

Editors

Tea Petrin

Pavla Břusková

Magdalena Bialic-Davendra

Cluster Development in the Czech Republic and Slovenia

Ljubljana, 2014

Faculty of Economics

Editors: Dr. Tea Petrin, Dr. Pavla Břusková, Dr. Magdalena Bialic-Davendra
Cluster Development in the Czech Republic and Slovenia

Publisher: Faculty of Economics Ljubljana
Publishing Office
Code: PBB14SM114
Printed and Bound by: Copis d.o.o., Ljubljana
First edition: 50 copies
Reviewer: Dr. Jasna Auer Antončič
Proofread by: Dr. Slavica Čepon
Cover page designed by: Robert Ilovar
Text designed by: Darija Lebar

Ljubljana, 2014

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

338.1(497.4+437.3)
336.76(497.4+437.3)

CLUSTER development in the Czech Republic and Slovenia / editors Tea Petrin, Pavla Břusková, Magdalena Bialic-Davendra. - 1st ed. - Ljubljana : Faculty of Economics, 2014

ISBN 978-961-240-281-5
1. Petrin, Tea
275594496

All rights reserved. No part of this publication may be reproduced or transmitted in any form by any means, electronic, mechanical or otherwise, including (but not limited to) photocopy, recordings or any information or retrieval system, without the express written permission of the author or copyright holder.

CONTENTS

INTRODUCTION.....	1
<i>Tea Petrin</i>	
PART I: GOVERNMENT SUPPORT FOR CLUSTER DEVELOPMENT	
Government Support to Cluster Development – the Case of Slovenia ...7	
<i>Tea Petrin, Patricia Kotnik</i>	
The Principles and Main Pillars of the Czech Cluster Policy26	
<i>Magdalena Bialic-Davendra, Pavla Břusková</i>	
PART II: AUTOMOTIVE CLUSTERS: CASE STUDIES	
The Slovenian Automotive Cluster55	
<i>Alenka Slavec, Igor Prodan</i>	
Moravian-Silesian Automotive Cluster85	
<i>Magdalena Bialic-Davendra, Eva Vejmělková</i>	
PART III: CREATIVE CLUSTER INITIATIVE MAPPING AND FACILITATION	
Creative Industries in Slovenia: Clustering, Analysis and Challenges 121	
<i>Nika Murovec, Damjan Kavaš, Aidan Cerar</i>	
Creative Industries Mapping in the Czech Republic: Case Study of the Zlín Region 147	
<i>Pavel Bednář, Pavel Grebeníček</i>	
SUMMARY.....	168
<i>Pavla Břusková</i>	
INDEX.....	171

CONTRIBUTORS

Pavel Bednář

Tomas Bata University in Zlín, Faculty of Management and Economics,
e-mail: bednar@fame.utb.cz

Magdalena Bialic-Davendra

Tomas Bata University in Zlín, Faculty of Management and Economics,
e-mail: bialic@fame.utb.cz

Pavla Břusková

Tomas Bata University in Zlín, Faculty of Management and Economics,
e-mail: bruszkova@fame.utb.cz

Aidan Cerar

Regional Development Agency of the Ljubljana Urban Region, Tehnološki park
Ljubljana, e-mail: aidan.cerar@ljubljana.si

Pavel Grebeníček

Tomas Bata University in Zlín, Faculty of Management and Economics,
e-mail: grebenicek@fame.utb.cz

Eva Vejmělková

Tomas Bata University in Zlín, Faculty of Management and Economics,
e-mail: vejmelkova@fame.utb.cz

Damjan Kavaš

Institute for Economic Research, Ljubljana, e-mail: kavasd@ier.si

Patricia Kotnik

University of Ljubljana, Faculty of Economics, e-mail: patricia.kotnik@ef.uni-lj.si

Nika Murovec

Institute for Economic Research, Ljubljana, e-mail: murovecn@ier.si

Tea Petrin

University of Ljubljana, Faculty of Economics, e-mail: tea.petrin@ef.uni-lj.si

Igor Prodan

University of Ljubljana, Faculty of Economics

Alenka Slavec

University of Ljubljana, Faculty of Economics, e-mail: alenka.slavec@ef.uni-lj.si

INTRODUCTION

Tea Petrin

The Context

Policy makers in Europe have been interested in the potential of clusters as a vehicle of competitiveness and economic growth for several decades. In many countries at the national, as well as regional and local levels, cluster development has become an important tool for economic development (Petrin, 2012; DG Enterprise and Industry, 2007). However, the interest for clusters as a policy tool for economic development has been changing over time.

In the late seventies and the eighties, due to a new production paradigm known as 'flexible specialization', clustering was seen as an important factor for the increased efficiency of highly specialized small enterprises. An extensive study (Best, 1990; Becattini, 1989 and 1990; Brusco, 1992) reinforced the importance of geographical clustering as a generator of efficiency externalities due to the internal and external market interactions of firms in a cluster which in turn enabled highly specialized small firms to offset size related externalities. Consequently, policy makers adopted the cluster concept as an important policy tool for enhancing the competitiveness of small enterprises.

During the 1990s the new growth theory opened discussion on knowledge based economy and consequently on government tools for stimulating economic growth based on knowledge. Focus on innovation as a key driver of economic growth renewed the importance of geographical clustering and agglomeration of firms. It was observed that innovations are geographically conditioned since spillover of knowledge is geographically constrained (Audretsch & Aldrige, 2008; OECD, 2010). Spillover of knowledge is a by-product of the interaction of firms leading to tacit, new knowledge and where it materializes in innovation, a region experiences higher growth compared to others and more and better competitive advantages. From the policy view, the interest in clusters or

clustering of firms became a matter of how to leverage the role of clusters as drivers of innovation and growth.

There is no uniform definition of clusters. Clusters can be understood as phenomena that refer to production system(s), or to social networks and interactions among sectors within geographically defined areas, or as a structural phenomenon (Petrin, 2012, p. 12). However, Porter's definition of business clusters as a geographic concentration of inter-connected companies, specialized suppliers, service providers, firms in related industries and associated institutions (1998, p. 197), has largely been embraced by policy makers (Peck & Lloyd, 2008, p. 395).

The cluster concept was largely embraced by policy makers in the EU-12 countries that joined the European Union from 2004–2008 as a new tool to strengthen regional and national competitiveness and growth (Petrin, 2012, p. 14). This monograph should be seen as a contribution to understanding the role of the cluster concept used in these countries as a vehicle for economic restructuring, based on the experience of two countries: Czech Republic and Slovenia. It is a product of the »CLUPERPOL« project, »The research of the cluster performance measurement model and cluster policy efficiency«, conducted in 2010–2011 under the Bilateral Mobility Programme of the Czech Ministry of Education, Youth and Sports.

Topics dealt with in this monograph are organized in three parts.

The first part deals with the government support of cluster development. Papers by Tea Petrin and Patricia Kotnik and Magdalena Bialic-Davendra and Pavla Břusková contrast the role of the government in supporting cluster development in Slovenia and the Czech Republic. Although the approach taken to cluster development differs between the two countries, it can be said that in both the public policy supporting cluster development pursued the same end goal – enhancing the innovation process, competitiveness and growth.

The second part presents two case studies as best practices of cluster development in Slovenia and the Czech Republic. Alenka Slavec and Igor Prodan have contributed the case study on the Automotive Cluster Slovenia and

Magdalena Bialic-Davendra and Eva Vejmělková the case study on the Moravian-Silesian Automotive Cluster.

Finally, the third part presents attempts in both countries to enhance economic competitiveness by supporting the development of creative industries. Nika Murovec, Damjan Kavaš and Aidan Cerar analyse the fundamental notions and definitions of creative clusters and the broader context of cultural and creative industries, while Pavel Bednář and Pavel Grebeníček of UTB deal with the statistical mapping of creative industries in the Zlin Region of the Czech Republic.

References

- Audretsch, D. B., & Aldridge, T. T. (2008). The knowledge spillover theory of entrepreneurship and spatial clusters. In C. Karlsson (Ed.), *Handbook of Research on Cluster Research on Cluster Theory* (pp. 67–77). Cheltenham, UK: E. Elgar.
- Becattini, G. (1989). Sector and/or districts: some remarks on the conceptual foundations of industrial economics. In E. Goodman & J. Bamford (Eds.), *Small Firms and Industrial Districts in Italy*. London: Routledge.
- Becattini, G. (1990). The Marshallian Industrial District as a Socio-Economic Notion. In F. Pyke, G. Becattini & W. Sengenberger (Eds.), *Industrial districts and inter-firm cooperation in Italy* (pp. 37). Geneva: International Institute for Labour Studies.
- Best, M. H. (1990). *The new competition: Institutions of industrial restructuring*. Harvard: University Press.
- Brusco, S. (1992). Small firms and the provision of real services. In F. Pyke, G. Becattini & W. Sengenberger (Eds.), *Industrial Districts and Local Economic Regeneration* (pp. 177–196). Geneva: International Institute for Labour Studies.
- DG Enterprise and Industry. (2007). *Innovation Clusters in Europe. A Statistical Analysis and Overview of Current Policy Support*. Luxembourg: Office for Official Publications of the European Communities.
- OECD. (2010). *SMEs, Entrepreneurship and Innovation* (pp. 212).

- Peck, F., & Lloyd, C. E. (2008). Cluster policies and Cluster Strategies. In C. Karlsson (Ed.), *Handbook of research on innovation and clusters: Cases and policies* (Vol. 2). Cheltenham, UK: E. Elgar.
- Petrin, T. (2012). Clusters as government policy tool promoting competitiveness and knowledge based economic development. *Vietnam Economic Management Review*, Special Issue Promoting Industrial Cluster Development in Vietnam, 8–24.
- Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, 76(Nov./Dec.), 77–90.

PART I: Government Support for Cluster Development

GOVERNMENT SUPPORT TO CLUSTER DEVELOPMENT – THE CASE OF SLOVENIA

Tea Petrin, Patricia Kotnik

Background

Public support of cluster development in Slovenia began with the introduction of a new concept of industrial policy promoting entrepreneurship and competitiveness. Its objective was to speed up the adaptation of Slovenian companies to the latest technological, managerial and organizational advances and to foster the development of organizational structures and institutions enhancing national productive capabilities. This new policy – »Entrepreneurship and Competitiveness Policy« – was introduced by the Ministry of the Economy in 1999 and carried out till 2004 (Petrin, 2005). This was the first and the only time that the Slovene Government specifically supported the development of clusters. Recently, however, as will be discussed in this chapter, the idea of reintroducing government support of clusters has increasingly been gaining attention from policy makers.

The new industrial policy »Entrepreneurship and Competitiveness Policy« was brought into practice in 2000. Implementation of the policy objective was carried out through the »Program for Entrepreneurship Promotion and Competitiveness«. It consisted of horizontal measures aiming at introducing changes on the company as well as on the sector level leading to the development of distinctive irreproducible productive capabilities. Among them a sub-program was designed to support the development of inter-company cooperation, specifically clusters.

There were at least two main reasons why the government of Slovenia endorsed a new industrial policy centred on entrepreneurship and competitiveness.

From 1991–1999, Slovenia – with the exception of 1992–1993 – followed a traditional growth model. It was assumed that growth would follow macro-

economic stabilization as the profit motive and free markets led to a spontaneous transition from stabilization to growth. This orientation led to positive results regarding the transformation of the Slovenian economy. In ten years, Slovenia became an open market economy with macro stability, achieved a high investment rate, a stable average of 3% growth rate, and a high level of social protection. FDI was increasing and privatization was carried out.

However, Slovenia's international competitiveness during that period did not improve substantially because too many Slovenian enterprises were too slow in adopting the latest technological, managerial and organizational advances. In addition, organizational structures and institutions enhancing national productive capabilities were developing too slowly, some of them not at all. As a consequence, the share of traditional labour-intensive industries remained disproportionately high, labour productivity in manufacturing industries was on the average three times lower than in other industrially developed economies, and the share of innovative enterprises and the share of technology-intensive products in total exports was two times lower. The following data illustrate the competitiveness gap compared to EU member countries: Slovenia achieved on average a 2% differential growth rate; reached 60% of the GDP/hours worked of the EU-15; manufacturing gross value added per employee was on the average 3 times lower than the EU-15 average; Slovenia had 21 patents/1 million population while EU-15 averaged 153; the share of innovative enterprises was 28%, in the EU-15 it was 40%; the Slovenian share of technology intensive products in total exports was 26%, in the EU-15 it was 50%; and the value added per employee of SMEs in Slovenia was 17,000 EUR, while in the EU-15 the average was 65,000 EUR.

The second reason was Slovenia's pending entrance to the European Union, with serious demands to increase economic efficiency and competitiveness, accompanied by increasing globalization and economic changes caused by the rapid spread of information technology. These two processes occurring simultaneously called for the change of the existing governmental approach towards the facilitation of enterprise transformation. The proactive industrial policy promoting the transformation of Slovenia from an economy with low added value whose competitiveness was based on low operative costs into an economy based on production and services whose competitive advantages would

be high added value, quality, innovation and entrepreneurship became not only acceptable but also a necessary tool.

Given these reasons, the pressing policy challenge became how to facilitate the emergence of distinctive irreproducible capabilities of enterprises and organizations in the competitive environment in which they operate in order that they be able to successfully compete in the global markets and at the same time restructure the economy according to the demands of accession and globalization. In the following sections a more detailed overview of the new industrial policy, as an answer to the policy question, will be presented. Special emphasis will be given to a cluster program as a core theme of this paper.

An overview of the national industrial policy »Entrepreneurship and Competitiveness Policy« in the period 1999–2004

The design of the new industrial policy concept set up in 1999 was based on the identification of factors that caused the relatively low competitive advantages of the Slovenian economy. It was identified that Slovenia needed to strengthen the presence of factors that are crucial for attaining and sustaining high growth: an entrepreneurship culture, the creation of knowledge, social capital, and up-to-date business models of industrial innovation. In addition, the concept aimed at creating a regulatory framework fostering the development of a dynamic market structure. This was guided by two important principles. First, the role of the policy was not to replace the market mechanism or the responsibility of private initiatives for business success. Second, it should instead function as a catalyst and agent of change in the process of continuous and effective adaptation of economic agents to changes on the global market.

In a nutshell the policy focused on (Ministry of the Economy, 2002a):

- strengthening key factors of business success: knowledge, innovativeness, technology and entrepreneurship;
- strengthening the competitive capabilities of enterprises by increasing exports and outward investments as well as the inflow of qualitative direct investment;

- drawing up legislation that would enable sustainable and constant development of all players on the market.
- promoting balanced regional development by taking care of specific needs of restructuring in order to close the regional competitiveness gap.

The Programme of Measures to Promote Entrepreneurship and Competitiveness (Ministry of the Economy, 2002b) that was developed as the core program to reach the policy objectives consisted of three sub-programs:

1. Enhancing knowledge creation.
2. Improving enterprises' competitive capacities.
3. Promoting entrepreneurship and utilization of entrepreneurial opportunities.

For each of the sub-programs a set of horizontal measures was developed, aiming at stimulating changes in the key identified competitiveness factors in line with the policy objectives. The second of the sub-programs – improving enterprises' competitive capacities – had two objectives. On the enterprise level, instruments and activities were designed to stimulate the changes in enterprises' internal organization to include up-to-date management and technological approaches. The second objective was to stimulate the development of industrial organization that would support the development of systems that would enable faster dissemination of knowledge within the economy. In view of this second objective, the government supported the development of clusters and technology networks.

From the above overview it may be seen that government support of cluster development in Slovenia was strategic. Clusters were considered as an important tool for enhancing or reinforcing competitiveness at the microeconomic level, part of a broader competitiveness agenda, »Entrepreneurship and Competitiveness Policy«. Interestingly, the Ministry of Economy in 1999/2000, when designing the policy, combined cluster efforts with other policy initiatives that provided an overall supportive environment in which clusters could emerge. The approach taken was, although quite ahead of its time, in line with the first principle that ECPG stated in its »Final Recommendations – A Call for Policy

Action« in 2010¹, as well as with one of the recommendations of the Round Table »Clusters: a Policy or a Tool for a Policy« of the Week of Innovative Regions in Europe (WIRE2010)², also in 2010.

Cluster development as an instrument of industrial policy

»Entrepreneurship and Competitiveness Policy«

The objective leading to the support of cluster development in Slovenia was to stimulate the development of industrial organization that would thus support the development of systems that enable faster dissemination of knowledge within the economy to foster accumulation of knowledge that would translate itself into innovation manifested in new products, services and new technological processes or technologies.

Why clusters?

A cluster is basically a regional production system wherein relationships require more than can be conveyed by long range communications or transportation. Clusters *are* relationships. They represent the economic as well an inter-related system; they are not about the individual firms or about sectors.

Currently it is well accepted that the most important source of innovation is the sharing of knowledge. Learning requires interaction; it involves adding new knowledge and maintaining that knowledge, all of which involves interaction among producers and users, both old and new (Malecki, 2010). For effective production and the sharing of new knowledge, spatial proximity is important. Literature on learning regions argues that the transmission of tacit knowledge is best achieved by face-to-face interaction between partners, and that collective

¹ The European Cluster Policy Group was formed by a Commission Decision on 22 October 2008 as an important element in the quest to strengthen the quality of cluster programmes across Europe. Over its 18 months mandate the group provided policy recommendations to the Commission. During the European Cluster Conference 2010: World Class Clusters Renewing Industry, Brussels, 30 September, 2010, the ECPG final recommendations were presented to a wide audience from MS, to policy authorities of some MS and handed over the final document to Commissioner Tajani.

² WIRE2010, 15–17 March 2010, Granada, Spain.

learning processes are highly time- and space-specific (Asheim & Gertler, 2006). Clusters, as has been widely documented, can represent a type of industrial organization that creates social interaction and synergies between organizations – companies, financial institutions, research institutions and academia, support organizations, etc. – with each organization focusing on narrow areas of knowledge or activity. This can lead to a creation of a cluster-specific inter-firm stock of knowledge which is not readily available on the market and is distinct from the knowledge anywhere else in the industry (Malecki, 2010). This tacit knowledge is the basis for the creation of new knowledge that eventually can turn into new products and services and new industries.

Networking in a cluster enables the flow of knowledge and information between actors, and thus creates a form of dynamic self-teaching system. Such a system, however, could not function without trust. Only within a trusting environment, will clustering enable and stimulate the exchange of knowledge and information between enterprises, universities and other research institutions, which in turn will increase the capacity to generate new usable knowledge. Research also shows that cognitive and social proximity between partners is important for the process of knowledge acquisition and exploitation, and not necessarily geographical proximity (Presutti & Boari, 2011).

It is believed that clustering offers a favourable environment for companies to obtain and strengthen competitive advantages for several reasons, as discussed in the literature on clusters:

- facilitating horizontal as well as vertical (buyer-supplier) cooperation, developing trust and social capital (networks),
- facilitating access to resources (specific know-how, technology, financial means, products, assets, markets, etc.) which do not exist in a firm but are accessible through networks within the cluster,
- facilitating knowledge spill-overs; firms can thus achieve higher levels of knowledge creation and innovation,
- stimulating the restructuring of resources – spin-offs,
- stimulating new business formation – close interaction with suppliers and buyers, and

- creating lead markets – the emergence of new industries as a result of buyers-suppliers interactions.

The role of clusters in regional economic performance has also been widely studied, theoretically and also empirically. As Porter points out, the important aspects of a business environment are often cluster-specific, since clusters affect competition in three ways: by increasing the productivity of companies located in the area, by driving the direction and pace of innovation, and by stimulating the formation of new business (Porter, 1998). When empirically examining the role of clusters in regional economic performance, the effect of agglomeration economies is studied. However, one must also take into account a potentially competing force of convergence. Due to diminishing returns in an industry, convergence arises when potential for growth decreases with the level of economic activity. An empirical study by Delgado, Porter and Stern (2010a) has taken into account both of these effects. After controlling for convergence, their results indicate that industries located within a strong cluster are associated with higher employment growth. They also find that clusters have a positive impact on the growth rate of average wages as well as on the growth rate of patenting in the industry – and that a strong regional cluster facilitates the creation of new industries within that cluster. Their study also points to the role played by complementary economic activity, for they demonstrate that industry employment growth increases with the strength of related clusters in a region and with the strength of clusters in geographically adjacent regions.

The evidence that clusters affect the creation and evolution of new firms continues building. Clusters might affect entrepreneurship in several ways (Hellerstedt, 2010): i) cluster characteristics may reduce the barriers to entry for new firms, thus affecting the cognitive perceptions of success and inducing potential founders to become nascent entrepreneurs; ii) there are stronger job-matching opportunities and service economies of scale and scope in agglomerations; iii) in agglomerated regions firms develop greater knowledge of each other and thus decrease their search costs, which eases both efforts to find buyers and to be found; iv) lower transaction costs in clusters encourage specialization; v) lower exit barriers imply that alternative employment is more easily found for unsuccessful entrepreneurs, which leads to higher rates of exits and also entries. The presence of clusters will thus foster entrepreneurship by

increasing the perception of entrepreneurial opportunities, by enhancing opportunities, and by lowering costs. Some clusters even enjoy a continuous emergence of high growth start-up firms in industries unrelated to the original clusters, with the Silicon Valley being a prominent example. Engel and del Palacio (2009) call them »clusters of innovation« and point out that they are characterized by a high mobility of resources, mechanisms of new firm creation, a culture of collaboration and by firms that go global from the beginning.

Results of empirical studies seem to confirm the role of clusters in entrepreneurship. A study of the US data that examined the economies of agglomeration that arise within clusters of complementary industries has found strong evidence of the positive impact of agglomeration on the growth rate of start-ups. They have also found that strong clusters are associated with greater formation of new establishments of existing firms and that a strong cluster environment positively affects the level of employment in young start-up firms, thus suggesting the effect on medium-term survival (Delgado, Porter & Stern, 2010b). Another study has confirmed, using micro-level data on Swedish firms, that location in strong clusters has a positive effect on the performance of new entrepreneurial firms. Cluster strength was found to have a strong positive effect on firm survival, job creation, tax payments and wages of employees (Wennberg & Lindqvist, 2010).

The expected benefits of clustering, for the firms and the economy as a whole, were the basis for initiating the Slovenian government support for cluster development.

Approach to cluster development

The cluster development process that was set up within the industrial policy in Slovenia followed three steps:

1. Identification of potential clusters;
2. Cluster program design and role of the pilot projects;
3. Implementation.

In the first step a mapping of key industries by regions was carried out during 1999. The mapping covered 12 Slovenian regions, 55,437 companies employing

720,000 employees and 46 industries by SIC classification. This was carried out to obtain a good picture of company relationships within an identified geographical agglomeration. Further, it showed the degree of co-operation or linkages between companies in a given industry as well as between industries. This analysis concentrated also on finding out the degree of linkages with knowledge institutions such as R&D institutes and academia. Linkages were defined as a flow of information between companies, between companies and institutions of knowledge and other institutions such as government agencies, and support infrastructure (incubators, technology parks...). Identification of linkages was carried out through mailed questionnaires (17,000 companies, institutions and organizations) and face to face interviews with key managers, experts from Chambers of Commerce, government agencies, ministries, R&D institutions and consulting companies. This complex exercise was completed by 2000. It determined that co-operation and networking among companies and knowledge institutions was relatively weak. Only seven potential clusters were identified: optical/electronic system, automotive suppliers, the home appliances industry, information systems, transportation/logistics, publishing, and construction.

To overcome the problem of very weak linkages that existed between enterprises, specific measures to promote basic enterprise networking and cooperation were put in place; for example, a program for the co-financing of joint projects involving a minimum of 5 companies and support institutions. More than 200 projects of this kind were supported in the first two years (2000–2001). The initial projects were focused on marketing and technology improvement, while at a later stage the project became focused on joint project development. Initially the cooperation was along the production value chain, while later horizontal networking was strengthened.

The next step (in 2001) was the launching of a pilot project for potential cluster development by inviting groups of at least 10 companies in a value added chain along with at least three support institutions which could qualify as a potential cluster nucleus. Selection criteria included the existing level of cooperation in the field of R&D, technology management, new product development and skill formation, awareness of the benefits of networking, high commitment for networking, and an action plan with a clearly defined vision and strategy,

competences and key technologies. Six groups applied to the tender, out of which 3 pilot clusters were supported: automotive, transport and tool making. The ministry co-financed the initial phase which entailed the definition of cluster structure and strategy.

During 2001 several other activities related to clustering were supported by the ministry, such as training program to improve the knowledge of clustering and the development of a network of cluster promoters; i.e., facilitators of clustering and cluster managers. The ministry initiated specific instruments, such as financial support for initial stages (one year) and support in the development stage (two years) to promote basic enterprise networking and cooperation.

Based on the positive results from pilot projects (pilot clusters), the ministry decided to continue with the implementation of the second sub-program »Improving enterprises' competitive capacity« and within this program the development of clusters and technology networks for another 3 years was supported (implementation phase). A decision was made to limit the availability of public funds for the support of cluster organizations/managers to 4 years in order to avoid the trap of path dependency on public money as the main motivation for their existence.

To summarize, cluster development was facilitated by first initiating a comprehensive study in order to identify potential clusters, initiating specific policy measures to promote basic enterprise networking and cooperation, initiating a training program to improve knowledge of clustering and developing a network of cluster promoters, facilitators and managers, and, finally initiating a pilot project of a potential cluster development by inviting groups of enterprises along with knowledge support institutions which could qualify as a potential cluster nucleus. Cluster development in Slovenia followed a bottom up approach. Clusters were not defined by government policy, on the contrary, companies themselves decided to form a cluster by responding to a government tender. The government acted as a passive agent of change. It did not replace the market mechanism or private initiative by »picking the winners«.

The Slovenian approach to cluster development became internationally recognized, receiving special recognition and attention in The Cluster Initiative

Greenbook, proposing Slovenia as the prime candidate from which to learn about the success drives of cluster initiatives due to its overall success and its significant experience. A well-known scholar in the area of clusters, Christian Ketels, stated: »The most prominent example is Slovenia, a country that has received much attention for its cluster program and the role of clusters played in the impressive performance of the Slovenian economy.« Slovenian approach was also recognized by the EU, Enterprise Directorate General in 2003: »Slovenia is amongst the front runners of cluster development in Europe. In Slovenia for instance, clusters are an integrated tool of competitiveness and innovation policy, starting in 1999.«

Results of the cluster development initiatives

The most important result of the cluster initiative was the triggering of a very crucial change in »business psychology«. Before the ministry introduced the concept of clustering and started to support cluster development, Slovenian enterprises were not inclined to network spontaneously. Due to the positive results of networking between cluster companies, it became evident that progress is faster where there is cooperation and that cooperation can deliver results only in a trusting environment. Secondly, already by the third year of the cluster program implementation, the results obtained exceeded expectations. Some are presented below.

By 2004 seventeen clusters in the production of automotive parts, tool making, transport and logistics, high technology machines, plastics, acclimatization, furniture, geodesy, environment, tourism, construction, and textile and energy, were operating successfully. They networked more than 300 enterprises with 57,000 employees together with 40 supportive institutions. Towards the end of 2003 the ministry began supporting the development of local clusters, mainly in tourism.

The results of clustering have been seen in the development of new organizational forms, the specialization and productivity of individual companies and in the increased investment in research and development, the consequence of which has been to make the whole system more competitive. Clusters which participated in the survey measuring the results of clustering

declared increased sales by 38% on the markets of ex-Yugoslavia. Slovenian clusters became desired partners of foreign clusters, networks and multinationals (Podjetnik, 2004). They were and still are recognized as active promoters of inter-firm cooperation, either on the EU level or in south-eastern Europe. For example, the plastics cluster networked with Italian, Austrian and Croatian clusters, and the automotive with Russian partners, successfully developing suppliers along the value chain of a cluster in ex-Yugoslavia. The first »Europe INNOVA Cluster Award 2006« launched by the European Commission, Directorate General for Enterprise and Industry, honouring the key actors behind the success of a cluster, the clusterpreneurs as well as the cluster manager, was given to Mr. Dušan Busen, the manager of the automotive cluster ACS (Automotive Cluster Slovenia). ACS started as a pilot cluster (as discussed previously).

In 2003, four technology networks – in biotechnology and pharmacy, information-communication technology, precision processes, and new materials and environmental technology – were initiated. They link industry, academia and resource providers that can both develop and transfer resources and capabilities between higher education institutions and industry as well as across industries. These technology networks need to represent areas of technology where a critical mass and strong interest in acting on technological development, deployment and related areas of technical assistance and training already existed. Such networks emerged in the areas where competitive advantage was identified with regard to the existing level of production/innovative capabilities and potential for their further development. They networked 43 enterprises and 30,000 employees together with 15 R&D institutions. The estimated results in a year's time (in 2004) were the increased use of information technology in manufacturing processes while intensified links with universities and research institutes resulted in more applied and market driven research, clearly benefiting companies in this network.

Industrial policy after 2004

In 2005, »Entrepreneurship and Competitiveness Policy« was no longer implemented since a new government was appointed. The Ministry of the Economy did not issue a new industrial policy program until 2007. The 2005–

2006 period can be considered as a time when the basic principles underlying the policy remained the same as set up by the previous government; however, direct support to clusters was terminated. Financing for the potential cluster development programs ceased, as well as financing connected to supporting existing clusters. In spite of this, the clusters continued to emerge: between 2004 and 2006 the number of clusters increased from 17 to 28.

The »Programme of Measures Promoting Entrepreneurship and Competitiveness 2007–2013« (Ministry of the Economy, 2007), implemented in 2007, was slightly different from that of 2002–2006. As before, this programme also aimed to address the identified weaknesses of the Slovenian economy, particularly: lack of entrepreneurial culture, an inefficient and deficient supporting environment, an inadequate and incomplete infrastructure, lack of investments in R&D and related activities, poor links between business and science, a shortage of highly-skilled human resources within companies, lack of support for and an undeveloped market in innovations, and too few favourable and special financial sources (Ministry of the Economy, 2003). Correspondingly, four basic pillars of the Programme were set up: i) Promoting entrepreneurship and an entrepreneur-friendly environment; ii) Knowledge in business; iii) R&D and innovations in companies; and iv) Promoting small and medium-sized enterprises with equity and debt instruments.

Measures included in the first of the pillars were aimed at promoting entrepreneurship and education for entrepreneurship as well as developing a business supportive environment for potential entrepreneurs and incumbent companies. This included support of the »One-Stop-Shops«, voucher consulting, and training and support to specific target groups (women, entrepreneurs in rural areas, social entrepreneurship). The second pillar aimed to strengthen internal capabilities of companies for knowledge-based development. Measures were aimed at the human resources crucial for these capabilities – by stimulating a share of highly educated people in the business sector, by encouraging mobility of highly-skilled people in the business sector (through promoting the migration of R&D staff from knowledge institutions to businesses, and mobility of highly-skilled resources from big companies to SMEs), by financing basic research projects of junior researchers based in businesses, and by encouraging R&D activities of interdisciplinary R&D groups within the companies.

The third pillar of the Programme is aimed at encouraging R&D and innovation in enterprises. A group of measures is directed toward supporting economic development logistics platforms that would form the infrastructure with the critical mass of knowledge institutions, enterprises as well as government institutions and regional and municipal public institutions and create opportunities for co-operation. These platforms included excellence centres, technological centres, business-industrial-logistics areas of national significance, technology, parks, regional business incubators, and university incubators. Another group of measures targeted R&D projects, technological investments and processes and organizational investments of companies, with an emphasis on the transfer of knowledge between knowledge institutions and companies and between companies themselves. The last group of measures was set to encourage innovations: through the Slovene Competitiveness and Innovation Centre (an integrated supporting environment system in the field of innovation similar to in nature to the »one-stop-shop« principle), by promoting the establishment and work of innovative groups, by start-up capital for new innovative companies, and by co-financing SMEs' costs of acquisition of industrial property rights.

The last pillar of the Programme is aimed at financial support of SMEs with equity and debt instruments (through private-public partnership in connection to venture capital funds, and through warranties and various debt instruments).

As is evident from the description of the »Programme for Promoting Entrepreneurship and Competitiveness 2007–2013«, the main aims remained the same as in the 1999–2004 programme. The measures still aimed at strengthening entrepreneurship, R&D and the innovative capabilities of companies; however, there is a slight change from the horizontal policy approach to a kind of vertical (sectoral) approach. But when it came to clusters the approach changed. In the Programme, clusters were not singled out as a strategically important tool. Clustering was considered to be one of the forms of innovative groups. The latter were defined in the programme as groups of independent companies – innovative companies in the early stages of operation of small, medium-sized and large enterprises and public research organizations – operating in a particular industry or region and formed for promoting innovative activities. Other forms of innovative groups included technological platforms and technological networks, for example. The means of financing and the priorities

of financing changed in comparison to the 1999–2004 period. Cluster organizations themselves could not be financed anymore, only the companies that were co-operating could. And even though the instruments supporting co-operation were available, not even a single joint R&D investment project that was co-financed in 2008 and 2009 included clusters, for example.

Lessons learned and the way forward

The lessons for policy makers learned from Slovenian experience can be listed as follows.

Clusters proved to be an excellent ground for creating synergies between different organizations – companies, financial institutions, research institutions and academia, support organizations, etc. Networking has proved to be an important mechanism of transfer of knowledge between companies and companies in turn have benefited from the circulation of knowledge and in addition obtained cost advantages.

Clusters also proved to be an organizational system facilitating the creation of trust among members and thus the development of social capital. Without it the positive results mentioned above would not have occurred.

Clusters became the driving force in initiating technology platforms. Cluster companies were mostly those that responded to the government tender in 2009 for the formation of centres of excellence as an upgraded system that would push the development of key knowledge further in the key technology areas. The government also decided to support the development of competence centres to foster cooperation among enterprises for the purpose of commercialization of commonly developed new knowledge and became significant members of competence centres. All this demonstrate that cluster companies are more ready to adopt new innovative organizational forms than others.

To avoid the problem of the dependency of cluster companies and cluster organizations on government support in the long run, especially when clusters emerged due to incentives from the government or cluster initiatives with financial support, it is important to limit financial support to a certain period of

time, no longer than 5 years. Otherwise a tendency to drag budget funds only to perpetuate cluster companies and killing motivation of the private sector might occur.

Besides these positive lessons, some shortcomings can also be identified.

The horizontal approach in forming clusters was too weak. It focused too much on branches of one sector. This of course is not the best ground for the development of new industries, given the lack of cross-fertilization of knowledge between different sectors.

Many clusters become »locked-in«, devoting too much energy to fostering cooperation between the actors within the cluster. Also, competition between companies in a cluster was too low. Both factors significantly decreased the innovation potential of clusters.

Financial support has in most cases been the most important driver for cluster formation. This partly explains why the number of clusters has decreased over time (there were of course other objective reasons such as lack of trust, lack of expected results, changes in external economic conditions, regulations, etc.).

And the way forward?

To increase the impact of existing clusters on economic growth as well as to increase the performance of cluster companies with respect to innovation and the creation of new knowledge, what is necessary are significant improvements in the key dimensions of framework conditions that provide an overall supportive environment in which clusters may emerge and flourish. At the same time there is a need for cluster management to exert pressure on the development of unique irreversible productive capabilities and makes this the most important strategic priority. Without both, clusters cannot be very effective and cannot deliver results in line with policy objectives and expectations. These are also necessary conditions for existing clusters to become excellent clusters.

An »excellent cluster« is generally understood to mean one in which there are strong competitors on the world market, have high international visibility, attract

talent, and invest globally, functioning as ecosystems capable of rapidly reacting effectively to market opportunities, and facilitating the development and growth of entrepreneurial, technology or creativity driven companies and the emergence of new industrial sectors. There are sufficient examples of such clusters in the EU and elsewhere around the world; for example, in regions like the Silicon Valley, the Boston area, Great Britain's Cambridge area, Sofia Antipolis, northern Italy, Sweden, Denmark, Scotland, Medicon Valley, etc.

However, in all of the cases mentioned above, the most conducive framework conditions exist and the development of unique productive capabilities is a strategic management priority. Therefore, networking among companies in clusters resulted in unique knowledge creation; in addition, effective business and services infrastructure, able to meet the demands from companies that compete globally is also present as well as an effective education and R&D infrastructure which provide both labour and skills formation demanded by high tech companies. In these countries and regions governments continuously fund research at the universities through public procurement, financing innovative projects. There is both abundant entrepreneurial and management talent and access to capital contributed to the clusters' success. Another important characteristic of excellent clusters is their internationalization, which naturally is more necessary as globalization increases; companies need to capture the best know-how available globally, in locations beyond their regional and national boundaries. Knowledge no longer limited specific geographic space, rather flows globally, without borders. Linkages between clusters in different locations which offer complementary strengths can provide access to the most advanced technologies and know-how.

States and regions that are best in attracting and leveraging the above mentioned key ingredients become hotbeds for the world's best clusters. Slovenia, for the time being, is not among them. To become one of them it will have to provide the key ingredients enabling cluster to excel.

For the next stage of the Slovenian cluster effort, if the government decides to reconsider the support for cluster development in Slovenia, besides issues already discussed above, it would be desirable to take into consideration the recommendations of the European Cluster Policy Group, published in its final

report: »Final Recommendations – A Call for Policy Action« (European Cluster Policy Group, 2010). Some of them are addressing similar issues as those already discussed, but there are many additional recommendations that would be worth taking into account. Among them the 3 principles which provide general orientation for policy makers at the EU level as well as in EU member states and two action proposals directed to the EC and MS which argue for a review of current recipients of cluster funding and for spreading best practice within cluster programmes in EU member states³.

References

- Asheim, B., & Gertler, M. (2005). The geography of innovation. In J. Fagerberg, D. C. Mowery & R. R. Nelson (Eds.) *The Oxford handbook of innovation* (pp. 291–317). Oxford: University Press.
- Delgado, M., Porter, M. E., & Stern, S. (2010a). Clusters, Convergence, and Economic Performance (October 1, 2010). US Census Bureau Center for Economic Studies Paper No. CES-WP-10-34.
- Delgado, M., Porter, M. E., & Stern, S. (2010b). Clusters and entrepreneurship. *Journal of Economic Geography*, 10(4), 495–518.
- Engel, J. S., & del-Palacio, I. (2009). Global networks of clusters of innovation: Accelerating the innovation process. *Business Horizons*, 52(5), 493–503.
- European Cluster Policy Group. (2010). *Final Recommendations – A Call for Policy Action*. PRO INNO Europe.
- Grozdi – izzivi, znanje, zaupanje. (2004). *Podjetnik*, Spec. iss. (Jul.).
- Hellerstedt, K. (2010). Birth of New Firms: The Geography Connection. In F. Delmar & K. Wennberg (Eds.), *Knowledge Intensive Entrepreneurship: The Birth, Growth and Demise of Entrepreneurial Firms* (pp. 208). Cheltenham, UK: Edward Elgar Publishing.
- Malecki, E. J. (2010). Everywhere? The Geography of Knowledge. *Journal of Regional Science*, 50(1), 493–513.

³ The full ECPG report is available on the PRO INNO Europe website.

- Ministry of the Economy. (2002a). *From challenges to opportunities – Ministry of the Economy's Entrepreneurship and Competitiveness Policy*. Ljubljana: Ministry of the Economy, Republic of Slovenia.
- Ministry of the Economy. (2002b). *Programme of Measures to Promote Entrepreneurship and Competitiveness 2002–2006*. Ljubljana: Ministry of the Economy, Republic of Slovenia.
- Ministry of the Economy. (2003). *Benchmarking Slovenia 2003*. Ljubljana: Ministry of the Economy, Republic of Slovenia.
- Ministry of the Economy. (2007). *Programme of Measures Promoting Entrepreneurship and Competitiveness 2007–2013*. Ljubljana: Ministry of the Economy, Republic of Slovenia.
- Petrin, T. (2005). Industrial Policy to Foster Medium-Sized Firms in Slovenia. In J. Prašnikar (Ed.), *Medium-Sized Firms and Economic Growth* (pp. 169–180). New York: Nova Science Publishers.
- Porter, M. E. (1998). Clusters and the new economics of competition. (Vol. 76): *Harvard Business Review*, 76(6), 77–90.
- Presutti, M., Boari, C., & Majocchi, A. (2011). The Importance of Proximity for the Start-Ups' Knowledge Acquisition and Exploitation. *Journal of Small Business Management*, 49(3), 361–389.
- Wennberg, K., & Lindqvist, G. (2010). The effect of clusters on the survival and performance of new firms. *Small Business Economics*, 34(3), 221–241.

THE PRINCIPLES AND MAIN PILLARS OF THE CZECH CLUSTER POLICY

Magdalena Bialic-Davendra, Pavla Břusková

Introduction

The cluster phenomenon combines numerous diverse entities from various areas of industry, education, science and government into one coherent structure – a network; therefore, while considering the issue of a cluster policy it is vital to take into consideration all measures affecting the cluster's functioning.

Cluster policy can be defined as a set of various activities (strategies, programmes, procedures, etc.) usually implemented throughout a period of several years according to a certain plan and assigned budget. It can be implemented through defined programmes explicitly oriented toward clusters, within a strategy focused on stimulation of competitiveness in general, or within the strategies of general economic development (Kačirková 2008; Pavelková et al., 2009). The European Commission (2005) aptly states that »a cluster policy is not an isolated, independent and well-defined discipline. It embraces all policies that affect the development of clusters, taking into account the synergies and interchanges between these policies. Many policies labelled under different headings (regional policy, industrial policy, innovation policy, etc.) are in fact cluster policies« (p. 10).

As cluster policy may join a long range of policy fields, we often encounter the term »cluster-based policy« (Pilarska, 2010; Ketels & Memedovic, 2008). This contains government efforts both directly targeted at clusters (cluster-specific) and their competitiveness (e.g., influence on cluster management, financial support, etc.) as well as not directly oriented on clusters but which may have a significant influence on their development; i.e., indirect influence of government through actions connected with promotion, monitoring, reporting, etc. (DG Enterprise and Industry Report, n.d.; Pilarska, 2010). In addition, a broader perspective and the new perception of clusters, competition and policy focused

on clusters – including cross-cluster policy – have to be underlined (Bathelt, Malmberg & Maskell, 2004; Ketels, 2009).

Since the cluster policy is shaped by national governments, albeit in cooperation with regional or local governments, the national contexts may differ in their approaches to cluster policy (European Commission, 2005). However, there are certain common objectives and characteristics, such as the authorities fulfilling the role of a catalyst and thus providing information support, macro-level foundations and infrastructure, and financial support.

European countries began implementing cluster policies in the 1990s, after the cluster concept was introduced and popularized by Prof. Michael Porter. Various countries started to develop their own cluster or cluster-based policies on national and/or regional levels, with schemes differing according to the scope of the governments' engagement. Cluster policy implemented on the European level supports and strengthens national and regional policies, creating the framework for macro-regional, cross-regional and inter-regional cooperation, showing the new trends enabling the transfer of good practices.

The research conducted within the Cluster Mapping Project based on 31 European countries stated that all of them have programmes oriented toward clusters either on a national or regional level. However, they have various time spans for the adoption of a cluster policy: 1990–1994, 1995–1999, 2000–2004 and after 2005 (Europe Innova Cluster Mapping Project, 2008; see also Sölvell, 2009).

In the Czech Republic, the first steps towards the promotion of cooperation among businesses as a preceding phase to clustering were undertaken by the Ministry of Industry and Trade in 2001 when the national COOPERATION Programme for the years 2001–2004 oriented toward the networking of SMEs, was introduced. Its aim was to support the policy for SMEs (Bialic & Pavelková, 2010).

Bases and principles of the Czech Cluster Policy

The cluster concept came to the Czech Republic in late 2001 with the need to address pressing problems related to the country's transition economy, such as growing unemployment, low competitiveness, sporadic innovation and lack of business cooperation culture. These were inordinately evident in the Czech Republic's most populated Moravian-Silesian Region (MSR) with the capital of Ostrava, the third largest city in the Czech Republic.

MSR was undergoing a prolonged restructuring of its prevailing heavy industry (coal mining and metallurgy) as a typical representative of the older industrialized region dominated by labour intensive industries that lost its former markets and did not recover its cost advantage to find new ones. The Czech state agency for foreign investment attraction, CzechInvest, initiated a project using a cluster approach to verify its applicability to the Czech Republic's situation with the aim, if acknowledged, to become a part of a national development policy. A tender for »A Feasibility study to identify industry groupings in northern Moravia for targeted aid scheme support« was announced within the EU pre-accession PHARE fund programme in December 2001. The winning consortium of P-E International represented by Andrew Thorburn, the EU Consultant, and Professor Ron Botham of the University of Glasgow started to work on the project beginning in 2002, together with a group of six local experts. The study paved the way for the cluster mapping and facilitation methodology, general awareness of the cluster concept implementation and cluster policy adoption in the Czech Republic.

The study followed the latest knowledge and trends to that time, represented by the European Commission's and developed European countries' cluster policies, regional case studies and global experiences. Conceptually, already by 2002, industry clusters had become the *sine qua non* of economic development policy in many parts of the world. It was a universally accepted fact that successful regional economies are, to varying degrees, specialized. Even the most diversified regions are home to industries that, because of historical accident, targeted recruitment, or geographic peculiarities, are found in higher concentrations than in other places. Competitive advantage of place can be best understood in terms of the comparative advantages of specific industries within

that place's borders. No nation, and certainly no region, can be outstanding at producing everything. Therefore successful places develop strengths and focus innovative capacities on certain types of industries, or clusters. Clustering provides firms with access to more suppliers and specialized support services, experienced and skilled labour pools and the inevitable knowledge spreading that occurs where people meet and talk about business. The advantages of place draw not only similar but also complementary enterprises and, as a result, clusters become a breeding ground for new clusters (P-E INTERNATIONAL, 2002). These and other principles were laid down in the bases of the cluster concept and its promotion in the Czech Republic.

The Terms of Reference for the study set out two key objectives:

- to identify regional groupings of industries with actual or potential competitive advantage (defined as the ability to serve foreign markets and attract foreign direct investment), and
- to identify how any identified potential can be effectively realised through the development of action plans for a limited number of industry groupings. These outputs should be used as inputs for future proposals for EU funding.

The chosen industry groupings, fulfilling the criteria of a cluster, should be provided comprehensive and targeted assistance, including such areas of economic activities as FDI attraction, property management, small and medium-sized enterprises, research and development, human resources qualification development, etc.

Two stages took place within the study implementation: Stage 1 – Identification and analysis, concentrated on the regional economy in order to define clusters; Stage 2 – Development strategy and action plan worked out together with the regional representation, focusing on the most promising industries in terms of development potential and competitive advantage so that public support would be effectively invested. In this context, the competitive advantage was defined as an ability of a company/industry to be able to act on global markets with a specialized product or service.

The methodology of the 1st step within Stage 1 included a survey of the existing data sources, statistical analysis of the regional economy, identification of key industries based on location quotient (LQ) and the selection of eight industries for more detailed research. The statistical analysis was based on the NACE industry classification and its application as a selection criterion in the Albertina company database covering the Czech Republic. For the purpose of the study, those industries that showed a value of the LQ higher than 1.25 were thus more profoundly studied. The LQ measures the concentration of the given industry in a region in comparison to the national level. If the ratio of the regional/local employment and the number of companies in the industry to the national employment and number of companies in the industry is higher than 1.25, it can be considered an agglomeration evidencing a regional specialization. In practice, LQ values above the range of 0.85 to 1.15 are considered significant (Skokan, 2002). Local experts were charged with investigating each of the eight important industries using both desk research tools (database, web, documents) and direct communication with the company managers (interviews, telephone calls) that resulted in a final report to be presented to the project managers proving whether the industry grouping is, or is not, a cluster. Among those industries, there were Food and Beverages; Textiles; Wood, Furniture and Paper; Civil Engineering and Construction; Steel and Metal Processing; Industrial Equipment; Chemicals and Plastics; Automotive and related components. Altogether these industries represented 54% of the total workforce of the Moravian-Silesian Region.

The 2nd step included qualitative analytical methods, such as individual interviews of representatives of companies, focus groups, strategy development workshops and expert evaluations depicting the relations between individual companies, existing cooperation, material and information flows, value chain size, workforce quality and degree of sufficiency, the need for technologies, infrastructure, etc. (Skokan, 2002). As early as 2002, weaknesses in the public statistics system were identified, such as the lack of Input-Output tables which hampered qualitative analysis elaboration in the Czech Republic with regard to data gathering and evaluation in favour of cluster or cluster-based national policies. The Input-Output tables highlight inter-industrial relationships both in manufacturing and services; together with other databases they provide a tool for consistent economic analysis of growth, structural change, productivity,

competitiveness and employment at both the sectoral and macroeconomic levels (OECD, 2011).

The main outcome of the feasibility study was the identification of the Engineering industry as a leading cluster in the Moravian-Silesian Region as showed the highest parameters in employment, direct linkage with the metallurgy manufacturing in the region, diversified opportunities of development and innovation, potential for FDI and closeness to regional development strategy. A SWOT analysis of the Engineering cluster was performed, the Porter's diamond was applied and a development strategy for the cluster was elaborated.

The novelty presented by the project to the Czech environment consisted mainly in the methodology based on intensive communication with the target groups, starting from drawing up company lists (including so called »must-have« companies – i.e., leaders that are essential to the success of the policy), numerous visits – interviews with the leading industry representatives and, in particular, Focus Groups (partly performed as brainstorming in search of new solutions and maximizing the yield of the concentration of the most experienced and committed company managers for strategic considerations). The structured discussions with company managers of the same segment allowed the project experts to learn more basic information on what actually existed in northern Moravia and what were the possible future plans. This »exercise« was beneficial both for the local experts who were learning by doing under the guidance of the project managers and for the target groups themselves. Further, the number of contacts with a full range of engineering companies and subsequent meetings enabled the active company managers to meet and hear one another, quite often for the first time, on neutral ground as a prerequisite for a future trust-based culture of the cluster cooperation.

The project team also had to provide information concerning the existing business development programmes – a systematic description of currently available and potential sources of funding for new programmes/projects (eligibility criteria, use and application in northern Moravia, etc.), including a review of the Structural Funds programming and comments on the SME loan guarantee programme and the forthcoming Steel Restructuring programme in the

Czech Republic. All this was very instructive for the local experts in terms of developing their skills for work with the future subsidy and grant schemes under the EU Structural Funds.

In addition, the description of the role and potential contribution of the regional university had to be delivered by the project team to learn properly what the local university currently does and how it contributes to the cluster, including thoughts on the future and required strategy for the potential Engineering cluster – the study's favourite industry – i.e., nascent the cluster with the highest development potential for the Moravian-Silesian Region. Specifically, in auto related engineering, interviews with three or four professors engaged in work for the auto industry took place with a description of what they do, who they work with, etc. The Focus Group with 10 academics (different disciplines/departments) worked to explore together their views on the nature of metals/engineering in northern Moravia, any unique/distinctive technology/production strengths, global drivers in relevant industries, the necessities for ensuring future growth/competitiveness, the growth/development opportunities (new markets, products, etc.), the likely technology developments (and any distinctive/unique work being done in the university), identifying potential for the university to help secure a better/more competitive future for the industry. The outcomes of the Focus Group were then reflected in the study and its »Strategy for the Engineering Cluster« section.

Based on the feasibility study and the subsequent building of the on-line regional database of engineering companies – The Moravian-Silesian Engineering Company Register, pro-cluster motivation and awareness were created among the companies, regional authority and development institutions, the university, the CzechInvest state agency and the Ministry of Industry and Trade – the Managing Authority for the upcoming EU Structural Funds. The conference that followed in Ostrava in January 2003 devoted to the engineering cluster issue verified the preparedness of the regional actors to actively cooperate establishing a cluster organization. This became one of the conference resolutions and the task to facilitate the cluster formalization phase was entrusted to the Union for the Development of the Moravian-Silesian Region, the local project partner. These cluster initiative efforts culminated in March 2003 with the convening of the interested companies and institutions at the constituent general assembly of

the Moravian-Silesian Engineering Cluster that was then registered as an association, becoming the first cluster organization in the Czech Republic.

The comprehensive experience with the cluster mapping and facilitation methodology was applied for the preparation of the Operational Program Industry and Enterprise, the CLUSTERS Programme Phase 1 – Searching for suitable firms for a cluster, and Phase 2 – Establishment and development of the cluster, by the Ministry of Industry and Trade and its CzechInvest agency, during 2004. Here it is important to state that the terminology concerning clusters and the stages of its formalization have been clearly defined by the authors in a number of presentations with the emphasis on distinguishing the right terms for corresponding significations:

- a) **Cluster** is a geographically proximate group of interconnected companies, specialized suppliers, service providers, firms in related fields and associated institutions which both compete and co-operate (Porter, 1998).
- b) »**Cluster initiatives** (CIs) are organized efforts to increase growth and competitiveness of clusters within a region, involving cluster firms, government and/or the research community« (Sölvell, Lindqvist & Ketels, 2003, p. 9).
- c) **Cluster organization** is a specific legal body established with the purpose of managing a cluster (CzechInvest, 2005).

Although these definitions have been broadly adopted, the common usage of simply »cluster« appears generally in the Czech speech for any of the three meanings, including in official documents, such as the above CLUSTERS Programme; the real significance has to be derived from the context.

Through the feasibility study, a comprehensive process of cluster analysis methodology, cluster company facilitation for cooperation, strategic insights in competitiveness and development potentials of the region's economic landscape, the benefits of clustering with the most added value of trust were introduced among the regional actors of the Triple Helix in the Moravian-Silesian Region during 2002 and 2003. The first Czech »ClusterForum« conference devoted to clusters with a number of renowned speakers organized in Ostrava in June 2004 opened the broad cluster awareness-building campaign governed subsequently

by CzechInvest. Many of the principles and attainments learned during the feasibility study and the following implementation of measures imbued the Cluster Guide handbook available on CzechInvest's web site since 2005, and the National Cluster Strategy 2005–2008.

Cluster policy in the Czech Republic

Even though the cluster concept and its potential is still not fully recognized or been revealed in the Czech Republic, many governmental programmes target entrepreneurial cooperation and SME development in general.

Developed since 2001 and implemented since 2004, the cluster policy in the Czech Republic aims to support regional development through companies' competitiveness, productivity and the enhancement of their innovative potential.

The implementation of the National Cluster Strategy 2005–2008 (Národní klastrová strategie na období 2005–2008) acknowledged by the Czech government under Government Resolution No. 883 of 13 July 2005 constituted a big step in policy development in this area in the country. Its objectives were focused on using clusters to interconnect the resources, programme measures under different strategies and policies.

Implementation of the National Cluster Strategy and the Operational Programme Industry and Enterprise (OPIE) for the years 2004–2006 (Operační program Průmysl a podnikání) with its CLUSTERS Programme (Program KLASTRY) explicitly oriented toward clusters, started a promising wave of support for clusters, cluster initiatives, and cluster policy development in the Czech Republic. During that same time frame an analysis providing an overview of identified clusters, cluster initiatives and industries with cluster potential in the Czech Republic was carried out and published in 2006 by the Berman Group – Economic Development Services, s.r.o., with its subcontractors, company EP Associates and PS inovace, s.r.o. to the order of the CzechInvest agency.

Cluster support has been continued in the subsequent programming period within the Operational Programme Enterprise and Innovation 2007–2013 – OPEI (Operační program Podnikání a inovace); however, no further steps

towards a conceptual strategy for cluster policy development in the Czech Republic have been undertaken. So far, the only plans of the government for the near future concern cluster financing in the new programme for the time period after 2013. On the more positive side, the research team of the Faculty of Management and Economics, Tomas Bata University in Zlin, has recently been playing an active role, using a research grant on »Certified Methodologies« for the adoption and implementation of cluster policies on the national and regional levels. Furthermore, clusters appear as important actors in a number of national and regional strategies focused on competitiveness, innovation, R&D and SME support.

Clusters' supporting authorities

Cluster policy in the Czech Republic has been coordinated by the Ministry of Industry and Trade (MIT) since 2004. The Ministry, as the Managing Authority of the Operational Programmes is the institution responsible for the conceptual side of the cluster phenomenon and cluster policy implementation in the country, while the responsibility of its practical application lies in the hands of CzechInvest (the Intermediate Body).

CzechInvest (the Investment and Business Development Agency) was established by MIT in 1992. Its role is to strengthen the competitiveness of the Czech economy by supporting SMEs, business infrastructure, innovation and attracting foreign investments in the areas of manufacturing, business services and technology centres (CzechInvest, n.d., a). CzechInvest is actively involved in both application of the cluster policy and support of clusters and/or cluster initiatives development in the country, supporting the establishment and development of cooperative groups (clusters and technology platforms) in which companies, universities and research institutes collaborate.

At the beginning the agency provided an extended type of support, such as information support, financial support, expertise, wide publicity and awareness, capacity building – education and certification of facilitators, for clusters and cluster initiatives within the OPIE Technical Assistance resources. In September 2004 the agency started the awareness-building programme regarding clusters. This programme of training and familiarization with the concept of clusters was

attended by a number of specialists from the entire country, academics from tertiary institutions, representatives of regional governments and regional institutions and the private sector and was met with great enthusiasm.

While offering financial support from the programmes, certain requirements were required to be fulfilled by applicants (clusters/cluster initiatives), such as:

- a) a formalized legal entity established according to the Czech law and with residency in the Czech Republic,
- b) the formalized cluster network had to have a minimum of 15 independent members,
- c) a tertiary institution or research institute had to be a member of the cluster,
- d) at least 60% of cluster members had to be small or medium sized enterprises (SMEs),
- e) cluster members had to fulfil the requirements for doing business in the territory of the Czech Republic.

Additionally, a cluster had to have its own project demonstrating its development potential or substantiating the purpose of its establishment based on an increase in competitiveness and innovation.

The maximum duration of the project support was three years, and the financed project had to be retained for at least another three years from its completion.

Up to May 2013 CzechInvest financially supported close to 30 cluster organizations. In regard to the financial support, the agency draws attention to the issue of pre-financing of common activities within the cluster, their problem with clear definition of joint projects, the need for their implementation and expected outcomes, as well as to the question of sustainability of the cluster after the implementation of the grant project. Moreover, CzechInvest has noticed a number of problems in relation to clusters' functioning in the country, such as finding financial sources, insufficient mutual trust among cluster members, low activity (passivity) and insufficient willingness to cooperate, as well as misunderstanding of the clustering idea.

Although these findings were acknowledged, no special steps to improve the situation have yet been undertaken.

Another institution of interest, which »brings together organizations and individuals to a coordinated and sustainable development of cluster initiatives and cluster development policy in the Czech Republic on the basis of concentration of knowledge, experience and expertise to strengthen the competitiveness of the Czech Republic,« is the National Cluster Association – NCA (Národní klastrová asociace). Its mission is to »create a long-term and competent platform for the development of cluster initiatives in the country and active interfaces for their internationalization« (<http://www.nca.cz/cs>). The association aims to represent the interests of Czech cluster initiatives, meet their needs, facilitate their development and represent them to other national and international partners (stimulate their internationalization). The NCA has been dealing with the cluster policy issues in the Czech Republic since 2008, and actively involved since 2010. It consists of more than 20 member organizations (clusters, universities, regional/innovation agencies and consultants). The NCA provides information support and advice for new clusters facilitation and establishment, promotes clustering and the partnership of Czech clusters in the European cluster initiatives and projects, acts as the cluster policy development advocate and initiator of the national dialogue on broader and more efficient use of the cluster concepts in the Czech Republic. Among the critical issues involved, the NCA highlights the limited scope of supported industries (only those NACEs are supported in the competence of MIT; i.e., processing industries), lack of methodological support, and missing financing of the mapping and facilitation phase. Additionally, the NCA pinpoints regional fragmentation and a low level of communication among clusters. Also, a low level of the exploitation of clusters' potential on the part of regional and state authorities/government, as well as a failure to meet the objectives of the National Cluster Strategy, is being observed. The association advises the opening of funding from the OPEI and within future support programmes also creation of organizations that would promote clusters and their development in the country. This would enhance the cluster awareness and methodology, as well as the human resources for the clustering processes, cluster management and the demanding cluster governance.

Apart from the authorities on a national level, there are also regional policy actors such as regional authorities and regional development agencies; however, their role in the cluster issue is usually marginal. Their main responsibility is to coordinate the development policy (Poledna, 2007).

In general, regional authorities are not much involved in cluster policy issues with the exception of the Moravian-Silesian Region, which has been engaged in supporting clusters since 2002. Here, the Union for the Development of the Moravian-Silesian Region through its participation in the »Feasibility study to identify industry groupings in North Moravia for targeted aid scheme support« (see section: Bases and Principles of the Czech Cluster Policy) and the subsequent involvement in mapping, establishment and promotion of industry clusters, played a crucial role in the formation of regional industry clusters. Also noteworthy is the Regional Development Agency Ostrava, which supports clusters through its ClusterNet initiative.

National Cluster Strategy

In July 2005, the National Cluster Strategy for the years 2005–2008 was adopted as a main document in the clusters area in the Czech Republic. It contains the main principles, measures and aims of application of a successful economic model of a cluster in regard to the conditions existing in the Czech Republic. The importance of competitiveness, cooperation and innovation was underlined and support for SME development was highlighted. The aim of the National Cluster Strategy was to use clusters to link the resources of the Ministry of Industry and Trade, the Ministry of Regional Development, the Ministry of Labour and Social Affairs, the Ministry of Education, Youth and Sports and regions of the Czech Republic and to integrate the strategies and policies such as the development of SMEs, innovation, R&D, exports, education and/or infrastructure. Additionally, the policy would enhance competitiveness through innovation and cooperation, especially in the regions which demonstrate the promotion of innovative clusters, bring together particular SMEs, create a framework for analysis, monitoring and evaluating the performance of cluster initiatives and their impact on the regional and national economy, and enable a comparison of clusters not only with each other but also, mainly, with foreign cluster initiatives (Neužilová, 2006). The aim of the Strategy was to identify key

entrepreneurial clusters that would be supported by governmental funds. It was directed toward those clusters with the potential to generate good quality jobs and thus positively influence employment, and be able to influence the increase of company performance and in turn lead to higher competitiveness and innovation. Targeted public support for those clusters was oriented toward the development of professional education, job creation, information and telecommunication technology, investments, innovations, creation of transport and logistics infrastructure, etc. In order to fulfil the targeted aims, the following measures were delineated (Neužilová, 2006):

1. support for the cluster concept (development) – i.e., promotion of a cluster programme and education and training for all involved actors (such as institutions of tertiary education, the private sector, regional authorities and other institutions with the mission of regional development), as well as creation of a specialized section of CzechInvest's webpage devoted to cluster issues,
2. support for cluster facilitators and managers – i.e., ensure strong and skilled consulting resources that can provide expert support; organization of trainings,
3. mapping of clusters – cluster analysis on a national level,
4. development of clusters – co-financing the implementation of cluster development strategies,
5. measuring the performance of cluster initiatives – with the usage of the mechanism of benchmarking for monitoring the performance of cluster initiatives (i.e., comparing performances) between clusters at the national and international level.

For the implementation of the National Cluster Strategy in 2005, the amount of 36 million CZK was budgeted. For the years 2006 and 2007, the amount of planned funding totalled 120 million CZK per year and for 2008 140 million CZK. Thus, the Czech Republic joined countries which supported the formation and development of clusters in their financial schemas (Bialic-Davendra, Jirčíková & Pavelková, 2010).

Government programmes for clusters' support including financing

After the first COOPERATION Programme, the new explicit CLUSTERS Programme commenced for the years 2004–2006 (Innovating Regions in Europe, n.d.), emphasizing clusters as a tool for competitiveness and stronger vertical linkages among enterprises (OECD, 2007).

The European Union Structural Funds are the most important component of the financing of clusters from public sources in the Czech Republic. Within these funds, for the period 2004–2006, the OPIE with CLUSTERS Programme within the 1st Priority »Development of business environment« was implemented (Ministerstvo průmyslu a obchodu České Republiky, 2003). This was the first programme explicitly addressed toward cluster development in the Czech Republic. The patronage wielded by CzechInvest under MIT. Its goal was to support competitiveness through cluster initiatives and to assist national growth (Bialic-Davendra, Jirčíková & Pavelková, 2010). The programme was devoted to communication and cooperation development between business, and science and research spheres. It was divided into two phases:

1. Clusters – Searching for suitable companies for clusters (»Klastry-Vyhledávání«) – a mapping phase focused on identification of suitable enterprises for cooperation in clusters,
2. Clusters – Establishment and development of the cluster (»Klastry-Založení«) – oriented toward the establishment of cluster organization and further development – financing the business and activities of cluster initiatives throughout a three year period.

The first »mapping« part of the programme was oriented toward the identification of the existing potential within a particular industry or branch, mainly the linkages among companies but also between companies and other institutions – e.g., universities. The financial support was directed toward the regional authorities and universities as well as other organizations acting on behalf of them, which conducted a profound analysis of the given sector and facilitated the actors towards cooperation within clusters. Within this phase, 41 projects were assigned support of 31.684 million CZK in total (the requested amount within all 61 applications was 46.877 million CZK).

The second phase focused on further cluster development, where the support was directed into the cooperation in joint projects in the area of research and development, purchasing and selling, joint promotion, recognition on the market and competitiveness, improvement of employees' qualifications, development of cooperation with research and tertiary education institutions etc. (CzechInvest, n.d., b). Out of 18 applications for grant aid, 12 projects were assigned support of 199.124 million CZK in total (the requested amount was 344.008 million CZK).

The current Operational Programme Enterprise and Innovation 2007–2013 – OPEI with its Priority 5th Axis »Environment for Enterprise and Innovation« includes the Programme »Cooperation« (Spolupráce) supporting the formation and development of cooperation groups – clusters and technology platforms. The aim of the programme is to create a favourable entrepreneurial environment, improve conditions for enterprising and innovation, and develop a competitive advantage through the improvement of linkages among research, education and entrepreneurial spheres. OPEI supports new business establishments and the development of existing enterprises. It focuses on innovative potential improvements and the usage of new technologies. Moreover, it assists in establishing cooperation between firms and research institutions (Ministry of Industry and Trade of the Czech Republic, 2007).

In this programme the support is intended for already existing clusters. Support can also be provided for newly formed clusters as well as those that have already obtained a subsidy within the previous OPIE.

After the first call for clusters was announced in October 2008, a total of 31 applications were received and approved. 17 projects were supported with 573 million CZK in 2009. In January 2010 a second call was announced with its continuation in the subsequent years of the programming period. During this call (status on May 2013), 24 projects were approved with the assigned support of 757 million CZK.

Within the supported activities, common cluster projects in the area of technical infrastructure with an innovative character in the area of innovation, cluster

promotion, human resources and networking, sharing know-how and capacity can be highlighted.

The new programme was broadened. Clusters could apply for support amounting to 3 to 80 million CZK. The opportunity for obtaining financial support was offered within the programme up to its conclusion in 2013. The Programme »Cooperation« also promotes internationalization through the CORNET project of the Seventh Framework Programme (FP7).

The policy towards clusters and cluster initiatives is being implemented not only on the national but also on the regional governmental level within the Regional Operational Programmes (ROPs), and Regional Innovation Strategies (RIS) (Bialic-Davendra, Jirčíková & Pavelková, 2010).

Regional Operational Programmes indirectly support cluster development through facilitating innovation and infrastructure development, promoting entrepreneurship and creating favourable conditions for enterprises.

Within the RIS, attention is being paid to inter alia creation and development of conditions conducive to the innovation process in the region, systematic development of an innovative infrastructure and the support of SMEs. The issue of companies' continued isolation and the cluster concept development as a solution are being underlined.

Even though the issue of clusters slowly appears in the strategies for development in particular regions, it can still be considered as a neglected area, which requires further attention.

The role of regional players

Among the aspects of the research conducted by the authors, closer attention to potential leading actors in support of cluster development in the Czech Republic on the national as well as regional level has been paid. The questionnaire designed for institutions/agencies supporting clusters and cluster initiatives was directed toward 21 different regional or local development institutions/agencies (plus on a national level to two institutions, CzechInvest and NCA). 8 out of 21

institutions/agencies on a regional level responded (38%), 6 of them stating the following:

- Regional Development Agency Ltd. Nisa (Liberec Region) does not financially support clusters (but does promote innovations);
- Regional Development Agency for Central Moravia (Olomouc) is not a member of any cluster, and because of reasons of capacity is not able to devote itself to such activities;
- Regional Development Agency (Rychnov nad Kněžnou) is not interested in the cluster concept;
- Regional Support Fund (Zlin Region) is not dedicated to cluster policy, only to SME policies;
- Regional Development Agency of Central Bohemia (Kladno) was involved (4 years ago) in cluster concept development, but no longer is;
- Regional Development Agency Vysočina (Jihlava) was interested in clusters in 2009, but only marginally.

Two remaining agencies (Regional Development Agency of the Usti Region and Business Development Agency of Karlovy Vary Region) are involved in the cluster concept development, the first from the year 2000 and the second from 2010. Both provide information support. The first also acts as an intermediary in providing financial support (mainly within the central European programme, the Clusters Cord project); whereas the second is engaged in the promotion of clusters and innovations and in seeking companies suitable for cluster formation. While being involved in a cluster issue, the agencies notice a number of problems regarding cluster development in the country, mainly related to the financing and lack or insufficient mutual trust among cluster members.

The role of regional players and their support should be considered as vital in a cluster concept development as clusters begin to emerge and develop in their close surroundings, usually on a local or regional level. Nonetheless, in the Czech Republic, considerable disparities in the type of support offered for clusters by the regional and/or local authorities/institutions can be observed, some of the institutions offering a wide range of activities and others are marginally (or indirectly) involved in clusters support or not involved at all.

Recommendations for a cluster policy in the Czech Republic

As Andersson et al. (2004) outline, »the adoption of cluster policy may serve as a trigger for government and public authorities to alter outdated governance mechanisms« (p. 46).

The Czech Republic has already created the support mechanisms for cluster development, providing support within various governmental as well as EU programmes. Furthermore, it undertook a big step in cluster policy development with the implementation of the National Cluster Strategy. However, the objectives of the strategy and the initiated efforts have thus far failed, and after 2008 the development of the cluster policy in the country began stagnating. The continuation of support for cluster concept development has been visible in the mechanism of the EU Structural Funds-based operational programmes, especially the OPEL.

On the basis of the conducted research and the review of current experiences, recommendations for a cluster policy in the Czech Republic were formulated and presented as follows:

A) The need for a comprehensive cluster policy

The lack of an existing model of a cluster-based policy – independent and with clear rules and guidelines has been observed. Therefore, it is recommended that the further development of supporting mechanisms as well as the development and implementation of a complex national cluster policy in the country, the formulation of concrete actions, the definition of clear rules, and the implementation of a consistent system approach all be assured. This will create the favourable environment for the development of »optimal« clusters/cluster initiatives enabling the achievement of the required excellence.

In order to proceed with adequate actions towards cluster development it is recommended to:

- financially support projects reflecting real needs of clusters and their participants,
- intensify government actions to the level closest to clusters (local, regional),

- ensure the creation of appropriate support instruments on a regional level, enlarge the subsidy programmes' focus from the sectoral to the inter-sectoral, ensure equal preference for project proposals from different sectors, increase attention regarding financial support of clusters in sectors other than manufacturing and high-technology – e.g., non-standardized networks of collaboration,
- support of clusters' animators (advisors and facilitators),
- treat cluster-based policy in the country as a platform for communication and cooperation development and financial support as neutral incentive for cluster development,
- develop and introduce effective monitoring methods allowing the estimation of the results of actions already undertaken by the government [introduce a system of evaluation and control – evaluation on regional level] of activities carried out by clusters in the various regions and their overall benefits for regional development, stimulating involvement of clusters in regional initiatives).

B) The need for specific legal regulations

Inseparably connected with the appropriate cluster-based policy implementation is the existence of appropriate legal regulations, which are missing in the Czech Republic. Therefore, it is recommended that the administrative and legislative difficulties regarding the form of clusters' functioning be eliminated, and the proper legislation on the establishment as well as operation of clusters which can be reflected in the following actions be developed and implemented:

- establishment of a legal title for a cluster (as a cluster is a specific beneficiary),
- enforcement of tools determining clear ownership within a cluster structure,
- change of subsidy conditions – drawing attention to the problematic requirements formulated under the support programmes regarding the presence of a minimum of 15 members within a cluster,
- possibility of removal of constraints in the development of innovation and innovative products connected with restrictions regarding purchased equipment within subsidized clusters' projects (taking into consideration the possibility of using the unique equipment for production of a joint product after the specified testing period),

- adjustment of a tax load towards clusters and their participants (e.g., tax exemptions),
- creation of more favourable conditions for inter-regional, inter-cluster cooperation (development of internationalization should be stressed),
- elimination of administrative and legislative difficulties – simplifying the procedures and requirements for applying for financial support from the government (or for EU funds), shortening procedures, elimination of changes in rules and conditions set up within supporting programmes, assurance of correctness and compatibility of the information provided by government authorities and institutions subordinated to them, elimination of problems connected with grant settlement and assurance of accordingly adjusted payouts for the particular stages of the project.

C) The need for regional government involvement

Also, a limited cooperation with authorities and support from the government especially on regional levels is being observed. As the government sphere constitutes one of the inseparable elements of the Triple Helix (see Etzkowitz, 2002), it is vital to stimulate the development of cooperation linkages among authorities and clusters in general (with emphasis on the development of communication between clusters and regional/local authorities) and to motivate their active support for the cluster concept. Therefore, it is recommended that authorities:

- ensure the proper understanding of the clustering concept by authoritative bodies (with emphasis on regional and local authorities) and their involvement in cluster issues on a regional level; ensure elimination of the deformation of the meaning of clusters on the part of governmental authorities,
- support institutions established in order to support clusters,
- create support (advisory, information) centres or consultancy points explicitly dedicated to clusters (creation of places of contacts),
- prevent the misuse of clustering as an element of political manoeuvring in regional circuitry (protection of effective and impartial actions),
- ensure greater forbearance in supporting non-standardized economic networks of cooperation,
- treat clustering as a process (which characterizes its own dynamics and rules) not as a project,

- provide organization of workshops and training for local government authorities devoted to the modern aspects of leading the economic policy and regional forums dedicated to cluster popularization.

D) The need for adoption of the European Cluster Policy Group recommendations in a flexible manner

Many activities on the European Union level regarding cluster development have yet to be transferred to and implemented by the Czech government. Nevertheless, in order to effect in a more comprehensive cluster policy in the country, better interlinking of Czech government policy with the EU cluster policy is needed. Following the European Cluster Policy Group recommendations it is vital to pay further attention to (European Cluster Policy Group, 2010):

- better support of international cluster cooperation,
- the role of clusters in support of emerging industries,
- raising the excellence of clusters and cluster organizations,
- creating better synergies between community instruments for cluster excellence.

Summary

The »boom« in the cluster concept development in the Czech Republic started in 2004 (the year of the country's entry into the EU) with the awareness and training campaign on clusters generated by CzechInvest. The OPIE programme explicitly oriented toward clusters and the subsequent implementation of the National Cluster Strategy resulted in wide popularization of the cluster phenomenon in the country. The initial enthusiasm, however, dissipated with the advent of bureaucratic and organizational problems, which appeared during the implementation of the programme. Also, an initiated National Cluster Strategy did not fulfil raised expectations when its resolutions were not implemented. However well launched, the first steps towards the development of a cluster policy in the country were gradually losing the necessary attention and comprehensiveness. The supporting mechanisms for clusters are currently being implemented mainly within the OPEI programme with an undefined vision for further clusters and cluster policy development in the country. Generally, the indigenous situation is not satisfactory, in many cases the aid for cluster

development comes from external resources both in ideas and finance, such as the European Territorial Cooperation projects. Therefore, in order to restore and refresh the cluster policy in the Czech Republic, the existing gaps need to be filled and imperfections corrected. The government should undertake measures to implement given policy recommendations in a new Czech cluster policy that should focus its actions on better interlinking of its policy with the European Union cluster policy and in a flexible manner try to adopt and integrate the European Cluster Policy Group recommendations.

The cluster policy in the Czech Republic needs innovation and further development. Special attention should be focused on the development of human resources for clusters.

Acknowledgement

This article reflects the results presented within the Doctoral Thesis of Magdalena Bialic-Davendra titled »Proposal of a framework for a Cluster Development in Selected Central European Countries«, defended in September 2011 at Tomas Bata University in Zlin, Faculty of Management and Economics, Czech Republic.

The authors are thankful to the CLUPERPOL project No. MEB 091007 for financial support to carry out this research.

References

- Anderrrsson, T. et al. (2004). *The Cluster Policies Whitebook*. Malmö: IKED.
- Bathelt, H., Malmberg, A., & Maskell, P. (2004) Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28(1), 31–56.
- Bialic, M., & Pavelková, D. (2010). Differences and Similarities in Conditions for the Establishment and Development of Clusters in Poland and the Czech Republic. In C. Jayachandran et al. (Eds), *Business Clusters: Partnering for Strategic Advantage* (pp. 150–169). New Delhi: Routledge.
- Bialic-Davendra, M., Jirčíková, E., & Pavelková, D. (2010). »The key« to a successful cluster development – a case study from Czech Republic and Poland. *Regionální Studia*, 2, 8–18.
- Břusková, P. (2003). *Průmyslové klastry. Nová strategie zvyšování konkurenceschopnosti a regionálního rozvoje*. Informační brožura k problematice průmyslových klastrů. <http://nca.cz/upload/prumyslove-klastry-bruskova.pdf> (accessed August 15, 2011) (Industrial clusters. A new strategy to increase competitiveness and regional development).
- CzechInvest. (2005). *Průvodce klastrem*. <http://www.czechinvest.org/data/files/pruvodce-klastrem-63.pdf> (accessed August 12, 2011) (A Cluster Guide).
- CzechInvest. (n.d., a). *O CzechInvestu*. <http://www.czechinvest.org/o-czechinvestu> (accessed February 7, 2009) (About CzechInvest).
- CzechInvest. (n.d., b). *Klastry*. <http://www.czechinvest.org/data/files/letak-opp-klastry-216.pdf> (accessed May 5, 2011) (Clusters).
- DG Enterprise and Industry Report. (n.d.). *Innovation Clusters in Europe: A statistical analysis and overview of current policy support*. http://www.proinno-europe.eu/admin/uploaded_documents/innovation_clusters_in_europe.pdf (accessed February 27, 2011).
- European Cluster Policy Group. (2010). *Consolidated Set of Policy Recommendations on Four Themes*. <http://www.proinno-europe.eu/ecpg/newsroom/ecpg-final-recommendations> (accessed August 22, 2011).

- European Commission. (2005). *Final report of the Expert Group on Enterprise Clusters and Networks*. European Commission, Belgium.
- Europe Innova Cluster Mapping Project. (2008). *Cluster policy in Europe. A brief summary of cluster policies in 31 European countries*. http://www.clusterobservatory.eu/upload/Synthesis_report_cluster_mapping.pdf (accessed January 20, 2009).
- Etzkowitz, H. (2002). *The Triple Helix of University-Industry-Government, Implications for Policy and Evaluation*. http://www.sister.nu/pdf/wp_11.pdf (accessed January 20, 2009).
- Innovating Regions in Europe. (n.d.). Retrieved February 7, 2009, from http://www.innovating-regions.org/download/Clusters_in_CCE.pdf (accessed February 7, 2009).
- Kačirková, M. (2008). Zhlukový potenciál v regiónoch nových členských krajín Európskej Únie. *Ekonomické Rozhľady*, 4, 448–461. (Clusters potential in the regions of the new Member States of the European Union).
- Ketels, CH. & Memedovic, O. (2008). From clusters to cluster-based economic development. *Int. J. Technological Learning, Innovation and Development*, 1(3), 375–392.
- Ketels, CH. (2009). *Clusters, Cluster Policy, and Swedish Competitiveness in the Global Economy. Expert Report no. 30 to Sweden's Globalisation Council*. Västerås: PRINT Edita.
- Ministerstvo Průmyslu a Obchodu České Republiky. (2003). *Operační Program Průmysl a Podnikání na léta 2004 – 2006*. http://www.evaluate.cz/dokumenty/oper_prog_cr/op_prumysl.pdf (accessed February 28, 2011) (Operational Programme Industry and Enterprise for the years 2004–2006).
- Ministry of Industry and Trade of the Czech Republic. (2007). *Operational Programme Enterprise and Innovation*. <http://www.czechinvest.org/data/files/oppi-msc-en-29-11-schvalen-ek-674.pdf> (accessed February 28, 2011).
- MPO letos otevře nejméně 7 dotačních programů, některé naposledy. (2011). <http://www.czechinvest.org/mpo-letos-otevre-nejmene-7-dotacnich-programu-nektere-naposledy> (accessed March 15, 2011) (MIT opens this year at least 7 subsidy programmes, some of them for the last time).

- Neužilová, I. (2006). Cíle Národní klastrové strategie 2005 – 2008. <http://www.mpo.cz/dokument6216.html> (accessed February 28, 2011) (Objectives of the National Cluster Strategy 2005–2008).
- OECD. (2007). *Competitive Regional Clusters: National Policy Approaches*. OECD Publishing.
- OECD. (2011). *Input-Output Tables*. Retrieved August 10, 2011 from <http://www.oecd.org/sti/inputoutput/> (accessed August 10, 2011).
- Pavelková, D. et al. (2009). *Klastry a jejich vliv na výkonnost firem*. Prague: GRADA. (Clusters and their influence on the performance of companies).
- P-E INTERNATIONAL. (2002). *Feasibility study to identify industrial groupings for targeted aid scheme support*. CzechInvest, Contract Number: Slavicek 16-Phare-CZ-PAO/CFCU, Project No: 501334.
- Pilarska, Cz. (2010). Polityka oparta na klastrach w wybranych krajach Unii Europejskiej. *Zeszyty Naukowe Polskiego Towarzystwa Ekonomicznego*, 8, 89–118. (The Cluster-Based Policy in Selected EU Member States).
- Poledna, J. (2007). *Country Report: Czech Republic*. <http://www.clusterobservatory.eu/index.php?id=42&nid=> (accessed October 26, 2009).
- Porter, M. (1998). *On Competition – A Harvard Business Review Book*. Boston: Harvard Business School Press.
- Skokan, K. (2002). Industry Clusters v regionálním rozvoji («Odvětová seskupení firem»). *Ekonomická revue*, 5(2), 50–60. (Industry Clusters in regional development).
- Sölvell, Ö. (2009). *Clusters. Balancing Evolutionary and Constructive Forces*. Second edition. Sweden: Ivory Tower.
- Sölvell, Ö., Lindqvist, G., & Ketels, C. (2003). *The Cluster Initiative Greenbook*. Stockholm: Ivory Tower.

PART II: Automotive Clusters: Case Studies

THE SLOVENIAN AUTOMOTIVE CLUSTER

Alenka Slavec, Igor Prodan

Foundations for the development of the Slovenian Automotive Cluster

The production of motor vehicles in Slovenia started to develop after the Second World War – first in Maribor and Ljubljana, and later in Koper, Novo Mesto and Nova Gorica. The rapid growth of motor vehicle production and the automotive industry was mainly a result of Yugoslavia's economic policies, which protected its home industry with tariffs and other policies. The government also promoted cooperation as a means of boosting industrial development. That is why TAM started producing truck engines, trucks and buses together with Deutz; Avtomontaza Ljubljana started to assemble buses; Litoštroj began assembling the Renault R4; IMV Novo Mesto started out by assembling vans and the Austin Mini Morris and eventually took over the assembly of the R4; Tomos Koper started out by assembling Puch motorcycles before turning to the Citroen 2CV4 and the AMI 6.8 in 1958. In 1972 Cimos (Citroen, Tomos, Avtomontaza) was established from the car assembly department of Tomos. Cimos moved the car assembly line from Koper to Šempeter pri Gorici and started producing Citroen's GS, GA and Diana (Batagelj, 2003).

The time which marked the beginning of the production of engines and engine parts, as well as the beginning of car assembly, also saw the development of an industry which first had to answer the needs of this production and then produce products for further sales. Yugoslavian manufacturers of motor vehicles and other manufacturers in the automotive industry were perpetually searching for parts made in Slovenia to replace imported components. Slovenian industry produced over 700 types of components for Crvena Zastava's cars. Some of the main Slovenian manufacturers producing parts for the automotive industry were: Saturnus, Iskra AET, Iskra Avtoelektrika, Prevent, AGIS, TBP, Kolektor, and Rotomatika (Batagelj, 2003).

Iskra AET specialized in the production of flywheel magnetos and plugs; Iskra Avtoelektrika specialized in starters and ignition coils, with subsidiaries of the company also producing switches, lights and indicators. Saturnus specialized in the production of lighting fittings for vehicles; Prevent in the production of seats and seat-covers; AGIS in the production of miscellaneous small articles; and finally TBP specialized mainly in the production of Bowden cables.

Following the economic reform of 1965, laws on importing for personal use were relaxed so as to increase the standard of living. This led to an increase in the demand for cars, which meant a growth in imports because domestic production was insufficient to satisfy the market. A lack of foreign currency led the importers to search for domestically manufactured products to export. Domestic firms began producing licensed products replacing a large share of the imported components. In order to avoid high customs duties on finished imported articles, joint ventures first started importing slightly disassembled finished products (cars). After a while this practice ended and Revoz became the only manufacturer of Renault models R4 and R5 for all of Europe.

Slovenian car importers (Autocommerce and Tehnunion) began looking for suppliers for the manufacturers of the cars they imported. This was due to a lack of foreign currency. Importers gave part of their foreign currency rights to manufacturers of parts for the assemblers to subsidize the increased costs of production from the export selling prices. The other part of this cost difference was covered by higher prices in the domestic market (Batagelj, 2003).

The Slovenian car and supplier industry was divided into three »interest groups« during the Yugoslavia era:

- domestic manufacturers of cars and motorcycles,
- holders of joint ventures,
- importers.

Some manufacturers of cars acted as suppliers for all the groups.

Due to the events that followed Slovenia's declaration of independence in 1991, the Slovenian automotive industry lost almost all of the Yugoslavian market. This marked the beginning of a difficult period, during which the entire steel

manufacturing sector had to be restructured. A large part of this sector was (and is) dependant on the automotive industry. However, the companies were well aware that it would be very difficult for them to survive if they were only offering partial products on their own. Consequently, they joined forces in the Club of Auto Parts Manufacturers. The club was mainly in charge of common promotional activities, but it was also a very important means of promoting development by the government, as car importers could pay lower customs duties if they also promoted the export of Slovenian car components. The club brought together various members, some of which later participated in the establishment of the pilot Automotive Cluster of Slovenia.

Characteristics of today's global automotive industry

The automotive industry's complex product development and manufacturing processes make it one of the most knowledge-intensive industries (Jaklic, Svetina & Zagorsek, 2005). The automotive industry is defined by (Mihelic, 2005):

- limiting regulations and laws governing the industry and its products,
- high entry and exit barriers,
- products with a relatively long development time (3 years) and lifespan (7 years; redesign after 3.5 years), requiring firms in the industry to have stable relationships with each other.

However, we should be aware that the automotive industry is a dynamic field in which the expectations and demands of the end-users continue growing, the high-quality and reliability of products are taken for granted, constant innovation is mandatory, the pressure to keep lowering costs is immense, and the time needed to develop a product is constantly decreasing. All this explains why competition within the industry is so fierce. It leads to constant improvements, making the automotive industry one of the leading fields in terms of the introduction of new organizational forms and new work methods (Mihelic, 2001).

In order to increase their competitiveness, automobile producers are profoundly changing the way they work. After internal reorganization, optimization and changing work methods, the producers realized that there were still two crucial

issues they needed to deal with: the suppliers and the inter-organizational relations between the automotive producers and their suppliers. This realization is vastly changing the structure of the automotive industry, and many horizontal as well as vertical strategic and capital connections are being formed among companies. This is illustrated by the fact that there were as many as 36 OEMs (original equipment manufacturers) in 1970 and this number had fallen to 13 by the end of 2005 (Automobile production, 2006).

Car manufacturers have shifted a great deal of the activities and responsibilities connected with the development and manufacture of vehicles to suppliers. In fact, manufacturers are now coordinators, marketers and trademark holders, as well as having responsibility for the design, powering and final assembly of a car. Suppliers produce over 80% of a vehicle (Mihelic, 2005). It is therefore not surprising that the role of suppliers has changed significantly. They went from manufacturing specific elements based on completely defined products for car manufacturers to being development suppliers or system suppliers who develop and produce a specific function of a car (systems, assemblies, and modules). Development suppliers now have to meet the following criteria (Mihelic, 2005):

- presence in the global market,
- capital adequacy,
- availability of human resources (know-how),
- compatibility of work methods as well as communication systems and technical facilities with those of the buyer,
- full responsibility for the quality, manufacture, logistics, suppliers and the product for the entirety of its lifespan.

On the other hand, the development suppliers are also responsible for the design and development of a product, its verification in all the stages of virtual evaluation, as well as for manufacturing and testing prototypes. On top of that, they have to conduct research which must constantly generate innovations, elevating the product's quality, increasing safety, making them more environmentally-friendly, lighter and/or cheaper. Alternatively, the product can also be improved so as to offer more functions. The size of the development suppliers is also important for car manufacturers – they cannot be too small because they must include sufficient human resources (know-how) and capital in order to carry out extremely expensive development and research with the

minimum amount of risk; but on the other hand they cannot be so big as to threaten the car manufacturer (Mihelic, 2001).

Suppliers in the automotive industry can be broadly divided into three tiers (Hülsemann, 2004):

- First-tier suppliers integrate whole systems, such as brake systems or internal seating for direct supply to OEMs (original equipment manufacturers). They provide a high level of R&D and product development as part of the integrated services they supply.
- Second-tier suppliers provide modules and component parts or support services to the first-tier suppliers for integration into the systems supplied to vehicle manufacturers.
- Third-tier suppliers supply raw materials for the supply chain or more generic engineering components and services such as mechanical tools, metal castings, rubber and plastics.

According to PricewaterhouseCoopers the number of first-tier suppliers was expected to drop from 800 in 2001 to 35 in 2010, while the number of second-tier suppliers would drop from 10,000 to 800 during that period (PwC, 2003). We can summarize the response to changing conditions in the global automotive industry by listing a few main trends that have emerged in the last decade (Jaklic, Svetina & Zagorsek, 2005):

- industry consolidation,
- gradual transfer of design and development from OEMs to suppliers,
- search for strategies that will increase or at least maintain the level of profitability
- technological changes,
- increased need for knowledge management and innovation,
- networking and clustering of suppliers in order to supply larger sub-systems or modules.

The networking and clustering of suppliers in order to supply larger sub-systems or modules is one of the responses particularly suitable for small and medium-sized suppliers. Such clusters also contain large primary suppliers such Cimos.

Role of Cimos in the establishment of the Slovenian Automotive Cluster

Cimos' activities in the automotive industry go back to 1959, when it was part of the car assembly department of Tomos. Cimos was founded in 1972 as a consequence of the interlacing of automotive and engine programs, on the basis of a joint-venture contract between Citroen and internal investors. By the end of the 1970s Cimos had ceased the assembly of vehicles, signed a new long-term cooperation contract and extended the joint-venture contract with Citroen. The basic concept of the new contract was the production of automotive parts to be integrated into Citroen's vehicles (Cimos, 2006).

The development of production capacities and other knowledge dictated the connection of Cimos with other western European automotive manufacturers outside the PSA group (Peugeot and Citroen). These connections were intended to decrease business risks and increase profitability. The dependence on a single customer was expected to decrease. The market situation dictated that the long-term industrial cooperation between Cimos and Citroen had become a restrictive developmental factor. Cimos faced its biggest crisis in 1996 when its roles were to be a product supplier for the PSA group and to be an importer and distributor of Citroen vehicles. In that year, Cimos converted itself into a development supplier, abolishing its existing contract with Citroen and signing a new one (Mihelič, 2001).

Cimos undertook the path of independent development. The mission of Cimos was to become a development supplier for the global automotive industry. Its goals were set and the development strategy was defined. First of all, Cimos wanted to lessen its dependency on the PSA group, which in 1996 still represented 80% of its income. The aim was to establish a balanced portfolio of customers in which the PSA group would not dominate, but new customers would also play an important role. Cimos decided to stop importing and distributing cars.

With large investments in equipment and technology, Cimos became a state-of-the-art industrial company, which reinforced its relationship with existing customers and helped it to acquire new customers based on its experience,

knowledge, competitiveness, and reliability. The company became a so called developmental supplier. Cimos is now a developmental supplier of engine parts for multiple major car makers, including Ford, BMW, Audi, Opel, Renault, Toyota, Volvo and others, along with PSA. In 2004, Cimos began producing an entirely new product, a supercharger cover, for the American corporation Eaton.

In order for Cimos to be successful in the global market, the company has to constantly invest in R&D, in addition to cooperating with research institutes and other automotive industry suppliers. That is why Cimos decided to lead the development of the automotive cluster pilot project in 2001. While the Automotive Cluster of Slovenia did not play a crucial role in the strategic development of Cimos (the company was already a first-tier supplier), the project helped Cimos grow stronger and enabled it to establish new connections with its sub-suppliers and to outline future joint developments.

The pilot automotive cluster project – from idea to realization

Research on cluster development possibilities in Slovenia

In 1996, the Slovenian government adopted a »Strategy for Improving the Competitiveness of the Slovenian Industry«. The Ministry of Economics under the leadership of Dr. Tea Petrin, who became the Economics Minister in 1999, designed the new industrial policy »Entrepreneurship and Competitiveness Policy«. Dr. Petrin should be given the most credit for the establishment of clusters in Slovenia. One of the key projects of this policy was the »Promotion of Enterprise Networking, of Production Chain Specialization and of a Common Development of International Markets under the Cluster System.« The project consisted of two parts. First, it included an expert analysis of the market to identify opportunities for cluster development in Slovenia, and second, the project included the actual development of a cluster.

In 1999 the Ministry of Economics initiated and supported research on the possibilities for establishing and developing clusters in Slovenia. The research was concluded in March 2000. It was carried out by the consulting firm ITEO and led by Mateja Dermastia. The researchers outlined the geographical concentration of Slovenian companies and identified the production-services

systems as well as the innovation systems which could form the basis for the development of clusters. The results of the analyses of 1,700 Slovenian companies showed that inter-company connections in Slovenia were relatively weak and that an infrastructure which could support a cluster was still in the developing phase. However, the results did show that a cluster could be developed in at least nine areas.

The research included many companies and institutions from twelve Slovenian regions. The strongest connections were apparent in 21 production-service systems, mainly in the metal industry, the electro-optical industry, the automotive industry, and the household appliances sector. The connections were also identified according to regions. Inter-company cooperation was found to be strongest in the following areas and industries according to regions: information firms and publishing in Ljubljana, the automotive industry in Maribor, Dolenjska and Koroška, the food-processing industry in Pomurje, transport and tourism in the coastal region and the karst, and finally the telecommunications and electro-optical industries in Gorenjska.

It was apparent from these connections that previous measures aimed at greater specialization and the acquisition of new knowledge had already had some success; however, Slovenian companies still needed to link-up into cluster systems. The clusters would include companies engaged in different economic activities as well as institutions which could decisively contribute to the competitiveness of the cluster, regardless of whether these offered vertical, horizontal, or institutional advantages.

The following criteria were set for the transformation of production-service systems into clusters:

- geographical concentration of crucial companies,
- the system's access to the international market with a high added value product,
- a relatively high level of cooperation between companies within the system,
- the existence of back-up institutions at the business infrastructure level (informational centres, computer networks), and a relatively high level

- of cooperation between the companies and the university, the development institutions and other educational systems,
- good reputation of key companies within the system.

The clustering policies of various countries can be categorized into two approaches (Boosting Innovation: The Cluster Approach, 1999):

1. »Top-Down Approach«: The government plays a crucial role in this approach, selecting potential clusters according to analytical information. National priorities are set with the help of industry and research agencies. Clustering becomes a market-led process only after the national priorities have been met. This approach is common in the Scandinavian countries.
2. »Bottom-Up Approach«: Focuses on improving the dynamic functioning of the market and eliminating market imperfections. The government's role is not to set national priorities, but rather to boost the processes created and regulated by the market. This approach is used in Holland and the US.

Based on its research, the Ministry of Economics chose a sort of a »bottom-up« approach for the clustering policy. All the interested companies and institutions were invited to submit tenders for the pilot project of cluster development in Slovenia. The number of companies and institutions which submitted tenders was great enough to potentially organize six clusters.

- Automotive,
- household appliances,
- tool-making,
- electro and optical industry,
- transportation,
- information intensive system.

The first pilot clusters

The Ministry of the Economics decided to develop three clusters for the pilot project: the automotive, transportation, and tool-making clusters. The aim of the pilot projects was to establish a system for the functioning of an independent cluster (including infrastructure and communication, training and quality control, development of a system for defining and executing joint projects,

public relations and internationalization). Financial support for the development of clusters amounted to a total of one million USD.

The Ministry of Economics also obtained technical support from the Dutch government for the development of clusters based on the project »Industrial Clusters and Cluster Policy«. The support lasted for approximately one and a half years, with the emphasis primarily on providing Slovenian managers the opportunity to learn and gain experience abroad. Some Dutch specialists also concentrated on promoting the development of the automotive cluster.

The development of clusters took place in four stages. The ministry provided technical support for the Dutch experts in preparing the development program. The experts assisted companies in preparing the programs and setting up the internal organization within the cluster. Organizational structures for the management of the projects were established by autumn of 2001, and then the companies prepared their proposals for joint projects, which were considered necessary for networking. The development of the cluster was complete by the end of 2002.

The process of establishing the economic interest group – Automotive Cluster of Slovenia

May 2001 marked the beginning of preparations for the establishment of an economic interest grouping, the Automotive Cluster of Slovenia. A thorough study and an expert analysis were prepared, and at the same time the interests of potential members were researched. These activities were concluded in November and the founding general meeting of the Automotive Cluster of Slovenia was held on November 22, 2001. The Automotive Cluster of Slovenia is a network of companies from the mechanical, metal, electrical, electronic, chemical, textile and transport industries, as well as development and research institutions and service companies in the supply chain, which together create and sell products and services for the automotive industry.

Ten companies (Cimos, Rotomatika, Iskra mehanizmi, EMO orodjarna, TAM avtomobilska industrija, Iskra avtoelektrika, AGIS plus, AET, and Iskra ISD) (Busen, 2004a) and three universities/institutes (the University of Ljubljana,

Faculty of Mechanical Engineering, Public Research Institution PINT, and TECOS – Slovenian Tool and Die Development Centre) were involved in the establishment of the cluster.

At that time all the bodies of the cluster were formed, the general assembly was established and the supervisory board and general manager were named. Twenty-eight leading managers of participating companies and institutions were included in the strategic development of the automotive cluster, and over 50 senior management members and highly qualified experts participated in the project. However, in order to establish a joint strategy for the cluster, a neutral organization was necessary. This role was taken by the Centre for International Competitiveness headed by Mateja Dermastia. Once the common interests of the members were established, the beginning of the realization of joint projects which were led and implemented by the members themselves could begin.

The work in the network continued in the form of task forces, which included experts from the potential members even before the cluster was established. Eighty to ninety senior management workers and experts from among the current members are actively participating in managerial and expert tasks. Analyses of the technological complexity of products and programs have shown that the companies have established high-quality production programs and created major economic results within their subgroups.

Main reasons why companies applied for the automotive cluster pilot project

Companies had various reasons for joining the automotive cluster pilot project. We elaborate on five main reasons in the following sections.

Trends

In addition to the governmental incentives, companies were motivated to start cooperating due to several trends in the automotive industry (Automotive Cluster of Slovenia, 2002):

- decrease in sales growth – the biggest car manufacturers reduced their production,
- increased cost pressure on the suppliers,

- greater independence of producer-owned suppliers,
- increased demand for integrated systems,
- improved position of pre-installation companies of car producers,
- globalization of the automotive industry,
- consolidation of suppliers of car components,
- increased technical cooperation and grouping,
- establishment of global supplier networks.

First-tier suppliers' demands for high innovation and cost efficiency

The status of the suppliers is changing due to global trends in the automotive industry that reflect the need for increased competitiveness. The first-tier suppliers are therefore increasing their power and control over supplier chains and are becoming part of the integral formation process. They are trying to lower their costs by selecting sub-suppliers based on long-term supplier contracts and by increasing cooperation between car producers and component suppliers. The first-tier suppliers are also now playing a role in car assembly. Consequently, the demands on the second and third tier suppliers are also increasing.

Helping shape future events in the automotive industry

Slovenian automotive industry suppliers were faced with an important decision – whether to continue their passive role or to start shaping global events. They could move towards the latter in two ways:

- first, by meeting the demands of the first-tier development suppliers, such as low prices, global supply, investment in new technology, and the like, or
- second, by establishing a network of suppliers while at the same time upgrading their existing capabilities and developing new ones in order to meet the demands of first-tier development suppliers in the automotive industry.

Establishing new value through cooperation

The new value creation, which is also related to profitability, is established on the basis of not only product and service innovations, but also on the basis of new business concepts such as clustering. The new value will therefore be created by learning, specializing, entering key markets and strengthening one's

position in these markets. Learning is the result of partnerships with the Slovenian suppliers, with the university and with key customers. Specialization contributes to the development of new products, system solutions and a trademark for the strategic markets. The factors which strengthen the position (research and development, human resources, production capacities, reputation, credibility, and quality suppliers) also contribute to the cost efficiency of companies.

Joint and individual goals which can be realized through a cluster

By joining a cluster, companies find it easier to follow market trends and activities, develop integrated products and expand cooperation with companies that have access to car manufacturers or first-tier suppliers. The cluster also allows them to access knowledge, technologies and information and provides them the opportunity to carry out joint development projects.

Interests and expectations that companies had before applying for the automotive cluster pilot project

Table 1 shows the interests of Slovenian companies before the establishment of the Slovenian Automotive Cluster and their expectations from cooperation in such a cluster. These expected benefits of clustering were divided into four key areas: (1) knowledge, information, and technological development, (2) market entry, (3) optimization and internal specialization, and (4) the labour market.

Table 1: *Interests and expectations from establishing an Automotive Cluster of Slovenia*

Interest	Expectations
Field: knowledge, information, technological development	
<ul style="list-style-type: none"> ▪ quality standards ▪ master process of continuous improvement ▪ standardization of informatics ▪ united information and communication database ▪ exchange of information and access to databases of large companies ▪ connecting different knowledge and specialized technologies ▪ new technologies and new technological directions ▪ extend the importance of evaluation and forecasting ▪ extend the role of experimental technology in the development phase 	<ul style="list-style-type: none"> ▪ fostering of innovation activity (shorter developing time in favour of the end customer), ▪ supplementing production capacity ▪ complex product with higher added value ▪ generally higher level of success of companies in the region ▪ reducing costs ▪ new organizational accessions
Field: market entry	
<ul style="list-style-type: none"> ▪ common market research ▪ common market entry (joint representation office, promotion, etc.) ▪ common research project in marketing field 	<ul style="list-style-type: none"> ▪ synergies from existent networks ▪ rationalization with common participation on international fairs ▪ new businesses ▪ more negotiating power
Field: optimization and internal specialization	
<ul style="list-style-type: none"> ▪ technological and market specialization and cooperation (companies within the cluster specialized in few technologies; the cluster offers a module) 	<ul style="list-style-type: none"> ▪ lower costs ▪ productivity increase ▪ outsourcing ▪ optimization of supply chain

Interest	Expectations
Field: labour market	
<ul style="list-style-type: none"> ▪ higher level of competences of employees ▪ preserve or increase the number of employees ▪ education of employees ▪ temporary exchange of high skilled employees for specific areas 	<ul style="list-style-type: none"> ▪ educated employees ▪ flexibility of employees ▪ new employments ▪ education through research project and collaboration with the university ▪ organization of education adopted to company needs

Source: Application documentation, 2001.

Goals of the pilot project

The key goal of the pilot project was to create a model automotive cluster (passenger cars, commercial vehicles, tractors, and machinery) as a possible form of a systematic approach towards encouraging cluster development on the national level. In order to achieve that main goal, several goals of the pilot project had to be met (Automotive Cluster of Slovenia, 2002):

- increasing international competitiveness of the central group and new cluster members by improving the key attributes of research, development, production, marketing, logistics and management (efficiency, flexibility, delivery dates, and quality),
- promoting supplier chains to increase the capacity for innovation of the central group and that of the new members of the developing cluster,
- promoting the exchange of information and know-how transfer between the central cluster group and the suppliers, research institutes, academia and other training centres,
- establishing trust and dedication towards achieving common goals of the central companies and the new cluster members as they get to know each other better in terms of business strategies, technological and R&D capabilities, production capabilities, as well as strategic policies,
- promoting the capabilities of suppliers in the automotive industry through a system of workshops and training programmes,

- promoting the skills, knowledge and abilities of those working in the manufacturing, management, and R&D sectors.

Results of the pilot project

The pilot project (Automotive Cluster of Slovenia, 2005) had the following results:

- increased importance of automotive industry suppliers,
- increased cooperation between companies working directly with car manufacturers and their first-tier suppliers that are responsible for creating the bulk of the turnover and have the status of development suppliers, as well as among companies which supply lower added value products to the export markets of the automotive industry along with increasingly diversifying their business in the automotive industry,
- increased potential of Slovenian companies to penetrate foreign markets with higher added value products,
- increased efficiency of business processes in companies which form part of (or could form part of) the automotive supply chain system in Slovenia,
- increased specialization as regards the central technology/product in accordance with the technological, human resource and financial potential of companies along the value chain,
- increased cooperation between the university, institutes and companies,
- promotion of studies crucial to the development of the field (mechanical engineering, electrical engineering, computer science),
- increased reputation of the Slovenian automotive suppliers industry as a partner of good standing welcome in the international automotive industry system.

The Automotive Cluster of Slovenia today

The vision and mission of the Automotive Cluster of Slovenia

The Automotive Cluster of Slovenia aims to become a renewed and sought after network of suppliers worldwide. The mission of the Automotive Cluster of

Slovenia is to create opportunities and environments for achieving leading positions and competitive abilities of its members locally and globally (Busen & Gluhak, 2013).

Strategic goals of the Automotive Cluster of Slovenia

There are five main strategic goals that the Automotive Cluster of Slovenia strives for (Busen & Gluhak, 2013).

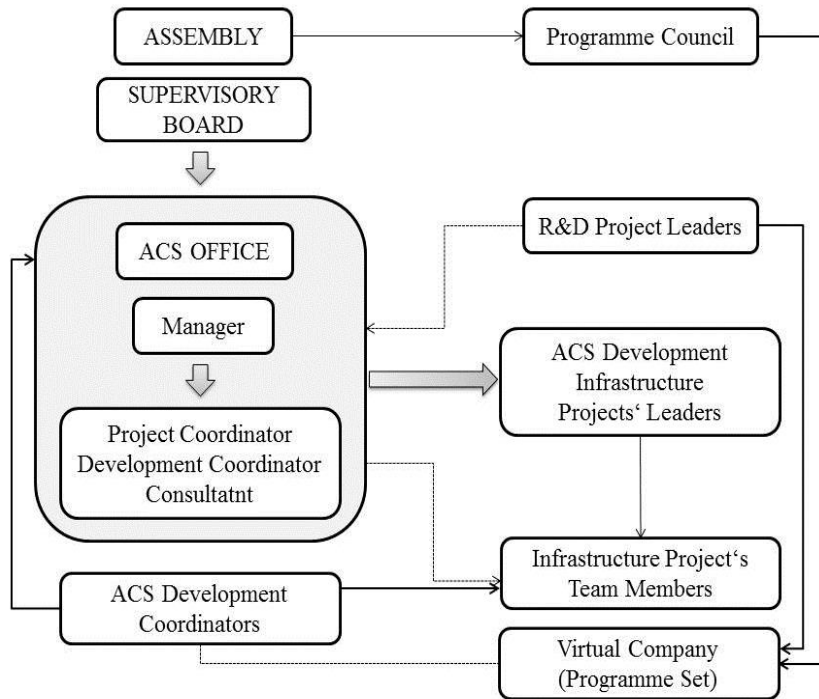
- contribute to raising the visibility of the Automotive Cluster of Slovenia, its members and the Slovenian automotive industry,
- strengthen the network of partners to integrate the implementation of business opportunities,
- to influence the development of guidelines, policies, laws and regulations related to the automotive industry,
- to support members in strengthening the key factors of business success, such as knowledge, innovation and technology to increase competitiveness,
- establish a knowledge base and information exchange between their active members.

The organizational structure of the Automotive Cluster of Slovenia

The Automotive Cluster of Slovenia is based on business and development cooperation among companies – and that includes all members. Soon after it was founded, the cluster created its own central communication point – that is, its office, which currently employs four people. The office contains basic communication equipment for the coordination of common activities. It took a long time to set up the infrastructure, with the main focus being on the coordination of group projects and operational cooperation in the field of new products. The common goal can be achieved with the cooperation of all 57 members, and that is to create complex products with higher added value.

Figure 1 depicts the organizational structure with links between management bodies and process owners of the Automotive Cluster of Slovenia.

Figure 1: *Organizational structure with links between management bodies and process owners of the Automotive Cluster of Slovenia*



Source: Busen and Gluhak, 2013.

Membership in the Automotive Cluster of Slovenia

Admitting new members

The main criterion for inviting a company into a cluster is that it expresses such an interest. The management of a company has to be completely certain that it wants to cooperate in the cluster. Companies must also clearly state that such cooperation can help increase their competitiveness. The first reason to join a certain cluster is therefore well-founded interest. This means that the companies have cooperated before and that they are bound by tradition. Companies must have some common sectors in which they can achieve more if they cooperate.

Formal conditions for admitting a company into the Automotive Cluster of Slovenia are (Automotive cluster of Slovenia, 2013):

- the company must be a direct supplier of modules and components for the automotive industry or an important supplier of mechanical equipment or tools in terms of synergy. Alternatively, the company can be carrying out services connected to research and development, manufacture, logistics, counselling or any other services for automotive industry suppliers,
- the company must follow a system for ensuring a high level of quality, and it must have attained basic automotive industry certificates (QS 900X) or be in the process of attaining them,
- the company must have attained references concerning supplies to any of the large European car manufacturers or large system suppliers,
- the company must have the necessary technical equipment and must complete its products and processes with great intensity both from the technological and the developmental points of view,
- the company must achieve at least average economic results in its sector for productivity, share of the production intended for export, and gross added value per employee.

When accepting new companies into the Automotive Cluster of Slovenia, it is important to remember that the decision must be passed by the members of the assembly, meaning that both the applicant and the existing companies of the cluster must identify a mutual gain through the accession.

The process of admitting a new member is structured as follows (Automotive cluster of Slovenia, 2013):

- a new member may be proposed by any member of the Automotive Cluster of Slovenia,
- the proposal is passed on from the members of the Automotive Cluster of Slovenia to the general manager, who submits it to the assembly,
- the admission of a new member is confirmed or rejected by the assembly by a simple majority of voters,
- when admitting a new member, their professional, economic as well as development abilities are considered,

- a new member of the Automotive Cluster of Slovenia takes on full responsibility from the day they are admitted.

Any member wishing to withdraw from the economic interest group Automotive Cluster of Slovenia may do so under the condition that they have settled all of their obligations to third parties, to the Automotive Cluster of Slovenia and its members. Membership may be revoked in some cases when such a decision is passed by the supervisory board.

Members should regularly pay the annual fees of 3,000 EUR for large sized companies with a turnover above 100 million EUR, 2,500 EUR for large companies with a turnover from up to 100 million EUR, 1,200 EUR for middle sized companies, and 500 EUR for small sized companies, scientific and R&D institutions, other support organizations and individuals (Busen & Gluhak, 2013).

Upon joining the cluster, a company must pay a one-time admittance fee, which amounts to 2.5 times the yearly membership fee. The company must also undertake to cover additional financial obligations for the joint infrastructural projects or development activities confirmed by the assembly in the annual work plan and financial plan.

Member's rights

The rights of the members are (Automotive cluster of Slovenia, 2013):

- to take part in the management by participating in the assembly (the number of votes each member gets is proportionate to their cumulative contribution towards the costs) and to participate in the financial results,
- to be informed about the work of the cluster and to monitor it,
- to use the results of informatics, development and research projects,
- to take advantage of the professional services of the Automotive Cluster of Slovenia,
- to use the collected funds for nothing other than the agreed upon purposes and following the agreed upon conditions,
- to use the trademark, service brand and other brands for nothing other than the agreed upon purposes and following the agreed upon conditions,

- to propose the discussion of an issue in which the members share a common interest,
- to receive all the information collected and distributed by the association regarding its activities,
- vote and being voted into organs of the cooperation,
- to demand protection against unfair competition resulting from other members of the cluster,
- members have an advantage over non-members regarding the provision or participation in business organized by the association.

Members of Automotive Cluster of Slovenia

Nine companies and three academic institutions supported the establishment of the automotive cluster on November 11, 2001. Today, the cluster includes 57 members, 51 of which come from the industry, and 6 of which belong to the research and development institutes. Three new members joined the cluster in 2012 (Busen & Gluhak, 2013).

Annually, the cluster creates an important share in the Slovenian GDP, estimated at around 10% of the total GDP, providing 550 million EUR to the national budget. Companies in the Slovenian Automotive Cluster export 80% of the entire production created in Slovenia which represents 21% of the entirety of Slovenian exports. 5% of the realization is invested back into research and development and 12% into new technologies (Busen, 2012). Despite the global financial crisis and consequent tighter economic conditions, Slovenian automotive suppliers were able to increase their sales in 2012 by 3% in comparison to the year 2011, which evidences the high efficiency of the cluster (Busen & Gluhak, 2013).

Local and international projects of the Automotive Cluster of Slovenia and their influence on the future role of the cluster

Projects initiated while the cluster was being formed, and which are still being carried out, have played a crucial role in shaping the cluster. Strategic projects combine key activities for the development of the cluster, including the establishment of the office and with it the central communication point of the cluster, development of an internal organization, monitoring the progress of the overall project, incorporating new members, establishing dialogue with the economic and state authorities within and outside of Slovenia, etc. Other infrastructural projects on information technology, industrial promotion, the identification of R&D projects and supply chains, the development of a common R&D infrastructure, training and education, and quality and business excellence were simultaneously carried out.

Below we provide two tables that summarize the content of the projects that the Automotive Cluster of Slovenia has carried out since its establishment both locally (Table 2) and internationally (Table 3).

Table 2: *Projects that have been carried out locally in Slovenia since the establishment of the Automotive Cluster of Slovenia*

Project	Short description of the project
INO	
<ul style="list-style-type: none"> ▪ Support of the national system of innovation 	<ul style="list-style-type: none"> ▪ Carrying out services and expert aid for industrial research and technological development.
ERTRAC	
<ul style="list-style-type: none"> ▪ Technological platform for vehicles, road and transportation 	<ul style="list-style-type: none"> ▪ Collaboration in developing a technological platform for assuring the development of partnerships and networks with key actors of research and development in the sector on the EU level ▪ Providing a strategic orientation of program areas where innovation is to be expected

Project	Short description of the project
PTC	
<ul style="list-style-type: none"> ▪ Polycentric technological center 	<ul style="list-style-type: none"> ▪ Establishment of infrastructure and development of joint competences in areas of new materials, new technologies and mechatronics
ACS	
<ul style="list-style-type: none"> ▪ Development of the Automotive Cluster of Slovenia 	<ul style="list-style-type: none"> ▪ Development of the Automotive Cluster of Slovenia from its establishment to its independent formal and legal operation

Source: Busen and Gluhak, 2013.

Table 3: *Projects that have been carried out internationally since the establishment of the Automotive Cluster of Slovenia*

Project	Short description of the project
CAREER 50+	
<ul style="list-style-type: none"> ▪ Career plan for employees over 50 years of age 	<ul style="list-style-type: none"> ▪ Develop a program for training elderly employees (age above 50 years) ▪ Training mentors for conducting such programs
STAR – NET	
<ul style="list-style-type: none"> ▪ European network to support the sustainable surface transport SMEs 	<ul style="list-style-type: none"> ▪ Establish a European-based network for supporting the development of a sustainable surface transport for SMEs
COIN	
<ul style="list-style-type: none"> ▪ Enterprise collaboration and interoperability 	<ul style="list-style-type: none"> ▪ On an open-source-based code develop a platform and a software that would support cooperation of networking organizations for product development and production planning

Project	Short description of the project
UNIDO	
<ul style="list-style-type: none"> ▪ Development of a supplier and support institution network for members of the Automotive Cluster of Slovenia in Serbia and Russia 	<ul style="list-style-type: none"> ▪ Training companies for participating in the global market ▪ Supporting the on-going development of the automotive cluster ▪ Establishing a long-lasting cooperation between Slovenia and Serbia and Slovenia and Russia in the automotive supplier industry
TCAS	
<ul style="list-style-type: none"> ▪ Transnational clustering in the automotive Sector 	<ul style="list-style-type: none"> ▪ International clustering in the automotive sector ▪ Identification of key joint cluster projects ▪ Bringing together companies from participating clusters on concrete business projects
NEAC	
<ul style="list-style-type: none"> ▪ Network of European automotive competence 	<ul style="list-style-type: none"> ▪ Interaction of automotive competences and the on-going competitiveness of automotive regions and their suppliers' base
MAGFORGE	
<ul style="list-style-type: none"> ▪ Magnesium forged components for structural lightweight automotive applications 	<ul style="list-style-type: none"> ▪ Decreasing the influence of structural components with applications of forged magnesium in the automotive industry
CORELOG	
<ul style="list-style-type: none"> ▪ Coordinated regional logistics 	<ul style="list-style-type: none"> ▪ Identifying possibilities of an enhanced exploitation of own and foreign means of transportation ▪ Identifying possibilities for enhancing inter-modal transportation ▪ Identifying obstacles and proposing actions for an enhanced usage of railway transportation

Project	Short description of the project
AUTO-IN	
<ul style="list-style-type: none"> ▪ Boost Automotive SMEs Participation 	<ul style="list-style-type: none"> ▪ Provide instruments to non-profit organizations in the new EU member states to support SMEs in order to better exploit European research opportunities within their development and innovation projects
SENAI	
<ul style="list-style-type: none"> ▪ South-eastern European network of the automotive industry 	<ul style="list-style-type: none"> ▪ Setting up a permanent network of automotive South-eastern European network that can represent a counterweight to China from the perspective of vehicle producers

Source: Busen and Gluhak, 2013.

The projects initiated by the Automotive Cluster of Slovenia play a crucial role in the cluster's future development. The management of the Automotive Cluster of Slovenia is aware that it is vital to exploit synergy effects of vertical and horizontal connections (i.e., links to individual companies, academic institutions within and outside of Slovenia) in order to obtain the necessary resources for the increasingly competitive environment and R&D activities. The performance of the Automotive Cluster of Slovenia is strongly associated with managing and integrating members' competences, skills, abilities, knowledge, know-how, and networking connections.

The convergence of technologies has launched the development of multiple forms of cooperation and integration which are not bound by distance, geographical location or language. At the same time, the integration of people has become mobile, virtual, and more personalized. Despite all these trends the Automotive Cluster of Slovenia firmly believes that the most important development of knowledge, competences, and values is in the local networking systems. Therefore the Automotive Cluster of Slovenia wants to provide their members an environment that will form the catalyst and driving force of the

common R&D process in all members and beyond. Such an environment facilitates the generation of new ideas and business opportunities.

Growth of the Automotive Cluster of Slovenia

Besides infrastructural projects, one of the most important projects of the Automotive Cluster of Slovenia is its polycentric technological centre. After the Automotive Cluster of Slovenia had been formed, it successfully went through the phases of initial activities and development, so that it has now entered the phase of growth. The main features of this phase are deepening of the cooperation between members, the increase of the number of members which results in the extension of the potential knowledge that is to come into effect in the international environment.

Polycentric technological centre

Based on the belief held by members of the Automotive Cluster of Slovenia, namely that the position of Slovenian suppliers in the automotive industry can only be improved by joint investments and closer cooperation between companies and universities, the Automotive Cluster of Slovenia initiated the project »Polycentric Technological Centre as the international innovation system of the Slovenian automotive supplier industry«. Such initiatives were approved also by the Slovenian Ministry of Economic Affairs in the framework of the invitation to tender for obtaining funds from the European Regional Development Fund, Measure 1.1. »the encouraging of the development of the innovatory environment«. The Ministry of Economic Affairs approved the project by providing 1.7 billion USD (Busen, 2004b).

The Polycentric Technological Centre is an international innovation system joining and connecting business and academic spheres supported by ministries. Each participant is focused on its specific area while at the same time making a synergistic contribution to the whole. The centre provides the possibility of taking into account starting points and achieving set objectives stemming from a project as a whole. Its implementation enables the quality development of Slovenian automotive companies at the local, regional, national and international

levels. The centre provides quality care, access and the allocation of key sources of research and development activities in the country.

The Polycentric Technological Centre is used by existing, new, domestic, foreign, small, medium and large companies with high market potential as well as by academics. Through its activities the PTC significantly assists domestic producers of parts in their efforts to establish themselves as quickly as possible as development and system suppliers for the automotive industry. This enables them to manufacture products of higher complexity and value added for global vehicle manufacturers (in selected segments).

The activities of the polycentric technological centre help the Automotive Cluster of Slovenia to fulfil one of its goals, which is defined in the cluster's development strategy. The goal is to become a regional innovatory system whose main task is to encourage the cooperation between companies and other institutions with the intention of developing, expanding and using new knowledge. The polycentric technological centre's basic strategic and developmental orientation is profitable growth of sales and added value, gaining new buyers, promotion and common marketing, innovation processes, qualified suppliers, developmental infrastructure, information structure and basic knowledge.

Cooperation with other clusters in Central and Eastern Europe

As part of implementing the Automotive Cluster of Slovenia's strategy regarding expanding the international network of the cluster in central and eastern Europe, the Automotive Cluster of Slovenia offered technical support in establishment of the Serbian Auto Cluster and Automotive Cluster of Bosnia and Herzegovina. Based on the cooperation with Serbian Auto Cluster, the Automotive Cluster of Bosnia and Herzegovina and other clusters in central and eastern Europe the Automotive Cluster of Slovenia is developing a network of automotive clusters in the region that will be even more competitive.

Conclusions

The main contributions of the Automotive Cluster of Slovenia to small and medium-sized companies can be summarized by the statements of three managers of these companies that belong to the cluster:

Borut Petric, General Manager of Elvez: *»We decided to become a member of the Automotive Cluster of Slovenia mostly because of the opportunity to establish links between companies from similar branches, join capacities and specific types of knowledge, and the opportunity to make business contacts in the European Union and across the world. At the same time, we see great opportunities in the promotion of our company through the Automotive Cluster of Slovenia at various fairs, conferences and other events which the Automotive Cluster of Slovenia takes part in as an association. We see the greatest potential in the establishment of links with bigger companies from the cluster (Cimos, etc.) and other companies which are suppliers for big systems in the automotive industry, which we probably would be unable to enter by ourselves.«*

Bojan Zeleznik, General Manager of KGL: *»KGL is a small company that has been in the automotive industry market for twenty years. By obtaining the ISO 9001: 2000, ISO/TS 16949: 2002 and ISO 14001: 1996 certificates we have proven that we are capable of operating in automotive industry markets. We estimate that we need somebody or something that will unite us and take care of the flow of information. The Automotive Cluster of Slovenia has proven with its strategy the importance of gaining trust. We are certain it is very important that smaller companies join the Automotive Cluster of Slovenia since these companies are most frequently incapable of maintaining more extensive developmental and sales activities by themselves.«*

Maja Pelko, Assistant Manager of TOM: *»We are a manufacturer of automotive parts, mostly for the French automotive and Italian motorcycling industries and their sub suppliers. By joining the Automotive Cluster of Slovenia we wish to expand existing knowledge*

and experience in the automotive industry and offer it to the rest of the automotive industry. We believe that membership in the Automotive Cluster of Slovenia will help us achieve this. We expect from membership in the Automotive Cluster of Slovenia to expand our business operations and gain new customers, improve our knowledge in the technological and marketing fields and improve cooperation with others in the Slovenian automotive industry.»

The development of new technology-based firms and the growth of the whole region depend on the propensity of the innovation and development of the cluster. It can certainly be true that joining the Automotive Cluster of Slovenia enables small and medium-sized companies to compete more successfully in the global market. Clusters also contribute to the establishment of new technology-based firms, since large cluster firms, which become developmental suppliers for the MNEs in the automotive industry need their own innovative suppliers – new technology-based firms. However, the competition will soon overtake these firms if they do not continue to improve and build upon the cooperation within the cluster. Small and medium sized companies get a chance to work with bigger companies such as Cimos through the cluster, they get to know each other well, appear jointly on the market and in such a way lay the foundations for possible capital integration, which seems to be inevitable according to the predictions of drastic worldwide reductions in the number of both first-tier and second-tier suppliers.

References

- Application documentation. (2001). Ljubljana: Cimos Commerce.
- Automobile production. (2006). <http://www.automobil-produktion.de/themen/00459/> (accessed January 19, 2006).
- Automotive cluster of Slovenia. (2002). Official presentation.
- Automotive cluster of Slovenia. (2005). Official presentation.
- Automotive cluster of Slovenia. (2013). *Presentation of members*. <http://www.acs-giz.si/slo/clani.html> (accessed October 13, 2013).
- Batagelj, N. (2003). *Development of Automotive cluster in Slovenia*. Ljubljana: Faculty of Economics.

- Boosting Innovation. (1999). *The Cluster Approach*. Paris: OECD.
- Busen, D. (2004a). Interviewed by Prodan Igor, April 30, 2004.
- Busen, D. (2004b). Polycentric Technological Centre being established. *Automotive Cluster of Slovenia news*, 2(2/3).
- Busen, D. (2012). *Slovenian automotive Industry – Slovenia as a global competence centre for green automotive industry*, presentation.
- Busen, D., & Gluhak, U. (2013). *Annual report of Automotive Cluster of Slovenia for 2012*. Ljubljana: Automotive cluster of Slovenia.
- Cimos. (2006). Official website of Cimos <http://www.cimos.si> (accessed January 19, 2006).
- Hülsemann, K. (2004). Purchasing in the Automotive Industry in the Process of Changes. Automotive Cluster of Slovenia, 2nd Annual ACS Convention on Developmental Trends in the Automotive Supplier Industry, Ljubljana, 13 May 2004.
- Jaklic, M., Svetina Cotič, A., & Zagoršek, H. (2005). Specific response to universal pressures in the industry: comparing European automotive clusters. *Working paper*, no. 174. Ljubljana: Faculty of Economics.
- Mihelič, P. (2001). Development management: research and development – required and sufficient requiremen. In Dolinšek, S. (Ed.), PMNGT-2001. Ljubljana: GV Education.
- Mihelič, P. (2005). Interviewed by Prodan Igor on December 23, 2005.
- Nardin, B. (2004). Common Quality Research and Development Infrastructure. *Automotive Cluster of Slovenia news*, 1(1), 11.
- Pricewaterhouse Coopers (2003). What Future for Part Suppliers? *Automotive Supply Magazine* http://www.pwc.com/gx/eng/about/ind/auto/automotive_supply_french_english.pdf (accessed December 20, 2003).
- Puklavec, J. (2003). *Development strategy of Automotive Cluster of Slovenia*. Ljubljana: Automotive Cluster of Slovenia.
- Sedej, M. (2004). Investments in knowledge and development of employees – the principal guideline and obligation. *Automotive Cluster of Slovenia news*, 1(1), 12.

MORAVIAN-SILESIA AUTOMOTIVE CLUSTER

Magdalena Bialic-Davendra, Eva Vejmělková

General context for the formation of the automotive cluster in Moravia-Silesia

Manufacture of motor vehicles in the territory of former Czechoslovakia stems back to 1898. From that time until the end of 1945, according to the Automotive Industry Association (AIA), 154,898 cars, 56,707 trucks and 2,349 buses were produced. From 1946 to the end of 1992, dozens of millions of cars, buses, trucks and motorcycles were built. The development of the automotive industry continued as well in the independent state of the Czech Republic.

According to the »Panorama of Czech Industry 2003« (issued by the Ministry of Industry and Trade), Czech automotive production significantly contributed to the overall economic performance of the Czech Republic, increasing its importance in terms of gross domestic product and employment, and having a decisive influence on foreign trade as well.

The Czech Republic, with its tradition of car manufacturing and its convenient location, is an attractive country for investment. The purchasing power of the population, however, is still low compared to the European Union average. This is related to the structure of the vehicle park of the Czech Republic, in which a slow reduction in vehicle age can be observed.

For many years, the automotive industry has been one of the very powerful and extremely important industry sectors in the Czech economy. Although not in all production commodities, the development has clearly been positive, aggregate growth trend yields good prerequisites for the development of this sector in the future. The clearly dominant position in vehicle manufacturing is car production, followed by the manufacture of buses and trucks. In 2003, for the first time, the production of equipment overtook vehicle production in terms of total sales. Depending on the nature of the production programme, this group includes the

following product mix: cars, trucks, trailers and semitrailers, buses, manufacturing of their parts, parts production. According to the Statistical classification of economic activities CZ-NACE, this sector was divided into the following fields:

- 34.1 – Manufacture of motor vehicles (except motorcycles) and their engines,
- 34.2 – Manufacture of bodies, trailers and semitrailers,
- 34.3 – Production of accessories for motor vehicles.

In 2003 the Czech automotive industry again increased sales, exports and productivity.

Car manufacturers reached 319,295.7 million CZK in total sales and a permanently stable employment of about 91,000 workers.

In the automotive industry, practically all forms of legal entities and production activities are represented. Companies, primarily in the category of over 1000 employees, play an important role in the sector. This category includes not only the key supply manufacturers in the industry (e.g., AUTOPAL, BOSCH, DIESEL, SIEMENS), but also practically all manufacturers of motor vehicles, such as ŠKODA AUTO, TATRA, and KAROSA. In 2002 companies employing over 1000 implemented nearly 75% of the industry revenues (71.7%) with a proportion of more than half (55%) of all employees of the CZ-NACE 34 sector.

The automotive industry is one of the few sectors that is capable of perpetually creating jobs. From this perspective, the position of companies within each territorial and administrative unit is important. The most significant »automotive« location is the Central Bohemian Region, where the most famous domestic final manufacturer, ŠKODA AUTO, has its headquarters and where car makers TOYOTA PEUGEOT CITROËN AUTOMOBILE (TPCA) in Kolín was established. In regard to the number of companies, the Central Bohemian Region »competes with« the neighbouring Liberec Region, where a significant part of its attractiveness is constituted by the direct highway connection to Mlada Boleslav. The logistics reasons, in this case, are quite clear. Another important location is the South Bohemian Region, which is favourable for companies focused on supply, especially for the western market. Also, the

Moravian-Silesian Region (MSR) increases its historical importance due to significant investment incentives to foreign investors, and thanks to the proximity of Slovakia and Poland, where further major automotive manufacturing players produce or prepare their products. The size of sales in each region is determined by major manufacturers in the region. It is ŠKODA AUTO for the Central Bohemian Region, KAROSA for the Hradec Králové Region, and TATRA for the Moravian-Silesian Region.

The competitiveness of the automotive industry is supported by some comparative advantages, which include a skilled workforce and relatively low personnel costs. In 2003 it was possible to record a positive change in attitude of the owners of major companies to the R&D departments of their firms. In many cases the Czech firms became bearers for the development of a product group within the international group, and thus increased their responsibility for the technical level of their own and the final product. The growing competition within its own industry is also a positive feature of the automotive sector. The quick response of manufacturers to the changing conditions and linkages of the individual firms with foreign partners practically eliminated a certain sales decline in the domestic market as well as in the traditional outlets for Czech production. In comparison with other sectors, the Czech automotive industry had a head start, a relatively high share of foreign capital in Czech companies, which resulted in higher levels of productivity and quality, and the change of output prices – comparable with similar EU firms. In 2003, labour productivity in the Czech Republic constituted around 56% of the EU average (from 55.3% in 1999 to 56.0% in 2002, Eurostat); its growth was considerably slower than in other accession countries like Poland and Hungary. In absolute terms, labour productivity in the Czech Republic was slightly above the average of the ten accession countries (the ten acceding countries: 50.0% of the EU average in 2002) behind Hungary (65.2%), but ahead of Poland (48.3%).

Therefore, many foreign companies in the automotive industry established their branches in the territory of the Czech Republic. In connection with the new automobile, not only further Japanese companies/suppliers to the TPCA came, but also suppliers to other manufacturers of cars or car accessories. Unfortunately, the purchasing power of the population (estimated in 2005) was still low compared to the EU average, and again a decline in sales of new

vehicles on the Czech market was observed. This was related to the structure of the Czech fleet. Employment in the CZ-NACE 34 sector had grown by almost 20% in total over the period 2000–2005. The development of added value recorded a steady increase as well as in year by year values, which characterized a progressively increasing trend. In the period 2000–2004, sales in this sector recorded a dynamic growth of indicators in the cumulative sales for the entire manufacturing industry.

Conducted at that time research⁴ (dated for the year 2005) regarding the needs of manufacturers of finished cars in the area of the MSR, revealed the following findings and outputs:

- During the time of research, the Czech Republic produced about 450,000 passenger cars per year. The surplus of the production over the purchase constituted around 600,000 cars. Furthermore, the focus on environmental protection was increasing, and more and more companies producing parts and accessories for vehicles were certified according to some standards of the ISO 14000.
- Planned newly-opening of plants in the Czech Republic in 2005 (TPCA Kolín), in the Slovak Republic in 2006 (KIA and PSA PEUGEOT CITROËN) and especially in the Moravian-Silesian Region (2007–2008 in Nošovice) were promising, due to their influence on the change of the situation in the supply industries in these and adjacent regions from the perspective of production capacity and the increase of employment.
- The vast majority of producers were importing components from the Czech Republic; having already a supplier from the MSR. However, the majority of manufacturers continued their interest in acquiring new suppliers from this region due to the quality, price, and logistics criteria.
- In most companies, the development was oriented toward the individual customer with work focused on specific, technical requirements of customers.
- At the VSB – Technical University of Ostrava (VSB-TUO) a significant strengthening of engineering disciplines, including in the automotive industry, was observed as a reaction to firms' demand.

⁴ The Union for the Development of the Moravian-Silesian Region (2006). *Output study for the project Searching for companies suitable for a cluster of automotive suppliers in the Moravian-Silesian Region, evaluation of its viability and benefits*. Ostrava.

It was obvious that the Moravian-Silesian Region was becoming attractive for the final vehicle manufacturers as a »source« of components. This finding was supported by the inflow of investments into this region in the area of the supply industry. Also, research conducted documented an increased interest of final manufacturers in supplies of components produced in the MSR and identified their priority areas.

The pilot Automotive Cluster project – from idea to realization

The beginning of the automotive cluster idea

In 2002 CzechInvest initiated a pilot project on the applicability of the cluster concept for the economic development of regions in the Czech Republic. The project known as **»Feasibility Study to identify industrial groupings for targeted aid scheme support«** was implemented by a consortium of PE International with support of the Phare programme. In the first phase of the study, an analysis of regional industrial structures and competitiveness of potential industrial clusters in the Moravian-Silesian Region was conducted. In the second phase, the study was oriented toward the strategy of an engineering cluster that would also cover the automotive sector.

The study states that at that time (data from 2001 and earlier), the automotive industry in the MSR had an employment of 8200 people in 19 companies. Specifically, the location quotient was 1.27. At the same time, this sector was described in the study as below average in the Czech Republic due to lower sales and added value. This reflected the status of the main car manufacturer in the region – TATRA. The influence of ŠKODA AUTO was indicated in the fact that the Czech automotive industry had been concentrated particularly in Central Bohemia with more than 60% of value added.

Although, the problems of TATRA significantly affected the entire local sphere, the study showed that apart from TATRA, the region had several large suppliers of automotive components, which employed 5400 people.

Along with the automotive sector in the region, a large number of companies that generate a substantial part of their revenue from automotive suppliers (i.e.,

suppliers of Tier 2 and Tier 3) had been identified. Apart from some plastic and rubber products, these were mostly metal parts (e.g., wires, wiring harnesses, casts).

As a result of this study, a machinery engineering cluster, including the automotive industry and its supply chain was defined as the major priority for the Moravian-Silesian Region. Among others, the study's strategic recommendations included the need to continue to develop this sector, especially by attracting suppliers of Tier 1 and Tier 2 into the region, so that it would become an attractive location for automotive manufacturers. This would ensure the development of the existing potential of regional suppliers of Tier 2 and Tier 3.

Following the CzechInvest study, in March 2003 **the Moravian-Silesian Engineering Cluster (MSEC) was established** as a civic association with 35 members. The cluster map covered all actors of the production chain from suppliers of raw materials (metals, steel, etc.), through processing, up to output sectors (construction, automotive, mining, etc.). In that form, a number of companies from the sector of automotive suppliers were involved in the MSEC. In the following period, the propensity to malfunction of so broadly-based cluster became evident. Following the principles of the Operational Programme Industry and Enterprise – Clusters (further OPIE – Clusters), a reassessment of the scope of MSEC activities took place in 2004. The aim to identify its new specialized focus was reflected in the decision to implement the project »Searching for companies suitable for restructuring of the MSEC« (sector of the investment and energy engineering), a review of companies in the core of the cluster and the detachment of companies from the automotive sector into a new, separate cluster. At a meeting in March 2005 the sectoral leaders from the Tier 2 level, such as AUTOPAL, HAYES LEMMERZ AUTOKOLA, and SIEMENS-AUTOMOTIVE SYSTEMS, signed on to the idea of building a separate cluster of automotive suppliers and submitting an application for co-financing of the project to the MSR.

In order to demonstrate the meaningfulness of the aforementioned plan, in November 2004 the MSEC applied for a grant under the Ministry of Regional Development »Regional programme supporting the development of Northwest

Bohemia and the Ostrava Region – Financing the preparation of pilot projects for the revitalization of the Moravian-Silesian Region«. The project »Support for the development of supplies for the automotive industry from the Moravian-Silesian Region« was conducted from December 2004 till June 2005. Its aim was to map the usage of the existing capacity and potential of the MSEC and companies in the MSR within the supplies for the automotive industry, and define the needs for creation of conditions for the development of a new capacity for deliveries to the emerging automotive industry in the Czech Republic, Slovakia and Poland.

The process of the cluster initiative formation

The potential for the development of the cluster initiative in the automotive sector was growing with the arrival of new investors in the Moravian-Silesian Region. In 2005 two companies announced their decision to build a factory in the industrial zone of Ostrava-Hrabová: the Korean firm SUNGWOO HITECH (stamping parts for the car's body) and the American company CTS, which relocated its production of electronics for cars from Scotland to Ostrava. An important stimulus for the arrival of other investors was the launching of KIA MOTORS in Žilina and negotiations about the location of HYUNDAI's investment in the MSR.

The outputs of the project »Support for the development of supplies for the automotive industry from the Moravian-Silesian Region«, confirmed the potential for the establishment of a cluster organization and have served as an important basis for the preparation of the project application »Searching for companies suitable for a cluster of automotive suppliers in the Moravian-Silesian Region, evaluation of its viability and benefits« within the programme OPIE – Clusters. It was submitted to CzechInvest in December 2005 and approved in February 2006. The mapping phase of the cluster was implemented by the Union for the Development of the Moravian-Silesian Region from February to August 2006. The amount of 750,000 CZK was granted by OPIE and the amount of 200,000 CZK was co-funded by the MSR. During the mapping phase, a Steering Committee was established, wherein the representatives of leading companies, such as VISTEON-AUTOPAL, HAYES LEMERZ AUTOWHEELS, SIEMENS-AUTOMOTIVE SYSTEMS, BRANO

and others, took part. Within seven months, a total of five workshops took place, during which the first joint projects were designed.

Already by the second workshop, the actors interested in the establishment of a cluster organization defined its future directions, focusing on the development of firms – both quantitative and qualitative optimization of the supply chain, as well as on ensuring a sufficient qualified manpower in the field of:

A) Innovation

- innovation of technologies, organization and management;
- innovation of processes – lean manufacturing and its implementation in member companies;
- increasing the technical level of products;
- ensuring the necessary technical certifications of products and services;
- technical equipment of training facilities and research laboratories;
- rapid prototyping, cubing;

B) Marketing, promotion, export support

- research of relevant markets, mapping and anticipating the needs of final customers;
- own website of the cluster;
- networking with partner institutions in the country (e.g., AIA) and abroad;
- analysis of the entry conditions into foreign markets;
- participation in trade fairs, exhibitions and conferences;
- usage of the existing export supporting programmes;
- creation of a functional PR system of all cluster initiatives;

C) Human Resource Development

- motivation of students to study in technical fields;
- identification of quantitative and qualitative needs of the cluster members in the area of human resources;
- adaptation of learning curricula of the regional educational institutions to the needs of the cluster's members;
- creation of a system environment of continuous education of the cluster members' employees;
- implementation of the project of education of the cluster's members according to the results of conducted analyses;

- the establishment of Lean Academy, the education system leading to the increase of productivity;

D) Development of subcontractors

- creation of a database of cluster's members;
- analysis of the supplier – buyer chain of cluster's members;
- creation of a system of qualitative evaluation of cluster's members, including its ongoing evaluation and adaptation to the needs of final customers;
- sustainable development of supplier-buyer chains;
- optimization of logistics linkages among cluster members;
- implementation of a project of a comprehensive development of 20 suppliers from the automotive cluster, according to the CzechInvest methodology of a project of Suppliers Development;

E) Development of an internal infrastructure of the cluster

- creation and equipment of the functioning technical and administrative base for the cluster;
- analysis of the functioning of successful clusters in the country and abroad, including business trips;
- education and coaching of the cluster's staff;
- preparation, implementation and administration of the cluster's projects within the »Clusters« programme, as well as new operational programmes from 2007–2013.

During the mapping phase, the potential for the establishment of a cluster organization was also confirmed by data regarding the region's economic performance. The indicator of a share of employment in the sector CZ-NACE 34 in total employment in the MSR constituted a steadily rising trend from the year 2000, and despite a slight decline of this indicator in 2003 it had shown a positive growth trend (Table 1). The indicator »Expenditure on research and development in the Czech Republic and CZ-NACE 34« was around 20% of the total expenditure on research and development over a long time, corresponding to values in comparable transition economies in Central and Eastern Europe, which together joined the European Union. The relative decline of this indicator was caused by the significant investments in research and development in other sectors of the economy of the Czech Republic, which in recent years recorded a significant jump in growth compared to the relatively low level of these sectors

in the past. These sectors are mainly associated with the so-called »new economy«, where in particular information technologies are typical representatives of these industries.

Table 1: *Employment in the Czech Republic and in the Moravian-Silesian Region*

	2000	2001	2002	2003	2004
Total CZ	3,222,300	3,217,000	3,184,600	3,225,300	3,198,900
CZ-NACE 34	78,676	84,875	88,880	88,568	93,107
Total MSR	324,686	325,660	314,886	316,119	311,881
MSR CZ-NACE 34	8,344	9,178	10,397	10,038	11,368
Location Quotient	1.05	1.07	1.18	1.16	1.25

Source: Ministry of Industry and Trade, 2004.

Calculated values of the location quotient quite convincingly demonstrated not only the existence of the strong potential of companies from CZ-NACE 34 for the formation of the cluster of automotive suppliers, but also a strong upward trend of this indicator for the future.

Based on the successful project of mapping the automotive cluster potential, the Moravian-Silesian Automotive Cluster organization (MSAC) was established in September 2006 as a civic association of 18 member companies. Table 2 shows the basic data about the cluster members in key indicators – sales, export, number of employees, expenditures on R&D.

Table 2: *Development of the key indicators of the cluster members in 2006*

	2003	2004	2005
Revenues (mil. CZK)	44,608	59,828	63,826
Export (mil. CZK)	29,191	38,547	45,640
R&D investments (mil. CZK)	279	365	576
Number of employees	17,973	18,402	18,702

Source: Moravian-Silesian Automotive Cluster, 2006.

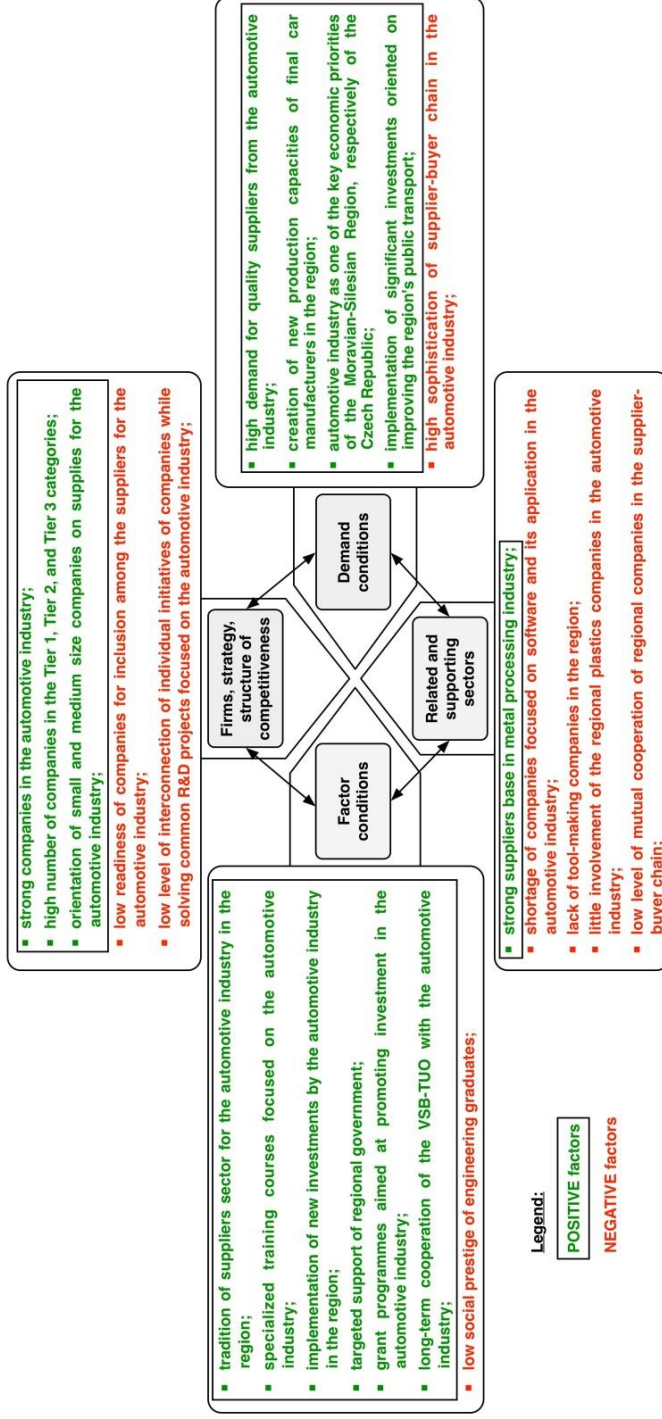
Two important outputs were accomplished as a result of the automotive cluster mapping phase; evaluation of the cluster by means of Porter's diamond and evaluation of its value chain in the form of a cluster map.

The evaluation of the automotive cluster through **Porter's diamond** provides a complete analysis of its competitive advantages (Figure 1). Its four “tops« are focused on all necessary characteristics of the local environment from the input conditions and output factors, the level of rivalry and strategies of key companies, to the development of related and supportive industries. An important element of this analysis is to examine the role of the public sector in the targeting of state aid to the automotive industry, and the overall communication for the implementation of the subsequent strategy of the development of an automotive suppliers cluster.

Porter's diamond concludes the stage of thinking regarding whether the automotive sector in the MSR has or does not have the features of a cluster and is one of the key bases for the decision regarding the establishment of a cluster initiative and subsequent processing of the cluster development strategy.

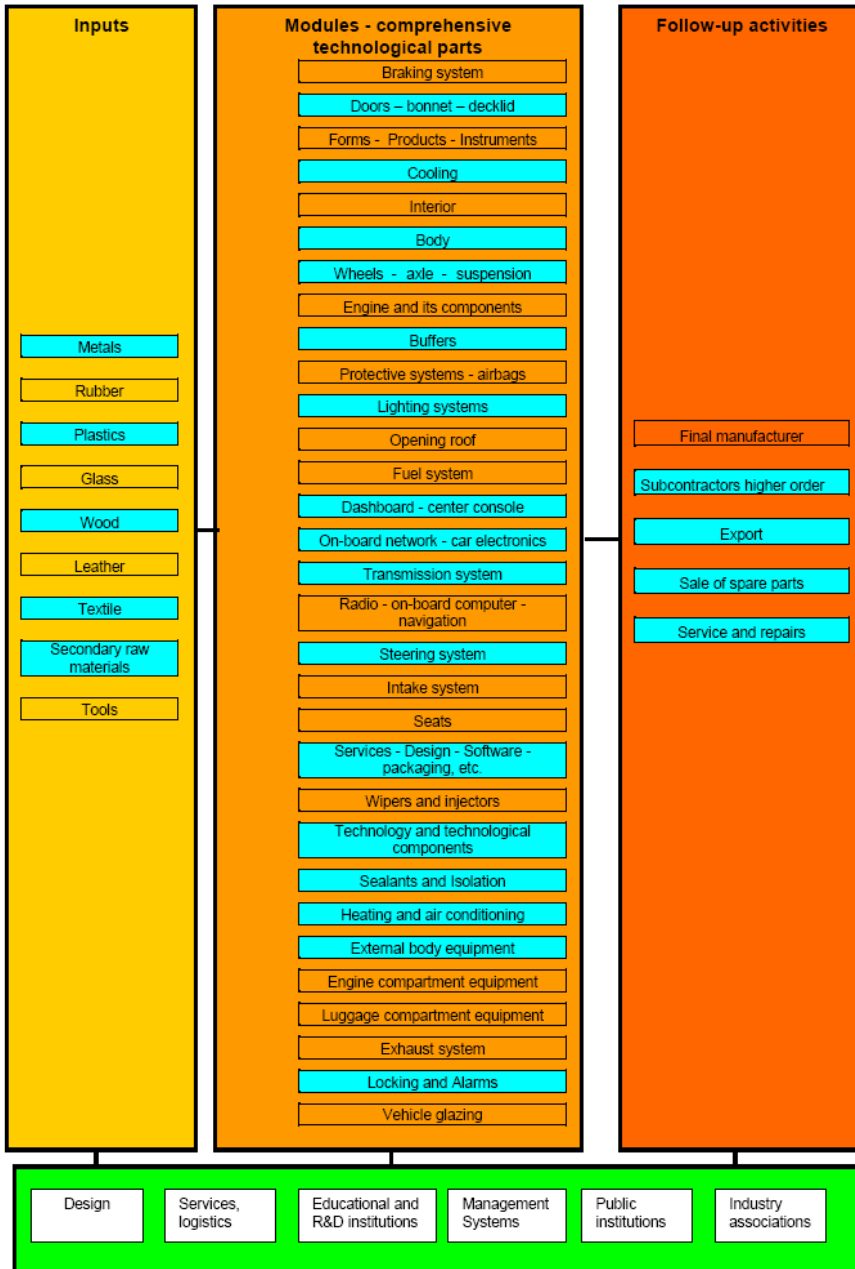
The map of the Moravian-Silesian automotive cluster is a graphical representation of the cluster's value chain from raw material inputs through the individual stages of processing to the final products and their export (outside the region and outside the Czech Republic), up to the usage in customer sectors. It depicts the inputs from the supportive and related sectors (Figure 2), and indicates a higher accumulation of companies in individual segments and somewhat lower or missing representation of companies in technologically new and desirable segments. The map of the cluster is used for further analysis of the strengths and weaknesses of the cluster and helps to define its effective boundaries and the potential of suppliers for the final vehicle manufacturer with maximum added value in the MSR or neighbouring regions.

Figure 1: Evaluation of the Moravian-Silesian automotive cluster through Porter's diamond



Source: The Union for the Development of the Moravian-Silesian Region, 2006.

Figure 2: *The map of the Moravian-Silesian automotive cluster*



Source: *The Union for the Development of the Moravian-Silesian Region, 2006.*

The Moravian-Silesian Automotive Cluster today

The vision and strategic goals of the MSAC

The MSAC organization was established in order to support innovation and to increase the competitive advantage and export ability of associated companies, entrepreneurs and institutions in the Moravian-Silesian Region. Its goals are to develop the automotive industry in the region through strong branches of industrial enterprise, universities, research institutions and other organizations, in both the private and public sectors; to achieve the permanent competitiveness of regional suppliers for the automotive industry in the Czech Republic as well as abroad; and to create conditions for increasing the technical capacity and utilization of the local workforce and to strengthen the image of Moravia-Silesia as a prospective region for living and doing business.

On the basis of the evaluation of potential members of the cluster and external assumptions, the following vision was then defined: *»To achieve full utilization of cluster members' potential by exploiting the existing and future opportunities in the automotive industry and to double the number of cluster members from the list of Tier 1–3 suppliers and to register 80% of cluster members among certified suppliers in this industry within five years.«*

The cluster's goals are further elaborated:

- Increase the competitiveness of cluster members in the automotive industry to such a level that 80% of them will not only be certified, but also be real suppliers of manufacturers in the automobile industry.
- Consolidate a sufficient number of qualified personnel for the needs of cluster members in the areas of upper and middle management as well as in manual professions, so that demand will meet supply.
- Achieve the objective of a cluster of being considered an equal partner during negotiations with final producers, so that the cluster becomes a base for mutual problem solving and can utilize the opportunities in the automotive industry in the region.
- Ensure a base for research and development in the region, so that the capacity of human and technical resources in this area doubles within the next three years.

The MSAC wants to become a driving force in engaging enterprises in the system of suppliers of car parts, car accessories, and concrete materials. In other words, it intends to support innovation, develop local human potential, and connect various supply levels. As a result, it should provide higher competitiveness for participating members so that about four fifths of them would receive, in the next five years, relevant certificates necessary for becoming factual automotive suppliers.

In order to meet these objectives, the following **strategy of the MSAC** was developed:

- *Increasing the competitiveness of MSAC members in the automotive industry, ensuring the implementation of advanced management systems according to the principles of lean manufacturing, especially close partner collaboration and the sharing of know-how of developed companies with companies starting their businesses.*
- *Ensuring the sufficiency of a skilled workforce for MSAC members through joint projects that will lead to the development of education adapted to the needs of the automotive industry – in all types of schools (technical high schools, technical colleges, universities), including further education institutions.*
- *That the MSAC be taken as an equal partner in negotiations with final car manufacturers and become a platform for joint problem solving, usage of the opportunities in the automotive industry in the region, achievement of representativeness of membership base and its ability for teamwork and accomplishments of results.*
- *Doubling the human and technical capacities of the R&D base in the region over three years through purposeful investment supported by both central and regional authorities and the member companies and organizations of the cluster.*
- *Building a functional cluster infrastructure that would be a reliable partner for all members, but also for regional authorities from the professional sphere, state administration and local government through the responsible choice of MSAC staff, investments in their personal and professional development, and with the support of the leading MSAC members.*

The organizational structure of the MSAC

The cluster is managed by its president and executive director. It employs three workers: an executive director and two project managers. The cluster authorities consist of a general assembly, an executive board (seven members) and a supervisory board (three members).

The executive board of the cluster (cluster management, companies and university representatives) and the general assembly are responsible for formulating the objectives of the cluster. Its activities are, in a significant way, initiated by its management as well as its member companies. Representatives of regional institutions are also partially involved. The achievements of the objectives are evaluated three times a year at the general meeting.

The cluster established cooperation with other Czech clusters, focusing on the exchange of information and experience in cluster management specific for the industry and concerning the sources of financial support; common projects preparation and their implementation; organization of seminars and conferences; consultancy on new clusters creation.

The MSAC closely collaborates with the university VSB-TUO, particularly in the area of building laboratories in the university premises (as well as ensuring they are appropriately equipped); in the area of common R&D projects, e.g., PIM (Powder Injection Moulding) technologies, through participation in the big university projects; as well as in defining companies' needs. The cluster also plans to concentrate on human resource development and building closer relations between the university and enterprises.

The actual activity of the cluster is implemented by teams that are engaged in:

- **Development of human potential** – work team for human resource development,
- **Development and support of development activities, testing and metrology** – work team for laboratories and testing,
- **Development of commercial relations and mutual cooperation** – work team for business relationships.

The aim of the work teams is a mutual exchange of experiences leading to optimization of costs, strengthening development capacities and sustainable development of the knowledge capital of cluster members.

Membership in the MSAC

Currently (July 2011), cluster has 52 members:

- ANAMET spol. s r.o.
- BRANO a.s.
- Brembo Czech s.r.o.
- Brose CZ spol. s r.o.
- CIRRUS CZ a.s.
- Continental Automotive Systems Czech Republic s.r.o.
- CROMODORA WHEELS s.r.o.
- CTS Czech Republic s.r.o.
- Czech Technical University in Prague (CVUT), Innovation Centre for Diagnostics and Application of Materials (ICDAM)
- Eduard Mikeš
- ERICH JAEGER s.r.o.
- ESOS Ostrava s.r.o.
- EVC Group s.r.o.
- FAVEX s.r.o.
- FERROMORAVIA s.r.o.
- FORTEX-AGS a.s.
- G&P Quality Management, s.r.o.
- GALVAN CZ s.r.o.
- Grios s.r.o.
- HM PARTNERS s.r.o.
- Ing. Petr Gross s.r.o.
- Klein&Blažek s.r.o.
- KOMAS spol. s r.o.
- KOVONA Karviná a.s.
- LICHNA TRADE CZ s.r.o.
- MAZETA spol. s r.o.
- MetalPlast Lipník n. B. a.s.
- MGL s.r.o.
- MS Technik s.r.o.
- Pfeiffer Vacuum Austria GmbH
- Proact Czech Republic, s.r.o.
- Protocom s.r.o.
- RB SOU autoopravárenské s.r.o.
- Remarkplast s.r.o.
- Rossignol Galvanik CZ s.r.o.
- Schoeller Arca Systems s.r.o.
- SimulPlast s.r.o.
- SLAVÍK – Technické plasty s.r.o.
- Smartplast s.r.o.
- SOLEA CZ v.d.
- Technical High School in Jablunkov

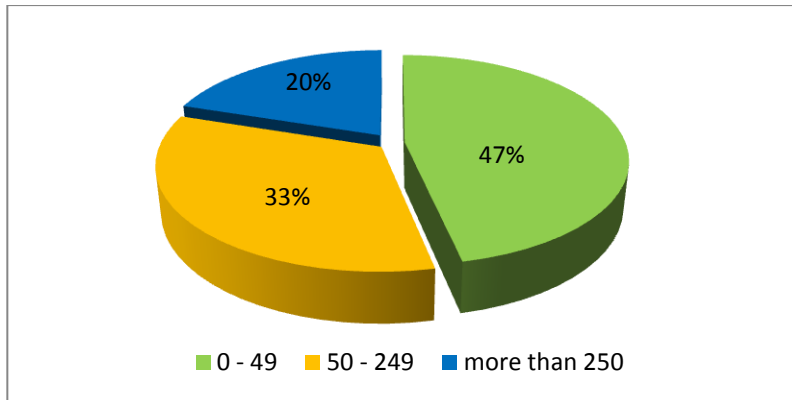
- SWELL spol. s r.o.
- Šroubárna Turnov a.s.
- The Union for the Development of the Moravian-Silesian Region
- TŘINECKÉ ŽELEZÁRNÝ a.s.
- TŮV SŮD AUTO CZ s.r.o.
- United Polymers s.r.o.
- Tomas Bata University in Zlín (UTB)
- Visteon-Autopal Services s.r.o.
- Technical High School in Kopřivnice
- VSB-Technical University of Ostrava (VSB-TUO)
- VÚHŽ a.s.

Among its members, the cluster focuses in particular on suppliers of various components for the automotive industry. The membership base consists of complementary rather than competing businesses. Between 2009 and 2010, the structure changed, creating two chains: a knowledge value chain and a supply chain. More attention began being devoted to R&D cooperation.

In terms of the value chain, the cluster members (Figure 3) include manufacturers, trade organizations (trade in metallurgical products), waste processing companies, service providers (maintenance, consulting), research organizations and the university. The MSAC also cooperates with other institutions providing services (e.g., the Regional Development Agency). Multinational companies and companies that appear as dominant in the sector are present in the cluster. The representatives of the dominant companies are members of the executive board of the cluster. Cluster members are active primarily on the European market, while some companies operate globally. The aggregate turnover of the current MSAC members amounted to 56 billion CZK and the number of employees to approximately 17,600. The share of export turnover exceeds 81%.

Apart from the cluster, the AIA operates in the automotive industry in the Czech Republic, which unites about 140 companies and primarily provides information services.

Figure 3: *Structure of firms in the cluster according to the number of employees*



Joint projects of the MSAC

In 2006, the following joint projects were defined within the project »Establishment and development of the Moravian-Silesian Automotive Cluster« financed from OPIE – Clusters:

Joint experimental laboratory

The project aims to build an anechoic chamber, which will be used to verify reduction of noise emission produced by individual car components and cars as a whole. This chamber, equipped with measuring instruments and the necessary software along with trained operators will form a unified complex of experimental research laboratory for noise reduction.

Certification programmes

The project aims at the assessment of the level of suppliers in the automobile industry in terms of ensuring quality of supply, their technical level, customer reviews, and the ability of innovation processes for the supplier.

Survey of the relevant markets, mapping and anticipating the needs of final customers, subcontractors to create an internal database of the needs and system of automotive purchases in the Czech Republic and surrounding

countries, databases of potential customers for cluster members and market research of automotive suppliers focused on current and future development (plastic parts, metal parts, technology, electronics).

Participation in trade fairs and conferences including the creation of promotional materials of the MSAC.

Website of the cluster

Development of suppliers

The project aims to map the adaptability and competitiveness of the cluster members, identify areas for improvement and propose concrete steps leading to the development of supplier capabilities of the cluster and provide methodology for its members helping to achieve global performance standards and methodology for continuous improvement. The project resulted in an analysis of the cluster's business performance and a design of the programme for the cluster's sales, production, quality and human resources development.

The development of the cluster as a suppliers' base for the automotive industry to increase the competitiveness and especially the export potential of MSAC's members for the final car manufacturer, as well as the emergence of a strong supply chain between member firms and the increase of their quality level from the perspective of the needs of the cluster's leaders of the Tier 1 level. Again, a database on the shared external services of cluster members and an electronic control system of internal and external demands will be elaborated.

Restructuring of existing and design of new modifications and finalizing lines including logistics processes with a focus on delivery for the automotive industry and engineering in terms of metallurgical and engineering firms (cluster members).

Survey of the status of industrial property rights

The purpose of this project is to audit intellectual property management and design a system for the monitoring and subsequent protection of new technical solutions at the level of inventions, industrial and utility designs, in order to promote exports and the possibilities of their licensed applications.

Building and development of technical and human infrastructure of the cluster

The project will result in the creation and equipping of a technical and administrative base for the cluster's operation, training and coaching of the cluster's staff and analysis of the functioning of successful clusters in the country and abroad, including related travelling.

Foreign study journeys to gain knowledge on the functioning of successful clusters in Great Britain and Austria, and increase the level of expertise and managerial skills of the management of the cluster members.

Information and consulting centre for the EU funding programmes relevant to the MSAC strategic development plans.

In 2009, the following joint activities were defined for the purposes of the project »Development of an innovative potential of the Moravian-Silesian Automotive Cluster« financed from the Operational Programme Enterprise and Innovation – »Cooperation« (further OPEI Cooperation): **development and laboratory, sharing know-how and capacity, and human resource development.**

The goal of the first activity is to expand existing and build new infrastructure for R&D (laboratory) and strengthen the innovative potential. Joint projects are as follows: laboratories extension, building the development and testing capacities for pulsating systems and project technology of Powder Injection Moulding (PIM).

The aim of the second activity is to provide know-how and support for cluster members in areas difficult for them to implement individually. The joint projects are as follows: **Centre of experts** (growth of knowledge potential and support of members in solving specific tasks), **Centre of purchase** (joint purchasing in order to reduce costs) and **Centre of ergonomics** (support for members in solving the challenges connected with ergonomics).

The objective of the third activity is to systematically upgrade the skills of the workforce in the automotive industry with a focus on creating a new module of the educational process, the main project for companies being the Auto Academy. Currently, the cluster implements the common activities shown in the Table 3.

Table 3: *Common activities of the MSAC*

Networking:		R&D and innovation:	
Information support (common website, etc.)	✓	Joint research and development	✓
Common workshops, meetings	✓	Cooperation with research institutions	✓
Arranging contacts among cluster members	✓	Innovations of products and processes	✓
Arranging contacts with vendors or customers	✓	Support of spin-off creation	?
Human resources:		Incubator services	x
Organization of joint seminars, conferences	✓	Common laboratory	✓
Training of employees	✓	Governmental/political area:	
Cooperation with educational institutions	✓	Lobbying in favour of infrastructure	✓
Business cooperation and promotion:		Lobbying for more favourable legal regulations	x
Joint purchasing	✓	Lobbying in favour of grant funding	x
Shared production	x	Support activities:	
Logistics management	x	Help in preparation and management of projects	?
Marketing research of trends and markets	✓	Benchmarking	⇒
Joint participation in trade fairs	?	Support service	⇒
Catalogue of products and services	✓	Further activities:	
Joint logo, trade name	✓	Joint investments in the infrastructure	✓
Joint advertisement	✓	Obtaining financial resources	✓
Electronic marketplace	x		
✓ Cluster currently offers activity		⇒ Cluster plans to implement the activity	
? Cluster is able to offer the activity if needed		x Cluster neither offers nor plans the activity	

Source: own research.

Cluster members are the most interested in the following activities:

- A) Information service offers:
 - news from the automotive sector, the region and from among MSAC members,
 - chronologically sorted events,
 - extensive contact details of members,
 - demand/supply news – available via websites,
 - feedback and improvements via websites.
- B) Joint projects coordination and cooperation support in:
 - human resource development – the MSAC trains and develops competencies,
 - business relations – the MSAC saves money and opens opportunities for new markets,
 - R&D activities – the MSAC tests and supports innovations.
- C) Integration of R&D and regional institutions in the areas of:
 - screening of R&D capacities,
 - the university's integration into the R&D tasks,
 - supporting specific technical fields – mechatronics, auto electronics,
 - flow of industry news into universities.
- D) Supplier development and their integration into the supply chain:
 - international/national matchmaking and cooperation events.

Approximately 40% of MSAC members participate regularly and 55% occasionally in the joint activities.

The establishment of the Centre of a shared service of industrial property (IP) rights was one of the first achievements of the MSAC. The centre's task is to help the cluster members ensure the protection and management of intellectual property and to provide advice and recommendations on issues related to IP rights. Within the centre's activity personal consultations are provided and the website was set up, all responding to the results of the survey implemented by the cluster in the area of IP rights among MSAC members. The cluster also implemented a survey of relevant markets, mapping and anticipation of the needs of final customers in the automotive industry, including strategic recommendations for suppliers to enter particular markets in a study »Directions

in the development of purchase in the automotive industry in Central Europe« (June 2008).

As a result of activities of the MSAC from 2006 up to now, the following important projects have been implemented:

1. Noise laboratory

The research and experimental noise laboratory is a project that was developed thanks to the cooperation of the MSAC and the Technical University of Ostrava. The heart of the project is anechoic chamber, which was built on the premises of the VSB-TUO. It is a unique facility of its kind in the entire MSR and surroundings.

2. Heat laboratory

This laboratory for testing heating and cooling equipment was built by the MSAC with support of the VSB-TUO and VISTEON. This modern high performance laboratory is unique in Europe. The facility is ready to serve all heating and cooling equipment in the automotive industry, as well as manufacturers of heat pumps not only in the measurement of parameters, but also in further requirements for R&D.

The laboratory will be partially used for scientific, research and educational activities of the VSB-TUO. However, the main intention of this project is to gain the accreditation for operating it commercially, which would constitute a major workload for the laboratory.

3. Pulsation testing facility

The pulsation testing facility offers verification of a product's lifetime through dynamic exposure to inner overpressure parallel with the influence of temperature change of testing media as well as of an environment. The pulsation facility comprises a pulsator and thermo chamber. It is designed for radiator testing, hose testing, and lubricant circumference segments, breaking systems, filtering circumference, vessel with inner overpressure, and screw joint testing.

4. PIM – Powder Injection Moulding

Research and development of design and technical implementation of specific components of the automotive industry with the usage of Powder Injection Moulding technology (PIM).

5. Auto Academy

The aim of this project financed by the OP Education for Competitiveness (November 2008 – September 2009) was to improve conditions for teaching technical subjects, including increasing the motivation of students to study in these fields.

The Auto Academy develops core competencies of students in technical high schools through four training modules to smoothen and shorten their integration into the working process and thus reinforce the employment of graduates and enhance the competitiveness of manufacturing enterprises in the automotive industry.

The key areas of training are focused on:

- Lean manufacturing processes,
- Project management,
- Logistics,
- Leadership.

The modules are composed based on requirements from practise by people who are top experts. Pilot testing of these modules took place at three regional technical schools in the academic year 2009/2010. Within the project, the training of teachers took place.

6. IQ Industry

The project is focused on the successful completion of the training programme for teachers of technical subjects and practical education on topics of technical innovation in industrial companies, environmental education from the field of energy savings and alternative energy usage. The creation of partner networks to enhance collaboration among teachers with experts from companies from the areas demanded by the market was part to the project. The aim is to support the creation of modern curricula in order to increase the competence of teachers in

accordance with the changing requirements of the industry for the qualification of graduates. The form of this cooperation is focused on the arrangement of 112 seminars and 150 practical ten-day internships, specifically for 300 teachers of the target group. The project duration was from 1st June 2010 till the end of 2012.

The MSAC is also involved in **international projects** such as:

AUTONET

The project brings together nine partners from seven European countries. The aim of the AutoNet (Transnational Automotive Network in Central Europe) is to encourage innovation and promote the regions within Central Europe and their key players as an ideal place for new processes, materials and products in the automotive industry. The project will provide to the actors trans-regional pairing opportunities with the help of thematic meetings – »matchmaking events« – aiming to establish business contacts. This project was implemented through the EU CENTRAL EUROPE Programme. It aims to:

- create a new services and access for support of innovation and technology transfer in the automotive industry as a reaction to the impact of economic development;
- transfer existing services and approaches supporting the automotive industry to locations that are less developed;
- promote trans-regional cooperation for the creation of an innovative automotive industry by identifying and matching the relevant players and then formalizing cooperation among them;
- motivate more cooperation in the innovation triangle of universities, businesses and government institutions;
- create awareness of the need to promote innovation policy in the automotive industry at different levels through cooperation with other relevant networks and institutions at regional, national and European levels.

The specific aim of the project is to create a permanent network of players in the automotive industry in the leading regions of Central Europe.

CERADA

CERADA (Central European Research and Development Area) **is a project funded within the Seventh Framework Programme Regions of Knowledge aiming at (CERADA, n.d.):**

- strengthening the links between regional authorities, research and business actors in the CERADA region;
- supporting regional clustering activities focusing on the automotive and aircraft industry sectors;
- promoting the effective use of private, national and European funding in planning and supporting RTD investments in the cross-border region;
- developing the research profile of the CERADA region with the guidance of a mentor from the UK – Pera Innovation;
- generating the CERADA joint action plan – a long term vision for the region, focused on research and technological development activities.

The project has 13 partners (6 from the Czech Republic, 3 from Poland, 3 from Slovakia and 1 from the United Kingdom). It **took place from** March 2009 till April 2011 (26 months) and its total value was 563,000 EUR.

Project outputs are as follows:

- **Analysis of the innovation environment of individual regions** (infrastructure and its capacity, the existing strategic documents).
- **Catalogue of profiles of research centres** of universities and other R&D institutions for the needs of companies.
- **Training courses** for experts from institutions and companies, aimed at the development of competencies which are necessary for the implementation and management of research and development as well as innovation activities.
- **Creation of a platform** for inter-regional cooperation and partnership of institutions operating in the area of research, development and innovation.

Financing of the MSAC

The standard membership fee is 1,000 CZK and services fees are differentiated according to the size of a member as follows: small enterprises and educational institutions are charged 4,000 CZK, medium-sized enterprises pay 19,000 CZK, and large enterprises pay 59,000 CZK per year. Furthermore, members pay individual contributions beyond the standard membership fee and payment for services, which are calculated according to their interest and co-financing percentages in participation in individual projects.

MSAC's management as well as its common projects are financed from a variety of sources – membership fees, subsidies from the EU and/or government, subsidies/grants from regional/communal sources, as well as the cluster's own initiatives. In regard to common projects, bank loans are part of the financing. The budget for the cluster for 2010 amounted to 11 million CZK. Approximately 21% of the costs were personnel costs, while 79% represented the costs of services and material. Regarding income, 37% is from subsidies (OP Education for Competitiveness, Seventh Framework Programme, OPEI), 20% revenues from the lease and operation of laboratories, 17% from sales of products and services, 14% from credit, and 12% revenues from membership.

The cluster periodically receives subsidies from public sources for its activities. In 2007 it received a grant of 500,000 CZK from the MSR. In the same year, it also acquired a grant from the OPIE – Clusters. The amount of 23,267 thousand CZK was agreed, while the total cost of the cluster development project was budgeted at 32,566 thousand CZK. Overall, 17,099 thousand CZK was paid within the programme.

The cluster's project titled »Development of an innovative potential of the Moravian-Silesian Automotive Cluster« was approved for financial support within the first call of the OPEI Cooperation – Clusters in November 2009, and is currently being implemented. Funding of over 13,000,000 CZK is earmarked for laboratory equipment.

Also, the cluster mapping was supported by the OPIE – Clusters in 2006 with a grant of 750,000 CZK.

The MSAC manager believes that the existence of the cluster would be possible without the financial support of the state; however, on a different scale and with activities of a different character. He also states that financial support from the state is needed, but also attracts companies, which enter the cluster with only vague prospects but expecting to gain financial means. In the case that the cluster would not have received a subsidy for the development, it would anyway have continued its activity. Some companies would probably leave the cluster, while others would have to pay higher membership fees. The cluster's projects would then be focused more narrowly on the automotive industry.

Experience of the Moravian-Silesian Automotive Cluster

Worldwide, there are many clusters; each of them is unique and display varying degrees of success. Clusters have histories, participants, relationships, personalities, goals, activities, strong and weak points, ambient conditions, etc. However, functional clusters exhibit certain common characteristics and it is possible to discover the key factors that most affect the process of their development. Yet the degree of impact always depends on the specific conditions for a given cluster; these conditions can be external and/or internal.

The MSAC's experiences have shown that the most significant aspects of decision-making and management leading to the success of a cluster is high-quality management, the stability of the managing group, targeted development of the cluster's key members (core), a high degree of cooperation with universities and the energetic activity of the Tear 1 suppliers.

The MSAC's management appreciates primarily the successful development of the cluster and the establishment of the stable structure of its management. Connected with this is also the improvement of the quality of cluster members (firms and their activities). The implementation of some common activities and projects, such as successful implementation of the Auto Academy project; building a common laboratory; participation in international projects and realization of common orders are also significant results. In terms of PR, the MSAC prestige on the regional level and participation in regional strategy should be mentioned.

On the other hand, the identified key factors for the successful growth of a cluster are tied in with several problems specified by cluster managers. The main issues, which the individual clusters cannot control to their own advantage, become logically evident as distinctive problems obstructing the successful development of a cluster.

A shortage of financial resources combined with the problem of advance financing of joint activities turned out to be the most significant restraint of the growth of MSAC. This problem is amplified by a bad experience with the acquisition of grants from public resources for cluster mapping and development (OPIE – Clusters). Specifically, this concerns lack of sufficient clarification of conditions and their changes, a methodology for eligible costs prolonged by administration of submitted projects and requests for payment of grants, and the lack of experience of project managers of the grant providers.

According to the cluster management, the factors critical for the desired cluster development are: mutual communication among companies; access of companies to information; joint research/cooperation with research institutions; education of human resources and access to finances. Among other important factors are: professionalism of the cluster manager and personality of the cluster manager (director); mutual confidence of cluster members; strong entrepreneurial spirit in companies; the presence of a company with a foreign owner or a multinational company in the cluster; innovative technologies; usage of ICT/virtual media for communication; cooperation with educational institutions; support by means of subsidies from the government/region during the mapping and formation of the cluster and lobbying in favour of infrastructure, legislation, subsidies, etc.

Perspectives for the future development of the Moravian-Silesian Automotive Cluster

After five years of existence, a new strategy of the MSAC for the following period will be defined based on:

- strategic requirements of cluster members,
- strategy of the automotive industry in the Czech Republic,
- and innovation strategy of the Moravian-Silesian Region.

The main vision of the cluster for the future, according to its experience and knowledge, is to focus on the improvement and support of the supplier-knowledge-development chain, R&D projects, and integration into international cooperation.

Regarding the field of Human Resources and knowledge, the main goals will be:

- creation of a chain of knowledge and resources among technically oriented high schools, universities and companies,
- and creation of a specialized »Knowledge House« and initialization of new projects.

In the area of R&D activities, the main focus of the cluster will be on:

- dissemination of the cluster's common knowledge and R&D potential (universities, companies),
- improvement of the cluster members' competitiveness through research and testing of products and processes utilized by the cluster's laboratories, as well as the potential of the universities,
- increase of potential of the cluster's laboratories for external business,
- and initialization of new R&D projects.

In order to enhance the supply and demand nature of the MSAC's modus operandi, the following actions will be crucial:

- utilization of synergy in regard to joint purchase,
- improvement of the supply chain from Tier 1 downwards,
- opening of a new market place based on cooperation with other clusters and their members in the AutoNet project.

All these efforts and activities reflect the pressing needs and complex requirements of the automotive industry and especially SMEs in the Czech Republic today. To advance the competitive role of the industry both nationally and globally, the MSAC is open to cooperation with regional, national and international partners in order to develop and share the idea of clustering, its importance and effectiveness.

Acknowledgement

The authors are thankful to the CLUPERPOL project No. MEB 091007, the International Visegrad Fund for the grant No. 51000656 – »Clusters performance measurement and management« and the Internal Grant Agency of Tomas Bata University in Zlín for the grant No. IGA/61/FaME/10/A – »The Development and Evaluation of the Performance of Cluster Policies, of Clusters and their Members with the Usage of the Principles of Benchmarking« for financial support to carry out this research.

References

- CERADA. (n.d.). *What is CERADA?* <http://www.cerada.org/> (accessed September 20, 2011).
- Ministry of Industry and Trade. (2004). *Panorama of Czech Industry 2004*. <http://www.mpo.cz/dokument2775.html> (accessed September 20, 2011) (Panorama českého průmyslu 2004).
- Minutes from the meetings of team members of the project »*Support for the development of supplies from the Moravian-Silesian Region for the automotive industry*«, 2005. (Zápisy z porad členů projekčního týmu projektu »Podpora rozvoje subdodávek z Moravskoslezského kraje pro automobilový průmysl«).
- Minutes from the workshops of the project »*Searching for companies suitable for a cluster of automotive suppliers in the Moravian-Silesian Region, evaluation of its viability and benefits*« (March–August 2006). (Zápisy z workshopů k projektu »Vyhledávání vhodných firem pro klastr automobilových subdodavatelů v Moravskoslezském kraji, vyhodnocení jeho životaschopnosti a přínosů«).
- Moravian-Silesian Automotive Cluster. (2006). *Feasibility study for the project Establishment and development of the Moravian-Silesian Automotive Cluster*. Ostrava. (Studie proveditelnosti pro projekt Založení a rozvoj Moravskoslezského automobilového klastru).
- Moravian-Silesian Automotive Cluster. (2008). *Establishment and Development of the Moravian-Silesian Automotive Cluster – Report on the implementation of joint projects*. Ostrava. (Založení a rozvoj

Moravskoslezského automobilového klastru – Zpráva o realizaci společných projektů).

Moravian-Silesian Automotive Cluster. (2009). *An application for a grant for the project »Development of an innovative potential of the Moravian-Silesian Automotive Cluster« (OPEI)*. Ostrava. (Žádost o poskytnutí dotace pro projekt »Rozvoj inovačního potenciálu Moravskoslezského autormobilového klastru« (OPPI)).

Moravian-Silesian Engineering Cluster. (2004). *An application for a grant from Regional Development Programme*. Ostrava. (Žádost o poskytnutí dotace ze státního rozpočtu v rámci Regionálního programu podpory rozvoje severozápadních Čech a Moravskoslezského regionu – Dotační titul č. 4 – Financování přípravy pilotních projektů pro revitalizaci Moravskoslezského, projekt »Podpora rozvoje subdodávek z Moravskoslezského kraje pro automobilový průmysl«).

PE International. (2002). *The Moravia Silesia Cluster Study – Feasibility Study to Identify Industrial Groupings for Targeted Aid Scheme Support – Findings and Recommendations*.

The Union for the Development of the Moravian-Silesian Region. (2005). *Initial analysis for the project Searching for companies suitable for a cluster of automotive suppliers in the Moravian-Silesian Region, evaluation of its viability and benefits*. Ostrava (Vstupní analýza pro projekt Vyhledávání vhodných firem pro klastr automobilových subdodavatelů v Moravskoslezském kraji, vyhodnocení jeho životaschopnosti a přínosů (OPPP)).

The Union for the Development of the Moravian-Silesian Region. (2006). *Output study for the project Searching for companies suitable for a cluster of automotive suppliers in the Moravian-Silesian Region, evaluation of its viability and benefits*. Ostrava. (Výstupní studie pro projekt Vyhledávání vhodných firem pro klastr automobilových subdodavatelů v Moravskoslezském kraji, vyhodnocení jeho životaschopnosti a přínosů).

PART III: Creative Cluster Initiative
Mapping and Facilitation

CREATIVE INDUSTRIES IN SLOVENIA: CLUSTERING, ANALYSIS AND CHALLENGES

Nika Murovec, Damjan Kavaš, Aidan Cerar

Creative economy in spatial context

Spatial ties as a foundation of a cluster

The concepts of creative industries⁵ and creative economy⁶ have been included in the development strategies at the EU level – in a Green Paper, at national levels and municipal levels as well. The reason is that it has been widely accepted that creative economy has the potential to significantly contribute to economic prosperity, the level of employment (especially among younger generations) and the general innovativeness in post-industrial societies. The data show that the growth in the cultural and creative sector has been higher than the growth in the general economy (KEA Report, 2010). Therefore, it has largely been agreed that stimulating and supporting a creative economy at the policy making level presents a legitimate aim in terms of economic growth and quality of life at the local level. However, a simple question, which is »*How to support and stimulate a creative economy locally?*« made things rather complicated because the generic answers that have been offered mostly left us unsatisfied, particularly when actually dealing with the matter at the local level.

For the most part it has been argued that support aimed at creative industries at the local level contains three aspects: financial support, spatial support and support aimed at networking and clustering. Financial support mainly suggests

⁵ ...are those activities which have their origin in individual creativity, skill and talent, and which have the potential for wealth and job creation through the generation and exploitation of intellectual property.

Activities included in the definition are: advertising, architecture, the arts and antique market, crafts, design, designer fashion, film and video, interactive leisure software, music, performing arts, publishing, software and computer services, radio and television.

Source: DCMS, 1998, UK.

⁶ Creative economy could be defined as transactions in creative products, where the value of creative products is multiplied by the number of transactions (Hawkins, 2002).

the need to attract investors willing to invest in the creative sector. Therefore a need for encouraging investors with public policies has been noted (KEA, 2010). Spatial support usually contains the provision of affordable production and residential premises for creative enterprises and individuals. The mentioned approach has been used in several states and cities across Europe; for instance, Leipzig-Tappetenwerk, Cabalero Rotterdam, etc. The third aspect or approach towards stimulating a creative economy locally is to support networking among creative enterprises so that they cooperate, share and address foreign markets together. On the issue of networking and clustering among the creative enterprises, a theory of community from Pitirim Sorokin (1969) as well as other theories dealing with the notion of community (Bauman, 2001, for example), could be applied. The application of the mentioned theories on the issue of clustering is based on the assumption that a cluster or a network has some characteristics of a community incorporated into it.

Sorokin based his approach of analyzing changes in rural (and urban) communities on ties between members of a community. What matters is the amount or number of ties. Members could be connected with a greater or fewer number of ties, and if there are more ties than one, we are dealing with cumulative communities. The nature of the ties matters as well. Ties can be demanding and long lasting last or a member of a community can retain a greater level of freedom and participates in common actions only when he decides to. The ties in such cases exist, but are not deep and long lasting – they exist as long as participants have interest in them.

Now the above mentioned theory will be applied to the case of networking among the creative enterprises, because we claim they represent cumulative communities based on short term weak ties. On one hand, creative individuals tend to cluster or stick together spatially,⁷ but on the other hand creative enterprises or individuals rarely cooperate professionally between themselves in the long-term – it is much more usual that they cooperate during the carrying out of a project and then form new partnerships with other creative people. Perhaps cooperation started in the local café with the lunch break chit chat. Therefore, we claim that spatial ties are the most stable and all other ties are just added to these

⁷ Lloyd analysed a development of a creative neighbourhood – Wicker Park in Chicago.

spatial ties. That makes creative enterprises and individuals a community. If a spatial tie is absent, the glue between the creative enterprises is less obvious and much harder to define, especially in terms of predicting its behaviour in the long run; because it is based on a particular interest and if the interest is a joint project, the »community« existence would be limited to the duration of the project.

As mentioned, supporting creative industries with affordable production space actually already is a part of several urban policies across Europe. It could be claimed that offering such spaces actually incorporates the other two ways of supporting creative industries: financial support and stimulation of networking and clustering. However, organizing such spaces from scratch often does not result in clustering, and therefore it has been recommended that a focus be trained on existing or latent clusters, as Champain et al. (2010) call them. Placing institutions and individuals together in a top-down manner often results in a spatial cluster in which the location remains the only tie between the members who never start to cooperate with each other. Quartier 21 in Vienna could be used as an example of such a cluster: space has been offered to creative companies, but because the Quartier was located in an expensive part of town the ability to afford the rent became the only selection criterion for the tenants even though the rent was subsidized. No synergies between the tenants emerged. The bottom line would be that they all relocated themselves there in order to use new attracting buildings, rather than to cooperate (Mokre in Raunig, Ray & Wuggenig, 2011).

Therefore a recommendation for policy makers could be that supporting existing networks of creative individuals and enterprises actually might result in a creative cluster generating economic potentials. But then again, why would a public sector establish affordable production spaces? After all, affordable means below market price. Why would a city let profit slip away by donating a particular spatial asset to creative industries which basically represent the private sector? The answer is: decayed urban areas. Plenty of decayed urban areas are suitable for such regeneration, because their market value is relatively low especially in times of economic recession in which a lack of interested developers has been noted. Decayed urban areas therefore often become places in which creative clusters and even creative milieus are located. In the long run

these areas are often gentrified as a result of successful creative regeneration, but that will not be discussed in this paper. The bottom line would be that having decayed urban areas with a wide range of diverse urban amenities⁸ might actually be enough to improve the share of the creative economy locally. If a municipality invests a bit in the renewal of the housing stock or supports housing cooperatives as an initiator of renewal it might actually result in a flourishing creative cluster. However, the relation between economic growth and affordable production space could not be put on a linear scale – it depends on several other factors – though we should point out that such support of clustering often has spillover effects, contributing to the quality of life at the local level and having the to stimulate the involvement of the general public in a creative production. It also works as an input or stimulant of future creative production.

Our main argument is that a creative economy presents a challenge to all of us; basically it requires a redefinition of the notion of the cluster. Providing spaces in which creative enterprises and individuals can cooperate or network actually presents a foundation for clustering, but it can never be a top down approach, rather a combination of top down and bottom up, particularly if one goal is long term cooperation. Anyway, an additional support is usually offered, in order to increase the economic potential of the cluster members as spatially organized clusters usually deal with several activities and not all of them have economic ambitions – some are passion driven – therefore increasing the entrepreneurship among the cluster members often does result in economic »success«.

Local perspective

In Slovenia, in Ljubljana, there are no creative clusters that would be recognized as such. However, there are some areas in which a concentration of creative enterprises can be seen. Some of them are located in areas close to the city centre. It could be noted that if we consider the national level there is a significant concentration in Ljubljana, but within Ljubljana concentrations are less obvious.

⁸ Urban amenities function as an attractor of creative professionals, claimed T.N. Clark. Florida added the importance of diversity and tolerance as factors that can lure creative individuals to particular geographical areas.

At the policy making level there are claims which emphasize the importance of cluster formation – the Regional Development Agency of the Ljubljana Urban Region is aiming to form a network of creative professionals and enterprises that could eventually evolve into a cluster organization. In this regard, Ljubljana has been targeted at the transnational level: the process is a part of the European project called Creative Cities⁹. The establishment would start with the contact point which would provide a platform for networking and cooperation at the national and transnational level. It would as well provide courses aimed at increasing entrepreneurship as creative professionals often lack such skills. The project aims to add spatial support during later stages – however, this part is heavily dependent on the cooperation of various institutions operating at the municipal and regional levels. By taking this path, eventually a cluster organization would be formed, although the size and nature of the cluster has not yet been defined in details as the project is in the phase of preparatory activities. There are quite a few case studies which could be used as models of good practise, but eventually local specifics have to be incorporated to avoid too generic an approach.

Analysis of the creative industries in Slovenia

Historically, art and culture have always played an important role in Slovenia, since they were in a way a substitute for the lack of national, political and government institutions. Nowadays, Slovenia has a well-developed network of cultural institutions, organizations and associations, which are comparable to those in the most developed European countries. A relatively colourful cultural life exists not only in bigger cities, but also in the more rural areas of Slovenia. Despite the polycentric organization of cultural institutions, the main share of resources for culture (around two thirds) come from the state budget; public funds, reserved for culture present around 2% of the total GDP (Statistične informacije Ministrstva za kulturo: Materialni položaj kulture v Sloveniji, 2011). The local communities or municipalities contribute only a minor share. This

⁹ Project Creative Cities is part of the Central European Programme. Creative Cities stands for Development and Promotion of Creative Industry Potentials in Central European Cities. On the project Creative Cities five Central European cities are cooperating: Leipzig (DE), Genoa (IT), Gdansk (PL), Pecs (HU) and Ljubljana (SI). The Slovenian partners in the project are the Regional Development Agency of the Ljubljana urban region and the Institute for Economic Research.

includes the programmes and projects in the field of international cultural cooperation, an important share of the publishing industry, cultural activity of the Italian and Hungarian minorities and Slovenians who live abroad. Local communities are mostly responsible for libraries and certain other cultural institutions (local museums, galleries and cultural centres), and NGOs active in the field of culture.

While the cultural sector in Slovenia is well supported, the situation with creative industries is a bit different. In recent years the issue of creativity has been in and out of policy discussions in Slovenia, but unfortunately no significant progress has been made towards an integrated strategy or support policy for creative industries (see section 3.4. Creative industries support in Slovenia) In 2011, the Ministry of Culture issued a booklet presenting the measures that the ministry was undertaking in 2011 to encourage the cultural and creative industries (Stepančič, 2011). In this booklet the results of the ministry's analysis of the available statistical data on cultural and creative industries were presented. At the same time, a more extensive analysis of creative industries in Slovenia and Ljubljana was presented (Murovec & Kavaš, 2010). This analysis was a result of the central European programme project Creative Cities. In the following paragraphs, some of the challenges and results of the analysis of creative industries in Ljubljana and Slovenia will be presented.

When dealing with the creative industries, the analysis itself presents a big challenge. Contrary to other industries, the creative industries are still a pretty vaguely defined concept. An even greater challenge for the analysis is the dilemma presented by the scope of creative industries, since the creative industries are not a well-defined branch, sector or occupation in the statistical sense. While in the future we will probably have proper statistical data for cultural and creative industries (see ESSnet Culture project), for now one must find the best solutions in the existing statistical categorizations.

In order to gather at least partially comparable results, partners in the project Creative Cities had to develop a common methodological framework for the analysis of the creative industries. Trying to achieve that, and at the same time obtain the best possible results, we encountered several constraints. In addition to the problems of definition, it was soon realized that the scope of the creative

industries could also be regionally dependent. For example, the partners from Genoa (IT) insisted that the food sector was part of the creative industries in their region. Even though the food sector has not usually been included in the creative industries, based on their arguments we had to agree that for the mentioned region food should by all means be included as one of the creative industries sub-branches. Since that was not the only example, the decision was made to develop an open methodology, allowing for regional specifics. Therefore, we divided the creative industries sub-branches into two groups. The first was called »fixed and common sub-branches«. In this group all the branches that are typically considered to be part of the creative industries (according to different definitions and analyses) were included and analyzed by all partners. These branches are: artists' and performing arts, broadcasting industry/film industry, journalists/news agencies/press/publishing, museum shops/arts exhibitions, retail sale of cultural goods, architecture, design industry, advertising market and software/games industry. The second group included »flexible branches«, which were defined as branches that may usually not be included in the creative industries, but are regionally identified as branches with a high creative component. These branches were analyzed only by specific partners for whom they apply, and include, for example, food, tourism, crafts, musical instruments, software services, etc.

The next constraint is connected with the availability of statistical data. Statistical offices in different countries gather data on different levels. While some countries have many data available on the regional or city levels, others do not. Furthermore, the data are often not even available for research purposes. An additional problem when researching creative industries is the fact that statistical offices do not treat creative industries as a statistical category and do not have any data collected or analyzed for this specific purpose. Therefore, it is very difficult and sometimes even impossible to distinguish the data on the creative industries from other industries, especially on the regional level. This is in part due to the aforementioned fact that there has been no consensus on which statistically defined sectors or occupations creative industries encompass.

To cope with these matters the project partners agreed to analyze the creative sectors using NACE Rev. 1.1. on a 3-digit level. Due to the inconsistencies between NACE Rev. 1.1. and NACE Rev. 2., the former was chosen because it

enabled comparison of data for more years and therefore also the possible identification of trends. The NACE sectors that were included in the analysis are presented in the table below.

Table 1: *Creative industries sub-branches (NACE Rev. 1.1.)*

SUB-BRANCH	NACE Rev. 1.1.
Artists' and Performing Art	92.3 Other culture and entertainment activities
Broadcasting Industry / Film Industry	92.1 Motion picture and video activities 92.2 Radio and TV activities
Journalists / News Agencies / Press / Publishing	92.4 News agencies activities, activities of own-account journalists 22.1 Publishing
Museum Shops, arts exhibitions	92.5 Library, archives, museums, botanical and zoological gardens 92.33.0 Fair and amusement park activities
Retail sale of cultural goods	52.4 Other retail sale
Architecture	74.2 Architectural activities
Design Industry	74.8 Design activities
Advertising Market	74.4 Advertising
Software/Games Industry	72.2 Development and publishing of software

The analysis of the sub-branches on a 3-digit NACE level means that in some cases certain activities which are not creative are included, and so the number of creative firms can be overestimated. Also, industrial categorization includes all employees within the branches included, regardless of whether they are creative workers or not. Furthermore, even taking into account 5-digit NACE, it is not possible to arrive at very exact results, since many companies are just not creative, regardless of what their main activity is categorized as. On the other hand it is also true that many other firms, not included in the analyzed sub-branches, incorporate a vast amount of creativity in their work.

The analysis of the private sector shows that the creative industries represent an important part of the economy in Ljubljana and elsewhere in Slovenia. Taking the number of firms into account, the creative industries comprise 18% of those in Ljubljana; taking the number of employees into account, the creative industries represent a 12% share.

The industrial statistics show that architecture is the most important of the creative industries branches in terms of number of firms, which is almost twice as high as in the retail of cultural goods, the next most common. In the Ljubljana urban region the situation is almost identical, while in Slovenia as a whole the only difference is that architecture is a bit more closely followed by the retail of cultural goods. In the studied period (2001–2007) the number of architecture firms was increasing as were those in all other creative sub branches. Museum shops and arts exhibitions, artists' and performing art, and design experienced the highest growth in number during those years. In terms of the number of employees the retail sale of cultural goods, architecture and software/games industry employed the most in Ljubljana during that span. The same holds true for the Ljubljana urban region and Slovenia as a whole. The number of employed grew in all sub branches in the period 2004–2007, except in design. The analysis of firms' sizes shows that those with 0 or with 1–5 employed comprise the main share of the firms in all of the sub branches in Ljubljana, the Ljubljana urban region and Slovenia as a whole. Only in architecture (2001, 2007) followed by the retail sale of cultural goods (2001, 2007) and the software/games industry (2007), was the share of firms with more than 6 employed more notable.

Since the analysis of the industrial data (in our case acquired from the annual reports database) obviously has many disadvantages, we decided to analyze the occupational data (acquired from the statistical register of employment) in order to improve the estimations. Contrary to industrial categorization, occupational categorization includes all creative workers independent of the industry they work for. Occupations were classified according to the Standard Classification of Occupations (SKP-V2) occupational categories and are comparable to the categories of art and cultural occupations defined in »The Warhol Economy« by E. Currid (2007), except for the optical and electronic equipment operators not elsewhere classified, which are a missing category in this classification. The occupations selected as creative are presented in the table below.

Table 2: *Creative occupations (SKP-V2)*

OCCUPATION	SKP-V2 code
Architects, town and traffic planners	2141
Authors, journalists and other writers	2451
Sculptors, painters and related artists	2452
Composers, musicians and singers	2453
Choreographers and dancers	2454
Film, stage and related actors and directors	2455
Photographers and image and sound recording equipment operators	3131
Broadcasting and telecommunications equipment operators	3132
Decorators and commercial designers	3471
Radio, television and other announcers	3472
Street, night-club and related musicians, singers and dancers	3473
Clowns, magicians, acrobats and related associate professionals	3474
Fashion and other models	5210
Musical instrument makers and tuners	7312
Jewellery and precious-metal workers	7313
Glass, ceramics and related decorative painters	7324
Handicraft workers in wood and related materials	7331
Handicraft workers in textile, leather and related materials	7332

The occupational analysis results show that among the creative occupations in Slovenia, authors, journalists and other writers are the most common, followed closely by decorators and commercial designers. In general, the occupational statistics did not reveal any major differences between the distribution of specific creative occupations in Ljubljana, the Ljubljana urban region and Slovenia as a whole. The comparison between the share of creative occupations and all occupations in the case of the three does, however, indicate a preference on the part of creative people to be settled in Ljubljana. The share of individuals with a creative occupation living in Ljubljana is twice as large as the share of individuals with a creative occupation on the national level. Moreover, the share of individuals with a creative occupation living in Ljubljana (with regard to individuals with all kinds of occupations living in Ljubljana) is significantly larger than the share of individuals with a creative occupation working in Ljubljana (with regard to individuals with all kinds of occupations working in Ljubljana). Therefore, it can be concluded that creative people tend to

concentrate in Ljubljana; however, there is no single creative sub-branch that would stick out in Ljubljana relative to the other creative sub-branches.

The public sector was analyzed as well, since it plays a very important role in the creative industries in Slovenia and Ljubljana. Privately owned firms represent only a minor part of the cultural sector. Furthermore, even generally privatized sectors (e.g., publishing, film, music distribution and production) generate a significant share of budgets from public sources. A very important role in the field of culture is played by NGOs.

The statistical analysis was combined with interviews with experts from different creative industries sub-branches in order to put the quantitative dimension into the right perspective and to discover some other main characteristics, strengths and weaknesses of specific creative sub-branches. Based on this, a creative industries SWOT matrix was created. With regard to the methodology used, it should be noted that specific arguments presented in the qualitative analysis and summarized in the SWOT matrix below, are based on the subjective views of the interviewees.

Table 3: *Cultural industries SWOT matrix*

<p>STRENGTHS:</p> <ul style="list-style-type: none"> ▪ Concentration of institutions and firms (LJ capital) ▪ Strong public sector ▪ Quality education and training programmes in some sub-branches ▪ International cooperation ▪ Events, awards ▪ Tradition ▪ Internationally recognized individuals 	<p>WEAKNESSES:</p> <ul style="list-style-type: none"> ▪ Small market ▪ No creative industries policy ▪ Insufficient funding ▪ Missing infrastructure in some sub-branches ▪ Lack of specialized educational programmes ▪ Everybody doing everything ▪ Poor business management skills ▪ Lack of promotion ▪ Uneven relations in the value chain ▪ Competition based on price ▪ IPR problems ▪ Lack of critical mass (orientation toward domestic market only)
---	--

<p>OPPORTUNITIES:</p> <ul style="list-style-type: none"> ▪ Increasing demand for creative products ▪ Comprehensive policy support of creative industries on national and local level ▪ Linking culture with other sectors ▪ Use of creative industries for restructuring of Slovenian business sector 	<p>THREATS:</p> <ul style="list-style-type: none"> ▪ Economic crisis (problems in private sector & lack of public funds) ▪ Rapidly changing technologies ▪ Fierce competition from other countries ▪ Outmigration of talent ▪ Contents are easy to copy
--	---

The results of the analysis show that further efforts should be put into the promotion of the term creative industries and its content, promotion of the importance and potential of creative industries, and promotion of cooperation and its benefits.

Based on the results of this analysis, architecture and design were selected as the two sub-branches of further interest for analysis and networking support. Architecture stands out in the analysis as one of the most developed creative industries sub-branches, with a strong tradition, internationally recognized architectural bureaus and faculty, and both demand and supply concentrated in Ljubljana. Furthermore, fragmentation is one of its biggest weaknesses and one of the main reasons for a lack of competitiveness on the international markets. Subsequently, there is a great need for fostering cooperation among different specialized actors. Design (mostly industrial design), on the other hand, seems to have the largest and the most overlooked potential, not only as a creative industries sub-branch, but as a means for restructuring the wider business sector as well. Compared to the more developed countries, and also to other creative industries sub-branches in Slovenia, (industrial) design is lacking basic support (e.g., a National Design Centre, national design strategy and support policy). Finally, there is a clear interest on the part of state and local authorities for the support and further development of these two sub-branches.

Public policy to support creative industries

Accounting for 3.3% of total EU GDP and 3% of employment, creative industries are one of the most dynamic sectors in Europe, with a large growth potential. Europe's creative industries are becoming ever-more important to the rest of the economy, because they bring fresh ideas and new ways of thinking to the European economy, which is increasingly characterized by the customization of products and services. In particular, the creative industries are capable of shaping consumers' requirements and aspirations much better than many other industrial sectors. The capacity for innovation, combined with their »spill over« into other areas of business means that the creative industries are vital to the long-term health and competitiveness of the entire economy.

When considering the support for creative industries, it is important to note some of the specific characteristics of the creative industries. First of all, creative industries comprise a highly diverse set of economic activities. They can be classified in three basic segments: mainly market-based, culture-related with the nature of a public asset, and not clearly attributable segments with elements of both categories (Cultural and creative industries: Growth potential in specific segments, 2011). On the other hand, it is also important to consider several common characteristics of the creative industries. Most of the firms in the creative industries are micro firms, and most of the workers are highly skilled self-employed professionals. In addition, many people within the creative industries work part time and/or have temporary contracts. Furthermore, creative industries face considerable uncertainty and volatility in demand, which makes it difficult for them to attract finance. Creative industries also often feature a high degree of networking, an intensive supply chain and other inter-firm linkages, and are concentrated in major cities, in many cases organized in regional clusters. Regional authorities can play an important role as facilitators and catalysts of such clusters in order to boost their competitiveness (European Competitiveness Report, 2010).

To unlock the full potential of the creative industries, the main challenges, which this sector is facing, should be tackled through regional, national and EU policies. Although the relationships between tiers of government are different for every city and nation, the cooperation between these tiers is considered crucial

for the development of a more focused and efficient support system for the creative industries.

EU level support

In the last few years, the word creativity has become more and more prominent at the EU level¹⁰. In 2007, one of the three objectives of the European Agenda for Culture was culture and economic growth, and council conclusions on the contribution of the cultural and creative sector to the Lisbon strategy were adopted. The year 2009 was labelled as the European Year for Creativity and Innovation, and new council conclusions were published in this context – entitled Culture as a Catalyst for Creativity and Innovation (Council of the European Union, 2009).

In 2008 a working group on creative and cultural industries was set up by the council (as part of its three year work plan 2008–2010) to consider, report and make recommendations (including in the form of validating and disseminating best practices, taking into account new technologies, making proposals for cooperation initiatives between Member States or at the EC level and for elements of methodology to evaluate progress), as appropriate, on the following areas:

- Identification of national strategies and producing an inventory of the existing national measures, aiming to create an environment conducive to the establishment and development of cultural and creative industries (e.g., access to investment, access of SMEs to finance and bank guarantees, networking, strengthening the position of SMEs within hubs of competitiveness, fiscal aspects, promotion of exports, intellectual property issues, in particular in the context of the development of new technologies);

¹⁰ It is important to note that the European Commission is currently using the term »cultural and creative industries«. »Cultural industries« include the traditional arts sectors (performing arts, visual arts, cultural heritage – including the public sector), film, DVD and video, television and radio, video games, new media, music, books and press. »Creative industries« are those industries which use culture as an input and have a cultural dimension, although their outputs are mainly functional. They include architecture and design, which integrate creative elements into wider processes, as well as subsectors such as graphic design, fashion design or advertising (Green Paper on unlocking the potential of cultural and creative industries, 2010).

- Training of professionals of the culture sector (managerial competences, entrepreneurship, knowledge of the European dimension/market activities);
- The impact of cultural and creative industries, including cultural tourism, in local and regional development;
- The impact of, amongst others, European Regional Policy measures and financial instruments on capacity building and entrepreneurship in the fields of cultural and creative industries;
- Proposing possible new ways and means to promote cultural and creative industries at the community level.

The Working Group produced its final report in June 2010 (OMC-EWC on maximizing the potential of Cultural and Creative Industries, in particular that of SMEs: Final Report, 2010). In the report, 9 specific action areas were considered by the experts, as those in which the European Union (EU) can play a key/larger role.

1. Access to finance: development of financial mechanisms and venture capital funds.
2. Raise general awareness about the importance and economic value of the CCIs.
3. Better European funding for CCIs.
4. Digitalization of cultural heritage and copyright issues and policy.
5. Talent recognition, education programmes and competences.
6. Foster incubation.
7. Foster the technological and legal basis that enables new business models, promote the use of Creative Commons licenses for intellectual property.
8. Develop networks and clustering: towards a creative cluster strategy.
9. Support exports and internationalization, thus including CCIs as a significant component of EU competitiveness profile.

In 2010, the European Commission published the Green Paper »Unlocking the potential of cultural and creative industries,« exploring different ways to empower international or regional cooperation and EU-wide activities in the cultural and creative industries sector. The objective of the consultation that took place from 27.04.2010 to 30.07.2010 was »to gather views on various issues

impacting the cultural and creative industries in Europe, from the business environment to the need to open up a common European space for culture, from capacity building to skills development and promoting European creators on the world stage« (The Green Paper on cultural and creative industries, 2010).

Cultural and creative industries have become a part of the EUROPE 2020 strategy, because their role as conduits of innovation in European cities and regions has been recognized in the Innovation Union flagship initiative that was adopted in October 2010.

National level

The creative and cultural sector is very wide and the variety of the sector is considerable. This means that the practice of mapping the sector and the methodology for collecting its statistical information and data varies widely between the member states.

The United Kingdom is at the forefront of creative industries support, but nevertheless, lessons could also be taken from other EU countries' experiences and programmes: »Creative Estonia«, »Development Programme for Business Growth and Internationalization in the Creative Industries 2007–2013« (FI), »KreaNord« (Nordic Creative Industries), »Creative Value – Dutch policy on Culture & Economy« (NL), the »Plan de Fomento de las Industrias Culturales« (ES), the »White Paper on Creativity – towards an Italian model of development« (IT) or the »Third Austrian Report on Creative Industries« (AT). Initiatives on this subject are spreading all over the 27 Member States through specific working groups – in Cyprus, Malta, Slovakia, Lithuania and Bulgaria (OMC-EWC on maximizing the potential of Cultural and Creative Industries, in particular that of SMEs: Final Report, 2010).

Despite intensive developments in the last years an integrated approach is still lacking in many countries. Creative industries are »mainstreaming« into cultural, economic, social, spatial and other policy areas. It is a multidimensional and inter-sector policy area.

In most new Member States, the task of developing creative industries policies has been assigned to the division of the national administration that is responsible for the protection and development of culture. Conflation of market and consumer oriented creative industries with traditionally elitist cultural policy can, however, create a rather conflicting mix.

Regional and local level

Creative industries do have an important impact on regional and local (city) development, because they can contribute to generating jobs, innovation and productivity, as well as to enhancing the quality of life in a given area, stimulating new ideas and thinking within communities (Investing in the Creative industries?: guide for local communities, 2009).

The potential of certain locations to support the growth of the creative economy depends on different dimensions, such as (Comunian, Chapain & Clifton, 2010):

1. Infrastructure: local availability of business spaces, wealth of the local population or tourism and/or transport infrastructure of a place.
2. Governance: policy strategies and initiatives, engagement of the creative industries with various policy arenas such as local regeneration, economic development, social inclusion, etc.
3. Soft infrastructure: soft, idiosyncratic circumstances such as networks, specific images or identity of place, traditions.
4. Markets: the creative industries operate in very rapidly changing markets. Uncertainty of demand and interaction with clients and customers play a key role for the sector. Markets are also important in reference to the link between creative industries and other related aspects of consumption, in particular tourism and the image of a city.

Support of the development of creative industries varies among regions and cities due to the different approaches to the creative industries, and the differences in support systems reflect to a degree the different stages of development of the cities. Their goals are shaped by the problems they face, and the possibilities they have. They could be the following (Creative Metropolises Portfolio 2010, 2010):

- The organization and provision of space. This is often the case if affordable and suitable space is scarce within the city, so that creative people or businesses cannot afford or find premises, places and spaces in which to produce and present their work.
- Employment. If there is underemployment, cities look at the creative industries as a source of employment, self-employment or 'regular' employment.
- To make the city more visible. The creative industries have the potential to raise the profile of the city. If this is a goal, then preference is given to such initiatives or firms that are visible and of some interest to the wider public. Often, cultural policies and creative industries policies are in close collaboration here.
- The use of creative industries as pioneers of city development. Some city districts (often older and run-down areas, former industrial sites and the like) need development, and creative enterprises are seen as pioneers or ice-breakers, the vanguard of a deliberate attempt to gentrify.

Creative industries support policy in Slovenia

Slovenia gained its independency in 1991, and a new legal framework was adopted in 1994 (Exercising of the Public Interest in Culture Act) to replace the old socialistic cultural model with a democratic one. Despite that, no significant structural changes have been noted within the cultural system. The cultural market is weak and the support schemes and tax incentives are underdeveloped, which does not bode well for the prospect of a good alternative to the traditional model. Culture is not placed at the centre of social development and its economic potentials are not mobilized.

In recent years the issue of creativity has been in and out of policy discussions in Slovenia. In 2008, the 9th Development Group for Creative Industries was established by the Government. Its mission was to prepare content starting points for forming a state strategy for more successful enforcement of the creative sector (design, architecture and marketing communications) at creating added value to the Slovene economy. The 9th Development Group's recommendations present the first document, focused on creative industries. The main findings of the group were that Slovenia is lagging behind, that

professional infrastructure exists, but is not closely linked, that non-programme financing does not motivate and that research and analysis are needed in order to provide support for an efficient strategic plan of measures (Klinar, Miklavc & Oven, 2008). Unfortunately, despite the findings of the group, a strategy for creative industries at the national level was not formed at that time as the government changed.

The National Programme for Culture 2008–2011 (Ministry of Culture, 2007) mentioned the potential of the creative sector in the economic sense, but it did not include any support for this kind of activities in the cultural policy. Slovenia had no specific overall policy framework within which the Slovenian creative industries could be promoted and developed. According to the National Programme for Culture, which is the central document of cultural policy in Slovenia, culture that should be supported was culture in the most standard sense, which is perceived as public good and mostly provided by public bodies.

Recently however, things started to move forward again. In November 2010, architecture and design were included in the National programme for culture. In 2011, the intention of the Slovene government to support cultural and creative industries was announced. The Ministry of Culture has published a brochure on cultural and creative industries in Slovenia where definitions, statistics and planned policy measures of the Ministry of Culture were presented (Stepančič, 2011). Policy measures dealing spaces, exhibitions, partnerships among schools and businesses, digital information and communication technologies, the power of creativity in the community and a sustainable local food supply (creative cooking festivals).

Despite the fact that the subject of creativity has been introduced in strategy papers there is still no integrated creative industry support policy. As in many new Member States, there is a notable confusion about official policies towards creative or cultural industries, because the common perception of cultural policy is that it presents one of the subsidies for the arts and cultural sector from public funds. The concept of market oriented cultural production (creative industries) is perceived by many cultural producers as an attempt to undermine the existence of the traditional cultural institutions that have predominantly been dependant on state support.

Action plan for the development of creative industries in Slovenia focusing at the Ljubljana Urban Region

There is no specific and integrated overall policy framework within which the Slovene creative industries can be promoted and developed. There are specific measures for support of the film industry and publishing, for example. The support measures for design and for architecture practically do not exist. Therefore, as part of the Creative Cities project, the Local Implementation Plan (LIP) was developed.

LIP's focus is very local. In our case that means the LIP is focused on the Ljubljana urban region and the Ljubljana municipal level. Ljubljana is by far the most important location regarding creative industries in Slovenia, especially in quantitative terms, and it has the best opportunities for their future development. Therefore, it could be claimed that the LIP is also a relevant document at the national level, dealing with the planned support and stimulation of the creative industries. Formally, LIP's time focus is set between 2011 and 2015. However, some of the activities listed in the LIP could extend beyond the mentioned time limit. The six pillars of the LIP are the following:

- Infrastructure,
- Networking,
- Marketing,
- Transfer of Knowledge,
- Education and Employment,
- Finances.

Each pillar contains several other subordinated activities and each one of these activities has a particular aim. Activities in the LIP are in accordance with the particular local specifics, which have undergone a SWOT analysis and other research activities of the Creative cities project, such as focus group research and theory and case studies research.

Figure 1: *The structure of the LIP*

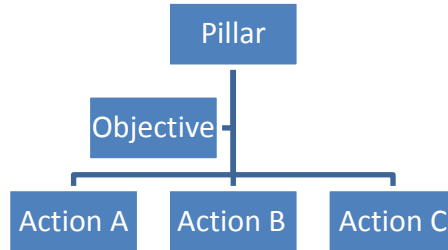


Table 1: *Overview of the planned actions*

Pillars	Baseline situation	Objectives	Actions
Pillar Infrastructure	<ul style="list-style-type: none"> ▪ Lack of policies aimed at the infrastructural stimulation of the development of the creative industries. ▪ Lack of affordable production space. ▪ A significant share of the brown-field areas has been privatized or regenerated. Most of the brown-field regenerations have been based on private initiatives. ▪ Potentials of creative industries to regenerate and revitalize particular urban areas which have been neglected or decayed. ▪ No defined creative district at the municipal level. ▪ Cooperation between bottom up creative initiatives and top down policies is rare. 	<ul style="list-style-type: none"> ▪ Providing sufficient workspace supply for creative industries at the municipal and regional levels. ▪ Supporting the potentials of the creative districts in economic, social and spatial aspects. 	<p>Action 1: An increase of the affordable production space supply</p> <hr/> <p>Action 2: Establishment of an office in which a cluster contact point would be located</p> <hr/> <p>Action 3: Suggestions to policy makers</p>

Pillars	Baseline situation	Objectives	Actions
Pillar Networking	<ul style="list-style-type: none"> ▪ Only some inter(sub)-sectoral networks are present, and it is very unusual that these networks associate themselves with the term »creative industries«. ▪ Networks mainly operate on the national scale. ▪ No institutional approach towards linking the existing 'creative' networks and subsectors has been noted. ▪ No institutionalized facilitation of cooperation between diverse creative enterprises. 	<p>Institutionalized facilitator of the networking between different creative individuals, enterprises, and other stakeholders such as the university, the public sector, etc.</p>	<p>Action 1: Establishment of a cluster contact point with an aim to stimulate networking between creative industries and other stakeholders</p> <hr/> <p>Action 2: Support aimed at the existing and functioning networks</p>
Pillar Marketing	<ul style="list-style-type: none"> ▪ The term »<i>creative industries</i>« is insufficiently branded in Slovenia. ▪ Knowledge related to creative industries is low among all stakeholders in Slovenia and Ljubljana. ▪ No evident public strategy or plan regarding creative industries. ▪ No marketing of creative industries at the national level. ▪ No international support or marketing of Slovenian creative industries abroad. 	<ul style="list-style-type: none"> ▪ Raise awareness at the national level. ▪ Promote Slovenian creative industries at the international level. 	<p>Action 1: Elaboration and implementation of a (marketing &) communication concept for Ljubljana</p> <hr/> <p>Action 2: Promotional action »Creative Ljubljana!«</p> <hr/> <p>Action 3: Promotion of creative industries and CI cluster initiative</p> <hr/> <p>Action 4: Articles related to dissemination</p>

Pillars	Baseline situation	Objectives	Actions
Pillar Transfer of Knowledge	<ul style="list-style-type: none"> ▪ At the national level there is a lack of courses aimed at creative professionals. ▪ Some European countries are more developed in terms of creative industries stimulation. ▪ An existing network of creative clusters within the CC project. ▪ Lack of business skills. ▪ Rapid technological development. 	<ul style="list-style-type: none"> ▪ Establish a knowledge network between the clusters of the project. ▪ Stimulate cooperation between the cluster members. 	<hr/> <p>Action 1: Providing courses at the project level</p> <hr/> <p>Action 2: Providing an interface with the aim of matchmaking among the members of the cluster at the transnational level</p> <hr/>
Pillar Education and Employment	<ul style="list-style-type: none"> ▪ Almost no cooperation between creative industries and educational institutions. ▪ Provided education often does not match the needs of the economy. ▪ Creative professionals often claim a significant lack of entrepreneurial knowledge. ▪ No specialized employment matchmaking portal for the creative sector. 	<ul style="list-style-type: none"> ▪ Networking educational and scientific institutions on the one hand and creative industries on the other. ▪ Stimulating the labour market in creative economy. 	<hr/> <p>Action 1: Organization of training programmes for CI stakeholders</p> <hr/> <p>Action 2: A research and equipment lists</p> <hr/> <p>Action 3: Job service</p> <hr/>
Pillar Finances	<ul style="list-style-type: none"> ▪ There is a lack of financial support for (investments of) businesses in creative industries. ▪ No tailor-made instruments addressing specific needs of creative industries (e.g., cadre). 	<ul style="list-style-type: none"> ▪ Stimulating the labour market in creative economy. ▪ Stimulating investments in CI businesses 	<hr/> <p>Action 1: Regional scholarship scheme</p> <hr/> <p>Action 2: Regional guarantee scheme</p> <hr/>

Conclusions

As has been analyzed in the previous sections, supporting and stimulating creative industries became a goal of the several different policies at the EU level, which has an impact on the national, regional and municipal policy-making across Europe. In the text, three aspects of an approach towards creative economy stimulation have been analyzed. The theoretical aspect of the support aimed at the creative industries with an emphasis on the clustering and networking has been discussed. The analytical aspect, focusing on researching creative economy locally followed. The third part dealt with the policy making aspect from the transnational, European, level to local levels, as the approach of the Ljubljana urban region has been presented – *a local implementation plan*. The most important factor for stimulating creative economy locally is combining the above mentioned approaches which often results in establishing special bodies within the administration in order to provide a holistic approach in which economic, theoretical, urban and science policies are incorporated.

The main reason for the increase of the *creative topics* within the policy making documents is the claim that the creative economy can significantly contribute to economic prosperity. However, it has been noted that creative economy cannot be related to economic prosperity that directly, because there are creative professionals who do struggle hard to make ends meet. That has also been demonstrated in the SWOT analysis done on the Slovenian case.

In the text, the main focus has been set on Ljubljana and the Ljubljana urban region, which is not a coincidence. In the post-industrial society a decrease of the importance of the nation state has been proclaimed. On the other hand, the importance of regions and cities has been increasing (Mlinar, 1995), which does matter when dealing with the creative industries. Creative economy stimulation mostly takes place at the municipal level. After all, it had all started with Charles Landry, who dealt with the *creative city*, and Richard Florida, who analyzed the residential preferences of the *creative class* in relation to American cities. To sum it up, in Slovenia the creative economy is also addressed at the municipal/regional level (Local Implementation Plan), and even in the transnational establishments focusing on the creative economy it is usually the cities and regions that participate in them. For example, the Ljubljana urban

region has been participating in the Creative Cities project; Maribor was named the European Capital of Culture, etc.

As far as a cluster organization is concerned, it has been argued that our understanding of the term cluster requires some transformations when applying it to the creative economy. It has as well been noted that a creative cluster has not yet been established in Slovenia, but there are initiatives dealing with the formation of such clusters. The case of the Ljubljana urban region has been emphasized in the text but there are no particular conclusions regarding the mentioned cluster because it has not yet started functioning as one.

References

- Bauman, Z. (2001). *Community: Seeking Safty in an insecure world*. Cambridge: Polity Press.
- Chapain, C. et al. (2010). *Putting Creativity on the Map*. Nesta UK.
- Clark, T. N. (2004). *The City as an Entertainment Machine*. Chicago: University.
- Comunian, R., Chapain C., & Clifton, N. (2010). Location, location, location: exploring the complex relationship between creative industries and place. *Creative Industries Journal*, 3(1), 5–10.
- Council of the European Union. (2009). *Council Conclusions on Culture as a Catalyst for Creativity and Innovation*. 2941th Education, Youth and Culture Council meeting. Brussels, 12 May 2009.
- Creative Metropoles Portfolio. (2010). *How to support creative industries? Good practices from European cities*.
- Cultural and creative industries. (2011). *Growth potential in specific segments*. Berlin: Deutsche Bank.
- Currid, E. (2007). *The Warhol Economy: How Fashion, Art and Music Drive New York City*. Princeton University Press.
- European Commission. (2010). *European Competitiveness Report 2010*.
- European Commission. (2010). *GREEN PAPER on Unlocking the potential of cultural and creative industries*.
- Florida, R. (2004/2002). *The Rise of the Creative Class*. New York: Basic books.

- Florida, R. (2005). *The Flight of the Creative Class*. New York: HarperCollins.
- Howkins, J. (2002). *The Creative Economy: How People Make Money From Ideas*. London: Penguin.
- IDEA. (2009). *Investing in creative industries?: A guide for local authorities*.
- KEA European affairs. (2010). *Promoting Investment in the Cultural and Creative Sector: Financing Needs, Trends and Opportunities*. Report prepared for ECCE Innovation – Nantes Metropole.
- Klinar, M., Miklavc, J., & Oven, P. (Ed.) (2008). *Priporočila 9. razvojne skupine za kreativne industrije za povečanje konkurenčnosti Slovenije*. Ljubljana: Služba Vlade Republike Slovenije za razvoj.
- Lloyd, R. (2006). *Neo-bohemia, Art and Commerce in the Postindustrial City*. New York: Rutledge.
- Ministrstvo za kulturo Republike Slovenije. (2007). *Nacionalni program za kulturo 2008–2011* (National Programme for Culture 2008–2011). Ljubljana: Ministry of Culture.
- Ministrstvo za kulturo Republike Slovenije. (2011). Materialni položaj kulture v Sloveniji. *Statistične informacije Ministrstva za kulturo*.
- Mlinar, Z. (1992). European Integration and Socio-Spatial Restructuring: Actual Changes and Theoretical Response. *International Journal of Sociology and Social Policy*, 12(8), 33–58.
- Murovec, N., & Kavaš, D. (2010). *SWOT Analysis – Status of the Creative Industries in Ljubljana*. Ljubljana: Institute for Economic Research.
- OMC Expert Working Group on maximising the potential of Cultural and Creative Industries, in particular that of SMEs: Final Report, 2010.
- Sorokin, P., & Zimmerman, C. (1969). *Principles of Rural – Urban Sociology*. New York: Henry Holt and Company.
- Stepančič, L. (Ed.) (2011). *Cultural and Creative Industries – Slovene Style*. Ljubljana: The Ministry of Culture of the Republic of Slovenia.
- The Green Paper on cultural and creative industries. European Commission, 2010. http://ec.europa.eu/culture/our-policy-development/cultural-and-creative-industries/green-paper_en.htm
- Wuggenig, U., Raunig, G., & Ray, G. (2011). *Critique of Creativity: Precarity, Subjectivity and Resistance in the 'Creative Industries'*. Mayfly.

CREATIVE INDUSTRIES MAPPING IN THE CZECH REPUBLIC: CASE STUDY OF THE ZLÍN REGION

Pavel Bednář, Pavel Grebeníček

Introduction

Not many steps have yet been taken towards the analysis of creative industries at the regional level in the Czech Republic. Among the few existing contributions, we considered Rumpel, Slach and Koutský (2010), dealing with the spatial perspective of creative industries in the Moravian-Silesian Region and Jirčíková (2009) addressing the theory of mapping using the Creative Trident methodology, including its application at the national level. The remaining authors (Cikánek, 2009; Kloudová et al., 2010) focus on the introduction to creative industries in the Czech Republic where the main aims are the definition of creative industries, creative class, creative index, management issues and an evaluation of the creative economy's impact.

Following the previous studies and in order to further research the creative industries in the Czech Republic, the question of methodical unification of mapping the creative industries arises to ensure the provision of a robust process. In terms of national conditions, however, this is hindered by a weak data base limiting research exclusively to a sector approach – i.e., mapping the creative industries firms rather than creative occupations. In addition to this level, there are some fundamental differences in relation to available data sources in terms of distinctions of the creative industries within the commercial, public and informal sectors (UNCTAD, 2010; Wiesand and Söndermann (as cited in Kloudová, 2009; Kloudová et al., 2010)).

The public sector in the creative industries has both the database of organizations with regular reporting and also publicly available statistical yearbooks (see NIPOS-CIK, 2011). A forthcoming database from NGOs with a cultural focus, registered at the Ministry of the Interior of the Czech Republic under Act No. 83/1990 Coll. (see NIPOS-CIK, 2011), will provide support for

mapping the informal sector in the creative industries. The creative industries within the commercial sector are in the completely opposite situation. There is neither a specialized database publicly available nor a methodology covering this sector. A comprehensive database of the Business Register (RES) of the Czech Statistical Office (CSO) or the Administrative Business Register (ARES) of the Ministry of Finance of the Czech Republic are the only publicly available sources of secondary information about commercial creative industries, providing data on given economic entities from all registers kept by the state administration. A commercial search software containing databases of the Creditinfo-Firemní monitor is the last secondary source of information on the creative industries business sector in the Czech Republic. It uses all publicly available registers as data sources, including registers of tax authorities and other commercial databases. The paper offers insight into the realm of creative industry in the rural peripheral region with a significant level of entrepreneurial activity per 1,000 economically active inhabitants (i.e., 467 enterprises) and the urban centre based on light industry.

Thus the aim of the paper is to improve the discussion on methodology for data collecting and analysis within the creative industries mapping at the regional level using a secondary dataset. Nevertheless, the major objective is to map the creative industries at the regional level, including both core and peripheral areas, in favour of the future preparation of micro-regional development strategies focused on the creative industries (Jayne, 2005). Finally, the paper presents the structure of creative industries firms in the Zlín Region, with respect to traditional sectors of the local economy – i.e., film production, design, and the glass industry (see e.g., Bell / Jayne, 2003; Jayne, 2004).

Creative Industries Mapping

Mapping the creative industries plays a key role in assessing the position of creative industries in the economy (Higgs & Cunningham 2007; Higgs & Cunningham, 2008; Higgs, Cunningham & Bakhshi, 2008) at any spatial level and particularly during facilitation of creative clusters (Lazzeretti, Boix & Capone, 2008). Furthermore, the mapping of creative industries faces many difficulties in terms of their definition, methods of collecting information, availability of secondary databases, and the means of interpreting the results of

the data processing. The mapping of creative industries is conducted at different spatial levels – global, national, regional, and city or local levels.

The following methods belong among quantitative methods of mapping creative industries revealing their structure and spatial distribution (Higgs & Cunningham, 2008; Higgs et al., 2008):

- mapping the creative industries by industry activity-based segment definitions,
- mapping the creative industries by occupations (see e.g., Markusen et al., 2008).

In the first case, according to Higgs and Cunningham (2008), the research focuses on:

- Firm activity – primarily the number of firms, the full time employees, sometimes banded according to their turnover and occasionally the degree of concentration of the industry;
- Gross value added to the economy determined by national input/output tables or specialist surveys;
- Exports – the value of exports from the industry usually determined by both survey and extrapolation or from official product and service export statistics (p. 8).

The industry segment of activity-based definitions, however, does not respect the relationship to the value chain within the creative industries (Higgs & Cunningham, 2008). This may be the case when translating activities are part of the core value chain (a translation of a book as a work of art), which is supported by pre-press preparation and printing, or when the translation is considered an activity that facilitates the distribution of autonomous supporting activities (a translation of a manual for the use of specialized design software).

The second case involves mapping using the Creative Trident method.

'The model brings together those working in the creative industries and working in specialist creative jobs in other firms and organizations' (Higgs et al., 2008, p. 3). We focus on three types of employment:

- creative occupations in creative industries,

- support staff in creative industries providing management, secretarial, administrative or accountancy back-up,
- creative individuals 'embedded' in other industries not defined as 'creative'.

Collectively, these are the creative occupations. Creative occupations in creative industries and individuals 'embedded' in other industries not defined as 'creative' thus together form the core of the creative class (Florida, 2002). The problem in mapping the occupations in creative industries consists of cases where, e.g., a design firm employee also has a work contract with a non-governmental organization engaged in a creative sector.

Creative Industries in the Zlín Region

Mapping methodology 1A

Since the aim of the paper is a case study on differentiation and spatial distribution of regional creative industries firms, the mapping was done at the administrative territories of municipalities with extended powers (MEP) despite the concentration of creative industries in cities (e.g., Desrochers & Leppälä, 2011; Prat, 2008). Having regard to the settlement structure of the region, its peripheral location and rural character of the Slovakian border areas, the above-mentioned method of mapping was implemented following the examples of Bell & Jayne, 2010; Jayne, 2005; Waitt & Gibson, 2009; White, 2010. The creative industries commercial firms mapping was based on Wiesand and Söndermann (as cited in Kloudová, 2009; Kloudová et al., 2010) using the secondary database of the Creditinfo-Firemní monitor 2010, summarizing data from the ARES system. This database provides an advantage of the definition of the item of 'Predominant CZ NACE' enabling the avoidance of counting firms twice within the creative industries. Thus every company is unambiguously assigned to a particular segment of the creative industries. As a result, the following variables from the database of Creditinfo-Firemní Monitor 2010 were selected:

- firm name,
- type of ownership,
- firm size broken down into categories by number of employees,

- registered office showing the municipality and the administrative territory of MEPs
- date of the firm registration, enabling the derivation of the length of trading.

Further items were not selected for the following reasons:

- turnover – incomplete data with self-employed individuals; various time periods of data sources;
- export – incomplete data with self-employed individuals; various time periods of data sources; export destination not spatially differentiated.

The companies which had been declared insolvent were removed from the collected database, since they were not involved in any corresponding activities in relation to the creative economy. Predominant CZ NACE sectors of creative industries firms were clustered with respect to Wiesand and Söndermann (as cited in Kloudová, 2009; Kloudová et al., 2010) and the distribution of the length of trading. This resulted in the determination of the 'Derived predominant CZ NACE' variable containing thirteen creative industries segments. With regard to the structure of creative firms in the Zlín Region and according to their size – i.e., an insignificant number of medium-sized firms with 50 to 250 employees – firms were divided into two different categories, self-employed individuals and firms with employees, where the differences were detected not only in their spatial distribution and structure but also in the length of trading.

Results 1B

A total of 4951 firms were revealed as a result of the creative industries mapping procedure in the Zlín Region. The proportion of self-employed individuals was 86.6%. The predominant percentage of self-employed individuals corresponds to the findings in Baines and Robson, 2001, as many sectors of creative industries do not require considerable initial capital or office space for starting a business. A major finding in terms of the size of firms with employees is the absence of large companies (over 250 employees). Thus creative firms with employees (663) in the Zlín Region consist exclusively of micro (578; 87.2%) and small enterprises (70; 10.6%) and medium-sized enterprises (15, 2.2%) in accordance

with the European Commission Recommendation 2003/361 regarding the small and medium-sized enterprises definition.

The assessment of the role played by commercial creative industries in the Zlín Region can be supported by two variables where the variable 1 is the proportion of creative industries firms on the total number of firms (3.4%) in the region and variable 2 is the proportion of workers employed in creative industries firms to the total number of employees in the region (3.3%). The determination of the estimated number of workers employed in creative industries firms was based on the conversion of the categorized number of employees to the median number of employees followed by the calculation of the proportion of the total workers employed in creative industries firms to the total number of employees of firms in the Zlín Region.

A detailed overview of the creative industries and firms with employees in the Zlín Region by sector is presented in Table 1. The low proportion of architectural firms might be explained by the absence of the particular university degree programme in the region, limited demand compared to urbanized regions with cities over 100,000 inhabitants and strong competition in major urban agglomerations in the Czech Republic, such as Brno, Ostrava and Prague. Reasonable reputation and tradition is also a prerequisite for successful market presence in the field of architecture. Large scale projects require more collaboration of firms solving partial subtasks, thus there is a need for proximity of suppliers providing face to face contacts. The complexity of architectural activities is also reflected by the prevalence of firms with employees over self-employed individuals, which is an exception among the other sectors of creative industries in the Zlín Region.

It is considered that the low proportion of motion picture and video firms in the Zlín Region's creative industries sector is due to the necessity of excellent knowledge of the limited market, higher costs of technical equipment and trained personnel, wider scope of knowledge compared to music production and lack of proximity of customers, primarily for the firms with employees. In contrast, self-employed individuals are expected to focus predominantly on regional customers. The abovementioned assessment of the proportion of motion picture and video firms might also be applied to broadcasting and news agency

firms requiring a large information base and expensive electronic equipment, especially in the case of radio and television.

Generally, translation and interpretation firms are characterized by low cost of entry to the industry, focus on learning the English, German and French language and the increased need for communication with foreign countries after 1989 related to the release of political and economic barriers to international trade or doing business abroad.

Table 1: *Creative industries by type of businesses in creative industries in the Zlín Region*

Derived predominant CZ NACE	Businesses in Creative Industries				Total	
	Firms with employees		Self-employed individuals			
	No. of businesses	Percent	No. of businesses	Percent	No. of businesses	Percent
Architecture	23	3.5	11	0.3	34	0.7
Motion picture and video	8	1.2	41	1.0	49	1.0
Sound recording and music publishing	27	4.1	203	4.7	230	4.6
Photography	21	3.2	199	4.6	220	4.4
Translation and interpretation	24	3.6	940	21.9	964	19.5
Pre-press services	24	3.6	195	4.5	219	4.4
Software publishing, data processing and web portals	189	28.5	1137	26.5	1326	26.8
Advertising and market research	176	26.5	962	22.4	1138	23.0
Broadcasting and news agencies	6	0.9	3	0.1	9	0.2
Specialized design	5	0.8	26	0.6	31	0.6

Derived predominant CZ NACE	Businesses in Creative Industries				Total	
	Firms with employees		Self-employed individuals		No. of businesses	Percent
	No. of businesses	Percent	No. of businesses	Percent		
Creative, arts and entertainment	14	2.1	107	2.5	121	2.4
Publishing of periodicals and other publishing	73	11.0	174	4.1	247	5.0
Publishing of books	73	11.0	290	6.8	363	7.3
Total	663	100.0	4288	100.0	4951	100.0

Note: Own calculation based on Creditinfo-Firemní monitor 2010.

The high proportion of software publishing, data processing and web portals, advertising and market research firms is caused, in the former case, by rapid IT development and its affordability to households and introducing appropriate fields of study at high schools, colleges and universities; in the latter case, due to the transition from a centrally planned economy to a market economy after 1989 and thus the need for firms to know the market requirements and promote their products.

Moreover, the Faculty of Multimedia Communications of the Tomas Bata University in Zlín, established in 2002, has been generating a local skilled workforce for this segment of the creative industries, supported by the traditions of marketing activities originated in the period of the Bata shoe manufacturing company in the centre of the region.

The low proportion of specialised design firms is startling despite the presence of companies in the plastics industry, precision engineering, furniture, household goods and footwear. It is necessary to emphasize the lack of key regional customers of industrial design in terms of clothing or the automotive industry, or, conversely, the gradually declining glass industry in the north-eastern part of the Zlín Region. Nonetheless, the field of industrial design is considered to be

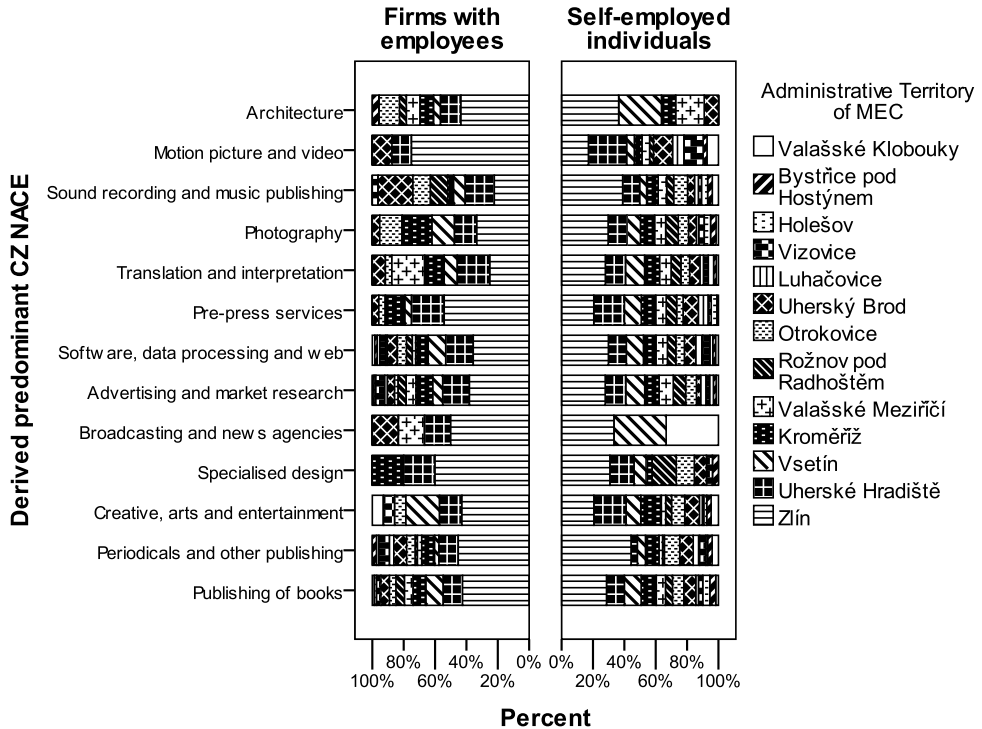
sensitive to the protection of patent rights and industrial designs and therefore we expect secondary industries firms to employ their own professional designers who, based on the selected methodology and data availability, could not be classified among the companies of creative industries.

The reason behind the low number of businesses in creative arts and entertainment activities lies in the need of a sufficiently large market with adequate purchasing power and available finances, since spending on entertainment and the arts are among the first restricted by households during an economic decline. Moreover, firms in this field of creative industries in the Zlín Region are supplemented by almost 250 public institutions (museums, libraries, theatres and cultural centres) and NGOs dealing with, in particular, traditional art (folklore ensembles, choirs and dance groups) or associated independent artists (sculptors and painters, etc.).

Figure 1 indicates the concentration of firms in the creative industries segments in MEPs by employment in the Zlín Region. More significant concentrations prevail in firm with employees corresponding to the importance of the Zlín MEP as a core area in the Zlín Region and representing it as the natural political, economic, educational and cultural centre of the region with all urbanization effects (see Rumpel et al., 2010). The concentration of creative industries firms with employees in the Zlín MEP includes the following:

- architectural firms and pre-press services firms preferring localization in the most distinctive concentration of customers; i.e., the existence of a considerable catchment area;
- motion picture and video and specialized design firms built on the tradition of Bata company, opportunities for studying these fields at the local college and university and local creative milieu;
- broadcasting and news agency firms requiring the best possible access to information and their concentration in decision making centres; creative, arts and entertainment firms preferring localization in the most distinctive concentration of customers; i.e., the existence of considerable catchment area along with creative milieu and local buzz;
- publishing of books, periodicals and other publishing firms preferring localization in the most distinctive concentration of customers in terms of proximity along with the presence of a creative milieu and local buzz.

Figure 1: *Creative industries by type of businesses and by administrative territories of MEP in the Zlín Region*



Note: Own calculation based on Creditinfo-Firemní monitor 2010.

The remaining creative sectors within firms with employees are either tied to local markets (photographic firms), or the existence of a large market without customers in the proximity is sufficient for their presence, because their products are easily redistributable via electronic communication, or are subcontracted by more extensive projects (such as sound recording and music publishing firms, translation and interpretation firms).

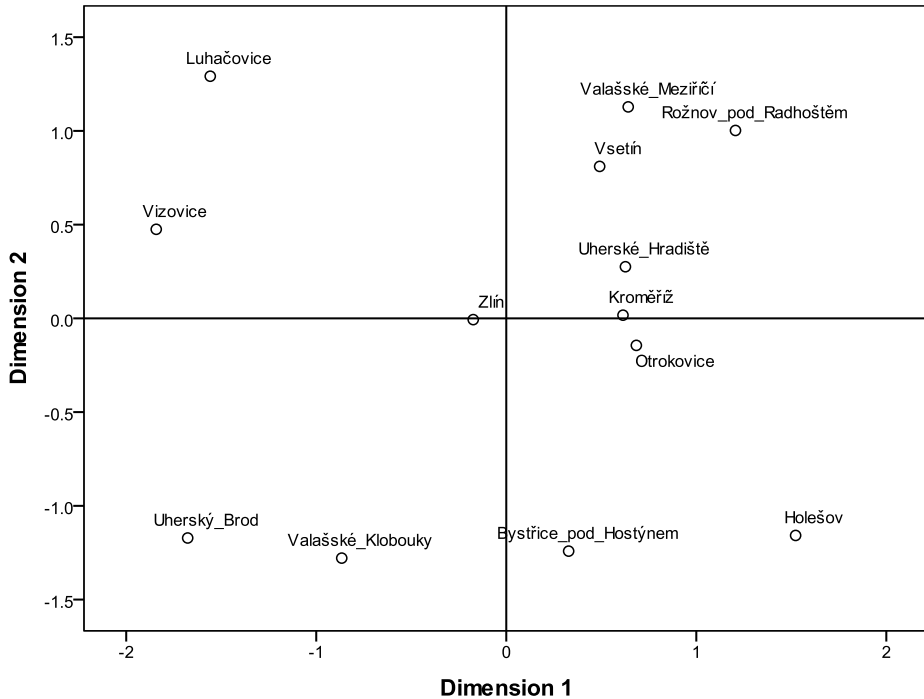
The concentration of self-employed individuals in creative industries in the Zlín MEP is not so significant and the proportion reaches one third on average in all segments excepting the publishing of periodicals preferring localization in the most distinctive concentration of customers in terms of proximity. The

concentration of motion picture and video firms and the creative arts and entertainment firms in the Uherské Hradiště MEP might be derived from an annual non-competition film event, the 'Summer Film School', the largest in the Czech Republic, – i.e., from creative milieu and local buzz, in the former case, and the traditional role of Uherské Hradiště as a centre of local folk culture supported by the importance of the Theatre of Moravian Slovakia in the cultural development of both the given MEP and the southern part of the Zlín Region, thus also through a creative milieu, in the latter case.

Figure 2 was drawn using multidimensional scaling through the ALSCAL method which enables spatial measurements using Euclidean distances plotting the similarity of cases based on proportion (Garson, 2009) of the creative industries segments in the MEPs of the Zlín Region. When interpreting the results of the graph, the most similar cases are those located in close proximity. With increasing distance between the cases of both dimension 1 and dimension 2, the degree of their similarity in the proportion of shares of individual sectors in the creative industries decreases. The presentation of results conducted under this method was performed for self-employed individuals only, because the analysis of firms with employees in the MEPs of the Zlín Region reveals a similar structure as that found at the regional level. The structure is affected only by those MEPs with a few segments of the creative industries and urban centres with local importance in peripheral areas of the region; i.e., Bystřice pod Hostýnem, Holešov, Luhačovice, Rožnov pod Radhoštěm, Valašské Klobouky and Vizovice.

The two-dimensional graph provides the most significant solution for similarity of the MEPs by the structure of self-employed individuals in the creative industries. The Zlín MEP was plotted in the centre because of the highest proportion of self-employed individuals in the region with a similar representation of creative industries segments. The cluster of Uherské Hradiště, Kroměříž and Otrokovice is represented by MEPs along the Morava River in the western part of the region with a higher proportion of the creative arts and entertainment compared to the Zlín MEP.

Figure 2: *Administrative territories of MEPs by creative industries in the Zlín Region*



Note: Own calculation based on Creditinfo-Firemní monitor 2010.

In the case of the Uherské Hradiště and Kroměříž MEPs, we presume the relation to the historical development of particular administrative centres as a place for performing cultural and religious activities in the region. The role of a local cultural house, good transport connections and the borders of the three ethnographic regions of Haná, Moravian Slovakia and Moravian Wallachia seem to be a probable explanation for the Otrokovice MEP. The Uherské Hradiště MEP shows the highest proportion of pre-press services (7.1%) between the MEPs in the Zlín Region and the lowest proportion of publishing of periodicals and other publishing firms (1.3%) vice versa, which may indicate a unique position of the firms with employees in this segment.

The 'Moravian Wallachia creative industries core cluster' in the north-eastern part of the peripheral region had the lowest proportion in sound recording and music publishing, and also in the publishing of periodicals and other publishing self-employed individuals (1–2%) among the MEPs in the Zlín Region. On the other hand, this cluster holds a leading position in the proportion of advertising and market research firms (28%).

The eastern hinterland of the MEP Zlín formed by the Luhačovice and Vizovice MEPs similarly to the 'Moravian Wallachia core cluster' indicates low proportions in sound recording and music publishing firms. Conversely, these MEPs feature the highest proportion of self-employed individuals in software publishing, data processing and web portals (36%). It seems reasonable to assume that information technologies play a crucial role in the involvement of the hinterland of urban centres (i.e., urban-rural fringe) in the creative economy.

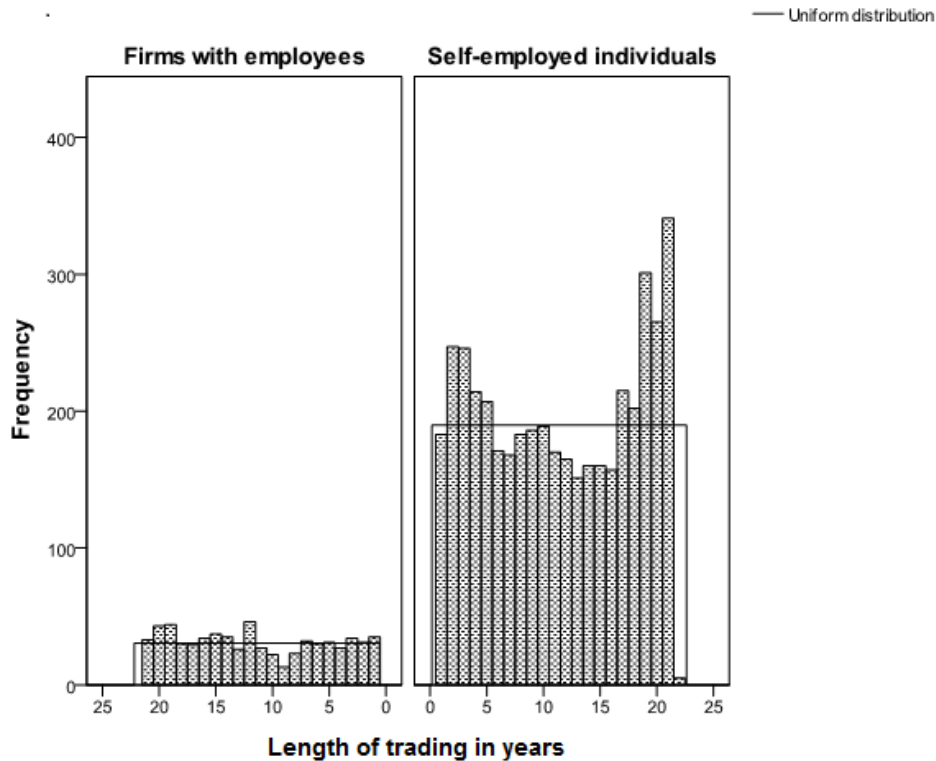
The Zlín MEP together with the eastern and western hinterland (i.e., the Otrokovice MEP and the Luhačovice and Vizovice MEPs) are characterized by the highest proportion of periodicals publishing and other publishing self-employed individuals in the Zlín Region (5%), which supports the theory of the presence of this creative industry segment in core areas with a significant concentration and close proximity to customers, primarily in advertising materials such as flyers, advertising and corporate newspapers.

The southeast frontier cluster formed by the Uherský Brod and Valašské Klobouky MEPs demonstrates the lowest percentage in advertising and market research (9.9% and 17.1%), which corresponds to their peripheral location. The maintenance of the traditional role of folk arts and crafts and a low degree of urbanization in these MEPs is manifested by the supreme proportion of self-employed individuals in the creative, arts and entertainment segment in the Zlín Region (3.8% and 6.1%). Furthermore, the peripheral location of the frontier Valašské Klobouky MEP is suggested by the lowest percentage of pre-press services firms in the region. On the other hand, the highest proportion in sound recording and music publishing of self-employed individuals in the Valašské Klobouky MEP might be derived from the development of information technologies, acquiring music online, low cost rental office spaces, setting recording studios in own dwellings and, last but not least, the artistic traditions

of Moravian Wallachia. The Luhačovice and Valašské Klobouky MEPs present themselves with the lowest percentage of translation and interpretation firms. We suppose that this proportion is determined by the absence of towns with more than 10,000 inhabitants, out-migration of linguistically educated population; and in the case of the Valašské Klobouky MEP it is linked with the peripheral location and thus the distance from the core urban centres in the region with concentrations of economic activities requiring intensive communication with other countries, with the exception of the Slovak Republic owing to the similarity of the languages. The last cluster refers to the Bystřice pod Hostýnem and Holešov MEPs located in the western peripheral part of the region at the transition between the Moravian Vales and the Hostýnské Mountains containing two micro centres with a population of 10,000. Moreover, a potential local creative class may comfortably out-migrate or commute into the surrounding major urban centres (Přerov, Olomouc and Zlín), which results in a concentration of self-employed individuals in several sectors, most notably translation and interpretation activities and publishing of books, corroborating the above average values in the Zlín Region. Furthermore, in both MEPs below-average values were exposed in advertising and market research and the lowest percentage of the software publishing, data processing and web portal firms (18.1%) was ascertained in the Holešov MEP.

The histogram (Figure 3) reveals a uniform distribution of the length of trading in creative self-employed individuals. On the contrary, the frequency of self-employed individuals' registration is tied to the economic cycle at the global level, technological advances in IT and systemic political and partially demographic changes at the national level. The first phase of self-employed individuals in growth, with the concentration in 1989–1991, was spurred by the systemic changes allowing private entrepreneurship. The high frequency of firms being active since the beginning of the 90s of the 20th century implies their success in the market or an attempt of individuals to maintain the status of entrepreneur.

Figure 3: *Length of trading of creative industries in the Zlín Region*



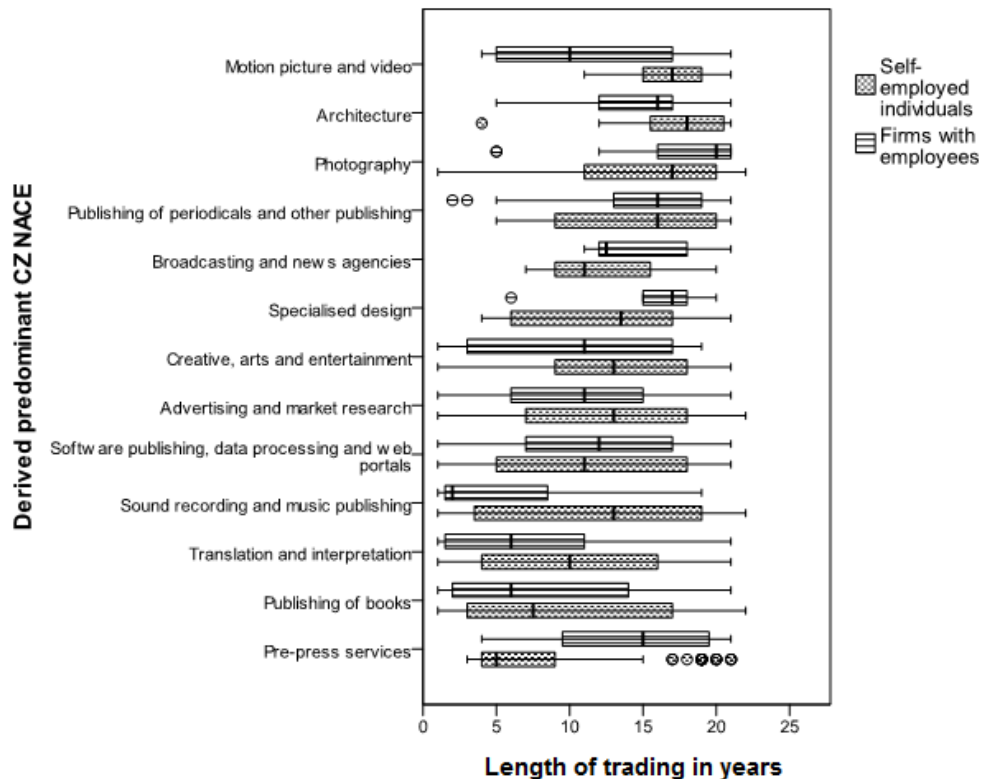
Note: Own calculation based on Creditinfo-Firemní monitor 2010.

The second phase of a noticeable growth, during 2000–2003, might be associated both with advancements in IT (particularly availability along with affordability of the Internet and other [portable] electronic devices such as computers, laptops, printers and backup media – CD and DVD), and commencement of the demographically distinct university-educated population of the 70s of the 20th century. The third phase was portrayed by a striking growth in 2005–2009 and was notable primarily for its concurrence with the expansion phase of the business cycle at the global level, which was positively reflected in the Czech Republic. The fall of self-employed individuals established at the turn of 2009 and 2010 is associated with the beginning of the economic recession and therefore a lower willingness of individuals to start an

enterprise, given the risk of low demand, and insolvency of bank loans, to name but a couple obvious problems.

A box plot (Figure 4) was used to evaluate the differences between the creative industries segments by the type of businesses in creative industries in relation to the length of trading in years. The 'length' box is the interquartile range. The outlier cases represent those with values between 1.5 and 3 of the box lengths from the upper or lower edge of the box. The extreme cases are those with values more than 3 of the box lengths from the upper or lower edge of the box. As a result, every part of the graph represents a quarter of all the values of the length of trading in years in the particular segment of the self-employed individuals and firms with employees.

Figure 4: *Length of trading by creative industries segments in the Zlín Region*



Source: Own calculation based on Creditinfo-Firemní monitor 2010.

A ranking of the creative industries segments in the graph was performed from the segments with a predominance of the long-trading firms over the segment dominated by the start-up firms. Hence we derive three basic types of creative industries segments in the Zlín Region by the length of trading in years:

- aging segments – motion picture and video, architecture, photography, publishing periodicals and other publishing, broadcasting and news agencies, specialized design
- stagnant segments – creative, arts and entertainment, advertising and market research, software publishing, data processing and web portals
- emerging segments – sound recording and music publishing, translation and interpretation, publishing of books, pre-press services.

The aging segments with no difference according to their employment are determined by either a difficult entry to the market in the sector (i.e., tough competition or limited regional market) – architectural firms, broadcasting and news agency firms, specialized design firms – or development and affordability of digital and browsing technologies for households – photographic firms, publishing periodicals and other publishing firms. The emerging creative industries segments – i.e., with the lowest medians of the length of trading – include publishing of books and translation and interpretation firms. In the first case, the expansion might be related to both computerized typesetting, press and selling books on-line and increased demand for publications, conference proceedings, company brochures and many other conditions. In the latter case, growth of translation and interpretation firms may be linked to a deepening integration of the regional economy into the global market economy and also maturation of the generation equipped with internationally recognized language certificates and experiences with internships abroad. A nested generalized linear model assuming multinomial distribution with a cumulative logit link function was employed to examine the differences in the length of trading in years between self-employed individuals and firms with employees for each segment. The following differences between the segments of the creative industries by type of businesses in creative industries were observed:

- Motion picture and video – The new firms with employees are likely to set up either as a long term consequence of making movies by foreign studios in the Czech Republic or due to implementing film production into education in the specialized institutions in Zlín (i.e., Tomas Bata

University in Zlín and Film College Zlín). The new technological and societal challenges also include the need for digitalization of contents which creates potential for the Zlin audio-visual industry. Conversely, self-employed individuals face difficulty of entry into a limited regional market, and yet the advantages of advances in IT technology and audio-visual equipment.

- Sound recording and music publishing – The rapid establishment of self-employed individuals in the 90s of the 20th century is associated with the permission of private entrepreneurship and advancements in digital recording.

The formation of current firms with employees tied to the expansion of the broadband and mobile Internet, thus reducing distribution costs – i.e., online music stores, music streaming services and internet radios.

- Pre-press services – We put the growth of self-employed individuals into the context of computerized typesetting, printing and selling books online.

Conclusion

From a methodological perspective, the paper revealed the validity of treatment of a continuous derived variable for the length of trading compared to its division into categorical variables. The continuous variable enabled evaluation of the length of trading with respect to economic cycles, systemic policy decisions and demographic trends. Based on the administrative definition of the MEP, differences were discovered between core and peripheral areas in the region. The orientation towards creative industries segments with the existence of a considerable catchment area was found in the peripheral areas, particularly in firms with employees. Thus two segments – i.e., software publishing, data processing and web portals and translation and interpretation – make the predominant contribution to the de-concentration of creative industries firms in the Zlín Region that have low establishment costs and need not conduct business at the local or regional level given various communication technologies. Motion picture and video creative firms are poorly represented and concentrated only in the two major settlement centres in the region, Zlín and Uherské Hradiště, despite the presence of particular degree programmes at Tomas Bata University in Zlín and the Film College in Zlín. Thus even the most populated MEPs with

the largest urban agglomerations in the region do not provide sufficient proximity to customers together with limited local buzz.

A similar percentage of employment in firms with employees to the total number of firms with employees in the Zlín Region (3.3%) was noted as in the case of the Western Region of Ireland (White, 2010). The results confirm the weak position and low proportion of creative industries in the region's periphery and their concentration in the core areas along with a predominant presence of self-employed individuals and micro firms with up to 10 employees (Baines & Robson, 2001). Similar findings were revealed in the length of trading in several creative industries segments in the Zlín Region compared with the data from the English county of Shropshire in the UK (Bell & Jayne, 2010); i.e., in the aging segments – notably architecture, broadcasting and news agencies and publishing periodicals and other publishing – and in the stagnant segments – creative, arts and entertainment.

The results of the mapping demonstrated the need for separate analyses of the two creative industries groups – self-employed individuals and firms with employees, particularly by the length of trading and spatial distribution. The relation between the business cycle and the start-up frequency of self-employed individuals was indicated when their establishment follows the distinct stages of the business cycle with the highest increase in the peak of economic expansion and, conversely, the lowest in the final phase of the recession. The uniform distribution of the length of trading of firms with employees should be the subject of further research at the inter-regional level of the Czech Republic so that the interim specific feature of the Zlín Region could be generalized and related to the three defined types of creative industries segments by length of trading – aging, stagnant and emerging. Finally, the concentration of self-employed individuals in the centre of the region is lower than the spatial concentration of firms with employees with a closer relation to urbanization effects.

The database does not allow identification and analysis of creative industries firms doing business in the Zlín Region with registered offices (headquarters) outside the region, which reduces the explanatory power of the mapping results. Publicly available company databases in the Czech Republic offer only an

indicative framework for evaluating the number of employees in the creative industries with no possibility of their identification in accordance with the Creative Trident methodology importance and effectiveness.

References

- Baines, S., & Robson, L. (2001). Being self-employed or being enterprising? The case of creative work for the media industries. *Journal of Small Business and Enterprise Development*, 8(4), 349–362.
- Bell, D., & Jayne, M. (2003). Assessing the role of design in local and regional economies. *International Journal of Cultural Policy*, 9(3), 265–284.
- Bell, D., & Jayne, M. (2010). The creative countryside: Policy and practice in the UK rural cultural economy. *Journal of Rural Studies*, 26(3), 209–218.
- Centre of Information and Statistics on Culture, National Information and Consulting Centre for Culture –NIPOS-CIK. (2011). *Nipos adresáře*. <http://www.nipos-mk.cz/?cat=66>
- Cikánek, M. (2009). *Kreativní průmysly: Příležitost pro novou ekonomiku*. Institut umění: Praha.
- Garson, D. G. (2009). *Multidimensional scaling: Statnotes*. Informally published manuscript, College of Humanities and Social Sciences, North Carolina State University, Raleigh, North Carolina. <http://faculty.chass.ncsu.edu/garson/PA765/mds.htm>
- Desrochers, P., & Leppälä, S. (2011). Creative cities and regions: The case for local economic diversity. *Creativity and Innovation Management*, 20(1), 59–69.
- Florida, R. (2002). *The Rise of the Creative Class, and How It's Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books.
- Higs, P., & Cunningham, S. ARC Centre of Excellence for Creative Industries & Innovation (CCI). (2007). *Australia's creative economy: Mapping methodologies*. <http://eprints.qut.edu.au/archive/00006228/>
- Higgs, P., & Cunningham, S. (2008). Creative industries mapping: Where have we come from and where are we going? *Creative Industries Journal*, 1(1), 7–30.

- Higgs, P. et al. (2008). *Beyond the creative industries: Mapping the creative economy in the United Kingdom*. http://www.nesta.org.uk/publications/assets/features/beyond_the_creative_industries/
- Jayne, M. (2004). Culture that works? creative industries development in a working-class city. *Capital and Class*, 28(3), 199–210.
- Jayne, M. (2005). Creative industries: The regional dimension? *Environment and Planning C: Government and Policy*, 23(4), 537–556.
- Jirčíková, E. (2009). *Kreativní průmysl a jeho výkonnost*. In E. Jirčíková (Ed.) Sborník příspěvků z mezinárodní vědecké konference Finance a výkonnost firem ve vědě, výuce a praxi (p. n). Zlín: Tomas Bata University.
- Kloudová, J. (2009). Kreativní ekonomika a její měření. *Ekonomický časopis*, 57(3), 247–262.
- Kloudová, J. et al. (2010). *Kreativní ekonomika: Trendy, výzvy, příležitosti*. Praha: Grada.
- Lazzeretti, L., Boix, R., & Capone, F. (2008). Do creative industries cluster? Mapping creative local production systems in Italy and Spain. *Industry and Innovation*, 15(5), 549–567.
- Markusen, A. et al. (2008). Defining the creative economy: Industry and occupational approaches. *Economic Development Quarterly*, 22(1), 24–45.
- Pratt, A. C. (2008). Creative cities: The cultural industries and the creative class, *Geografiska Annaler: Series B, Human Geography*, 90(2), 107–117.
- Rumpel, P., Slach, O., & Koutský, J. (2010). Creative industries in spatial perspective in the old industrial Moravian-Silesian region. *E+M Ekonomie a Management*, 8(4), 30–46.
- UNCTAD, United Nations. (2010). *Creative economy report 2010* <http://www.unctad.org/Templates/webflyer.asp?docid=14229&intItemID=5763&lang=1&mode=downloads>
- Waitt, G., & Gibson, C. (2009). Creative small cities: Rethinking the creative economy in place. *Urban Studies*, 46(5/6), 1223–1246.
- White, P. (2010). Creative industries in a rural region: creative West: The creative sector in the Western region of Ireland. *Creative Industries Journal*, 3(1), 79–88.

SUMMARY

Pavla Břusková

The Czech–Slovenian monograph devoted to clusters and cluster policies is a result of the »CLUPERPOL« project – The research of the cluster performance measurement model and cluster policy efficiency, including case studies of selected clusters from the Czech Republic and Slovenia, conducted during 2010–2011 under the Bilateral Mobility Programme of the Czech Ministry of Education, Youth and Sports.

For nearly two years the teams of the Tomas Bata University (TBU) in Zlin, the Faculty of Management and Economics and the University of Ljubljana (UL), Faculty of Economics, shared and exchanged experience, performed mutual excursions to learn more about the partner country's cluster policy approaches. The meetings included other university colleagues, cluster managers, practitioners and representatives of collaborating institutions who added the value of different angles of view to the topics discussed. It was an illuminating and inspiring exercise to hear, for example, how differently the cluster concept materialized in each of the countries and how similar outcomes were achieved in the end. This was the case with cluster policy, the first of three topics dealt with in the book.

Tea Petrin and Patricia Kotnik present a rationale and the use of the cluster concept as a public policy tool for promoting competitiveness in the period 1999–2004 during the implementation of a new proactive industrial policy aiming to speed up adaptation of Slovenian companies to the latest technological, managerial and organizational advances and to foster the development of organizational structures and institutions enhancing national productive capabilities. After this background the paper discusses the approach to cluster development, presents the results of cluster development initiative and public policy support to cluster development after 2004. The paper concludes with the lessons thus far learned and suggests the way forward.

On the Czech part, the cluster concept anchorage within the Czech development policy with the cluster pilot study of the Moravian-Silesian Region and the following phase of the cluster policy, starting from structural-fund-based national programmes in 2004, was prepared by Magdalena Bialic-Davendra and Pavla Břusková (TBU). The introduction of the cluster topic came just about the time of the accession of the Czech Republic to the European Union, which allowed the Ministry of Industry and Trade to incorporate the »CLUSTERS« Programme into the first Structural Fund programming period of 2004–2006. While this programme included financial support for both the mapping and development of a cluster, the next period's »COOPERATION Programme« of 2007–2013 supported only established cluster organizations.

Alenka Slavec and Igor Prodan depict comprehensively the history and current development of the »Automotive Cluster of Slovenia«. The article discusses the foundations for the development of the Slovenian Automotive Cluster that started as a pilot cluster in response to a Ministry of Economics initiative in 2000, and proceeded with the evolution of the cluster in terms of members, organization, vision and mission. After the Automotive Cluster of Slovenia had been formed, it successfully went through the phases of initial activities and development, so that it has now entered the phase of growth. The main features of this phase are the deepening of cooperation between members, and the increase of the number of members, which results in the extension of the potential knowledge that is to come into effect in the international environment.

Magdalena Bialic-Davendra and Eva Vejmělková (TBU) delivered the background and history of the automotive industry in the Czech Republic, with its great development potential in the Moravian-Silesian Region. This is where the »Moravian-Silesian Automotive Cluster« led by Ladislav Glogar, the cluster manager, was established. By becoming a driving force for the automotive industry in the region and one of the leading clusters in the country, it constitutes an example of a successful cluster, and as such is extensively portrayed by the authors.

As both universities have recently been engaged in projects focused on creative industries, this new issue was raised as the third topic of the book. The chapters tackled this topic through the prism of the »Creative Cities« project in Ljubljana

and »CreaClust«, the cross-border Czech-Slovak project on creative cluster initiative in the Zlin and Trencin regions. This novelty – the shift from traditional supply-chain-based sectors, such as automotive, to creative sectors brought about new challenges in particular in the cluster mapping and facilitation experienced by both partners. Similarly, both chapters struggle with the same complexities, especially in defining the creative industries in terms of the determination by NACE codes and the relevant statistical mapping methodology.

The Slovenian contribution by Nika Murovec, Damjan Kavaš and Aidan Cerar analyses the fundamental notions and definitions of creative clusters and the broader context of cultural and creative industries; Pavel Bednář and Pavel Grebeníček of UTB deliver a fresh experience with the statistical mapping of creative industries in the Zlin Region, describing the methodology applied and the results. It is important to point out that this was the first creative industries mapping exercise ever done in the Czech Republic, helping to attract the attention of policy makers to both this growth sector and to the lack of regionally attainable statistical data that prevents the demonstrability of a creative sector's economic potential.

Although the Triple Helix-based cluster cooperation issue has generated a substantial change of socio-economic patterns in the field of R&D and innovation, HRD, regional development and both the cluster and individual businesses competitiveness, profound research into the »cluster« phenomenon is still waiting for its actors. This book provides evidence that the space for doing so is there.

INDEX

- agglomeration 1, 13, 14, 15, 30, 152, 165
- benchmarking 39, 106
- business cooperation 28, 106
- business environment 13, 40, 136
- business infrastructure 35, 62
- cluster
 - business cluster 2
 - industry cluster 38, 89
 - regional cluster 13, 111, 133
- cluster governance 37
- cluster initiative 17, 21, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 44, 91, 92, 95, 142, 170
- cluster management 22, 26, 37, 100, 114
- cluster manager 16, 18, 114, 168, 169
- cluster organization 16, 21, 32, 33, 36, 40, 91, 92, 93, 125, 145, 169
- cluster policy 2, 26, 27, 28, 34, 35, 37, 38, 43, 44, 47, 48, 168, 169
- cluster-based policy 26, 44, 45
- clustering processes 37
- clusterpreneur 18
- competitive advantage 1, 8, 9, 12, 18, 28, 29, 41, 95, 98
- competitiveness 1, 2, 3, 7, 8, 10, 17, 26, 28, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 57, 61, 62, 66, 69, 71, 72, 78, 87, 89, 98, 99, 104, 109, 115, 132, 133, 134, 135, 168, 170
- concentration 2, 28, 30, 31, 37, 61, 62, 124, 131, 149, 150, 155, 156, 157, 159, 160, 164, 165
- creative city 144
- creative economy 121, 144
- creative industries 3, 121, 123, 125, 126, 127, 128, 129, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 161, 162, 163, 164, 165, 166, 169, 170
 - creative industries segments 151
- creative occupations 130, 147, 149, 150
- creative people 122, 130, 138
- critical mass 18, 20, 131
- cross-cluster policy 27
- cultural heritage 134, 135
- cultural industries 134, 135, 139
- cultural policy 137, 139
- cultural sector 126, 131, 136, 139
- Czech Republic 2, 3, 27, 28, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 47, 48, 85, 87, 88, 89, 91, 93, 94, 95, 98, 102, 103, 111, 114, 115, 147, 148, 152, 157, 161, 163, 165, 168, 169, 170
- demand 56, 66, 88, 98, 107, 115, 132, 137, 152, 162, 163

economy

- centrally planned economy 154
- creative economy 121, 122, 124, 137, 143, 144, 145, 147, 151, 159
- knowledge based economy 1
- local economy 148
- market economy 8, 154, 163
- regional economy 29, 163

employment 13, 14, 30, 31, 39, 85, 86, 88, 89, 93, 109, 121, 129, 133, 138, 140, 143, 149, 155, 163, 165

European Union 2, 8, 40, 47, 48, 82, 85, 93, 134, 135, 169

excellence 20, 21, 44, 47, 76

foreign investment 28, 35

globalization 8, 9, 23, 66

human resources 19, 29, 37, 42, 48, 58, 67, 92, 104, 114, 115

industrial policy 7, 8, 9, 11, 14, 18, 26, 61, 168

industry

- automotive industry 55, 56, 57, 58, 59, 60, 61, 62, 64, 65, 66, 69, 70, 71, 73, 78, 79, 80, 81, 82, 83, 85, 86, 87, 88, 89, 90, 91, 95, 98, 99, 102, 104, 106, 107, 108, 109, 110, 113, 114, 115, 154, 169
- manufacturing industry 88
- processing industry 62

innovation 1, 2, 9, 11, 12, 13, 14, 17, 19, 20, 22, 26, 28, 31, 35, 36, 37, 38, 39, 41, 42, 43, 45, 48, 57, 59, 62, 66, 68, 69, 71, 76, 79, 80, 81, 83, 92, 98, 99, 103, 106, 107, 109, 110, 111, 114, 133, 136, 137, 170

inter-cluster cooperation 46

internationalization 23, 37, 42, 46, 64, 135

lobbying 106, 114

location quotient 30, 89, 94

mapping 3, 14, 28, 33, 37, 38, 39, 40, 91, 92, 93, 94, 95, 103, 107, 112, 114, 136, 147, 148, 149, 150, 151, 165, 169, 170

NACE codes 30, 86, 88, 93, 94, 127, 128, 151, 170

networking 12, 15, 16, 17, 21, 23, 27, 42, 59, 64, 77, 79, 92, 121, 122, 123, 125, 132, 133, 134, 142, 143, 144

- horizontal networking 15

optimization 57, 67, 68, 92, 93, 101

performance 2, 13, 14, 17, 22, 38, 39, 79, 85, 93, 104, 108, 168

peripheral location 150, 159, 160

productivity 13, 17, 30, 34, 68, 73, 86, 87, 93, 137

- labour productivity 8, 87

profitability 59, 60, 66

promotion 26, 27, 29, 38, 39, 41, 42, 43, 68, 70, 76, 81, 82, 92, 106, 131, 132, 134

public support 7, 29, 39

purchasing power 85, 87, 155

research and development 17, 29, 41, 67, 73, 75, 76, 81, 93, 98, 106, 109, 111

self-employed individuals 151, 152, 153, 156, 157, 159, 160, 161, 162, 163, 164, 165

Slovenia 2, 7, 8, 9, 10, 11, 14, 16, 17, 23, 55, 56, 61, 62, 63, 64, 70, 75, 76, 78, 121, 124, 125, 126, 128, 129, 130, 131, 132, 138, 139, 140, 142, 144, 145, 168

spatial distribution 149, 150, 151, 165

specialization 1, 13, 17, 62, 67, 68, 70

Structural Funds 31, 32, 40, 44, 169

subcontractor 34, 93, 103

subsidies 112, 114, 139

supply 59, 66, 86, 98, 99, 103, 107, 115, 132, 133, 139

supply chain 59, 64, 68, 70, 90, 92, 102, 104, 107

technologies

- communication technologies 139, 164
- information technologies 94, 139, 159
- innovative technologies 114
- Powder Injection Moulding technologies 100, 105, 109

trade fairs 92, 104, 106

Triple Helix 33, 46, 170

venture capital 20, 135

Zlín Region 147, 148, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165