

# AUTOMOTIVE CLUSTERING IN EUROPE

## Case Studies on Cluster Management and Development

Edited by Gerrit Stratmann and Gergana Dimitrova  
Hessen Agentur

Preface by Christian Ketels



**HessenAgentur**

HA Hessen Agentur GmbH





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## PREFACE

**Dr. Christian Ketels** is a member of the Harvard Business School faculty at Professor Michael E. Porter's Institute for Strategy and Competitiveness. He holds a PhD (Econ) from the London School of Economics and further degrees from the Kiel Institute for World Economics and Cologne University. He is a Senior Research Fellow at the Stockholm School of Economics and Director of The Competitiveness Institute (TCI), a global network of professionals interested in competitiveness and cluster development. Dr. Ketels has led cluster and competitiveness projects in many parts of the world, has written widely on economic policy issues, and is a frequent speaker on competitiveness and strategy in Europe, North America, and Asia.

Over the last few years, the cluster concept has made a remarkable breakthrough moving from academia and articles into policy and practice. This development has dramatically changed the type of questions asked about clusters. No longer do people worry so much about whether clusters exist (they do, and globalization seems to reinforce rather than reduce their role) and whether they generate economic benefits (they do, but their mere presence is not enough for them to be fully exploited or even persist over time). The focus now is much more on whether steps can be taken to generate or improve these benefits and on how such activities need to be structured. In short, the debate is much more about policy/initiative design and implementation rather than the description of a phenomenon.

This book makes an interesting contribution to this new type of questions. Specifically, it looks at the different organizational structures of cluster initiatives that have developed in a number of European regions to improve the competitiveness of clusters. It then develops categories to compare the differences between these structures. The findings presented are remarkable, although all cluster initiatives deal with the same underlying category of cluster, i.e. automotive, the emerged structures differ remarkably. These differences are particularly obvious along two of the dimensions analyzed, the institutional capacity, i.e. how much of the cluster is connected to the cluster initiative, and the

governance model, i.e. how funding of the cluster initiative is organized. However, the differences are not random they follow a particular pattern. The general trend seems to be that as cluster initiatives become older and more mature they connect to larger parts of the cluster and companies become a more important source of funding. This suggests that cluster initiatives experience an evolutionary process, where the public sector can play an important role in the early phase thus helping to overcome the collective action problem of creating a cluster group and becomes one player among many as the cluster initiative matures. These findings deepen our own work in the Cluster Initiative Greenbook, providing an interesting and rich illustration of this process in a given cluster category.

Where to go from here? The most important question currently being asked in policy circles is about impact. Which organizational model generates the best results, and if there is no one model that is generally superior, what are the dimensions to look at in order to find the right structure for a given regional cluster? The contributions in this study do not try to answer this question directly, and I think rightly so – we first need to map more systematically the alternatives that exist. However, with the categories developed in this book, it becomes possible to move further. What are the measures that are being used (or could be used) to track the performance of these organizations, how do they differ along the evolutionary path of the cluster initiatives that has been described, and what can they tell us about the appropriate organizational structure for effective cluster initiatives? The answers to these questions would have tremendous value for the community of cluster practitioners.

There is also another question that might merit a second look at the experience of the cluster initiatives included in this book and also others that have been less successful. Is the process from a narrow and government-financed to a widely connected and broadly financed cluster initiative a natural process, or are there specific conditions that have allowed the more mature initiatives to move down this path? There is the sense that for many cluster initiatives the challenge of engaging the private sector does not automatically disappear over time. Many of the initiatives that do not succeed in moving beyond the initial stage then wither away without much positive impact on the regional cluster they were designed to serve. For politicians that launch such efforts and for cluster managers that run them this is a serious concern. It might be driven by differences in the organization of cluster initiatives early on, in the activities they pursue, but potentially also in the nature of the regional cluster they serve or other regional characteristics, like the level of trust between companies. There are still many questions unanswered and while the findings from the studies presented here are suggestive of a 'natural process', I think there is sufficient evidence that one needs to be careful not to jump to this happy conclusion too readily.

The cluster concept has seen a remarkable breakthrough, but this widespread adoption in practice is as much a challenge as a success. The concept now needs to show that it can actually deliver on the expectations it has raised, this will only be possible if continuing progress is made on the many complex questions of implementation. This book makes a useful contribution in this direction. My congratulations to the authors and their colleagues in the cluster initiatives covered.

## THE EUROPEAN CLUSTER NETWORK “TRANSNATIONAL CLUSTERING IN THE AUTOMOTIVE SECTOR” – A SUCCESS STORY BASED ON RESULTS

**Dr. Dieter Kreuziger** is Chief Executive Officer of the HA Hessen Agentur GmbH since the economic development agency of the state of Hessen was established in October 2004. One of the main tasks of the Hessen Agency is to promote innovation in Hessen by supporting technology transfer, technology-oriented companies and clusters. Before joining the Hessen Agency Dr. Kreuziger was Chairman of the Executive Board of the Infraserv Verwaltungs-GmbH in Frankfurt.

The automotive industry in Europe is undergoing a period of change marked by increasing global competition, a far-reaching transformation of the supply chain and high innovation dynamics. The resulting innovation and cost pressure is felt particularly hard at the level of small and medium-sized enterprises (SMEs). Over the last years cluster initiatives in the automotive sector have been established across Europe with the aim to support the regional supply industry. Innovation networks between car manufacturers, suppliers, research institutions as well as supporting institutions have proven successful in responding to new market and technological challenges.

Against this background the Hessen Agency initiated the European project “Transnational Clustering in the Automotive Sector” (TCAS) with the aim to facilitate the exchange of experiences and best-practices among leading European automotive clusters in order to strengthen their performance. With a turnover of 13 billion euros and 50,000 employees, the automotive industry is one of the most important industrial sectors in Hessen. The TCAS project was started in October 2005 with financial support from the 6th Framework Programme of the European Union under the umbrella of the Europe INNOVA initiative.

Co-ordinated by the Hessen Agency the TCAS consortium included some of the most advanced and successful European automotive clusters, two of them from Hessen: the Mobility Industry Network



of the Regionalmanagement Nordhessen GmbH (MoWiN.net) and the Automotive Cluster RheinMain-Neckar. International partners were the Hessian partner region Wielkopolska (Poland), as well as automotive networks from the Netherlands (Automotive Technology Centre Netherlands), Upper Normandy (France), West Midlands (UK) as well as Slovenia (Automotive Cluster of Slovenia).

During the lifetime of the project until July 2008 remarkable results were achieved. With the objective to strengthen the co-operation between the participating automotive clusters and to open up business perspectives for cluster enterprises, seven TCAS cluster visits were organized, covering all partner regions. They were attended altogether by roughly 1,000 representatives from enterprises and research institutions, policy-makers and innovation professionals. Standard components of the agenda included matchmaking events, visits to selected enterprises as well as technology-oriented thematic workshops and strategy meetings. The match-making events attracted more than 300 participants from over 15 countries.

Joint projects and co-operations both at the level of the enterprises as well as at the management level of the clusters were initiated. Examples include the establishment of a joint venture in the Rhine-Main region as well as a co-operation agreement between the Madrillet Technology Park, one of France's biggest centres for automotive research and development and the High Tech Automotive Campus in Helmond, Netherlands. Other results include the successful transfer of instruments for co-operation support: The "Co-operation Forum" of MoWiN.net was held for the first time during the cluster visit to Kassel in July 2007 and, meanwhile, the match-making event has become an important part of MoWiN.net's regular activities (see Karsten Busch' description of the development and internationalization of the mobility industry cluster North Hessen). A general report on what has been achieved by the visits from the perspective of a cluster manager is given by Martin Proba of the Automotive Cluster RheinMainNeckar.

With clusters becoming an increasingly important area for the promotion of innovation, there is also a growing interest in "good practices" with respect to the management and development strategies of cluster initiatives. By way of comparing cluster initiatives from the Europe INNOVA cluster networks TCAS and BeLCAR (Bench Learning in Cluster management for the Automotive sector in European Regions) first conclusions regarding different kinds of cluster organizations in the automotive industry could be drawn. Serving as a guideline for cluster practitioners looking for advice on how to design cluster strategies and policies, the results will also allow automotive cluster initiatives to develop benchmarks taking into account the experiences of other regions. The research was led by Gerrit Stratmann and Gergana Dimitrova from the Hessen Agency with strong support from ATC Netherlands and the AC RheinMainNeckar.

From early on TCAS closely co-operated with our partner network BeLCAR, led by the Wirtschaftsförderung Region Stuttgart GmbH, as underlined by this joint publication of results and best-practice examples with three contributions from BeLCAR partners: Stuttgart region, Clusterland Upper Austria and the Pannon Automotive Cluster. Both networks are actively engaged in network-building with other automotive regions and gained a high visibility for their activities. The outstanding networking and results from amongst the Europe INNOVA networks were acknowledged by the European Commission. TCAS and BeLCAR were awarded "Network of the Year" in Valencia in November 2006.

With the aim to create a trans-national co-operation platform between automotive clusters and regions, TCAS and BeLCAR signed a memorandum of understanding with three other European automotive networks in 2006, bringing together 45 automotive regions in an European Automotive Strategy Network (EASN). EASN offers a Pan-European platform to support a more competitive automotive industry. The development of EASN has been co-ordinated by Kishor Pala from the Chamber of Commerce and Industry Birmingham and is supported by many regions. The joint contribution together with Harm Weken highlights the factors behind the establishment of the EASN and the expected future benefits for automotive regions.

Another important objective of the TCAS network was the transfer of know-how on building-up and managing clusters with regions from the new member states of the European Union. Cluster development in Wielkopolska benefited from the advice delivered through the exchange of experiences and TCAS expert missions. An action plan for cluster formation (see the contribution by Bartosz Warniello, Anna Łuszczewska and Dušan Bušen) was drawn up by the Wielkopolska Agency for Enterprise Development with international support while the process of cluster-building gained a self-sustaining momentum.

Other examples of successful cluster strategies in the new member states include Slovenia and Hungary. Slovenia has gained a long-standing experience in clustering. A team of authors led by Dušan Bušen, Manager of the ACS Slovenia, gives an overview on the ACS Slovenia's strategic agenda for more efficient joint R&D processes with the automotive supply industry. Zoltán Kabács, Manager of the Pannon Automotive Cluster, describes the cluster with a special focus on the Automotive Benchmarking Club, a method enabling the comparison of corporate performance and promoting inter-company learning.

Clusters can be powerful tools in terms of intensifying the technology transfer between research institutions and companies. Two other contributions in this book focus on how clusters can contribute to a positive technological development: Chantal Hurard from IRSEEM, the Research Institute for Embedded Electronic Systems in Rouen shows how the French competitiveness cluster MOV'EO is aiming at technological leadership through cluster-based co-operative R&D projects between major industrial players and leading research institutions around four main strategic activities.

Harm Weken and Mathijs Vaessen from FIER Automotive, Helmond show how the further development of the automotive industry in the Netherlands is based on three strong pillars: the Automotive Technology Centre as a strong automotive network, a public-private research programme financing innovation and a high-tech automotive campus close to Eindhoven. The interplay between these pillars supports the international technology and business position of the Dutch automotive industry.

Upper Austria has been a forerunner in embracing a cluster approach towards regional economic development in the late 1990s. Today Upper Austria is running seven clusters and sets an example for the positive effects of a cluster strategy on the targeted industrial sectors. Andreas Hubinger describes the activities of the Clusterland Oberösterreich GmbH with a special focus on the experiences of the Automotive Cluster Upper Austria, which is today Austria's biggest automotive network with more than 260 partners.

As described by Reha Tözün the Stuttgart region is home to a world-class automotive cluster based on Daimler and Porsche, a group of competitive suppliers and research establishments. Cluster activities are managed by the Wirtschaftsförderung Region Stuttgart and are continually developed – as shown by the CARS initiative, bundling automotive relevant activities, and the new Cluster South-West Initiative, pushing up activities at Baden-Württemberg level.

I would like to thank all our partners for the excellent co-operation during the project. I hope that the best-practise examples presented here will be of interest to all readers and that this publication will make a valuable contribution to the ongoing international debate on how best to organize clustering in the automotive sector.



## AUTOMOTIVE CLUSTERING IN EUROPE – A COMPARATIVE REVIEW OF KEY ISSUES IN CLUSTER MANAGEMENT AND DEVELOPMENT

**Dr. Gerrit Stratmann** co-ordinates the TechnologyTransferNetwork Hessen at the Hessen Agentur which promotes industry-science co-operations. He is also co-ordinator of the transnational automotive cluster network TCAS. As consultant with agiplan AG he supported the build-up of automotive networks in Germany and Austria. He holds a Ph.D. in political science from the University of Leipzig and a diploma in public administration from the University of Constance, the IEP Grenoble and the London School of Economics.

**Gergana Dimitrova** is Research Associate at Hessen Agentur, where she has been at the Department of Economic Research since 2002. Being broadly experienced in the field of economic sector analysis, she has conducted several industrial studies including the automotive sector. Her fields of expertise include short and long-term economic forecasting as well as regional and cluster analysis. She holds a diploma in economics from the University of National and World Economy in Sofia.

### I. Introduction

This report gives an overview on different cluster structures and cluster management and development strategies in the European automotive industry by comparing automotive cluster initiatives from the Europe INNOVA cluster networks TCAS (Transnational Clustering in the Automotive Sector) and BeLCAR (Bench Learning in Cluster management for the Automotive sector in European Regions).

The European best-practice regions from the TCAS and BeLCAR cluster networks share a strong automotive cluster while there are significant differences with respect to the origins of the respective cluster initiatives, their governance structure, their strategic orientation and development dynamics as well as with respect to their institutional set-up and capacity.

While there is variation in terms of strategy and institutional set-up between the different cluster initiatives, they are all confronted with the same challenges with respect to the strategic development and dynamic adaptation of the cluster organizations to a changing environment, resource mobilization, the development of services for cluster enterprises and the active participation of their stakeholders.

Our aim is to find out which strategies and practices are applied with respect to these challenges and to establish more general propositions and "good practices" with respect to the management, business and development strategies of cluster initiatives in the automotive sector.

For this purpose comparisons between the different cluster initiatives are made at three levels:

- institutional capacity and autonomy of the cluster organization (representativeness, resource mobilization, financial autonomy)
- cluster governance (key drivers, self-financing rates)
- strategic orientation (mission, focus, activities)

On the basis of the results from the comparison an attempt is made to develop a cluster typology by examining the key traits of the cluster initiatives from our sample. The typology will serve as a guideline for cluster practitioners looking for advice on how to adapt cluster strategies and policies to different conditions against the background of the relative performance and specificity of other initiatives.

The findings will allow automotive regions with cluster policies and initiatives

- to put their experiences in a comparable framework and to learn from the experiences of the other clusters
- to measure their performance against good practices of other regions (benchmarking)
- to establish what level of resources is needed to run a cluster initiative with a standard portfolio of activities
- to benchmark their general development and management strategies

#### *Key concepts*

For the purpose of the comparison an analytical distinction is made between the industrial cluster<sup>1</sup>, a geographically concentrated group of companies and institutions in an industrial district and the cluster initiatives (CIs). The latter are defined as a set of institutions in which firms, public and private institutions and research bodies interact and organize their collaboration with the aim to upgrade the common interest, usually with a strong emphasis on technology, innovation, competitiveness and regional development issues.

It is important to note that a "cluster is a system existing independently of any intervention, project or organization."<sup>2</sup> A CI "is an organized effort aiming at fostering the development of the cluster either by strengthening the potential of cluster actors or by shaping the relationships between them... Cluster development policies are deliberate government actions aiming to strengthen clusters."<sup>3</sup>

<sup>1</sup> The terminology proposed here refers to a definition proposed by the OECD according to which "clusters can be characterized as being networks of production of strongly interdependent firms (including specialized suppliers), knowledge producing agents (universities, research institutes, engineering companies), bridging institutions (brokers, consultants) and customers, linked to each other in a value adding production chain."

<sup>2</sup> Christian Ketels, Göran Lindqvist and Örjan Sölvell: "CIs in Developing and Transition Economies", Stockholm, 2006, p. 9.

<sup>3</sup> The definitions introduced here roughly follow the "Cluster Initiatives in Developing and Transition Economies" report by Christian Ketels, Göran Lindqvist and Örjan Sölvell published by the Center for Strategy and Competitiveness, Stockholm 2006.

The CIs co-operating within TCAS and BeLCAR represent a wide variety of organizational forms. These forms stretch from a project structure, merging resources of various organizations or administering public funds to established distinct legal entities in the form of corporations and associations. Some of the initiatives from TCAS and BeLCAR are divisions of regional governing authorities and development agencies.

#### *Participating cluster initiatives*

The survey is based on an in-depth analysis<sup>4</sup> of the cluster initiatives from TCAS and BeLCAR supplemented by structured interviews of the cluster managers and a review of existing documentation.<sup>5</sup> The following eight automotive cluster initiative from TCAS and BeLCAR are analysed on a one-to-one basis serving as a sufficiently broad and relatively homogeneous basis for comparison:

1. Clusterland Upper Austria/Automotive Cluster (AC Upper Austria)
2. Accelerate, Birmingham Chamber of Commerce and Industry (Accelerate)
3. Automotive Cluster RheinMainNeckar (AC RheinMainNeckar)
4. Automotive Cluster of Slovenia (ACS Slovenia)
5. Automotive Technology Centre (ATC Netherlands)
6. MoWiN.net e.V., Mobility Network of the Regionalmanagement Nordhessen GmbH (MoWiN.net)
7. Normandy Motor Valley/Mov'eo (Mov'eo)
8. Wirtschaftsförderung Region Stuttgart GmbH (WRS)

#### *Methodological remarks*

All examples from our sample are taken from the automotive sector which displays some common organizational, technical and market features across Europe thus serving as a basis for the comparability of cluster dynamics. While this means that the findings presented here are very specific and of a high relevance to automotive regions, it also implies that inferences drawn from the analysis of these experiences rest biased towards favouring the cluster dynamics and specificities prevailing in the automotive sector.<sup>6</sup> Consequently, a transposition of the findings and lessons to other industries will require further modifications.

## **II. Industrial clusters and profiles of the participating cluster initiatives**

In the following a short description of the industrial clusters of the automotive regions as well as of the respective CIs from our sample will be given. All statistical data referred to in this chapter is informed by a self-declaration of the respective regions.<sup>7</sup> The introduction to the general conditions of the development of the industry and the CIs in the different regions will serve as a starting point for the comparison in the next chapter.

Even if the dynamics of the underlying industrial clusters and the dynamics of the respective CIs have to be kept apart analytically, they are strongly related to each other. The dynamics of the regional automotive cluster has an impact on the strategic orientation of any regional CI, its budget, its membership structure et cetera. Different conditions in the industrial sectors will shape different CIs over time.<sup>8</sup>

### Slovenia

Employment of the automotive industry in Slovenia is estimated at around 24,500 people distributed over some 117 automotive businesses including the OEM Revoz. The small to medium-sized component and system suppliers are the core of the Slovenian automotive industry. Six per cent of the Slovenian GDP as well as 18 per cent of the exports of Slovenia are generated by the automotive industry. As the labour force cost in Slovenia is – compared to other Central and Eastern European countries like Czech Republic, Hungary, Poland and Slovakia – relatively high, the competitiveness of the Slovenian automotive industry depends, like in the West-European countries, on innovation, high productivity and quality of the labour force as well as high investments in new technologies.

In order to strengthen the Slovenian economy the government supported the establishment of the Automotive Cluster of Slovenia as a priority pilot project for the development of clusters and co-operation. In November 2001 the Automotive Cluster of Slovenia (ACS) was formally established in the legal form of a business interest association.

#### Key indicators

Regional automotive cluster:	Slovenia
Employees	24,500
Companies	117
SMEs ratio	62 %
Cluster initiative:	ACS
Established in	2001
Membership fee	Yes
Member companies 2007	59
SMEs ratio	58 %

In 2007 the Automotive Cluster of Slovenia has had 59 members, from those 53 industrial companies (of which one OEM) and six R&D institutions (of which five faculties). Currently, membership fees are covering around 40 per cent of fixed costs. Today ACS has become the central co-ordination platform between manufacturers, suppliers, research organizations and the government. It is the only automotive CI in Slovenia and acts on a nationwide level. It is widely acknowledged that

<sup>4</sup> The analysis of each cluster followed a methodological guideline which was developed to ensure comparability of the results. The analysis was carried out by the respective cluster-managers. Documentation of the results is available in form of individual cluster reports.

<sup>5</sup> We would like to thank Lennart Weinhold for compiling the data for comparison and for conducting additional interviews during his internship at the office of the AC RheinMainNeckar and the Chamber of Commerce Darmstadt in 2007.

<sup>6</sup> Clusters do exhibit some sector-specific characteristics as well as unique features which vary across different industries.

<sup>7</sup> Differences in the data may be partly explained by differences in the systems of data generation out of control of the project, partly they can be traced back to the lack of standard definitions in regard to the qualification of enterprises as automotive suppliers or the required minimum size of an enterprise to be counted. Usually, a company qualifies as an automotive supplier if a certain part of its turnover is generated with products for the automotive industry. The European Association of Automotive Suppliers (CLEPA) demands from its members that they belong to the automotive trade branch in the sense of the European classification of activities (NACE 343) or to subbranches of the automotive supply industry for whom automobile parts, systems, modules, engineering or design makes up a significant part of their total turnover ([www.clepa.be](http://www.clepa.be)).

<sup>8</sup> Cf. Örjan Solvell, Göran Lindquist, Christian Ketels "The Cluster Initiative Greenbook" (Ivory Tower, 2003), p. 56-57.

Slovenia acts as “prime candidate from which to learn about the success drivers of CIs in transition economies.”<sup>9</sup>

### The Netherlands

The automotive sector is one of the main industries in the Netherlands. It employs about 41,000 people spread over 450 OEMs, suppliers and other automotive companies. A focus of the Dutch OEMs is the assembly of trucks, busses and coaches (DAF, Scania, VDL Group). Besides passenger car producer NedCar (Mitsubishi Colt, Mitsubishi Outlander) also niche sports cars producers like Spyker, Carver and Donkervoort are typical representatives of the Dutch OEM automotive industry. The backbone of the automotive supply industry is formed by specialized system suppliers, raw material suppliers as well as sub-assembly companies. In general, the supply industry is highly internationalized, with the major part of purchases coming from abroad, with an extremely high ex-

port quota (approximately 90 per cent) and with international partnerships for development. About 90 per cent of the Dutch automotive companies are small and medium-sized.

The Automotive Technology Centre Netherlands (ATC) started as a foundation in 2002. ATC is an initiative of the Federation Holland Automotive. In this federation government, industry associations, trade associations and major companies jointly define industrial policy. Its mission is to strengthen the international technology and business position of the Dutch automotive sector by raising technological standards and increasing innovative capacity.

#### Key indicators

Regional automotive cluster:	The Netherlands
Employees in the automotive sector	41,000
Total automotive companies	450
SMEs ratio	90 %
Cluster initiative:	ATC Netherlands
Established in	2002
Membership fee	Yes
Member companies 2007	125
SMEs ratio	75 %

ity. The focus of ATC is on technology development in relevant fields as on linking industry needs with the programming in the education and formation system.

With 125 members featuring a total employment of 22,000 in 2008 it represents 28 per cent of all Dutch automotive companies and some 50 per cent of all employment in the Dutch automotive industry. ATC acts on a nationwide level and has several OEMs (DAF Trucks, Nedcar et cetera) as well as large system suppliers like NXP, Siemens-VDO, VDT-Bosch, Corus et cetera among its members. During the first years (2002 to 2004) approximately 60 per cent of the budget came from income from the member companies (combination of large sponsorships and fees of regular members) including in-kind contributions from institutes and development authorities. To our knowledge the high share of private funds during the start-up phase of the CI is unique in Europe. In 2007, however, ATC Netherlands still had to rely on governmental funds instead of being financially independent while the budget of the initiative had increased fourfold up to 1.2 million euros.

### West Midlands, UK

The West Midlands' automotive sector accounts for 35 per cent of UK component manufacture, 26 per cent of all manufacturing employment, around 80,000 jobs, and contributes 5.2 per cent of the Gross Domestic Product (GDP) in the region. More than 50 per cent of the cars produced in the UK are made in the West Midlands.



There are estimated to be at least 1,200 dedicated automotive suppliers in the region, including at least 70 within the first supply tier and well-developed lower supply tiers. There is also a significant R&D presence that includes several independent and OEM-owned facilities. The region has ten vehicle manufacturers (OEM).

Accelerate is a programme that supports the automotive supply chain across the West Midlands by securing public funding and disseminating it to eligible companies so that they can implement improvements within their business and enhance their competitiveness. Accelerate was established in 1996 and is run by the Birmingham Chamber of Commerce and Industry. It has grown as a public funded programme over the past twelve years which has supported some 1,500 companies. The partnership's primary aim is to identify, nurture and support automotive component suppliers in the West Midlands to succeed in the global automotive market place. There is currently no prescribed membership of Accelerate and affiliation is not defined in any formal way. Accelerate is driven by a partnership (board), which includes representatives from the local industry (all tiers), business support and training organizations. Facing a cutback in programme funding, Accelerate has planned to evolve in the direction of a more membership-oriented cluster institution.

#### Key indicators

Regional automotive cluster:	West Midlands
Employees in the automotive sector	80,000
Total automotive companies	1,200
SMEs ratio	n/a
Cluster initiative:	Accelerate
Established in	1996
Membership fee	No
Member companies 2007	-
SMEs ratio	-

#### Normandy and Île de France

The regions Upper Normandy, Lower Normandy and Ile de France build a large district with a very strong automotive industry. Within the three regions, the motor industry represents over 200,000 jobs within approximately 700 establishments. The two French manufacturers Renault and PSA Peugeot Citroën are firmly established within these regions, employing over 80,000 people. 70 per cent of the French automotive R&D are realized within this automotive cluster.

Prehistory: The Normandy Motor Valley Cluster was created in 2005 to further strengthen the industrial base of the Upper Normandy region. The region's principal industrial employer is the automotive sector with a total of 30,000 employees spread over around 120 businesses. The main characteristic of the sector is the presence of Renault which employs directly 76 per cent of the automotive industry workforce. Governmental bodies (Region, Regional Industry Ministry Agency,

#### Key indicators

Regional automotive cluster:	Normandy, Île de France
Employees in the automotive sector	200,000
Total automotive companies	700
SMEs ratio	27 %
Cluster initiative:	Mov'eo
Established in	2006
	(Normandy Motor Valley in 2005)
Membership fee	Yes
Member companies 2008	170
SMEs ratio	26 %

<sup>9</sup> *Cluster Initiatives in a Transition Economy: the Case of Slovenia, in: The Cluster Initiative Greenbook (2003), p. 71.*

local authorities) as well as Renault were the main driving forces behind the establishment of the cluster in which R&D laboratories and higher education institutions took a very active part. Normandy Motor Valley aimed at technological leadership in the field of propulsion systems technologies. Normandy Motor Valley was selected as one of the 67 clusters to receive governmental support as a national competitiveness cluster.

Today, as a result of a subsequent merger with the Paris-based cluster Vestapolis, devoted to transport and mobility, the larger and more prominent competitiveness cluster Mov'eo was created in January 2006. Located in three regions (Upper and Lower Normandy, Île de France) the new cluster incorporates major test and research centres. Its main strategic aim is to stimulate research and joint development in the fields of energy and environment, mobility and services, road safety and mechatronics.

In 2007 about 170 companies and organizations were regrouped within the cluster. With only 45 of them being SMEs, the cluster is dominated by large companies, research labs and regional authorities. All members have to pay a membership fee which is differentiated according to the type and size of the member. The cluster is governed by a set of boards, committees and work groups.

Mov'eo has committed itself to 50 co-operative research projects representing 150 million euros of funding for the next six years. Another 100 million euros are expected for funding big equipments. The maximum rate awarded by the French government will be 30 per cent for big companies and 45 per cent for SMEs with a complementary funding expected from regional bodies and/or the participating companies.

#### North Hessen, Germany

The mobility industry (including the automotive industry, rail technology and transport/logistics) is an important strength in North Hessen – more than 67,000 employees or 21 per cent of all employees in the region work in this sector. The automotive industry as a part of the mobility industry employs approximately 30,000 people in the region and is dominated by two OEMs. Volkswagen operates in Baunatal a components plant, a research centre for intelligent components as well as its largest logistic centre for original parts; the Daimler commercial vehicle segment with its powertrain production is established in Kassel.

#### Key indicators

Regional automotive cluster:	North Hessen
Employees in the automotive sector	30,000
Total automotive companies	450
SMEs ratio	80 %
Cluster initiative:	MoWiN.net
Established in	2003
Membership fee	Yes
Member companies 2007	97
SMEs ratio	64 %

MoWiN.net e.V. is the cluster organization for the regional mobility industry in North Hessen established by guidance of the regional development agency "Regionalmanagement Nordhessen". Established in 2003 with the aim to support science, research and enterprise co-operations, its membership rates have risen significantly from 28 founding members to 97 members in 2007. To become affiliated to the cluster, an applicant enterprise has to achieve more than 50 per cent of its turnover in the mobility industry.

MoWiN.net has an executive board of eight members and a "Roundtable of the Mobility Industry" acting as an advisory board. The build-up of the

cluster and its activities have been co-financed by European Objective 2 funds and by the state of Hessen. The annual budget of about 0.22 million euros including personnel costs for cluster management is financed to an extent of 65 per cent by public funds including European project funding. Running expenses are covered only to a lesser extent by membership fees and sponsoring.

#### Region Rhine-Main-Neckar, Germany

The Rhine-Main-Neckar area covers parts of four German states: Hessen, Rhineland-Palatinate, Baden-Wuerttemberg and Bavaria with South Hessen as its core. It is estimated that in South Hessen alone 50,000 people are employed in the automotive industry, the number for the wider area Rhine-Main-Neckar is 95,000 spread over 1,460 businesses. The regional automotive cluster is marked by the presence of Adam Opel (GM). The main production plant as well as one of the worldwide largest GM's R&D centres is located in Rüsselsheim. Also some of the leading automotive suppliers like Continental, Bosch, Pirelli and Goodyear Dunlop operate manufacturing and R&D businesses in the region. However, 80 per cent of the local suppliers are still small and medium-sized companies. The whole value chain of the automotive industry is represented in the region.

About 30 per cent of all regional automotive companies are affiliated to the Automotive Cluster RheinMainNeckar. In 2007 about 450 companies have participated in the cluster activities (informal members), about 210 of these are formal members. Originally founded under the name Automotive Cluster Südhessen (South Hessen) in September 2003, the Automotive Cluster RheinMainNeckar was initiated by the Chamber of Industry and Commerce (IHK) Darmstadt, the county administration of Groß-Gerau and Bertrandt AG (private company). The membership is focused on suppliers and is currently free of charge. Being aware of the restrictions this imposes on the strategic development of the cluster and its service portfolio, the cluster management will evaluate the impact of the cluster five years after its inception and will decide on future options. Activities of the cluster mainly focus on the promotion of networking. The management of the cluster is being supported by staff and budgetary assignments of the chamber and, to a lesser extent, other partners of the steering committee. The budget for running expenses is relatively small.

#### Stuttgart, Germany

The automotive industry in the region of Stuttgart is dominated by the OEMs Daimler and Porsche and the system supplier Robert Bosch. The regional universities and other educational institutes like the University of Stuttgart, Esslingen University of Applied Sciences and research establishments like the Fraunhofer and Steinbeis Institutes, are also crucial members of the industrial cluster. However, the real strength of Stuttgart lies in the dense network of SMEs (84 per

#### Key indicators

Regional automotive cluster:	Rhine-Main-Neckar
Employees in the automotive sector	95,000
Total automotive companies	1,460
SMEs ratio	80 %
Cluster initiative:	AC RheinMainNeckar
Established in	2003
Membership fee	No
Member companies 2007	450
SMEs ratio	90 %

#### Key indicators

Regional automotive cluster:	The Region of Stuttgart
Employees in the automotive sector	134,700
Total automotive companies	222
SMEs ratio	84 %
Cluster initiative:	Wirtschaftsregion Stuttgart
Established in	1995
Membership fee	No
Member companies 2008	-
SMEs ratio	-

cent of the automotive companies) and mid to large-sized suppliers that constitute the backbone of the industrial structure. Automotive employment in the region is estimated at 134,700 spread over 222 automotive companies.

The Wirtschaftsregion Stuttgart GmbH (WRS) is the economic promotion agency of the region of Stuttgart. The activities organized and supported by WRS serve to maintain the leading position of Stuttgart among German and European regions, and they are open to all actors in the region, including all related industries, research and academic institutions. WRS has a multitude of initiatives in the automotive field that serve for these ends. More than 600 companies (90 per cent SMEs), 40 research institutions and other organizations participate in the activities of the CI. The cluster management organization WRS GmbH, was established in 1995 by public and private bodies in order to support the competitiveness of the region. There is no formal membership scheme or fees for the cluster support activities.

#### Key indicators

Regional automotive cluster:	Upper Austria
Employees in the automotive sector	100,000
Total automotive companies	340
SMEs ratio	80 %
Cluster initiative:	Clusterland Upper Austria/ Automotive Cluster
Established in	1998
Membership fee	Yes
Member companies 2007	230
SMEs ratio	68 %

#### Upper Austria

Total employment in the automotive industry in Upper Austria is estimated in the range of 100,000. Largest employers are Voest Alpine Stahl, MIBA, BMW Motoren Steyr and MAN Steyr. The total number of automotive companies in Upper Austria is estimated at 340 and the majority of them (80 per cent) are small and medium-sized enterprises. Distinctive is the export quota of the regional automotive industry: 80 per cent of the total turnover comes from foreign sales.

Following the example of the ACstyria in 1996, the Clusterland Upper Austria/Automotive Cluster (AC Upper Austria) started operations in July 1998 as a service-oriented, non-profit organization with a wide shareholder structure that comprises all important

public institutions. Successful focusing of the CI on the current needs of the regional industry was secured through the support of a cluster advisory board, an expert committee with members of the regional industry. Since 1998, Upper Austria has vigorously pursued a cluster-oriented economic and technology policy on the basis of the "Upper Austria 2000+ Strategic Programme". Still operative today it figures among Europe's most experienced automotive CIs. More than 230 enterprises, representing two-thirds of all automotive companies in the region, were partners of the AC Upper Austria in 2007. Approximately 70 per cent of the cluster budget is financed from own resources and only 30 per cent are public funding.

### III. Comparing European cluster initiatives: dimensions of a cluster typology

#### 3.1. Institutional capacity

The concept of institutional capacity refers to a set of characteristics related to organizations which are key to their performance and effectiveness. Institutional capacity can be defined and analysed in respect of the capability of an organization to define mid-term and long-term goals and to be effective in achieving these goals and in solving collective problems of their members. To attain any goals

set, any organization has to command over the necessary resources in terms of manpower, financial resources, and economic and political clout. It also should be able to represent the community on which behalf it acts. Only a representative and resourceful CI can be expected to reach a certain momentum and to make an effective contribution to the strengthening of the regional supply chain.

The concept of institutional capacity is closely linked to the concept of institutional autonomy. The latter refers to the decision-making process of organizations and relates it to interference from third parties or dominant actors. An organization enjoying a high degree of institutional autonomy is relatively independent in its decision-making from external interests. Often institutional autonomy is conditioned by the availability of own financial resources. Cluster organizations financing a relatively large part of their budget from own resources such as membership fees are expected to do relatively better in this respect.

The institutional capacity and autonomy of a CI are also related to its maturity and development stage – it is expected that an organization can gain in institutional capacity throughout its life cycle. Most of the membership-based initiatives from our sample have been initiated recently. Taking 2007 as a base year, the majority of them are between three and seven years old and are herewith in their growth stage<sup>10</sup>. Thus, we can expect most of them to show a certain level of institutional capacity but also a considerable potential for future development.

An attempt to operationalize institutional capacity in order to analyse existing CIs will have to cover the following dimensions of effectiveness and resourcefulness:<sup>11</sup>

- A CI has to unite a critical mass of enterprises and other relevant institutions based on the underlying industrial cluster. At the same time a CI has to be a representative organization in relation to the size of the cluster. A CI must involve a significant proportion of the region's suppliers and command over the support of leading companies to represent successfully the collective interests of the members as a group. The share of enterprises which engage in a membership has to be relatively high for the organization to gain economic and political clout. Critical mass can be defined both in terms of the absolute number of members as well as in terms of the engagement of a set of leading enterprises.
- A CI has to represent the major part of the regional supply chain in its membership to fully exploit the benefits of clustering. It has to reach the SMEs and link them with the car manufacturers, the tier one suppliers and the research base. It is important to achieve integration of all

<sup>10</sup> *In a temporal perspective the development stages of a cluster initiative can be differentiated into an initiation stage, a growth stage, a mature stage and a redesign or decline stage. The growth stage of a CI may last up to 3 or 5 years before a cluster is firmly established and has developed a broad support of the regional industry. In this stage decision-making and management is often provided by a public-private partnership. In a third stage of the network life cycle an attempt can be made to transform the cluster initiative into a self-supported organization with network co-ordination being transferred from public bodies to the partners of the network themselves. See Bundesministerium für Bildung und Forschung (BMBF) (ed.): "Kompetenz mobilisieren – Ein Leitfaden für Initiatoren und Manager von Kompetenznetzen", Bonn, Berlin 2004, pp.42-44.*

<sup>11</sup> *Cf. European Commission/agiplan: "Cluster building and networking. Analysis of transnational technology networking between existing clusters of SMEs and one or more technology poles." Final report by agiplan for the European Commission, Directorate General Enterprise, Mülheim/Ruhr, 1999.*

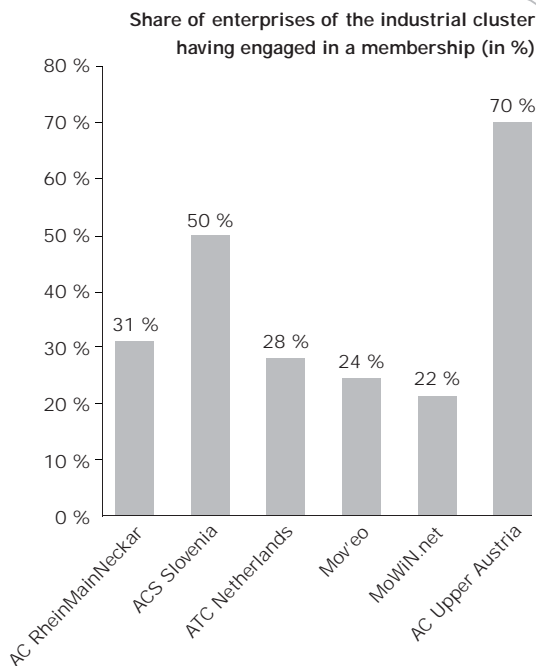
groups of producers, service industries and technology poles along the existing supply chain to inspire a flow of communication and know-how.

- A CI has to offer the industry a central platform for the co-ordination of activities. There should be no competing initiatives or institutions in the same field of activities – and if there are, they should have clearly delimited competencies. A CI stays weak in institutional terms if there are competing or rivaling organizations, or if only a minority fraction of the industrial cluster is organized within the CI. Ideally, a CI functions as an umbrella organization connecting the existing initiatives. Another element in lobbying power is access to political and governmental decision-makers. The better a CI is wired to the regional political fabric, the greater its influence and the greater the incentives for other institutions to join.
- A CI has to command over the necessary financial and personnel resources (budget and sources of income; staff, manpower) to achieve its objectives. A reliable and secure resource base ensures a high degree of institutional autonomy and a sustainable performance.

#### *Membership share and representativeness*

For several reasons it turned out difficult to establish the share of enterprises that have engaged in a membership in the different CIs. First of all, in some cases the geographical scope of the relevant industrial cluster does not match administrative districts and, therefore, finds no correspondence in the official statistics. Also, the numbers of automotive suppliers in the industrial clusters had to be

estimated due to the fact that many suppliers statistically belong to other than the automotive trade branch according to the terms of the European classification of activities (NACE 34).



The Upper Austrian Automotive Cluster counted 230 partner companies in 2007, while the total automotive sector is estimated to comprise some 340 companies. With a membership share close to 70 per cent the AC Upper Austria holds a unique position among European clusters. The membership share can be explained by the long tradition of the cluster, established in 1998 and its high acceptance and efficient services with industry and government.

The Automotive Cluster of Slovenia acts on a nationwide level, it is the only automotive CI in the country and, in 2007, it had 59 members compared to an automotive sector of 117 businesses. The high membership share of almost 50 per cent reflects both, the excellent standing of the CI both with government and industry, as well as the relatively small size of the automotive sector compared to other regions.

With some 125 members the ATC Netherlands represents roughly 28 per cent of all Dutch automotive companies (+450) and some 50 per cent of all employment in the Dutch automotive industry. The AC

RheinMainNeckar is an example of a CI operating in a region with a strong automotive sector: there are 1,460 automotive companies in the region of which 450 (31 per cent) are affiliated to the cluster.

The most recently established cluster in the sample is Mov'eo: it was established in 2007. However, Mov'eo resulted from a merger of the already existent clusters Normandy Motor Valley and Vestapolis, which already had an established base of members. This could explain the relatively high membership share of Mov'eo (27 per cent) despite the young age of the cluster.

The picture shows an assumed link between the maturity of a CI and its representativeness (measured by the membership share). The more mature a cluster, the higher the membership share. However, the popularity of a CI with companies from the industrial cluster is affected by many other factors than age.

The establishment of clusters based on membership is a relatively new trend in the European automotive sector. Not all initiatives from our sample are based on a formal membership scheme. Although the Accelerate partnership and the WRS Stuttgart are supporting the regional supply chain with their activities, they shall be described as non-membership CI managed by public sector organizations. The function of the public-owned WRS Stuttgart lies in cluster facilitation and economic promotion for the region of Stuttgart. As mentioned before, participation in its activities is not based on a membership scheme.

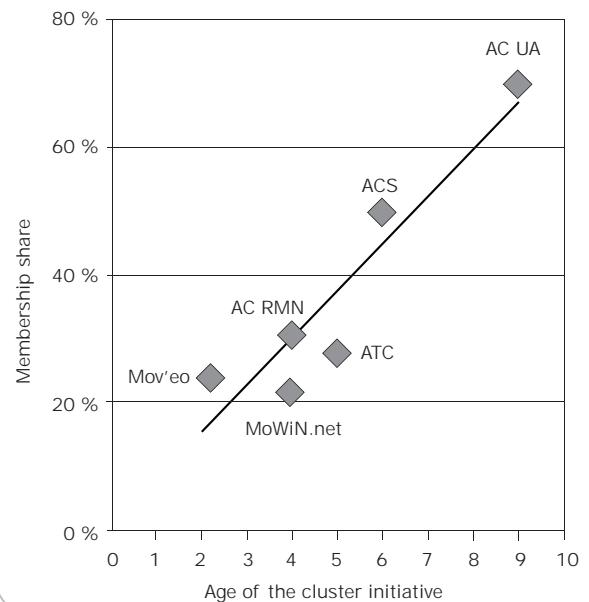
The Accelerate partnership is a managed programme that supports the automotive supply chain across the West Midlands by disseminating public funding to eligible companies. Though it is very close to the 1,500 enterprises it has assisted since 1996, it is not a membership-based organization and differs from what is generally defined as a CI.

One has to conclude that some of the initiatives assisting the automotive supply chain in cluster regions can rather be defined as public-funded economic promotion or assistance programmes. Though some interaction between firms, public and private institutions, and research bodies is inspired and consultation bodies exist, these initiatives are not governed by the enterprises but by public sector organizations.

#### *Resource base (manpower)*

The availability of full-time, professional staff, respectively consultants managing the CI is a basic requirement for any CI. Almost all CIs have a cluster co-ordinator and own personnel to run day-to-day operations.

**Cluster maturity and representativeness**

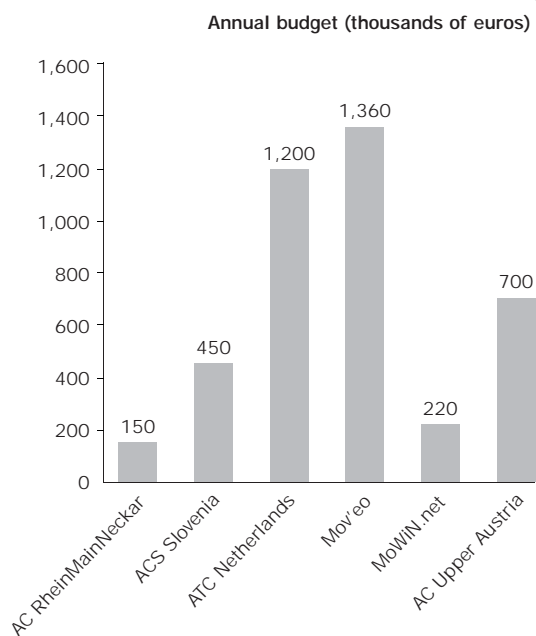


With an exception made for organizations managing public assistance programmes such as Accelerate West Midlands or economic promotion agencies such as WRS Stuttgart, most membership-based clusters from TCAS and BeLCAR (AC RheinMainNeckar, ACS Slovenia, ATC Netherlands, MoWiN.net) have an average staff size of two to three employees for the basic management of the cluster (including consultants and full-time equivalents for staff assignments from supporting institutions). Clusters with a more differentiated activity programme, a larger financial resource base or being entrusted with additional tasks such as managing research co-operations (AC Upper Austria, Mov'eo) can draw upon a comparatively larger staff base (five to ten staff members). To conclude from the initiatives analysed, full-time staff of approximately two to three employees is sufficient to run a basic set of activities.

#### *Financial resource base (budget)*

ClIs can only engage companies in activities if they command over the necessary financial resources. The size of the budgets of the different ClIs varies widely given that some initiatives are managing own financial-support programmes for SMEs (Accelerate managed budget of 9.5 million euros per annum) or are managing public funds for regional economic promotion (WRS Stuttgart). Further distortions may arise from the fact that some initiatives do not employ own personnel but rely on in-kind contributions and staff assignments from third parties (AC RheinMainNeckar).

Still, a comparison which puts the focus on the available budget for regular (networking) activities and takes equivalents for staff assignments into account, reveals similarities between the different clusters.



Mov'eo disposes of a relatively large budget of 1.36 million euros per annum and employs ten people. Mov'eo's main task is to manage research co-operations. The budget is covered by membership fees and regional and national subsidies. Next in terms of budget size is ATC Netherlands with a budget of 1.2 million euros.

With an annual budget of 150,000 euros the AC RheinMainNeckar has the smallest budget of all examined clusters. Though being a membership-based organization, the AC RheinMainNeckar membership and participation in events is free of charge. A big share of the annual budget includes the equivalent value of staff assignments and contributions in kind from sponsoring institutions (for example IHK Darmstadt). In the case of MoWiN.net also staff assignments from the Regionalmanagement Nordhessen have to be added to the activity budget, adding up to a total value of 220,000 euros.

One can conclude that a ClI can provide a basic set of services with a comparatively low budget. Typically the sources of revenue for clusters are membership fees, service charges, national and



EU project funds as well as national and regional subsidies including funding from the EU structural funds. Membership fees are usually differentiated according to the type of organization and the number of employees of the respective member.

### 3.2 Cluster governance

The most fundamental differences between the CIs concern cluster governance, that is who are the main actors driving the initiative, who is paying for the budget and which partners are the most influential.

#### *Cluster dynamics and the PPP model*

In many cases the government is strongly involved in the early stages of setting up a CI as part of a concerted government effort to improve the competitiveness of a regionally-based industrial cluster.<sup>12</sup> Public sector organizations such as regional development agencies or semi-public intermediaries with regional and innovation competencies (such as chambers of commerce of industry) often take the initiative and give financial support to the process when there still is a lack of private leadership. Public support of CIs, however, is often granted as start-up financing with a temporary perspective. Political back up of a CI is essential.

In the growth stage of a CI decision-making and management is often provided by a public-private partnership between public sector organizations and leading enterprises, for example by establishing joint decision-making bodies and by incurring company contributions to the financing of the network. Actually, the “standard” governance model for running a cluster initiative, which is in the growth stage is a public-private partnership between public sector organizations and leading enterprises (PPP). The clusters AC RheinMainNeckar, MoWiN.net, Normandy Motor Valley/Mov’eo, ATC Netherlands and AC Upper Austria all share this characteristic even if the institutional set-up and the power relationships between the various public and private actors involved differ strongly. At the same time, all of them are membership-based organizations.

In some regions, however, there is no phasing out of public funds and financing is provided even beyond the growth stage. In a third stage of the network life cycle an attempt can be made to transform the CI into a self-supported organization with network co-ordination being transferred from public bodies to the partners of the network themselves. A leading example is ACS Slovenia which had to dispense with any public funding in 2007. However, CIs often have difficulties in managing change from public sponsorship towards an initiative mainly supported by enterprise members.

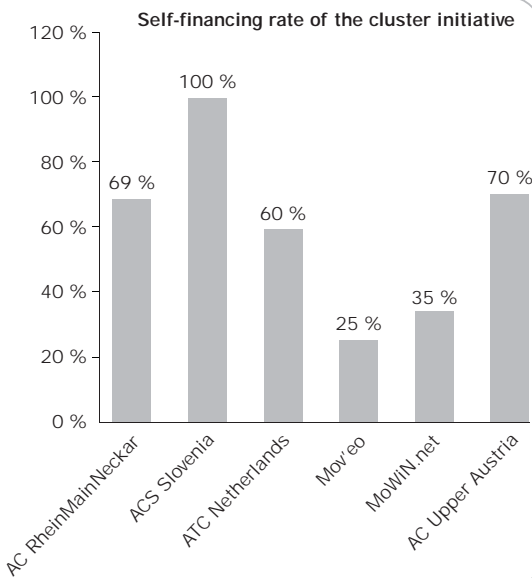
#### *Membership vs. non-membership based CIs*

If one defines the existence of a membership scheme and the participation of members in decision-making as essential, both, the Accelerate partnership and the WRS Stuttgart can not exactly be described as CIs in the strict sense of the term, they shall rather be defined as non-membership CIs managed by public sector organizations. Even if they promote the interaction between firms, public and private institutions and research bodies, they lack a membership base. These initiatives are not governed by the enterprises but by public sector organizations. Recently, however, both organizations have developed plans to evolve in the direction of CIs in public-private partnership. For instance, WRS has been playing an active role in the new cluster South-West Initiative, which will bring stakeholders from the automotive industry at the level of Baden-Württemberg in a PPP scheme. Regional OEMs, suppliers, policy makers and research institutes are currently preparing to launch this important initiative.

<sup>12</sup> *The Cluster Initiatives Greenbook, 2003: p. 40.*

The French cluster Mov'eo is in a special position. It is a membership-based organization in public-private partnership with a strong influence of regional authorities, research actors and large companies. Especially Renault, VALEO and PSA Peugeot Citroën are deeply involved in the governance of the cluster. Its main task is to develop R&D projects representing 150 million euros of funding for the next years and to channel public research funds into the most profitable projects. Thus it combines the advantages of a PPP approach in organizing enterprise participation with a strong administrative role in the management and implementation of research and technology policy. Given that the different member groups are incorporated in the cluster and participate in the policy implementation,

the organization model of the cluster might be referred to as corporatist.



#### *Public funding and self-financing of CIs*

The main sources of public funding for CIs are project-level subsidies at regional, national and EU-level. In some cases institutional funding is provided. There seems to be a more general trend that governmental and private sources share in the co-financing of CIs although the extent to which public funding is involved varies. One reason for this is linked to the development stage of a cluster initiative: After a first period of public sponsorship, public funds are often gradually phased out while members are requested to contribute to the financing of the initiative. Another reason concerns the role of a cluster initiative in providing public goods.

The exact figure for the share of public funding in the budgets of the clusters from TCAS and BeLCAR is difficult to establish and subject to frequent changes. However, some main trends are discernible.

From 2004 to 2007 the cluster development process of MoWiN.net was, to a large extent, co-financed by European and regional funds, as regional development objectives had been involved in the initiation of the CI in an Objective 2 area (industrial areas in decline) entitled to EU structural funding. The active acquisition of non-public financed projects over the last years, however, resulted in a reduction of the public funding's share to an extent of approximately 65 per cent. The initiative, set up in 2003, is still in the growth stage.

In the case of Slovenia, ACS activities had partly been co-financed by the Ministry of Economics in the period from 2002 to 2004 (40 per cent). Following a redirection of economic-policy, the share of public funds has decreased to 30 per cent (including European project funds), and since 2007 the CI is completely self-sustaining with a self-financing rate of 100 per cent.

In the case of ATC Netherlands the share of public funds in the overall budget had risen to 40 per cent in 2007, while private funds had declined to 15 per cent with the remainder being financed by project funds. In the case of the AC RheinMainNeckar, the CI is mainly supported by contributions

in kind of the Chamber of Industry and Commerce Darmstadt and, herewith, is being indirectly financed by membership contributions of enterprises to the chamber. If these contributions are counted as own resources, the AC RheinMainNeckar has a high self-financing rate (69 per cent).

The general question involved here concerns the appropriate relationship between private and public funds in the long-term financing of a CI. Inferring from the examples above there is a general trend that the proportionate share of public funds in the basic financing declines while the self-financing rate increases over time. Partly this is a result from public funds being phased out after a limited period of start-up financing, partly this is affected by the increased acquisition of project funds and rising budgets.

We suppose that over the long-run more cluster initiatives will have to increase their self-financing rates<sup>13</sup>. However, there seem to be limits to an increase of the self-financing rate of CIs. With a self-financing rate of 100 per cent ACS Slovenia is the only self-sustaining CI in our sample followed by the AC Upper Austria with a self-financing rate of 70 per cent. Other CIs in Upper Austria aim at a self-financing rate of 45 per cent in the medium run.

The CIs do provide private as well as public goods by supplying, on the one hand, business-oriented services to their member companies and, on the other hand, generating positive “externalities” from their activities. By strengthening the regional supply chain, non-participating companies and other regional actors are also indirectly affected.

The strategic orientation of the CI has a strong impact on the share between private and public goods provided and the importance of the public good element. The stronger the focus on regional development, economic promotion and destination marketing, and the stronger the role of the CI in implementing regional industrial policies, the more public goods are provided and the higher the public funding rate. This can easily be justified: substantial benefits from the investment in the CI may accrue to the region as a whole if the CI succeeds in enhancing the innovative capability and does contribute to the profile and high-tech image of a region.

The tentative hypothesis may be formulated that a share of public funding in the range of 30 to 70 per cent is justified and necessary in order to stabilize CIs as long-term partners in the implementation of innovation policies and to compensate them for the positive externalities and the generated public goods.

### 3.3 Strategic orientation

CIs are instrumental in offering business support services and in facilitating enterprise access to resources such as technology, qualification, internationalization et cetera. Especially, personal contacts have proven essential in ensuring an ability to cope with new challenges. In terms of activities and events all CIs from TCAS and BeLCAR have developed well-working networking strategies considering the high number of events organized by each CI (approximately 15 to 30 events per annum on average).

Differences, however, exist with respect to the strategic orientation of the activities. While all CIs usually share a strong emphasis on technology, innovation, competitiveness and regional development

<sup>13</sup> *The self-financing rate of a CI is defined as the rate to which its management budget is financed from own resources (membership fees, service charges, revenues, donations) and tenderized project funds in contrast to institutional funding or grants from regional or national authorities. Project funding from regional or national authorities does not classify as self-financing unless being tendered out in open competition and not used for the financing of the basic management and activities of the CI.*

issues by enhancing co-operation between their members, the available instruments and resources for supporting co-operations and technology transfer differ strongly. With respect to the strategic orientation of a CI the role of small and medium-sized enterprises can be decisive.

#### *Technology transfer and co-operation*

Compared to the other clusters from our sample the merged French competitiveness cluster Mov'eo is unique in focusing strongly on the improvement and intensification of technology transfer between research institutions and companies. This is reflected in the mission of the cluster, its partner structure and the sheer volume of financial resources devoted to the funding of joint research projects between the academic and industrial partners of the cluster. Indeed, the ambition of the cluster is attested by the sheer number of researchers involved (around 10,000 people in industrial R&D and around 4,000 researchers in academic R&D).

To a different grade other CIs from our sample also focus on technology development and transfer. ATC Netherlands is characterized by a strong focus on technology development in all its activities. ACS Slovenia, MoWiN.net, WRS Stuttgart and AC Upper Austria all have members from academia and research represented on their boards and share a strong interest in stimulating joint research and in fostering university technology transfer.

Co-operation projects between different companies and technology poles have proven successful to facilitate the transfer of technology. There are strong indications that co-operation projects belong to the most important and successful method to foster enterprise networking and technology transfer. While all CIs from our sample offer help in identifying partners for co-operation through match-making events and/or providing company profiles, only Mov'eo, the AC Upper Austria and ACS Slovenia are systematically supporting research-oriented co-operation projects. The Accelerate partnership is channeling direct financial support to SMEs. Funded by the European Regional Development Fund, it has supported more than 3,000 suppliers since the beginning of the programme in 1996.

In the case of Mov'eo more than 60 co-operation projects were selected by the cluster (so-called labellization) while 40 were able to be funded up to August 2007. Those co-operative research projects represent an overall budget of 150 million euros of which 60 million euros are financed by diverse source of national funding. The R&D projects are pooled in strategic activities domains.<sup>14</sup> A work group is built for each strategic activities domain, which aims at fostering the creation of emerging co-operative projects. The average budget of a project is between three million euros and six million euros. The average number of partners in a project is eight.

Up to 2007 the ACS Slovenia already started 18 joint developmental and four technological projects. There are at least three companies and one research body involved in each of them. The majority of these projects are already finished, while others are in their advanced stage. Currently, 35 new joint R&D projects with an aggregate value of over 85 million euros are planned.

Since the establishment of the cluster in AC Upper Austria in 1998 until 2007 some 59 co-operation projects between technology-oriented partner companies and research bodies have been implemented. The costs for the projects are partly borne by the enterprises and partly by the regional government of Upper Austria (maximum grant share of 30 per cent) up to a limit of 25,000 euros per partner. A minimum number of three cluster partners including at least one SME have to be involved.<sup>15</sup>

WRS supports the regional technology based co-operation infrastructure with the Competence Centre initiative. These centres were founded by financing through WRS and it still provides a budget for project-based support. WRS currently has automotive-oriented and affiliated competence centres on virtual reality technology, mechatronics, fuel-cells, and high-tech textiles.

The technological upgrading of enterprises is also supported by the other CIs, however, falling short of assisting co-operations with own funds, their activities remain limited to the promotion of networking opportunities and match-making services between companies and research institutions. In some cases the application for supplementary public funding is supported.

Still, MoWiN.net and AC RheinMainNeckar estimate that some 40 to 50 enterprise co-operations have indirectly resulted from the activities of the CIs.

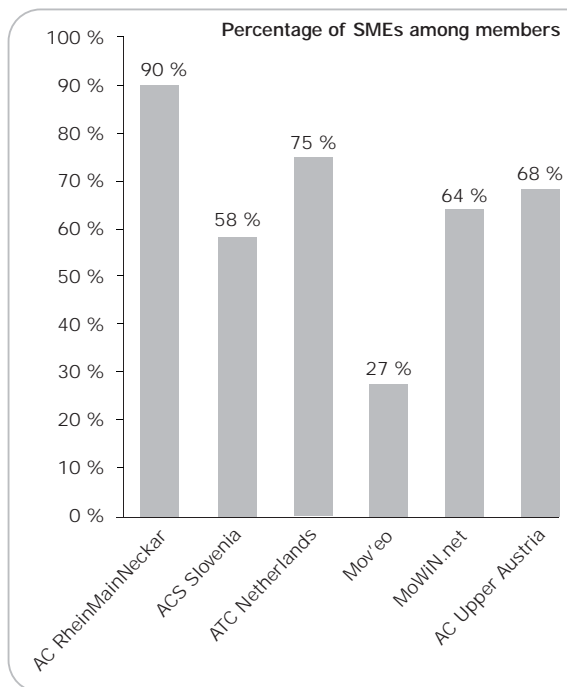
The comparison shows that most of the CIs share a strong focus on co-operation development in the field of automotive technology and orientate their strategic support activities clearly in this direction. However, not all of them dispose of financial instruments to promote technology-oriented co-operations.

#### *SME orientation*

A pivotal question regarding the strategic orientation of a CI concerns the role of OEMs and leading suppliers on the one hand, as well as SMEs and their respective interests on the other hand. Both large companies and SMEs stand to gain from clustering as a cluster initiative contributes to the improvement of the local supply chain from two perspectives:

- by helping SMEs with a regional focus to open up to more international opportunities (delegations, match-making et cetera) and
- by raising the awareness of larger enterprises of the advantages and opportunities of local sourcing

The average share of SMEs among the members of the CIs from our sample is high – over 60 per cent. The low participation of SMEs in Mov'eo with a share of 27 per cent reflects the corporatist representation of the respective interests of public authorities, major research institutions and large companies in the cluster.



<sup>14</sup> In 2007 four strategic activities domains were defined: Energy and environment; Road safety; Mobility and services; Mechatronics.

<sup>15</sup> Cf. Clusterland Oberösterreich GmbH: Richtlinien zur Förderung von Cluster-Kooperationsprojekten im Rahmen von OÖ-Cluster-Initiativen. Gültig ab 1.1.2007.

Almost all CIs promote the participation of SMEs through differentiated membership fees, for example Mov'eo, ACS Slovenia and ATC Netherlands have reduced membership fees for SMEs. Some initiatives have a board membership reserved for SME representatives. As a general rule, most CIs promote SME participation, and cluster policies are often explicitly meant as SME promotion policies.

However, there is a different, though less frequent organization model for cluster initiatives where leading enterprises with an overarching interest in the development of the regional supply chain, in order to boost supplier performance actively support network-building. Most small enterprises favour the participation of leading companies and car manufacturers (OEMs) in a CI in order to stay connected to the future market requirements.<sup>16</sup> However, this may conflict with the frequent wish of enterprises that a CI be managed by a neutral agency. Although leading companies and car manufacturers are needed to push the networking process forward, it is hard to balance their supremacy in a network.

#### IV. CIs in a comparative perspective: introducing elements of a cluster typology

In this chapter the main structural differences between the CIs from TCAS and BelCAR are classified along the main lines of the discussion above by proposing elements of a cluster typology. For this purpose two main dimensions characterizing CIs are introduced:

##### *"Industrial Cluster Representation"*

This dimension is described by a combination of the share to which regional enterprises have become members of the CI (membership ratio) and the degree to which the budget of the CI can be financed from own resources (self-financing rate – including membership fees and other private funds). It is shown to what extent CIs are representative of the regional industrial cluster and enjoy the support of enterprises.

The indicator will be operationalized by classifying the different CIs on a scale of 0 to 3 regarding

- a) membership ratio and
- b) the self-financing rate of the cluster. The aggregate value of the indicator is the arithmetic average of the scores

	N.A. (Score= 0)	Low (Score= 1)	Medium (Score= 2)	High (Score= 3)
Self-financing rate	0–4 %	5–29 %	30–69 %	70–100 %
Membership ratio	0–4 %	5–19 %	20–59 %	60–100 %

	Self-financing rate	Membership ratio	Aggregate value
AC Upper Austria	3	3	3
Accelerate	0	0	0
AC RheinMainNeckar	2	2	2
ACS Slovenia	3	2	2,5
ATC Netherlands	2	2	2
MoWiN.net e.V.	2	2	2
Mov'eo	1	2	1,5
WRS Stuttgart	0	0	0

##### *"Private vs. public sphere"*

This dimension informs on the degree to which the activities of a cluster are strategically oriented towards the provision of public rather than private goods and/or to what extent a CI can be attributed to the public sphere. It is a combination of the following indicators:

- the share of public funding in the management budget of a cluster initiative
- the influence of public actors (governmental authorities, regional development agencies) and

	Low (Score= 0)	Medium (Score= 1)	High (Score= 2)	Dominance (Score= 3)
Public funding rate	0–29 %	30–69 %	70–99 %	100 %
Influence of public bodies	Little influence	Joint decision-making (PPP)	Pre-dominance of public actors	Public sector organization
Policy implementation	No role	Indirect involvement, e.g. through service provision	Direct involvement, e.g. through public mandate	Public sector organization

semi-public actors (chambers of commerce, local and regional development institutions) in the decision-making of the CI and

- the role of cluster initiatives in the implementation of regional innovation, technology or development policies (for example initiating and/or selecting project consortia for public-funded joint research programmes)

The different cluster initiatives will be classified on a scale of 0 to 3 regarding

- a) the share of public funding in the budget,
  - b) an assessment of the influence of public and semi-public actors in the decision-making process and
  - c) an assessment of the role of the cluster initiative in the implementation of regional innovation, technology or development policies.
- The aggregate value of the indicator is the arithmetic average of the scores

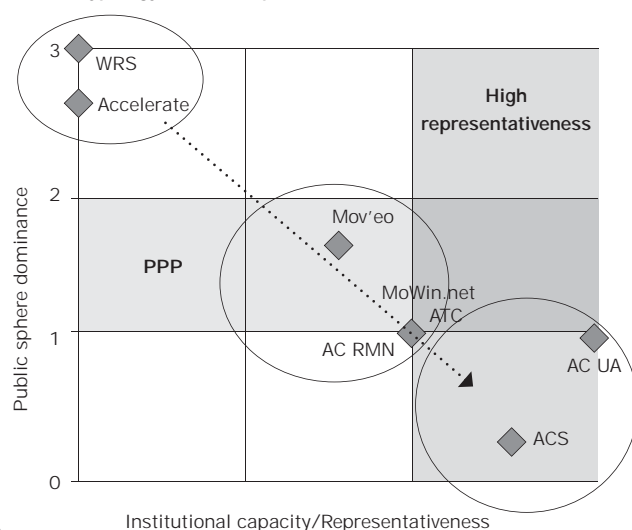
#### Interpretation

As a result of the proposed cluster typology three different groupings of cluster initiatives, assisting the regional supply chain, emerge:

- The first group includes the Accelerate partnership and WRS Stuttgart. They can be defined as non-membership cluster initiatives managed by public sector organizations.
- The second group includes the membership-based cluster initiatives MOV'EO, MoWin.net,

	Public funding	Influence of public bodies	Policy implementation	Aggregate value
AC Upper Austria	1	1	1	1
Accelerate	3	3	2	2,7
AC RheinMainNeckar	1	1	1	1
ACS Slovenia	0	0	1	0,3
ATC Netherlands	1	1	1	1
MoWin.net e.V.	1	1	1	1
Mov'eo	2	1	2	1,7
WRS Stuttgart	3	3	3	3

#### Cluster typology and development



<sup>16</sup> Cf. European Commission/agiplan, 1999, p. 92.

AC RheinMainNeckar and ATC Netherlands which can be characterized as public-private partnerships striking a balance between public and private interests. However, AC RheinMainNeckar and ATC Netherlands are also characterized by high self-financing rates (respectively 69 per cent and 60 per cent). As a result, they can be seen in a cross-border position, falling between this and the following group.

- The third group comprises the membership-based CIs AC Upper Austria and ACS Slovenia. These initiatives are leading in terms of institutional capacity. They are highly representative of the industrial cluster and they achieve a high self-financing rate of their budget (70 per cent plus). Nevertheless, they provide public goods in partnership with public actors.

## V. Conclusions

We can conclude from our comparison that most cluster initiatives from TCAS and BeLCAR are governed jointly by public sector organizations and leading enterprises in public-private partnership (PPP). The cluster initiatives AC RheinMainNeckar, MoWiN.net, Normandy Motor Valley/Mov'eo, ATC Netherlands and AC Upper Austria all fall into this category, even if the institutional set-up and the power relationships between the various public and private actors involved differ strongly. At the same time, all of them are membership-based organizations. Due to the contributions of their members, a significant part of the budget of the majority of them is financed from own resources.

Cluster initiatives do provide both private goods for their members as well as public goods. In the long run, a share of public funding in the range of 30 to 70 per cent may be justified and necessary in order to stabilize CIs as long-term partners in the implementation of innovation policies and to compensate them for the positive externalities from their activities. In the case of AC Upper Austria, ACS Slovenia and Mov'eo the CIs are directly involved in the definition and implementation of co-operation projects between companies and research institutions. To a certain extent the co-operation projects are supported by public funding.

Cluster initiatives and networking activities along the automotive supply chain can also be managed by public sector organizations such as regional development agencies (WRS Stuttgart) or other organizations administering public-funded enterprise assistance programmes on behalf of regional authorities (Accelerate). These organizations, however, are not membership-based. Although companies can benefit from assistance programmes, their interests as a group are not represented. The respective initiatives lack in institutional autonomy vis-à-vis the government while business interests may still be represented in consultation bodies.

More research is still needed regarding the relationship between the development stage of an industrial cluster and the institutional capacity or governance structure of a respective cluster initiative. A first examination reveals no clear pattern. With support from regional public bodies even regions with a smaller industrial cluster can build up cluster initiatives of high effectiveness. Even if the potential benefits of clustering may be higher in case of large industrial clusters, collective action may be more difficult to organize.

Some more general conclusions can be drawn from our discussion of the strategic orientation, the institutional capacity and the governance structure of the respective automotive cluster initiatives:



1. The average share of SMEs among the members of the cluster initiatives from our sample is high and above 60 per cent.
2. The CIs share a strong focus on co-operation development in the field of automotive technology and orientate their strategic support activities clearly in this direction. Even if not all of them do have the financial instruments available to promote technology-oriented co-operations between companies and research institutions, the initiation of such co-operations is supported by networking activities and match-making.
3. The availability of full-time, professional staff, respectively consultants managing the cluster initiative is a basic requirement for any cluster initiative. Almost all CIs have a cluster co-ordinator and own personnel to run day-to-day operations. To conclude from the initiatives analysed, full-time staff of approximately two to three employees is sufficient to run a basic set of activities.
4. Out of the cluster initiatives from TCAS and BeLCAR only ACS Slovenia has evolved into a self-sustaining organization in financial terms. Basically, in all regions public actors initiated or supported the establishment of the CI in an initial phase. In many cases the government is strongly involved in the early stages of setting up a cluster initiative as part of a concerted government effort to improve the competitiveness of a regionally-based industrial cluster. However, a transformation can occur after a first period of public sponsorship. In the long run, basically all CIs are confronted with the need to increase their self-financing rates. Nevertheless, there seem to be limits to an increase of the self-financing rate.

## EUROPEAN AUTOMOTIVE STRATEGY NETWORK

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**Harm Weken** (1966) is director of FIER Automotive, the Netherlands (see [www.fier.net](http://www.fier.net)). He has become expert in industry policy and (company) business planning as well as in the realization of automotive clusters. He worked in projects with automotive companies and authorities in various European countries. Harm is – as board member – actively involved in the initiation and realization of the European automotive network: EASN.

### Abstract

Contrary to “popular belief”, there is no truth in the belief that the automotive industry (AI) was dead and uncompetitive in Europe however, it had to evolve to meet new and changing market situations. The AI is a conservative one because no one wants to make a car, which people do not want to buy. The customer is conservative because he or she does not want to buy a car, which they will “not be able to sell in a few years.” There is a growing demand for cars, not a diminishing one, and over the next 20 years more new cars will be made than in the entire 110 years of the industry to date. There will be a need for 180 new car plants, typically making 330,000 cars annually and plants will need to be renewed, retooled, refurbished or replaced with investment likely to exceed 80 trillion dollars.

The structural change in the AI will lead to a continuing consolidation. It is expected, that the number of suppliers will reduce by half to 2,800 world-wide and only ten of the 12 major OEMs will stay independent. Growing competition and globalization, cost pressure and growing environmental demands, and shift of value towards suppliers will change the sector significantly. The future of the European AI depends on maintaining and consolidating our competitive advantage in terms of technology and innovation, which has kept European markets and, accordingly, the product and the industry complex.

Recognizing that European co-operation will bring a lot of added value to regional cluster organizations and member companies, five European automotive networks agreed to collaborate in a "European Automotive Strategy Network" (EASN) across their networks and across member state borders. The EASN is strategic and striving towards combining individual aims to support automotive clusters. The CARS21 report is an important piece of work that has been completed to underpin the EU Automotive Cluster. Aligning EASN with the CARS21 report and the Lisbon and Gothenburg Agendas would be an interesting way forward, enabling the group to develop new ideas.

## I. The importance of the automotive industry

### 1.1. The European Commission perspective

The European Commission (EC) considers the AI very important to the economy of the European Union. In a presentation, on 7 November 2007 in Paris, by Reinhard Schulte-Braucks, Head of Unit, Automotive Industry, Enterprise and Industry Directorate-General, European Commission, Brussels spoke about EU strategies for a sustainable development of the AI. Mr Schulte-Braucks talked briefly about the economic impact of the AI on the EU by drawing comparisons with the various global vehicle-manufacturing blocks. The figures from Mr Schulte-Braucks' presentation on 7th November 2007 are shown in the Table below.

Number	Global region	Passenger and light-commercial vehicle production	Per cent of total
1	NAFTA	15.85 m	24.21 %
2	EU-27	18.05 m	27.57 %
3	China	6.29 m	9.61 %
4	Japan	10.77 m	16.45 %
5	South Korea	3.73 m	5.7 %
6	South America	3.05 m	4.66 %
7	India	1.68 m	2.6 %
8	CIS	1.4 m	2.1 %
9	Others	4.65 m	7.1 %
10	<b>Total</b>	<b>65.47 m</b>	<b>100 %</b>

The value of trade and numbers employed is compared between motor vehicles, pharmaceuticals and chemicals in table two, shown below.

Industry	Motor vehicles	Pharmaceuticals	Chemicals
Trade balance	57 billion euros	34 billion euros	14 billion euros
Numbers employed	2.2 m	600 k	1.4 m

### 1.2. CARS21 report

A high level group was set up called CARS21, "Competitive Automotive Regulatory System for the 21st Century". The main objectives of the CARS21 report are:

- Review of existing regulation and
- Definition of a predictable regulatory environment

The main deliverables are:

- Priorities on Safety and Environment Issues
- Roadmap for the next ten years

Three roadmaps were produced regarding Better Regulation, Safety and Environment. The important issue to consider “is how to encourage and support the AI in the EU to develop the appropriate strategies to position their businesses to take advantage of the potential opportunities provided by these three roadmaps”.

### 1.3. A broader perspective

During the past 20 years, there have been huge changes in terms of political ideologies and the effects of globalization as business and commerce has gone global. Many more countries are pursuing “free market economies”. This has resulted in the growth of economies in many “developing countries” leading to increasing purchasing power, which in turn has led to a huge increase in demand for consumer good, including motor vehicles. Professor Garell Rhys is a respected commentator and adviser to various organisations, including the House of Commons (UK) Select Committees on Trade and Industry for over 20 years, the Select Committees on Defence & Welsh Affairs and United Nations Industrial Development Organization on the place of the Motor Industry in developing countries. Prof Rhys’ view is that the demand for motor vehicles is likely to increase to such an extent, that the number of motor vehicles produced over the next 20 years is likely to exceed the sum of the motor vehicles produced in the previous 110 years. To meet this predicted demand, there is likely to be a need for 180 new car plants, each with a capacity to manufacture 330,000 vehicles per annum. Plants will need to be renewed, retooled, refurbished or replaced with investment likely to exceed 80 trillion dollars.

## II. Role of EU automotive regions

### 2.1. Current position

Table one shows that as a manufacturing block, the EU-27 produces the largest number of cars and light commercial vehicles in the world. Of the 27 EU member states, 20 have an AI. The various EU automotive regions are working (often in isolation from other automotive regions) to sustain their respective AI, in the light of the effects of globalization and the trend of manufacturing capacities moving further east. Many plants have closed in Western EU, with jobs going to low-cost economies. Many of the jobs that have moved to low-cost economies have generally been in the area of “lower value added” activities, with many of the higher value added, like design and innovation remaining in the “traditional manufacturing Western Europe countries”. The EU response to this was/is to make funds available to explore what approaches various EU automotive regions have taken to address these issues, to better understand the impact of these approaches and to create the environment for sharing good practice to sustain and improve the EU economy.

### 2.2. Exploring approaches

Between 2005 and 2008, a number of trans-national projects were funded to explore different aspects of EU automotive regions, including

- Mapping the level and types of public policy support for automotive regions
- The constitution of automotive clusters, their objectives and their approach to achieving those objectives
- Assessing the competitiveness of automotive regions and what factors influence competitiveness
- Identifying what challenges the AI in the EU faces to be sustainable and competitive, et cetera

### 2.3. Collaboration between EU automotive regions

Through regular dialogue, the co-ordinators of five EU-funded automotive projects (shown below) explored the potential and benefits of collaboration. The five projects (with 53 different partners, from 13 EU member states plus Russia) are:

- TCAS – funded from INNOVA (FP6)
- BeLCAR – funded from INNOVA (FP6)
- Automotive Regions – funded from Structural Funds (Interreg3C)
- NEAC – funded from Structural Funds (Interreg3C)
- I-CAR-O – funded from ESF (Article 6)

It was agreed there was value in collaborating and after a number of meetings a Memorandum of Understanding (MoU) was signed at the INNOVA Conference in Valencia in November 2006 in the presence of DG Enterprise.

### 2.4. Purpose of Memorandum of Understanding

The parties to the MoU agreed to:

- Establish EASN, as a Pan-European platform, organize joint events, promotion and development of policy recommendations
- Establish an EASN Management Structure
- Identify and access funding to carry out agreed EASN activities and
- Agree yearly action plans

The MoU established the EASN, a Pan-European platform to support the AI through specific actions and development of automotive cluster policy in the EU. EASN facilitates broad support for the creation of added value from cross-regional co-operation in cluster management and support of automotive companies, with specific emphasis on SMEs.

### 2.5. Purpose of EASN

EASN's purpose is to strengthen the AI in the EU by:

- Identifying the main issues of concern to the industry
- Sharing those concerns with stakeholders at regional, national and EU level
- Exploring and testing potential solutions for wider regional implementation
- Influencing policy at EU level, which feeds through to relevant DGs and
- Influencing the design and development of suitable instruments to support the industry

### 2.6. Main issues identified

A number of main issues were identified from the activities carried out by the five projects, which can be summarized and grouped together under three thematic headings:

- SKILLS – What are the likely skills requirements of the AI in the EU in the next 5, 10, 15 and 20 years?
- INNOVATION – How can we bring competitive advantage to the AI in the EU from research and development activity and innovation developed?

- NETWORKS/CLUSTERS – How can we ensure that any development activity carried out under the auspices of EASN benefits the AI in the EU?

EASN develops and tests initiatives (project based) to address issues identified through thematic groups, which will be created and dissolved as necessary, within the overall EASN strategy.

### **2.7. Nature of organization**

EASN is a membership-based organization. Organizations (both private and public sector) are drawn from a wide range of stakeholders at local, regional, national and international level. Examples include regional development agencies, regional cluster organizations, local authorities, research centres, universities, technical colleges, national automotive organizations, SMEs and larger businesses, et cetera.

## **III. EASN activity**

### **3.1. Business plan**

The EASN business plan (reviewed regularly) provides an overall strategic framework for delivering EASN aims. The business plan includes objectives, activities, and timescales, quantifying required financial resources (and identifying sources of funding), communication with stakeholders at all levels, assigning tasks and responsibilities and monitoring progress.

### **3.2. Benefits to member organizations and EU/EC**

EASN members have many benefits, which include:

- The opportunity to identify and share good-practice models relating to Cluster Management from fellow practitioners
- Being able to support company level partnerships and collaboration at the Pan-European level
- Being able to take part in developing project ideas and to identify suitable committed partners from within the EASN members, which might ease the process of acquiring European Union funding
- Joining a Pan-European platform that will contribute to European level policy-making regarding the Automotive Industry in the EU
- As members of thematic groups, the opportunity to influence the priority areas to be pursued for joint projects
- Being able to participate in delivery activity in strategic projects and programmes that are developed, submitted to the EC and awarded to the Automotive Industry in the EU
- Access to information on latest policy development and strategic forward thinking at local, regional, national, EC/EU and global level
- The opportunity to attend and influence the shape and content of the EASN annual conference

For the European Commission/Union:

- EASN provides a new and competent source of feedback and insight regarding the Automotive Industry in the EU
- This will assist improved governance and industry support
- Offers the Commission a new take on matters from a different perspective than that of the “usual big players” of the Automotive Industry

### 3.3. Conclusions

There are many factors that affect the AI in the EU. Some of the factors are global in nature, which may not be easy to influence in the short term. But there are also factors that are at EU, national and regional in nature that could be influenced by various regional stakeholders. Strengthening the AI in the EU will be dependent on:

- Addressing issues strategically
- Encouraging proactive cross regional collaboration
- Having an understanding of what the in future, AI will look like
- Developing and testing solutions to ensure that the right skills are available over the next 5, 10, 15 and 20 years
- Working to the traditional strengths of the AI, such as excellence in design, innovation and technologies
- Using these traditional strengths to provide “anchorage” to attract the global players to invest in the EU
- Enabling the results of research and development and innovation to be transferred for use by the industry companies
- Sharing good practice and developing more effective automotive cluster organizations, with suitable instruments to support strategic business development

The above is not an exhaustive list. The Pan-European regional approach EASN has adopted has received support and encouragement from many interested stakeholders at different levels, including Prof Rhys, who said at the final NEAC dissemination conference in October 2007 in Cardiff, *“The work of NEAC and EASN demonstrated how the industry was changing to reflect demand and attract investment from around the world”* and went on to say he was very encouraged by the prospects for the new body.

Malcolm Harbour, MEP, for the West Midlands, UK and a key driver of the CARS21 Report, commented that, *“EASN’s proposed approach and organization is a natural vehicle to follow on from CARS21”*.

Lars Holmqvist, Chief Executive Officer, CLEPA (European Association of Automotive Suppliers) in presenting the “White Paper on Education, Training and Learning to Increase Competitiveness in the European Automotive Industry” on 22nd September 2005, stated, *“CLEPA believes that training and education are a prerequisite to maintaining competitiveness for the European Automotive Industry and we see this as a joint task to be shared by the industry, the European institutions and the national member states, with a view to providing the necessary climate and funding for this to become possible”*.

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### References

1. Reinhard Schulte-Braucks, *“EU Strategies for a Sustainable Development of the Automotive Industry”*, Paris – 7 November 2007.
2. Prof Garel Rhys, *“The Automotive Industry – Alive and Kicking”*, Chair of NEAC final Dissemination Conference, Cardiff, October 2007.
3. Lars Holmqvist, *“Education, Training and Learning to Increase Competitiveness in Automotive Industry”*, Brussels, 22 September 2005.

## TRIANGULAR STRENGTH IN AUTOMOTIVE

**Harm Weken** (1966) is director of FIER Automotive, the Netherlands (see [www.fier.net](http://www.fier.net)). He has become expert in industry policy and (company) business planning as well as in the realization of automotive clusters. He worked in projects with automotive companies and authorities in various European countries. Harm is – as board member – actively involved in the initiation and realization of the European automotive network: EASN.

**Mathijs Vaessen** (1982) has been consultant at FIER Automotive since 2007. He obtained his Bachelor degree in automotive engineering and his Master's degree at the University Utrecht, studying Science & Innovation management. During his study he has been active for several automotive related practices and graduation projects. For his graduation at the university he fulfilled a study about the opportunities and threats for the Dutch transport sector during the transition to a sustainable transport fuel.

*How the Dutch automotive industry profits from the interplay between the Automotive Technology Centre (ATC), the High Tech Automotive Systems programme (HTAS) and the High Tech Automotive Campus in Helmond.*

### I. Introduction

The Dutch automotive industry has gained, especially in the last five years, recognition and acceleration. Recognition for the fact that it has both internationally and nationally overtaken an important position in the fields of innovation, exports and employment. Acceleration by building an excellent network under the umbrella of the Holland Automotive Federation (FHA) including the Automotive Technology Centre (ATC) with many initiatives and activities aimed at strengthening and growth of the sector.

As a result of these strong networks, two other main initiatives were developed:

- The HTAS (High Tech Automotive Systems) programme. A top and very focused research programme in which many automotive companies and initiatives participate in a public-private partnership
- The HTACampus (High Tech Automotive Campus), in the Brainport region (Helmond), which is currently being implemented and which builds on: a) strong automotive research and develop-



ment institutes and companies already located at the campus, b) the research topics of the – above mentioned – HTAS research programme

Hence the further development of the automotive industry in the Netherlands is based on three strong pillars:

- A strong automotive network
- A joint (public-private) research programme
- An automotive campus at which industry, research, development, testing and education will be co-located

This triangular approach is the result of industry policy by industry, institutes and government at both national and regional level.

## **II. The Automotive Technology Centre (ATC)**

The ATC is a cluster organization for the Dutch automotive industry. The aim of the ATC is to strengthen the international technology and business position of the Dutch automotive sector, to preserve and further develop this important industry and its spin-offs within the Netherlands.

The ATC target group ranges from those who need knowledge and those that can supply it. In other words, manufacturers and suppliers, service companies, research institutes, educational institutions and other organizations relating to automotive technology.

In more specific terms, the main objective outlined above can be divided into three subsidiary goals:

1. Stimulating and promoting technology and innovation in the automotive sector.
2. Contributing to the availability of qualified personnel, especially graduates from higher education. An associated objective is to improve the fit between the content of the courses and the needs of the industry by stimulating work experience placements, guest lectures, research projects et cetera.
3. Providing input for academic and research programmes that will help them to focus on technological spearheads and appropriate research themes so that they match the specific needs and future market opportunities of the automotive industry in the Netherlands.

The ATC supplements the existing infrastructure. Its intention is to make use of and work with existing programmes, intermediaries and other organizations as far as possible. The value added by the ATC in relation to the existing infrastructure lies in its focus on automotive technology and the size of its target group. The total cluster of the ATC is still growing and now counts over 120 participants.

## **III. The High Tech Automotive Systems Programme (HTAS)**

The HTAS Innovation Programme is the result of joint work of the Dutch Automotive Industry Knowledge Institutes, the government and other stakeholders. It is an initiative of the Federation Holland Automotive (FHA). The Innovation Programme is based on the following two starting points:

- The Dutch automotive industry chooses 'Driving guidance' and 'Vehicle efficiency' as prime focus areas for growth and innovation
- The goal is to increase turnover from 12 to 20 billion euros and employment with 10.000 FTE by 2015

'Driving guidance' is the area of automotive ICT. Electronics are used to inform, entertain and support the driver and eventually take over driving tasks. 'Driving guidance' includes car to infra communication and traffic management. The goal is to improve mobility, safety and the environment.

The Dutch industry has a strong international position in navigation, infotainment, telematics, and vehicle dynamics. This provides excellent chances for new business; from a centralized modular car computer to smart bearings with breakthrough concepts for among other things roadbilling, new man/machine interfaces and powertrain control.

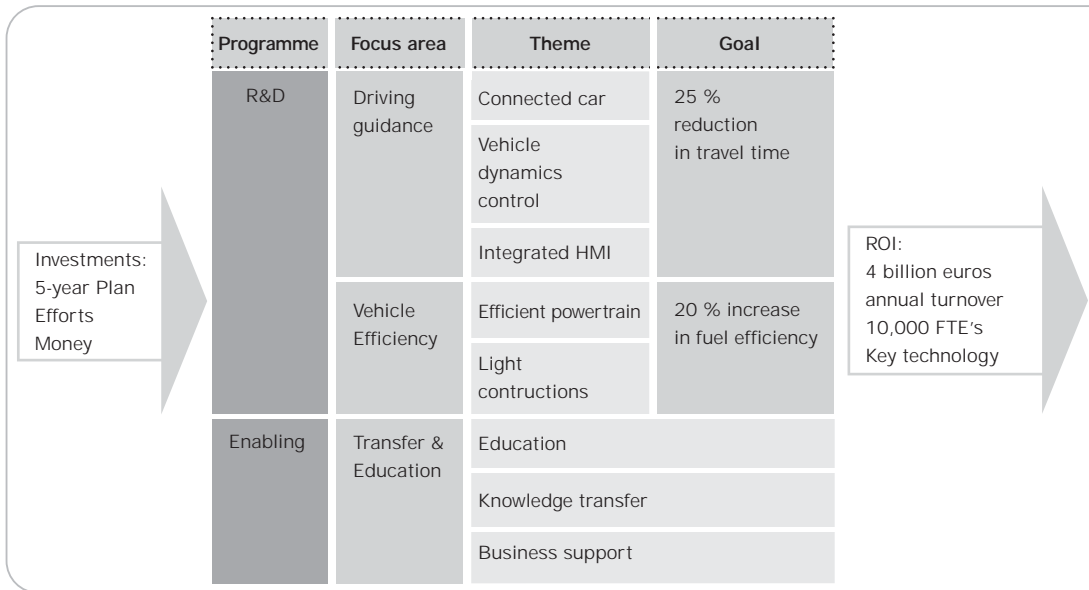
Vehicle efficiency aims at reducing fuel consumption. 'Vehicle efficiency' is a broad technology area with high international activity. HTAS focuses on key issues where the Dutch industry holds or can reach an international top position: heavy duty powertrain efficiency and light weight materials. The theme 'Efficient powertrain' will work on integrated powertrain control, advanced combustion, after-treatment and high efficiency transmission concepts. The goal is to reduce fuel consumption by 20 per cent. The theme light constructions targets 20 per cent weight reduction of specific subassemblies by material innovations.

Because innovation is not just a matter of technology, non technical issues are identified as 'enablers'. They concentrate on education, knowledge transfer and business. The goal is to develop specialized automotive education programmes on several levels and increase the inflow of students to provide the right manpower needed for growth. Validation of knowledge by co-operative new product development is the best way to close the knowledge gap. The theme 'Business' aims at SME that need support to create new business concepts, to obtain funding for new developments and to approach international OEMs.

HTAS is industry driven and has an open programme that will develop over time as new innovation proposals will arise. Partners are linked to international consortia of OEMs and suppliers and will actively involve international organizations when needed for the best specialized knowledge or to complete the value chain.

The execution of the programme is supported by a lean organization that organizes tasks stimulating co-operation between projects. The programme office is supervised by the assembly of all contributing partners. HTAS seeks co-operation with the government on more than financial issues only. HTAS asks for a clear operational support of the government in executing projects for demos, field tests, legislation and 'enablers'. This partnership will support the government in reaching goals on sustainable road transportation and creating a knowledge society.

The programme will run over five years and is planned at an overall investment level of 158 million euros. The additional turnover by 2015 is estimated at over six billion euros. This more than doubles the autonomous growth. Based on a success rate of 70 per cent the defined targets of four billion

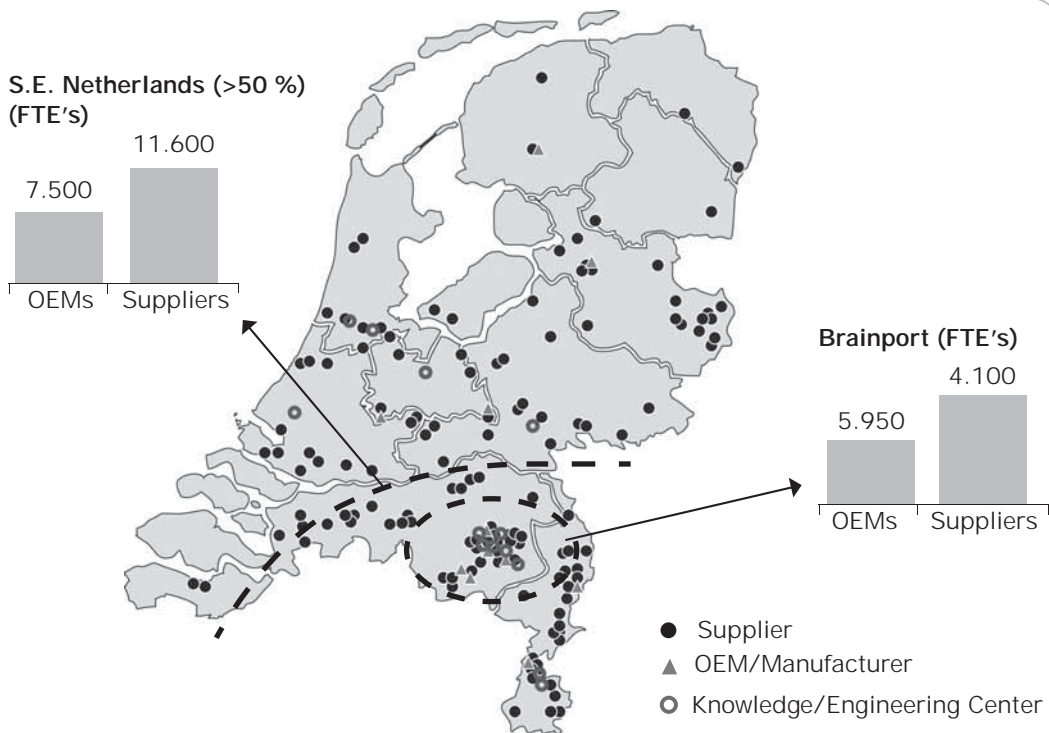


euros additional annual turnover and 10,000 extra positions seem to be very realistic. The Dutch automotive sector will strongly benefit from stronger cohesion and international networks, improved knowledge transfer and top education programmes. HTAS drives the ambition of the Dutch automotive industry to new levels.

#### IV. The High Tech Automotive Campus (HTACampus)

Next pillar is the realization of an automotive campus in Helmond (Brainport region), close to Eindhoven in the south-eastern part of the Netherlands (Brainport region). This region is one of the three main ports of the Netherlands: Amsterdam Schiphol, Airport; Rotterdam, Seaport; Eindhoven Brainport. The focus of the Brainport programme is on further development of the knowledge intensive manufacturing industry. The region has strong roots in technology, research and knowledge development. One of the main drivers for economic success is driven by the automotive industry, as over 50 per cent of the automotive industry is located in the South-Eastern part of the Netherlands. Concentration of automotive research and development is even higher and very much located in the Brainport region. Larger international players located in Eindhoven like Philips and DAF trucks make a large contribution to the region to develop as a breeding ground for high technology.

There is already a large concentration of automotive companies and institutes in Helmond in the Brainport region. Examples of larger automotive companies and institutes are PDE Automotive, TNO Automotive/TÜV, DDVS and Nedschroef. Beside these larger automotive players Helmond also counts a large number of automotive SME and automotive education institutes.



This combination of research, testing, engineering and education made Helmond a perfect starting point for the further development of the High Tech Automotive Campus.

*Objective of the HTACampus:*

*The HTACampus has to function as a(n) (inter)national magnet to attract first-class automotive companies, and the business they attract, to the Brainport region.*

The HTACampus will become the centre for the further development of the automotive industry in the region Brainport. The realization of the HTACampus will also have important effects on employment in Helmond. An overall growth within the HTACampus is set on 584 FTE (now) to 1,505 FTE in 2015 and a growth of 65 students to 350.

*The main targets of the HTACampus are in the following fields:*

1. The Automotive House as a central facility with international allure
2. Functional and representative business locations
3. Business incubator and accelerator buildings and services

4. An attractive, high-quality environment
5. Excellent facilities and services

To be able to achieve this growth and excel in all of these specific targets, a strong link and intensive co-operation is needed with the Dutch automotive cluster organization ATC and the innovation programme of HTAS.

#### *Focus areas of HTACampus*

The focus of the HTACampus will strongly be based on the HTAS spear heads. Those spear heads are the basis for the investment and acquisition plan of the HTACampus.

The picture on page 44 makes clear that within these spear heads existing sub-topics are defined and new ones will continue to be defined. As for example hybrid driven systems and integrated safety solutions.

Under the two HTAS spear heads several sub themes will be defined that contribute to these spear heads. In the following picture a schematic view is given of the HTAS spear heads, the underlying themes and the additional HTACampus priorities.

On top of these research topics, the industry has requested to prioritize the realization of the campus as well as an automotive design cluster and a world-class centre for automotive manufacturing and process management.

## **V. Corner stones of the High Tech Automotive Campus**

#### *World-class research, engineering and testing facilities*

The location of the HTACampus is mainly based on the presence of the larger automotive companies PDE Automotive and TNO Automotive. They both have a strong base in automotive research and engineering activities and also possess a large amount of testing facilities.

PDE Automotive is a unique supplier of automotive engineering services, offering a full range of:

- Engineering
- Simulations
- Low volume production
- Prototyping
- Testing & Validation
- Project management and quality services

Engineering areas covered are Body & Trim, Chassis & Driveline, Powertrain, Electrics/Electronics and Parts & Accessories. Besides that PDE Automotive is highly experienced in vehicle integration covering packaging & layout, property engineering et cetera. PDE Automotive has excellent CAD, CAx and testing facilities and can provide turn-key solutions, from application engineering up to complete vehicle projects.

TNO Automotive is a knowledge institute that focuses on safer, cleaner and more efficient transportation. Their activities are mainly focused on R&D of systems and components in the fields of:

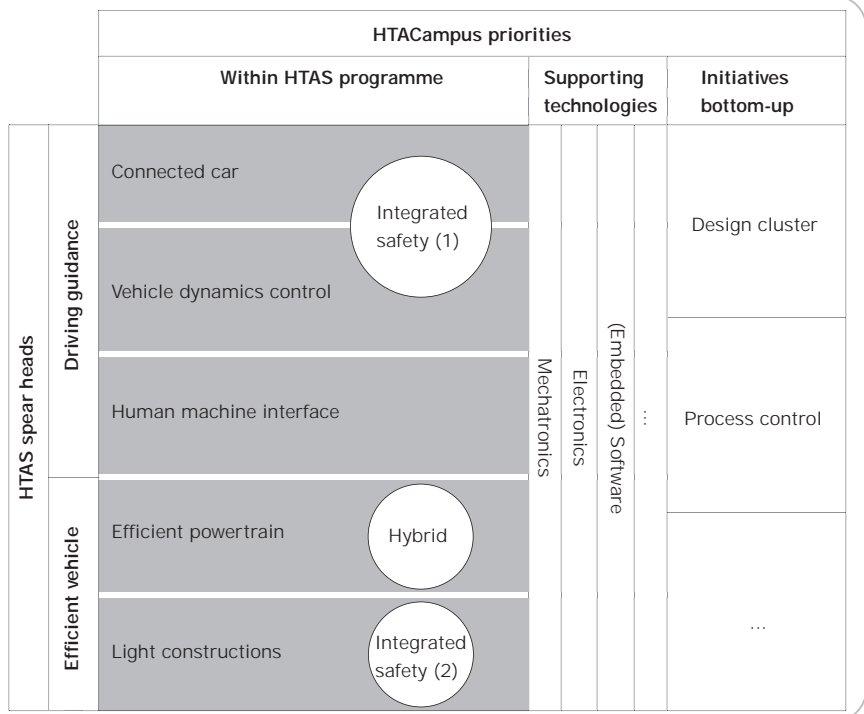
- Powertrains
- Integrated safety
- Homologation
- Crash testing

TNO Automotive has a large scale of testing facilities:

Vehillab: research and testing in the field of active safety measures.

Crashlab: TNO Automotive offers in co-operation with TÜV Rheinland (TTAI: TÜV Rheinland TNO Automotive International) the full spectrum of research and development of complete systems and components for type approval.

Powertrainlab: research and testing in the field of engine development with special focus on alternative fuels, advanced powertrains, diesel emission reduction and hybrids.



#### *Combination of innovative product development (start-ups) and R&D companies*

In order to further develop the innovative capacity of the Dutch automotive industry, special attention is given to start-up companies and smaller high-tech R&D companies. Several initiatives will be taken to attract SME and start-up companies to the HTACampus by offering special fit accommodations like an incubator centre. To attract international activities the campus will also offer smaller local offices which can be used on a project base.

#### *Automotive House and automotive programme*

Following the presence of PDE Automotive and recent relocation of TNO Automotive to the HTACampus, the next concrete step is the development of an Automotive House.

Both ATC and HTAS are part of the Automotive House that is going to be based in the centre of the HTACampus. The Automotive House will be the centre of activities to strengthen and further promote the Dutch automotive industry. A number of (at least eight) organisations will be presented in the Automotive House for example the cluster organization ATC, the Federation Holland Automotive, the community of Eindhoven, the HTACampus bureau, the HTAS programme bureau, FIER Automotive, the automotive information and documentation agencies ECMD/NCAD, as well as representative offices of the automotive education institutes.

From this location several supporting activities for the automotive industry will be organized. This varies from workshops, symposia, congress meetings, shows, meet & match events, international trade missions incoming and outgoing et cetera. All the Automotive House occupants will contribute to these activities.

#### *Automotive education institutes*

Also currently implemented is the establishment of automotive education at all levels: from practical to university. Students are the future engine of automotive R&D. As the number of students in the automotive and more in general in technological studies has been decreasing already for years, the HTACampus made the attraction and education of students to one of its main targets. Getting more students in automotive studies is important for the companies located at the HTACampus, the members of the HTAS programme and ATC as well as for the automotive industry in the Netherlands in general. Two important automotive education institutes are already located on the campus terrain. One is the ROC, vocational education, and the other is Fontys, polytechnic education. Also the technical university TU/e in Eindhoven is planning to transfer some of its activities to the HTACampus.

## **VI. Interplay provides triangular strength in automotive**

As shown in this document, the further development of the automotive industry in the Netherlands is based on three strong pillars:

- A strong automotive network, represented by the Federation Holland Automotive and the Automotive Technology Centre
- A joint (public-private) research programme, represented by the High Tech Automotive Systems programme
- An automotive campus, a geographic concentration of education, research, development and testing as well as automotive cluster programmes at the High Tech Automotive Campus

The combination of the ATC as a cluster organization, the innovation programme HTAS and the HTACampus as a location to strengthen the Dutch automotive industry and to stimulate co-operation, innovation, education and (international) business development, provides a strong triangular base for the further development of the Dutch automotive industry and to be able to compete on an international scale.

## ACS SLOVENIA'S STRATEGIC AGENDA FOR MORE EFFICIENT JOINT R&D PROCESSES WITH THE SLOVENIAN AUTOMOTIVE SUPPLY INDUSTRY BASED ON SYNERGETIC EFFECTS

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**Urška Gluhak** is Project Co-ordinator (Co-ordinating all Projects of the cluster) in the Business Association ACS, Automotive Cluster of Slovenia. She is responsible for business strategy, strategy of business plan, strategy alliances, benchmarking, co-ordinating all projects of the cluster.

### Abstract

Inventive-innovative system is the basic drive of the automotive industry which creates conditions for co-operation between private sector, public sector and government. The manufacturers who control the majority of the production of car assembly parts have become associated in the ACS. The association also involves six research institutes and faculties which are, to a large extent, connected into the automotive industry.

In order to acquire the necessary resources for research activities, it is important that the synergetic effects of vertical and horizontal integrations (between companies, knowledge bearers, ...) are fully utilized. Our success is, therefore, strongly connected with knowledge and competence management and integration.

### 1. Introduction

Even though the convergence of technologies introduced the development of multiple forms of co-operation and integration (irrespective of distances, geographical position et cetera) which became mobile, personalized and virtual, the development of knowledge and values in local networking com-



petence systems still remains the first priority. It is with this fact in mind that the ACS is determined to provide an environment that is going to be a catalyst and a driving force of joint R&D processes in all of the ACS members as well as in all other interested companies and institutions, an environment that will generate new ideas through processes of research and interconnectivity. This will result in new important technologies, functions and products.

Today ACS has become the central communication point between manufacturers, suppliers, research organizations and the government with innovative infrastructure support for the Slovenian automotive industry. The Automotive Cluster of Slovenia has 59 members, from those 53 industrial companies and six R&D institutions (of which five faculties). This means that ACS has become the meeting point of all the three spheres.

The Slovenian government supported the establishment of the ACS as a priority pilot project for the development of clusters and co-operation between individual spheres in Slovenia which was a part of a strategic sharpening of the competitiveness of one of the most important sectors of the Slovenian economy. The development strategy resulted from an intensive dialogue between government, automotive suppliers and research institutes and faculties. Although the cluster initiative was partly government-financed, the government is not directly involved in the planning of activities.

ACS is determined to play its role by leading and creating an environment that will generate necessary initiatives and establish driving forces for joint R&D processes among all ACS members and other national and foreign regulatory bodies, institutions/companies.

## II. Trends in the automotive sector

The automotive industry as a whole is inclined to the reduction in suppliers and favours large system suppliers who are able to develop and manufacture entire automobile assemblies or sub-assemblies, in some cases (for instance, Magna Steyr, Graz) even entire automobiles. Conditions on the market and foremost its challenges demand and call for a renewal of strategies and processes in order to ensure global growth, differentiation, technological level increase, reduction of costs, quick added value growth and continuous increase of competitiveness. The goal is clear: a successful and profitable growth. All of this can be achieved only with integration in the field of knowledge, joint research and development.

The automotive industry is marked by a high and non-linear market as well as technologies dynamics, where knowledge represents an essential and basic constituent of every company's growth and development. Compared to knowledge needed for development and manufacture of a certain product, other constituents of success (input materials, labour force et cetera) do not play such a significant role. This is why we have to increase our flexibility to be able to answer to all developmental changes of markets and technologies. This can be achieved by increasing the possibilities to acquire new knowledge and with innovation. The main competitive advantage of successful companies is only innovation. This applies to all companies – small, medium and large-sized companies. All must offer their clients an added value (a unique distinction), which is the basis for a fair and appropriate price for their services and products. But it is not easy to be innovative – it requires special knowledge and

skills, team work, organizational skills, co-operation, multidisciplinary activities, appropriate business environment, high financial resources and, of course, a little bit of luck.

Nowadays, the technological demands and requirements for the whole vehicle system are changing more rapidly than ever. Fast evolution of electric and electronic components as well as innovative materials, changes in the environmental legislation and ever more demanding safety regulations require a flexible adaptation of developmental and production processes as well as the development of main knowledge and skills. It is only with knowledge and innovation that we will be able to successfully ensure our existence on the automotive market. The automotive industry is without a doubt one of the most demanding industries regarding matters of quality, supply reliability, cost control and innovation. Only the best can be successful in this field of economy. Education is the biggest guarantee for success and for successful implementation of all of the necessary quality systems, constant improvement processes and productivity. Of course, this is not enough, it is also done in countries with lower production costs. Therefore, we must find new technical and organizational solutions and this requires constant acquiring of new knowledge and know-how as well as innovation.

### III. What about Slovenia

Slovenia is (especially after it joined the EU) becoming widely known as a beautiful and picturesque country with a relatively successful economy, the latter being the main reason for Slovenia's entry into the Euro zone as the first of the countries that joined the EU in 2004. Maybe the general public is not aware of what constitutes the successful Slovenian economy: industrial tradition, high level of working skills and technical education, technological culture, quality, innovation, relatively good knowledge of foreign languages and, of course, the highly acclaimed working spirit and thriftiness of Slovenian people. All of these qualities are of course embedded also in all spheres of activities of the Slovenian automotive supply industry, which has an exceptional and long-standing tradition in Slovenia. Although we will probably never be the leading economic force in the automotive industry, the characteristics and knowledge mentioned above as well as our geographic position make us a trustworthy partner in many specific and most demanding fields of the automotive industry.

Of course, these qualities are also at the core of the Automotive Cluster of Slovenia (ACS). Together with institutes and faculties we bring solutions to marketing, technology and R&D challenges. Through productive co-operation we increase our competitive strength, discover new business opportunities, reduce costs and business risks in joint market approaches as well as invest into R&D and educational environment.

Innovative conditions are not entirely the domain of the company – they are also influenced by the innovative environment in the area the company is based in. This environment is formed by three major factors that contribute to the increase of innovation capability of the national economy: the economy as such, institutions for providing knowledge (faculties, institutes et cetera) and the government (the state). Productive co-operation of these three spheres is vital for achieving a higher level of innovation. The current situation in Slovenia cannot be described as satisfactory. The contribution of the academic sphere to innovation processes in companies and their participation on the global market is insufficient. This is one of the main reasons for the technological and competitive setback of the Slovenian economy.

The ACS adapted to the conditions on the market and especially to its challenges by reforming some of the processes. Therefore, all of the ACS members (companies and institutions) focus even more on R&D activities and thus maintain our position and developmental momentum in the world's fastest developing industry as well as ensure the creation of new products and technologies that will all lead to the increased extent of demands. The goal is clear: a successful and profitable growth.

#### IV. Slovenian potentials

The significance of the activity of the automotive industrial in Slovenia is obvious if we consider that the vehicles, automotive components, tools and machines of the automotive supply industry represent a total of 20.2 per cent of Slovenian goods exports. In the overall export of goods and services they represent 17.5 per cent. This industry employs about 24,000 workers. Many, however, are employed indirectly, namely in development, logistics and other services. This does not include the trade activity connected with the turnover of cars nor does it include the after-sales maintenance services. On the basis of the data available for the 2007 exports it can be stated that the exports of vehicles (mainly personal) if compared to 2006, actually increased by ten per cent and the exports of automotive components in the most frequent groups of activities (car parts production, car electricity, electro motors, car seats covers, ...) by up to 22 per cent. The vehicles were mainly bought by buyers from France, Italy, Germany, Turkey, Spain, Croatia and the automotive components were mainly purchased by buyers from Germany, France, Italy, Austria, Croatia, Hungary, Mexico, Great Britain, Spain, Romania, the USA, et cetera.

ACS (Automotive Cluster of Slovenia) members make 1.5 billion euros of income in the production of vehicles and automotive components, 1.2 billion euros are made from the sale on foreign markets. Since the cluster members produce other products side by side with the automotive programmes 17,600 employees make an income of 2.5 billion euros, 79 per cent of which on foreign markets and they achieve 32,360 euros of added value per employee (for 2006), which is above average added value in the processing activity. Besides the 53 companies that make the above-mentioned realization, ACS (altogether 59 members) also involves five faculties and one independent institute with approximately 2,000 employees; at least half of them are researchers.

The Slovenian automotive supply industry includes about 85 manufacturers that can mainly be defined as tier two and tier three suppliers. There are also tier one system suppliers of pedal boxes, gear shift mechanisms, braking systems and other assemblies at CIMOS, auto-electric equipment for engine and steering systems at Iskra Avtoelektrika, engine ignition systems and electronics at Hidria AET, seats at TPV, bowden cables at TBP, headlights at Hella Lux. The buyers of components for the first implementation from Slovenia are VW, BMW, Audi, DC, MAN, Bosch, Ford in Germany, Renault, PSA, Brose in France, Lombardini, Landini, Fiat in Italy, Magna Steyr, Grammer in Austria and many others, also in the UK, the USA, Spain, Hungary and many other countries. These companies have an intensive development in introducing automatisatation into the production process and they are also flexible in adjustments to customer needs.

Today the Slovenian automotive sector represents a sectoral coverage of the supply chain, particularly strong in sub-clusters of material processing, production technologies and mechatronic/telematic applications. Unique for the automotive sector in Europe, Slovenian suppliers are in private

ownership of Slovenian owners, partially also in mixed and foreign ownership. There are no important Slovenian suppliers of automotive components in state ownership.

## V. Synergetic effects to improve R&D activities in Slovenia

In order to acquire the necessary resources for research activities, it is important that the synergetic effects of vertical and horizontal integrations (integrations between companies, knowledge bearers et cetera) are fully utilized. Our success is, therefore, strongly connected with knowledge and competence management and integration.

Our analysis and specific development activities indicate our strong ability to be a trustworthy and reliable partner in all three major fields in the automotive industry – comfort, safety and mobility. That is why our main products will be mechatronic modules that include component parts from the engineering industry, electro industry and electronics, plastic manufacturers and software developers. There is also a demand for suppliers of component parts that require a large amount of technological, tool manufacturing and automation skills and knowledge (special/precision tools, exhaust system parts et cetera). The latter (automation skills/knowledge) being the most important compensative factor in annulment of a relatively higher price of labour force compared to Eastern Europe or Asia.

The ACS already started 18 joint developmental and four technological projects. There are at least three companies and one R&D organization involved in each of them. The majority of these projects are already finished, while others are in their advanced stage. The installation of a technological zinc-nickel production line in Iskra ISD is an example for a technological project. The core of the project is a surface protection technology that is a novelty in Slovenia.

## VI. Strategic research agenda

Technology has always played a key role in the automotive industry and it has been a driver of technology both process and product related ever since the first automobile factories were created. It is very important for the future of our industry that we keep on investing in research and development and it is of crucial importance that the framework conditions are such that they will promote innovation rather than hinder it.

Planning and the introduction of a new product is a time-consuming process that can take years and even decades, therefore, the expenses connected to this process are extremely high and for this reason the realizations of such a project is only possible in co-operation with the researchers (developers) from the company with external research institutions that have the knowledge. In all this the “available technological” environment, available sources and a good strategic plan are of key importance.

Strong research and development is integral to the survival of the European automotive industry. Meeting the challenges of the 21st century and future mobility requires technological innovation, addressing environmental as well as safety concerns. Research and development is the motor in driving this technology forward which is why the automotive industry is one of the biggest spenders on R&D in Europe.

In the Slovenian automotive industry research and development are directed towards the market requirements and the increase of profit. The Slovenian automotive industry is doing business under pressure of fast changes and, therefore, has limited resources for research and development which is then supplemented by using the resources from universities. Currently more than 1,000 registered researchers are connected with the Slovenian automotive industry at faculties, independent R&D institutes and R&D centres in the companies.

Of course, our focus is not just on the present time, but also aimed at the future. ACS established a Research & Technology Council, the consultative committee of ACS management in 2006, with the purpose to understand the particular challenges facing the automotive supply industry in achieving integration of future innovative components, systems and functionalities, in order to improve the recognition and reward for the automotive suppliers' contribution to the vehicle manufacturers' products. It also undertakes the full range of preparatory work for collaborative RTD projects at European level that support this objective.

In the Research & Technology Council we regularly monitor new project initiatives and guide ambitions of individual ACS members. At present we have 30 new joint R&D projects with an aggregate value of 80 million euros, which will be started shortly. Regarding this matter, we also expect support from the European Union and the Slovenian government.

Furthermore, the business policy of the Automotive Cluster of Slovenia is also orientated towards the identification and formation of mutual R&D projects, new products and technologies (virtual companies), and towards international connections with companies and institutions in the field of the automotive industry. The integration into the associations of the automotive supply industry is important and will contribute to a better identification of ACS in Slovenia and abroad. In addition, the connection of ACS members with the external environment will increase the level of technological development and the competitiveness on the global market.

## VII. Polycentric Technological Centre

The project "Polycentric Technological Centre as an international innovative system of Slovenian automotive supply industry" was started because it was found that the position of the Slovenian automotive suppliers can only be improved by mutual investments as well as the co-operation between the economic and academic sphere. The basic strategic-developmental directions of the Polycentric Technological Centre are profitable growth of sales and added value, conquering new buyers, promotion and mutual marketing, innovative processes, qualified suppliers, developmental infrastructure, information structure and fundamental knowledge.

In this way very concrete strategic goals of the project were set: the establishment of new research development centres, creating new posts, the development of new materials, production technologies and high technological products as well as lifting the quality and increasing the co-operation between the economy and the academic sphere. This can already be noticed in the number of projects with the academic sphere and in the fact that there are new qualified researchers in this field. The main challenges of the project in the context of region, with regard to the trends in the automotive

industry introduced in the opening chapters, were creating the capacities for the offer and management of more complex research and development services (modules and not only parts) and setting up technological centres where the technologies are used (in the vicinity of partners). Within the framework of three research centres they tried to answer three fundamental questions:

- What will the technology and the development of products be like in the future
- How will it be implemented (production process)
- Which materials are needed to fulfill the above conclusions

In co-operation of eight companies and three institutions three research and development projects were started in the fields of:

- materials (research of new materials and research of production behaviour of the existing materials)
- technologies (research in the field of transformation, cutting and control of materials and products)
- mechatronics (R&D FSSI Ignition, the R&D of the mechatronic actuator, research and development of corresponding equipment and communication)

Development projects within the framework of PTC are directed into the development of products and services where in the future the biggest transfer of competence is expected and side by side with that also added value from the automotive producers to the suppliers. The whole project is directed towards creating conditions for PTC to become an innovative system that will become included in the global network of automotive producers as a partner who will be able to offer the adequate research and development support.

### VIII. Slovenian Automotive Living Lab (SALL)

Today ACS has become the central communication point between manufacturers, suppliers, research organizations and the government with innovative infrastructure support for the Slovenian automotive industry. The Automotive Cluster of Slovenia has 59 members, of those 53 industrial companies and six R&D institutions (of which five faculties). This means that ACS has become the meeting point of all three spheres.

Appropriate infrastructure, which is without any restraints at the disposal of all members (project partners), is vital for successful implementation and completion of R&D projects or, in other words, to improve our competitiveness model. In the past years the ACS made large investments in the infrastructural modernization within the projects and we plan to continue this activity also in the future. In accordance with EU trends we will establish the "Living Lab" in Slovenia that will satisfy the needs of the automotive industry. In the "Living Lab" we see an innovative environment where "the world of knowledge" and "the world of industry" meet and thus create new ideas for products with the highest added value.

Slovenian Automotive Living Lab will be the central R&D and communication point between manufacturers, suppliers, research organizations and the government with innovative infrastructure support for the Slovenian automotive industry. In the beginning it will have 54 members, of those 47 industrial companies and 7 R&D institutions (of which five faculties). Like the future of the automobile, which is based on the separate development of each part including our parts, the progress of the Slovenian Automotive Living Lab also depends on the continuous development and co-operation among the members.

## IX. What about the future

It is extremely important for the Slovenian automotive industry to strengthen its position on global markets by means of innovation as well as investments in know-how and technology. This should be done right now as there are lots of opportunities for Slovenian suppliers resulting from the transfer of R&D and production competence from vehicle producers to system suppliers. Therefore, ACS intends to accelerate and intensify the area of developing more complex products such as electronics in the passenger department, interior, pedal box, hand brake, brake system, body and lighting equipment, door systems, mirrors, exhaust system, chassis, window washing systems, air conditioning, heating, cooling seats, steering and safety systems, engine and gearbox components (including castings and forgings).

The successful implementation of all R&D projects is a long-lasting process that requires a large amount of co-operation and it may last for years before its goals are fully accomplished. As mentioned before, besides single R&D projects and their goals, a great deal of attention must also be given to the establishment of strong horizontal and vertical as well as physical and intellectual integrations, bearing in mind the specific characteristics of individual environments and in accordance with the principle of partnership and concentration. In this way R&D projects will have an additional positive impact on the ACS as well as on other spheres and areas.

This is also the best way to improve the competitiveness model:

- Building an appropriate infrastructure and thus enable proper working conditions, inflow and the development of creative experts from the automotive industry field
- Creating conditions for the ACS to become a global player in the field of new products and technologies as well as for the increase of competitiveness based on specialization and innovative skills
- Establishing an environment for the development of technologically oriented providers of knowledge in the region
- Creating knowledge and competences in the field of mobility, security and comfort
- Establishing a co-operative network that will be based on strong developmental partners, education and international co-operation

## MOBILITY INDUSTRY CLUSTER NORTH HESSEN: DEVELOPMENT AND INTERNATIONALIZATION

**Karsten Busch** – Since 2005 Karsten Busch is Cluster Manager for MoWIN.net, the Mobility Industry Cluster Nordhessen and Project Co-ordinator for the EUROPE INNOVA project TCAS in the region of North Hessen. In his work he is responsible for the regional automotive sector and the co-operation management within the cluster. He also is an interim board member of the EASN European Automotive Strategy Network, a Europe-wide network of regional automotive clusters and its enterprises.

### I. Introduction

Under the general conditions of globalization both enterprises and regions today have to adapt to an apparently accelerating structural change. Enterprises have to meet the challenges of global competition caused by the possibility to buy and sell products and services almost world-wide and to place entrepreneurial functions at the most suitable location. Competing in a "locational competition", regions need to distinguish themselves by creating unique selling points. Regions, whose enterprises concentrate on their core competences and which simultaneously promote a networking of regional economy – pursuing a strategy of cluster development – are more competitive than regions with enterprises acting isolated from each other. To support and systematically push these positive effects of a cluster is a business development strategy which has gained in importance worldwide.

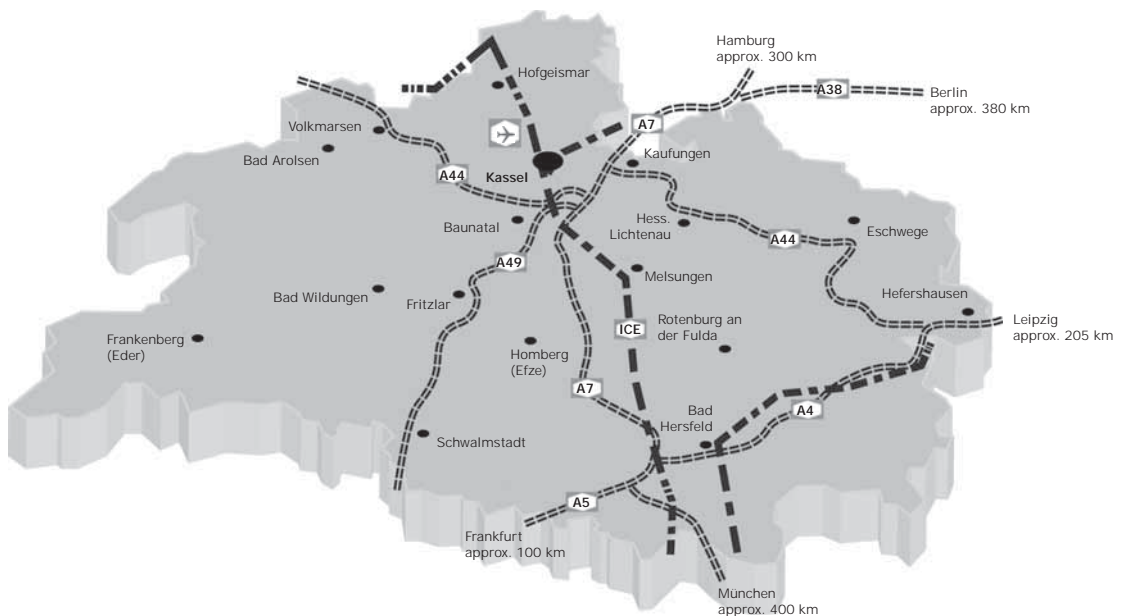
The region of North Hessen (Germany) pursues a cluster development strategy in several sectors. The so-called Mobility Industry is one of three clusters that are actively managed by the Regionalmanagement Nordhessen GmbH, a regional development agency. Innovation cannot be generated in isolation; co-operation again needs an efficient and active network. MoWIN.net is the network of 100 enterprises, scientific organizations and supporting organizations for the mobility industry in North Hessen, a region that offers an ideal environment for co-operation.



Regional clustering is the answer to the impacts of globalization. With the Regionalmanagement Nordhessen and its network MoWiN.net the region of North Hessen found the right answer for the sectors of the mobility industry. With the European project TCAS "Transnational Clustering in the Automotive Sector" the Mobility Industry Cluster made the next successful step into internationalization.

## II. Framework for cluster development in North Hessen

The region of North Hessen, in the very centre of Germany and consisting of the city of Kassel and its surrounding five administrative districts, has a strong tradition as a location for industry and trade. Traditional brands like Henschel began their success ways from here. The region's economy is characterized by the mobility industry with a strong competence in vehicle construction and automotive. The region's further competences within the mobility industry are logistics, rail technology and mobility management.

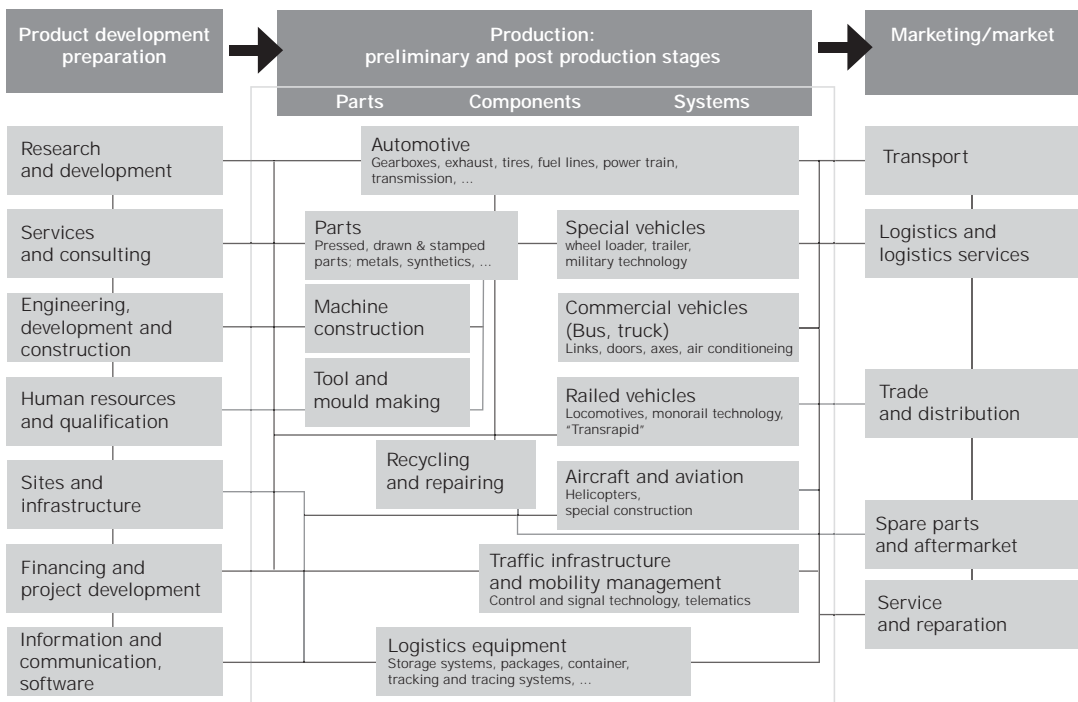


Benchmark and cluster analyses point at an outstandingly high share of employees in the mobility industry in North Hessen. The regional mobility industry offers employment for more than 67,000 persons, the automotive sector alone offers more than 30,000 jobs (a share of nearly 45 per cent). The largest industrial employer by far is the Volkswagen plant in Kassel (production of direct shift gearboxes, transmissions, body parts and exhaust systems) with the attached Research Centre for Intelligent Components (FIB) and Europe's largest spare parts centre, the OTC in Baunatal. Furthermore, the Daimler commercial vehicle segment with its axle production is based in Kassel.

Another pillar of the regional automotive sector are automotive parts and component suppliers. Through the unique geographic location of the region as well as due to its excellent traffic infrastruc-

ture North Hessen is considered to be the aspiring logistics region in Europe. Several publications, for example by Fraunhofer Institute IIS, point at the region's high potential as a future location for distribution logistics. With Bombardier Transportation and ThyssenKrupp Transrapid Kassel hosts international railway technology heavyweights and important suppliers. Mobility management stands for broad planning and engineering competences in the region. A number of planning and construction companies offer product development and services. As a "First Class Support Region" the region of North Hessen is a location for intelligent production solutions, retail logistics, spare part supply for system suppliers in the automotive sector and for innovative machining of metals (pressing, cutting, shaping, forming, coating, specialized welding as well as fusing and adhesive technologies). Considering regional R&D structures the universities in the region offer a number of competences to the automotive sector. There are institutes and specializations in mechanics, production technology and logistics, materials, machine elements and construction technology, lightweight construction, measurement and automation technology, power train engineering and a research association for automotive systems. An application centre for the mobility industry was set up with its first section "Metakus" for metal forming technologies. Furthermore, the University of Co-operative Education in Logistics ("SAL Studienakademie für Logistik") in Bad Hersfeld and the Kassel University Inter-

Value-added chain of the mobility industry cluster North Hessen



national Management School (KIMS), an academy for international management, have developed successfully.

The central position and the good accessibility are not the only strengths of the region. The region also offers sufficient space for entrepreneurial development and extensions of enterprises as well as reasonable land prices. The region meanwhile is recognized as a centre of the mobility industry with international reputation on the competences automotive, logistics, rail technology and mobility management.

### III. Implementation and strategy

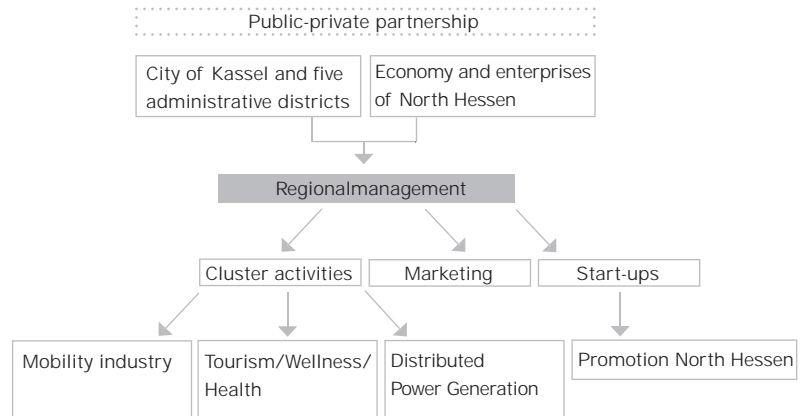
The state of Hessen supports regions requiring structural adjustments to help them innovate and become more economically dynamic. The involvement of both private and public decision-makers is an important principle in Hessen's regional policy. A good example of this is the regional development agency for the region of North Hessen ("Regionalmanagement Nordhessen GmbH") which was set up in 2002. Its main task is to strengthen and promote the region's existing advantages to help it compete with other regions. The Regionalmanagement Nordhessen GmbH was set up as a public-private partnership with the aim to co-ordinate all measures serving the strengthening of the economic power to stimulate a more dynamic process of the regional economic growth. The supervisory board of the Regionalmanagement Nordhessen GmbH engaged the Regionalmanagement to develop two clusters as a matter of priority; meanwhile, the work of the association extends on three clusters: On the one hand there is the cluster "Tourism, wellness, health", also established in 2003, on the other hand the cluster "distributed power generation". In the long run strong impulses for the improvement of the regional employment situation are expected. In the Mobility Industry Cluster the Regionalmanagement Nordhessen strives for the objective to develop the region into a centre of the mobility industry with international reputation.

The kick-off conference of the Mobility Industry Cluster in March 2003 aimed at winning all enterprises, institutions and partners to support the cluster idea and to form a first "loose" network. The conference with a broad support of regional enterprises had several results: numerous enterprises committed themselves to support the development of a cluster organization, some of the larger enterprises suggested the formation of an advisory board for the mobility industry – the so-called Roundtable of the Mobility Industry. In February 2004, eleven months after the kick-off for the cluster development, the network was formalized with the establishment of the registered association "MoWiN.net eV – Mobility Industry Nordhessen Network".

While the Regionalmanagement Nordhessen GmbH is responsible for the overall cluster management in the mobility industry, MoWiN.net eV was established as the network organization of the Regionalmanagement with the more specific objectives to support science and research and develop entrepreneurial co-operation. Since the institutionalization of MoWiN.net eV in early 2004 the number of memberships has been rising continuously to over 100 enterprises, scientific and supporting organizations.

Being attractive to companies MoWiN.net has become the strongest network in North Hessen. Enterprise memberships extend over the complete value-added chain of the mobility industry. Two plants

### Organization chart of the Regionalmanagement Nordhessen GmbH: Overview



of the German OEM Volkswagen and Daimler, a number of suppliers (for example Continental/Contitech/VDO, TI Automotive, AKG, Konvekta, Hübner, Wegu), automotive and distribution logistics companies, rail technology world market leaders, construction and transport planning agencies, specialized consultants, supporting institutions like the Chamber of Commerce and Industry and UniKasselTransfer, the university's agency for technology transfer as well as several automotive and mobility related departments of the Kassel University and private members.

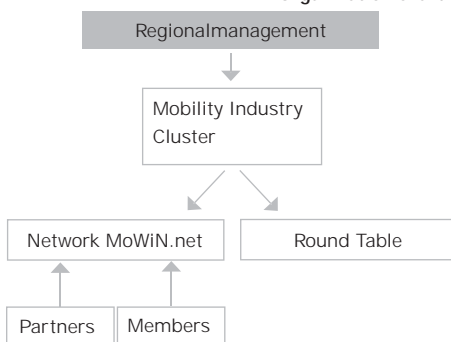
MoWiN.net addresses its offer to all enterprises, self-employed, institutions and private persons who are – emotionally or economically – part of the value-added chain of the mobility industry. Potential members have to point out the enterprises' references regarding the mobility industry, so the managing board is able to decide on a membership. At present, MoWiN.net has an executive board of eight members, covering representatives of enterprises and institutions from all competence fields of the mobility

industry in North Hessen. The second supervisory body is the general meeting of all network members. It is convened once a year to evaluate strategy and business methods of the organization.

MoWiN.net offers its members:

- Additional and specific business contacts = new customers and new orders
- Co-operation management = new co-operation partners
- Cost reduction, increase of efficiency and innovation ability as synergy effects
- Increased public perception and enforceability of common interests
- Increase of knowledge

### Organization chart



- Stabilization and rise of sales and profitability for regional enterprises
- Safeguarding of employment and joint recruitment of staff
- Closing of technology gaps and strengthening of the region and its enterprises by development of joint R&D resources
- Increase of the image and the reputation of the regional competences within and outside the region through joint marketing and participation in fairs and exhibitions

#### IV. Selected cluster activities

Within five years MoWin.net and the Regionalmanagement Nordhessen have implemented numerous projects and activities in the four main fields of action "Research & Development", "Human Resources & Qualification", "Marketing" and "International Business". Further activities are subsumed under "Co-operation Management". Selective activities include:

*Research & Development:* With the establishment of the METAKUS Application Centre for Metal Shaping and Forming ([www.metakus.de](http://www.metakus.de)) a gateway between science and economy was created. Metal-processing enterprises have the opportunity to enhance their products and processes with innovative methods to produce faster, more competitively and with higher quality. Therefore METAKUS integrates product design, process design and process management. The initiative to establish an internationally operating technology transfer facility was taken by the Roundtable of the Mobility Industry jointly with other well-known enterprises in co-operation with the Regionalmanagement Nordhessen and Kassel University. Participating enterprises complement one another and form an innovative network to raise their competitiveness.

*Human Resources & Qualification:* In Bad Hersfeld, the logistical centre of Germany, several logistics service providers requested specialized personnel. With the help of the German Fraunhofer Institut (curriculum), several enterprises (location, participation) and the cluster management (co-ordination) the University of Co-operative Education ("SAL Studienakademie für Logistik") was realized. Several workshops and trainings complete the qualification activities of the cluster.

*Marketing:* Several platforms for the nation-wide marketing of the region's strengths, for example the congress and fair "Logistik-Tag" and the Mobility Congress on Rail Technology, have successfully been established. Moreover, a full spectrum of marketing instruments, from websites and newsletters to print products and a marketing campaign are being implemented. Through joint participation in national and international fairs and exhibitions enterprises have the possibility to get marketed under the brand name and roof of the region/the cluster.

*International Business:* As this publication shows, within 30 months of work of the Europe INNOVA project TCAS "Transnational Clustering in the Automotive Sector" and the related programmes on European level, lasting results were achieved for all participants. For the Mobility Industry Cluster Nordhessen these efforts were a strong enlargement of international contacts to other cluster initiatives, R&D organizations and enterprises. These contacts to international enterprises enabled the participating companies to find new co-operation partners throughout Europe. Through concomitant research activities (for example cluster-mapping), the North Hessen region was brought onto the European map of automotive regions.

The image of the cluster as a European top-competence region in the automotive sector was positively shaped as underlined by several publications in regional and international press. The cluster visiting scheme spurred several activities, for example a matchmaking-event, which, meanwhile, have become an important part of MoWiN.net's regular cluster activities. The so-called "Co-operation Forum", held every year, up to now resulted in nearly 150 qualified contacts for the regional automotive and mobility sector. After two years the Co-operation Forum has already been highly accepted by enterprises. A direct outcome of the TCAS visit to North Hessen is a marketing tool, a regularly published magazine with the title "Mobilitätswirtschaft Nordhessen" ("Mobility industry in North Hessen"), which presents and communicates regional and international projects of the cluster members. Above all the co-operation of the cluster initiatives inspired a trustful culture of collaboration, which will be continued in several follow-up projects. The foundation of the so-called "European Automotive Strategy Network" (EASN) is a strong sign towards the EU, the Commission, cluster initiatives and enterprises.

*Co-operation Management:* Cluster management has to offer a broad spectrum of enterprise oriented services and activities. In North Hessen on the one hand there are "network meetings" hosted by member enterprises, consisting of key note speeches and plant visits and an informal part for networking. In dialogue with enterprises the cluster management supported several joint activities and co-operations between cluster enterprises.

## V. The future

In addition to existing activities MoWiN.net and the Regionalmanagement Nordhessen GmbH will set up projects according to the needs of the member enterprises, for example concerning electric mobility/power train, recruiting topics, joint marketing and joint purchasing activities. Several European projects are in preparation and both, members and responsible persons at the Mobility Industry Cluster, hope to enhance co-operation with other active regions from all over Europe.

## SUCCESSFUL NETWORKING OF “HIDDEN CHAMPION AUTOMOTIVE SITES” – TCAS’ EFFECTS ON THE AUTOMOTIVE CLUSTER RHEIN MAIN NECKAR

**Martin Proba** studied Economic and Organizational Sciences at the Bundeswehr (German armed forces) University in Hamburg. Mr. Proba worked as Assistant to the Management in a service sector company. He is Head of the Departments “Start-up and Enterprise Development” and “International Affairs” at the Chamber of Commerce and Industry in Darmstadt and one of three Co-ordinators of the Automotive Cluster RheinMainNeckar.

The Automotive Cluster RheinMainNeckar is a company-driven cluster which was established in 2003. Today it consists of 450 members which cover the whole automotive value chain. The core region has more automotive companies than the state of Michigan, the heart of the US automobile industry. 54,000 persons are employed in this sector. The region is also well-known for its trade fairs IAA and Automechanica.

Companies like Adam Opel AG, Pirelli Deutschland AG, Lear Corporation, VDO, Delphi Deutschland, Suzuki, Hyundai, Tyco Electronics, Continental Teves AG and MAN have sites in the area.

Well-known universities contribute to education and research in the automotive sector: TU Darmstadt (renowned technical university), FH Wiesbaden-Rüsselsheim (university of applied sciences) and Fraunhofer Institute for Operational Stability. And at last many companies have established research and development centres in the Rhine-Main region: There is the International Technical Development Centre (Adam Opel AG) and the European development centres of Honda, Hyundai, Kia and Mazda are also located here.

Therefore, the Automotive Cluster RheinMainNeckar covers a high potential region of automotive industry in Germany. When the Automotive Cluster RheinMainNeckar promoted the establishment of TCAS in 2005, the managers involved had only vague ideas of the arising opportunities of this

European network.

From their three years' of experience they put down only some requirements at the set-up of TCAS:

- TCAS should not only be a platform of intermediate organizations in the automotive industry
- Matchmaking events should be an integrated part of the project
- TCAS should offer the opportunity exchange ideas, know-how and business between companies and also scientific bodies at European level
- The intermediate organizations such as the Automotive Cluster RheinMainNeckar should be guarantors for quality, neutrality and confidentiality of the network

Within this framework the Automotive Cluster RheinMainNeckar managers believed in the successful work of TCAS.

#### **Confidence-building first**

Every success of networks is based on confidence. At least it was necessary to show the participating networks the opportunities in every region. For example, the Automotive Cluster RheinMainNeckar had to prove that the Rhine-Main-Neckar region is as interesting as the greater Stuttgart area and can also compete with the Munich region. Vice versa Wielkopolska had to show its opportunities as well as there had to be information for the German networks about Slovenia, Eindhoven and Haute-Normandy. It was a club of "Hidden Champion Automotive Sites".

This was accomplished by a close contact of the clusters' managers in the beginning of the project. The managers themselves managed the information process inside their clusters. On this basis of confidence it was possible to meet the requirements mentioned above.

#### **Learning from "best practice"**

The first effect was the share of experiences between the clusters. Wielkopolska as a "start-up cluster" is thought to have gained most from the exchange. But even the established clusters learned a lot from each other: the Automotive Cluster RheinMainNeckar extended its array of products by screening the different ranges of offers to the members of the other clusters. The different ways of financing cluster projects set up a discussion on changing basics of feeding the cluster. The managers of the Automotive Cluster RheinMainNeckar learned a lot about operational organization discussing experiences with their colleagues abroad.

#### **Sharing ideas across borders**

During the meetings of TCAS the participating companies shared ideas across the borders. Every company visit lead to discussions about solutions for the seen challenges: There is almost no topic left in the automotive value chain that has not been discussed at least once. The improvement of a production line was discussed as well as the question how to reduce the weight of a plastic spare part while keeping its stiffness.

#### **European business initiated**

Every cluster-meeting in the TCAS project initiated business. The meeting in Bled (Slovenia) gave the members of the delegation the confidence in Slovenia as a production location. Not only the low cost was interesting, but also the high technical standard and the flexibility that had been shown during the company visits. Automotive Cluster RheinMainNeckar knows that several of their 2nd and 3rd tier suppliers established close business connections to Slovenian companies. This covers not only metal parts but also electro-mechanic equipment. This positive experience offers Automotive Cluster RheinMainNeckar the opportunity to attract more companies for business in Slovenia in order to be competitive on the internal German market.



Another very positive example is the visit to the Midlands Manufacturing Exhibition 2007 during the TCAS meeting in Birmingham. Many companies of the cluster now plan to take part in the West-Midlands' trade fairs, in a first step as visitors, and in a second step as exhibitors in order to gain access to the British market.

The most effective way of establishing business contacts were the organized matchmaking events. To prepare the talks, the clusters merged offers and demands of the participants. Companies could check in a first 20-minute-contact whether there is a common basis and could then discuss further steps of contact.

#### **Know-how-transfer from scientific bodies to companies**

The Eindhoven visit gave a first impression of a best practice example of technological transfer between science and manufacturing. The concept of pooling academic institutes, research facilities and down-streamed companies is an effective way to push technological transfer. At least, the research facilities for speed testing and simulation of traffic flow are now booked by companies of the Automotive Cluster RheinMainNeckar.

During the visit of Haute-Normandie the members of the delegation had been shown motor-testing facilities. At the end of the journey already one of the German participants contracted co-operation in this field because it just met current problems of his company.

As we can see, know-how-transfer in the automotive industry is not only a regional question but also an international networking topic as well as automotive markets are no longer regional or national but also international.

#### **Attraction for third-party bodies**

At last, with its international flair and impact TCAS had a positive effect on the attraction of the Automotive Cluster RheinMainNeckar region. The TCAS events together with Automotive Cluster RheinMainNeckar were also open for participants from other countries. This resulted in intensifying contacts of Automotive Cluster RheinMainNeckar to the Serbian automotive industry. Within 6 months a Serbian delegation had come for a follow-up visit.

The real success story is the establishment of an Indian-German joint venture in the region of the Automotive Cluster RheinMainNeckar in June 2008. The first contact was made during the TCAS cluster meeting in September 2006 in Darmstadt. A follow-up presentation of the cluster to the management board of the Indian party with emphasis on the European network context promoted the decision for settling in the Rhine-Main region. To quote one of the managing directors "otherwise we would have established our joint venture elsewhere".

#### **Lessons learned**

It is most important to link all European networking to the exchange of information between the companies. At least the matchmaking-events were very successful. About 1,000 contacts during the matchmaking-events have been the basis, for further business. Getting to know each other on a neutral basis offers the opportunity for further steps which would have taken never place without the initial meeting in the TCAS project.

Furthermore, we have learned that it is important to get an insight in other countries' value chains, production processes and last but not least their way to do business. Thus we get a better understanding of other European business communities and markets.

The intermediate bodies learned from each other by best practice examples. The different ways of organization, financing and projects of the members gave every TCAS member new ideas of how to do a better job in the future.

## CO-OPERATION IN THE COMPETITION – THE PANNON AUTOMOTIVE CLUSTER

**Zoltán Kabács** is Cluster Manager of PANAC, the West-Transdanubian Regional Development Agency, Győr, since March 2006. Before joining PANAC he had been working in the automotive sector for nine years and gathered experiences in different fields working for well known OEMs and Tier1 suppliers. Mr. Kabács has EU project experiences as a WP leader (BeLCAR) and local contact point (REGINS). He is a nominated expert for Europe INNOVA in the Sectoral Innovation Watch Panel and he is advisor to the Ministry of Economy to create Hungary's Competitive Automotive Strategy.

### I. The Pannon Automotive Cluster

The Pannon Automotive Cluster is an innovative network co-operation of the enterprises and organizations holding stake in the automotive industry. It is based on mutual advantages and is organised on a voluntary basis.

The Pannon Automotive Cluster PANAC was established in December 2000 on the initiative of the West-Transdanubian Regional Development Council with the support of the largest (multinational and Hungarian) automotive companies in Hungary, in order to promote the improvement of the domestic automotive industry's international competitiveness through the provision of industry-specific services.

Professional founders: Audi Hungaria Motor Ltd., Hungarian Suzuki Co. (currently: Hungarian Suzuki Private Co.), Opel Hungary Vehicle Manufacturing Ltd. (currently: General Motors Powertrain – Hungary Ltd.), LuK Savaria Ltd. and Rába Holding Co. (currently: Rába Holding Plc.)

Service-provider founders: Citibank Co. (currently: Citibank Private Co.), Industrial Research and Consulting Ltd., West-Transdanubian Regional Development Council

The Ministry of Economy also joined the initiative as an active supporter.

PANAC constitutes a contractual network based on civil rights. It was established and has been operating in order to attain common goals. With respect to its operational form, it is not a separate legal entity and it carries out its activities in the framework of the PANAC division of the West-Transdanubian Regional Development Agency.

With its operations, the PANAC initiative seeks to accomplish a complex supplier development task, above all, gathering the players of the Hungarian automotive industry. The direct beneficiaries of its activities are primarily the Hungarian small and medium enterprises operating in the automotive industry.

The overall strategic aims of Pannon Automotive Cluster is to reinforce the international competitiveness of the Pannon region, to improve the region's ability to renew and to contribute to the region's development (automotive start-up and spin-off firms, creation of jobs). Other goals are:

- to increase the efficiency of long-term network co-operation among the enterprises operating in the field of automotive industry
- to facilitate the elaboration of new automotive supply relations
- to promote the creation and settlement of new automotive enterprises
- to commonly exploit the infrastructures, technologies, capacities already existing in the automotive industry and to commonly purchase and operate new ones
- to enhance the creation of an expert base educated in conformity with the requirements of the automotive industry (transmitting educational needs): (from skilled worker- to engineering education, other skills: teamwork, knowledge of languages, practical orientation)
- to dissolve mistrust among the automotive enterprises, to ensure opportunities of informal communications and efficient information flow
- to reinforce out-of-network relations (with similar networks, aiming at co-operation and technology transfer)
- to increase value added in corporate activities

In order to attain these goals, the initiative helps Hungarian suppliers to successfully join global supplier chains; it supports its partners so that they may be able to produce more and more complex products of higher knowledge content, thereby improving their position in the supply chain. It also tries to render the network and its members more and more visible on an international level.

The membership structure of Pannon Automotive Cluster provides the opportunity to join to every business and non-profit oriented enterprise, organization and institution that is somehow connected to the automotive industry independent of its size and ownership structure.

The Pannon Automotive Cluster offers many services. We provide automotive-specific information, organize professional trainings and supplier development programmes, organize professional conferences and workshops, provide services of technology transfer, partnership and project management in domestic and international programmes, organize international business meetings, represent companies at exhibitions at domestic and international level, provide business partner services, operate and co-ordinate the Automotive Benchmarking Club, distribute the professional weekly newspaper "Rear-view" (Visszapillantó).

**Alapítók/Founders**

- 1 Audi Hungaria Motor Kft.
- 2 Citibank Zrt.
- 3 GM Powertrain – Magyarország Kft.
- 4 Ipargazdasági Kutató és Tanácsadó Kft.
- 5 LuK Savaria Kft.
- 6 Magyar Suzuki Zrt.
- 7 Ny-D Regionális Fejlesztési Tanács
- 8 Rába Járműipari Holding Nyrt.
- 9 Széchenyi István Egyetem
- 10 UniCredit Bank Zrt.
- 11 Siemens Zrt.

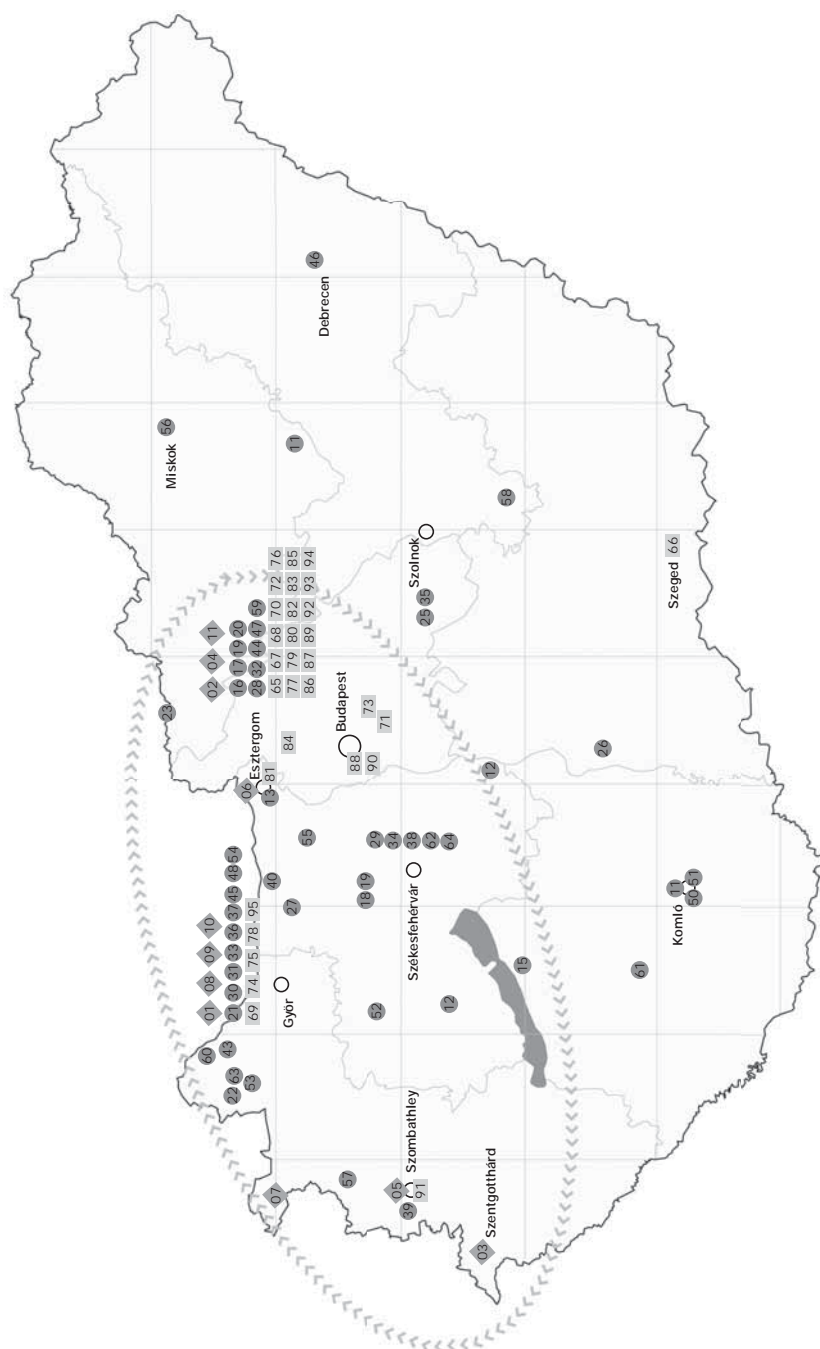
**Gyártók/Producers**

- 12 Ajkai Elektronikai Kft.
- 13 Albert Weber Hungária Kft.
- 14 ARRK Hungary Kft.
- 15 Bálint Kft.
- 16 BankKonzult Vill Kft.
- 17 Bausch Kft.
- 18 Benteler Autótechnika Kft.
- 19 Benteler Handel Kft.
- 20 Bíró Kft.
- 21 Borsodi Műhely Kft.
- 22 BOS Automotive Products Magyarország Bt.
- 23 Delta-Tech Mérnöki Iroda Kft.
- 24 Dunapack Zrt.
- 25 Ecseri Kft.
- 26 Emika Zrt.
- 27 Eurocast Kft.
- 28 FESTO-AM Kft.
- 29 GalvanPlastik Kft.
- 30 HNS Műszaki Fejlesztő Kft.
- 31 Hörmann Győr Kft.
- 32 InterPlus Kft.
- 33 Jankovits Hidraulika Kft.
- 34 Karsai Holding Zrt.
- 35 Kónusz Kft.
- 36 Lear Corporation Hungary Kft.
- 37 Magyar Forgácsolástechnikai Kft. (HTCM Ltd.)
- 38 MATECH 2000 Kft.
- 39 Metrikont Kft.
- 40 MOL-Lub Kft.
- 41 MOM Faktor Gépipari Kft.
- 42 MOMERT Zrt.
- 43 Mosonpack Hullámlemezfeldolgozó Kft.
- 44 Nivex P+P Kft.
- 45 Pannon Tools Kft.
- 46 Plastic-Form Kft.
- 47 ProForm Kft.

- 48 Rába Futómű Kft.
- 49 Rába Járműipari Alkatrészgyártó Kft.
- 50 Rati Kft.
- 51 Ratipur Kft.
- 52 Seton Hungary Kft.
- 53 SFS intec Kft.
- 54 Shin-Etsu Polymer Hungary Kft.
- 55 Tatabányai Rugógyártó Kft.
- 56 Technoplast Kft.
- 57 Uniriv Kft.
- 58 UniTrade M&M Kft.
- 59 Varinex Informatikai Zrt.
- 60 Veritas Dunakiliti Kft.
- 61 Videoton Elektro-Plast Kft.
- 62 Videoton Holding Zrt.
- 63 VisiCorp Hungary Bt.
- 64 VT Metal Kft.

**Szolgáltatók/Service providers**

- 65 "K+F" Kutatás-fejlesztési Tanácsadó Központ Kft.
- 66 A. A. Stádium Diagnosztikai és Menedzsment Kft.
- 67 AIB-VINCOTTE Hungary Kft.
- 68 Állami Nyomda Nyrt.
- 69 ArraboCAD Kft.
- 70 CAD-Terv Mérnöki Kft.
- 71 Cargo Partner Hungária Kft.
- 72 CFD.HU Áramlástechnikai Kft.
- 73 DHL Globál Szállítványozási Kft.
- 74 EDAG Hungary Kft.
- 75 ElmaFlex Kft.
- 76 FESTO Automatika Kereskedelmi és Szolgáltató Kft.
- 77 GEFCO Magyarország Kft.
- 78 HÖDLMAYR Hungária Logistics Kft.
- 79 K&H Bank Zrt.
- 80 Kvalikon Kft.
- 81 KVL COMP Vezérléstechnikai Kft.
- 82 LCS Budapest Kft.
- 83 Magyar Pályázatkészítő Iroda
- 84 Mevisor Automatika Kft.
- 85 Nóniusz Kft.
- 86 NYK Logistics (Hungary) Kft.
- 87 Régens Informatikai Zrt.
- 88 S&T UNITIS Magyarország Kft.
- 89 SGS Hungary Ltd.
- 90 SKF Co.
- 91 SQS 2001 Kft.
- 92 Szenyor Gazdaságmérnöki Kft.
- 93 T&T Quality Kft.
- 94 TEQUA International Kft.
- 95 ThyssenKrupp Ferroglobus Zrt.



PANAC's network co-operation currently operates with 95 members. However, its activities are not restricted to the members, its services are available for all enterprises related to the automotive industry.

## II. The creation and operation of the Automotive Benchmarking Club

In September 2002 the Pannon Automotive Cluster was the first one in Hungary to launch a successful Benchmarking Club that enabled the practice of benchmarking, a method enabling the comparison of corporate performance and promoting learning within an organized framework. It was on 10 September 2002 that the automotive Benchmarking Club co-ordinated by PANAC began to take shape – through the co-operation of eleven experts from ten companies –, followed by a four-day workshop for top executives on 18 to 21 September 2002. During these four days the participants created the operational framework and rules of the Club: the Benchmarking Club's Regulations of Operation, containing the Benchmarking Protocol providing directions to the corporate benchmarking contact persons and the document entitled "Etiquette and Ethics" formulating basic principles of conduct for partners participating in practical benchmarking activities. The Contract of Agency constituting the basis of club membership, which is signed between the participating company and PANAC as the club operator, was finalized, too.

Among the founding enterprises of the Benchmarking Club are well-known international Tier1 companies like Schefenacker (today Visiocorp), Visteon and also Hungary's big and small and medium-sized automotive companies like RÁBA, Ratipur et cetera. The data related to the current 24 indicators apply to the areas customers, processes, business results, human resources and Suppliers.

The aim of the Benchmarking Club is to create a straightforward organizational and legal framework for an activity, the success whereof considerably depends on the participants' trust in one another and in the organization handling the data.

The Benchmarking Club collects and processes the members' data and prepares a report from a flexible and expandable database. Furthermore, it co-ordinates the benchmarking activities and visits aiming at getting to know the "Best practices" among the club members. PANAC handles the data provided for the purposes of the Benchmarking Club in a strictly confidential way and does not hand it over to any third party. The data provided by the club is based on the principle of mutuality: the members receive the average, upper and lower quarter data and the anonymous individual corporate data only in those fields where they also supplied data. The owner of the data can only be named in case the authorized manager of the club member has provided their prior written consent. This is done in case the company achieved the best result in the given category.

The Benchmarking Club works in half-yearly cycles, which means that two reports are done annually. As an input for the report, the participating companies forward to PANAC the corporate data related to the defined fields. The PANAC office processes and summarizes the data, determines certain average data and then prepares a data report and textual expert report containing anonymously published company data and average data with respect to the individual indicators.

In general, three Benchmarking Club meetings are organized annually. The aim of these is to get to know the individual member companies' good practices within the framework of a factory visit, to talk about arising questions and new opportunities as well as to improve the club's operation. During the club meetings the work done in the previous semesters is reviewed and the following semester negotiated.

Based on the feedback received from club members, the operation of the Benchmarking Club has already proven to be extremely useful. The companies could position themselves with regard to the Hungarian automotive industry. They had the opportunity to refine and improve their own information and measurement systems. They were enriched by numerous ideas with respect to the improvement of their existing practices, so they could better identify their development priorities. They received ideas in relation to improving critical performance areas. The systematic application of benchmarking began to work its way into the corporate culture and practices.

The experiences we made with the Benchmarking Club within eight years are the following: We need to standardize and well define the measurement methods. It is not enough to look at individual indicators to make conclusions, but the context between them. Benchmarking is not enough, the target is to develop processes and implement the gained experiences in the daily life of the company. Before developing or setting strategic goals, it is necessary to analyse best practices. Once you decided to start, just go ahead and do it step by step.

We are currently working on opening our Automotive Benchmarking Club for other countries. If you as a company are interested in joining the club, get in touch with your cluster, network or association. If you are a cluster, don't hesitate to contact us.

We see great opportunities in collecting international averages and best (or good) practices from different companies in different countries. There is always the opportunity to use other indicators, or to run ad hoc benchmarks. Due to developing the critical mass, we are able to differentiate and/or integrate new indicators from other sectors, technologies or products. Today it is not enough just to look inside. Therefore, we do not only support but also actively participate in cross sectoral learning from best practices. Just think about Toyota's Supermarket, GPS or how Henry Ford once organized his first serial production. The Benchmarking Club gives you the possibility to see, learn and improve your company in a trustful partnership.

## ACTION PLAN FOR THE FORMATION OF AUTOMOTIVE CLUSTER IN WIELKOPOLSKA

**Bartosz Warniełło** (born 1977) is the Development Director at Wielkopolska Agencja Rozwoju Przedsiębiorczości Sp. z o.o. He graduated from the University of Economics in Poznań (2000). His interests encompass public sector support for enterprise development at individual, enterprise and cluster level.

**Anna Łuszczewska** is Director, Business Support Service at Wielkopolska Agency for Enterprises Development, dealing with promotion of the region, internationalization of enterprises, branch support projects and services to foreign investors. She is the Project Manager for the Wielkopolska region of the TCAS Project, focussing on co-operation of European automotive clusters as well as transfer of experience to clusters emerging in the new EU states.

**Dušan Bušen** is Managing Director of Business Association ACS, Automotive Cluster of Slovenia. He is a member of CLEPA RTD WG and HRM WG; he is a member of the Europe INNOVA Automotive Panel at DG Industry and Enterprise, and is chairman of the development group for vehicles, transport and logistics at the Slovenian Competitiveness Council. He received the Europe INNOVA award "Cluster Manager 2006."

### I. Introduction

The respective fields of human economic activity tend to have spatial centres rather than distribute evenly over the globe. They cluster rather than spread. If we pick at random a branch of activity, in some geographical areas there will most probably appear centres where the biggest numbers of high-class specialists in the core fields of that activity reside, the rules that lie behind successful performance are discovered and the most important ways of its conduct are elaborated, which happens often in parallel with a similar role of that geographical area for other fields of economic activity. The regional productive systems in these areas in the selected field of activity are the clusters. Some areas remain peripheral, follow rather than establish the rules and copy rather than invent. Other areas fall in between.

We may look at the phenomenon of geographical concentrations of specialized factors of production (clusters) and the efforts designed to foster these concentrations (cluster initiatives)<sup>1</sup>. Another distinction should follow to keep apart the dynamics of an underlying cluster and the dynamics of the cluster initiative (and cluster development policies in general). The authors' practical experience suggests that these two separate phenomena are not always perceived as distinct. One process is



the evolution of the underlying cluster – it can be described and assessed in such terms as the potential of cluster actors, the quality of relationships between them, quantity and quality of their output, their joint ability to compete internationally, to grow and develop while acquiring new resources. The other process is the evolution of the cluster initiative – it can be described and assessed in such terms as the organizational potential of the cluster broker, the number of association members or project participants, the quality of co-operational projects and the impact of these projects on the dynamics of the underlying cluster. The two processes run simultaneously and influence each other.

Christian Ketels<sup>2</sup> states that *“There is increasing evidence and agreement among researchers that clusters exist and that they feature a number of positive economic effects. There is less systematic evidence and agreement that policy interventions are possible and that they can generate value by speeding up the process of cluster development or increasing the effectiveness of existing clusters”*. In other words – clusters do reinforce regional economy, cluster initiatives not always do. Keeping the cluster dynamics and the initiative dynamics apart while discussing cluster development in the new EU countries is important, as the effects of activities performed by a cluster initiative delivered at its early stages of existence, might not match unrealistically inflated expectations and harm the perception of clusters’ importance for the regional economic development.

## II. Cluster development policies

### 2.1. Economic rationale behind cluster development policies

The regions where clusters occur benefit. Their productive systems successfully compete in international markets – they are able to deliver the most innovative products and to reorganize and rationalize the cost of production. They also profit from having introduced new solutions and being the most competent in the field of their application in another place. As clusters thrive, the general wealth of a region is growing. This is the most important reason for cluster development policies. The underdevelopment of a cluster as a whole is seen as a market (or policy) failure in this context<sup>3</sup>.

Another important reason, especially for the new EU countries, is growing importance of regional authorities for the economic development policy. Since the most important factors of regional competitiveness are usually related to parametric, macroeconomic settings of national competence (for example regulation, taxation, compulsory surcharges over the cost of labour, currency exchange rates and interest rates), the regions are restricted to a complimentary policy role with a focus on the allocation of public spending. The allocation will be more optimal if assigned in line with the specific

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<sup>1</sup> *The definitions in the paper follow the “Cluster Initiatives in Developing and Transition Economies” report by Christian Ketels, Göran Lindqvist and Örjan Sölvell published by the Centre for Strategy and Competitiveness, Stockholm 2006.*

<sup>2</sup> *The Development of the Cluster Concept – Present experiences and further developments, Ketels Ch., 2003, p. 14.*

<sup>3</sup> *Clusters and cluster policies: What are they, why are they important, how to promote them?, Szanyi M. Akbar Y.H., Buzás S., Pogátsa Z., Sass M., PRO INNO EUROPE, INNO NETS, CEE-Cluster Network project report, 2007, p. 20-21*

characteristics of a regional economic system. Thus seeing the regional economic system in terms of respective productive systems and the urge to strengthen these systems and transform them into national or international level clusters, is an important issue from a policy efficiency point of view.

### 2.2. Some arguments against cluster development policies

Clusters are complex systems involving many organizations. Each of these organizations stores and processes information about itself. The amount of information resulting from its activity usually exceeds the organizational capacity to process it usefully for internal decision making. To gather and analyse information required for some sort of optimization of cluster development policies in this context, is an enormously ambitious challenge.

Moreover, there are probably very few areas for intervention where public spending would equally contribute to the well-being of the whole cluster. Any piece of intervention will thus affect the cluster asymmetrically to a benefit of its subsystem or even a single organization. It is, therefore, an open question whether it is feasible to target clusters with intervention, and if they are optimal systems to target intervention at.

Any public support preference for a narrowly defined industrial branch (or a cluster) means a disadvantage for all other branches. The selection of the "strategic" branches will always involve a discretionary factor open for external influence.

Cluster development incurs alternative costs of intervention being diverted from elsewhere. Funding spent on cluster development policies will not be allocated for other development goals. It should then be taken into consideration whether specific cluster development policies will bring better results than more generally targeted policies (or leaving the tax-raised funds in the domain of the private sector).

### 2.3. Instruments for cluster development

The most common instrument for cluster development is the establishment of a cluster initiative (or public support for its establishment when it is initiated by business or academia) to initiate and implement the cluster development project, partially or fully supported by public financing. Cluster initiatives differ to a large extent between each other in terms of organizational forms, driving actors, scopes of objectives and activities as well as sources of their funding.

Cluster initiatives appear in various organizational forms and structures. These forms stretch from a loose project structure, merging resources of various organizations to established, distinct legal entities with some cluster initiatives being divisions of other entities in between. As established entities they occur in varied organizational forms – corporations, associations and foundations. Even more varied are the legal forms of bodies whose divisions are cluster initiatives and include, for instance, chambers of commerce, universities and research institutes, departments of regional governing authorities and development agencies. The main actors behind the initial formation of cluster initiatives also differ from one case to another and encompass business, regional authorities and academia to name a few.

The scope of objectives and activities of cluster initiatives largely differs. The research carried out for the needs of "Cluster Initiative Greenbook"<sup>4</sup> surveyed the following cluster initiatives objectives:

- Fostering networks among people
- Promoting expansion of existing firms
- Establishing networks among firms
- Facilitating higher innovativeness
- Promoting innovation, new technologies
- Attracting new firms and talent to the region
- Creating brand for the region
- Promoting exports from the cluster
- Providing business assistance
- Assembling market intelligence
- Analysing technical trends
- Improving firms' cluster awareness
- Promoting formation of spin-offs
- Providing technical training
- Providing management training
- Diffusing technology within the cluster
- Enhancing production processes
- Lobbying government for infrastructure
- Improving FDI incentives
- Improving regulatory policy
- Providing incubator services
- Lobbying for subsidies
- Studying and analysing the cluster
- Co-ordinating purchasing
- Conducting private infrastructure projects
- Establishing technical standards
- Producing reports about the cluster
- Reducing competition in the cluster

The financing of CI activities is often supported with public funding, though the extent to which public funding is involved, varies. The support may occur either at the foundation stage (founding capital) or be directly related to operational or development activity (via project-level subsidies). Public funding can be combined with private funding at both levels. Private funding might either contribute to the general costs of CI activities (member contributions) or to specific projects (project participant contribution).

The financing of the CIs is only a part of cluster development policies. In fact it is hard to imagine a policy that would not affect clusters. Supplying the labour market with skilled individuals graduating from the public system of education and vocational training, supporting the R&D base of academic centres, promoting institutions responsible for internationalization, enabling easier access to investment loans and capital – all of these interventions support a cluster. As cluster actors form a vibrant group dominating a regional economic landscape, they are expected to profit from “regular” policies to a larger extent than other players.

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<sup>4</sup> *“The Cluster Initiative Greenbook”, Örjan Sölvell, Göran Lindqvist, Christian Ketels, Bromma tryck AB, Stockholm 2003*

An approach involving the knowledge of the regional clusters and their development needs, while preparing a regional development strategy and corresponding operational programmes, may strengthen the policy impact on clusters irrespective of additional resources being assigned to CI activity support. If tailored to the specific features of a regional economy, public development programmes should be more effective. In this context a cluster-minded policy approach is not restricted to implementation of specific communication, networking, social capital or service development programmes, but aims to improve the policy quality in general.

### III. Automotive clusters in Europe – The conceptual contribution of TCAS

According to JATO Dynamics, the European car sales market is 15,688,137 units, a 0.8 per cent increase next to the previous year. Summaries of 2007 are very positive for some producers, especially in the commercial vehicles section. On the other hand, there were some markets in serious decline, including the German market, and some national markets booming, especially in the Baltic countries. Moreover, when Tata Nano hits the European market, there may be some major changes in the situation. With the average statistical stability, there is still a lot of uncertainty for European automotive producers.

There are also other challenges for the automotive producers in Europe, like the change in the low-emission regulations, that is the maximum allowed CO<sub>2</sub> emissions from 2012. There was a lot of discussion and lobbying in relation to this regulation as the automotive branch is the strongest sector group in the European industry.

For that reason, any adverse tendency in automotive manufacturing usually affects not only the companies' balance sheets but also the number of people employed by the industry. Building up global competitiveness of European car producers is vital to keep up the industry's position at the global scale. As the automotive industry is innovation driven, it is also very important to fuel technology development and improvement of production processes in the sector.

The cluster initiatives co-operating in the TCAS project represent a wide variety of organizational forms and types of activities and support they offer to members of the cluster. Even membership may not be strictly defined nor involved in terms of finance.

The Slovenian cluster, Automotive Cluster of Slovenia, is an especially valuable point of reference, both for the forming Wielkopolska cluster and for clusters developed in other new EU states. It shows the importance of building on strong clusters, as "(...) the government wisely chose to select clusters to support based on evaluation of the strengths of existing clusters, not on the potential attractiveness of future industries."<sup>5</sup> Based on very good recognition of the status and needs of the cluster companies, the ACS initiative managed to offer companies a platform for technological development and co-operation. The Polycentric Technology Centre project has been developed by ACS to improve the situation of Slovenian automotive suppliers by common investments and by co-operation between the academic and the economic spheres. The cluster has a sound organizational base managed by the "EUROPE INNOVA Cluster Manager of the Year 2006", Dušan Bušen, who worked in the industry before becoming the ACS Director.

However, looking at the experience of Slovenia, one should keep in mind that ACS is the only cluster and association in the automotive branch in Slovenia, which places it in a unique position in relation to other regional cluster initiatives.

Wielkopolska is the only participant of TCAS, which is building its cluster in the automotive/mobility branch. In the course of the visiting scheme it had the opportunity to see how the partner clusters operate and to participate in their events. Cluster reports prepared for every cluster as well as a comparative analysis of cluster initiatives participating in the project, have proved to be a valuable benchmarking reference for the cluster formation process in Wielkopolska.

#### IV. Cluster development in Wielkopolska

The regional development strategy published in 2000 makes no direct or indirect reference to "clusters". A new development strategy, adopted in 2005 lists the "promotion of co-operational relationships in the economy" (indirectly referring to clusters) among the activities designed to promote competitiveness. For this activity there is a corresponding clause in the Regional Operational Programme 2007 to 2013 with a financial support allocation of four million euros (1.2 per cent of the total allocation for competitiveness). Thus from a strategic point of view, it can hardly be stated that the "cluster perspective" plays a major role in the regional development policy. At the strategic level the regional authorities tend not to favour selected specified industrial or service agglomerations over others, while concentrating on promoting favourable general conditions for economic activities.

Several direct references to clusters appear in the Regional Innovation Strategy (RIS) dating back to January 2004. The main tool for the RIS implementation from 2004 to 2008 was clause 2.6 of the Integrated Regional Operational Programme. Two cluster initiative projects have been implemented under this measure in agglomerations of regional importance and one on a local level. From 2005 to 2007 Wielkopolska Agency for Enterprise Development administered the "Support for the development of the Wielkopolska Furniture Cluster" project. Its first stage featured a promotional campaign addressed at businesses, a survey and drafting a cluster development strategy. The second stage involved collaborative workshops with enterprise owners and managers who participated in joint promotional activities. Regional R&Ds from the sector were promoted during the project. The University of Poznań established the Wielkopolska Chemical Cluster with focus on technology transfer. In the Pleszew district in southern Wielkopolska, a local business environment institution launched several projects for a concentration of central heating boiler producers ("Innovative Pleszew Boiler"). Other projects related to clustering and networking have also been implemented.

Although the cluster approach is not central to economic development planning in Wielkopolska, there are some opportunities to finance cluster development in the upcoming financial perspective (2007 to 2013). There are some measures of the operational programmes that are addressed directly at cluster initiatives (Clause 1.7, Development of networks and co-operation, of the Regional Operational Programme for Wielkopolska; Clause 5.1. of the Innovative Economy Operational Pro-

<sup>5</sup> *"The Cluster Initiative Greenbook", Örjan Sölvell, Göran Lindqvist, Christian Ketels, Bromma tryck AB, Stockholm 2003*

gramme). There are many other measures addressed at business environment institutions, in general, both at national and regional level where cluster initiatives may benefit.

## V. The concentration of automotive OEMs and suppliers – A developing cluster?

### 5.1. Overview of the automotive sector

Manufacturing of vehicles is a key industrial sector in Wielkopolska. In 2006 the sales volume of road vehicles, trailers and semi-trailers accounted for 16.7 per cent of the total regional processing industry sales and exceeded 12.9 billion PLN. Over the last three years the share of the sector in the regional processing industry sales has risen by over six percentage points, which proves its growing importance for the regional economy. The employment in the sector exceeds 20,000. There are three OEM plants in Wielkopolska:

- MAN STAR Trucks & Buses Sp. z o.o
- Solaris Bus & Coach S.A.
- Volkswagen Poznań Sp. z o.o

There are also suppliers of air-conditioning systems, automobiles, braking systems, engine parts, exhaust systems, fittings, fitting parts, glass windows, heaters, lighting, lighting parts, omnibuses, painting, radiators, rubber mats, seats, sleeper berths, interior equipment, starters, strings and cords, steering systems, transmission, trucks, vehicle body and parts, frame and parts, wheels, tires as well as workshop equipment.

Among most important suppliers are: AGROMET Sp z o.o., AL-KO Kober Sp. z o.o., Bridgestone, Centra S. A., Delphi, Eberspaecher, Inter Groclin Auto S.A., Kimball Electronics Poland, Novol, Polkork, THULE TRAILERS Sp. z o.o.

When it comes to R&D units related to the automotive industry, there are at least four institutions, namely:

- The Poznań University of Technology (Politechnika Poznańska) – the biggest university with technical profile in the region
- Institute of Rail Vehicles (Instytut Pojazdów Szynowych TABOR, Poznań)
- Industrial Institute for Agricultural Machinery (Przemysłowy Instytut Maszyn Rolniczych, Poznań)
- Institute of Logistics and Storage (Instytut Logistyki i Magazynowania, Poznań)
- Research and Development Institute for Tire Industry "Stomil" (Ośrodek Badawczo Rozwojowy Przemysłu Oponiarskiego "Stomil", Poznań)

The automotive sector in Wielkopolska is internationalized in terms of both exports and foreign direct investment. Poznań hosts biannually the "Motor Show" fair trade event. The automotive sector, besides logistics and BPO, has been granted a "high potential sector" status for activities related to the promotion of regional investment attractiveness.

### 5.2. Is the Wielkopolska industrial concentration a cluster?

The automotive agglomeration in Wielkopolska has some features of a ripe cluster but the question whether it will reach a critical mass, and advance to become a key concentration on the world map of automotive manufacturing is open. In 2007 Prof. Marian Gorynia and Barbara Jankowska, Ph.D. from

the Poznań University of Economics published the findings of their research into three potentially forming clusters in Wielkopolska, including the automotive cluster<sup>6</sup>.

WAFED co-operated with the scientists' team and provided them with a database of automotive branch in the region. The research proved that the most important reason for a business decision to operate in Wielkopolska is family business tradition. All of the surveyed companies admit that specialized skilled personnel are available in the region. Competition coexists with co-operation, though co-operation is perceived as rather unimportant for competitiveness. Export is considered an important tool of expansion. The authors of the report call the Wielkopolska automotive sector "an embryonic stage cluster", "a forming cluster" or "a potential cluster".

This is probably a good description of the state of matters, though more research is necessary to map and analyse the internal composition of the cluster, its dynamics and potential. In the following section a "desired state" of the automotive sector in Wielkopolska is described – a set of conditions to be met for it to become a ripe cluster.

### 5.3. The "desired state" of the sector

#### *Factor conditions*

Innovation and skills should be a more important factor of the regional competitiveness. The influence of infrastructure and business environment should be strengthened. Specific regional factor conditions should be reinforced. Relatively low labour costs should no longer be the main attractor of investment.

Secondary schools of the region, especially technically profiled schools, in co-operation with the industry in the field of apprenticeship, should provide enterprises with a sufficient number of skilled graduates. The education should continue during their employment – in extramural, external or evening studies, and specialist in-house or open training schemes. Universities should similarly reinforce the labour pool with engineers qualified to match the regional demand.

The role of the universities should not be limited to the provision of graduates. Their personnel, knowledge and equipment should contribute to innovation in companies. Universities should spin-off innovative enterprises.

Modernized infrastructure should enable efficient corporate operations. Financing should be more available for investment projects, especially among SMEs. The offer of the service sector should be compliant with world-wide standards.

There are some specific regional conditions whose influence on cluster development should be reinforced. One of them is the geographical location, which will play a more important role after the investments in transportation networks (Berlin-Warsaw motorway, interregional expressways, Poznań-Warsaw high speed railway, waterways) and logistical centres have taken place. Other important specific regional conditions are:

- the potential of Poznań International Fair
- attractive areas for investment
- well preserved natural environment<sup>7</sup>

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<sup>6</sup> M. Gorynia, B. Jankowska, *Klasy i międzynarodowa konkurencyjność i internacjonalizacja przedsiębiorstwa*. Difin, Warszawa 2008

<sup>7</sup> *Selected regional strengths from "Strategia Rozwoju Województwa Wielkopolskiego do 2020 roku"*

*Demand conditions*

The presence of OEMs should be important for the quality of the supplier offer. As local high-end demand is limited, the proximity to the most demanding European automotive markets should lead to a quality growth and the ability to compete internationally on a global scale. Internationalization should be the key strategy to overcome the local demand limits. Where possible, regional procurement should force high quality of regional solutions, especially in the field of public transportation.

*Related and supporting industries*

The development of the sector and of related supporting industries should bring about synergies. These industries in Wielkopolska include rail vehicle manufacturing, manufacture of machinery and equipment, manufacture of metal products, manufacture of electrical machinery and apparatus, chemical industry. These synergies might result, for instance, from an aggregation of quality demand for the R&D offer and human resources.

*Business strategy, structure and rivalry*

The flexibility of the Wielkopolska supplier SMEs should enable adjustment to the needs of international buyers. Entrepreneurship, individualism and creativity should contribute to the creation of new, small value-added companies and spin-offs. On the other hand, traditionally fierce competition should evolve into a more co-operative model. Raising ethical standards of conducting business should make trust-based behaviour more profitable to corporate managers. Family businesses should find a way of transforming into modern corporations with a stronger outsider influence. Smaller business entities should adapt approaches with a larger role of long term development planning.

**5.4. The future of the automotive sector in Wielkopolska**

Whether Wielkopolska automotive cluster will drift towards the “desired state” depends on how it will utilise, its potential while tackling the adverse forces, as there are many threats and weaknesses potentially harmful to cluster development. The most important of them are:

- outward migration
- raising labour and real estate costs
- limited offer of public education
- insufficient infrastructure
- limited high-end regional demand
- insufficient co-operation between business and science
- insufficient trust and proneness to co-operate

Co-ordination of multiple decision makers towards the “desired state” of the sector is the ambitious challenge of the emerging cluster initiative. The next chapter outlines a possible scenario of its evolution.

**VI. A scenario for the support of the automotive cluster development****6.1. Cluster initiative evolution up to date – Emergence of a bipolar initiative**

As stated before, the focus on cluster development is a new issue for the regional development policy in Wielkopolska. The participation of Wielkopolska Agency for Enterprise Development (WAFED)



in the TCAS project, the project workshops, events and related web and press publications, have drawn public attention to the automotive cluster in the region. WAFED has built up relationships with the business sector and R&D, which might be crucial for the future success of the cluster initiative. So far SMEs and suppliers have been more prone to participate in CI development than OEMs. In parallel a similar attempt has been initiated by a private real estate development company (Nickel Technology Park Poznań) in close co-operation with a group of scientists from the University of Economics in Poznań. It has appointed two cluster facilitators, Professor Marek Rekowski and Dominik Klonowski. Thus the cluster initiative in Wielkopolska has presently two centres involved in cluster development. In the past WAFED has made every effort to intensify the co-operation with Nickel Technology Park Poznań and to come to an agreement on joint activities. In order to foster cluster development in the future, WAFED supports a better co-ordination which may result in a later merger of the two initiatives.

## **6.2. Recommended implementation of cluster initiative-backed cluster development measures**

### **6.2.1. Institutionalization of the cluster initiative**

The CI should be a separate organization strictly focusing on cluster development goals. It should be founded as an association, foundation or a non-profit company. It should be endowed with assets guaranteeing its financial stability in the initial period of activity. However, the financial endowment should, from the outset, focus the CI management on securing other sustainable sources of income. Another way of institutionalization of the CI (for example establishing it as a section of a larger organization) will expose it to a high risk of interference with alternative organisational goals. This may lead to either CI resources being allocated to non-CI activities, which jeopardises the achievement of CI goals, or non-CI resources being allocated to CI activities, which can make the CI permanently dependent on external resources and unsustainable in the long run. The role of the key players and their influence on the initiative should also be determined at this stage. The influence of cluster actors on the CI can be transmitted via their role in a supervisory body of the CI (supervisory board, steering committee). A possibility of actors' capital involvement should be considered.

### **6.2.2. Appointment of the cluster facilitator**

Publications on cluster development stress the role of a cluster facilitator in the CI development process. The personal engagement of the facilitator is a key precondition for a CI success. Ideally, the facilitator should have a deep insight in the underlying cluster and good relationships with decision makers in companies, R&D and other institutions involved as well as their firm support. The facilitator should be appointed as early as possible.

#### *Strategy development*

Action should be simultaneously at the strategic and operational levels: at the strategic level in order to provide a general environment which is conducive to the development of the cluster and at the operational level in order to provide the cluster with the specific and adapted measures they need for its development.

A strategy for the cluster is the essential first step and regional stakeholders should actively participate. Clustering is collaborative, in that it strives to be an inclusive process that allows various groups (public sector, private sector, institutional or other) to come to the table and work together towards a shared vision and a set of strategies for attaining that vision. When strategy is designed and implemented properly, it not only mobilizes private sector leaders, but also achieves significant alignment in the actions of the public sec-

tor, helping to both identify and find innovative solutions for obstacles to private sector development. By working together during the process, several qualities emerge – commitment, trust and strong ownership – among actors which are needed for the implementation phase of the policy.

### **6.2.3. Preparation of the CI grant application schedule, business plan and communication tools**

A successful CI should have a sustainable financial framework. Its income may to some extent depend on public funding available under the operational programmes implemented in the 2007 to 2013 programming period. However, relying solely on public financing will not assure sustainability as only a part of possible CI projects are eligible for such financing and usually only a part of eligible costs can be financed this way. Thus the planning of the CI activities should encompass two paths. The first one should focus on projects that can potentially be subsidized. Especially important are development projects whose results can potentially generate income after the project ends.

The projects might cover such fields as:

- internal communication and integration
  - cluster mapping and development of databases of suppliers, R&D and technology offers
  - deployment of communication tools
  - organizing meeting, workshops and conferences
  - cluster actor visiting schemes to identify potential co-operative projects
  - elaborating a joint agenda for cluster development
- expansion of the R&D base
  - investment in new R&D facilities
  - promotion of the regional R&D offer
- development of human resources
  - training
  - facilitation of apprenticeship and internship

The other path should focus on income generated on a market basis, for instance, membership fees and payments for specialized CI services: research and development (collaborative R&D and projects, innovation implementation), internationalization (investor assistance, trade fair presence and trade missions, identification and contacting potential foreign customers, foreign company acquisition to establish foothold in a foreign market), promotion, marketing and PR (cluster catalogue and website, cluster press office, competitions and awards), application for grants (advisory services, training sessions).

Establishment of an appealing brand, effective communication and winning a group of loyal customers/members/participants is very important for an emerging CI. The target group should be mapped early. The selection of appropriate communication tools should follow.

Thorough market research should take place before determining the CI service portfolio. The CI should focus on unique services to ensure their competitiveness, as more general services might already be in place in the market. A cluster will not be an optimal size target group for most services which can be more broadly or narrowly targeted. Special attention should be paid to the following fields of potential service supply gap:

- initiation and management of co-operative projects in the fields listed in 7.2.3.
- community building and integration

- promotion of the cluster as a whole among potential buyers and investors

The communication with the target group should be carried out on a regular basis and high quality communication tools should be introduced. The CI should adopt a consistent visual identity and develop effective tools for communication.

## VII. Conclusions

The CI formation process has already been started in Wielkopolska driven by Nickel Technology Park Poznań, Solaris and the Academy of Economics and cluster facilitators have been appointed. Institutionalization of the CI may take place when it reaches a critical mass of interested companies and this may be expected within 18 months from the launch of the CI formation process. It is also possible that the cluster in Wielkopolska is built on the grounds of a broader platform – transportation or mobility industry – which is an outcome of analyses carried out within the TCAS project. Wielkopolska Agency for Enterprise Development will be encouraging and supporting the viable initiatives driven by enterprises, as it has established relations with the above mentioned CI opening the project contacts and results to its drivers.

The region may support the cluster with measures other than earmarking possible funding for the CI in the next financial perspective (that is after 2013). It should be examined whether the existence of clusters in the region should be taken into account in the process of modifying the regional development strategy, and thus indirectly influence all the fields of public intervention at the regional level. As noted before, almost all policies influence cluster development in some way. They could be better targeted towards the industry if the awareness and knowledge of the automotive cluster in Wielkopolska served as an input in the regional development strategy creation process.

### Action plan – The timeline for implementation

Task	Month
CI formation	1–18
Appointment of the cluster facilitator	3
Institutionalization of the CI	18
Preparation of the CI grant application schedule, business plan and communication tools	6–14
Implementation of the CI grant application schedule, business plan and communication tools	8–18
Development of RTD projects for individual companies, groups of companies, development of laboratories etc.	continuous
Cooperation with other regional clusters on international level	continuous

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## CLUSTER INITIATIVES IN UPPER AUSTRIA WITH SPECIAL FOCUS ON AUTOMOTIVE CLUSTERS

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### I. The Region of Upper Austria

Austria's leading industrial region is characterized by high levels of dynamism and economic stability. Powerful employment growth and low levels of unemployment are the result of the competitive strengths of the region and its companies.

Upper Austria's good economic and labour market ratings in international comparisons derive from a number of factors, of which the following are the most important:

- High levels of employee qualifications and motivation
- An economic structure with a "healthy" blend of industries and company dimensions with a wealth of innovative and flexible companies, which are, therefore, highly competitive
- Corporate strengths with regard to innovation and flexibility

Many of these companies have focused on market niches and number among Europe's leaders with regard to market share and technology.

*The Technology and Marketing Company and the Upper Austrian Strategic Programme*

Since 1998 the strategy paper "Strategisches Programm OÖ 2000+" based on a consequent cluster-oriented economy and technology policy, has been running with the aim of strengthening the regional

competitiveness. The status quo of today's cluster policy in Upper Austria is the result of co-occurrence of various factors.

An important element of the Upper Austrian technology and location policy was the institutional establishment of TMG – Technology and Marketing Company Upper Austria. TMG is a service-oriented, non-profit organization which is responsible for the success of the clusters. The wide shareholder structure of TMG comprises all important public institutions, representation of interests and infrastructure bodies.

Upper Austria possesses a large number of institutions in the areas of R&D and technology transfer, which are linked by the Upper Austrian Innovation Network:

- Research and education
- Clusters and networks
- Impulse centres
- International bodies

The Upper Austrian Technology and Innovation Network was the object of targeted expansion in the 1990's, particularly in connection with the realization of the "Upper Austria 2000+ Strategic Programme".

The Upper Austrian technology and location management company, TMG, will assume co-ordination tasks within this network, in order to make the potential available more easily identifiable both internally and externally, and to better use any possible synergy effects (in the personnel, organizational, investment and technical areas) between research, educational and economic facilities.

As a result of the "Innovative Upper Austria 2010" strategic programme, the Upper Austrian Technology Network is to be enlarged to form the Upper Austrian Innovation Network, which will link research, technology and educational bodies.

More details about the strategic programme in Upper Austria:

In order to continue the pursuit of this successful approach, the Upper Austrian government commissioned the preparation of the "Innovative Upper Austria 2010" strategic programme, which is intended as a guideline for a technology policy during the period from 2005 to 2010. This is based upon the resolutions of the Upper Austrian government, and apart from the results of the evaluation, it also takes into account the changes in the structural funds forthcoming in the EU 2007 to 2013 financial perspective.

The new programme "Innovative Upper Austria 2010" was prepared with the extensive assistance of 250 experts from the field of business, science and related bodies, and in close co-operation with the Upper Austrian Research and Technology Council. Their conclusions take the form of five topic areas (R&D, Professional qualifications, Networks, Business and technology location Upper Austria, EU networking), 18 strategies and 43 measures.

#### Upper Austria in figures

Population	1,401,270 (2005) • 17.1 per cent of the Austrian population • third largest federal state
Economy	68,626 commercial companies 576,203 employees 32.6 billion euros gross domestic product (2003)
Area	12,000 km <sup>2</sup> • 14.3 per cent of the national territory • fourth largest federal state
Rivers	Donau, Inn, Enns, Traun, Steyr

The future goal of the programme, namely an increase in competitiveness, is crystal clear and like its forerunner, the current "Innovative Upper Austria 2010" demonstrates not only a strict orientation toward feasibility, but includes also vision, mission statements and implementation strategies.

An objective of the strategic programme "Upper Austria 2010" is the continuation of the eight cluster initiatives and the four theme networks, with the general topic to develop the economy in Upper Austria. These clusters and networks are joined together in the Upper Austrian Clusterland GmbH.

## II. The Upper Austrian Clusterland GmbH

### 2.1. Cluster initiatives in Upper Austria

Since 2006, Clusterland Oberösterreich GmbH has been operationally active with five clusters and three networks. Legitimate owners are TMG with 61 per cent, the Upper Austrian Chamber of Commerce, and the Federation of Austrian Industry, with each 19.5 per cent.

All clusters and networks, which were directed by Upper Austria's location and innovation agency (TMG) till the end of 2005, are now part of Clusterland Upper Austria:

- Automotive Cluster
- Furniture & Timber Construction Cluster
- Mechatronics Cluster
- Network Design & Media
- Plastics Cluster
- Health Technology Cluster
- Network Human Resources
- Network Environmental Technology

The Clusterland Advisory Board was formed on 14 March 2006 by eleven industry-specific experts: the representatives of five clusters and one network, three members with voting power and three non-voting members of the TMG, the Upper Austrian Chamber of Commerce and the Federation of Austrian Industry. Advisory Board members meet four times a year and assist in strategic questions, enhance the introduction of technology & industry know-how, and also function as opinion leaders with a multiplier role. Speaker of the Clusterland Advisory Board is Michael Teufelberger, Teufelberger Holding AG.

Since 1998 clusters have been gradually developed in important economic branches in Upper Austria: automotive, plastics, eco-energy, furniture & timber construction, food, health technology and mechatronics. In addition, inter-branch networks have been set-up in the fields of human resources, design & media, logistics and environmental technology. Small & medium-sized enterprises are particularly supported in our policy. Over 1,700 companies are now co-operating in seven cluster initiatives.

Five clusters are part of Clusterland Oberösterreich GmbH:

- Automotive Cluster: vehicle manufacturers and automotive sub-suppliers, as well as relevant machine and plant constructors and service companies. Start: July 1998
- Plastics Cluster: manufacturers and processors of plastics, machinery, moulds and tools, as well as service suppliers. Start: April 1999
- Furniture & Timber Construction Cluster: manufacturers of furniture and wood construction, as well as their sub-suppliers and companies offering special services. Start: January 2000

- Health Technology Cluster: companies in the medical and rehabilitation technology sector. Start: March 2002
- Mechatronics Cluster: companies in the mechanical engineering and plant building sector, equipment and apparatus construction, special technology suppliers and services companies. Start: January 2003

Two Upper Austrian clusters have different owners:

- Eco-Energy Cluster: companies in the renewable energy sector. Start: January 2000; co-ordinated by the Upper Austrian Energiesparverband
- Food Cluster: food production companies, their direct and indirect suppliers, R&D and educational bodies. Start: August 2000; co-ordinated by the Upper Austrian Chamber of Commerce

## 2.2. Networks – Innovation through competence

Many areas influence a company's competitiveness and competence but are not necessarily specific for this industry. Experiences from one industry can often be used in another sector as well. Therefore, intersectoral networks have been developed in Upper Austria in the areas of human resources, design & media, and environmental technology. Network activities focus on non-technological innovations. All Upper Austrian companies are invited to participate in, profit from, and raise their operational efficiency through these theme networks. Above all, special attention will be paid to the needs of SMEs.

Policy targets of inter-branch networks:

- Strengthening the competence of Upper Austrian companies, especially SMEs, in themes critical for success
- Intersectoral know-how transfer
- Innovation through competence

Three networks belong to Clusterland Oberösterreich GmbH:

- Network Human Resources
- Network Design & Media
- Network Environmental Technology

## 2.3. Services and benefits for cluster partners

Each sector which has a critical mass in Upper Austria does have its own cluster with its sector-related services offered by the cluster. Within Clusterland as the common brand of all clusters the services will be named within the common five fields of action.

### *Communication and information platform!*

Clusters and networks provide broad information and communication platforms, and support with many different activities, for example, monthly newsletters, quarterly journals, frequent company visits & interviews, interactive websites, company directories, business news, and contact to research facilities.

### *Qualification – Knowledge transfer and networking!*

Clusters and networks focus on the organization and realization of events for better knowledge transfer and qualification, for example, approximately one to four events per month and cluster, workshops, company tours, study trips, know-how transfer on trends and technologies, regular specialized events, and co-operations with R&D and educational institutions.

*Co-operation – Initiating and supporting co-operation projects!*

Clusters and networks support co-operation projects in many ways and try to establish contacts to potential partners, for example, establishment of contacts between potential project partners, round table meetings involving companies interested in co-operation, support during the grant application process, and special cluster funding instruments.

*Marketing and PR – Enhance visibility!*

Clusters and networks act jointly at fairs and events to enhance visibility and presence. Moreover, the advertising and PR activities boost the image of the industry, for example, technology presentations, measures to strengthen the branch image, trade fairs, company visits, presentations at major customers, national and international PR and advertising activities.

*Internationalization – Supporting companies as they enter new markets!*

With the support of clusters and networks, it is a lot easier to gain access to new markets: establishing and looking for international contacts, co-operation with European regions, participation in EU-projects, business trips, and factory tours.

### III. Upper Austria and the automotive industry

Manufacturing is the dominating factor in the Upper Austrian economy. The most important sectors of Upper Austrian industry are steelmaking, chemicals, mechanical engineering, automotive products and general metalworking. These sectors provide more than half of the Upper Austrian production value and employ approximately 60 per cent of the regions industrial labour. In addition, there is an important pulp and paper sector and the processing of agricultural products. The Upper Austrian economy is strongly international in its orientation, particularly with respect to exports within of the EU.

With more than 260 partner companies, the Upper Austrian Automotive Cluster is Austria's biggest automotive network. The companies in the cluster have a turnover of 18.2 billion euros with 90,000 employees. The automotive sector contributes seven billion euros to the total. "Clusterland Upper Austria" is the European leader with regard to economic networking. The automotive clusters enjoy a big deal of political and public attention and have access to considerable personnel and financial resources. The current focus is on the formation and reinforcement of clusters, whereby covering the whole spectrum of business activities.

*BMW Motors GmbH*

BMW Motors was established as a 100 per cent-subsiidiary of BMW AG (Munich, Germany) in Steyr in 1979. Annually approximately 600,000 diesel and fuel engines are produced which are all exported for BMW mainly to Germany where the cars are assembled. Besides the production plant BMW also established its research center for diesel engines in Steyr.

*MAN Steyr AG*

Within the MAN Commercial Vehicle Group, MAN Steyr AG is responsible for the development and production of light and medium trucks. The production plant is located in Steyr, from where 94 per cent of the trucks are exported. Licence agreements were established with Chinese and Indian partner companies. In 2003 MAN Steyr AG generated a turnover of 762 million euros with a workforce of 2,587 employees producing 16,349 trucks.



*Bombardier-Rotax GmbH*

With a workforce of 1,200 at the production plant in Günskirchen, in the heart of Upper Austria, Bombardier Rotax produces engines for use on land, snow, water and in the air. The engines are installed in a variety of different vehicles mainly in the recreation area (Ski-Doo snowmobiles, Sea-Doos et cetera). Total exports make up 98 per cent of the production, whereby 50 per cent are destined for the North American market. The company's annual turnover makes up 286.56 million euros.

*Rosenbauer AG*

With an export share of 75 per cent the Rosenbauer Group is one of the world's three largest manufacturers of fire-service vehicles. In this sector, Rosenbauer is considered to be the international group with the strongest sales and distribution system for mobile fire-protection and civil defence solutions. As well as being the group's largest company Rosenbauer International AG, headquartered in Leonding, Upper Austria, also acts as its holding company. At the group's ten production facilities and five retail establishments, its workforce of 1,249 generated revenues of around 286 million euros in the year under review.

*Voestalpine AG*

This group consists of a conglomerate or network of firms all related to steel production. World leader in rail systems, the leading competence centre for steel production, supplier of the automotive, the aviation and the space travel industry, are the characteristics of this company. With an export quota of 75 per cent and total turnover of 3.17 billion euros in the year 2000/01 the company reached a peak in its own history. Voestalpine Stahl (Linz) employs 16,000 persons and is stakeholder and owner of subsidiaries abroad.

#### IV. Ten years of Automotive Cluster Upper Austria

*"Coming together is a beginning, keeping together is progress, working together is success."*  
(Henry Ford)

Automotive Cluster Upper Austria was established through the TMG in 1998, as a service-oriented non-profit organization with a wide shareholder structure that comprises all important public institutions. Successful focusing of the cluster initiative at the current needs of the regional industry was secured through the support of a cluster advisory board, an expert committee with members of the regional industry. The Automotive Cluster (AC) represents the most comprehensive automotive network in Austria. As an information and co-operation platform it links the existing strengths of the national supplier industry. In particular, the innovation potential of small and medium-sized companies is supported and promoted. More than 260 companies as well as research and development institutions incorporate their know-how into the network.

The Automotive Cluster ranges its focus on technology-oriented companies, research bodies and investors. They regard customer orientation as one of the guiding principles for all activities. The clusters fulfil their assignments mainly as a "development agency" and as a "one-stop shop" for all kinds of investors in Upper Austria. In this context, the aim is to create an innovative and co-operative environment in the region.

**Selected indicators**

Number of partner companies in the cluster initiative	approx. 265
Cumulative turnover of partner companies of the cluster initiative	18.92 billion euros
Cumulative number of employees of partner companies	95,520
Number of organized events within the cluster initiative	approx. 200
Number of participants at these events	9,524
Number of co-operation projects in the cluster initiative	54
Number of companies participating at these co-operation projects in the cluster initiative	270
Rate of SMEs of the cluster initiative	~80 per cent
Rate of public funding of co-operation projects in the cluster initiative	~25 per cent
Rate of public funding of the cluster initiative	~63 per cent

**4.1. Automotive cluster management**

The cluster team is primarily responsible for the efficiency of the cluster initiative. The cluster management and the team members support the initiative in their daily work. As this is a cumulative process, the overall performance of the cluster initiative is considerably influenced by the cluster management and the cluster team.

**4.1.1. Information and communication**

The establishment of an information and communication system is essential for cluster initiatives to be successful. All members as well as non-participating companies should be informed on the cluster initiative itself, its members, the current activities and targets achieved. The following communication channels should be used:

*Development of a communication platform and regular meetings*

For the exchange of information, experience and knowledge, a communication platform, specific CRM system, should be established. The platform should be animated through regular meetings and an internal forum dedicated to the partners.

*Regular company visits*

Cluster managers should organize five to ten visits per month which should be documented by a visit report. The reports should give an overview of the activities and needs of a company. This information could be an important basis for the generation of co-operation projects.

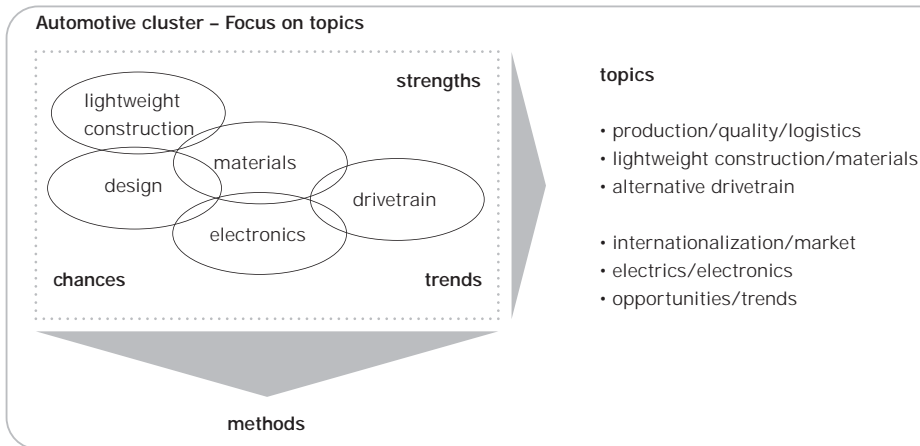
*Regular events*

For the success of a cluster initiative it is essential to organize regular events. These events aim at promoting cluster growth and establishing an exchange with other clusters:

- Workshops
- Expert round tables
- Specialist events
- Fairs
- Cluster days

*Newsletter and monthly branch and network news updates*

All participants should be kept informed on relevant news regarding the cluster initiative and branches. This could be done through a monthly newsletter in an informal email by the project team. Newsletters are usually elaborated quarterly and available in printed and electronic format.



#### *Cluster data base – Supplier catalogue – Industry information*

The establishment of a cluster data base is very important to be able to efficiently administrate the partner and cluster initiative information. The database should contain at least general information on the partners (for example address, turnover, number of employees) and information of service type.

#### *Homepage*

The aim of the homepage is to inform on content, members and activities within the cluster initiative. The homepage should comprise at least an informative part (general information about the cluster initiative) and a tool for searching partners.

#### **4.1.2. Training**

Human resources represent an essential key factor for the success of companies. Therefore, a successful cluster initiative considers programmes for advanced vocational training and should initiate and support a range of educational measures to improve competency among the employees of the member firms. Apart from catalysing inter-firm networks and university-industry linkages, cluster processes may strengthen the incentives for SMEs to upgrade their internal competencies.

The educational measures are in the form of:

- Advanced vocational training sessions with branch focus
- Workshops and seminars and information meetings
- Study trips for employees
- Inter company learning
- And automotive trainings:
  - Quality manager automotive
  - Project manager automotive
  - Sales manager automotive
  - Constructing engineer automotive
  - Purchasing manager automotive

#### 4.1.3. Co-operation – Automotive cluster co-operation projects

Since competitiveness of regions is not determined by single companies, but more and more by the ability to innovate of entire industries and branches, co-operations are essential to improve this ability. With the help of co-operation projects, synergy potentials can be exploited and thereby not only single companies are strengthened but also the entire economic structure in a crucial and sustainable way. Target group companies often have high interest in co-operation projects with other firms or with R&D institutions. An important area of activity for the cluster initiative is therefore the initiation, development and support of co-operation projects. Such projects can regard the following areas: R&D, qualification, production, organisation, marketing, information, logistics, technology, internationalization.

##### *Initiation and support of co-operation projects*

The AC initiates, fosters and supports co-operation among companies, universities as well as R&D-institutions.

##### *Co-operation with R&D and educational institutions and special service providers*

To secure high innovative projects, it is important to involve R&D and educational institutions and special service providers.

##### *Set-up of special supporting schemes for co-operation projects*

It is essential to set up an appropriate supporting framework to attract companies for co-operation. The guidelines for supporting programmes for the allocation of grants should be elaborated in a customer-friendly way.

##### *Co-operation support*

The establishment of an internal contact agency, partner agency for co-operation projects and the development of a monitoring system are very useful.

Examples of co-operation projects from the cluster:

- Co-operation project example: Automotive cluster partners develop low exhaust emissions hovercraft

The automotive cluster co-operation project, with an Austrian engine manufacturer, the higher technical school of Steyr, an engineering service supplier and last but not least a German software company, resulted in a prototype of an innovative hovercraft vehicle. The newly developed two-stroke engine runs 15 per cent quieter than usual hovercrafts and, furthermore, it produces 90 per cent less smoke and a third less exhaust emissions.

- Co-operation project example: Increased quality awareness with the FMEA

Thanks to the "Failure Mode and Effects Analysis" (FMEA) optimal strategies in view of avoiding errors can be implemented already during the design and product planning phase. Furthermore, the European and American automotive industries require the professional implementation of FMEA by their suppliers. Therefore, in a common project eleven automotive cluster partners have qualified FMEA representatives for their own companies. The feedback of the participating automotive cluster partners was extremely positive. A "higher quality awareness" represents the concrete result for Hydro Aluminium Mandl & Berger. KEBA praised the seminar software and TMS achieved a "more efficient and, therefore, more cost favourable implementation of FMEA". Project co-ordinator: Merten Management GmbH, Project partner: MAGNA STEYR Engineering

Center Steyr GmbH & CoKG, KEBA AG, Pollmann Austria, Purkert Metall & Form GmbH, Reformwerke Bauer & Co GmbH, SLR-Gusswerk II BetriebsgesmbH, TCG Unitech AG, among others.

- More examples: [www.automotive-cluster.at](http://www.automotive-cluster.at)

#### 4.1.4. Marketing and PR

Marketing and PR strengthen the involvement of the existing members and attract new companies or research organizations to join the cluster. These activities should therefore take place on a regular basis. They can include national and international lobbying for the specific sector and comprise following tasks:

- Generation of a regional identity
- Creation of information and marketing materials, presentations and information brochures
- National and international PR through commercials, advertisements/articles in trade journals
- Measures to strengthen the branch image
- Trade fairs, company visits, presentations for major customers
- Lobbying

#### 4.1.5. Internationalization

The elimination of trade barriers and the strengthening of transport and communication systems, along with the harmonization of market regulations offer greatly improved conditions of resource flows and enhanced specialization of value chains across national borders. For the automotive industry in Upper Austria as well as for regions it is nowadays essential to open new markets and to find and attract new partners for co-operation. Therefore, the automotive cluster supports its members during internationalization activities. The following activities have to be considered:

- Access to international events, topics and trends
- Participation in international projects

It is important that partners of the automotive cluster participate in international projects in order to increase their competitiveness through these international activities.

- Set-up of network activities between different clusters

To sustain the competitiveness and highly innovative character, it is important for the automotive cluster to co-operate with other cluster initiatives in other regions. This can be done either through study trips or through co-operations within EU-projects.

## V. Conclusions and lessons learned

The competence in network-management is defined in the communication activities as discussed in the above topic descriptions and mostly given in the network consistence itself. Furthermore, with the possibility of inter-company co-operation projects the Upper Austrian economy has its regional specific tool. Innovative co-operation projects in the fields of organization, technology and qualification are one key point of the clusters work. The common optimization and the new conception of products and processes, have resulted not only in qualitative improvements and relevant cost reductions, but have also led to useful long-term learning process effects. This means supporting the culture of communication among the network players.

Upper Austria has many innovative companies working within the supplier industry. What they need are direct, effective contacts. Therefore, the automotive cluster is developing step by step its "door-opening function" for its partner companies at international vehicle manufacturers and system suppliers. Technology presentations and distribution supporting measures are at the centre of attention. The cluster manager continues by saying, "The successful presentations at Volkswagen, SCANIA, BMW or Audi represented the key moments that awakened the interest of other manufacturers to proposals for optimization "made by the automotive cluster partners". That is why also MAN Steyr AG completely dismantled a truck down to its smallest parts. These have then been thoroughly examined by innovative automotive cluster companies in order to be produced better, faster, cheaper or lighter. The improved products will be implemented into a new truck generation. The advantages of the technology presentations are summed up: the manufacturers get new ideas from their potential partners for exactly those parts that should be improved.

All in all, from an Upper Austrian point of view successful cluster activities on the one hand require a general political intention, implement such networking structures, and appropriate financial support to guarantee a long-term perspective for various branch networks. On the other hand, it is crucial using the most effective tools to diffuse the different economical and industrial sectors. Programmes and co-operation projects are the most effective ones to connect the wide range of players. Of course, lots of information and qualification activities come along and are needed to establish the co-operation among companies, R&D institutions et cetera.

*Experiences after ten years of automotive cluster policy*

- 77 per cent of the companies continue working together with their partners from co-operation projects, after these projects are officially over (the range goes from relationships between customers and suppliers up to establishments of joint ventures).
- 89 per cent of the projects could not have been carried out – or not in this positive way – without the support received from the cluster. Usually they would have done a project without co-operating with other companies.
- Cluster partners grow faster than non-cluster partners (for example plastics cluster: +8 per cent per annum/+750 jobs per annum.).

Hence, in the past seven years 306 products, processes and market innovations were initiated and realized through cluster projects with 1,177 companies involved. This corresponds to a share of 74 per cent of all cluster partners and shows that a complete new co-operation and innovation culture in Upper Austria has been developed. This contributes to a sustainable strengthening of the competitiveness of the regional economy. The co-operation projects were supported through 14.31 million euros which initiated a project volume of 60.70 million euros. This corresponds to a factor 1:4. According to the data of the involved companies, further investments (machines, materials, human resources et cetera) were activated, which elevate the factor to 1:6. The whole volume of investment (innovation) induced in the past five years was 85.86 million euros.

## STUTTGART REGION AUTOMOTIVE CLUSTER INITIATIVE – CARS (CLUSTERINITIATIVE AUTOMOTIVE REGION STUTTGART)

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### Stuttgart region

Stuttgart region, the political and economic center of Baden-Württemberg (BW), consists of the City of Stuttgart and its five neighbouring counties, namely Böblingen, Esslingen, Göppingen, Ludwigsburg and Rems-Murr. The population of the region is around 2.7 million in an area of 3,700 square kilometres. Stuttgart is one of the twelve regions of the state of BW and its co-ordination seat is "Stuttgart Regional Association (Verband Region Stuttgart – VRS)", which acts as the joint representation organ for the municipalities. VRS is composed of a democratically elected decision-making body and a functional unit that is responsible for the day-to-day regional planning, local transport, and business promotion among other topics. The Stuttgart Region Economic Development Co-operation (WRS) is the operational extension of VRS and its task is defined to provide support for established and new sectoral clusters.

The state capital city of Stuttgart hosts the state parliament, ministries and other government units and while occupying only approximately ten per cent of its surface area, the Stuttgart region accommodates 25 per cent of BW's population and produces 28 per cent of its Gross Value Added (GVA, Table 1). Both Stuttgart region and BW outmatch national averages in basic economic indicators, and Stuttgart also scores quite well when compared to leading German metropolitan regions.

<b>Number</b>	<b>GVA per capita (2005, euro)</b>	<b>+/- National average</b>	<b>Unemployment</b>	<b>+/- National average</b>
Munich	41,861	71 %	6.1 %	-44 %
Hamburg	31,742	29 %	9.6 %	-11 %
Stuttgart	31,171	27 %	6.2 %	-43 %
Rhine/Main	30,697	25 %	8.7 %	-19 %
Baden-Württemberg	27,388	12 %	6.3 %	-42 %
Cologne/Bonn	27,118	11 %	10.8 %	0 %
Germany	24,525	0 %	10.8 %	0 %
Dresden	20,200	-18 %	15.3 %	42 %
Berlin	19,610	-20 %	16.6 %	54 %
Leipzig/Halle	19,253	-21 %	17.8 %	65 %

(Source: *Strukturbericht Region Stuttgart 2007, Statistik 2007 and own calculations*)

The three leading industrial sectors automotive, machinery and electronics/electrical engineering create approximately 48 per cent of the industrial employment and 81 per cent of the industrial turnover in the region<sup>1</sup>. Moreover, approximately 92 per cent of the industrial exports were sourced by these three industries, automotive plays an exceptional role at 63.7 per cent. Clearly, considering the degree of tertiarization of the European economy, these numbers are nothing less than striking. Nevertheless, manufacturing employment has been steadily receding since the end of the 1990's, as opposed to the increasing share of enterprise services. Between 1999 and 2006 the former slimmed down by 9.3 per cent (36,344 wage-employees), while the latter gained 29.8 per cent (32,500) (Strukturbericht Region Stuttgart 2007). Furthermore, the degree of functional tertiarization, calculated based on employee-tasks, 74.1 per cent for all sectors and 59.4 per cent for the automotive industry. This significantly high functional tertiarization is a sign of undeniable structural change and a proof that the regional firms now focus on more complicated manufacturing and assembly tasks, and knowledge-intensive services like design, R&D and management. This picture inevitably resembles the "Germany, the bazaar economy" the argument<sup>2</sup> of Sinn (2006).

In terms of investments in R&D and patent production, the Stuttgart region leads other metropolitan regions comfortably. In 2003, the R&D investments of private firms reached 5.2 per cent of the regional Gross Domestic Product (GDP), ahead of runner-up Munich (four per cent) and 2.5 times of the national average. In absolute terms, these investments reached nearly 4.8 billion euros, and thereof, the automotive industry was by far the highest spender with 72 per cent, followed by electrical/optical equipment, and machinery with 15.4 per cent and 8.7 per cent (Forschungs- und Entwicklungs- Monitor Baden-Württemberg 2006). The same order was to be seen for dedicated R&D employment, too: 66.7 per cent, 17.3 per cent and 11.1 per cent. As a measure, the Stuttgart region employs about half of the R&D staff in BW. Like in R&D investments and employment, Stuttgart also leads the German metropolitan regions in terms of patent intensity: with 3,312 patents issued per one million employees, Stuttgart leads followed by Munich (2,493) and Dresden (1,361) (Strukturbericht Region Stuttgart 2007).



### Stuttgart automotive cluster

The Stuttgart region, birth place of the motor vehicle, is endowed with an exemplary and competitive automotive cluster. At the core of the cluster there are two renowned and successful OEMs (Daimler and Porsche), a group of very competitive suppliers, to which include the world's largest automotive supplier Bosch, and a concentration of innovative research establishments. Daimler, to which the brands Mercedes-Benz (MB), Smart and Maybach belong, has its headquarters for passenger and commercial vehicles (both EvoBus and Daimler Trucks) and two main plants in the region. The R&D activities for passenger vehicles are, to a large extent, carried out in the "Mercedes-Benz Technology Centre" (MTC) in Sindelfingen, which will be expanded till 2010 with additional functions that will be transferred in from other national locations. The central R&D operations of commercial vehicles are also located in Untertürkheim. All fuel-cell related R&D activities of Daimler are located in Kirchheim, which has led the development of a concentration of innovative firms in this field in the region.

The Porsche premises in Stuttgart-Zuffenhausen still host the main location where all 911-models (38,959 units in 2006/07) and engines for all three production plants are assembled. Indeed, Porsche is currently expanding its facilities (a larger painting facility among others) and will be opening its corporate museum next to the factory in 2008. The main R&D centre is in Weissach, where the subsidiary Porsche Engineering Services, which offers services to other carmakers as well, is located, too. Porsche Consulting (process and enterprise consulting) and MHP (process and IT consulting) are also located within Stuttgart Region.

Bosch, the world's largest automotive supplier in terms of sales, is at the top of a diversified supplier base located in the region, which includes Mahle (engine components and peripherals), Behr (air conditioning and engine cooling systems), Dürr (painting systems and facilities), Eberspächer (exhaust technology and heaters), Recaro (seats), Mann+Hummel (filter and air intake systems) and Beru (diesel cold start systems). These globally operating firms have their headquarters, R&D facilities and manufacturing operations in the region. An interesting feature of these firms is the degree of their openness they have displayed to adapt to globalization. Even the relatively smaller suppliers entertain links with low-cost locations in new EU member states. A group of foreign-owned suppliers (Modine, TRW, Valeo and Faurecia, among others) and a large number of smaller suppliers from second and third tiers complete the manufacturing oriented suppliers base. Numerous engineering firms, with varying degrees of automotive-focus, are active and are crucial members of Stuttgart's cluster. The depth of the services these firms deliver varies greatly, from tool-design to complete system development capabilities that include everything from predevelopment to production. These firms operate at different levels of "globalization", while household names like Bertrandt, Porsche Engineering Services and MB-Tech do operate globally; smaller engineering offices concentrate themselves strongly on regional customers.

According to yearly statistical records from 2006, there are 222 firms in the Stuttgart region that are active in the NACE group "Manufacture of motor vehicles, trailers and semi-trailers" and these

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<sup>1</sup> For enterprises with 20 or more employees. Source: Statistik 2007.

<sup>2</sup> Sinn claims that the German economy is shifting manufacturing over to lower-cost locations and becoming increasingly dependant on services and assembly tasks. In this sense, Germany is a location where inputs from all around the world are collected as in a "bazaar economy".

**Table 2** Total no. firms and employment in automotive in the Stuttgart region

	Total	According to firm size		
		0-9	10-249	250 <
Manufacture of motor vehicles, trailers and semi-trailers (WZ/NACE 34)				
No. firms	222	107	79	36
No. employees	134,691	194	5,447	129,050
Private enterprises (WZ/NACE 10 – 74, 80 – 93)				
No. firms	125,675	106,733	11,609	458
No. employees	954,709	140,720	421,534	392,455

**Table 3** Transport equipment employees according to the functional profile of their tasks

	2006 (%)			+/- 99/06		
	G	BW	SR	G	BW	SR
Automotive industry						
Production tasks	55.4	51.9	45.7	-2.6	-5.6	-9.6
Direct	26.6	24.2	21.5	-8.6	-12.4	-10.1
Indirect	25.5	25.1	20.8	6.9	6.4	-5.0
Services tasks	42.3	46.0	52.3	16.9	19.2	28.1
Technical	17.3	19.9	24.8	24.7	27.1	37.7
Management	12.8	13.8	14.8	22.3	21.8	25.0
Logistics	8.3	7.3	6.0	-0.4	0.1	1.0
Commercial	1.6	1.5	1.8	16.7	20.0	52.7

(Source *Strukturbericht Region Stuttgart 2007 p. 96*)

(G: Germany, BW: Baden-Württemberg, SR: Stuttgart Region)

firms employ 134,691 individuals. Although most of these firms are micro enterprises, the bulk of the employment is concentrated on large firms (Table 2). Supporting evidence is also available on a list of the biggest employers in the region, published by the regional Chamber of Commerce, which reveals that OEMs Daimler (71,729 employees), Porsche (9,478) and Bosch (24,478)<sup>3</sup> occupy the top three places. The “smaller” suppliers of the region Behr (4,643), Mahle (3,700), TRW (2,000), Mann+Hummel (1,600), Valeo (1,350), Allgaier (1,317) and Eberspächer (1,060) are also among the most significant regional employers.

The general functional tertiarization in the Stuttgart region applies to the automotive industry as well (Table 3). Despite this change being common to BW and Germany levels, it progresses more rapidly in the Stuttgart region and at 52.3 per cent overall, the functional tertiarization in the region is one fifth higher than the German average. The emphasis on technical tasks, which include R&D activities, is also striking.

German car manufacturers and suppliers have gone through a transformation since the dramatic structural crisis of the early 90's (Jürgens 2004). Although respective strategic paths of enterprises differ, some responses are common: concentration on selected core activities, outsourcing and sourcing from low-cost locations, especially from Eastern-Europe. In a sense, by leaving old Fordist practices behind, the cluster has survived the "critical point in its history" and managed to break out of the grow-peak-decline process (Morgan 1999).

At the same time, the challenges have changed much less than one would expect. In 1992, Böhm et al. reported the following trends and issues for the automotive industry in the "Stuttgart area": outsourcing of development tasks to suppliers, increasing awareness of environmental effects of motorization, cost-pressures, decreasing number of direct suppliers to OEMs, consolidation, "internationalization" (read globalization) as a threat to jobs in the region as firms move tasks to southern European countries. Clearly, the challenges have changed very little, achieving continuous innovativeness, quality and diversity is still the paramount task faced by the cluster.

#### **Stuttgart Region Economic Development Cooperation**

The negative effects of global economic fluctuations of the early 90's led the public actors who assumed the regional leadership to devise counter measures. It was clear at the time that the problems were not relating to regional innovation and manufacturing capacities as such, but to a case of cognitive and organizational lock-in. Following years of success, the enterprises in the region had closed down in their habitual ways of operation and the globalization had taken them by surprise. In order to transform the regional co-ordination functions and to give the regional industry a new impulse, two associated organizations were formed in the mid 90's. The first one is the Verband Region Stuttgart, which assumes the co-ordination and planning tasks for the whole region through an elected assembly and dedicated operational teams. A cluster management organization, Stuttgart Region Economic Development Co-operation (WRS) was established in 1995 by public and private bodies in order to break the lock-ins and to boost regional competitiveness. Since then, WRS has been supporting both, the traditional and new sectors in the region with cluster building activities and innovation support. The organization of WRS is structured around respective sectors and horizontal support activities: for instance, automotive, machinery, health, media and IT sectors and site selection and investor support services. There is no formal membership scheme for cluster management activities and all regional firms can benefit from WRS initiatives.

#### **CARS initiative**

With CARS initiative<sup>4</sup>, WRS aims to link and align the automotive relevant activities of WRS more closely with each other and to expand them into new areas. CARS is structured as a multidimensional and need-driven initiative that is flexible to react to dynamic changes of the industry and the region. In terms of operational content, the thematic areas cover different topics: regional communication, skilling, clean energies, sustainable mobility, and software services for the automotive industry. A focal concern for the design of this initiative was avoiding the creation of competition against the already existing commercial, public and WRS services offered within the cluster. For this reason, there

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<sup>3</sup> Includes persons employed in activities outside automotive.

<sup>4</sup> On the internet: <http://www.cars.region-stuttgart.de>

is a certain focus in CARS to provide the crucial intangible support services that often attract less attention from the commercial service provision mechanisms.

Operating in networks where open communication takes place are drivers of co-operative innovation in the automotive industry. However, acute time pressures render it extremely difficult for enterprises to engage in the necessary level of interaction with peers, associated industries and research communities. One of the primary targets of the CARS initiative is to address this issue by facilitating regional channels and platforms of communication. In practice, three different types of activities with distinct but complementary profiles have been designed for this purpose. The first one of these is a platform titled "Treffpunkt Automotive (Meeting-point Automotive)", where future-oriented technological and business visions are discussed. A key-note speech by a top-ranking automotive manager is the central piece of this event, which stimulates interactive discussions on visions of mobility and creates valuable networking opportunities. Secondly, interactive meetings are organized with the participation of OEMs', large suppliers' and academic institutions' representatives. During these exclusive events the aim is to address matters at the operational level (for example optimization of automotive supply chains) and to generate co-operative projects. The third component of communication support strategy is the regular site visits in the region. These visits are organized to regional research or manufacturing premises and they offer useful opportunities to get an inside into regional capabilities and the innovative potential of regional research institutions. These visits include an integrated discussion session with the management-level representatives of the host firm or institution. With this diversified strategy WRS makes use of its position, as a neutral agent in the region, to facilitate communication.

Another important goal of CARS is to strengthen the communication and target-oriented co-operation between research institutions and the firms. An example to this end is a regional voucher scheme that would co-finance the initial stage of co-operation between automotive SMEs and research institutions. The thematic focus of this campaign is the diffusion of new technologies along the automotive value chain. After a successful first implementation of this campaign, with a focus on the implementation of laser technologies for manufacturing in 2006 to 2007, the second phase will address additional areas. By requiring a 50 per cent own financing from SMEs, this scheme ensures the full commitment of beneficiary firms. This voucher scheme is conceptualised as an extension to a support tool by the Ministry of Economics of Baden-Württemberg.

Incoming investments certainly are an important factor for the growth and sustainability of the cluster. The hard regional factors like land or real-estate costs are definitely important elements in the investment decisions. However, for knowledge and skill-intensive manufacturing and service sectors the purely cost-oriented concerns are less important than the soft locational factors like availability of labour, connectedness and the quality of living. Although the Stuttgart region is not the most affordable region when it comes to pure costs, it is among the top league in Germany and Europe in terms of research infrastructure, availability of skilled labour, living standards and quality of office spaces. In order to communicate these strengths better to potential automotive investors, CARS acts as the initial contact point. The fundamental aim is to present the advantages of the region clearly and to make sure that investors have a smooth start in the region. These services are co-ordinated with the real-estate management team of WRS and other stakeholders in the region. The recently launched real-estate web-portal of WRS<sup>5</sup> will be an important component of investor activities and it has already been received with enthusiasm by enterprises.

The increasing awareness on climate change and the increasing fossil-fuel prices practically force the automotive industry to develop new propulsion technologies and to adopt alternative energy resources. WRS is convinced that fuel-cell technology will have a future in the sustainable mobility mix of the future, and accordingly, ensuring the future competitiveness of the Stuttgart automotive cluster requires the development of regional skills in fuel-cell development and manufacturing. To this end a dual strategy has been devised and implemented as an integral part of the CARS initiative. The first dimension of the activities is to support the application-oriented development of the technology in the region so as to be positioned favourably during the commercialization phase. The Fuel-Cell Alliance Baden-Württemberg (Brennstoffzellen-Allianz Baden-Württemberg/BzA-BW<sup>6</sup>) acts as the facilitator for the co-operation between the firms and research institutions in this field, and the CARS initiative provides organizational and financial support to the BzA-BW activities. Creating the necessary awareness in the automotive industry and among future customers, is the second component of CARS' fuel-cell strategy. To achieve this, CARS co-organizes a congress, f-cell forum<sup>7</sup>, to provide an open communication and promotion platform for stakeholders. This annual event, which includes a widely-attended symposium and an exhibition area, has established itself as one of the most important meeting points for fuel-cell technology. Every year during the f-cell forum the CARS initiative also announces the winners of the f-cell awards, which are given to innovative ideas with potential for practical implementation. These awards include cash-prizes, as well.

A new addition to the CARS initiative is the group of activities that aim to support the automotive-oriented software service activities in the region. Software plays an essential role for the automotive industry today. The development and manufacturing activities are dependent on software tools, supply chains are kept together with IT-applications and, finally, modern motor vehicles are becoming increasingly infused with software. It is essential for the future competitiveness of the automotive cluster to ensure closer and efficient networks between automotive and software firms. In the Stuttgart region there is already a burgeoning sub-cluster in the automotive software domain and it is expected to grow in the coming years. However, its visibility does not correspond to the substance of its economic contribution to the region. The aim of the CARS activities is to help the development of a cluster identity. These activities, which will be carried out under the CARS-IT banner, will initially aim at the improvement of regional networks. Information and awareness-raising activities, as well as networking events will be the initial components to this end. Several areas of co-operative action are also considered. These could include practical activities like trainings on new standards, for example AUTOSAR and on quality assurance approaches CMMI and SPICE.

Last but not least, creating supra-regional links is also an important component of CARS initiative. For this reason, WRS has been playing an active role in the new Cluster South-West Initiative, which will bring stakeholders from the automotive industry at the level of Baden-Württemberg. This important initiative is currently being prepared for launch with the involvement of regional OEMs, suppliers, policy makers and research institutions. Activities at European level are also an important component of the CARS initiative. Projects like BeLCAR have proved, that the co-operation among European cluster practitioners brings positive outcomes at both sectoral and cluster management levels. WRS

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<sup>5</sup> More information available at: [http://immo.region-stuttgart.de/sks\\_wrs/](http://immo.region-stuttgart.de/sks_wrs/)

<sup>6</sup> More information available at: [www.bza-bw.de](http://www.bza-bw.de)

<sup>7</sup> More information available at: <http://www.f-cell.de>

believes that the competitiveness of the European automotive industry can benefit a lot from matching the regional skills and capacities across the continent in innovative projects.

As it has been presented above, the fundamental objective of the CARS initiative is to bolster the Stuttgart automotive cluster and to assist the regional stakeholders to be better prepared for the future.

#### References

- Böhm, D.H., Graf, H. & Thomalla, I. 1992, Bedeutung und Entwicklung der Automobilindustrie im Raum Stuttgart, Institut für Angewandte Wirtschaftsforschung Tübingen.
- Forschungs- und Entwicklungs-Monitor Baden-Württemberg, 2006. Statistisches Landesamt Baden-Württemberg, Stuttgart.
- Fuchs, G. & Wolf, H. (1999). Stuttgart – From the ‚car city‘ to the ‚net city‘? In H. Braczyk, G. Fuchs & H. Wolf (Ed.), Multimedia and regional economic restructuring (pp. 298-319). London, Routledge.
- Jürgens, U. 2004, ‚An Elusive Model – Diversified Quality Production and the Transformation of the German Automobile Industry‘, Competition and Change, vol. 8, no. 4, pp. 411–423.
- Morgan, K. (1999). Reversing Attrition? In T. J. Barnes & M. S. Gertler (Ed.), The New Industrial Geography – Regions, Regulation and Institutions (pp. 74–97). London, Routledge.
- Sinn, H. 2006, ‚The Pathological Export Boom and the Bazaar Effect: How to Solve the German Puzzle‘, The World Economy, vol. 29, no. 9, pp. 1157–1175.
- Statistik 2007, Industrie- und Handelskammer Region Stuttgart, Stuttgart.
- Strukturbericht Region Stuttgart 2007, Industrie- und Handelskammer Region Stuttgart [Online] Available at: [http://www.imu-institut.de/stuttgart/tidings/news\\_article.2007-11-22.0908257796/SB\\_RS%20\\_2007\\_Komplett\\_201107.pdf.pdf](http://www.imu-institut.de/stuttgart/tidings/news_article.2007-11-22.0908257796/SB_RS%20_2007_Komplett_201107.pdf.pdf) [Accessed 5 February 2008].

## AIMING AT TECHNOLOGY LEADERSHIP THROUGH CLUSTER-BASED CO-OPERATIVE R&D PROJECTS: THE ROLE OF MOV'EO

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### *Introduction*

Since 2006 IRSEEM, along with the Madrillet Technology Park, have been involved in a competitive cluster (Mov'eo) as two of its main driving forces. This cluster intends to be a reference in Europe regarding safe automobile and collective transports for people and their environment.

This creation meets the demand of the French government, which intends to comply with the Lisbon commitment through the establishments of various competitive clusters. A competitive cluster is defined as a given geographical area, the businesses, educational establishments and research institutions contained therein, working together to release their synergies on common and innovatory projects whilst having a sufficient critical mass to figure on the international horizon.

This paper deals with the developments and challenges Mov'eo will have to face up to. It is based on three regions, Lower- and Upper-Normandy as well as the Paris area; the Madrillet Technology Park houses Mov'eo headquarters. Mov'eo has been put together in accordance with the characteristics of the industrial base of the Paris, Lower- and Upper-Normandy regions. The principal aim remains that of activating the synergies between the main players in this industrial sector, to be an ever-present motor in international competition and to reach a technology leadership in its industrial sector.

Mov'eo is organized around four main strategic activities (energy and environment, road safety, mobility and services, mechatronics) and builds its scientific strategy on a very good understand-

ing of the requirements of safety, mobility and environmental respect. The response the automotive industry will bring to these requirements will determine the competitiveness of the French automotive industry as well as the French aerospace, road engineering and collective transports industries.

### **I. The framework for the creation of the competitiveness cluster**

In response to the changes in the global economy and their impact on the French economy, the French government has launched a wide-ranging industrial strategy focusing on the key factors of industrial competitiveness, particularly R&D-led innovation. This strategy outlines the context and issues of the competitiveness cluster's policy.

Like most developed countries, France is up against increasingly rapid changes in the global economy. This is mainly reflected in the internationalization – in all its forms – of production factors. These changes make innovation and research increasingly important for the competitiveness of manufacturers and service providers (design, management, marketing et cetera), who continually have to adapt themselves to technological developments. This situation is aggravated by the growing importance of financial factors in industrial decisions and increasing competition from low-cost countries. France has no choice but to improve its competitiveness in this competitive environment.

This situation triggered the need for a new industrial policy offering a better balance between regional features, innovation and industry within the enlarged European environment.

Innovation is obviously a key factor for industrial competitiveness. R&D is intangible and intelligence-driven. Its effectiveness is boosted by grouping players in clusters with global visibility. While the importance of services for the creation of wealth has been proven conclusively, the industry is equally important:

- For France's competitiveness and attractiveness
- Because of its spill-over effect on the rest of France's economy
- For sales of related goods and services
- For scientific and technical progress

"Competitiveness clusters" are designed to spark growth of industrial activities and jobs, and to strengthen the regions. This tool is not just intended for emerging technologies (nanotechnologies, biotechnologies, microelectronics et cetera) but also for more mature sectors (automotive and aviation industry et cetera). Clusters must also fit into the international environment, primarily the European market. The creation of clusters with critical mass opens the door to balanced partnerships with foreign players. Success is further driven by the development of infrastructures and the conduct of partnerships in close collaboration with the regions.

*The key words of the competitiveness clusters policy are: creating new wealth, partnerships and R&D.*

Pursuant to the decisions adopted by the French government on 13 December 2002, the CIADT agreed to implement this policy and defined a series of measures to promote clusters at the committee meeting on 14 September 2004 (CIADT: Interministerial committee for regional planning and development). In the autumn of 2004 a call was launched to identify projects eligible for the new support system. Projects had to comply with strict specifications to be qualified. Based upon the initiatives contributed by economic agents, a first cluster list was published in July 2005.



*Normandy Motor Valley and Vestapolis were two of the 67 selected clusters. They merged in January 2006 to form Mov'eo.*

## II. The specificities of Mov'eo

Mov'eo was created upon the following principles:

- *Strategic stakes:* the cluster builds its scientific strategy on a very good understanding of the requirements of safety, mobility and environmental respect; the response the automotive industry will bring to these requirements, will determine the competitiveness of the French automotive industry as well as the French aerospace, road engineering and collective transports industries
- *Worldwide influence:* the cluster gathers major global players (RENAULT, PSA, SIEMENS, SNE-CMA, TOTAL, VALEO, VEOLIA...) and a network of more than 1,500 SMEs in a mainly automotive joint domain. These industrials – involved in the steering of the cluster – assert their commitment in developing projects and in reinforcing regional testing, measuring and research structures
- *A cluster organized around and for its research projects:* the cluster is organized around four main strategic activities (energy and environment, road safety, mobility and services and mechatronics) that gather at the moment about 150 co-operating projects
- *The critical size of the research programmes:* the co-operative R&D projects represent almost 150 million euros, which attest the ambition of the industrial (around 10,000 people in R&D) and academic (around 4,000 researchers) players
- *The automotive field and related industries:* the driving forces of the cluster come from the automotive industry but it is, however, very well-suited to other sectors sharing the same technologies and industrial challenges (among others aerospace, road engineering and collective transport).
- *International visibility:* the cluster is a European focus on scientific, industrial, tertiary, financial and brain forces, and aims at laying emphasis on environment, mobility and safety
- *Links between regions:* the cluster concentrates most of its forces on a large area which encompasses Ile-de-France, Lower- and Upper-Normandy; therefore, the industrial, institutional and academic forces of these three regions remain at the disposal of the Mov'eo cluster
- *Willingness for strong economic development:* the cluster will be the technological catalyst for an industrial sector which concerns around 200,000 direct jobs, serving to the attractiveness of the territories and their changes
- *The networks:* the cluster develops partnerships and networks with the other national and international clusters
- *Operational governance:* the partnerships and the governance mode are backed up by experiences of the members

In order to foster the most relevant co-operative projects, the work groups are organized into four strategic activity domains:

- Energy and environment
- Road safety
- Mobility and services
- Mechatronics

The role of these work groups is to:

- Build a shared vision in the concerned domain
- Identify the freezing, notably the technological ones

- Federate the expertises
- Make co-operation easier between industrials and academics

A strategic orientation document had been created in order to provide Mov'eo members with guidelines on new technical solutions, methods and design tools, knowledge on each activity. Each strategic activity domain is led by an industrial, assisted by either a transfer centre or another industrial.

#### *Strategic activity domain 1 – Energy and environment*

It is led by Renault, assisted by VALEO and CORIA (research institute focused on combustion and propulsion). It is the core of the Mov'eo projects. Energy and the environment are both major concerns in the field of transport. Changes in standards compel all players to anticipate future constraints and to immediately develop solutions for tomorrow's clean vehicle.

It is also essential, within an overall perspective of sustainable development that the complete life cycle of products is taken into account.

The main topics are focused on engine technologies. However, the strategic activity domain will deal with engine techniques in order to make them more efficient as well as to decrease pollution. Mov'eo will foster breakthrough technologies, such as alternative energies, fuel cells, recycling, and development of homogeneous combustion or co-generation systems. Projects will highlight reducing green gas emissions, improving standard engines, optimising hybrid engines, introducing breakthrough engines, specifying electronics and related sensors, developing technologies for transports with low environmental impact, reducing polluting emissions at the very beginning and assessing their real impact, promoting integrated approaches through the application of bio fuels and bio materials.

#### *Strategic activity domain 2 – Road safety*

It is monitored by PSA, assisted by CONTINENTAL (ex SIEMENS VDO) and INRETS. In recent years, there has been significant progress in secondary safety (also referred to as passive safety and concerning the protection of vehicle occupants in the case of an accident). Improvements now focus on primary safety (or active safety, enabling drivers and vehicles to avoid accidents) and on tertiary safety (involving post-accident management).

Efforts concentrate on the protection of vulnerable users, on infrastructures, traffic rules and regulations and human behaviour. Research in these fields aims at contributing, as efficiently as possible, to the emergence of new technical solutions, to designing methods and tools, and to improving the knowledge, thus enabling the improvement of road safety.

In addition to passive or active equipments, which are already developed in the vehicles (Airbag, ABS, ESP...), the implementation of new systems for assisted driving (obstacle detection...) is improving. The introduction to the market of these assistance devices requires improving the co-operation and interaction between infrastructure (roads, round-about, crossing...), vehicle and driver.

This domain foresees the set up of relevant scientific facilities which will enable Mov'eo members to qualify active safety devices; studies in a simulator or on site will also allow them to improve the knowledge of drivers' behaviours or to develop warning devices.

For instance, the following projects are in progress: development of autonomous integrated systems enabling accident avoidance without exempting driver responsibility, development of alert, rescue and post-accident protection solutions, research to develop infrastructure – vehicle communication concepts designed to improve road safety, knowledge and know-how regarding design

that fully integrates the human factor, Implementation of an efficient road safety policy, identification of accident-prone traffic situations to assess the impact of prevention/correction systems.

#### *Strategic activity domain 3 – Mobility and services*

This one is led by VEOLIA assisted by CONTINENTAL and INRETS. The objective is to develop ways of sharing the roads (personal vehicles, collective transports, bikes...) and managing the flows in an urban complex environment.

In order to achieve increased mobility and reduced greenhouse gases, efforts should be concentrated on developing sustainable mobility based on improvements in the quality and supply of both public and private transport and associated services, paying due consideration to increasing their complementarity.

Mov'eo wishes to provide regional and local authority players with new tools to facilitate travel and transport for inhabitants throughout their respective regions.

The research topics are at the moment:

- Sharing space through various ways of moving, particularly in dense urban areas
- Facilitate access to collective or individual transports for disabled people
- Flow management to improve the efficiency of collective transports
- Multi modality, road information and protocols for sharing the ways of payment

#### *Strategic activity domain 4 – Mechatronics*

This last one is monitored by VALEO assisted by Renault and the University of Versailles-Saint Quentin-en-Yvelines. Although it is new, major investments are planned as the topic has an increasing relevance in the automotive and aerospace industries.

Electronics in the motor industry is evolving and innovating rapidly, working towards the control of all vehicle functions and operations in order to improve comfort and safety, whilst reducing consumption.

Within this innovative mutation, vehicle electronics can no longer be simply "juxtaposed" to the mechanical set they control, but need to be totally embedded within and distributed throughout this mechanical assembly.

Hence, the design of new electronic units requires two worlds to work together: mechanical engineers and electronic engineers, resulting in a new discipline: mechatronics. It aims at combining electronics and mechanics to provide simpler, more compact and more reliable components and control systems.

The main research topics are dealing with tools for modelling dynamic mechatronics, test means and 3D metrology, modelling and 3D EMC testing, and reliability and safety in operating in mechatronics.

### **III. Organization of the cluster**

Mov'eo is supported by worldwide players such as RENAULT, PSA, VALEO, VEOLIA, TOTAL, SAFRAN, and CONTINENTAL. They are backed by a strong network of SMEs, particularly high skilled subcontractors (both OEMs and suppliers). These SMEs are strongly motivated and their group keeps on increasing. All players have taken part in the creation of Mov'eo by working on several topics and projects which were in the core fields of the two clusters.

The research institutes and higher education institutions were also very eager to participate in this creation by involving themselves in research programmes in partnership with industrials. They con-

tribute to both adding value to basic research and trending their training programmes to the jobs of the future, as well as creating high value-added employment.

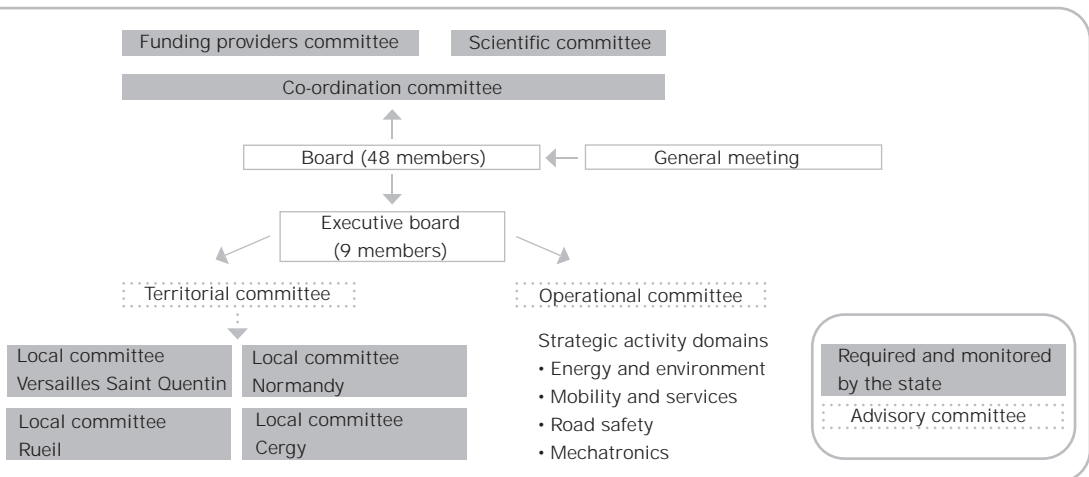
Major critical size, strong visibility and international acknowledgement are the target of Mov'eo players.

In order to become a world wide known expertise centre, industrial and academic players decided to pool relevant human and financing means within the frame work of co-operation projects. They, therefore, decided to set up a non-profit making organization, whose scheme is shown herein after. The association aims at making Mov'eo development easier around the strategic activity domains (Energy and environment; road safety; mobility and services; mechatronics). It also aims at reinforcing:

- The competitiveness of companies by developing innovation
- The attractiveness of territories, mainly by fostering the set up of companies as well as those of relevant scientific equipment and testing means

The association is open to any public or private body implementing activities, either dealing with research, development, innovation, industrialization, education, training or economic development, or contributing to these activities.

The development of projects is the basis on which the cluster is built up. All the stakeholders participate in this development and are involved in the cluster's decision-making process.



It is driven by both the logic of the merger between Normandy Motor Valley and Vestapolis, and the logic of the territorial representation that ensures a strong link with the cluster players (companies, research and development institutes, higher education, local authorities...)

Mov'eo is represented by a legal leadership (Board and Executive Board) and an operational leadership (Operational committees and work groups for monitoring the strategic activity domains and projects, and a territorial committee for the development of the attractiveness).

R&D projects are the pillars of the cluster and must meet the criteria of the call for offers of the competitiveness cluster, which are:

- Creating new high value-added welfares and high-skilled jobs
- Being positioned on growing world-wide markets
- Being based on strong partnerships and efficient leadership
- Contributing to the economic development strategy of the territory and its attractiveness

The set of the projects, either to come or in progress, is organized around four strategic activity domains which are monitored by a leading industrial who guarantees the implementation of the projects.

The groups are already built but remain open; they are aimed at following-up the projects, proposing new ones and ensuring a technological coherence with the other themes. Thus they enable the set up of a strong R&D.

Beyond technological challenges, the cluster meets a scheme of managing territories. Therefore, in order to ensure the coherence between territorial development and projects of industrial players, local authorities and chambers of commerce are cluster stakeholders. Local staff will manage the cluster development while considering the interests of SMEs.

### 3.1. Legal leadership

The Presidents of the three regions decided to set up Mov'eo headquarters at the Technopôle du Madrillet in Rouen, in accordance with all the stakeholders of the cluster.

The aims of the association are the following:

- Pooling the whole set of the players in research and training with a worldwide innovation strategy and proposing this strategy to public authorities
- Developing the industrial and technological strategic activity domains and proposing research and development projects
- Contributing to the creation of relevant scientific equipment and facilities
- Promoting training and education in the concerned topics
- Providing facilities for researchers, industrials and academics who participate in France and Europe in research and development programmes
- Fostering the creation of start-ups and spin-offs
- Helping innovative SMEs
- Fostering creation of jobs, contributing to attractiveness and economic development for territories
- Assessing and reporting the efficiency of the cluster actions

The association is represented by a general meeting, a board and an executive board.

### 3.2. Operational leadership

Two committees were set up in order to assist the executive board: an operational committee and a territorial committee.

#### *The operational committee*

The operational committee was delegated an executive function by the board; it will help the board to make a decision in case of problems in selecting R&D projects; it is composed of an elected president, member of the executive board and of delegates from the four strategic activity domains work groups. Its role is to:

- Make sure the strategic activity domains are linked together
- Select the R&D projects according to the criteria determined by the board
- Follow and synthesize the projects

- Make new projects evolve easier
- Link the technical orientations with the other clusters
- Propose the most relevant axes for R&D to the board
- Establish and validate the specifications of the scientific equipment and testing means required by the cluster
- Check the IP rules are complied with
- Develop a technological watch
- Organize if required the call for R&D projects
- Co-ordinate the association initiatives concerning training and education, including implementing new teaching programmes and ensuring links with industry

#### *The territorial committee*

Composed of a member of the executive board and the leaders of the four strategic activity domains, its role is to make sure that territorial management and technical strategy are coherent. It also aims at phasing local development with players and means. It contributes to:

- Co-ordinating and ensuring the coherence between the different sites and the territorial projects
- Guaranteeing the funding providers the coherence between projects and industrial needs, especially the investments in big equipment and testing means
- Presenting an annual report to the general meeting

#### *Work groups*

The work groups have to find the co-operative projects which then may be selected and labellized. The internal process of building and labelling projects aims at guaranteeing the projects to comply with the cluster objectives and strategy. In order to have a fluid process, assessing and selecting projects is under the responsibility of each thematic work group. The operational committee remains the leading body for validating and labellizing the projects for the cluster.

The cluster has to set up an auto-assessment device. The board has to control this auto-assessment and report twice a year to the board then to the co-ordination committee.

The assessment is based on indicators which enable to:

- Labellize the projects (according to the indicators for complying with the objectives of the cluster)
- Check the unfolding of the labellized projects
- Show the running of the cluster
- The indicators have to measure the quality of the projects submitted for labellization and, therefore, have to comply with the characteristics of the competitiveness clusters. Five criteria can be determined:
  - Co-operative characteristics of the projects: big companies, SMEs, research/technology providers and research institutes must collaborate
  - Concerned market and economic impact
    - Rank of the concerned companies on a world wide market
    - Challenges of the market (turnover and rank of the regions)
    - Expected benefits (in terms of market share, development costs and time ...)
    - Evolvement and reinforcement of SMEs
  - Maturity of the project
    - The players have already worked together (agreements, previous projects)
    - Clear construction of the project (scientific and technical contents, funding)

- The players formally committed themselves
- The application complies with the rules of the big call for offers
- The head of the project is well identified and ready to apply for funding
- Links within the cluster Mov'eo and other clusters
  - The project is linked with other projects within Mov'eo
  - Academic players and/or SMEs of the project are involved in other projects of the cluster
  - Links with other clusters
- International visibility
  - Number of international players in the project (turnover, plants...)
  - Participation of the players in European projects
  - Links with other European projects

#### *Strategic activity domains*

The R&D projects are pooled in strategic activity domains. A work group is built for each strategic activity domain, which aims at fostering the creation of emerging co-operative projects. At the moment, the four strategic activity domains are concerned with this. However, this can be modified by the board when proposed by the operational committee.

The work groups of the strategic activity domains are open to any participant in a research project which is a member of the cluster; it is open as well to any new member willing to take part after it was accepted by the executive board with the advice of the members of the strategic activity domain.

The role of these work groups is to:

- Build a shared vision in the concerned domain
- Identify the technological difficulties
- Propose and build R&D co-operative projects to be labellized
- Follow up the unfold of selected and launched projects
- Ensure the dissemination of the topics of the strategic activity domain

After synthesizing the projects, the work groups organize their funding and they send their conclusions to the operational committee.

The projects are entirely built by the participants, under the responsibility of one of them, in most cases an industrial. He is in charge of preparing the project and presenting it to the various people within the association.

*More than 100 million euros are expected for funding co-operative projects for the next four years as well as 100 million euros for equipment and facilities.*

Human resources:

- Public: more than 4.000 people in universities, graduate engineering schools, economic bodies...
- Private: 700 companies are involved in the cluster, that means 165,000 jobs, around 10,000 engineers and researchers working on various topics

## **IV. Cluster dynamics – Oriented towards technology leadership**

Mov'eo is based on partnerships between research, education and industrial bodies on one hand, and co-operation projects on the other hand. In this respect, it is essential to have Mov'eo organized in

four strategic activity domains. However, a first review after two years revealed that emphasis is also to be laid on the development of big competences centres which will gather the main technological skills of each region participating in Mov'eo and enable a strong activity between them. It will also permit a better visibility of Mov'eo for its international partners.

In this respect, several centres (campuses) are planned to come into force in the next few years to structure the whole set. Two examples can be found in the following: Campus for Integration of Embedded Systems and Campus for Mechatronics (MOV'EOTRONICS).

#### *Campus for Integration of Embedded Systems*

The strategic axes of the aerospace and automotive networks as well as those of the electronics sector lead us today to extend the embedded systems approach beyond the electronics sector, including mechatronics and all-electric systems.

This context and the size of the ongoing projects require a platform "Campus for Integration of Embedded Systems" to be set up; this platform will include research, technology transfer, training, innovation and industrial events and will operate at European and worldwide levels.

This project will host new platforms whose equipment is dedicated to the driveability of embedded systems and to the perception of the environment of these systems.

The integration of embedded systems is a concept, essential for both automotive and aerospace domains, and includes electronics, computing, mechanics and all-electric systems. Controlling this integration is, therefore, of high interest for the reliability of the big systems.

Key points: A global approach linking research, technology transfer, training, innovation and industrial events and a coherence of the research topics which is based on three major scientific domains in the integration of embedded systems: diagnosis, EMC, mechatronics and all-electric systems. Applications of these scientific domains are to be made on navigation systems, efficient clean vehicles and pods of the future.

This requires the setting-up of four platforms dedicated to navigation, EMC-mechatronics-micro-electronics, hybrid engines testing and pods for jet engines (equipment provided by Aircelle). The implementation of this campus runs in the period 2006/2011.

#### *MOVEOTRONICS*

The automotive industry is oriented towards a truly innovative direction, where power electronics has to monitor the whole set of the functionalities of a vehicle in order to improve comfort and safety while reducing the global energy consumption; therefore, it is a major challenge. Within these changes, electronics can no longer be only designed in parallel with mechanics, but has to be integrated in the mechanical set. This is the purpose of mechatronics. The challenges are very high:

- Developing and integrating the different physical domains of mechatronics in design tools
- Investigating technological breakthroughs in manufacturing processes
- Identifying hybrid materials as well as new assembling systems
- Analysing the failure types of these new technologies and developing the related testing benches

MOVEOTRONICS aims at turning into a competency centre for innovation in mechatronics in transport and automotive industries.

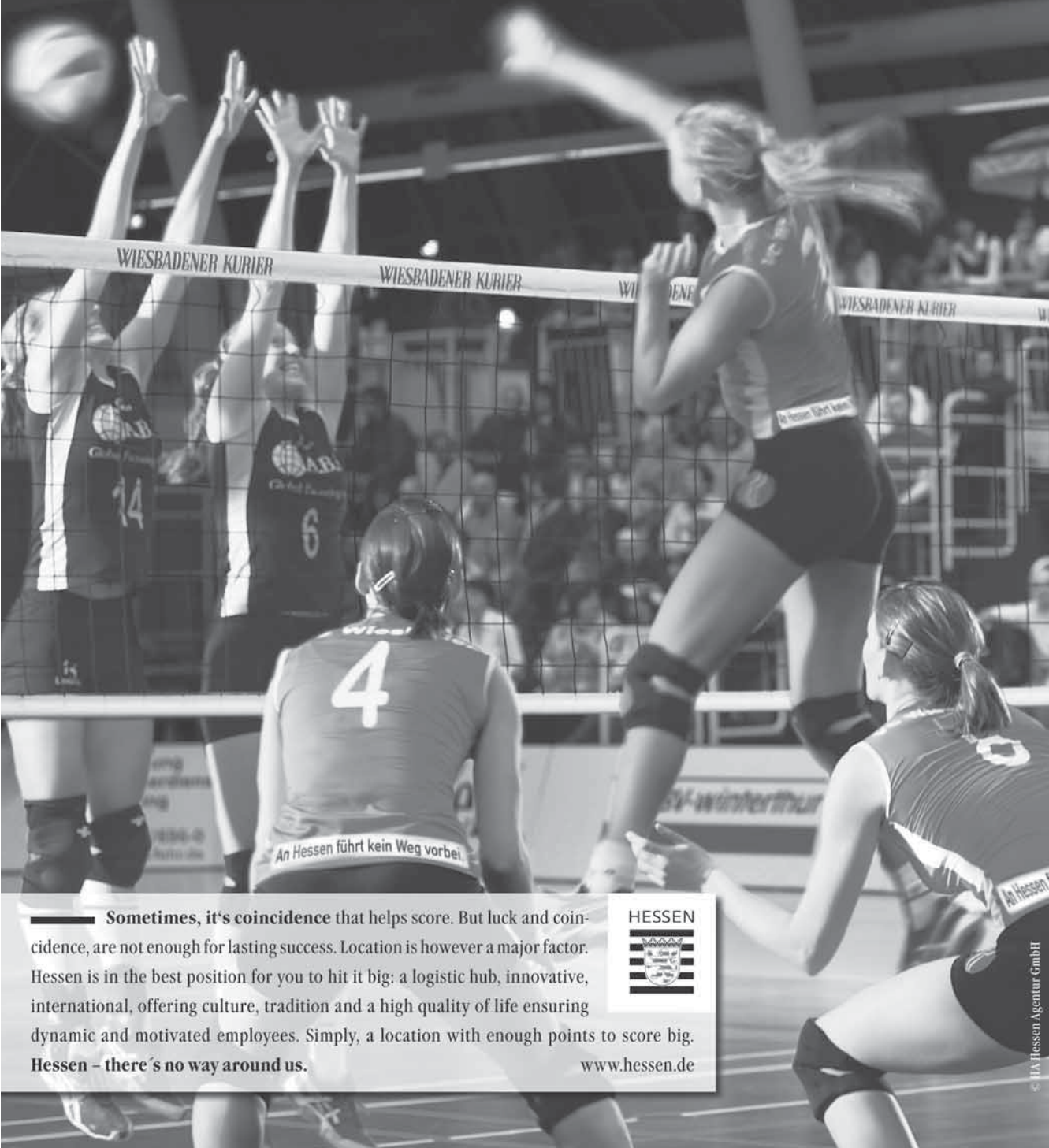
This campus will consist of academic research teams associated with industrials who will take benefit from its scientific and technical competence.

Many other projects and campuses are under way and one of the main forces of Mov'eo is the rapidity of its changes and movements towards the leading-edge technologies, linked with the possibility and the willingness to use every stakeholder's forces to reach any new target detected.



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TCAS and BeLCAR have received funding  
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Over the last years cluster initiatives in the automotive sector have been established across Europe with the aim to support innovation and the regional supply industry. More than ten of the most advanced and successful European automotive clusters became partners of the TCAS and BeLCAR networks and started to engage in a far-reaching cooperation in the framework of the Europe INNOVA initiative.

This book documents the most important results, presents case studies and "good practices" of successful automotive clusters in Europe and highlights the different cluster models and strategies by proposing a cluster typology. Cluster practitioners and innovation professionals share their experiences with a view to the following issues:

- How to design cluster strategies and policies?
- How can clusters stimulate the technology transfer between research institutions and industry?
- Which cluster management and development strategies have proven successful in the new member states of the EU?
- What role does a trans-national co-operation platform between automotive clusters have?
- Which general lessons can be drawn from a comparison of cluster initiatives?

With clusters becoming an increasingly important area for the promotion of innovation, this book makes a contribution to the ongoing international debate on how best to organize clustering in the automotive sector.

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