



European Commission



Enterprise Directorate-General

FINAL REPORT OF THE EXPERT GROUP ON ENTERPRISE CLUSTERS AND NETWORKS



EUROPEAN COMMISSION
ENTERPRISE DIRECTORATE-GENERAL

Promotion of entrepreneurship and SMEs
Improving business support measures

**FINAL REPORT OF THE EXPERT GROUP ON ENTERPRISE CLUSTERS AND
NETWORKS**

Legal Notice

This project has been conducted with experts in the field of enterprise clusters and networks, nominated by the authorities of the Member States, Candidate Countries and EFTA/EEA Countries under the Multi-annual Programme Procedure of the Enterprise Directorate-General of the European Commission.

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Further Information

European Commission
Enterprise Directorate-General
Unit B.1 Improving Business Support Measures
B-1049 Brussels
Fax: +32-2-296 62 78
E-mail: Entr-Business-Support@cec.eu.int
http://europa.eu.int/comm/enterprise/entrepreneurship/support_measures

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LIST OF MEMBERS OF THE EXPERT GROUP

COUNTRY	NAME	ORGANISATION	E-MAIL
BELGIUM	Mrs. Claire Nauwelaers	MERIT (University of Maastricht)	c.nauwelaers@merit.unimaas.nl
DENMARK	Mr. Martin Hvidt Thelle	Copenhagen Economics	mht@copenhageneconomics.com
GERMANY	Mr. Javier Revilla Diez	Geographisches Institut der Christian-Albrechts-Universitaet zu Kiel Lehrstuhl für Wirtschaftsgeographie	diez@geographie.uni-kiel.de
SPAIN	Mr. Luis Moreno	CEAGA (Cluster de empresas de automoción de Galicia)	luismoreno@ceaga.com
FRANCE	Mr. Jean-Marie Rouillier	Seine-Maritime Expansion	direction.sme@wanadoo.fr
GREECE	Mrs. Evita Bazakou	Ministry of Development - General Secretariat of Industry – Direction of SMEs	BazakouEvita@ypan.gr
IRELAND	Mr. Niall O'Donnellan	Enterprise Ireland	niall.odonnellan@enterprise-ireland.com
ITALY	Mr. Marco Baccanti	CENTURIA Srl - Parco Scientifico Tecnologico	m.baccanti@libero.it centuria@pstcenturia.com
LUXEMBOURG	Mr. Mario Grotz	Ministère de l'Economie	mario.grotz@eco.etat.lu
NETHERLANDS	Mr. H. Vreeswijk Mr. Arthur ten Wolde	Ministry of Economic Affairs Confederation of Netherlands Industry and Employers VNO-NCW	h.vreeswijk@minez.nl wolde@vno-ncw.nl
AUSTRIA	Mr. Werner Clement	c/o IWI	foresee@aon.at
FINLAND	Mr. Pekka Yläantilla	Etlatieto Oy	Pekka_yla-anttila@etla.fi
UNITED KINGDOM	Mrs. Beccy Eggleton	Regional Innovation and Clusters Team - Regional Policy Directorate	Beccy.Eggleton@dti.gsi.gov.uk
NORWAY	Ms. Tone Haraldsen	University of Oslo	tone.haraldsen@sv.uio.no
ICELAND	Mr. Thorvaldur Finnbjornsson	The Icelandic Research Council	thorvald@rannis.is
BULGARIA	Mr. Simeon Mutafchiev	Agency for Small and Medium-sized enterprises	s.mutafchiev@asme.bg
CZECH REP.	Mr. Jiri Michovsky	Ministry of Industry and Trade	michovsky@mpo.cz
ESTONIA	Mr. Ott Pärna	Ministry of Economic Affairs, Department of Industry, Division of Technology and Innovation	ott.parna@mkm.ee
HUNGARY	Mr. Gergely Gece	Ministry of Economy and Transport - Technology-policy Department	gergely.gecse@gmh.gov.hu
LATVIA	Mr. Toms Grinfelds	Ministry of Economy	grinfelds@em.gov.lv
LITHUANIA	Mr. Česlovas Švetkauskas	Ministry of Economy, Department of Industry and Business, Industry strategy division	c.svetkauskas@po.ekm.lt
POLAND	Mr. Henryk Stasinski	The Association of Free Entrepreneurship – Regional Office Gdansk	cig@itnet.pl
ROMANIA	Mrs. Cristina Grigorescu	Ministry for SME and Co-operatives	cristina.grigorescu@mimmc.ro
SLOVAK REP.	Mrs. Agata Stolarikova	Ministry of Economy - Department of Economy policy No.110	stolarikova@economy.gov.sk
SLOVENIA	Mrs. Mateja Mesl Mrs. Mateja Dermastia	Ministry of Economy Ministrstvo za gospodarstvo	mateja.mesl@gov.si mateja.dermastia@gov.si
TURKEY	Murat Şükrü Soykan	KOSGEB Head Office	msoykan@kosgeb.gov.tr
EUROPEAN COMMISSION	Mrs. Nathalie Oghlian	Enterprise Directorate-General	nathalie.oghlian@cec.eu.int

The group met three times under the chairmanship of the Commission. The report is based on the contributions of the experts and has been compiled by the Commission.

EXECUTIVE SUMMARY

The project on enterprise clusters and networks was launched by Enterprise Directorate-General in spring 2002 within the framework of the Multiannual programme for enterprise entrepreneurship. It follows on the European Charter for Small Enterprises.

It was carried out with the help of group of national experts from thirteen EU Member States, eleven Candidate Countries and two EFTA/EEA Countries. The views expressed in this report represent the opinion of the expert group members.

Definition of clusters

“Clusters” are a nebulous concept. It covers a variety of business structures and is used for different purposes. Therefore, there are numerous different definitions but almost all of them share the idea of proximity, networking and specialisation.

One of the tasks of the expert group has been to agree on a common definition. They proposed to use as a working tool for this project the definition of Porter, to which they added few finer points:

“Clusters are groups of independent companies and associated institutions that are:

- *Collaborating and competing;*
- *Geographically concentrated in one or several regions, even though the cluster may have global extensions;*
- *Specialised in a particular field, linked by common technologies and skills;*
- *Either science-based or traditional;*
- *Clusters can be either institutionalised (they have a proper cluster manager) or non-institutionalised.*

The cluster has a positive influence on:

- *Innovation and competitiveness;*
- *Skill formation and information;*
- *Growth and long-term business dynamics”.*

Objectives of the study

The study attempts to give an answer to questions as to what extent clusters and networks do really offer a favourable framework for enhancing the productivity, the innovation and the competitiveness of SMEs. Could clusters be one way to achieve the Lisbon Summit goal of making Europe the most competitive and dynamic knowledge-base economy in the world by 2010?

It then identifies how EU Member States, Candidate Countries, EFTA/EEA Countries and the European Commission take into account clusters and networks in their national, regional, local and EU policies.

This study also creates the opportunity to present as models a number of examples that have been selected by the national experts as « good practices » cases for their respective countries.

Finally, since the focus of this report is on policy issues, it proposes possible future activities aiming to support cluster development.

Why is the Commission interested?

The intention to “foster the involvement of small enterprises in inter-firm co-operation, at local, national, European and international levels as well as the co-operation between small enterprises and higher education and research institutions” has been clearly expressed in the European Charter for Small Enterprises.

Enterprise clusters and networks are recognised as important settings for the development and growth of SMEs because they help them improve productivity, increase innovation capability, facilitate the commercialisation of innovation and generate high employment.

At a higher level, clusters and networks enhance the economic as well as the social growth of the region or nation hosting them.

Experts' main conclusions

The issue of cluster policy:

As stated above, the concept of cluster encompasses many meanings. The same is therefore true when dealing with cluster policy. In essence, cluster policy is not an isolated, independent and well-defined discipline. It embraces all policies that affect the development of clusters, taking into account the synergies and interchanges between these policies. Many policies labelled under different headings (regional policy, industrial policy, innovation policy, etc.) are in fact cluster policies in the sense that they contribute to create an environment of co-operation among the stakeholders at local and/or regional level. Consequently, countries that do not have officially labelled “cluster policy” might still have many policies impacting on clusters.

Numerous initiatives but often not in a structured way:

The study on cluster and networking policies in the surveyed countries, presented in Section 5 of this report, confirms the above statement. Few countries have already developed a genuine cluster policy. However, with the growing recognition that cluster-form organisations could help enhance the competitiveness and innovation capabilities of SMEs, countries are more eager to support the creation and/or the development of clusters. There are numerous initiatives currently being developed at all levels: national, regional, local, supranational. These are, however, not often taken in a structured way.

This can be explained by the fact that the majority of the countries *have not developed* a strategic approach on cluster-form organisations. In most cases, they still need to:

- Plan to carry out mapping studies on clusters, identify regions, sectors of activity, technologies that would benefit from cluster-form organisations and integrate them in their overall strategy on economic and social growth;
- Identify barriers and limiting factors to cluster development and organise regular revision of their existing policy measures;
- Obtain their governments' long-term commitment;
- Raise awareness on the potential benefits of clusters among the players concerned;

Current areas of focus of national and regional governments:

Despite the individual difference in the countries surveyed, we are looking at the same trends in all the countries. Most of the time, central government and/or the regions provide financial aid to assist cluster creation and/or development.

Currently, the main focus of the national or regional authorities is to promote high and knowledge-based technology and innovation. Very substantial private and public funds are allocated to finance co-operation research programmes. The promotion of a culture of business collaboration is another important centre of attention. Public funds are often used to invest in cluster management, networking, information sharing, education, research and physical and knowledge infrastructure.

Actions undertaken by the European Commission:

Different actions to support clusters and networks have already been taken place in the framework of policies of several Directorate-Generals of the European Commission (Innovation Policy, Regional Policy, Industrial Policy, etc.) to provide a platform for exchange of information, experience, competence and good practices. Section 5 of this report describes some initiatives of the European Commission.

Responsible entities:

The sharing of the tasks between national, regional and local depends on each country's structure and constitution.

In general, cluster policy is developed by national governments in co-operation with regional or local governments. The national authorities focus on designing and co-ordinating policies, while regional or local authorities take on the implementation phase. These latter do indeed have a better knowledge of the local economic and social environment.

Experts' recommendations

The experts agreed that policy towards clusters should be based on public authorities supporting embryonic and existing clusters rather than trying to create them from scratch. Indeed, the birth and the development of clusters are a long market-driven process, stretching over a decade or more.

Basically, a policy on clusters should provide a framework for dialogue and inter-firm co-operation, as well as for co-operation between small enterprises, higher education and research institutions, public and non-public organisations at local, national, European and international level. Public sectors should therefore limit themselves to playing a catalytic role.

At the national or regional level, the experts state that more efforts are required in the following activities:

- Identifying market failures and upgrading policies affecting cluster firms;
- Implementing cluster management structures;
- Developing linkages between research centres, universities and industry;
- Implementing appropriate education and training programmes to match the offer of human resources to the needs of the clusters;

- Implementing platform of networking and exchange of information, mainly for cross-border cluster initiatives;
- Providing strategic information to clusters;
- Joint marketing initiatives;
- Supplying specialised infrastructure (real estate, communications, transport);
- Offering extended financial instruments (venture capital funds, mutual credit guarantee schemes, subcontracting arrangements).

A special remark regarding public aid:

Experts differ on the scope and the conditions of public aid for supporting clusters. This is because each country has its own particularities – history, culture and constitution. Although, public funds should not be systematic and should comply with the State aid regulations, experts recognise that they are often needed to support start-up projects, networking, information, research, education, and specialised infrastructure. This is all the more true in countries in economic transition where businesses are not yet mature. But these should decrease as the cluster starts functioning.

At the EU level:

- Carrying out studies to identify clusters in Europe. These can be done through top-down as well as bottom-up cluster mapping exercises;
- Raising awareness, providing information on the potentials and pitfalls of clustering and on existing clusters initiatives in Europe;
- Providing a framework for exchange of information and good practice (studies, seminars, business travel, visits);
- Reinforcing synergies between all areas of policy action (competition, innovation, fiscal, and regions).

1. INTRODUCTION

The project on enterprise clusters and networks is one of the projects launched by Enterprise Directorate-General in spring 2002 within the framework of the Multi-annual programme for enterprise and entrepreneurship, and in particular for SMEs. The project follows on from the European Charter for Small Enterprises¹ in which the Member States recognise the need to involve small enterprises in inter-firm co-operation, at local, national, European and international levels, as well as the co-operation between small enterprises and higher education and research institutions.

Enterprises are often concentrated in small geographic areas where the business environment seems to be more favourable and where companies can get access to qualified manpower and expert knowledge from research institutions etc. Such geographic concentrations of competing and co-operating companies, suppliers, service producers, research institutions and associated institutions are defined as clusters.

Enterprise clusters and networks have been known to be the “spearheads” of their region’s development, improving the productivity, performance and innovative capacity of their members, facilitating the commercialisation of innovation and creating high employment.

Hence, clusters and networks have recently attracted growing attention from policymakers. Initiatives to support cluster creation and development are nowadays widespread in Europe, as well in the developed as in transition economies.

This report is the outcome of the work of an expert group nominated by their government on enterprise clusters and networks set up in May 2002. The tasks of the group were to examine the drivers of cluster formation, to identify comparative advantages that clusters and networks can offer to their member firms and subsequently to the regions hosting them, to describe current policies and initiatives towards clusters and networks in their respective national or sub-national governments and to come up with policy recommendations in this area. Finally, they were asked to provide examples of practice in this field occurring in their own countries.

Although the work has been carried out under the guidance of Commission officials, the views expressed in this report represent the opinion of the members of the expert group and do not bind the European Commission.

1.1. Objectives of the project

The project on enterprise clusters and networks, built on the outcomes of the Observatory of European SMEs report on “Regional clusters in Europe” (2002/No 3), has two main purposes. It first seeks to raise awareness amongst EU Member States and Candidate Countries on the potential and importance of clusters and networks in making enterprises more competitive and innovative. Then, it looks at the existing national policies for clusters and networks with a view to map the diversity of policies towards clusters at work and extract good practice cases.

¹ The European Charter for Small Enterprises was endorsed by the Member States at the Feira European Council on 19 and 20 June 2000

Understanding the importance of clusters and networks was the first step. The study attempts to give an answer to questions as to what extent clusters and networks really do offer a favourable framework for enhancing the productivity, innovation and competitive performance of SMEs. Could clusters be one way to achieve the Lisbon Summit goal of making Europe the most competitive and dynamic knowledge-base economy in the world by 2010?

A stocktaking exercise of past initiatives by the EU Member States, Candidate Countries, EFTA/EEA Countries and the European Commission to measure or map clusters was conducted in order to get an overview of European clusters and networks and to identify the driving forces at the source of their creation. The project then analysed how national policies take clusters and networks into account and identified good practices. The project finally looked at the following questions and provides ideas for possible future actions:

- What should be the role of the regional, national and EU authorities as regards promoting and developing clusters and networks?
- What should be the future areas of focus of cluster and networking policies?
- How should one spread awareness amongst enterprises on the potential offered by clusters and networks?
- How can Member States and Candidate Countries provide conditions to facilitate cross-border cluster and networking?

It is not possible – nor is it the ambition of his work – to produce a comprehensive list of all clusters that exist in Europe. Rather, since the focus is on policy issues, the expert group decided to select relevant examples of good practice as well as bad practice from across Europe in order to disseminate them by providing a platform for exchange of information. Both emerging and well-established clusters are studied.

1.2. Methodology

The report presents essentially the outcomes of the work carried out by the expert group on enterprise clusters and networks. Contributions from an inter-service group within the European Commission have also been included. The expert group was composed of national experts in this field. The experts were officially appointed by the governments of EU Member States, Candidate Countries, Norway and Iceland. The experts come from various working environments: ministries, regional clusters, universities, development agencies, and private organisations. This has proved a valuable asset, as it allowed for taking advantage of a broad range of expertise – and of different points of view as well – during the implementation of the project. A complete list of experts' contact information is shown on page 8.

The expert group's tasks were to bring together the necessary expertise and to provide information and data on the basis of a questionnaire prepared by the Commission.

The questionnaire, approved by the experts, was split into two parts:

- a section with general questions of qualitative nature focusing on existing national policy initiatives designed to support the development of clusters and networks and future actions of improvement, and
- a section with cluster-specific questions providing quantitative data on geographical location, number and size of cluster firms, social, economic and environmental impact on the hosting region, etc.
- In addition, the expert group identified examples of good practice with policy link of networking relationships and cross-border clusters.

The inter-service group consisted of members from all relevant Directorates-General of the European Commission and provided information on past Commission work on clusters and networks.

2. DEFINITIONS OF CLUSTERS AND NETWORKS

2.1. Clusters

“Clusters” are a nebulous concept. That concept covers a variety of different business structures – national-regional-cross-border clusters, clusters of competence, industrial or production systems and innovation systems – and is used for different purposes – to increase the competitiveness of SMEs, support collective research, rationalise a whole industry, implement environment management system. This is why there are so many different definitions, but almost all of them share the idea of proximity, networking and specialisation. The most widely used definition is Porter’s²:

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

A consequence of the diversity of definitions on clusters is that cluster policy is hardly an isolated, independent and well-defined discipline. Basically, cluster policy embraces all policies that affect the development of clusters, taking into account the synergies and interchanges between these policies. Many policies labelled under different headings (regional policy, industrial policy, innovation policy, etc.) are in fact cluster policies in the sense that they try to make basic framework conditions favouring an environment conducive to business stakeholders work together on the local and/or regional level.

One of the tasks of the expert group members has been to agree on a common definition. They proposed to use Porter’s definition as a working tool for this project, adding a few finer points:

² The Competitive Advantage of Nations, Free Press, New York (1990)

“Clusters are groups of independent companies and associated institutions that are:

- Collaborating and competing;*
- Geographically concentrated in one or several regions, even though the cluster may have global extensions;*
- Specialised in a particular field, linked by common technologies and skills;*
- Either science-based or traditional;*
- Clusters can be either institutionalised (they have a proper cluster manager) or non-institutionalised.*

The cluster has a positive influence on:

- Innovation and competitiveness;*
- Skill formation and information;*
- Growth and long-term business dynamics”.*

2.2. Networks

Networks are formal and informal organisations that facilitate the exchange of information and technology and foster various kinds of co-ordination and collaboration in a cluster. They could be, for example, chambers of commerce, trade associations or alumni networks of schools and companies.

3. ADVANTAGES AND DISADVANTAGES OF CLUSTERS AND NETWORKS TO SMEs AND TO THE REGIONS HOSTING THEM

By adopting The European Charter for Small Enterprises in June 2000, Member States recognised that *“Europe’s competitiveness depends on its small enterprises: these are the main drivers for innovation, employment as well as social and local integration”*. Therefore, the best possible environment for small enterprises should be promoted. And to go further by affirming that:

“We will foster the involvement of small enterprises in inter-firm co-operation, at local, national, European and international level as well as the co-operation between small enterprises and higher education and research institutions”.

In that respect, enterprise clusters and networks are increasingly attracting the attention of sub-national and national policy-makers, because they represent efficient structures for stimulating the competitiveness, productivity and innovation of small enterprises. The advantages and disadvantages of clusters and networks for SMEs and for the regions hosting them were discussed in the expert group. But first, the driving factors for the emergence of clusters were analysed.

Clusters are generally built up spontaneously by the local business players, who want to take advantage from the synergy of several factors existing in the geographic area: the presence of customers and suppliers, the access to qualified labour force and know-how, the availability of specific natural resources and infrastructure, low transaction and communication costs due to geographical proximity, the vicinity of universities, training

centres and research institutes, and the presence of financial institutions and other private and public organisations.

Clusters constitute important knowledge spillovers for businesses. The physical proximity of the factors outlined above furthers the creation of formal and informal linkages and networks among firms, higher education and research institutions, financial establishments, public agents and other local organisations, where information can easily flow and propagate. Easier contacts are established with public administrations, allowing them to adapt the infrastructure of the cluster to the businesses needs. All these contribute to facilitating the innovation process. Indeed, to guarantee their survival in these very competitive environments, cluster firms are obliged to develop innovative strategies and to build in the necessary capacities to implement them. Innovation is not just the sole preserve of universities or research centres, it is mainly the result of a series of businesses initiatives and experimentation. In a cluster, enterprises voluntarily or involuntarily learn from each other and copy each other. In such contexts, making mistakes is allowed and is part of the learning process. The example of Italian industrial districts is widely used to illustrate this. Furthermore, clusters that have been able to develop a brand name bring to their companies and institutions a valuable tool to market their products and services. The internationally renowned brand name “Bresle Valley – Glass Valley” contributed to increase the sales of the glasswork cluster of the valley of Bresle in France.

At a higher level, clusters have proved to be attractive to the regions hosting them. They contribute to their economic growth and social wealth. As Porter stated, “prosperity depends upon the productivity with which a region allocates its resources (manpower, natural resources, infrastructure, etc) to produce goods and services”³. And productivity rises because of innovation. As demonstrated above, clusters can form the perfect environment to enhance competitiveness. Clusters can improve productivity by allowing firms to take advantage of specialised suppliers, local know-how, information, skills and education. The proximity of customers, competitors, suppliers, universities and research institutions provided impetus the creation and exchange of information and increases opportunities for innovation. These in turn favour the growth, the high employment, and the attractiveness of the regions.

It is worth noting that the reality of the advantages listed above has seldom been checked on the basis of scientific performance indicators. Until recently, the majority of studies carried out on clusters have restricted themselves to giving qualitative explanations on the performance of clusters. Most of the time these have been based on the observation of successful clusters.

In certain circumstances, however, clusters might become a hindrance to the further development of its members, and, in extreme situations, even exacerbate the decline of a whole region.

In a context of rapidly-changing technology, cluster firms become more vulnerable if they are locked in old technologies and if they do not develop enough flexibility to adapt themselves to those changes.

Also, when cluster firms rely on few buyers or on the activity of one large or a limited number of companies, as can happen, they may fail if these latter move or disappear, even if they themselves are still competitive. At regional level, one should keep in mind

³ On Competition, Harvard Business Review Book, 1998

the existence of regions, which followed the decline of their clusters due to technology lock-in and to an over-dependence on a small number of companies. Moreover, the force of attraction of a region should not be over-estimated, as only few are internationally renowned. To avoid these pitfalls, SMEs should develop flexibility and adaptability skills, build networking capabilities and attend information events, be ready to share information, acquire strong internal capabilities to become attractive for their existing and potential partners.

4. CLUSTER MAPPING EXERCICES IN EUROPE

4.1. Overview of national cluster mapping exercises

An attempt was made to gain a complete overview of cluster initiatives and policies across Europe. A questionnaire was compiled to help expert group members provide national cluster mapping studies. Unfortunately, the experts report that few countries have completed a formal cluster-mapping exercise at the national level.

Furthermore, results from the studies available were not comparable. As demonstrated above, there are many different approaches to clusters. Interpretation of the cluster concept is widely subject to the country's economic and administrative experience. The country's own history and culture also impact on this. Cluster organisations can therefore take a large variety of forms – national/regional/cross-border clusters, production/industrial systems, innovation/knowledge systems - and be used for different purposes – increase the competitiveness and innovative capabilities of SMEs, enhance the economic and social cohesion of a region, rationalise a whole industry, etc.

The following table lists the countries that have carried out some kind of cluster mapping exercise.

Table 1: Countries having carried out a cluster mapping study

Country	Number of clusters identified	Studies and references
Belgium	Flanders: 14 VIS Wallonia: 9 economic and technological clusters	“ICT-clusters in Flanders, co-operation in innovation in the New Network Economy” . Flemish contribution to the Focus Group “Cluster Analysis and Cluster-based Policy (TIP/OECD), Jan Larosse et al, IWT-Studies nr35, April 2001. “Cadre conceptuel et opérationnel pour une politique de clusters en Wallonie” , Merit and Ernst & Young (2001) (http://mrw.wallonie.be/dgee/dpe/dia/fr/01Nouveau-Site/01PolEco/PolEco-Territoires/Analyses-Etudes/clusters-resume-050901.pdf)
Denmark	12 mega-clusters 29 clusters of competence	“Studies of Clusters as the Basis for Industrial and Technology Policy in the Danish Economy”, Ina Drejer, Frank Skov Kristensen and Keld Laursen, OECD Book on Clusters (Chapter 12) “A New Economy and its New Clusters” (http://www.ebst.dk)
France	100 existing clusters + 80 emerging clusters	Datar (http://www.datar.gouv.fr)
Spain	Hundreds of clusters	-
Austria	45 clusters	SMEs, clusters and competitiveness – The Austrian experience, Michaela Hajek, Jürgen Janger, Silvia Macek, Project Lead: Werner Clement – Institute for Industrial Research (IWI). Working paper for the Bologna Conference of the OECD on “Enhancing the Competitiveness of SMEs in the Global Economy: Strategies and Policies”, 2000
Finland	10 national clusters Several regional and local clusters	National Industrial Strategy for Finland. Ministry of Trade and Industry. Publications 3/1993 “Assessment of the additional appropriation for research”, Prihti – Georghiou – Helander – Juusela – Meyer-Krahmer – Roslin – Santamäki-Vuori – Gröhn. Sitra Reports (2001) (http://www.sitra.fi)
United Kingdom	154 clusters	Business Clusters in the UK – A first Assessment (http://www2.dti.gov.uk/clusters/map/)
Estonia	1 cluster	“Evikings” (http://www.esis.ee/eVickings/evaluation/)
Hungary	19 clusters	Ipagazdasági Kutató Intézet, Consulting & Rsearch for Industrial Economics Ltd (http://www.ikt.hu)
Latvia	4 clusters	“Support to Industrial Cluster Restructuring”, EU Phare Programme (October 2000)
Poland	20-30 + some in Free Economic Zones which are sometimes treated as clusters themselves	-
Slovenia	9 potential clusters (production/services systems) + 12 which need more time/support	“Enhancing of networking , specialisation in production chains and common international market developing”, Ministry of Economy, Iteo, Mateja Dermastia, 2000
Norway	6 national clusters 62 regional clusters	“Et Verdiskapnede Norge”, T. Reve and E.W. Jacobsen, Universitetsforlaget, 2001 “Regionalisation and regional clusters as development strategies in a global economy”, A. Isaksen, STEP Report 0198. STEP Groupe. Oslo (1998)

Source: Data provided by the expert group members based on a questionnaire compiled by the Enterprise Directorate-General and approved by the experts⁴.

More detailed information is provided in the SME Observatory report on regional clusters in Europe 2002/No 3

⁴ See section 1.2. Methodology

4.2. Survey on cluster-specific characteristics

The second part of same questionnaire aimed to collect data to identify the driving factors to cluster formation and development and to extract particular features of clusters. For clusters existing in their respective countries, experts were asked to give specific information on the location, number and size of cluster-firms, partners involved, number of employees, breadth, networking methods, markets, existence of a link with cluster policy, etc.

84 examples of European clusters have been provided from 20 countries. The majority (51) are from 12 EU Member States and the remaining from Candidate Countries, Iceland and Norway. It should be noted that the distribution of clusters in terms of number per country is uneven: some country experts have provided several actual cases while others provided only one or none at all.

The surveyed clusters are from a wide range of industries and geographical areas, and of different size and nature. They can demonstrate either good or bad practices.

Table 2: Distribution of the surveyed clusters per type and country

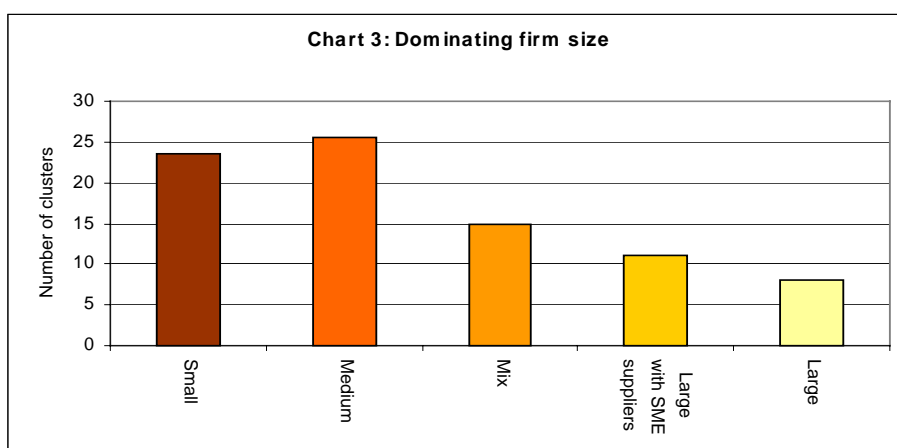
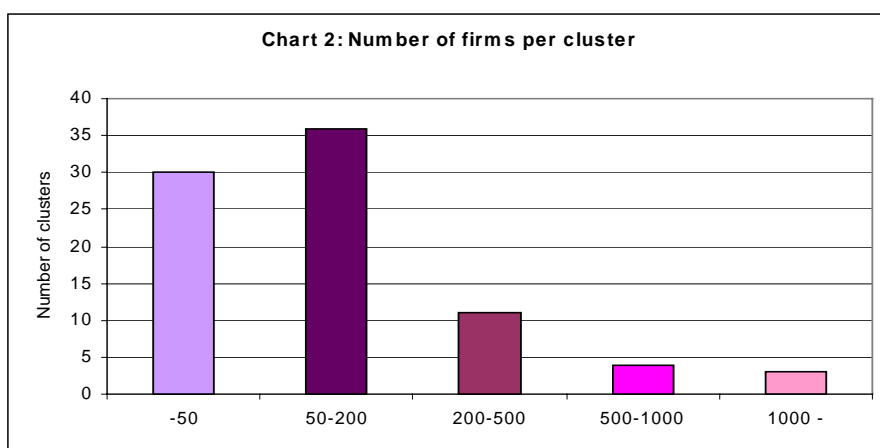
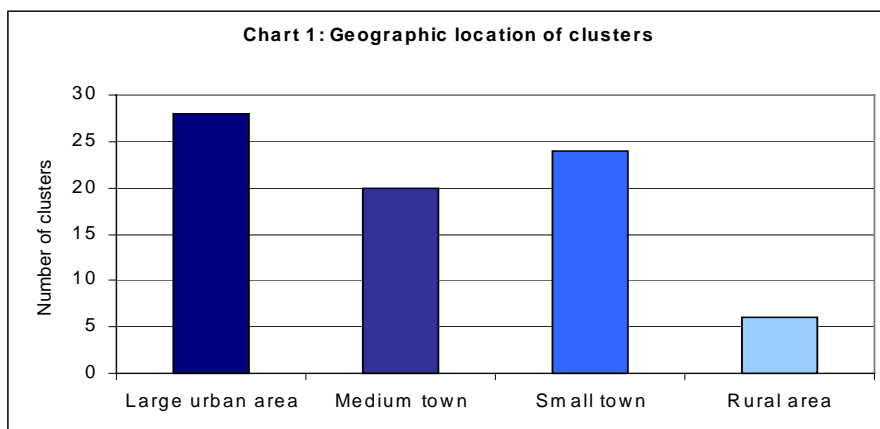
Countries	Number of countries	Traditional clusters	Science-based clusters	Total
EU Member States	12	32	19	51
Candidate Countries	6	25	4	29
Norway & Iceland	2	2	2	4
Total	20	59	25	84

However, it was not possible to obtain comprehensive and exhaustive data. The cluster mapping approach in Europe shows indeed a large variety of cluster models. This is due to different development paths as a consequence of different cultures, historical circumstances, size of the economy, ways of business behaviour and governance, ways of networking and management relationships, cluster policies and instruments to foster clusters' competitiveness.

In view of this, it was agreed to present only the charts that would give a reliable picture of the cluster landscape in Europe, trying to avoid as much as possible chewed information. Most of the answers to the questionnaire were in fact based on successful cases only. Experts also decided not to differentiate traditional from science-based clusters. It is therefore important to stress that the quantitative data expressed in the charts shown below should be considered as indicative of the situation in the different countries or in Europe as a whole and should be used to give background information on the sample and the sample only.

Local networks of mainly small and medium size enterprises

The charts validate Porter's definition stating that clusters can contain both small and large numbers of enterprises of different size. However, the majority of the clusters surveyed are small (less than 200 firms) and located near towns, which can be from small towns to large urban areas. The bulk of the surveyed clusters are dominated by small and medium size enterprises, confirming the traditional picture of a cluster as being a local network of mainly SMEs or at least a mix of SMEs and large-scale enterprises. This shows that regional resources are important for the working of many clusters⁵ (see Charts 1 to 3).

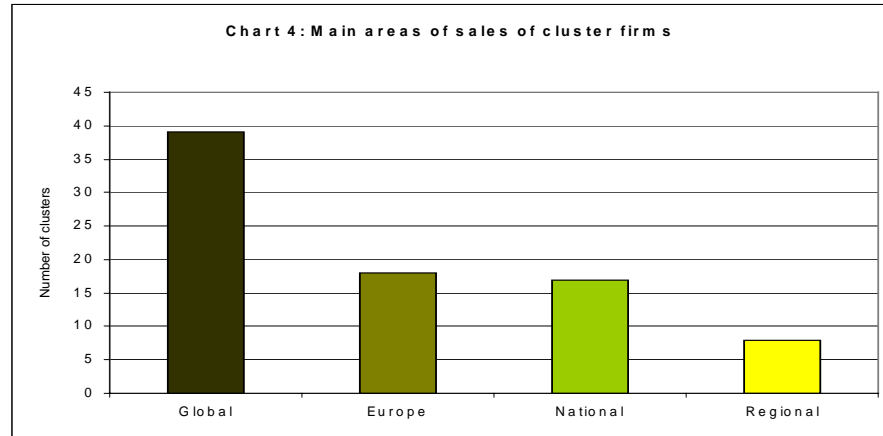


Source: Data provided by the expert group members based on a questionnaire compiled by the Enterprise Directorate-General and approved by the experts¹.

⁵ The same trend has been observed in the Observatory of European SMEs report on Regional clusters in Europe (2002/No3 p.30)

Globalisation of sales

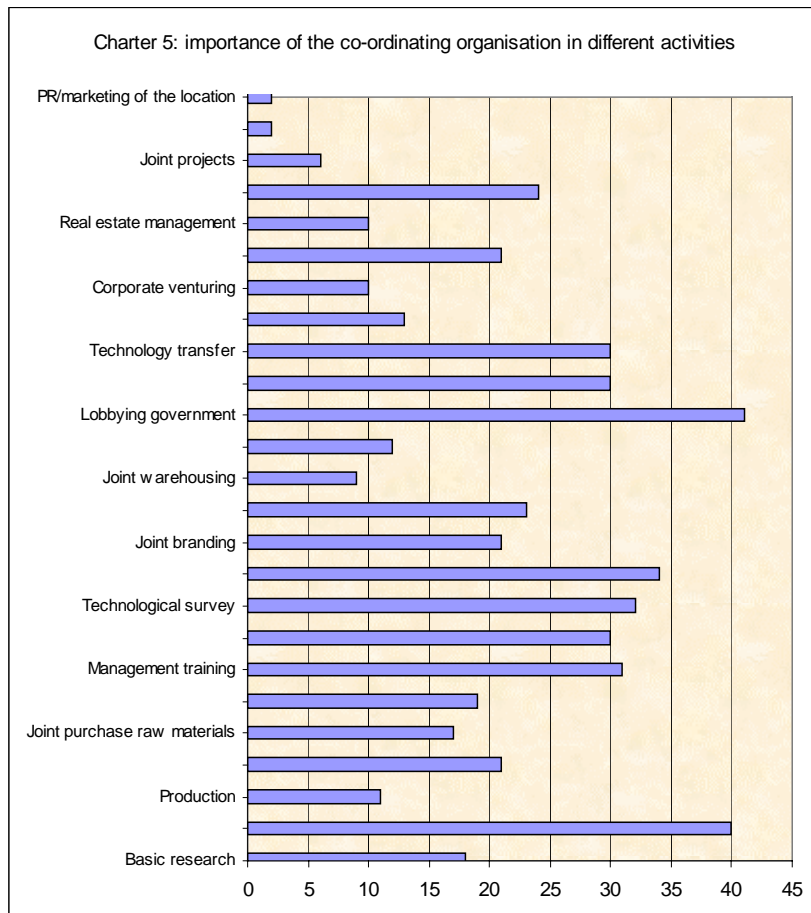
Chart 4 shows that most of cluster firms' sales are realised on global markets. Sales towards European or national markets are far behind. In many countries, measures towards clusters have consisted in favouring joint sales and marketing services for the members. These have facilitated the prospect of new markets and the provision of market-oriented products and services.



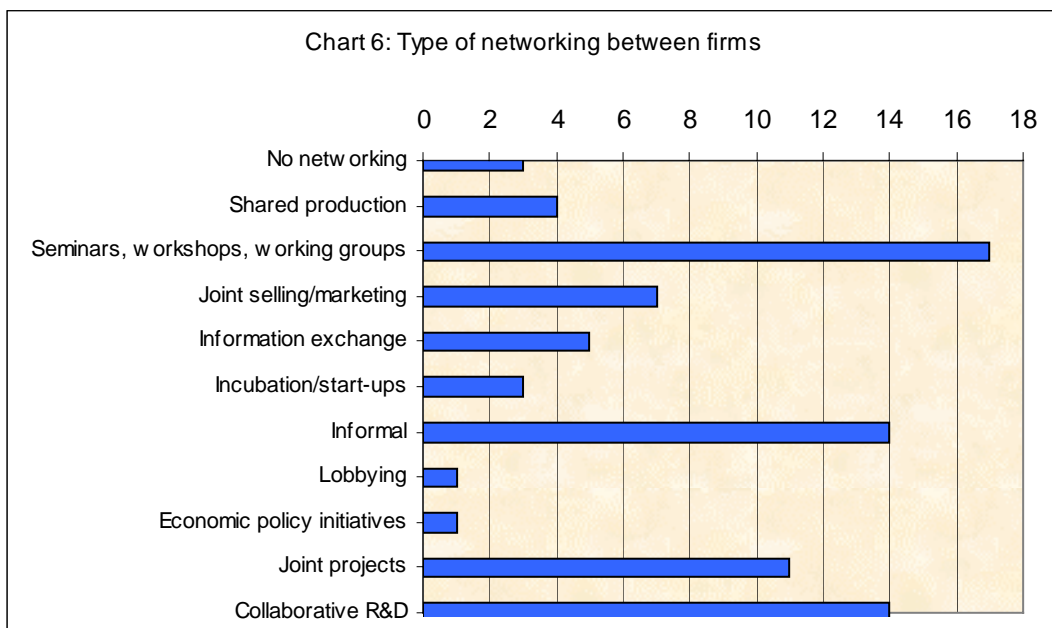
Source: Data provided by the expert group members based on a questionnaire compiled by the Enterprise Directorate-General and approved by the experts¹.

Importance of co-ordinating organisation

Networking in a cluster is usually fuelled by specialised organisations, dealing in most cases with activities such as lobbying government, applied and market research, co-ordination of public and private investors, technology surveys, management training and education. In only a few cases do these organisations deal with public relations and promotion of their own cluster organisations (see Chart 5). In summary, the preferred networking methods remain the organisation of seminars and workshops, informal exchange of information and collaborative R&D (see Chart 6).



Source: Data provided by the expert group members based on a questionnaire compiled by the Enterprise Directorate-General and approved by the experts¹.



Source: Data provided by the expert group members based on a questionnaire compiled by the Enterprise Directorate-General and approved by the experts¹.

5. CLUSTER AND NETWORKING POLICIES AND INITIATIVES IN MEMBERS STATES, CANDIDATE COUNTRIES AND EFTA/EEA COUNTRIES

Experts were required to provide a description of policies and initiatives towards clusters formation and development in their respective countries.

According to them, most of the countries studied here have not yet developed a genuine cluster policy. Hence, studies on a strategy for economic and social growth that the majority have recently completed do not necessarily mention clusters or do not drive public authorities to create a cluster policy as such.

Preferred instruments for economic integration and growth remain regional, innovation or industry policies from which clusters often benefit directly or indirectly. Hence, policies, even those developed under different frameworks, become cluster policies when they contribute to the development of a business environment of co-operation and networking between cluster firms, research and education institutes, financial institutions, business organisations and public authorities. It is the accumulated effect of all the various framework conditions (synergies) that creates a favourable milieu for clusters.

In Italy for example, where clusters are widespread and part of the traditional economic process, there is no specific cluster legislation, but overall policies for SMEs, independently of the fact that the SMEs belong to a cluster. Italian industrial districts are indeed spontaneous initiatives by the local business community, where private and public entities collaborate.

On the other hand, several Member States have opted for explicitly integrating clusters in their economic strategy and for using them as a tool to enhance the competitiveness and innovative capacity of small and medium-sized enterprises. Specific cluster policies have been designed and implemented at different levels and with variable targets and results.

The Netherlands and Austria have a decade of experience in cluster policy. They have been able to identify gaps between policy measures and cluster needs and to refocus their cluster strategy, integrating a more dynamic innovation approach. Although France has a long tradition of enterprise conglomerates, policy directed at specifically encouraging *localised productive systems* is as recent as 1997. A first evaluation has already been conducted and reveals positive responses from the regions which have been involved in the project. In Belgium, Spain and Finland, policies have recently been developed to support clusters and networks in a formalised way. Both Denmark and the United Kingdom are currently fine-tuning the design of a national cluster policy based on previous studies and pilot projects. Other countries, such as Greece, Ireland and Luxembourg have launched several pilot projects towards cluster creation or development awaiting evaluation results to decide whether to implement a more systematic cluster approach. Alternatively, Germany succeeded in making significant technological progress by developing a new approach to its regional policy, taking into account clustering effects. .

For most of the Candidate Countries clusters are a fairly new concept. The first period of their re-independence was entirely devoted to their national economic reconstruction. Since 2000, however, studies under European Commission and OECD programmes have been carried out, revealing the benefits of clustering. Several projects aiming to identify

and support potential clusters have been launched. Candidate Countries' governments have now started studying the possibility of integrating the cluster approach in their policy. In the Czech Republic, Hungary, Latvia and Slovenia, for example, programmes to establish and develop regional clusters have been running for two years. The main players as regards cluster and networking policies are the national and regional governments. However, a closer look at Table 3 page 27 – *Qualitative indicators on existing government policies for promoting enterprise clusters and networks* – below shows two distinctive trends depending on whether it refers to Member States or to Candidate Countries.

In the Member States, policies towards cluster development are generally issued by national governments with the co-operation of regional or local governments. While, most of the time, national authorities focus on designing and co-ordinating cluster policies – creating the general framework conditions and developing R&D programmes – regional authorities, on the other hand, take on the implementation phase. Regional administrations are indeed better placed to assess and respond to cluster-specific needs. However, in certain countries, such as Belgium and Spain, cluster policy is strictly a regional government's initiative. Regions in these two countries hold autonomous responsibilities in this field and develop their own approaches and instruments.

The EU and the local governments are perceived in the Member States as having a less important influence on cluster development. There have however been several projects initiated by different Directorates-General of the European Commission to provide a framework for exchange of information, experience, competence and good practices. The Euro Info Centres Network (EIC) could be considered as a European cluster where the local companies are linked together through the different activities of their EIC. Other examples of initiatives are inter-regional collaboration for innovation (i.e. PAXIS, RITTS/RIS), sustainable development in SMEs (EMS), several studies on industry or SME networks (i.e. Tourism network, inter-enterprise relations, etc). These projects are described in Section 5.4. on the European Commission's initiatives.

In the Candidate Countries, economic orientations are defined at the state level. National governments are definitely the most active level as regards cluster initiatives. The EU is also supportive and has helped national governments to tackle the advantages of clustering in studies carried out under the PHARE programme.

Examples of policies and initiatives to promote cluster development in the surveyed countries are presented in the Table 4 page 28. They come from the descriptions given by the experts, which are presented in more detail in the following sections. Main areas of focus of national and regional authorities are shown in column 5. Table 5 page 34 rates the importance of government policy in these areas.

The table shows that there are a lot of projects currently being developed at national and regional level. But these are often not undertaken in a structured way and are seldom evaluated and pursued over the longer term (one-shot projects). This can be explained by the fact that most countries have not developed a strategic approach on clusters. Studies on strategy for economic growth that integrate clusters are often lacking. There is a shortage of initiatives to identify centrally which technologies, sectors of activity and/or geographic areas would really benefit from cluster-form organisations. It has already been said that clusters are sensitive to the accumulated effects of many policies, which are not necessarily cluster policy. Policies should be revised on a regular basis to avoid limiting cluster development. However, efforts are seldom made to detect markets failures and barriers to cluster development.

To summarise, the main focus of national or regional authorities is currently on fostering innovation and high – and knowledge-based – technology. Very substantial private and public funds are directed to finance R&D co-operation programmes and the commercialisation of research applications. The development of a culture of networking and collaboration is another important centre of attention. They instigate the creation of platforms to drive exchanges between cluster firms, education and research centres, financial institutions and governmental and non-governmental organisations. These platforms are more and more managed by professionals (i.e. executive agencies, experts, etc.). They take on the co-ordination of activities such as conducting studies and market research, providing strategic advice, implementing appropriate education and training schemes, organising exchange of information and supplying specialised infrastructure.

However, not enough has been done by the authorities to simplify the administrative tasks and to offer better access to finance. They should make more financial instruments available to SMEs (i.e. mutual credit guarantee arrangements, venture capital funds, incentives, etc.) instead of providing just public subsidies. Whatever the country, public funds have indeed often been provided by the central state or by the regions to assist cluster creation or development and finance investments in cluster management, networking, co-operation, education, research, and infrastructure. A study carried out in Austria based on interviews with cluster managers reveals that it is hard to institutionalise and upgrade clusters without governmental support. The process to select projects to support was the call for tender which has been a widespread tool to implement the policy specific orientation of the responsible authority, as is the case in many countries such as Belgium, France, Germany and Greece. One should, however, note that support given by a Member State or through state resources could potentially constitute ‘state aid’ within the meaning of Article 87 (1) of the Treaty and that state aid rules should be respected.

Table 3: Qualitative indicators on existing government policies for promoting enterprise clusters and networks

	B	DK	D	E	F	G	IRL	I	L	NL	A	FIN	UK	IS	N	BG	CZ	EE	H	LV	LT	PL	RO	SK	SI
EU	Yellow	Cyan	Cyan	Yellow		Purple	Yellow	Yellow				Yellow				N.A	Green	Green	Cyan	Green		Green		N.A	
National Government	Yellow	Cyan	Green/Cyan	Yellow	Cyan	Purple	Green	Yellow	Green/Cyan	Green	Green	Green	Cyan	Cyan	Purple	N.A	Dark Blue	Yellow	Green	Green/Cyan	Green	Cyan	Cyan	N.A	Green/Purple
Regional Government	Cyan/Green	Green	Green	Purple/Green	Cyan/Green	Yellow	Yellow	Cyan			Green	Green	Green		Green	N.A	Purple	Yellow	Cyan/Green		Green	Yellow		N.A	
Local Government	Yellow	Green	Purple			Yellow	Yellow	Green			Yellow	Green			Green	N.A	Green	Cyan	Yellow	Yellow	Cyan	Yellow		N.A	

Ranks:

- (1) Interventionist
- (2) Direct
- (3) Supportive
- (4) Catalytic
- (5) Non-existent



N.A = Information not available

Explanation of the hierarchy of concepts to characterise government policy:

Non-existent means no cluster-based policies

Catalytic means that government tries to bring players (such as firms and knowledge organisations) together (creating networks), but provides limited support or direction

Supportive means catalytic plus making cluster-specific investments in infrastructure, education, training, or providing passive promotional support.

Direct means supportive plus either (i) government using cluster programme to reshape the economic structure, or (ii) the presence of fairly directive targeting programmes.

Interventionist means direct plus either (i) government making the major decisions about the evolution of the cluster rather than the private sector, or (ii) using active means to develop the cluster, or (iii) significant government ownership and control in the cluster

Table 4 : Examples of policies and initiatives supporting cluster development in the surveyed countries⁶

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support ⁷	Results & examples of clusters ⁸
Belgium	Flemish Region	VIS – Flemish Co-operative Networks for Innovation (2002 -2012)	Supporting collective research & innovation	<ul style="list-style-type: none"> Cluster animation (<i>executive agency</i>) Strategic advice & studies R&D co-operation schemes Training & education schemes Platform for information exchanges 	Public structural funds (+/- € 450.000 in 2x2 y). <i>Selection process of the projects: call for tender</i>	<i>Digital Signal Processing Valley (DSP)</i>
	Walloon Region	Contrat d’Avenir pour la Wallonie (economic clusters)	Creating regional industrial dynamic	<ul style="list-style-type: none"> Cluster animation (<i>sector expert, methodology</i>) Training schemes Platform for information exchanges 	Public subsidy (+/- € 150.000 p.a.) <i>Selection process of the projects: call for tender</i>	4 pilot projects of economic clusters, i.e. <i>Walloon Aeronautical Cluster (EWA)</i>
		Prométhée Programme (technological clusters)	Supporting technology-based development			
Denmark	Ministry of Economic & Business Affairs <i>Implementation: Regional Governments</i>	Clusters of competence	Supporting high potential clusters	<ul style="list-style-type: none"> Networking & collaboration platforms Infrastructure investments Joint marketing and branding Venture capital funds Measures to attract foreign firms 		<i>Medicon Valley</i> <i>NorCom Wireless Communication Cluster</i>
Greece	Ministry of Development	National Initiative of Small and Medium Enterprises	Increasing competitiveness of SMEs by forming cluster organisations	<ul style="list-style-type: none"> Cluster management Networking & co-operation platforms Joint production system Joint market research services 	Public subsidy <i>Selection process of the projects: call for tender</i>	23 clusters, i.e. <i>Solarnet</i>

⁶ Important note: this table does not pretend to present to be complete or exhaustive. It has been compiled on the basis of information provided by the expert group members following the questionnaire elaborated by the European Commission and approved by the experts (see section 2.2 Methodology)

⁷ In case of State aid, the Commission reminds that the competition rules under Article 87 (1) EC should be respected.

⁸ Examples of clusters, highlighted in italic, are described in the Annex.

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support	Results & examples of clusters
Germany	Federal Ministry for Education & Research	BioRegio contest (1996 – 2001)	Increasing competitiveness of the biotechnology sector by supporting well-advanced regions	<ul style="list-style-type: none"> • Research programmes • Infrastructure investments • Venture capital for start-up projects • Networking between firms and higher education institutes 	Public subsidy (€ 25 million per region until 2001) <i>Selection process of the projects: call for tender</i>	3 regions, i.e. <i>BioRegio München</i>
	Federal Ministry for Education and Research	EXIST – University based start-ups (1998- 2001)	Promoting a culture of entrepreneurship at higher education institutions Increasing knowledge spillovers & innovative start-ups		Public subsidy (budget: € 15.34 million p.a.) <i>Selection process of the projects: call for tender</i>	5 regions
Spain	Regional Government of Galicia – Department of Industry	Galician Cluster Policy	Increasing competitiveness of the region Promoting cluster formation	<ul style="list-style-type: none"> • Cluster management • Co-operation projects • R&D co-operation schemes • Training & education schemes • Joint market research 	Regional funds	4 clusters, i.e. <i>Galician Automotive Industry (CEAGA)</i>
France	National Government (DATAR) <i>Implementation: Regional Governments</i>	“SPL Policy” (1997-2000)	Increasing regional prosperity Identifying & encouraging experience of SPLs	<ul style="list-style-type: none"> • Cluster management • Networking & collaboration platforms • Joint production system • Platform for information exchange • Joint marketing & branding 	Public subsidy (budget: € 3,6 million) <i>Selection process of the projects: call for tender</i>	100 cluster projects, i.e. <i>Bresle Glass Valley, Spectacle Manufacturers of Jura</i>
Ireland	Enterprise Ireland & Industrial Development Agency <i>Implementation: Regional Governments</i>	Industrial policy	Targeting growth sectors Attracting overseas firms	<ul style="list-style-type: none"> • Strategic advice • Research • Training & education facilities • Infrastructure investments • Rationalisation of production system • Overseas marketing • Access to finance 	Public subsidy	

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support	Results & examples of clusters
Luxembourg	Ministry of Economy	Technology policy: initiative to groups firms into technology clusters (2000)	Supporting competitiveness of firms via technology development	<ul style="list-style-type: none"> • Identification of key technologies • Cluster management (Luxembourg Agency for Innovation and Research) • Innovation aid programmes • International networks & partnerships • Platform of information exchange 	Public subsidy	<i>SurfMat</i>
Netherlands	Ministry of Economic Affairs	Ad-hoc cluster policy	Supporting cluster competitiveness Increasing innovation capacity of cluster firms	<ul style="list-style-type: none"> • Ministry of Economic Affairs acting as a broker between relevant parties & lobbying for political support from different ministries to allocate research budget to clusters 	No budget line for cluster policy.	<i>Genomics</i> <i>Katalyse</i> <i>ECP.nl</i> ⁹
Austria	Federal Government <i>Implementation: Provincial Governments</i>	Strategic Programme Upper Austria 2000+ Strategic Programme Vorarlberg 2005+	Increasing the competitiveness Increasing innovation capacities of SMEs Promoting cross-border co-operation between clusters in neighbouring provinces	<ul style="list-style-type: none"> • Cluster management (regional agency) • R&D and technology transfer co-operation programmes • Training & education schemes 	Public subsidy (Austrian Future Fund: € 27.7 million over 5 year period)	<i>Automobile Cluster</i>

⁹ These 3 examples of cluster are described in section 5.1.10. Cluster Policies and Initiatives in the Member States - *The Netherlands*

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support	Results & examples of clusters
United Kingdom	National Government <i>Implementation: Regional Development Agencies</i>	Cluster development & Innovation policies (2000)	Increasing regional economic prosperity	<ul style="list-style-type: none"> Set up of a Ministerial-led Cluster Policy Steering Committee to identify barriers to cluster development and to recommend new cluster policies. Cluster management (local public agents) Mapping studies Innovation programmes Training schemes Infrastructure investments Platform for information exchange Market research 		<i>The East Midland Clothing and Textile Cluster</i> <i>Encluster</i>
Bulgaria	Ministry of Economic Affairs	Study: "Capacity Building for Accelerated Growth of the SME sector in Bulgaria" : under the EU PHARE programme	Developing a cluster strategy Identifying sector of activity for clusters Establishing institutional support and training schemes			5 clusters identified
Czech Republic	National Government	COOPERATION Programme under the SME support policy (2001-2004)	Creating & developing clusters	<ul style="list-style-type: none"> Identification of key sectors of activities Education Development of common purchase, sales, marketing and education 	Public funds - Czech Moravian Guarantee & Development Bank (max. €50.000 p.a. per cluster)	39 projects supported in 2002
Estonia	Ministry of Economic Affairs & Communication	Competence Centre Programme (beginning 2003)	Creating science-industry competence centres	<ul style="list-style-type: none"> Based on calls, no pre-selected areas of focus 	Public subsidy: 50 - 60% – Private contribution: 40 - 50 %	
		Technology Programmes (planning phase)	Special focus on key technologies/scientific fields	<ul style="list-style-type: none"> Identification of 3 key technologies (bio – information & material technology) 	Other mechanisms	

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support	Results & examples of clusters
Latvia	National Government	“Support to Industrial Cluster Restructuring” study under the EU PHARE programme (2000-2001)	To enhance industrial competitiveness and to establish a dialogue between the state and the industry	<ul style="list-style-type: none"> • Strategic advice • Identification & correction of market failures • Networking & collaboration- Platform for information exchange 	Public subsidy	4 clusters identified
Lithuania	Ministry of Economic Affairs	Preparatory work: “Analysis of Preconditions for Clustering in Lithuania and Guideline Development” (2002)	Identifying cluster rudiments Raise awareness on cluster benefits			
Poland	Polish Foundation for SME Development & Promotion	SME Clustering and Networking Programme (1998) under the EU PHARE programme	Promoting cluster development	<ul style="list-style-type: none"> • Training of network brokers 	Public funds	Preparation of cluster plans for the 16 voivodships. No follow up action foreseen
Romania	National Government	Study for an Action Plan for cluster development	Developing the SME sector	<ul style="list-style-type: none"> • Identification of market failures • Simplification of administrative procedures, tax system • Access to finance and information 		
Slovak Republic	Ministry of Economic Affairs	Study for an Action Plan in the framework of the European Charter for Small Enterprises (2000)	Strengthening the technology capacity of SMEs Identifying cluster rudiments			
Slovenia	Ministry of Economic Affairs	Cluster Programme (2000 – 2003) under the Industrial Policy	Raising awareness on clusters benefits Strengthening the government’s cluster policy	<ul style="list-style-type: none"> • Promotion of a culture of enterprise co-operation & networks • Supply and production chains upgrading • R&D co-operation schemes • Joint marketing & branding • Organisation and IT infrastructure investments 	Public subsidy	15 cluster projects in 2002, i.e. <i>Toolmakers Cluster of Slovenia (TCS)</i>

Country	Responsible authorities	Cluster policies or initiatives	Main objectives	Main areas of focus	Financial support	Results & examples of clusters
Iceland	National Federation of Icelandic Industries	Initiatives towards cluster development under the Industrial Policy	Stimulating the competitiveness of SMEs	<ul style="list-style-type: none"> • Networking & collaboration platforms • Restructuring of the concerned industries 		2 clusters: <i>Forum for Fisheries Industries</i> <i>Health Technology Forum</i>





Source: Information provided by the expert group members on the basis of a questionnaire elaborated by Enterprise Directorate-General and approved by the experts.

More details are given in section 6 “Cluster and Networking Policies and initiatives in Member States, Candidate Countries and EFTA/EEA Countries” and in Annex 1 “Example of clusters with a policy link”.

Table 5: Qualitative indicators on areas of focus of government policies

		B	DK	D	E	F	G	IRL	I	L	NL	A	FIN	UK	IS	N	BG	CZ	EE	H	LV	LT	PL	RO	SK	SI	
1. Firm oriented support	Financial support	+	+	+	-	N.A	+	+	+	+	+	+	-	N.A	-	+	N.A	+	+	+	+	+	-	N.A	N.A	+	
	Advice & consulting	+	+	+	-	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	-
2. Attraction	Policies to attract outside firms to the cluster	+	+	+	-	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
3. Support infrastructure building in the cluster	Physical infrastructure	+	+	+	-	N.A	+	+	+	+	+	+	-	N.A	-	-	N.A	+	+	+	+	+	-	N.A	N.A	+	
	Knowledge infrastructure	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	Specific services	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	Other cluster organisation	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
4. Provide information	On technological fields	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	On general business fields	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	On market/export fields	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
5. Support training, research, recruiting	Education & training programmes	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	Research programmes	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	Mobility schemes	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
6. Support collaboration	Networking & collaboration programmes	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+
	Foster social interaction	+	+	+	+	N.A	+	+	+	+	+	+	-	N.A	+	+	N.A	+	+	+	+	+	+	-	N.A	N.A	+

Ranks:

(1) Important		(3) Unimportant	
(2) Limited importance		(4) No policy	

N.A = Information not available

5.1. Member States

5.1.1. Belgium

The three Regions of the Federal State of Belgium (Flanders, Wallonia and Brussels-Capital) hold autonomous responsibilities for developing approaches and instruments in the field of economic development and technology policies. In the two main Belgian Regions, Wallonia and Flanders, policies have recently been developed to support clusters and networks in a formalised way. In the region of Brussels-Capital, however, no clusters have been identified and no cluster policies envisaged.

5.1.1.1. Flanders

In Flanders, the current official concept for clusters is the ‘VIS’ (*Vlaamse Innovatiesamenwerkingsverbanden* – Flemish co-operative networks for innovation). The scheme is part of a programme to support ‘collective innovation’ in a Governmental Decision on “Flemish Innovation Co-operation”. VIS are “structured groupings of mainly enterprises, possibly with the participation of other types of organisations, active in the four following areas: collective research; technology advice; thematic innovation stimulation and sub-regional innovation stimulation”. The scheme, which runs from 2002 to 2012, consists in a competitive and “quasi-structural” (2×2 years) funding. Criteria for funding are the ‘innovation potential’, the ‘quality’, the ‘additionality’ and the ‘positive externalities’ of the proposals. A typical cluster funding would cover up to two EFT during four years for a cluster secretariat. In the first wave of VIS, the mean funding for a four-year period, per cluster, amounted to €450 000.

Further information: <http://www.iwt.be/finstdef.htm>

5.1.1.2. Wallonia

Cluster policy in Wallonia is still in a pilot phase. There are two concepts at work: “*economic clusters*” and “*technological clusters*”, the main difference between them being the emphasis on key technologies and innovative R&D activities for the latter. Four pilot projects of “*economic clusters*” are supported by the Government through a subsidy for the formation and animation of the clusters during a two-year period. The typical subsidy amounts to approximately €150 000 for two years. For the second period 2002-2004, it is planned to evaluate the pilot projects and transform the policy into a full-scale one. The governmental support could then consist of the financing of a cluster animator for a limited period, and the adaptation of a number of public support instruments to the clusters (financial support, subsidies, etc.) A pilot programme of “*technological clusters*” has been launched to support voluntary grouping of firms and knowledge institutions, sharing knowledge and undertaking common activities with the aim to increase innovative activities beneficial to the region. Two open calls for tender were launched, from which 10 pilot projects have been selected for support from the Region consisting in the financing of a cluster animator for a period of 2 years (conditional on the success of a first interim evaluation). The typical subsidy amounts to €25 000. The animator is in charge of analysing the pilot experiences on an on-going basis, of providing methodological support to the various clusters and of promoting exchanges of experiences between the various clusters. In both types of Walloon clusters, partners from other regions

or countries can take part, as it is considered important to favour the openness of the clusters.

Further information: <http://mrw.wallonie.be/dgtre>

5.1.2. Denmark

The Danish mega-cluster project was initiated in the early 1990s and again in 1999¹⁰. Different studies attempt to map out clusters, using qualitative as well as quantitative measures and indicators of clustering and performance: the Danish mega-cluster project (several policy reports) and the two reports on clusters of competence (“kompetenceklynger” - 2001 and 2002)¹¹.

The current government has published a new growth strategy (*Vækst med Vilje – The Danish Growth Strategy*)¹². The report focuses on creating good framework conditions for innovation.

At the regional level, the Ministry of Economic and Business Affairs has, in co-operation with the Danish counties and municipalities, initiated a process targeting the regional development of western Denmark – the peninsula of Jutland and the island of Funen. Improving the business conditions of the clusters of competence located in Jutland and Funen is an important priority to be addressed by the work to be carried out in the future.

The Danish approach in helping enterprises grow and create wealth consists in putting in place an appropriate general business environment. This might result in the emergence of new clusters that no one would have predicted.

Future challenges when establishing appropriate framework conditions for clusters in Denmark will include supporting the very specific competencies of the clusters and encouraging co-operation between clusters firms, public research institutions (i.e. universities), technological service institutes, innovation centres and science parks.

Cluster policy actions should be created in dialogue with cluster firms and local authorities. Depending on the nature of the cluster and on its requirements, the dialogue could take place at the national or at the regional level.

Three in-depth studies, having led to developing new strategies in the studied clusters, deserve to be mentioned: the Bio-Tech & Health cluster, Building/Construction and the Children’s Play and Learning cluster.

¹⁰ The mega-cluster project and earlier studies of Danish clusters are described in the OECD book on clusters Chapter 12 “Studies of Clusters as the Basis for Industrial and Technology Policy in the Danish Economy” by Ina Drejer, Frank Skov Kristensen and Keld Laursen.

¹¹ See an English version of the publication “A New Economy and its New Clusters” on <http://www.ebst.dk>. See a Danish version of the latest report on <http://www.ebst.dk/download/pdf/kompetence.pdf>.

¹² See the publication on <http://www.oem.dk>.

5.1.3. Germany

Until recently the German approach to technology policy rarely included a regional aspect. Regional policy generally tended towards compensating regional disparities rather than strengthening existing clusters for the purpose of international competitiveness. The absence of a comprehensive cluster mapping and the recent scientific arguments focusing on the regions as a key factor in the process of technological change made the German government initiate the BioRegio contest in which the German Biotech regions competed for public funding. Perceiving a technological gap in this industry compared to the USA and the UK, German politicians took into account the clustering effects of the policy successfully practised in those countries. The BioRegio contest represents a remarkable change in German technology policy and was followed by other contests like EXIST and InnoRegio and policy instruments focusing on regions.

5.1.3.1. BioRegio contest

The Federal Ministry for Education and Research (BMBF) launched the **BioRegio contest** in 1996. The contest was directed at Germany's well-advanced regions with the potential to become competitive on an international scale.

Three regions - the *BioRegion Rheinland*, the *BioRegion Rhein-Neckar-Dreieck* and the *BioRegion München* – won awards. The *BioRegion Jena* received a separate award for being the best region in eastern Germany. Each of the selected regions was subsidised by € 25.56 million from the BMBF until 2001. In addition the regions enjoy priority treatment in the process of allocation of funds for biotechnology.

The *BioRegio* contest contributed to reaching top European positions during the last few years. Co-operation and communication among key actors in these regions improved, leading to the formation of a regional environment which stimulates innovation, co-operation in research and inter-regional competitiveness.

Further information: <http://www.bioregio.com>

5.1.3.2. EXIST programme

The "**EXIST - University-based start-ups**" programme was launched in December 1997 by the Federal Ministry for Research and Education (BMBF) to improve the entrepreneurial climate at higher education institutions by promoting networking.

In order to qualify for participation, at least three different partners from a region, including a higher education institution, had to work together. The proposals had to present models for motivation, training and support of people within higher-education institutions to engage in entrepreneurial activities.

Five regions were awarded € 15.34 million p.a. for the whole programme from August 1998 to December 2001: the networks "bizeps" (Wuppertal/Hagen), "Dresden exists" (Dresden), "Get Up" (Ilmenau/Jena/Schmalkalden), "KEIM" (Karlsruhe/Pforzheim), and "PUSH!" (Stuttgart).

Additional supporting measures were taken by the BMBF:

- The "EXIST-Seed" programme, providing grants to students, graduates and faculty members in order to fund promising ideas;
- The "EXIST-HighTEPP" (High Technology Entrepreneurship Post-graduate) programme, aiming at the training young academics, supporting start-up projects and training managers for dynamic high-tech firms;
- The "EXIST-Transfer" programme, aiming at transferring the examples of good practice from the five EXIST regions into other regions.

Further information:

<http://www.exist.de/>

http://www.isi.fhg.de/ir/pb_html/exist.htm

5.1.3.3. InnoRegio contest

The *InnoRegio contest* was created in 1999 to focus on the promotion of innovation and networking in the regions of the new federal states in eastern Germany. The objective is to enhance the competitiveness of the economy and to improve the employment situation in eastern Germany. The regions were asked to propose concepts for building up InnoRegios, which were defined as areas, generally smaller than federal states, with networking institutions and people out of business, research, education, associations, politics and administration, aiming at developing technical, economical and social innovations which had not been realised previously within the region or even outside.

The financial support ranges considerably, from € 4.1 million for the Regional Innovation Alliance Oberhavel up to € 20.5 million for the BioMeT Innovation Network Dresden.

Since the programme continues until the end of 2005, conclusions about its success cannot be drawn yet. However, a survey in summer 2000 targeting firms in the 25 regions showed that in many regions networking among different actors had been started.

Further information:

<http://www.innoregio.de/>, http://www.diw.de/deutsch/projekte/home/iut_innoregio

5.1.4. Greece

In 1997, for the first time in Greece, the Ministry of Development launched the idea of small and medium-sized companies grouping together in order to develop cluster organisations. The clusters formed were financed under the National Initiative of Small & Medium Enterprises (SMEs), according to the specifications set in the tender document.

The aim of the Ministry was to promote companies' competitiveness in the fields of manufacturing, marketing and technology transfer. The participants were mainly small and medium enterprises from diverse business environments and education and research institutes.

The response from Greek companies was satisfactory, resulting in the successful formation and operation of 23 clusters (each cluster comprised at least 6 participants).

Problems encountered during the project's implementation mainly derive from the diverse company culture, which often led to lack of communication between the members.

However, in the Ministry's evaluation report, several positive points have been identified. The most important ones are summarised below:

- The development of co-operation between competitive companies;
- The quality improvement of the cluster's products;
- The successful entry to new markets;
- The successful transfer and acquisition of know-how that resulted in the development of new products and better adaptation to new technologies;
- The improvement of member companies' economic results;
- The achievement of economies of scale in the procurement of raw materials.

The total evaluation of the project proved that the Ministry's main objective to promote SMEs competitiveness had been achieved, as the small companies that joined forces were given the opportunity to compete with bigger ones on equal terms.

By the end of the first semester of year 2003, a Community Initiative under the Third Community Support Framework is expected to go public under the name "Promoting Clustering amongst SMEs".

5.1.5. Spain

In Spain, cluster policy is a Regional Government initiative. Each region has developed its own set of actions. The public sector's level of intervention varies from low to high, depending on the region.

5.1.5.1. Aragon

The cluster policy, developed by the Regional Development Agency, mainly focuses on investing in the restructuring of local industries, especially in the non-sophisticated agricultural sector.

5.1.5.2. Basque Country

Since 1990, the cluster policy, promoted by the Department of Industry, provides financial support and organises joint projects for the 11 existing clusters (i.e. automotive, aeronautical, fashion design, environmental industries, etc.)

5.1.5.3. Galicia

Since 1994, the Regional Government of Xunta de Galicia, through its Department of Industry, has carried out several joint actions and services to stimulate the flexibility and competitiveness of the regional industrial system. Scale economies were achieved by focusing technological investments, internationalisation and co-operation projects on selected industries.

The first cluster to be established in the region is the automotive cluster, CEAGA. Today, the Galician Region has four clusters that co-operate in multiple tasks with the support of the regional government.

5.1.5.4. Catalonia

The Regional Government of Catalonia, has developed a micro-cluster approach with a narrow industry and geographical focus, although with no industry prioritisation. The Catalan government, through the Development Agency (CIDEM), acts solely as facilitator, providing firms with tools for strategic change. No investment or public policy intervention is made.

5.1.5.5. Castile-Leon, Andalusia, the Balearic Islands and Madrid.

Only sporadic interventions have taken place in these regions. The region of Castile-Leon has also carried out a survey that identified 41 clusters.

5.1.5.6. Valencia

The cluster development has been led by the industrial associations that have co-operated with the regional administration in order to establish an important net of technological centres, related to each particular industrial sector (toy manufacturers, footwear, granite, tiles and ceramics).

5.1.6. France

France has always had a substantial number of enterprise conglomerates. However, since 1997, the “Datar” (*Délégation à l’Aménagement du Territoire et à l’Action Régionale*) an interdepartmental service depending on the Prime Minister, has engaged a specific policy to support SPLs. An SPL - *Système Productif Local* (Localised Productive System) - is a productive organisation based in a territory corresponding to a regional employment area, and which focuses on a shared know-how. The policy seeks to favour co-operation of firms within SPLs. It consists not only in reviving the existing SPLs but also in fostering the creation and development of new ones. Hence the distinction between constituted SPLs and emerging SPLs. Following this definition, 100 constituted and 80 emerging clusters have been identified.

5.1.6.1. National experimentation with aid for the development of SPLs (1998-2000)

A call for projects at national level was addressed to the local structures in charge of economic development. The objectives of the call were: to identify and encourage experiences of SPLs; to raise awareness among local actors of the possible use of SPLs as a tool for regional economic development; to identify the difficulties and the needs for implementing SPLs; and to highlight some good practices. 100 projects were financed with a total budget of € 3.6 million. A first evaluation has been conducted which showed a strong interest from the regions in being part of this experimentation (good for the image of the region, new opportunities for national or international partnerships). It also indicated the risk of labelling the regions that have not retained the image of SPL and proposed to continue the regional animation of enterprise networks.

5.1.6.2. The French Industrial Districts Club - *Club des districts industriels français* (CDIF)

At the initiative of the industrial district of Vallée de l’Arve, a national federation of French clusters was created in 1997. Its main objectives were to establish a network of SPLs, to exchange good practice, to promote know-how, and to act as an interface between the SPL members and the national and European institutions. 35 districts had joined the club by 2002. Three sectoral groups and two inter-regional groups have also been created contributing to the exchange of information. The club has developed a website and a newsletter available both in French and English. This action has prompted a strong interest from the SPLs for a national network and training of SPL animators.

Further information: <http://www.districts-industriels.com>

5.1.7. Ireland

Ireland's clustering policy primarily involves targeting growth sectors at national level. These targeted sectors include electronics, international services, consumer and functional foods, pharmaceutical and biotechnology. Strategies are developed that aim to attract overseas industry and build up an indigenous industry in the targeted sector. A range of developmental instruments is used to increase Ireland's presence in these sectors. These instruments include direct financial support and advice and specialist support services for companies as well as actions to influence the framework conditions of venture capital, skills, and research. Delivery involves close co-operation between government departments, developmental agencies and private sector bodies. There is some clustering of industries at a more regional level e.g. food in the Munster region, furniture in the North-East etc. Regional policy is supportive of such clustering by encouraging college-company linkages at regional and local level and similar initiatives.

5.1.8. Italy

There is no particular legislation to support local clusters. The legislation affecting SMEs can be applied independently of the fact that the SME is part of a cluster. Occasionally, some regional governments support local agencies that are working in the area of cluster competitiveness, export, marketing, promotion, R&D or related topics. Such agencies are normally partly financed by local governments (municipalities, provinces, chambers of commerce). They are usually public-private ventures, where the public support is reduced when the activities increase.

5.1.9. Luxembourg

In 2000, the Ministry of Economic Affairs launched an initiative to encourage the grouping of companies into technology clusters. The configuration of these groupings can be very heterogeneous: small or/and large companies with the same or with different activities research centres, universities, etc. Their aim is to reinforce the competitiveness of their members by joining their forces in order to co-operate on common interests. The ministry's expectations towards the technological clusters can be summarised as follows:

- Identify on a generic level the key technologies implemented in the economic sectors in Luxembourg;
- Gather companies sharing interest in one or more key technologies in a cluster;
- Stimulate technology co-operation between companies inside the cluster.

Cluster initiatives are led by Luxinnovation GIE, the Luxembourg Agency for Innovation and Research.

The companies and research institutions have shown their interest in co-operating in such groupings. Since the economic structure in Luxembourg is to a large extent

based on SMEs, a cluster policy may contribute significantly to the technological development of companies and increase their competitiveness.

5.1.10. The Netherlands

The Netherlands has a long tradition of cluster policy at national level, but this has been implemented in a relatively ad-hoc manner. The role of the Dutch government has been to create the framework conditions, to act as an organiser or a broker and a demanding market partner. So far there have been no instruments or budget line to carry out a cluster policy. There are also regional initiatives for clusters and firms networks, but these are usually implemented as stand-alone projects. The co-ordination between national and regional cluster policies has not been addressed in an optimal manner. In the future, cluster policy will be more closely integrated with the Dynamic Innovation System approach, which starts with assessing the bottlenecks affecting growth and the potential role of the public sector.

5.1.10.1. Genomics

The aim of this project was to stimulate greater efforts in the area of genome research and to enable a better co-operation between business and research institutions. The actors showed a strong willingness to participate to the project and support its international developments. The Ministry of Economic Affairs played a facilitating role, bringing the right parties together and lobbying to create political support to provide a large budget for genome research. It is too early to evaluate the results of the project but it already demonstrates factors of success.

5.1.10.2. Katalyse

The Technology Roadmap Katalyse aims at creating a mid-term strategic vision in the technological and knowledge areas. The Ministry of Economic Affairs acted as a facilitator to the project and obtained results by bringing together the right partners from business, research and government; putting in place a common research agenda for business and research organisations; ensuring additional investment funds from the public and private sectors to support R&D, and setting up a national co-ordination office.

5.1.10.3. ECP.nl

The idea of the ECP.nl platform is to stimulate faster implementation of electronic businesses in the Netherlands and promote the competitive position of the Dutch businesses. The aim of the platform is to bring together interested public and private parties and to dissolve fundamental questions. It is an umbrella for all existing platforms in the ICT sector. The platform allows development of knowledge, provision of information and development of standards and codes of conduct. It creates a bridge between the legislation and the concrete needs of companies working with e-commerce.

5.1.11. Austria

Beginning in the early 1990s, today Austria can look back on a decade of experience in institutional cluster policy. Each cluster can count on public support in terms of cluster management and cluster funding.

There are 45 clusters in Austria: 28 were built and supported by the Federal Government, 17 are attributed to regional initiatives. A further twelve are still in the build-up phase.

Cluster development in Austria operates at different levels: regional clusters, nationwide clusters and industry-research linking competence centres. Regions are entitled to conduct innovation and technology policies. They take over the active part in building clusters, i.e. cluster management and co-operation platforms. However, national institutions provide a general framework for this regional cluster policy: financial support, technology transfer programmes, training schemes and R&D policy.

Since the beginning of 2002, Austria has started the second stage of cluster policy, changing the focus from build-up activities towards specific thematic orientation within already existing clusters. The Federal Government, in co-ordination with the Regional Governments, provides new Cluster-Impulse-Programmes that aim to enhance R&D and innovative activities.

5.1.11.1. Upper Austria – cluster-oriented economic and technology policy

Since 1998, the Regional Government of Upper Austria has pursued a cluster-oriented economic and technology policy on the basis of the “Upper Austria 2000+ Strategic Programme”, elaborated with local companies, local universities and the representative bodies of interest groups. TMG, the regional institution for the promotion of technology and marketing (owned by the Regional Government of Upper Austria) was given responsibility for cluster management. Revenues from privatisation were allocated to the implementation of the “Strategic Programme” in the form of the Upper Austrian Future Fund, which is distributing a sum of € 72.7 million over a five-year period. At present, some 1 273 companies, R&D and educational institutions are partners in the seven inter-branch networks (Automobile Cluster, Diesel Technology Cluster, Plastic Cluster, Wood Cluster, Eco-energy Cluster, Foods Cluster, and Health Cluster). Upper Austria is now the European leader in the area of economic networking. As a result, the location has not only considerably enhanced its image, but also set an example for a special model of innovative and successful cluster policy.

5.1.11.2. Vorarlberg

The Regional Government set up the “Strategic Programme Vorarlberg 2005+” to enhance cross border co-operation of local companies with already existing clusters in neighbouring provinces. The programme supports R&D co-operation through federal funding.

5.1.11.3. Burgenland

The Regional Economic Services Office (WiBAG) supports co-operation initiatives of a minimum of ten companies or institutions in the phase of conception and implementation through funding up to € 100.000.

5.1.11.4. Carinthia

The Economic Support Fund of Carinthia (KWF) initiated a programme to support co-operation projects between industry and trade. A union of a minimum of three partners is welcome to apply for support to finance consultancy and feasibility studies.

5.1.11.5. Tyrol

The EU initiative RITTS was the basis of the programme of “Cluster building” by the Regional Government of Tyrol. The programme aims to promote a sustained innovative and technological climate for SMEs. A single person is responsible for the management for all clusters. This strategy aims to foster cross-cluster co-operation.

5.1.11.6. Styria

The Styrian Economic Fund (SFG) contributes funding resources and supports projects for co-operation and network-building activities. These programmes are open to any co-operative R&D initiative. However, experience shows that cluster members apply more frequently for funding because they appreciate the advantage of information and activities organised by the cluster management.

5.1.12. Finland

The basic idea of cluster-based policies has been to provide favourable framework conditions to firms, to promote the functioning of markets, and to concentrate on areas where the market fails (R&D, education, infrastructure services). Policies have aimed at upgrading and creating advanced and specialised factors of production and avoiding interventions in the product market. The appropriate roles of policies can be summarised as follows:

- Establish predictable and stable operational environment for firms;
- Create a context that encourages innovation;
- Enhance networking especially in technology policies;
- Create and communicate a clear economic vision to all actors in the economy.

The basic policy issue is on how to make a country or a region an attractive location for internationally competitive firms.

5.1.13. United Kingdom

The UK Government identified cluster development and growth as a key element in promoting regions' economic prosperity in its White Paper "Our Competitive Future: Building the Knowledge Driven Economy" in 1998. Clusters' continuing dominance as a key economic driver was firmly established in the Department for Trade and Industry's White Paper on Enterprise, Skills and Innovation: "Opportunity for All in a World of Change" published in February 2001.

The UK Government's cluster policy is to create the conditions to encourage the formation and growth of clusters, to see that national and regional priorities do not inadvertently place barriers to cluster development, and to ensure that research and innovation support programmes build on existing strengths so as to work with the grain of cluster development. The Government does not see a role for itself in artificially creating clusters – they believe that they must be business-driven.

A Ministerial-led Clusters Policy Steering Group (CPSG) was set up in 2000 to identify barriers to the development and growth of clusters and to recommend appropriate new policy initiatives. The CPSG has looked at the role of incubation, planning, funding and finance issues, skills and the relationship between clusters and Higher Education Institutes, and new policy initiatives have arisen as a result. In January 2003 the Group was dissolved as it became clear that cluster policies were becoming embedded at a regional level.

In England, the Regional Development Agencies (RDAs) are responsible for implementing clusters policy in each of the nine English regions. Approaches and priority clusters vary from region to region, but work currently being carried out includes commissioning regional mapping studies, identifying and building links with important regional clusters and using clusters as the vehicle for wider economic development initiatives.

In Scotland, Wales and Northern Ireland, cluster policy is implemented by Scottish Enterprise, the Welsh Assembly, and the Department of Enterprise, Trade and Investment respectively.

It is too early to measure the success of cluster policy in the United Kingdom as it has only been in existence in England since the beginning of 2000, and in Scotland, Wales and Northern Ireland since the late nineties. However, it is clear that all of the RDAs, to varying degrees, have incorporated clusters thinking into their regional strategies and many are using clusters as an umbrella to bring together different types of business support activity.

Further information:

- DTI Clusters Page: <http://www.dti.gov.uk/clusters/> (includes links to the RDAs)
- Scottish Enterprise: <http://www.scottish-enterprise.com>
- The Welsh Assembly: <http://www.wales.gov.uk/index.htm>
- Department of Enterprise, Trade and Investment, Northern Ireland: <http://www.detini.gov.uk>

5.2. Candidate countries

5.2.1. Bulgaria

Clusters are new concepts for the countries in transition, including Bulgaria. In 2001, a study under the PHARE project “Capacity Building for Accelerated Growth of the SME sector in Bulgaria” was carried out, identifying 5 potential clusters. A strategy for cluster development is proposed as a follow-up to the PHARE project. The objectives would be to identify sectors of activity where the cluster model adds value, to establish institutional support for clusters (management bodies, policies, co-ordination activities, etc.) and to implement training programmes. The Ministry of Economic Affairs would assign a national agency, responsible for the implementation of the directives, (conducting calls for tender, concluding contracts and authorising payments).

Further information:

Mrs. S. Kassidova
Deputy Minister, Integration Policy
8, Slavianska Str.
1046 Sofia
Tel: +359 2 940 7550
Fax: +359 2 980 5914
Email: s.kassidova@mi.government.bg

5.2.2. Czech Republic

The cluster policy in the Czech Republic is an integral part of the general policy on support to SMEs approved by the Czech Government in December 2000 for the period 2001-2004. Initiatives to promote the establishment of SMEs clusters are mainly undertaken under the COOPERATION programme, elaborated by the Ministry of Industry and Trade. State intervention consisted in financial assistance to clusters that meet specific criteria, i.e. minimum 15 partners, activities focusing on the development of common purchasing, sales, marketing and education in the fields of building, craft production, services, trade and public transport. It is provided, with the assistance of the Czech Moravian Guarantee and Development Bank, as a payment representing up to 50% of the project implementation costs, with maximum of CZK 1.5 million per year (approximately € 50 000).

Since 2001, the interest for this type of support has increased substantially. In 2002, the programme supported 39 clusters using CZK 101.5 million (approximately € 3.4 million) from the state budget.

5.2.3. Estonia

During the first ten years of being newly independent, Estonian economic policy was focused on macro-economic reforms and economic stability. The current policy is mainly based on horizontal measures, related to entrepreneurship, export promotion, innovation and R&D support, foreign direct investments and access to capital. The Estonian enterprise and innovation policy is implemented by two State-owned foundations – Enterprise Development Foundation “Enterprise Estonia”¹³ and Credit and Export Guarantee Foundation “KredEx”¹⁴.

Future development of state measures will partly be realised through the cluster approach, as revealed by the Estonian R&D Strategy “Knowledge-based Estonia”. The strategy points out three key technology fields to develop: information technology, biotechnology, and materials technology. However, other economic areas could also benefit from the cluster approach.

The cluster approach is also used to support science-industry strategic co-operation. Early in 2003 the Division of Technology and Innovation of the Ministry of Economic Affairs and Communications¹⁵ initiated a “Competence Centre Programme” to support financially and conceptually the creation of technology competence centres between related industry and academy.

Further information:

*Ms. Katrin Männik,
Project Manager & Executive Officer, Technology & Innovation Division,
Ministry of Economic Affairs and Communications,
Harju 11, 15072 Tallinn, Estonia,
Tel. +372 625 6390
E-mail: kmannik@mineco.ee*

5.2.4. Hungary

The first Hungarian cluster appeared two years ago. Cluster policy, which is still at an early stage, issues from the national and regional governments.

At the national level, cluster development policy is the responsibility of the Ministry of Economy and Transport. The policy follows a top-down approach and looks at improving the competitiveness of the enterprises, developing co-operative production system and networking, strengthening the innovation capabilities of the subcontractors of the present multinationals and exchanging information and raising awareness.

¹³ Enterprise Estonia (<http://www.eas.ee/>) is the holding foundation of five agencies – Technology Agency, Trade Promotion Agency, Investment Agency, Regional Development Agency and Tourism Agency

¹⁴ KredEx on the Internet: <http://www.kredex.ee/>

¹⁵ Ministry of Economic Affairs and Communications is responsible for enterprise and innovation policy-making in Estonia

Under the Szechenyi Plan's RE-1 sub-programme 2001-2002, aiming at establishing regional clusters, the central government allocated €1.4 million to the Hungarian clusters. Each cluster has been granted an amount corresponding to 50% of its development costs with a maximum of €100 000. It allowed 15 out of the 19 existing clusters to start operating. This aid will be renewed as part of the National Development Plan Economy Competitiveness Operative Programme (NFT GVOP).

Furthermore, the recent establishment of the National Cluster Committee, bringing together policy-makers, researchers and cluster representatives drives to better information flow among the actors.

Initiatives taken at the regional level can be illustrated by the example of the Pannon Economy Incentive (Pannon Gazdasagi Kezdemenyezés - PGK) in the Western Transdanubia Region. The PKG groups the five biggest Hungarian clusters and gives them financial and non-financial support (grants, real estate, information, etc.).

5.2.5. Latvia

Since 2000, Latvian industrial policy has increasingly focused on clusters as an instrument to enhance industrial competitiveness. It looks at organising a dialogue between the State and industry to improve the overall business environment and at delivering more direct assistance to cluster development in areas that have been identified as priorities due to their potentials in terms of knowledge-intensive and competitive advantages.

The first initiative to identify and promote development of industrial clusters was the project "Support to Industrial Cluster Restructuring", funded by the EU Phare programme (2000–2001). In that respect, four clusters have been identified and supported by the State: Forestry, IT, Engineering and High-technology.

Main areas of state support are network co-ordination of industrial clusters; identification of persisting imperfections in the business environment; international PR/marketing and export promotion, and strengthening the collaboration between industrial enterprises and science/education sectors. Improving the co-operation between state institutions and ministries is another important issue for cluster development in Latvia.

5.2.6. Lithuania

As present, cluster support policy has not been developed at state level. However the preparatory work for developing such a policy is underway: studies in several industry sectors have been carried out in an effort to detect cluster rudiments, several workshops have been organised for businesses with the aim of presenting the cluster concept and its advantages, and encouraging companies to co-operate. There is a clear understanding at the Government level that the formation of clusters is a "*bottom up*" approach.

Two important documents make reference to the strategy for clustering in Lithuania:

- The “Long-term State Development Programme of Lithuania” approved by the Seimas of the Republic of Lithuania in 2002 that supports the “development and implementation of a strategy for creating national industrial clusters” and,
- The “Long-term Economic Development Strategy of Lithuania” approved by the National Government in 2002 for a period up to 2015 that provides elements for starting the implementation of the cluster strategy within the next five years”.

There are several paragraphs relating to the concept of cluster promotion in the Lithuanian Industrial Strategy. Development of local industrial clusters and integration of Lithuanian companies into the international clusters are considered as one of the main strategic tools for the development of national economy.

The Ministry of Economy produced a document “Analysis of Preconditions for Clustering in Lithuania and Guideline Development” in the 2nd half of 2002. That document together with the “Report on the Project on Enterprise Clusters and Networks” was presented to representatives of relevant institutions and organisations at a seminar in January 2003.

5.2.7. Poland

5.2.7.1.SME Clustering /Networking Programme

The purpose of the project (realised in 1998) was to train network brokers as a preparatory action for SME Clustering/Networking. The project was realised in all 16 voivodships. 16 network brokers were trained and 16 cluster plans were prepared. The project was financed by Phare STEP-1 and co-ordinated by the Polish Foundation for SME Development and Promotion.

The persons trained have been very active in promoting clusters. However, since no follow-up was planned, the clusters created as a result of the project have not obtained direct support from the government or from any other institutions. Some of them failed, while others still exist but without a formal basis. The idea of clusters occurred later in some further projects as part of the activities carried out by organisations which had been involved in the original project.

Further information:

*Mr. Tomasz Klimczak,
Polish Agency for Enterprise Development,
Al. Jerozolimskie 125/127,
02-017 Warsaw, Poland
Tel. +48 22 699 70 44.*

5.2.7.2. LEED/CEI/EBRD Project on Clusters in Transition Economies 2001-2002

This project has been implemented in Slovenia, Slovakia, Czech Republic, Poland and Hungary during 2001-2002. Its objectives were to:

- Raise awareness about the concept of clusters among government and business circles;
- Give the picture of existing conditions (map);
- Create a synergetic effect;
- Adapt OECD LEED best practices;
- Promote international commercial and best practice exchanges.

The seminar that took place in Warsaw on 22 April 2002 was directed at government representatives, entrepreneurs, NGOs and Regional Development Agencies. The workshops covered cluster financing issues, the relationship between foreign investors and cluster development, and more particularly in special economic zones, distressed areas and agricultural regions.

The conference in Trieste, Italy, on 28-31 October 2002 presented experts' views on cluster issues, lessons learned from seminars and study visits. These events contribute greatly to the promotion of the cluster idea.

5.2.8. *Romania*

In order to develop the SME sector, the Romanian Government has issued an Action plan which aims to remove some of the burdens restricting the creation and growth of businesses (company registration and authorisation procedures, legal framework, taxes and duties system, access to finance and information).

The strategic lines of action are:

- The creation of a friendly business environment for the setting up and development of SMEs;
- The improvement of SMEs' access to foreign markets;
- The development of SMEs' productive and innovative activities and the increase of SMEs' competitiveness on various markets;
- The promotion of entrepreneurial culture.

The last two action lines above are directly related to the clustering policy that the national government intends to develop and implement. The detailed measures contained under the lines of action will trigger off a pilot clustering project for the horizontal automotive industry that will be launched in the near future.

5.2.9. Slovak Republic

In the framework of the European Charter for Small Enterprises, the Slovak Ministry of Economic Affairs has initiated an implementation plan aiming at strengthening the technological capacity of small-sized enterprises. Clusters and networks are seen as a useful mean to foster technology co-operation between small enterprises, research and higher education institutions and to disseminate knowledge. A cluster-mapping exercise has been planned to identify clustering seeds in the country and assess future possible actions.

5.2.10. Slovenia

In Slovenia, clustering is seen as a tool for boosting innovation and strengthening businesses' competitiveness.

The clustering process started with a study on the identification of potential clusters (November 1999 - March 2000). The study concluded that there are no "real" clusters in Slovenia: co-operation and networking are in fact relatively weak. However, the existing state of co-operation and the current emerging infrastructure to support cluster development could be a basis for the creation of at least nine potential clusters. The study gave direction for a cluster policy aiming at facilitating linkages of enterprises and at promoting investment in technological developments, knowledge and specialisation.

The Ministry of Economy initiated a Cluster Programme for the period 2000–03. The three pilot projects launched in 2001 following a call for tender provided further substance to strengthen the government cluster policy: the positive experience which resulted from them contributed to create a new culture for enterprise co-operation and networks. In 2002, three incentives to support cluster development were introduced. The first focused on the linkages of enterprises and the specialisation in production chains, the second concentrates on promoting cluster development and third on developing local clusters of micro and small enterprises. Several other incentives also supported cluster development, among them the development of technology centres and technological networks.

The intermediate results of the Cluster programme to date have been encouraging. Three pilot clusters have been institutionalised and are running (the tool industry cluster, the transport/logistics cluster and the car industry cluster). In 2002, the Ministry of Economic Affairs supported eight new cluster development initiatives in the areas of plastics, air conditioning, heating, refrigeration, wood processing industry, hi-tech equipment, land surveying and IT. More than 150 companies, 40 institutions and approximately 41,000 employees are involved in the pilot projects and new initiatives and more than 130 projects of company linkage and specialisation in production chains are in progress. The activities of the developing clusters promise to meet the objectives, as investments aim to increase knowledge and skills specialisation, develop new products and technologies and transfer. The approach to market internationalisation does not only include promotional activities, but above all the participation in international networks and the upper section of the production chains of the most demanding customers.

5.3. EFTA/EEA Countries

5.3.1. Iceland

Clusters are considered in Iceland as a national phenomenon with a regional focus. There is currently no specific cluster policy in Iceland but the motivation behind the two existing clusters (health technology and fishery industry) is to bring together all the organisations involved for co-operation.

5.3.2. Norway

The REGINN (regional innovation system), an experimental programme lasting four years (1998-2002), is the first policy tool in Norway focusing on regional clusters. It aims to stimulate co-operation between firms in specific sectors and regionally located research institutions, in order to foster innovation capabilities in important clusters of the region. This national initiative was organised as a competition in which the 19 counties of the country took part, through a pre-qualifying round of regional innovation analysis and proposals for concrete innovation projects. The projects were then carried out at the regional level, with the involvement of local firms and a regional college or research institute. Typical projects were new technology development, organisation methods, knowledge...

5.4. European Commission

5.4.1. Actions on Industrial Clusters under the Regional Innovation Action Line

One way of creating better understanding of the regional innovative processes is to involve all regional actors in an integrated effort to develop regional innovation strategies. The Innovation and SME Programme and its predecessors acknowledged the important regional component of innovation and the need for such strategies, and have launched since 1994, in co-ordination with the Directorate-General for Regional Policy (DG REGIO), different actions aiming at the development of regional innovation strategies following a common methodology (RITTS/RIS). So far more than 100 regions have been executing Regional Innovation Strategy projects. Currently a first series of 16 projects is being implemented in 10 Candidate Countries.

These projects have been aiming to improve the region's abilities to integrate innovation and technology transfer in their economic development and to stimulate innovation among small and medium-sized enterprises. A basic principle underpins the development of regional innovation strategies - building a consensus at regional level. The process starts with an analysis of the social and economic framework, the demand for and the supply of innovation support services, continuing with the drafting of priorities and culminating in a long-term strategy for innovation-led regional development and list of actions to support.

Related to networking, the Trans-regional Innovation Projects (TRIP) projects aimed at fostering inter-regional collaboration in the practical development and implementation of measures which reflect the outcomes of RITTS/RIS and similar

regional exercises. The goal of these 11 projects was to support innovation in firms more efficiently by joining forces and comparing experiences in a systematic way. At the moment 14 Thematic Networks, bringing together 10 to 20 regions each, have created platforms for mutual exchange of experience and learning processes around specific items related to innovation strategies for the “movers and shakers” of the regional innovation policies.

The RITTS/RIS projects are bottom-up, SME demand-driven and participatory processes, which involve the main regional actors – overall the entrepreneurs – from the very beginning. This methodology ensures that the action plan addresses the real and most predominant needs of the enterprises and identifies the strong and weak points within the innovation system (in a broad sense) in the given region. It also ensures that all actions to be taken will have a high impact as awareness is being created largely during the 2 to 3 years of project implementation. The project methodology as such is giving an example of good practise for the optimised use of public resources and funds as it ensures well-targeted and highly efficient actions.

Further information:

Mr. Michael Busch,
Enterprise Directorate-General
Tel. +352 4301 38082, Fax. +352 4301 32779
E-mail: Michael.Busch@cec.eu.int

5.4.2. PAXIS: Pilot action on the mechanisms to set-up and develop innovative firms

The conclusions of the first European forum for innovative enterprises (Vienna 1998) included the proposal to launch a Community initiative founded on the actions set up by those regions demonstrating a particular capacity and creativity in their support for the creation and development of innovative companies. The European added value of such an initiative would be:

- To link the main actors on innovation at local level;
- To provide a framework for the exchange of information, experience, competence and good practices, and
- To act as a European showcase, with broad impact and knock-on effect on other areas.

The result was the initiative PAXIS which was included in the specific programme ‘Innovation and SMEs’ (Promotion of the Innovation and Encouragement of SME participation) of the 5th Framework Programme for the Research and Technological Development). The basic principles on which PAXIS was designed can be summarised as follows: to build on European diversity and local successes and to contribute to the identification, analysis, validation and dissemination of local conditions of excellence for the creation of innovative firms through a practical approach.

PAXIS consists of four learning instruments:

1. The network of areas of excellence is a ‘learning network’ for local and regional innovation organisations, which share a pool of tacit knowledge. The working methodology consists of joint activities in order to transfer, share and acquire existing tacit knowledge, benefiting from each other’s experience. This network is a specific sample to study conditions of excellence for the creation of innovative start-ups. It is made up by representative organisations of the economic areas, which, at the same time, participate in policy decision processes at local or regional level. The PAXIS network of regions of excellence has 22 members from 10 Member States clustered into 5 networks.
2. Cross-border projects. These projects may have two main subjects: Experimental validation of new approaches and best practices to support start-up creation and the transfer of knowledge between local or regional organisations.
3. Accompanying measures aim to support the whole action, giving also an internal coherence to PAXIS. The specific objectives of this instrument are:
 - Information on PAXIS activities and dissemination of results by means of a website, newsletters, publications or the so called ‘visiting scheme’;
 - Data collection;
 - Assessment of results, and
 - Shaping policy lessons.
4. Finally, major events such as conferences and workshops have a media impact, being an instrument to raise awareness at European level of the importance of start-up creation. Up to now three Conferences have been held in Vienna (1998), Lyon (2000) and Stockholm (2002). Such events facilitate high-level political participation, improving the image of economic areas, and at the same time, the voice of innovative companies can be heard.

After the pilot period of 18 months, five policy recommendations can be made so far for PAXIS:

- The development of a “European good practices” concept based on the high cultural diversity, through projects involving a critical mass of local actors from different countries. This concept should be built on previously developed and agreed methodologies for identification, description and benchmarking. Intellectual Capital rating of regional innovation could provide a useful tool for an appropriate benchmarking.
- An important European tacit knowledge on business support and innovation systems exists, which should be made more explicit and transferable in order to disseminate it towards local actors.
- Reinforce the European local champions or hot spots (regions of excellence) approach as learning tool, is a source for further development of concepts and measures, to stimulate less favoured regions and for spreading the innovative culture to these last areas.
- Strengthen initiatives favouring entrepreneurship as key issue through focused activities such as:

- *Favour city actors* as the ones who can apply on the right regional leverages to see start-ups supported appropriately;
 - Favour support processes based on *people's motivation and team building* as key success factors;
 - Reinforce awareness actions, which would motivate new talents to take risks at launching business start-ups.
- Bridge the critical gap existing in early stage finance for relatively large amounts. Public policies must be co-ordinated with private intervention in order to address this priority matter by different measures.

Further information:

Mr. Tomás Botella Yaquero
Enterprise Directorate-General
Tel. +352 4301 37116
E-mail: Tomas.Botella@cec.eu.int

5.4.3. Joint Action for sustainable development: the case of territorial clusters

Rather than addressing environmental problems in isolation, enterprises in the same geographical area sometimes combine their forces in practical forms of co-operation. Such “clusters” can also involve public authorities, for instance on the basis of regional/local public-private partnerships or territorial pacts. In some cases, they are explicitly linked to Agenda 21 processes.

Setting joint environmental objectives and taking joint action enables enterprises to find ambitious, rational, cost-effective and lasting solutions to common environmental problems. Such forms of close co-operation between enterprises can also offer benefits to local authorities, e.g. in terms of enforcement and monitoring.

A concrete area for such co-operation is the implementation of Environmental Management Systems (EMSs) in SMEs. Such co-operation can take several forms:

- Co-operation in the preparatory phases, where cost reductions can for instance be realised through joint seminars and joint consultancy advice. A good example of this is the Eco-Management and Audit Scheme (EMAS) “Öko-Audit im Konvoi” Programme in Baden-Württemberg (Germany), which provides financial support for SMEs that subscribed to group consultancy advice regarding EMAS.
- Co-operation aimed at a joint EMS and group certification. In this case, a number of companies share an EMS and have common audit procedures. This approach has, for instance, been tested in the Swedish Hackefors Industrial District, where 30 SMEs (most of them small and micro enterprises) formed a network and co-operated very closely in establishing an EMS in accordance with ISO 14001¹⁶. Or in Italy where all entities belonging to the tourist site of

¹⁶ See for a detailed description of the Hackefors project: Ammenberg J., B. Börjesson and O. Hjelm, “Joint EMS and Group Certification – A cost-effective route for SMEs to achieve ISO 14001”, *Greener Management International* 28, Winter 1999, p. 23-31.

Bibione (93 hotels, 20,000 apartments, 4 camping sites, a spa, 500 seasonal shops, etc.) are now EMS registered.

Further information:

Mrs Marie-Hélène Terlinden
Environment Directorate-General
Tel: +322 295 73 38
Email: Marie-Helene.Terlinden@cec.eu.int

5.4.4. Tourism networks

The recent Commission communication "Working together for the future of European tourism"¹⁷ identifies 10 measures to be implemented by the different tourism stakeholders. One of the measures deals with tourism networks and it calls for fostering networking services and support functions, for instance through competence centres (observatories, study and research centres or other bodies of this type) at national, regional and local levels. The approach will be based on an open, voluntary participation of the centres. The implementation of this measure will be discussed at the Tourism Advisory Committee (TAC) but it has already now received very strong support from all tourism stakeholders.

Further information:

Mr. Jean-François Omnes
Enterprise Directorate-General
Tel. +32 2 296 8100 Fax. +32 2 295 6969
E-mail: Jean-Francois.Omnes@cec.eu.int,
http://europa.eu.int/comm/enterprise/services/tourism/index_en.htm

5.4.5. Observatory of European SMEs: Regional Clusters in Europe¹⁸

The Observatory of European SMEs was established by the Commission in December 1992 in order to improve the monitoring of the economic performance of SMEs in Europe. "Regional clusters in Europe" is one of the most recent Observatory reports and it looks at the diverse situation in respect of knowledge of clusters in the European countries. It makes comparisons between 34 clusters around Europe and discusses the policy implications of clusters at European, national and regional level.

The report states that a regional cluster approach is becoming increasingly recognised as a valuable tool to foster economic development. However, there is a need for a more precise conceptualisation of what constitute regional cluster and related phenomena in order to perform 'cluster analyses' and draw policy

¹⁷ COM(2001)665 final, 13.11.2001

¹⁸ Observatory of European SMEs 2002/no 3, Regional clusters in Europe

implications. Based on such a conceptualisation the report concludes that 'underdeveloped' clusters may be upgraded by, in particular, stimulating more intense formal and informal, efficiency-enhancing co-operation between firms and strengthening links to the knowledge infrastructure.

According to the Observatory report, statistical mapping of regional clusters only exists in relatively few Western European countries. The general picture is that the countries have numerous (potential) regional clusters, which also are of considerable relative importance, in particular in manufacturing industries. The report also hints at the fact that regional clusters in general perform better than the national average in corresponding industries.

Further information:

Mr. Giuseppe Maddaloni

Enterprise Directorate-General

Tel. +32 2 299 8527, Fax. +32 2 299 8362

E-mail: Giuseppe.Maddaloni@cec.eu.int

http://europa.eu.int/comm/enterprise/enterprise_policy/analysis/observatory.htm

5.4.6. Inter-enterprise relations

Within the framework of its past subcontracting policy, the Enterprise Directorate-General has carried out several studies on the relations between SMEs, in particular on "alliances" and on "clusters", such as:

- The transnational networking between clusters of SME and technology centres in the motor industry (the study identifies the factors for success in creating a cluster);
- The network of companies and the economy of knowledge (the study analyses the technological clusters in 8 countries, identifies the problems related to the creation of the clusters and proposes solutions);
- The cluster game: between local and international challenges (the study analyses 2 groups with different technology in 5 Member States, and presents the advantages of the virtual clusters and the feasibility criteria);
- The clustering, reconstructing and networking in the field of subcontracting: mould-making co-operation in the automotive sector.

Further information:

Mr. Piero Burigana

Enterprise Directorate-General

Tel. +32 2 295 5113, Fax. +32 2 295 5540

E-mail: Piero.Burigana@cec.eu.int,

<http://europa.eu.int/comm/enterprise/entrepreneurship/supply/subcontracting.htm>

5.4.7. Euro Info Centre Network

Applying the definition used in this study, the Euro Info Centre network (EIC) could be considered as a cluster, where local companies are linked together through the different activities of their EIC. The tasks of the Euro Info Centres are the following:

- Providing information to local/regional companies and offering them expert knowledge about Community policy areas,
- Providing advice to SME in a specifically European advisory role with a value-added dimension,
- Providing assistance to SMEs in their determination to position themselves on a European scale, and
- Helping companies to gain access to European Programmes and initiatives and take advantage of the opportunities provided by European integration.

The EIC are closely involved with the local/regional sector and are at the core of a partnership system which includes trade associations, financial institutions, universities, technical institutes, regional development organisations, chambers of commerce, etc. The Euro Info Centres also promote close relations with local, regional and national authorities in charge of implementing European initiatives, including innovation and research, via their enterprises clients.

The EIC network is going to be reinforced with the Business and Innovation Centres (BICs). The purpose is to "rationalise and streamline existing Community business support networks" in order to enhance co-operation between them and implement a coherent pattern for all Community support networks. This process will include networks like the IRC, OPET, Coopeco, etc. There will probably also be links with other interested networks and organisations such National Contact Points for the R&D Framework Programme (NCP).

Further information:

Gerardo Canet

Entreprise Directorate-General

Tel: + 322 296 2916, Fax: +322 295 1740

Email: Gerardo.Canet@cec.eu.int

<http://europa.eu.int/comm/enterprise/networks/eic/eic.html>

<http://europa.eu.int/ISPO/ecommerce/godigital/Welcome.html>

6. POLICIES ISSUES

6.1. Role of the national governments and the EU in promoting clusters and networks

It has been already stated that clusters generally emerge spontaneously. The birth and the development of clusters are a long market-driven process, stretching over a decade or more. It is therefore practically impossible for governments to create clusters artificially.

A policy aiming at developing entirely new groups of firms in selected sectors can cause high costs, high risks, serve as a support for interest-groups, and give rise to destructive competition should many regions follow the same policies in pursuit of the same industries¹⁹. However, clusters need to be backed by policy measures to ensure its development. Actually, clusters depend on a large variety of public sector decisions. These are not necessarily implemented in the framework of a cluster policy, labelled as such, but belong more frequently to a series of regional policy, technology policy, industrial policy or SMEs policy. These policies often overlap and produce an accumulated effect on clusters. So, when considering the issue of cluster policy, one should understand a set of policy measures affecting the functioning of clusters. Basically, a policy on clusters should provide a framework for dialogue and inter-firm co-operation, as well as for co-operation between small enterprises, higher education and research institutions, public and non-public organisations at local, national, European and international level. Public sectors should therefore limit themselves in playing a catalytic role.

Four main areas of activity have been identified in promoting and developing clusters and networks. Each of the national, regional or EU authorities has its distinctive role to play, different whether it is directed to embryonic or existing clusters. The sharing of the tasks between them depends on each country's structure and circumstances.

6.1.1. Catalytic role

- The catalytic role of national and regional governments consists in supporting synergies between actors. They may “oil the wheels” of existing business co-operation initiatives. Instead of initiating clusters from scratch or on the basis of statistical definitions of agglomeration, it should first be established at the national level which technology, sector of activity or geographic area could effectively benefit from cluster-form organisations and how they can be supported. The United Kingdom Government, for example, in collaboration with the Regional Development Agencies, has set up a Cluster Policy Steering Committee to identify the existing economic strengths and the barriers to the development of clusters and recommend new policies. The work currently being carried out includes building linkages between companies and public and private research & development institutions. Other tasks would be making the different public decision institutions collaborate and providing strategic information to clusters.
- At EU level, enhancing the sharing of information, technology, competence, practices between European regions and clusters – could have a significant influence on the efficiency of clustering process in Europe. Projects such as the Trans-regional Innovation Projects (TRIP) under the framework or the RITTS/RIS programme consisting in identifying key technologies, knowledge and skills in each region and cluster and creating a platform to develop linkages between complementary regions and clusters should be extended.

¹⁹ Public Policy on enterprise clusters and networks – Alistair Nolan (OECD-LEED Programme)

6.1.2. Framework conditions

National and regional authorities are responsible for creating and implementing good framework conditions to help clusters develop. By framework conditions, we mean putting in place measures supporting cluster management, networking, competition, innovation, research, training, education, infrastructure, access to finance and administrative simplification.

- In most of the countries surveyed, national authorities set up the overall framework conditions: providing financial support when appropriate for cluster animation, technology transfer programmes, life-long training and infrastructure. They should remove obstacles and limiting factors to ensure that the cluster system operates properly.

It has already been said that clusters cannot be planned. However, when a region demonstrates pre-conditions for the emergence of a cluster, the authorities should intervene and establish a platform of dialogue between members of the cluster.

- The Regional Governments often take on the implementation phase and management of clusters, as it is they who have the specific knowledge of the local economic and social environment. They could also organise co-operation platforms and regional ‘knowledge centres’.

6.1.3. Exchange of information

This is crucial and each of the national, regional or EU institution acts at different levels:

- National authorities are best placed to deal with the promotion of clusters and networks, raising the awareness on the benefits and pitfalls. They should support initiatives for gathering and disseminating strategic information for regions and clusters.
- Regional and local authorities are best placed to organise and foster the internal exchange of information between local actors.
- The EU authorities could contribute to the promotion of clusters by developing a common methodology that aims at identifying local clusters and by providing a platform for exchange of information and good practice between cluster representatives and policymakers. This will help the latter with benchmarking their own practices and identifying interesting features of cluster support that work in their own countries. The outcomes can be then used to compare policy initiatives between Member States. Some experts even mentioned the idea of setting up a network of EU clusters that fulfil these activities. In fact, the Euro Info Centres Network could be considered as a EU clusters network, being at the core of partnership of regional and local business organisations, education and research institutes and public institutions.

6.1.4. Financial support

The issue of whether public authorities should provide financial support to clusters is controversial. Experts differ on the scope and the conditions of financial provision granted by the state or by the regions for cluster formation or development. This is explained by the fact that the conditions for cluster creation and development differ from one country to the other. In some countries, such as Italy, *industrial districts* have been voluntarily organised at the entrepreneurial level and are institutionalised. There has been no financial support from the State for cluster creation, only regional funds for operational purposes from time to time. In many other countries, cluster creation or development has been undertaken as part of an economic and regional strategy initiated and supervised by the public authorities. Although clustering should be a spontaneous process, the French government, for example, has initiated and financed the creation and development of *Local Productive Systems* (SPLs) by mean of calls for tender. In Germany, the state has launched different contests (BioRegio, EXIST, InnoRegio) to identify and fund only regions with existing potential in terms of growth, innovation and know-how (i.e. biotechnology). This measure made it possible to avoid too many regions artificially developing clusters in a “trendy” activity.

Although experts agreed that it should not be systematic and should comply with State aid regulations, they recognised that government aid is often needed to finance restructuring and investments in infrastructure, development of co-operation between local actors, research and education, transfer of knowledge and cluster animation. For example, some regional authorities have granted funds to finance cluster management, using a tendering process to select the clusters.

This is all the more true in countries in economic transition, where business is not yet mature.

However, in any case, financial aid²⁰ should be granted only under predefined conditions. It should be limited in time, supervised and evaluated. More importantly, it should respect competition rules. It should never be used to create clusters or regions, or preserve them artificially.

6.2. The future focus of cluster and networking policies at national level

There should be a proliferation of studies undertaken to monitor and evaluate pilot cluster projects in order to check if those experiences meet the theoretical expectations of clusters bringing higher value-added compared to other traditional forms of economic development.

The focus in most countries nowadays is on giving a new boost to the economy. In that respect, national policy measures should be designed to support the selected national clusters and spin-off from these clusters. And more specifically, an appropriate technology policy is essential for improving those clusters’ activities and fostering innovation in SMEs.

²⁰ In case of State aid, the Commission reminds that the competition rules under Article 81 (1) EC should be respected.

At regional and sectoral levels, the focus should be in identifying existing and potential clusters that can be supported both by regional and national authorities. These authorities focus their efforts on the development of competitive industrial environments and the inclusion of regional clusters in international production chains and networks.

Overall, local actors should be more involved in the definition and implementation of cluster policies.

6.3. Conditions to facilitate cross-border clusters and networks

SMEs and clusters are increasingly looking for new markets and resources across national borders. However, they are confronted with numerous difficulties in the process, even when cross-border clustering occurs between countries belonging to the EU single market.

The barriers to cross-border co-operation have been identified as relating to differences in legislation, culture, language, education, research, and infrastructure.

Although business logic does not stop at the border, policies are confined within their own administrative borders. Institutional contexts vary from country to country, as do policy priorities and means.

Today, there are already some examples of cross-border clusters in the EU: the automotive cluster between Portugal and Spain (Euro-regions – INTERER Funds); Oresund, the biotech sector between Denmark and Sweden; and Twente, the Dutch-German plastics cluster. Nor should the examples be limited cross-border cases. Some clusters are going through an internationalisation process (e.g. the co-operation between France and the Czech Republic for glass manufacture (Vallée de la Bresle – Bohemia), the transfer of the Italian industrial district model to Timișoara, Romania). Benchmarking across borders and supporting international linkages of national and regional clusters should be an essential part of cluster policies.

A way to help prepare SMEs and clusters to access cross-border markets would be for each Member State to carry out a national cluster-mapping project, the outcomes of which should be made widely available. Additionally, they could implement a networking platform and specialised business infrastructure allowing the exchange of information and the management of joint research and projects between clusters. They could also create “umbrellas” aiming at strengthening inter-firm relationships and developing a common identity to help cluster firms work beyond national boundaries.

At the level of the EU authorities, further actions aiming at enhancing labour mobility across borders could be helpful. Another means is pilot projects on cross-border co-operation, the results of which would be disseminated to the European business community (i.e. Euro Info Centres Network)

6.4. Raising awareness amongst enterprises of the potential offered by clusters and networks

There are various ways to raise awareness of the potential offered by clusters and networks to SMEs. It can be done by:

- Organising exchange of information through annual meetings with specific sector focus, promotional actions, press media, associations of enterprises, ministries, special training programmes, other clusters, trade fairs, etc.;
- Using other means such as recruitment of training facilitators, co-ordinators, project managers;
- Conducting ongoing research on clusters, mainly in the area of cluster policy (efficiency and improvement) and in the detection of indicators assessing the impacts on cluster co-operation;
- Encouraging co-operation between enterprises, universities and public research institutions;
- Including guidelines for forming alliances and co-operation;
- Establishing a long-term and consistent strategy focusing on pragmatic benefits for companies.

Whatever format is used, these actions should be directed at the same time at all actors involved in the process of cluster development. Real examples should be used to facilitate the understanding of the benefits as well as the pitfalls of clusters: current pilot projects, success stories, good practice, comparison between the performance of cluster firms and stand-alone firms.

7. CONCLUSION: EXPERT GROUP PROPOSALS FOR CLUSTER AND NETWORKING POLICIES IN THE EU

During the Lisbon European Council held in March 2000, the EU announced its “*new strategic goal for the next decade: to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*”. Clusters are only one of a number of tools available for achieving this objective and should not be pursued for their own sake.

As already stated, cluster formation is a spontaneous phenomenon, resulting from competitive market processes and co-operation between cluster actors. They cannot therefore be planned. Hence, too specific cluster policies are difficult to implement.

On the contrary, cluster policies should confine themselves at giving general guidelines to support cluster dynamics, taking into account the specificity of each country, region and even cluster. One should also be attentive that these policies, developed to be implemented locally, are in line with the global character of production and knowledge. Local clusters should be seen as “local nodes in a global network”.

Cluster policies should be monitored and evaluated on a regular basis in order to assess their effectiveness and to revise them according to the market conditions.

According to the expert group members, some areas need further attention from the policy-makers.

Catalytic role

Knowledge of the benefits and pitfalls of clusters should be fine-tuned. At present, only few studies have evaluated the performance of clusters in reality. Comprehensive studies should be carried out to map and identify high profile and non-performing clusters, competencies and market failures, and to upgrade existing policies.

Framework conditions

Cluster firms should be further supported. New actions have to be taken by the national and regional authorities to promote a culture of co-operation and to improve the functioning of clusters. They should provide:

- Cluster animation by remunerated professionals;
- Networking and collaboration platforms;
- Knowledge and physical infrastructure (real estate, communication, transport);
- Appropriate education and training schemes in line with the cluster’s needs;
- Joint production and marketing initiatives;
- Extended-range of financial instruments (venture capital funds, mutual credit guarantee schemes);
- Financial support in start-up projects, networking, research, education and infrastructure.

Exchange of information

Initiatives to organise the sharing of information should be supported.

At national and regional levels, the dialogue and co-operation among local stakeholders, as well as between clusters, still need to be reinforced.

At the EU level, it is crucial to have a co-ordination between the several Directorates-General of the European Commission and the other EU institutions in order to improve the visibility and efficiency of their actions towards cluster development. It seems that at present there is not a clear awareness of the Commission's initiatives by the stakeholders.

ANNEX: EXAMPLES OF CLUSTERS

1. BELGIUM

1.1. DSP Valley – Digital Signal Processing Valley

Area of activity

Research and production of applications (digital audio and imaging, telecommunication and navigation technologies)

Description of the policy or programme involved in the development of the cluster

VIS (Vlaamse Innovatie Samenwerkingsverbanden – Flemish Innovation Cooperation Networks), run by the Flemish Government (2002-2012). (*See paragraph 5.1.1.1 Cluster and Networking Policies in Member States - Belgium – Flanders*).

Delivery of the policy or programme

The executive agency in charge of VIS is IWT, the Institute for the Promotion of Innovation through Science and Technology in Flanders. It has both a financing and a co-ordination role. Under its co-ordination role, IWT follows-up, analyses, advises and organises exchanges of information between the various VIS in place.

Description of the characteristic of the action that make it a “good practice”

DSP Valley was founded in 1993-94 through a common private initiative of the University of Leuven, IMEC, a large electronics research centre, and Philips, with the aim to exploit technologies developed in the research institutions. DSP Valley today groups around 20 members: universities, research institutes and industrial companies (start-ups, large international groups). The DSP Valley objectives are:

- To promote the region as a centre of excellence and attract new companies' R&D activities;
- To provide training and education;
- To stimulate companies' growth by fostering synergy and complementarity, co-operation and cross fertilisation.

Conclusion – Proposals

DSP Valley clusters presents most of the necessary factors of cluster success:

- Coverage of the whole DSP product life cycle;
- Industrial leadership (Philips, Alcatel, Agfa-Gevaert);
- Specialised labour market and venture capital funds;
- Adequate infrastructure;
- Efficient cluster management.

Further information

Mr. Peter Simkens
Kapeldreef, 75B
B – 3001 Leuven
Tel. +32-16- 28 12 25 Fax +32-16-28 15 15
E-mail: Peter Simkens@dspvalley.com
<http://www.dspvalley.com>

1.2. Entreprises Wallonnes Aéronautiques (E.W.A.) - The Walloon aeronautical cluster

Area of activity

Design and manufacture of components for civil and military aircraft.

Description of the policy or programme involved in the development of the cluster

Regional policy of support to clusters conducted in the Walloon Region. The pilot project is supported for a two-year period at the end of which a larger-scale policy will be developed (*see paragraph 5.1.1.2. Cluster and Networking Policies in Member States – Belgium - Wallonia*).

Delivery of the policy or programme

The programme consists in financing the cluster animation assignment (€ 161,000 / year), the animator being generally an expert from the sector. The monitoring of the action is provided by a Steering Committee composed of the animator, firms' representatives, an adviser of the Minister and the regional administration.

Description of the characteristics of the action that make it a “good practice”

At the start, EWA limited itself to lobbying for Walloon aeronautical enterprises, within the framework of the broad European programmes (i.e. Airbus), with the major principals and public authorities. The organisation of EWA in a cluster has allowed the creation of a real industrial dynamic within the sector:

- Strategic monitoring and communication to the members of the cluster through a database, study days, a newsletter, etc.;
- Development of technological or industrial partnerships and new activities;
- Common promotion of the cluster on an international scale.

Evaluation results

The cluster encompasses almost all the Walloon enterprises involved in aeronautics (44 at the present time).

The target fixed initially (July 2001) was a 10% increase in the overall turnover of the sector. The events of 11 September 2001 meant that this target was not reached. Nevertheless, according to the enterprises, the cluster has contributed to limiting the negative consequences: not a single enterprise in the cluster has gone bankrupt as a consequence of September 11.

Conclusions – Proposals

For the Walloon Region, the interest of the pilot projects consists in the opportunity to test the chances for success of a cluster. From this point of view, the case of EWA is exemplary, and it can already be considered that the Walloon aeronautical cluster is leading to an upgrading of the SMEs in the technological, industrial, commercial and management fields.

Further information

Mr. Philippe Johansen
Tel. +32 10/47.19.40
E-mail: philippe_johansen@hotmail.com
<http://www.ewa.be>

2. DENMARK

2.1. Medicon Valley

Area of activity

Pharmaceutical industry

Description of the policy or programme involved in the development of the cluster

See paragraph 5.1.2 Cluster and Networking Policies in Member States – Denmark.

Description of the characteristics of the action that make it a “good practice”

This cross-border cluster initiative cover the Greater Copenhagen area and Skåne region in Sweden. It was a bottom-up approach initiated by local industry, which already formed a strong knowledge base in five big pharmaceutical companies (e.g. Novo & Lundbeck), the brewery Carlsberg and the University of Copenhagen.

The key characteristics of the policy action are the following:

The local government formulated a clear vision: to be the best bio-region in Europe in five years. It created a common name for the region (Medicon Valley), which served as an umbrella that made the various actors feel they belong together, but

also a name that could be used to promote the region abroad and help create a regional brand.

- Co-ordination of innovation policy. Direction towards the biotech sector at an early stage. Innovation centre Symbion was created. Focus on biotech and creation of a research centre at the University of Copenhagen and at the main hospital.
- Venture capital was provided during the start-up period (approx. 1995). Loans at no risk were given to new companies in the area through a national government agency, the Growth Foundation (Vækstfonden).
- Inward investment promotion strategy focusing on attracting foreign biotech firms to the region. This is carried out by Copenhagen Capacity.
- The critical mass was increased through regional economic integration and infrastructure investments, e.g. the Øresund Bridge linking Copenhagen and southern Sweden. The main idea was that the bridge could also serve as a means to create a common labour market and greater co-operation between companies and research institutions on both sides of the border. Medicon Valley Academy was set up to help contacts across the border and to diffuse information and knowledge more easily between the members of the cluster

Further information

Ruth Klyver Jørgensen
Copenhagen Capacity,
Gammel Kongevej 1, DK-1610 Copenhagen V
Tel. + 45 33 220222, Fax. + 45 33 220211
E-mail: info@copcap.com

Peter Frank
Medicon Valley Academy,
Øresundshuset,
Gammel Kongevej 1, 3., DK-1610 Copenhagen V
Tel. +45 33 29 10 30, Fax. +45 33 21 10 31
E-mail: mva@mva.org

2.2. NorCOM, Wireless Communications cluster

Area of activity

Telecommunication: production and development of equipment for maritime communication and navigation (GMDSS, GPS, satellite communication) and of mobile communication equipment (GSM, GPRS, Bluetooth, etc.), cordless systems, wireless applications and test equipment.

Description of the policy or programme involved in the development of the cluster

See paragraph 5.1.2 Cluster and Networking Policies in Member States – Denmark.

Description of the characteristics of the action that make it a “good practice”

The wireless communications cluster is located in and around the city of Aalborg in the region of North Jutland in North-western Denmark. It contains about 40 firms and knowledge institutions active in wireless communication technologies.

The cluster originated from a single firm successful in maritime communications. In the 1970s several firms spun-off from this firm. The emergence of the Nordic Mobile Telephony system (NMT) in the beginning of the 1980s further increased the growth of the cluster. In 1992, two of the local firms (through a research joint venture) succeeded in the development of a GSM prototype mobile phone parallel with the world leaders in the industry. This success resulted in subsequent rapid growth. Many of the large foreign firms in the industry, e.g. Motorola, Texas Instruments, Nokia, Ericsson, Siemens and Flextronics, are now active in the region together with a group of small foreign and Danish-owned development firms.

Aalborg University, the regional county council and a major local bank had established a Science Park, NOVI, at the university campus. NOVI needed a high-profile prestige project to become recognised and the two major competitors (Dancall and Cetelco) needed “neutral ground” near the university.

In the early 1990s a series of major changes occurred for the firms in the cluster. Foreign ownership has become widespread. The majority of the dominant mobile communications firms (Ericsson, Nokia, Siemens and Motorola) are now present in R&D in North Jutland. There has been a steady emergence of small development firms focused on developing mobile communications equipment for big firms outside North Jutland.

Source: Bent Dalum & Gert Villumsen (2000), NorCOM – History and Present Perspectives, IKE Group, Department of Business Studies, Aalborg University (October 1, 2000), (see http://www.norcom.dk/download_elementer/norcom_history.pdf)

Further information

NorCOM, Chairman Jens Hansen
Niels Jernes Vej 10
Postbox 8330, 9220 Aalborg Oest, Denmark
Tel. +45 96354500, Fax +45 96354599
E-mail: jh@rtx.dk
<http://www.norcom.dk>

3. GERMANY

3.1. BioRegio Munich

Area of activity

Biotechnology

Description of the policy or programme involved in the development of the cluster

See paragraph 5.1.3.1 Cluster and Networking Policies in Member States – Germany - BioRegio Contest.

Description of the characteristics of the action that make it a “good practice”

Munich was one of the three winning regions in the BioRegio contest. In the development of Munich as a site for biotechnological production and R&D facilities the pharmaceutical and diagnostics company Böhringer Mannheim (today: Roche Diagnostics) played an important role. But even more significant for the development of the BioTech Region München, located mainly in the south western suburb of Martinsried, is the presence of a large number of research facilities. This fact leads to the description of Munich’s development being research-based rather than industry-induced. The broad science base in the region consists of two universities, two polytechnics and three Max Planck Institutes of relevance, as well as three Fraunhofer Institutes, one Helmholtz Research Centre one Leibniz Institute and one of Germany’s four Gene Centres.

BioM is a network organisation responsible for the development of biotechnology in the region. It was a direct result of the BioRegio Contest and in addition to administering the BioRegio awards it raises and offers seed capital and helps to start-up projects and entrepreneur initiatives through organising contacts and giving advice in questions concerning patents, business and financial plans. Another important institution is the Biotechnological Innovation Centre (IZB), which offers laboratory space for start-up companies and promotes formal and informal co-operation activities.

Compared to the other *Bundesländer* Bavaria was one of the first to grant permission for genetic engineering and remove legal obstacles once the federal legislation had been passed. This commitment to Biotechnology was accompanied by the creation of a funding pool to subsidise applied technology developments.

Further information

<http://www.bio-m.de>

4. GREECE

4.1. Solarnet

Area of activity

Solarnet operates in the Solar Energy Industry. It comprises eight companies from the heating and air-cooling equipment field and one technical institution acting as a consultant/professional adviser, without a shareholding.

Description of the policy or programme involved in the development of the cluster

See paragraph 5.1.4. Cluster and Networking Policies in Member States – Greece.

Delivery of the policy or programme

The new state-of-the-art manufacturing facilities became operational during 2000. Important factors contributed to the successful management of Solarnet that was organised through effective consultation, regular meetings and communication.

- The skill and professionalism of the individual partners;
- The experience of the shareholders within the industry;
- The capacity of the shareholders to invest financially in the development of the network;
- The willingness of the partners to co-operate readily and to develop a clustering management structure.

Description of the characteristics of the action that make it a “good practice”

The main objective of Solarnet was the joint production and exploitation of high-quality boilers designed for use within the solar technology systems market that would acquire state-of-the-art production machinery, and also the creation of a new company that would facilitate and ensure the success of this networking co-operation. In addition, the network aimed to penetrate new markets, which would involve the manufacture and sale of electric water heaters.

The benefits to Solarnet members can be summarised as the following:

- Import and transfer of high-tech and new technology to members of the network as a means of enhancing competitive advantage and recognition as a ‘world class’ manufacturer;
- Adoption of optimal production flexibility that generated reduction in production costs and improvement in the quality of products;
- Development of both new/innovative products;
- Identification, development, and penetration of export markets;
- Development and application of methodologies and systems to enhance the extension of collaborative measures among the network members;
- Development and promotion of international partnership agreements.

Conclusion – Proposals

The difficulties encountered derived from the need to address market decline and the need for a large capital-intensive production facility. The response to these needs was to provide the local, European and international markets with boilers of high quality. In addition, the investment required by the public authorities, banks and Solarnet members required a high degree of assurance in terms of ultimate successes and tangible outcomes.

Further information

<http://www.solarnet.gr>

5. SPAIN

5.1. The Automotive Cluster of Galicia (CEAGA – Cluster de Empresas de Automoción de Galicia)

Area of activity

Automotive industry

Description of the policy or programme involved in the development of the cluster

The Galician Cluster Policy, initiated by the Regional Government, whose objective is to improve the competitive position of the Region in the automotive industry (*see paragraph 5.1.5.3. Cluster and Networking Policies in Member States - Spain - Galicia*).

As a result of the Galician Cluster Policy, CEAGA was set up in 1997. Together with the private car manufacturer, PSA Peugeot-Citroën, it has conducted a number of actions promoting the region in areas such as human resources, research and innovation, quality and environment and logistics.

Among the projects that have been carried out in the Region the following are worth mentioning:

- The establishment of CTAG (Centro Tecnológico de Automación Galicia) promoting the use of new technologies in businesses, the participation of enterprises in national and international co-operation programmes and the knowledge management of the industrial environment;
- The creation of the Master in Management in Automotive Industries of Galicia, a joint initiative of CEAGA, CTAG, PSA Peugeot-Citroën and the University of Vigo;
- The development of a B-to-B internet platform (<http://www.comprasauto.com>) facilitating the communication between the member companies of CEAGA and their suppliers and as a result optimising the supply chain management;

- The set up of a cross-border platform of technological development with CEIIA (Centro para Excelencia e Innovación da Industria Automovel) from the North of Portugal region, structuring the automotive sector as a cluster in the new Euroregion.

Description of the characteristics of the action that make it a “good practice”

The cluster policy actions have proved positive in helping the Galician automotive industry adapt to the changing world automotive environment and to respond to the current challenges in terms of innovation and technology. Nowadays, the Region of Galicia accounts for 20% of the Spanish automotive production (i.e. 1% of world production) and directly and indirectly employs nearly 30 000 workers. The Galician model is now considered by international organisations as a useful example of practice.

Further information

Centro Tecnológico de Automoción de Galicia
E-mail: ctag@ctag.com

6. FRANCE

6.1. Bresle Valley Glassworks Centre

Area of activity

Glass manufacturing

Description of the policy or programme involved in the development of the cluster

(See 5.1.6. Cluster and Networking Policies in Member States – France).

Description of the characteristics of the action that make it a “good practice”

The Bresle Valley glassworks centre was recognised by the State as a Local Productive System in 1991. It includes both large glassmakers (i.e. St Gobain Desjonquères and Pochet du Courval) and independent glass industry SMEs, thereby fully integrating the production chain. It produces about 75% of all the bottles sold in the world.

The Bresle Valley provides labour with a now recognised know-how and skilled "craftsmanship". The glasswork represents 55% of the local industrial employment (i.e. 6000 employed people, up from 5000 ten years ago).

The concept of industrial district came up at the occasion of the European programme ADAPT, when these companies decided to establish active co-operation relationships amongst themselves. Many measures have been implemented in this perspective:

- Improvement of the processes: research contracts have been established with universities and research centres;
- Diversification of activities towards other glass production (Table ware, plastics, etc);
- Technology surveys are carried out on a regular basis;
- Overseas trips are organised in order to identify new markets;
- Specific alliances are put in place to respond to more or less complex demands with made-to-measure combinations of various competencies.

The label SPL "Bresle Valley - Glass Valley" allowed the co-financing by enterprises, the FNADT and the FERDER of a communication programme (logo, brochure, CDROM, website, national or international tradeshows, etc.)

Further information

<http://www.glass-valley.com>

6.2. The Jura Spectacle Manufacturers

Area of activity

Eyewear industry

Description of the policy or programme involved in the development of the cluster

(See paragraph 5.1.6. Cluster and Networking Policies in Member States – France).

Description of the characteristics of the action that make it a “good practice”

French spectacle frame manufacture is located in and around Morez (a small town of 8 000 inhabitants), at the heart of Haut-Jura. The region has a 200-year-old industrial tradition. 40 companies employ about 3,500 people and account for 50% of national output, around half of which is exported. All the crafts of the production chain are represented (manufacture of frames for prescription spectacles, sunglasses, and protective glasses, spectacle frame component manufacture, custom subcontracting operations and accessory manufacture).

Today's challenges for the Jura spectacle manufacturers are:

- Competition with developing countries (Far East) and those with low wage costs (Hong Kong, China);
- Competition of Italian manufacturers, attracting most of the prestigious brands;
- The concentration of distribution channels;
- The burden of the French legislation (fiscal and social constraints).

The Lunetiers du Jura Federation aims at maintaining the presence of the local enterprises and at preserving jobs through several actions. These are supported by the EU, the State, the Regional Council and the Local authorities:

- Technological: Alutec Laboratory based in the State Optical School of Morez, helps spectacle manufacturers to innovate and improve the quality of their products (compliance of their products with EC standards);
- Regional development: inter-enterprises alliances for the development of strategic, technological, commercial and financial projects; close relationship with the school, documentation centre;
- Marketing and design (cabinet de style, competitions, education);
- Export: partnership with countries of Central and Eastern Europe, tradeshows;
- Education: EQUAL programme for employees.

Further information

<http://www.districts-industriels.com>; <http://www.lunetiers-du-jura.com>

7. IRELAND

7.1. The Irish Software Cluster

Area of activity

Software, i.e. e-learning, localisation, enterprise applications

Description of the policy or programme involved in the development of the cluster

National Software Directorate, Enterprise Ireland and the Industrial Development Agency (*see paragraph 5.1.7. Cluster and Networking Policies in Member States – Ireland*).

Description of the characteristics of the action that make it a “good practice”

A mixture of overseas multinationals and indigenous SMEs employ a total of 30,000 people. The bulk of the output is exported to the USA, UK, Europe and Asia markets. Starting a decade ago, the agencies initiated measures that improved the

framework conditions for companies in the sector. Specifically, they created through public/private partnerships a number of venture capital funds. They also sought and obtained a substantial increase in the flow of skilled IT graduates being from the higher educational sector. These framework measures were complemented by development of companies internal capabilities in marketing and strategy, and by the offer of start-up and location incentives. The overall purpose was to develop a sharper focus on opportunities generated by new technologies. The development work is now focused on investing in research activities and commercialising the flow of applications.

Further information

Mrs. Jennifer Condon
Tel. +353 1 206 6335

7.2. The Munster food cluster

Areas of activity

Food, i.e. dairy and food ingredients

Description of the policy or programme involved in the development of the cluster

Enterprise Ireland, An Bord Bia and Teagasc (*see paragraph 5.1.7. Cluster and Networking Policies in Member States – Ireland*).

Description of the characteristics of the action that make it a “good practice”

The Munster food cluster is dominated by a number of relatively large Irish-based agri-businesses. Supporting these firms are specialised educational facilities in Cork University, and dedicated research facilities run by the government food research agency (Teagasc).

The focus of the firms and of the developmental agencies is

- a) New product development into areas of additional value-added, such as functional foods; and
- b) Rationalisation of operations, to realise the scale that is necessary to compete internationally.

Supports for these objectives include financial aid, strategic advice and overseas marketing information and linkages.

Further information

Sean Higgins
Tel. + 353 1 808 2000

8. ITALY

8.1. Centuria Science & Technology Park

Area of activity

Agricultural & food industry including all the high-tech and high value-added activities related to the production, processing, transport, trading and management of agricultural and food products.

Description of the policy or programme involved in the development of the cluster

The set up of Centuria in June 1994 was initiated by local entrepreneurs, public administrators and academics from the University of Bologna, following a study carried out by a group of experts of the SPRINT programme of the European Union

(See paragraph 5.1.8. Cluster and Networking Policies in Member States – Italy).

The executive agency or network or service responsible for the action

Centuria is owned by the major local firms. Public administrations, industries associations, chambers of commerce and banks also own part of Centuria's capital, while the University of Bologna is an important partner.

Description of the characteristics of the action that make it a “good practice”

Centuria operates in a region historically characterised by a strong agro-industrial activity. Recently, new high-tech entrepreneurial activities related to the original vocation have developed, pushed by the start-up of the local branch of the University of Bologna.

Since its foundation, Centuria has been considered as a tool to help the economic growth of the region and the competitiveness of its firms. Romagna is now one of the most important agri-food districts in Europe and in the Mediterranean Basin. Centuria is run by a private management approach. It focuses on a light and flexible structure, taking advantage of existing competence, managing ‘intangible assets’ and avoiding as much as possible hardware investments, developing a strong network among enterprises, public administration, universities and banks, stimulating innovation, providing strategic information and international networking and specialised services.

Further information

Gabrio Casadei Lucchi - President
Marco Baccanti - Director
Alessandro Zampagna - Project Manager

Centuria Science & Technology Park
Via E. Macrelli, 98 - 47023 Cesena (FO), Italy

Tel. +39 0547 611366, Fax +39 0547 610 866

E-mail: centuria@pstcenturia.com
<http://www.centuria.org>

9. FINLAND

9.1. Forest-based industrial cluster

Area of activity

Forest-based industries and related technologies.

Description of the policy or programme involved in the development of the cluster

Finnish Forest Cluster Programme Wood Wisdom

The Wood Wisdom programme, carried out in 1998-2001, focused on research, which integrates forestry with other parts of the production chain - timber production and procurement, manufacturing, marketing and use of products. Special attention was paid to research that promotes the competitiveness of small and medium-sized enterprises in the mechanical sector. The approach of the programme was end product-driven, instead of raw material-based.

Besides its research objectives, an important goal of the programme was to build closer links between research units and to support networking within the cluster. The programme was not geographically focused on any particular region, but covered the whole country.

(See paragraph 5.1.12. Cluster and Networking Policies in Member States – Finland).

Delivery of the policy programme

The programme was funded by an additional appropriation from a public research and development funding programme which allocated financing to specific cluster programmes. Wood Wisdom was the most extensive of the eight cluster programmes started in 1997-98. Wood Wisdom programme was steered by a group representing both research (universities and research institutes) and business and industry associations. The basic concept behind the cluster programmes was that the performance and development of the national innovation system relies heavily on close networking co-operation between private and public sector

Description of the characteristics of the action that make it a “good practice”

As a result of the programme closer co-operation and networking in research, and between research and industry has been adopted by utilising the strengths of the whole production and processing chain within the forest cluster.

Evaluation results

The Cluster programmes were evaluated by an international evaluation group (see Prihti – Georghiou – Helander – Juusela – Meyer-Krhamer – Roslin – Santamäki-Vuori – Ghöhn: ”Assessment of additional appropriation to research, <http://www.sitra.fi>

Further information

<http://www.woodwisdom.fi>

9.2. The ICT “Information and communication technology” cluster

Area of activity

Electronics and telecommunications for the information society

Description of the policy or programme involved in the development of the cluster

Electronics for the information society (ETX) and Telecommunications: creating a global village (TLX)

The two technology programmes were put in place to enhance the growth and competitiveness of the Finnish ICT cluster by increasing networking between SMEs and larger firms, and research institutes and industry. Beneficiaries: SMEs, research community, national economy, regions with high concentration of ICT industries. ETX and TLX were carried out from 1997 to 2001.

(See paragraph 5.1.12. Cluster and Networking Policies in Member States – Finland).

Delivery of the policy programme

The programmes were initiated and organised by the National Technology Agency (Tekes). The programmes had a supervisory group, programme managers and thematic groups with representatives of industry, universities and policy agencies.

The programmes organised regular meetings, seminars and used Internet effectively in informing and disseminating results.

Description of the characteristics of the action that make it a “good practice”

They were designed to tackle a particular stage of the development of the ICT cluster. The rationale is that cluster development is a dynamic process and that policy actions should be designed according to the phase of the cluster life cycle.

Evaluation results

The ETX and TLX programmes were evaluated as broadly successful by an international evaluation team (Erik Arnold – Terttu Luukkonen – Leonhard Joerg – Juha Oksanen – Ben Thuriaux – Shaun Whitehouse, Evaluation of Finnish R&D Programmes in the Field of Electronics and Telecommunications: Tekes Technology Programme Report 2/2002).

The programmes resulted into improved competitiveness of the Finnish ICT cluster and increased networking between large and small firms, and between universities and industry.

Conclusions

Technology programmes with joint participation from business, policy makers and research are extremely important in supporting the development of competitive clusters. Strong regional technology-based clusters are likely to emerge also within national technology programmes

Further information

<http://www.tekes.fi>

10. UNITED KINGDOM

10.1. The East Midland clothing and textile cluster

Area of activity

Knitting expertise and technology, and associated technical expertise.

Description of the policy or programme involved in the development of the cluster

Cluster development within Enterprise & Innovation Directorate began in January 2001 and was completed in May 2001. The cluster strategy was officially launched in May 2001 and is due for a review in summer of 2003. The East Midlands area is covered, which incorporates the counties of Nottinghamshire, Leicestershire, Derbyshire, Lincolnshire, Rutland and Northamptonshire. Priority beneficiaries of the process are businesses (both employers and employees), supporting agencies, academia and other government agencies. The cluster development strategy is intended to cover a wide range of RDA activity, and in doing so pulls together activities such as regeneration, skills, inward investment, tourism etc.

(See paragraph 5.1.13. Cluster and Networking Policies in Member States – United Kingdom).

Delivery of the policy or programme

The strategy implementation was initially the East Midlands Development Agency's responsibility, but since April 2002 a number of supporting agencies embrace the strategy as these organisations are the deliverers. Also the activities of the East

Midlands C&T Network (EMCAT) have been refocused towards a regional 'umbrella' that co-ordinates the delivery of projects, business support, etc. ensuring that the cluster drives towards the vision. EMCAT is industry led with a proactive industrialist as Chairman. A number of projects have been initiated since May 2001 designed to encourage industry participation and to date seven working groups address the strategy implementation.

Description of the characteristics of the action that make it a "good or bad practice"

"Bad" because of a lack of knowledge of 'what is going on', little communication between cluster members, willingness to collaborate.

"Good" because of an inclusive involvement of all cluster members, for benefit of greater good, networking.

Evaluation results

There will be a review in summer 2003, but to date the cluster is re-structuring by further reduction in employment within the high volume clothing production, emergence of many smaller businesses producing design-led niche products, cross-cluster activities such as healthcare and medical textiles, engineering and composites raising the profile of technical textiles. Finally, the re-alignment of business support will focus on delivery rather than supply.

Further information

Mr. Amreesh Mishra

East Midlands Development Agency
Apex Court, City Link
Nottingham, NG2 4LA
United Kingdom
Tel. +44 115 988 8536, Fax +44 115 853 3666
E-mail: amreeshm@emda.org.uk
<http://www.emda.org.uk>

10.2. Encluster

Area of activity

Environmental goods and services

Description of the policy or programme involved in the development of the cluster

The UK's Innovation and Clusters policy aims to achieve practical economic benefits from the academic analysis of clusters of economic activity such as electronics in Silicon Valley, leather goods in parts of Italy and biotechnology in Cambridge, UK. Encluster is part of this approach, with government policy mediated through the East of England Development Agency. Encluster was proposed and is being developed by an independent foundation working on

environmental development, the UK Centre for Economic and Environmental Development. UK CEED carried out a mapping study of the environmental goods and services sector in Greater Peterborough, UK (an area of about 20 miles radius around a growing city), and found it and its potential for economic benefit to be significant.

Encluster's objectives are to:

- Stimulate cluster dynamics (information flows and people/organisation interfaces);
- Facilitate the growth of companies and organisations in the environmental goods and services sector in the Greater Peterborough area, UK;
- Attract inward investment into the sector, develop and implement demonstration projects and facilitate commercial projects with environmental value.

The beneficiaries of the initiative will be the general public in the Peterborough area in terms of a maintained or increased number of jobs and a greater variety of higher-skilled jobs; other companies and organisations in the area in terms of new market opportunities; supply chains in other parts of the UK, East of England and Europe; the East of England in terms of a greater capability in dealing effectively with environmental challenges.

The initiative is likely to have about 2.3 full time officers supporting the sector until April 2004, after which, if it meets its aims, it should need less support, eventually requiring perhaps one person to maintain a website and act as an information co-ordinator.

(See paragraph 5.1.13. Cluster and Networking Policies in Member States – United Kingdom).

Delivery of the policy or programme

Encluster is managed by the UK Centre for Economic and Environmental Development (UK CEED)

Encluster uses a variety of methods and tools for stimulating and supporting the growth of the environmental goods and services industries in Greater Peterborough: an interactive website, frequent emailed news and information about business, innovation and skills development opportunities, one to one meetings, defined services including market research, funding applications, partnership broking, seminars, trade delegations and overseas links, and joint development of projects with local partners.

Description of the characteristics of the action that make it a “good or bad practice”

UK CEED clearly believes that its initiative and action are “good practice.” The Encluster staff are nevertheless learning all the time, refining their approaches based on feedback and the level of success of their actions.

Conclusion – Proposal

Invitation for discussion on how EU can assist this kind of economic development activity

Further information

Mr. Phil Sheppard
Encluster Manager
Priestgate House, 3-7 Priestgate
Peterborough PE1 1JN
United Kingdom
Tel. +44 1733 311814, Fax +44 1733 312782
E-mail: p.sheppard@ukceed.org
<http://www.encluster.org>

11. HUNGARY

11.1. Pannon Wood and Furniture Industrial Cluster (Pannon Fa- és Bútoripari Klaszter – PANNONFA)

Area of activity

Wood and furniture-based and related technologies

Description of the policy or programme involved in the development of the cluster

The cluster has been granted € 80 000 from the Szechenyi Plan's RE-1 sub-programme (*see 5.2.4. Cluster and Networking Policies in Candidate Countries - Hungary*).

Description of the characteristics of the action that make it “good practice”

Following a bottom-up development, the cluster started to operate on June 2001. It succeeded in raising awareness, promoting co-operation among participants and creating synergies.

Evaluation result

60 members joined PANNONFA. The cluster organised conferences, business meetings, international exhibitions and fairs, and attracted the participation of about one-third of the actors of the wood and furniture industry.

Conclusions

Top-down policies could be a spark allowing the clustering process of SMEs, mostly when circumstances are not suitable.

Further information

Mr. Zoltán Kalcsú
Cluster manager
Zala County Foundation for Enterprise Promotion
H – 8900 Zalaegerszeg, Köztársaság u. 17.
Tel. +36 92 316033, + 36 92 312452 Fax: +36 92 316062
E-mail: info_zmva@zalaszam.hu
<http://www.panfa.hu>

12. LATVIA

12.1. Information System (IS) cluster

Area of activity

Software development

Description of the policy or programme involved in the development of the cluster

The project “ Support to Industrial Cluster Restructuring” largely supported the establishment of the IS cluster was financed by the EU Phare programme and lasted from October 2000 to October 2001. Although there was already a co-operation among IT companies, the project “ Support to Industrial Cluster Restructuring”, strengthened the co-operation links among the cluster companies and other supportive institutions involved in the cluster such as universities. Most of the largest Latvian software companies were involved in the project. Consultative support was provided to the cluster in order to analyse the areas where closer co-operation among cluster members might deliver medium and long-term benefits. The consultants organised the cluster meeting and acted as network brokers.

(See 5.2.5. Cluster and Networking Policies in Candidate Countries – Latvia).

Delivery of the policy or programme

The most important tools were consultative support, organisation of cluster meetings and meetings of working groups according to the specific fields of co-operation

Description of the characteristics of the action that make it a “good practice”

The IS cluster is a collaborative network of 18 major local software developers, data centres, educational institutions, professional training centres, web content and marketing companies. Such actions are based on mutually accepted IS cluster Code of Ethics defining major operating principles for IS cluster participants.

The assistance that was delivered to the IS cluster through the project “Support to Industrial Cluster Restructuring” can be classified as “good practice”. The main indicators of success are that commitment from key companies and other institutions was achieved and the co-operation schemes initiated within the project are still continuing after the end of the project.

Evaluation results

Most of the goal of the IS cluster are long-term and it is still too early to make an assessment. However, closer collaboration with the cluster has delivered short-term benefits like information exchange among cluster participants, sharing of human resources and common training activities.

Further information

LITTA
Latvian Information Technology and Telecommunication Association
Stabu 47
Riga, LV – 10011
Latvia
Tel. + 371 7311821, + 371 9277304, Fax + 371 7315567
E-mail: litta@dtmedia.lv
<http://www.is.lv>

13. SLOVENIA

13.1. Toolmakers Cluster of Slovenia (TCS)

Area of activity

Toolmakers industry

Description of the policy or programme involved in the development of the cluster

The main goal of the Slovenian Cluster Pilot Projects Programme, established by the Ministry of Economic Affairs, was to identify and test potentials for cluster development in Slovenia.

The TCS objectives are:

- To increase the production volume;
- To increase competitiveness on the foreign markets;
- To foster technology transfer between companies and R&D institutes and companies;
- To accelerate the development and implementation of new technologies.

These objectives would be achieved by establishing a regional network of highly qualified toolmaking companies and supporting organisations as development partners to the EU most advanced industries. The strategies introduced are:

- A horizontal and vertical integration of the companies and organisations involved in the toolmaking business;
- A concentric diversification around the tool and die technologies and competencies;
- Joint ventures and internationalisation.

(See 5.2.10. Cluster and Networking Policies in Candidate Countries - Slovenia).

TCS areas of co-operation

- Marketing;
- Customer Relation Management (CRM);
- Supply Chain Management (SCM);
- Research and technology development (RTD);
- Organisation and IT infrastructure.

TCS Results

The TCS pilot project started as a joint venture company in 2000 and achieved the following results:

- Development of approximately 70 joint projects
- Development of a common identity and communication tools (i.e. B2B internet portal (www.toolscluster.net), newsletter, DVD,...)
- Establishment of a non-profit organisation: “TCS Entrepreneur and Development Centre”
- Establishment of TCS’s “Project Office”, “Project School”,...

Further information

Dr.Brane Semolic
TCS Manager
Mob. +386 31 329 550
Tel. +386 3 781 25 40, Fax +386 3 781 25 41
<http://www.toolscluster.net>

14. ICELAND

14.1. Health Technology Forum

Area of activity

The cluster has two branches of activity: health and technology. Companies and institutions issued from those two branches work together to develop technology-based health care devices.

Description of the policy action or programme involved in the development of the cluster

The Health Technology Forum programme was originated by the Federation of Icelandic Industries together with ministries and relevant organisations to improve the knowledge and gain competence advantages in the health technology field. Improved co-operation among all the health-care stakeholders helped companies to develop suitable products and services and increase exports. It even contributed to the economic growth of the country.

(See 5.3.1. Cluster and Networking Policies in EFTA/EAA Countries - Iceland).

Description of the characteristics of the action that make it a "good or bad practice"

The cluster has proven to be a good and valid method for fostering co-operation and highlighting added value practices.

Conclusions

The cluster has been operating for a few years and will certainly continue in the near future. The next step will be to extent it to a trans-national cluster. This is currently under way with the development of a database.

Further information

Mr. Halldór P. Thorsteinsson
Eiriksgata 29
101 Reykjavik
Iceland

14.2. Forum for fisheries and industry

Area of activity

Fish industry

Description of the policy or programme involved in the development of the cluster

The "Forum for fisheries and industry" programme was initiated by the Federation of Icelandic Industries together with public and private organisations. The programme was designed to create a co-operation platform where companies from

the fisheries and the technology sector as well as R&D organisations could work together. (See 5.3.1. *Cluster and Networking Policies in EFTA/EAA Countries - Iceland*).

Description of the characteristics of the action that make it a “good practice”

The programme led to beneficial rationalisations in the fisheries industry and increased sales from the technology sector. It contributed to the economic growth of the country with additional employees being hired in the cluster.

Conclusions

The programme of co-operation should continue since further developments are expected occur in a longer run (10-15 years).

Further information

Mr. Gudbergur Runarsson
Borgartun 35
105 Reykjavik
Tel. +354 591 0360, Fax +354 591 0358
E-mail: vettvangur@sf.is
<http://www.vettvangur.is/default.htm>

15. NORWAY

15.1. The maritime cluster

Area of activity

- Shipbuilding industry: building and repair of ships, equipment for ships (a variety of products both high and medium-tech), ship engines
- Shipping: ship-owners, shipbrokers, bank, finance, assurance
- Maritime service: ship counselling, classification and security

It is mainly located in Oslo and at the coast of the southern and western part of Norway.

Description of the policy or programme involved in the development of the cluster

The cluster has evolved over a period of approximately 250 years. There is no explicit programme but the ship owners have always been a strong lobbying group in Norway and managed to get substantial tax reductions in order to keep the fleet and the activities in Norway. The shipbuilding industry has been given financial support in phases of restructuring. The sector itself argues that the tax system and the Norwegian research and education systems have been most important to their development.

(See 5.3.2. *Cluster and Networking Policies in EFTA/EAA Countries - Norway*).

Delivery of the policy or programme

Norwegian government.

Description of the characteristics of the action that make it “good practice”

Although important as regards tax reduction, the Norwegian government has been relatively passive in the development of the Norwegian maritime cluster. The cluster has mainly developed as a result of actions of individual entrepreneurs. It is important to mention, however, that the connection to the oil and gas cluster has probably been important in upgrading the cluster the last 20-25 years.

15.2. The Norwegian oil and gas cluster

Area of activity

- Upstream activities: search for oil and gas, development of the oil and/or gas field, extraction of oil and/or gas;
- Downstream activities: distribution of oil and/or gas and refining.

Description of the policy or programme involved in the development of the cluster

Technology and repurchase agreements were extremely important for the development of the Norwegian oil and gas cluster. Foreign oil companies had indeed to invest substantial amount of money in R&D and D&E competence in Norway as well as in the development of Norwegian suppliers and subcontractors. The Norwegian government based its policy on the experience from the electrification of the country, where foreign companies also played an important role. It may be important to note that both the Norwegian government and the private actors (especially in the shipbuilding industry) had received competence (i.e. they were able to receive and integrate a new industry by using past experiences) that through active policy developed into participation competence. Thus the cluster developed gradually.

(See 5.3.2. Cluster and Networking Policies in EFTA/EAA Countries - Norway).

Delivery of the policy or programme

- Concession laws which are part of Norwegian regulating practices. They were introduced at the beginning of the 19th century when waterpower was developed, and
- Technology agreements that are linked to the concessions: series of agreements between the Norwegian government and foreign oil companies aiming to secure the transfer of competencies and know-how to Norwegian actors. The foreign oil companies were obliged to carry out research and development in Norway, and when possible, buy Norwegian commodities and services.

Description of the characteristics of the action that make it a “good practice”

The cluster is mainly concentrated in the Rogaland and Oslo regions. Many of the search and field development activities and products are R&D intensive and have a relatively advanced technology content. New technology needs to be developed in the distribution activity in order to meet the Kyoto agreement).

The active policy through concession laws combined with technology agreements was necessary to develop a Norwegian oil cluster. The state-owned oil-company STATOIL also played an important part. However, this kind of policy is only possible if there are some resources that the foreign firms really need.

Further information

- Erik W. Jacobsen, Martin Vikesland and Espen Moen have done a study of the oil and gas cluster: Forskningsrapport 9/2000, Handelshøyskolen BI, Institutt for Strategi.
- The Norwegian ministry