottom-up” approach was used. A cluster cannot be established out of nothing but out of the existing companies and institutions situated in the same geographical area.

**Module 1 / Know your cluster**

Cluster members must have benfits from their membership. All undertaken activities should contribute to the real values accepted by the cluster members. It is imperative that the information on the cluster members needs are gathered, as well as to produce reports and statistics data reflecting the business operation of a specific sector. Throughout the first step, a cluster facilitator/manager has a chance to get acquainted with the company, to have interviews with leaders and managers and build personal
relationship with them. One can hire external consultants to make the assessment of the gathered information. A cluster facilitator/manager must have his personal subjective impression on the situation in a specific cluster, as well as of the specific challenges members and institutions encounter.

To understand clusters better, some instruments can be used for the assessment, such as the SWOT analysis, surveys or questionnaires for cluster members, individual interviews with business leaders, interviews with experts, desk research methods and personal experience.

The cluster managers gives the final statement.

Module 2 / Map stakeholders

It is necessary to determine stakeholders, partners who are not directly benefitting from the clusters but who can contribute to more efficient functioning of the clusters. Thus, it is necessary to focus on representatives from the main institutions who can support the cluster work. If for example a cluster wants to establish contacts between business and research institutions, it can be achieved through cooperation with the local university. When looking for a partner or potential founder it is not needed to reach agreement on all matters but to find mutual interest for the cluster itself and for each individual partner. Organization of workshops for partners and cluster founders is one activity that creates one coherent group and contributes to formulation of vision and mission of the cluster. A constant follow-up of the opportunities to include new partners and maintaining regular contacts ensures understanding the common needs.

Module 3 / Define strategy and scope of cluster’s initiative

After reaching the agreement on vision and mission statements, the main goals should be defined. Strategy implies setting up specific goals and defining ways to achieve them. Specific goals must be defined according to the SMART analysis instrument (S-specific, M-measurable, A-achievable, R-realistic, T-time bound) and translated in measurable key performance indicators (KPI) or “success criteria”). Accordingly, specific activities should be defined in the action plan. Activities can be defined as internal (staff recruitment, trust building among partners and alike) and external (specialized trainings design, lobbying in respective public entities, participations at exhibitions, etc.). Cluster members should be constantly informed on the ongoing activities and included in some of the activities (e.g. if a cluster member has good experience in international activities, he should share that experience with the other members at the training organized by the cluster) keeping the focus on few partners. Additionally, it is highly recommended to use NABC (N-need, A-approach, B-benefit, C-competition) for the purpose of giving interesting presentation on business activities to cluster members, partners, investors, donors, financial institutions, etc.

Module 4 / Define financial set-up

In the initial phase, a cluster is funded by the public administration or international donor organizations. Approximately up to 90% of cluster activities are funded from public resources even in cases when cluster function for 20 years. Membership fees, project allocations, services, donations and sponsorships have considerable share in the financial set-up. The greatest share comes from the projects and smallest from the membership fees share. Cluster facilitator should improve his communication skills with a special focus on negotiating techniques, especially needed in cases with negotiating with sponsors, investors, authorities, etc. The arguments for support must clearly be defined by the cluster facilitator, as well as the expected results of a specific activity. Cluster must operate in accordance with the national and regional development strategy and meet the criteria for support.

Module 5 / Define organizational set-up

A cluster should be organized in accordance with the expected results of the cluster activity. There is a centralized and decentralized model of cluster organization and both models are member-friendly. A centralized model is more suitable to the Balkan clusters because it is structured as a project organization with secretariat playing the central role in all activities with the aim of preparation, development an implementation of numerous projects and financial management. A decentralized model implies delegating working packages or services to partners who are in turn responsible for their performance and delivery results to the cluster and members. Establishment of a cluster and staff recruitment capable of supporting the vision, mission and cluster goals is one of the crucial moments. Legal aspects of business regulation implies establishment of rules and procedures in legal documents where terms of reference for the cluster facilitators are specified and which contribute to more efficient management and cluster development. The cluster Management Board must consists of
three partners from different sectors, e.i. private companies, education and research institutions and public sector representatives ("triple helix").

Module 6 / Evaluation and Communication

Statistics data and successful stories can document more efficient functioning of cluster members and contribute in that way to building and strengthening of trust among current and future members. Transparent display of data is also important for the funding of clusters, whether it comes from private or public sources because it shows the efficient utilization of the allocated funds. The data must be presented also to the management and supervisory board of the cluster to have an overview of the implemented activities and further development of activities in a productive manner.

During the process of evaluation, it is recommended to apply instruments such as conducting frequent interviews in a form of a dialogue and filling in the evaluation list upon completion of each activity.

Informing the public on activities and results achieved of a cluster is one of the most significant tasks of the cluster facilitator. Also, the information campaign includes printed media, television, web portal, newsletter, leaflets and manuals, specialized cluster magazines, conferences, fairs, social networks (LinkedIn, Twitter, Facebook, Viral marketing, etc.). Successful communication means using various information media to tell the cluster story. Precondition for an effective and efficient information campaign is to develop a communication plan together with the action plan and regular update of information.

4. Capacity Building in Cluster Development

The essential value of the Cluster House Model is reflected in its approach to capacity building of the cluster development actors.

The cluster development actors who are actually cluster managers, representatives of scientific and research institutions should work on continual improvement of knowledge and awareness on the significance of cluster development concept.

Educational program for cluster development consists of two components:

- Workshops on cluster development
- Process of learning about cluster development

Workshops on cluster development are conducted in 4 three day modules for beginner and advanced level, on member recruitment, on how to keep members and represent the needs of members according to methodology 3D ("DO-DISCLOSE-DISCUSS"). Methodology 3D includes "off-the-job" techniques and "on-the-job" training. "Off-the-job" techniques consists of lectures, special studies, films, study cases, discussions, role-plays and simulations.

It consists of 20% “Design of Training” (knowledge and information of the participants about the topic), 40% “Description” (statement presentations) i 40% “Discussion of Case Studies” (use of stories from real life as basis for discussion). “On-the-job” training is held at the same facilities during the working hours.

Process of learning about cluster development is a study trip tailored to meet specific needs.

On the road to achieving cluster excellence, the Cluster House Model is guided by Aristotle’s saying: “Excellence is not an act... but a habit”.

5. The Balkan & Black Sea Cluster Network

The initiative to establish the Balkan and Black Sea Cluster Network represents one of the results achieved in five years implementation of the LEDIB Program through the component of cluster and business organization development, supported by the Cluster House from Nis, Serbia during the Balkan conference “Days of Clusters 2011”.

The goals of the Balkan and Black Sea Cluster Network are:
• Contribution to strategic planning of the cluster development in the Balkan and Black Sea Region.
• Contribution to the overall economic development in the region.
• Support to promotion of public and private partnerships within cluster development sector in the region.
• Intercluster networking (C2C), promotion and internationalization of the region.

Since November 2012, 56 cluster organizations and supporting institutions joined the Balkan and Black Sea Cluster Network.

The Balkan and Black Sea Cluster Network contributes to:

• Cluster development promotion in the region.
• Ensure more efficient way to access development funds for cluster organization
• Logistics and information center of the Balkan and Black Sea Cluster Network at the Cluster House support networking, promotion and internationalization of the Balkan and Black Sea clusters.
• Organization of the Balkan and Black Sea Conference “Days of Clusters”.
• Organization of business events to promote intercluster networking to attain better position and achieve successful development of cluster organization in the region.

The cluster development in the Balkans is taking place regardless of the challenges of the environment. From the aspect of authorities there is no adequate understanding of the cluster development, whereas business association is not strong enough to give full support to the cluster organizations, as it was stated in the assessment of the business environment in the region.

Conclusion

The cluster-based cross-border cooperation programmes have the following key impacts on the strategic economic development in the region:

• contribution to the preparation of strategic documents such as the cross-border cooperation strategy; the cross-border scientific and technological development strategy with aim to encourage cooperation between academia and business community organized through clusters, business incubators, and tech parks;
• proposing the draft legislation on cluster organizations, business incubators, technology parks preparation;
• providing the direct support in partnership creation for access to EU and other business development funds;
• improvement of the cluster development infrastructure based on creation of collaboration platform for cluster-based SME development and encouraging the education institutions to include in their curricula subjects for using the tools for economic recovery of the country: the development of clusters, business incubators, technology parks, PCM, etc;
• encouraging the permanent education of cluster managers and leading cluster members as the crucial importance in the cluster-based economic development progress.

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Role of the Clusters in Reduction of Regional Development Disparities in Macedonia

Blagica Novkovska

Faculty of Economics, University of Tourism and Management in Skopje, Macedonia, blagica@novkovski.com

Abstract:

Regional disparities in the development of regions of the country introduce the risk of slowing the entire economy. Identification of these disparities is crucial for the creation of efficient economic policies, required to cope with the factors inhibiting the fast economic growth.

In this work development indexes for eight regions of Republic of Macedonia have been determined for the period 2008-2014. Economic index, demographic index and (total) development index are calculated using economic (GDP per capita, unemployment rate, etc.) and demographic indicators (natural population growth, net migration rate, etc.). Based on these calculations, regions in the country were ranked by the level of development. The rankings for different sub-periods display in general the same grouping of regions. It has been found that three out of eight regions perform substantially weaker than the national average, mainly because of feeble economic features, while one region performs substantially better than the average, and the others perform close to the national average. Possible causes for these disparities are identified. Based on these findings, economic policy measures for reduction of regional disparities and regional clusters development are discussed. Regional clusters especially in less developed regions are expected to support some business activities in the realization of these economic policies and can reduce regional inequalities.

Keywords
Economic development, Regional clusters, Regional development, Regional disparities

1. Introduction

Regional economic development is nowadays of particular interest for researchers [1],[2]. Various aspects of regional developments and factors influencing it have been studied such as: local urban environmental conservation [3], role of the family business [4], role of the regional banks [5], role of the universities in the regional growth [6],[7], regional planning and development [8],[9], link between the regional development and mining [10], integration processes [11] etc.. Regional development is closely related to crucial directions in modern economic development, such as sustainable energy development [12], ecological economic development [13], innovation potential [14], ecosystem development [15] etc.

The role of clusters in regional development has been shown to be rather important. It has been shown that the clusters play particularly important role in innovation [16], tourism [17], development of industrial organization and regional economies [18] etc. It has been demonstrated that the innovative regional clusters offer important contribution to the regional development in conjunction with universities [19]. The role of regional innovation cluster appears to be very important [20],[21]. Particular expectations are attached to the role of clean technology clusters in transformation of the
economy towards green one [22]. Regional innovation clusters provide particular assistance to the small and medium enterprises [23]. Some results are also reported for the connection of the clusters and the regional development in Macedonia. Thus, role of the clusters for different regions in Macedonia have been studied in [23]. The identification of regional disparities in Macedonia is an important support for evidence base regional development policy making. This paper is focused on comparison of the level of regional development, the level of regional disparities within Macedonia and the role of the clusters in reduction of the regional disparities. In this process of support to regional development is very important in order to take into consideration the diversity of the individual regions. Each region is characterized by some specific economic and demographic features that are identified through the measurement of regional development. Therefore, the cluster support that purposefully focuses on regional specificities will be useful and successful in ensuring not only regional development but the development of the entire country, too.

2. Regional Development in Macedonia

Regional development and data showing that there is unequal development of the region within the country has recently started to attract the necessary attention of policy makers and researchers in the Republic of Macedonia. The Republic of Macedonia is divided into eight regions, with different levels of development (see Table 1).

<table>
<thead>
<tr>
<th>Economic indicators</th>
<th>Demographic indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita in EUR</td>
<td>Unemployment rate (%)</td>
</tr>
<tr>
<td>Republic of Macedonia</td>
<td>4100</td>
</tr>
<tr>
<td>Vardar Region</td>
<td>4175</td>
</tr>
<tr>
<td>East Region</td>
<td>3933</td>
</tr>
<tr>
<td>Southwest region</td>
<td>3085</td>
</tr>
<tr>
<td>Southeast region</td>
<td>4386</td>
</tr>
<tr>
<td>Pelagonia region</td>
<td>4259</td>
</tr>
<tr>
<td>Polog region</td>
<td>1989</td>
</tr>
<tr>
<td>Northeast region</td>
<td>2459</td>
</tr>
<tr>
<td>Skopje region</td>
<td>5911</td>
</tr>
</tbody>
</table>

Source of data: State Statistical Office, MAKStat database

From Table 1 it is seen that Skopje region has the highest gross domestic product (GDP) per capita (5911 EUR) – two to three times bigger than some of the other regions. Also, the number of graduated students per 1000 inhabitants is the highest one, the rate of natural increase is close to the highest one for Polog region, while the unemployment rate is close to the average for the country. Therefore, one can identify the Skopje region as the most developed one. For other regions the picture is not so clear as for this one. For example, Polog region has the lowest GDP per capita, while the rate of natural increase is the highest one (4.40 %) and the unemployment rate is 30.70 %, close to the national level.
Two of the regions (Pelagonia region and East Region) have very high negative values of the rate of natural increase of population. The unemployment rate in Northeast region is exceptionally high (44%).

Based on this, one concludes that precise analysis of the development of regions can not be done only based on available indicators for the regions, but that some integral measure of development is required for this purpose. Below we show our results for development indexes and discuss the regional disparities based on thus derived data.

3. Regional disparities

For the regional development policy to develop in the right direction, in line with EU requirements, the Republic of Macedonia has started the necessary process by passing the Law on Balanced Regional Development in 2007, which has served as the basis for the adoption of the Strategy for Regional Development of the Republic of Macedonia 2009-2019. Two additional Action Plans from 2010-2012 and 2013-2015 were adopted for the implementation of the Strategy.

Since the implementation of the Strategy in 2009, there has been significant progress in the sense of capacity building for the implementation of regional policy and the use of national resources as well as European funds (this include IPA). Regional development centres are already starting to be recognized as a serious factor in the use of these funds, and the assistance to the local governments for collecting funds for projects.

The question arises whether these policies are well targeted, having that the regional disparities in 2014 year remain at high level.

In order to obtain relevant indicators that will serve to create effective policies, regional disparities are studied in literature by using some synthetic indexes, reflecting various economic and social aspects [25].

In this paper, calculations of regional development indexes were done in accordance with the Government Decision on detailed criteria and indicators for determining the level of development of the regions (Official Journal of the Republic of Macedonia, No 162/2008). Development index, economic index and demographic index are determined as follows:

1) economic index from data for gross domestic product, unemployment rate, budget income per capita and value added growth of non-financial sector;
2) demographic index from data for natural increase of the population, aging rate, number of graduated students per 1000 residents, net migration per 1000 residents and
3) overall development index from thus obtained values of economic and demographic index.

All indexes were calculated for five year sub-periods starting with a different year. Details on the methodology and calculations of here shown indexes are subject of a work in progress. Here we show the values of the indexes for regions of Macedonia in the aim of analyzing differences and the role of the clusters in their reduction. Values of the indexes for the period from year 2008 until year 2014 for successive five-year sub-periods are shown in Table 2.

It is seen that for all sub-periods Skopje region has the highest value of the overall development index of about 1.4. Southeast region, Vardar region and East region perform close to the average for the country (about 1). Pelagonia region has somehow lower performance, while southwestern region, Polog region and northeastern region have substantially lower values of development index than country average (0.8 and even lower). Indeed, there are some fluctuations with the time, but the main conclusions remain the same. Therefore, the observed disparities are stable on midterm, which means that there are some structural deficiencies causing them and that systematic actions are to be undertaken in order to reduce these disparities.

Another feature that is clearly observed from the Table 1 is that for some of the regions the values of development index, economic index and demographic index are close to each other. This is the case with the Skopje region, Polog region and Vardar region. For other regions there is a dissention between the economic and demographic index. For example, for the Southeast region economic index for the sub-period 2009-2013 is rather high (1.71), while the demographic index is rather low (0.75), leading to an overall development index close to the country average (1). Here observed dissention requires profound analysis, which is subject of another study. Here we emphasize the finding that there are regions with substantially lower indexes than unity (national average), which requires active measures for reduction of regional disparities.
### Table 2 Development indexes for regions of Macedonia for three sub-periods from 2008-2014

<table>
<thead>
<tr>
<th>Region</th>
<th>Development index</th>
<th>Economic index</th>
<th>Demographic index</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008-2012</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skopje region</td>
<td>1.38</td>
<td>1.34</td>
<td>1.42</td>
</tr>
<tr>
<td>Southeast region</td>
<td>1.07</td>
<td>1.49</td>
<td>0.74</td>
</tr>
<tr>
<td>Pelagonia region</td>
<td>0.88</td>
<td>1.03</td>
<td>0.76</td>
</tr>
<tr>
<td>Polog region</td>
<td>0.76</td>
<td>0.88</td>
<td>0.66</td>
</tr>
<tr>
<td>Southwestern region</td>
<td>0.8</td>
<td>0.5</td>
<td>1.04</td>
</tr>
<tr>
<td>Vardar region</td>
<td>0.85</td>
<td>0.92</td>
<td>0.8</td>
</tr>
<tr>
<td>Eastern region</td>
<td>0.98</td>
<td>1.39</td>
<td>0.66</td>
</tr>
<tr>
<td>Northeastern region</td>
<td>0.79</td>
<td>0.64</td>
<td>0.91</td>
</tr>
<tr>
<td><strong>2009-2013</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skopje region</td>
<td>1.40</td>
<td>1.38</td>
<td>1.41</td>
</tr>
<tr>
<td>Southeastern region</td>
<td>1.16</td>
<td>1.71</td>
<td>0.75</td>
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<td>0.88</td>
<td>1.02</td>
<td>0.78</td>
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<td>0.61</td>
</tr>
<tr>
<td>Southwestern region</td>
<td>0.80</td>
<td>0.49</td>
<td>1.03</td>
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<tr>
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<td>0.94</td>
<td>1.11</td>
<td>0.81</td>
</tr>
<tr>
<td>Eastern region</td>
<td>0.91</td>
<td>1.20</td>
<td>0.69</td>
</tr>
<tr>
<td>Northeastern region</td>
<td>0.68</td>
<td>0.34</td>
<td>0.94</td>
</tr>
<tr>
<td><strong>2010-2014</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skopje region</td>
<td>1.37</td>
<td>1.34</td>
<td>1.40</td>
</tr>
<tr>
<td>Southeastern region</td>
<td>1.14</td>
<td>1.55</td>
<td>0.82</td>
</tr>
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<td>0.95</td>
<td>0.77</td>
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<td>Polog region</td>
<td>0.69</td>
<td>0.81</td>
<td>0.61</td>
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<tr>
<td>Southwestern region</td>
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<td>1.00</td>
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<td>Eastern region</td>
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<td>1.36</td>
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<tr>
<td>Northeastern region</td>
<td>0.83</td>
<td>0.66</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Source of data: State Statistical Office, MAKStat database and own calculation of the indexes

In Figure 1 the values of development index, economic index and demographic index for all regions for the last sub-period considered (2010-2014) are graphically compared. The main features of the observed differences are clearly visible in this figure: regions with high, medium and low development indexes, as well as dissention between the indexes for some of the regions. Contrary to the case of direct indicators displayed in Table 1, the differences between the synthetic indexes are much smaller, since they represent integrally different factors of the development. Nevertheless, differences between the values of development indexes between regions are big, indicating that the conditions for development of the regions are substantially different.
4. Clusters and regional development

Reduction of observed marked regional disparities requires efficient policies and involvement of many stakeholders in the organized manner. Profound knowledge of the nature of differences will allow determination of best measures aiming at reduction of regional disparities. As it was displayed in this paper by calculation of the development index, economic index and demographic index for the regions of Macedonia, substantial disparities between the regions exist and are stable on midterm.

The activities of the clusters that can substantially enhance the development of regions towards reducing the existing disparities are those that will allow benefiting from the knowledge produced by the higher education institutions already existing in many of the regions, by linking them closer to the business. Regional innovative clusters as it was demonstrated in the case of other countries [16],[20],[21] will play important role in reduction of disparities between the regions of Macedonia.

Position of the small and medium enterprises in Macedonia is of particular importance. Namely, in year 2015, 69.3 % of the economic subjects are micro-enterprises, 29 % are small enterprises and 1 % are medium-sized enterprises. In the regions with low development level, the percentage of micro-enterprises is substantially higher: 79 % both in Northwest region and in Polog region and 73 % in Southeast region. It is to be noted that the percentage of small enterprises in these regions is substantially lower than the country average: 20.3 % in Southwest region, 20.6 % in Polog region and 26 % in Northeast region. Therefore, the growth of the enterprises from micro- to small-size is expected to be the first step towards the accelerated development in these regions and approaching the country level. Regional clusters have to put emphasize on supporting the SME development in these three regions of particular interest.

Concerning the sectors of activity, it is to be noted that for the same low developed regions the main activity is in trade. Thus, while the country average is 34 %, the share for Polog region is 38.3 %, for the Southwest region 36.4 % and 36.2 % for the Northeast region. Sectors that have potential for accelerated growth of these regions, such as tourism that has been demonstrated to be effective in regional development [17], are still in position to increase the participation of economic subjects in this sector. Specifically, the country average participation of the sector tourism in the total number of economic subjects is 6.5 %, while in Northwest region it is 11 %, in Polog region it is 9.3 % and in Southeast region it is 6.6 %. Obviously, there is space for further increase of tourism in these regions, particularly in Northeast region. Further activities of the clusters in the considered regions are expected with perspective to improve overall development of regions.

The process of reduction of regional disparities has to be conducted in conjunction with the process of transformation of the economy towards the green economy, as it has been indicated for other...
countries [22]. Since in Macedonia there are regions on substantially lower level of development than the country average, this transformation shall not need substantial changes in the existing economic subjects, but can be conducted through establishment or growth of new companies, particularly on the road of growth of micro- towards small and medium-sized enterprises.

5. Conclusions

Based on the development indexes reported in this work, economic policy measures for reduction of regional disparities and regional clusters development are discussed. Regional clusters especially in less developed regions are expected to support some business activities in the realization of these economic policies and can substantially reduce regional inequalities. These measures are to be applied in conjunction with other policies aiming at reducing regional disparities. Activities aiming at supporting the innovation and linking of academy with business, growth of micro- towards small and medium enterprises, as well as support of development of tourism have to be interconnected.

References

IMPORTANCE OF DEFINING CLUSTER POLICY IN REGIONAL DEVELOPMENT

Mirjana Stojanović Trivanović¹, Tatjana Dragičević Radičević²

¹Professor at Independent University Banjaluka in Banjaluka
¹mirjana.nubl@gmail.com
¹Professor at Faculty of Geoeconomics In Belgrade
¹tatjanarad@mts.rs

Abstract:

Strong and long global economic recession requires from the national policy, to provide a complex structural reforms, aiming primarily creation of stable macroeconomic environment and strong competitive positions of the entities. In this regard, it is necessary to define a clear direction of industrialization, which would strengthen the weak economy. These directions are primarily: increase of demand, the creation of a stable economic environment, higher investment in research and innovation, strengthening the logistical support in regional markets and empowered industrialization. A synergistic effect, of the above mentioned factors, can be realized through a clearly defined strategy for competitiveness, which would result in a higher degree of regional harmonization. In this respect, the role of the cluster becomes highly significant. It has been confirmed, by the numerous research and papers, that clusters are seen as an important link in the regional industrial development, which allows a broad platform specialization, strengthening the value chain, as well as facilitating the access to innovation. Consequently, it is necessary to define such cluster policy at the national level which is harmonized with the regional level, and which enables accelerated process of industrialization and strengthening of competitiveness, having as result overcoming the recessionary trends.

Keywords:
recession, regionalization, industrialization, cluster.
1. Introduction

The recession, which for a long time shakes the global economy, causes to the national economies varying degrees of problems. After a certain period of time it became clear that one of the key problems is the lack of industrialization and its slow and insufficient reimplementation. Also, it was noticed the problem of insufficient synchronization of commodity markets. Although the thesis of open market has been advocated, the geographical market segmentation is needed. It can be seen that there is insufficient correlation and connectivity at the regional markets. It is particularly interesting previous assumption if we are referring to the segmentation criteria for industrial markets, which are often segmented by the geographic and behavioral criteria. At the same time these are the assumptions for the regional market segmentation. On the other hand the economies of a certain region, often have compatibility and with respect to: the development of industry, structure and size of the company, attitudes and behavior of customers, logistical support etc. If we consider analytically all previous assumptions, it is clear that the establishment of a model of regional integration on the principle of synchronized process of re-industrialization, applying clustering and building regional competitiveness, will come to a more efficient and rapid strengthening of economic activity of the national economy, and it will result in faster recovery from the recession.

2. Attitudes towards and directions of reindustrialization in the European Union

The report of the European Commission from 2014 clearly pointed out that the national economies require complex structural reforms in the direction of creating a stable macro-environment and strengthening competitive positions. In support of this contention, by applying system analyzes, it was found that the key obstacle in achieving the defined objectives is slow and insufficient re-industrialization, as a prerequisite for strengthening the weakened economy. In this respect are defined variables, which make the critical point of economic development: 3

- The increase of domestic demand,
- Making a stable economic environment,
- Investing in research and innovation,
- Strengthening logistical support in regional markets and
- Industrialization.

By the synergistic effect to the defined variables and necessary regional harmonization and cooperation, are prerequisite for the establishment of a good model in the direction of building necessary and targeted competitiveness. In this model an important role are having proper clusters. Clusters defined at the regional level of the national economy have created a link, strengthening the value chain, and thus open new paths of innovation and specialization, by minimizing costs, and building stronger productivity and cost-effectiveness principles, which are in the last decades wrongly neglected (because the economy turned more to the financial market, neglecting importance of the commodity markets and forgetting that long-term stability of the economy is possible with the establishment of long-term equilibrium at the commodity markets: the effects of the financial stability are short-term due to the absence of stability in commodity markets).

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The European Commission emphasizes that "policy measures need to be well coordinated and consistent from the regional to the European level" in order to give real effect.\(^4\) They also consider that regional integration would directly affect the strengthening of the value chain and will cause a rise in productivity. Consequently, the increase of productivity will condition the possibility for greater specialization, which opens the way for innovations that are requirement in building competitiveness.

The Commission points out the necessity of modernization in the industry, efficient use of resources, investment in innovation and raising of productivity, to improve value chains and creation of conditions for competitiveness in the global market. In this direction is defined the program Horizon 2020, which encourages the development of research and innovation in the industry. For the program has been allocated 80mld EUR with the aim of: re-defining the value chain, improving resource efficiency and a more efficient of labor division.\(^5\)

In parallel with the previous program, the EU is in the context of the European structural and investment funds planned funding of 100 billion euros, in this period for financing innovation which will take the form of "smart transeuropean specialization".\(^6\)

The effect of such attitudes can be found in the increased mobility of the workforce, faster commercialization of technological innovation, strengthening the value chain and increasing of scientific and trade cooperation, which will all result in a more efficient industrialization at the regional level.

Clusters are becoming an excellent instrument in the realization of the aforementioned objectives, and their effect "will not only be limited to the industrial sector, but will also facilitate cross-sector and cross-border cooperation and innovation".\(^7\)

In the research and the report of Oxford research AS „Cluster Policy in Europe - A brief summary of cluster policies in 31 European Countries“\(^8\), it is pointed out the importance of clustering at the regional level, but also the fluctuations between countries. In the aforementioned report, clusters as a factor of importance at the regional level, stand out in 11 countries (39%), as a factor of secondary importance in 8 countries (29%) and the lowest importance in 9 countries (32%).\(^9\) A very important fact is that all the countries surveyed believe that the regional and national level are highly connected. Also, a significant fact in the said edition is that Austria, Denmark, Spain highlight increasing importance of cluster policy at regional level.

However, research shows that in 43% (13 of 31 countries) there are no regional cluster programs, although it is important to note that these are mostly small countries (geographically and /or in terms of population, such as Malta, Cyprus, Finland, etc.)\(^10\)

In countries where there are regional cluster programs (17 of 31 countries), there are as many as 88 programs, highlighting that half of these programs are in two countries (Poland and the United Kingdom).

The structure of these programs is as follows: regional development 52%, industry and enterprises 40%, science and education 30%.\(^11\)

\(^4\) Ibid, p.2  
\(^5\) Ibid, p.9  
\(^6\) Ibid  
\(^7\) Ibid, p.18  
\(^9\) Ibid, p.28  
\(^10\) Ibid, p.30  
\(^11\) Ibid
3. Potential of clusters in the process of re-industrialization of the neighboring countries of the EU

Commission is emphasizing the initiative for strengthening the legislative and regulatory functions in support of competitiveness particularly in the sectors of steel, aluminum, chemical and forest industries in neighboring countries of the EU. Also, the report highlights the problems in the supply of the said primary and secondary raw materials in the value chain. The importance of this is reflected in the fact that countries such as the Republic of Serbia and Bosnia and Herzegovina which are on the path of building competitiveness, have a great potential in these areas. So, on the one hand we have the attitude of the EU Commission to bolster regional integration in the process of building competitiveness and reindustrialization, and on the other hand we observe two countries in the EU neighborhood with potential in these areas, it is clear the importance of establishing cooperation and regional economic connectivity.

Confirmation of previous arguments can be found and in the European Commission for Enterprise and Industry "Innovation clusters in Europe - statistical analysis and review of current policies and support" from 2006. In the aforementioned report clusters stand out as a modern instrument in the function of innovation processes and strengthen the value chain and achieving quality. Their advantage is that they are seen as not tied to one location, market or natural wealth, and go beyond the traditional definition of industrial production. So, their geographical framework is jagged, but strongly linking.13

In further analysis of importance of regional networking in the direction reindustrialization by aid of clustering, specific analysis will be devoted to Bosnia and Herzegovina and the Republic of Serbia. What is immediately noticeable is that neither in one or the other country is there clear and precise directions for building competitiveness in accordance with this policy and the construction of clusters is not at the national level, not even at the regional level, despite the importance of regional clusters as pointed to the European Commission in its documents. On the other hand, both countries have clearly expressed ambitions aimed in the direction of joining the EU.

In the latest report of the Global Competitiveness Serbia is ranked 94, and Bosnia and Herzegovina is in 111 place and are in the same group of countries, level 2. Business sophistication and innovation in both countries occupy a very poor position, below the hundredth position out of 144 countries. Serbia with policy development cluster is 112, and Bosnia and Herzegovina on the 122 place.14

The "Report on the Development of Bosnia and Herzegovina - Annual Report 2013”15 reports the existence of 12 clusters, of which 4 in the territory of Federation of Bosnia and Herzegovina, 8 in the territory of the Republic of Srpska in 2013. Of these 4 are inactive, and 1 undefined.16 There is even a decline in the number of clusters compared with previous years. Clusters are in the following areas: automotive, wood processing, plastics and printing industry. Most of the active clusters are in the wood processing industry.

According to the same report, "the share of exports of Bosnia and Herzegovina clusters in total exports is 2-7%, while the largest shares have clusters of aluminum, seats and wood.”17

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12 Accordinibid, p.8
15 „Izveštaj o razvoju BiH – godišnji izveštaj 2013”, BiH Savet Ministara Direkcija za ekonomsko planiranje Sarajevo, jun 2014. godine
16 Op.cit. p.21
17 Ibid, p.22
According to the latest publicly available report by the Council for Clusters of Serbian Chamber of Commerce in 2012, in Serbia is registered 58 cluster groups. From the mentioned report is not visible activity clusters.

The Republic of Serbia has a draft of "Cluster Development Strategy in Serbia 2015-2020" year, which corresponds to the development strategy of the EU. In the given draft strategy clearly pointed out the importance of regional clusters.

Out of the 58 presented clusters, most of them are in the agriculture (10), followed by those from tourism (9), textile (6), building (5), and by wood processing and automotive industry (3). Also, there are clusters in the field of textile and metal industries, as well as in the field of food production, but in a small number considering the available potential.

If we analyze the structure of clusters in the said two countries, one can easily come to the conclusion that given the existence of compatibility in certain sectors, such as wood processing, automotive, etc., a clearly and precisely defined strategy at the national level, may establish regional clusters which will increase efficiency, productivity, improve division of labor, and build greater specialization which will inevitably lead to new innovations, and thus build competitiveness and create better conditions for re-industrialization. This is essential for both countries in the process of exiting a recession.

4. Conclusion

Complex analysis of the attitudes of the European Commission, through various reports related to the process of re-industrialization, led to the conclusion that these processes must include the synergistic activity of different factors on the field of clearly defined strategy of building competitiveness with clusters as one of the key instruments, at the regional level. With further research, the case study of the two geographically, demographically and economically comparable countries neighboring the EU, and with the aim of entering the same, the Republic of Serbia and Bosnia and Herzegovina, and the situation regarding the development of clusters, the hypothesis has been confirmed that: there are good conditions for the establishing of a model of regional integration on the principle of synchronized process of re-industrialization, by applying clustering, and building regional competitiveness, which will lead to a

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19 Source www.pks.rs
more efficient and faster improvement of economic activity of the national economies, resulting in a faster recovery from the recession.

References

Education and cluster based competitiveness in tourism in the Republic of Macedonia

Nikolina Trajanoska

Ministry of economy of the Republic of Macedonia
nikolina.trajanoska@economy.gov.mk

Abstract:

Tourism is a sector that has been highlighted as one of the activities with greatest potential for expansion on a global scale. In global economy value is created in regions which are defined as particular geographical entities, and regional economic system approach based on “cluster” concept. To meet the needs of the rapidly changing hospitality industry educators must continually investigate which competencies are essential for graduates to possess and revise the curriculum to meet these needs.

The aim of this research is to investigate the nature of outcomes that encourages tourism and hospitality organizations to encourage professional development education for their employees and members. Information for the study are basically from the questionnaire survey and participatory research method. This research used a qualitative approach to understand and analyze the need of achieving professionalism through developing skilled, competent people able to provide high quality services. The generate data were analyzed using descriptive statistics. The results indicate that programs should stress teaching hospitality students soft competencies in favor of hard competencies.

Keywords:

Clusters, Tourism, Competencies, Education in tourism, Wine region, Vocational qualifications.
1. Introduction

Tourism is one of the biggest-growing industries on earth and its hegemony appears secure if the current rate of growth is maintained. Also, tourism is one of the main sources of internal revenue generation in the world today.

As in most industries in the new economy, the most important factor of production for the tourism industry is an increasingly skilled labor force. The tourism industry is traditionally thought of as employing largely unskilled or semi-skilled labor, such as cleaning crews or restaurant servers, and characterized by high turnover rates. As the pace of growth of knowledge and the rate of change in society move along in a rapid, volatile way, no professional or vocational qualification could be expected to survive without change and improvement. Becher observes that vocational qualifications need to be periodically refreshed. Businesses which appear to adapt and evolve or meet changing conditions, do this partly through their efforts in galvanizing human development developing new knowledge and raising standards. In fact, Drucker claims that “the only comparative advantage on the development countries is in the supply of knowledge workers” [1]. They create an environment where ideas and information can be transformed into goods and services that satisfy the market.

The majority of small and micro companies together with the fragmentation of the industry constitute a constraint to development, which may be helped by regarding each individual operator as a part of an integrated system. Hence increased knowledge and an understanding for what the cluster concept may provide is of importance to private businesses, government stakeholders at various levels and anyone with an interest in fostering economic growth and development.

2. Education in tourism

The number of hospitality and tourism management programs has increased dramatically since the first hotel program was established at Cornell University in the 1920’s.[2] Today, hospitality programs not only teach in the traditional areas of lodging, food and beverage, and tourism, but also include courses in meetings, events, conventions, festivals, recreations, gaming, and cruise management. With this expansion comes a demand from students and a willingness from educators to add focused areas of study and a broader array of course offerings in the curriculum. More recently, globalization of the market, growth in technology, and cultural diversity have become critical factors affecting the needs of hospitality graduates. [3]

Other tourism programs incorporate practical vocational experience such as internships, student work experiences, or a sandwich placement and practicum’s. [4]

Today, hospitality programs not only teach in the traditional areas of lodging, food and beverage, and tourism, but also include courses in meetings, events, conventions, festivals, recreation, gaming, and cruise management. With this expansion comes a demand from students and a willingness from educators to add focused areas of study and a broader array of course offerings in the curriculum. More recently, globalization on the market, growth in technology, and cultural diversity have become critical factors affecting the needs of hospitality graduates. [5]

2.1. Importance of subjects for management in tourism

Over the last fifty years, tourism has been one of the activities with the highest potential for expansion in the world. Since 1998’s, the quickening internationalization process and the opening of national economies have boosted to becoming the second most global sector, second only to the financial sector. [6] According to the World Tourism Organization, tourism is a sector that favors local
development because it generates jobs, increases the income of workers and stimulates capital investments through new business opportunities, which results in the establishment of new organizations, including SME, among other advantages. [7]

The concept of cluster is suited to specific characteristic of tourism activities. The tourism product interacts with local base (physical space and social actors), leading to joint actions of inter-related enterprises with great power to create conglomerates.

3. Concept of clusters in tourism

In some industry sectors, such as wine and tourism, innovation and clustering note that industry matters. It is well documented that industries together with co-operative behavior is important in cluster development. [8] The term “cluster” is used in scientific and technical literature for the strong tendency to network economical activities and for their spatial (geographical) concentration. Networks and active participation of the individual players (municipalities, firms, etc.) of these networks are particularly important for the tourism sector, which is represented by the groups of organizations trying cluster together to form a destination context. [9] Tourism clusters are the result of the co-location of complementary firms, which may not necessarily be involved in the same sector, but may benefit by pre-existing network membership and alliances’ dynamics. Networks of created functional clusters provide approach to knowledge, resources, markets, or technologies for individual firms. They also make it possible for actors to participate in the co-development of tourism products or services and spillover of theoretical and practical knowledge: one member of the network (cluster) is affected by the experience of another.

3.1. Tourism in Macedonia

Macedonia’s tourism and travel industry contributed 7.3 billion denars ($128 million/118.4 million euro) directly to the country's economy in 2014, equivalent to 1.4% of the country's gross domestic product (GDP). the World Travel & Tourism Council (WTTC) said. The direct GDP contribution of the country's tourism and travel industry is projected to decline by 0.2% in 2015, the WTTC said in its recent Travel &Tourism Economic Impact 2015 report on Macedonia. Travel and tourism investment in Macedonia in 2014 was 3.4 billion denars and the WTTC expects it will rise by 8.8% in 2015. Leisure travel spending - inbound and domestic - in Macedonia totaled 17 billion denars last year and is expected to increase by 0.7% in 2015. Macedonia's travel and tourism sector generated 9,000 jobs directly in 2014 and this is expected to fall by 2.8% in 2015.

The GDP contribution of travel and tourism is expected to increase from 6.2% (24.5 billion denars or 594.6 billion American dollars) in 2010 to 7.3% (57.0 billion denars or 1,218.2 billion American dollars) by 2020. The contribution of tourism to the employment is expected to increase up to 33,000 jobs in 2010, which is 5.7% of the total employment, or 1 vacancy on every 17.5 vacancies, i.e., 6,7 of the total employment, or 1 vacancy on every 14.8 vacancies in 2020. It is projected that the actual increase in GDP for the economy from the tourism will be -2.1% in 2010, and it will amount to an annual average of 6.1% by 2020. The export profit from the international guests and tourist resources generated 6.9% of the total export (11.2 billion denars or 271.0 American dollars) in 2010, and is to be increased (in nominal value) to 28.0 billion denars or 599.2 billion American dollars (6.7% of the total export) by 2020. Investments in travel and tourism in 2010 comprise 7.5 billion denars, or 181.7 billion American dollars, i.e. 7.4% of the total investments in 2010. In 2020 they should amount to 17.0 billion denars, or 362.5 billion American dollars, i.e. 8.3% of the total investments. [10]

Since the clusters evolve and develop mostly at the regional level, the exploration of the respective eight developing regions in terms of their geography, cultural and economic heritage, economic potentials and prevailing industry sectors, can indicate a presence of the crucial prerequisite for spontaneous or nurtured cluster formation. Clusters for tourism exist in four planning regions (see Figure 1). [11]
As is shown in the Table 1 Southwest Region has the largest number of accommodation capacity, and also largest tourist arrivals (see Table 2).

### Table 1: Accommodation capacity, by statistical regions

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<th>2015</th>
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<td>27422</td>
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<td>690</td>
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</tbody>
</table>

### Table 2: Tourist arrivals, by statistical regions

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>647568</td>
<td>663633</td>
<td>701794</td>
<td>735650</td>
<td>816067</td>
</tr>
<tr>
<td>Vardar Region</td>
<td>12064</td>
<td>15867</td>
<td>17196</td>
<td>20667</td>
<td>24308</td>
</tr>
<tr>
<td>Southwest Region</td>
<td>249746</td>
<td>251462</td>
<td>264826</td>
<td>269547</td>
<td>298057</td>
</tr>
<tr>
<td>Polog Region</td>
<td>29153</td>
<td>29884</td>
<td>30823</td>
<td>29143</td>
<td>30200</td>
</tr>
<tr>
<td>Northeast Region</td>
<td>3803</td>
<td>4446</td>
<td>5584</td>
<td>6937</td>
<td>8125</td>
</tr>
</tbody>
</table>

The Vardar Region is situated in the central part of the country. Its 4.042 km² (16% of the total Country area) are located around the River Vardar up to the south border with the Greece. The Region has nine municipalities with Veles as the biggest town. The Lake Tikvesh, Demir Kapija Canyon, Kosuf ski resort and the pre-Roman settlement Stobi are the major landmarks.

The Polog Statistical Region is located in the North-western part of the country and in borders Albania and Kosovo, as well as, internally, the South-western Region and the Skopje Region. Polog Region covers area of 2,417 km². The Ottoman Turks leaved the Region with many artefacts. Among them, the World known is the Painted Mosqu in Tetovo, located on the right bank of the river Pena, built-in 1495. The two biggest ski resorts of Macedonia, Popova Sapka and Mavrovo are located in the Polog Region.
The North-East Region borders the Region of Skopje and the Eastern Region as well as with Serbia and Bulgaria. The total area is 2,306 km² and the population is estimated at 175,211 inhabitants. There are several springs and spas with hot and warm mineral waters (Kumanovo and Staro Nagorichane) that are used for recreational and medical purposes and even for heating glasshouses for growing early vegetables and fruits.

The South - West Planning Region has thirteen municipalities. The geography of the region has high mountains, with picks as high as 2,000 meters above the sea level, broad valleys and several lakes, thermal spas, caves in the abundant carbonate rocks and with protected natural habitats and parks. The total area is 3,340 km². Ohrid and Struga, the two biggest cities share a broad valley, placed between the mountains of Jablanica and Galicica. Half of this value is under the waters of the Ohrid Lake. The region is also rich with many smaller glacial and artificial lakes. However, the major contributor to its economy and to the image of the Region is its tourist industry. Approximately 62% of all Macedonian hotels, bed and breakfasts and rooms to rent are in the Region. Million and three hundred overnight stays or 65% of the country total are registered annually. Almost every second visitor to Macedonia is visiting Ohrid, Struga or some of the surrounding fish villages, Debar spa, monasteries or famous springs and the carnival village of Vevcani. [12]

In tourism, the ability of a hotel to generate value for its customers is strongly dependent on the quality of local companies in many other related and supporting industries, from agro-industries, to restaurants, to transportation, to travel agents, to shops, and to financial and health services. Creating value in clusters incorporates manufacturing and services.

4. Analysis of the Survey questionnaires

The survey was conducted in the four planning regions among members of clusters (189 companies) in the function of collecting information for the needs and expectations of the tourism industry with respect to the important skills and competencies, as well as the training subjects necessary for this industry.

In general, survey responses show that the sample in this survey has several evident characteristics: Firstly, 44% of the interviewed have less than 5 years of work experience in the tourism sector. Secondly, most of them are at managerial level in the tourism industry. And, thirdly, more than 30% have higher education degrees, but the percentage of graduated in the area of tourism is very low (only 12%). The low percentage of graduated in the area of tourism is reflected and has impact on the tourism industry.

In the survey, the participants were asked to point out to the importance of certain subjects. The interviewed were asked to rank the level of importance of 22 top-ranking subjects by using the 5-point Likert scale where: “1”= very unimportant; “2”= unimportant; “3”= neutral; “4”= important and “5”= very important. As it was previously mentioned, these 22 top-ranking subjects were developed on the basis of the contents of the analyses of the internationally renowned tourism courses (See Figure 2).
The subject noted as the most important is *Inovativeness and Creativity*, and the subject *Global Perspectives and Crisis and Risk Management* is noted as the least important. According to the tourism managers’ views, the three most important subjects are: Inovativeness and Creativity, Management of Social Responsibility and Change Management, and the three subjects noted as the least important are: Employment Skills, Business Research Capability and Professional Ethics.

### 5. Conclusion

Empirical data that has become available in recent years has confirmed the strong link between clusters and economic performance. Clusters have, not surprisingly, also become an area of interest for policy makers. Although there is still less quantitative evidence on the role and impact of cluster-based economic policy, the case experience and the conceptual framework suggest some conclusions for policy makers.

Previously presented results provide valuable feedback on the basis of the developed methodological framework. The survey questions that refer to the necessary subjects are important for creating new subjects that would be offered to the tourism industry contributing towards the competitiveness of the industry itself. The value of the education in the area of tourism, as well as the skills and competencies necessary for this industry, in order for it to be competitive in the region and wider world, are of particular importance, not only for the industry itself, but also for the educational program providers.

This study presents the principal findings result of the Survey. The study refers to the analysis of the responses from the Survey, and has identified the profiles of the interviewed, such as their sector, years of work experience, type of employment, as well as the highest level of education and level of qualifications. Half of the interviewed have agreed with the conclusion that the degree of education in the tourism is of great benefit for the business related to the tourism, and that the curriculums for those not graduated in the area of tourism are relevant according to the needs of the tourism industry.

The views of managers in tourism with regard to the skills and competencies was likewise evaluated. The intermediate level of importance of the 22 skills and competencies is more important than the performance level (realization). The three most important features are: team work, communication...
skills and management skills occupied the first place, and “how-to-do-it” skills were presented as ones with greater value.

The aim of this study was to establish where there is a “gap” between the offer of the education institutions regarding the education in the area of tourism and the necessary skills and competencies, and which knowledge, skill set and competencies are required by the tourism industry.

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Lessons from a cluster support intervention supported by the Structural Funds in Greece

Nikos Zaharis1, Yannis Tolias2, Angelos Sanopoulous3, Michalis Metaxas2

1 South East European Research Centre, Thessaloniki, Greece
nzaharis@seerc.org
2 Innovatia Systems, Thessaloniki, Greece,
tolias@innovatiasystems.eu
3 Monitoring and Evaluation Factory, Sofia, Bulgaria,
sanopoulous@monitoringandevaluation.eu

Abstract:
The paper examines the intervention titled “Actions in Support of Innovation and Collaboration within Small Enterprises” which was undertaken by the Small Enterprises’ Institute of the Hellenic Confederation of Professionals, Craftsmen and Merchants and funded by the Operational Programme “Development of Human Resources 2007-2013”. Nine clusters were either created or offered support by the intervention. We examine each one of them and assess them based on a set of pre-defined criteria: i) coherence between needs and support; ii) implementation mechanism; iii) quantification of expected results; iv) costing; v) definition of funding sources; vi) timetable of implementation and vii) feasibility. We draw conclusions on the type of needs clusters have at an early stage, the efficiency of the intervention and we provide recommendations for future interventions to be undertaken by the Small Enterprises’ Institute. Finally, the paper offers an overview of the main findings of the evaluation of the intervention which included, beyond the support offered to clusters, an array of mechanisms to support SME development in Greece.

Keywords
Clusters, Evaluation, Innovation, SMEs, Structural Funds
1. Introduction

Porter [1] defined clusters as geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries and institutions in particular fields that compete but also cooperate. Ever since, international organisations, governments and development agencies have been trying to set up programmes to specifically promote cluster development and hopefully realise the economic benefits associated with them [2] in the form of top-down explicit cluster policies or by bottom-up initiatives by groups of firms [3]. Academics, in more than 1586 academic articles about clusters or industrial districts that were published from 1989 to 2010 in international scientific journals [4], examined the definition of the cluster concept, its theorization, its empirics, the claims made for its benefits and advantages, and its use in policy-making [5].

In Greece, efforts to support clustering go back to the 2nd Community Support Framework (1994-1999) and the year 1997. This first effort under the Operational Program from Industry supported a total of 51 clusters but failed to generate any sustainable results, prompting the Economic and Social Council of Greece to characterize it as an “example to avoid” [6]. Efforts continued during the 3rd Community Support Framework (2000-2006) with similar results which may be attributed to a number of factors: the inherent reluctance of SMEs and their owners to cooperate with other companies that might have similar scope; the bureaucratic structure of the programs (i.e. the requirement that the cluster develops into a separate legal entity resulted in new companies that were not profitable/sustainable); the limitations as to what kind of activities will be funded as well as to which sectors will be able to participate (usually a clear emphasis to manufacturing); the prohibition of participation of larger firms and the weak links created between the SMEs participating in the clusters and knowledge providers. A very important factor was that the clusters were not build around “new concepts” that would give added value to the participating SMEs by bringing them close to other entities (such as researchers, supply chain, marketing experts, etc.) that can offer this “added value”. Rather in most cases, it was “business as usual” but in a collective way and with all the inflexibilities of a centrally managed program. An overview of all these efforts detected a shift in the architecture of the cluster support programs in the later years (the National Strategic Reference Framework 2007-2013) towards the deployment of intermediary bodies or cluster facilitators, i.e. entities that have the know-how and network capacity to facilitate cluster support, which has resulted in creating more sustainable structures [7]. The most successful of these facilitators is the Athena Research Centre through the “Corralia Clusters initiative”. Other facilitators include the Centre for Research & Technology Hellas and the PRAXIS network. This shift may yield more sustainable results; still there is a need of accessing the long term impact of these new clusters in the future. The new EU funding programming period (National Strategic Reference Framework 2014-2020) is currently under preparation and foresees cluster support, although the detail form which this support may take is still unclear.

In this paper we present the results of the evaluation of a National Strategic Reference Framework (NSRF) funded project entitled “Actions for the enhancement of the role of innovation and modes of co-operation in small enterprises” that was implemented by the Small Enterprises’ Institute of the Hellenic Confederation of Professionals, Craftsmen and Merchants (IME GSEVEE) in the framework of the Greek Operational Programme “Development of Human Resources 2007-2013”.

GSEVEE is a so-called third level, cross-sectoral, employers’ organisation, being one of the major social partners representing 90 federations, 1,100 main unions and approximately 160,000 entrepreneurs in small and very small enterprises all over Greece. It is active in promoting and consolidating the professional, economic, cultural and broadly social, interests of small and medium entrepreneurs.

In the context of the project under evaluation, IME GSEVEE designed and implemented a series of activities to support innovation and cooperation, in order to contribute to the strengthening of the small enterprises’ innovation capacity and competitiveness. At the first level, these actions concern the provision of information and training of the enterprises and at a second level, the provision of customised support services, as necessary. These activities were: (a) Awareness raising and provision of information including the organisation of information events and publication of nontechnical information material aiming at raising awareness on the benefits of innovation and clustering; (b) Organisation of training seminars aiming to the familiarisation of the trainees with the concepts of innovation and clustering. The topics covered a wide range of subjects such as the clarification of the concepts of innovation and clusters, a discussion on innovation management tools and the presentation and analysis of best practices regarding the implementation of innovation and the formation of clusters; (c) Elaboration of SME Innovation Plans by IME-appointed consultants aiming to
provide customised guidance and support to small enterprises, to help them identify their strengths and weaknesses and develop a roadmap for implementing context-specific innovations. This service was supported by an electronic platform that collected benchmarking data on the beneficiaries; (d) Support for setting-up collaborative projects or clusters. A network of IME-appointed consultants developed “Cluster Action Plans” for the benefit of groups of small enterprises that had expressed their interest in collaborating towards achieving a common objective; (e) Innovation brokerage events with the participation of technology or innovation providers, as well as organisation of business exchanges and site visits; (f) Guidance and support concerning Intellectual Property Rights, e.g., patents, industrial designs, trademarks, copyright and related rights, aiming to promote the protection and the effective exploitation of the enterprises’ intellectual capital.

In the remainder of the paper, we focus our analysis on the intervention’s support for setting-up collaborative projects or clusters. In Section 2 we describe our overall methodological approach including data sources, in Section 3 we present the intervention and discuss the results of the evaluation and finally, in Section 4 we summarise our conclusions and their significance for policy making.

2. Methodology

The evaluation design was drafted by mapping the project’s intervention logic, formulating seven evaluation questions and defining judgment criteria. For each criterion a number of indicators was selected from the IME monitoring system or collected through field research. The design was constantly reviewed and iteratively developed among the IME staff and the evaluators.

The approach that we used was that of a Theory Based Evaluation (TBE). TBE offers the framework for answering the question “How and to what extent have the stated objectives been achieved?” TBE is based on non-rigorous methods such as monitoring data analysis (quantitative mainly for inputs and outputs), interviews, surveys, focus groups and case studies (qualitative with quantitative expression when aggregated, mainly for results and where possible impacts).

Based on these considerations, the evaluation team formulated seven Evaluation Questions (and attached to them Judgment Criteria and Indicators) on the following issues:

- **EQ1** Relevance of the actions to the needs and the target groups;
- **EQ2** Increase knowledge about innovation and collaboration issues;
- **EQ3** Ability to identify own strengths and weaknesses in innovation and cooperation;
- **EQ4** Increase in enterprise-initiated innovative activity;
- **EQ5** Efficiency of IME GSEBEE actions;
- **EQ6** The positive change (i.e., the impact) within two years after the intervention of the following indicators: (a) turnover due to product / service innovations, or (b) proportion of turnover affected by organisational or marketing or process innovations.
- **EQ7** Effects on GSEVEE as social partners and policy-making body (regarding institutional sustainability).

The methods included relied on classical monitoring data analysis, desk review and field work. Triangulation was provided by expert interviews. Due to the very limited budget of the evaluation the counterfactual situation was based on bibliography and a naïve before-after comparison.

The approach is in strong contrast to purely quantitative methods which are focused on a very limited set of (impact) indicators, thus losing of sight the micro-steps of an innovation process. On the other hand, our TBE approach cannot examine the “net-impact”, i.e. the extent to which the change observed in relation to the IME GSEBEE objectives can be attributed to the project actions. In a theoretically perfect case, the TBE should be combined with other more rigorous methods. TBE can deliver the “hypothesis” on investment effectiveness which can then be verified by Counterfactual Impact Evaluation, especially if IME GSEBEE mainstreams its actions.

This following primary data were collected for answering the evaluation questions:

- Beneficiaries’ surveys: Two beneficiaries’ surveys were designed and executed by the Evaluation Team in September 2014 and September 2015 to answer the evaluation criteria set in the evaluation. A total of 72 beneficiaries participated in the surveys, with the response rates being 20.7% in the first round, 26% in the second round and 21.62% overall. The core questions of both surveys did not change, thus enabling the evaluation team to assess improvements in delivery; however, four new questions were added in the second round to get feedback on services that were inactive during the first round.
Interviews: Two rounds of six interviews each took place before the preparation of the interim and the final evaluation reports, after the results of the beneficiaries’ surveys were available. In addition to the IME GSEVEE management and project team, the focus of the interviews was on the consultants and the entrepreneurs engaged with the 'Technology Audit-Innovation Plans' service.

Focus Groups: The first focus group, attended by 10, was organized in October 2014 to discuss in depth the process and the prospects of one of the clusters supported by IME GSEVEE and thus elaborate a framework for assessing the 'Collaboration Support' service. The second focus group, held in October 2015 and attended by 17 stakeholders, aimed to verify and validate the evaluation findings, estimate the project’s impact and discuss the prospects of mainstreaming the pilot actions.

3. Results and Discussion

According to the intervention design, IME GSEVEE would be providing services towards enhancing SME participation to innovation programs, through the provision of detailed information and technical support for submitting investment funding proposals and identifying partners as well as services for new cluster formation (partner identification; support for start-up procedures; consulting services in planning and implementing innovation projects during the cluster formation process; networking services; advising for network formation). Following two calls for expression of interest, the first in October 2013 and the second in November 2014, 9 clusters of approximately 25 SMEs each were selected to receive support and produce a detailed Cluster Action Plan out of 15 applications. Prior to launching the calls, IME GSEVEE used their members database to stimulate applications in 8 cases, of which 4 finally received support; the remaining cases selected for support were enterprise-driven initiatives. Given that the calls for expression of interest explicitly promised only support and mentoring-i.e. no funding, the number of applications indicates that the particular service is valuable for the SMEs and that the emphasis put on it by IME GSEVEE was well-justified. The clusters that were offered support were:

1. **Wine Roads of Attica.** Includes 6 wineries from the greater Athens area and aims at marketing cooperation and enhancement of the Attica Wines brand.

2. **Olympus Country Network.** Includes 18 SMEs from the agro-food sector in the region of Pheria in Northern Greece and aims to promote local food production, processing and foodservice.

3. **Alternative Rhodopi.** Focusing on the development of alternative tourism product in the area of Rhodopi in Northern Greece

4. **CRECOS: Cluster for Real Estate Coordinated Services.** Based in Thessaloniki but covering the whole country the cluster brings together over 400 real estate agents, lawyers, engineers and other practitioners related to the real estate sector to coordinate and certify processes and services.

5. **Carpet Cleaners Network, Attica.** A network of SMEs that operate in the wider Athens and are active in the carpet cleaning business. It aims at offering new value services to the SMEs customers and enhance supply chain cooperation.

6. **Supply Cooperative of Lift Installers and Maintainers, Attica.** Operational since 2009, brings together over 35 professionals of the lift sector and aims at supply chain cooperation and standardization of services.

7. **ALUCERT aluminium systems manufacturers’ cluster.** An initiative of the Greek Confederation of Aluminium Construction companies, it involves SMEs mainly from the Athens metropolitan area and aims at cooperation on issues related to training, standardization, certification and introduction of innovation to their products.

8. **CLUBE bio-energy cluster.** It includes 21 entities (SMEs, research and local government) from the Region of Western Macedonia and focuses on biomass exploitation, energy conservation and environmental protection.

9. **Pandrosou Market.** A community cooperation of SMEs aiming at the promotion of the area of Pandrosou street in the historical centre of Athens. It aims to enhance the street as an open mall.

All 9 had a consultant appointed to them to provide (for one year) the following services: a) on-site working visits to the beneficiary clusters, b) recording of main data of the cluster and SMEs based on a tool and a template provided by IME GSEVEE, c) processing and analysis of business data and mapping of the current situation, d) elaboration of an Action Plan based on the findings resulting from
the processing of data, e) provision of advisory support on specific subject areas tailored to the needs of the cluster and the beneficiary enterprises. The deliverables of each cluster support project included a completed Action Plan and the completed recording templates that served as a “Technology Audit”. The cost for each Action Plan was approximately 5,000 €. We accessed the deliverables of the 9 consulting processes, based on the following criteria:

a) Existence of clear documentation of needs and formulation of actions / activities that address these needs
b) Clear description of delivery mechanism (human resources, infrastructure)
c) Clear quantification of the results expected from the implementation of the Action Plan
d) Costing of the Action Plan detailing the implementation costs of individual actions
e) Action Plan proposed funding sources
f) Timetable for implementation of the proposed actions
g) Feasibility of the implementation of the Action Plan

As an overview of this assessment it can be pointed out that whereas the needs assessment and the actions proposed in the Action Plans were quite good and realistic there were usually weaknesses in defining detail costing for the activities and in identifying sources of funding. These weaknesses can be attributed to the following factors: a) most of the clusters were at their first stages and the commitment of the participating companies was not fully secured, b) the time available to the consultant (usually 6-9 months) was not sufficient for a process of interval consultation, feedback and re-integration of the Action Plan that is necessary for producing a viable and realistic one and c) funding sources were extremely insecure due to the situation with the banks in the country and the uncertainty over the implementation of the current and future Structural Funds programs. The best of the action plans delivered had the following characteristics:

- a very detailed needs analysis that demonstrated evidence of extensive consultation which in turn was the result of the commitment both of the consultant and the participating SMEs
- elements of development of practical solutions to particular challenges the cluster is facing (i.e. the consultant of CRECOS took data from all the seven Authorities that manage small and medium inheritances in the country in order to map the potential clients of the cluster)
- analysis of the proposed actions that demonstrated enough details and insights to go beyond the “textbook” reference of ready-made solutions (i.e. the consultant of Wines Roads of Attica was instrumental on setting up a company that will implement the action plan and on promoting the participating companies in fora abroad).

The feedback received by the Evaluation Team during the interim evaluation of the cluster CRECOS was particularly positive about the contribution of IME GSEBEE during the first difficult stages of development, both at the motivation level and at the level of providing direct or indirect support services. Similar conclusions were drawn from focus groups that examined the "Wine Roads of Attica" and "Pandrosou Market" clusters. On the contrary CLUBE cluster did not find the level of services that they received from IME GSEBEE equally satisfying.

The following summarizes the main findings of the evaluation exercise:

- The majority of the clusters supported by IME GSEBEE were in the process of "being established" and consequently were taking their first steps. As young entities, they have significant needs of guidance, mapping of their environment and systematization of their options and priorities. The Action Plans delivered to them by the consultants appointed by IME GSEBEE contributed towards this direction and overall left a positive legacy.
- Even for the few clusters which existed before the IME GSEBEE intervention, the development of the Action Plan seems to had positive effects in enhancing their strategic and operational orientation.
- The Action Plans identified positive prospects of cooperation at either a sectoral or a horizontal/ geographical level. The problems identified were the expected ones: uncertainty about access to funding and the consequent difficulty for the costing of the Action Plans and the quantification of expected results.
- The development of the Action Plans can create the conditions for transforming the current clusters into organizations with continuous presence that can add value to the sector or the region which they address. Apart from the general business environment, factors that will determine the future viability of these cluster are: the commitment of businesses and other participants in the strategy and the goals of the cluster; the successful expansion of cluster membership and the
alignment of the cluster’s objectives with the priorities of the new National Strategic Reference Framework and the Smart Specialization Strategy of the region where they operate.

- Future Clusters support programs should consider supporting “hard” investments on the part of the cluster, for example by adopting a two-phase support model (first phase to include “soft” actions and development of an Action Plan and the second phase, for a selected few projects, to include funding for the actual implementation of the Plan).

- IME GSEBEE should be able to exploit its status and its institutional position to coordinate services from other organizations towards the clusters, taking the role of a “one stop shop” for cluster support services. Such services may include:
  - Promotion networking and attracting new members by using the brand of GSEVEE
  - Mediation and networking services with
    - Banks and risk capital funds for examining financing of the Action Plan activities and investment prospects of the cluster
    - Potential sponsors including communication sponsors
    - Peer organizations from abroad.
  - Mediation for cooperation with agencies and organizations that can support the clusters in their various activities. Examples: embassies’ Commercial Attachés, the “Invest in Greece” agency, the Export Promotion Agency of the Ministry of Development, the various investment guarantee funds, etc.
  - Specialized information services on sectoral developments
  - Specialized training services of the staff managing the development of the clusters.

4. Conclusions

The development of this pilot project has highlighted that there is considerable latent demand for cluster support among SMEs that can benefit from the intermediation of industry associations such as GSEVEE in our case. This observation is in line with similar findings in the literature [8,9]. Our cost-effectiveness analysis suggested that cluster support services, together with the two other high marginal cost services, i.e. innovation plans and IPR support, were expected to drive the intervention’s major impacts. Therefore, they should be standardized for efficiency and effectiveness and become mainstream.

To improve the effectiveness of such interventions, a distinction should be made between newly-established and existing schemes. In the case of newly-established schemes, there is need for support services such as mentoring and capacity building to help the interested parties set up a governance scheme, assess the baseline situation, prioritise their actions and elaborate a joint action plan. Existing or more mature schemes could benefit from services such as protection of IPR, technology or market intelligence, and networking (trade missions, brokerage, matchmaking).

Since the marginal cost for providing support services to clusters is rather high, efficiency can be improved by targeting the support to schemes that have the best growth potential and by leveraging the tangible and intangible assets of intermediaries. Instead of compiling lists of SMEs, a systematic process for screening high potential schemes should examine the various aspects of the operations of interested SMEs, their strengths and weaknesses, their capacity, vision and characteristics.

A major weakness of the clusters receiving support by IME GSEBEE was that, as was the case in previous attempts to cluster formation, the links to knowledge providers are either non-existent or very weak. This is a continuously occurring problem that has its roots in inefficiencies of the innovation ecosystem in Greece and weaknesses of both the academic and business world. Intermediary support bodies like IME GSEBEE should try to broker between businesses and knowledge providers as part of the sustainable cluster building process.

Finally, to achieve impact and sustainability, follow up financing—either institutional support by the government or own funding or a combination—should be readily available to the direct beneficiaries and well-designed dissemination actions should diffuse success stories to a wider population of SMEs.
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KUĆA KLASTERA CLUSTER HOUSE
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