

Country Report: Germany

Introduction

This report has been written as a part of the Europe INNOVA Cluster Mapping Project. One part of the project is a mapping of cluster policies, cluster institutions and cluster programmes in European Countries.

For each country, a separate report has been written. Oxford Research AS in Norway has been responsible for the mapping of cluster policies. Oxford Research has developed the structure of the mapping and prepared the final reports. Most of the work has however been done by research institutes or consultancies in the different countries. These organisations are members of “The European Network for Social and Economic Research – ENSR” or partners in the Europe INNOVA Cluster Mapping Project.

Based on the national reports, the main findings have been summarised by Oxford Research in a separate report.

The Europe INNOVA Cluster Mapping Project has been financed by the European Commission. The views expressed in this report, as well as the information included in it, do however not necessarily reflect the opinion or position of the European Commission and in no way commits the institution.

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Please find more information about the Cluster Mapping Project and the Authors of this report on:

www.clusterobservatory.eu

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Main ministries responsible for implementing cluster policy	Finance/ Economy	Science/ Research	Trade/ Industry	Interior	Other
	X	x			x
Key agencies responsible for implementing cluster policy	The initiative Kompetenznetze Deutschland, Project Management Agency Jülich (PTJ), German Research Society (DFG), German Aerospace Centre (DLR), Wissenschaftsrat				
	Is cluster policy their only task?	Yes	x	No	x

Are there any national cluster programmes?	Yes	x	No		Number of programmes	6
Are there any regional cluster programmes?	Yes	x	No			2

Source of financing	National programmes	Regional programmes
National ministries	x	
EU structural fund	x	x
Regional budget	x	x
Business		
Other		x

Importance of cluster policy		Low	Medium	High
	National level			x
	Regional level			x
Policy papers on national level	Yes	x	No	
Cluster policy over time	Increased importance		Reduced importance	Shifted
Since when has cluster policy been used?	1990-95	1995-2000	2000-05	2005-
	x			
Cluster development related to a particular person/organization?	Yes		No	x
	Individual		Business org.	
	Political party		Agency	
	Research inst.			
Successful cluster programmes	BioRegio, InnoRegio			

Is there a cluster or competitive council?	Yes	No	A general council exists
			x
Degree of obstacles when building cluster policy	No/Low	Medium	Important
			x
General assessments of competitiveness?	Yes	x	No

Role of clusters as framework in policy areas	Low	Medium	High
Business network policy	x		
FDI attraction policy		x	
Export promotion policy	x		
Sectoral industry policy	x		
Science and education policy	x		
Competition and market integration	x		

Source: Oxford Research

1. Terminology

In each country there will be one or possibly several **terms** or **phrases** used to describe clusters. In some cases, different terms represent “competing” perspectives on clusters and, as perspectives change over time, one term may gradually replace another.

In German a cluster is called a cluster.

2. Cluster development programmes and cluster organisations

In many countries, there are **programmes** set up specifically to promote cluster development. Such programmes can be carried out by existing **actors** (for example a government agency), or new actors can be set up to run them. Often, one of the purposes of such programmes is to help initiate **cluster organisations**, that is, the programme provides financing or otherwise promotes the formation of cluster-specific organisations, typically in some form of public-private partnership. A country can have many (even hundreds) of such cluster-level organisations in operation.

Below is an identification of both cluster agencies and cluster programmes at national and regional level in Germany.

2.1 Agencies for cluster policy implementation

The main ministries responsible for the implementation of cluster policy are:

- a) Federal Ministry of Economics and Technology (BMW_i)
Departments: IIC3, IID5, IID6, ID1
- b) Federal Ministry of Education and Research (BMBF)
Departments: 112, 114, 615
- c) Federal Ministry of Transport, Building and Urban Affairs (BMVBS) (responsible for the development of Germany's New Länder, states at the territory of the former German Democratic Republic [GDR])
Departments: NL 10, NL 21
- d) Office of the initiative Kompetenznetze Deutschland (Networks of Competence in Germany)
- e) Support agencies (project management organisations) of the Federal Ministry of Education and Research, e.g. Project Management Agency Jülich (PTJ), German Research Society (DFG), German Aerospace Center (DLR), Wissenschaftsrat (Science Council)

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The initiative Kompetenznetze Deutschland was founded in 1999 by the BMBF. It is an international marketing instrument for the presentation of the most competent networks/clusters in Germany. In the context of the reorganization of the responsibilities within the federal government after the last elections to the Bundestag (in 2005), the responsibility passed over to the BMW_i. The office of the initiative was established as an outsourced service at the start of the initiative. Currently, a team of 5

staff members from FAST GmbH runs the office. These organisations were founded to support the BMBF in all kinds of project management and funding activities, at national and international level. In recent years, almost all 16 German Länder (federal states) and a number of local authorities have initiated cluster-based policy programmes. Some of them – in particular Baden-Württemberg, Bavaria and North Rhine-Westphalia – performed ancestors of cluster policies long before the federal government started its first cluster programmes in the mid-1990s. The following report will focus on the cluster policy of the three biggest and economically strongest Länder, each with more than 10 million inhabitants.

Agencies for cluster policy implementation:

- a) Ministry of Economic Affairs Baden-Württemberg
Department: 22
- Bavaria
- b) Bavarian Ministry of Economic Affairs, Infrastructure, Transport and Technology
Department: VIII/3 (leading ministry), partners:
- c) Bavarian State Ministry of Sciences, Research and the Arts; Bavarian State Ministry for Agriculture and Forestry; Bavarian State Chancellery
- d) Cluster management agencies (called cooperation platforms), e.g. Bayern Innovativ GmbH
- North Rhine-Westphalia
- e) Ministry of Economic Affairs and Energy of the State of North Rhine-Westphalia
Department: 211
- f) Ministry of Innovation, Science, Research and Technology of the State of North Rhine-Westphalia
Department: 34
- g) Cluster Secretariat of the State of North Rhine-Westphalia
- Germany-wide
- h) Regional/Local Economic Development Agencies

Source: Expert interviews.

The main task of the cooperation platforms of each cluster is to establish and maintain a contact network of companies, research establishments, associations, investors, support institutions, consultants and other players. In order to ensure that the cooperation platforms can function successfully, the cluster spokesmen and the cluster management specifically build structures for contact and communication between science and industry as the motors driving the cluster process and encourage innovative projects. Each cluster management is the contact partner throughout Bavaria for the existing cluster networks. It assists with the organisation of events, promotes the creation of thematic profiles and development of potential and highlights new fields of application and projects, the implementation of which is then left to the discretion and responsibility of the cluster companies.

E.g. Bayern Innovativ GmbH (cluster development is only one of its tasks) is a publicly held company initiated by the Bavarian State Government in 1995. It is located in Nürnberg and financed by the privatisation revenues generated by the Bavarian State Government, with a fixed annual budget of 3.8 million EUR. Additional income is generated through the acquisition of strategic projects, fees for technology transfer events organised by Bayern Innovativ and networking services. The total budget amounted to approximately 10.7 million EUR in 2004. A team of 60 staff members is responsible for design and organisation of innovation congresses and further technology transfer activities. The interdisciplinary team is made up of engineers, physicists, chemists, biologists, geologists, IT and communication experts, economists and marketing specialists. Bayern Innovativ's main objective is to support the initiation of innovations primarily in SMEs, including global players as key customers in

the supply chain. Since the start of the Bavarian cluster policy in 2006, Bayern Innovativ is managing the following 5 (of 19 clusters): Automotive, Logistics, Energy, New Materials and Medical Engineering.

North Rhine-Westphalia

Currently in the process of formation. The task of the new Cluster Secretariat will be to facilitate the exchange of information and experiences in cluster building, best practices and lessons learned and to support the management of each cluster in defining and implementing their programmes and in meeting their objectives.

Germany-wide

For example, in the case of biotechnology, many German Länder and local authorities founded regional/local agencies to promote the sector, in order to build up a bio-industry, to support technology transfer, to help finding investors, VC etc. (e.g. Munich, Berlin, Rhineland, Rhine-Neckar, Hamburg, Freiburg, Stuttgart etc.)

2.2. National cluster programmes

Cutting-edge cluster competition

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): BMBF
 - Budget: To be determined
 - Time horizon: Start 2007. It is supposed to run until 2016/17
- Actor:
 - Programme initiator: BMBF
 - Carried out by: Projektträger Jülich (PTJ)
 - The actor was not formed for this purpose.
 - The actor has other tasks apart from this programme.
 - Organisational set up at programme and project level: PTJ/To be determined
- Scope and target:
 - Geographic coverage: Germany
 - Policy focus
 - Clusters in a certain stage of the lifecycle targeted: Emerging, Mature
- Programme contents:
 - The programme will single out Germany's top cutting-edge clusters in prioritised fields for awards and funding in a competition. This assistance will enable these clusters to improve their profile, eliminate impediments to their strategic development and grow into internationally attractive centres. The BMBF expects this competition to have a mobilising effect comparable to that seen with the initiative for excellence to promote institutions of higher education (universities).
 - Activities: To be determined
 - Ambitions/goals: (see above)
 - Target group: Germanys cutting-edge clusters in prioritised fields (to be determined)
 - Particular focus on SMEs: No.
 - Level of R&D involvement: Collaborative R&D to support commercialisation

- The programme offers funding to the project.
- The programme does not have any cross country/interregional activity.
- Process:
 - Based on applications or appointments: Regions/Cluster apply and are selected through a competitive audition process (contest).
 - Top down or bottom-up approach in selection of clusters to support: The applications will be screened and selected by an independent jury , consisting of scientists, members of the business community and business organisations.
 - Main elements in applications if that is used: The cluster must possess a coordinated strategy and a clear concept
- Evaluation:
 - Results so far/conclusions from evaluations: No. The programme is in an early stage of development
- Planned future: To be determined

Programme name: BioRegio

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): BMBF
 - Budget: 75 million EUR (BMBF, for the period 1995-2005)
 - Time horizon: 1995-2005
- Actor:
 - Programme initiator: BMBF
 - Carried out by: BMBF/ Projektträger Jülich (PTJ)
 - The actor was not formed for this purpose.
 - The actor has other tasks apart from this programme.
 - Organisational set up at programme and project level: PTJ
- Scope and target:
 - Geographic coverage: Germany with a focus on Munich, Heidelberg, Rhineland, Jena
 - Policy focus (please see the table from the OECD report in the end of this document and relate your comments to this) see above
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining)
Embryonic, emerging
- Programme contents:
 - Integrated concepts for biotechnology research and transfer of the results in industrial activity
 - Activities: Biotechnology, life science
 - Ambitions/goals: Become number 1 in Europe in Biotechnology by number of enterprises.
 - Target group: Start up companies
 - Particular focus on SMEs: The main focus was on SMEs.
 - Level of R&D involvement: Application-oriented research
 - The programme offers funding to the project.
 - The programme does not have any cross country/interregional activity.
- Process:
 - Based on applications or appointments: Regions apply and are selected through a competitive audition process (contest).

- Top down or bottom-up approach in selection of clusters to support: The applications were screened and selected by an independent jury, consisting of scientists, members of the business community and business organisations.
- Main elements in applications if that is used: Strategic planning, engagement of other partners
- Evaluation:
 - Results so far/conclusions from evaluations: In 2006, the programme was evaluated by the Institut für Weltwirtschaft Kiel: All so-called bioregions consider the participation in the competition as the initial spark for the acceleration of the biotechnology development. As a result of the competitions like BioRegio and BioProfile, today, 26 bioregions exist in Germany with approximately 600 new start-ups, thereof more than 340 only in the biomedical sector. With that Germany is Europe-wide located at the lead. In addition to the public funds, in many bioregions the competitions were able to mobilise a high amount of a private venture capital to finance new technology-intensive Biotech enterprises. In some regions, like Heidelberg and Munich, this mobilisation effect was higher than one thousand per cent. In total 1 billion EUR additional regional and private money was mobilised. Due to the programmes' multilevel selection procedure as well as to the high organisational effort for the administration its application process takes more time compared to conventional programmes. This was criticised especially by those participants who planned to realize high-tech projects and were afraid of losing first-mover advantages.
- Planned future: BioRegio was succeeded and complemented by the programmes BioProfile and BioIndustrie 2021

Funding scheme: “Cooperation networks and cluster management” (part of the Joint Scheme for the improvement of regional economic structures [GA])

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): ministries, regional budgets, EU structural funds
 - Budget: 300.000 – 500.000 EUR per project; up to 15 million EUR (for the period 2005-2008)
 - Time horizon: 2005-2008 (pilot scheme)
- Actor:
 - Programme initiator: BMWi and Ministries of Economic Affairs of the Länder
 - Carried out by: Ministries of Economic Affairs of the Länder
 - The actor was not formed for this purpose.
 - The actor has other tasks apart from this programme.
 - Organisational set up at programme and project level:
- Scope and target:
 - Geographic coverage: development areas in Bavaria, Berlin, Brandenburg, Free Hanseatic City of Bremen, Hesse, Mecklenburg-Western Pomerania, Lower Saxony, North Rhine-Westphalia, Free State of Saxony, Saxony-Anhalt, Schleswig-Holstein, Free State of Thuringia
 - Policy focus (please see the table at p. 17 “policy trends” at the end of this document and relate your comments to this)
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining): Embryonic, emerging
- Programme contents
- Activities:

- Ambitions/goals: It is the objective to strengthen existing regional and sectoral potential and to enhance cooperation between businesses and commerce-related partners and institutions (e.g. Chambers of commerce and industry, business incubators)
- Target group: Clusters of all fields
- Particular focus on SMEs: SMEs are the main target group of the joint scheme.
- Level of R&D involvement: Application-oriented research
- The programme offers funding to the project.
- The programme does not have any cross country/interregional activity.
- Process:
 - Based on applications.
 - Bottom-up approach in selection of clusters to support.
 - Main elements in applications if that is used: Project description, aim and sustainability of the planned measures, cost contribution, level of cooperation, knowledge exchange and learning
- Evaluation:
 - Results so far/conclusions from evaluations: No, because the programme is in an early stage.
 - Planned future: To be determined

Programme name: Innovative Regional Growth Cores (part of the BMBF innovation initiative "Entrepreneurial Regions")

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): BMBF
 - Budget: Currently approx. 150 million EUR research subsidies for projects ending not later than 2010
 - Time horizon: Start date: 01 July 2001, Finalisation date: open, the development support for every region lasts for three years.
- Actor:
 - Programme initiator: BMBF
 - Carried out by: PTJ
 - The actor was not formed for this purpose.
 - The actor has other tasks apart from this programme.
 - Organisational set up at programme and project level:
- Scope and target:
 - Geographic coverage: New Länder (states at the territory of the former German Democratic Republic) and Berlin
 - Policy focus (please see the table from the OECD report in the end of this document and relate your comments to this)
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining)? Primarily embryonic
- Programme contents:
 - The programme is aimed towards regional co-operations based on platform technologies and important features which make them unique in their field of competence.
 - Activities: R&D subsidies (main focus: applied research and prototype development)
 - Ambitions/goals: Knowledge-driven sustainable economic development (economic growth, improved competitiveness, increase in employment rates etc.) in the cluster regions, (long-term ambition: creation of "Silicon Valleys")

- Target group: Alliances between SMEs and research organisations based on a self-developed strategy
- Particular focus on SMEs: In particular because there are only a few large companies in the New Länder.
- Level of R&D involvement: Application-oriented research
- What does the programme offer the projects: (i.e. financial support, training): Financial support
- The programme have any cross-country/interregional activity: No.
- Process:
 - Based on applications applications, which are evaluated by an expert jury in a three-step application process and an assessment centre: Step 1: draft of 10 pages, step 2: interview at BMBF, step 3: strategy paper (40 pages).
 - Bottom-up approach in selection of clusters to support.
 - Main elements in applications if that is used: The alliance partners must focus on regional core competences with growth potential. They must orient their strategy to the market, implement it consistently and submit detailed business plans. The implementation of the business strategy must be oriented to mid- and long-term market potentials. In addition to strengthening the individual companies, the development support should permanently expand the partners' joint core competency.
- Evaluation:
 - Results so far/conclusions from evaluations: The Malik Management Centre St. Gallen has evaluated the experiences and progress of the growth cores, which have received support. One result of the study is that those initiatives that linked their technology base with specific clients' needs from the very start performed best. The study also finds some evidence that the initiatives supported by the programme over the past years have significantly raised their regions' skills profiles.
- Planned future: To be determined

Kompetenznetze Deutschland (Networks of Competence in Germany)

- Financing:
 - Source of program financing: BMWi
 - Budget: 1 million EUR p.a., which includes all costs for the office team, PR and different services like website hosting and travel expenses to visit the networks. Each of the 132 networks of competence in Germany is funded outside the initiative. Usually the networks have a mix of funds for their organisation (coordination office), consisting of membership fees, public support, sponsors and gains from services.
- Time horizon: The initiative started in 1998 and is ongoing. New networks of competence are admitted twice a year after passing an admission process.
- admitted twice a year after passing an admission process.
 - Actor:
 - Programme initiator: BMBF
 - Carried out by: Office of the initiative (Geschäftsstelle Kompetenznetze Deutschland, GS) FAST GmbH
 - The actor was formed for this purpose: Furthermore, each of the networks of competence must have established a formal organisation of their network, which includes a coordination office. The offices of each network of competence are responsible for the daily organisational work, the definition of the rules and the strategical development for each network respectively. Often the of-

office is supported by an advisory group and empowered by the management board of the network.

Other tasks apart from this programme: FAST is a service provider and hence is managing other projects besides the initiative of networks of competence. Most offices of the various networks of competences, however, are exclusively responsible for the network.

- Organisational set up at programme and project level: The GS is active on a meta level and does not manage nor initiate any innovative cooperation projects. The GS is active to establish co-operations with similar initiatives worldwide to ease the internationalisation of interested networks of competence. The offices of the various networks of competence, however, usually do initiate the formation of working groups. The working groups are responsible for monitoring specific technology developments and they formulate new ideas for cooperation projects. Usually the coordinators of the networks are very sensitive to the needs of their members and facilitate the formation of new projects.
- Scope and target:
 - Geographic coverage: Germany
 - Policy focus (please see the table from the OECD report in the end of this document and relate your comments to this)

Emerging, mature. All clusters need to proof their existence for at least 24 months. They need to be formally organised and they need to have an idea or a plan to finance themselves in the future.

- Programme contents:
 - Select, award and market the most innovative networks within Germany. Networks are organised and consist of members from science and economy with the goal to create innovative products on a continuous basis.
 - Activities: No priorities.
 - Ambitions/goals: Select the most innovative networks in Germany. Promote Germany as the most innovative country in Europe.
 - Target group: Investors in Germany and other clusters. All clusters, existing or potential networks profit from the experience of the best.
 - Particular focus on SMEs: No.
 - Level of R&D involvement: Application-oriented research
 - The programme offers the project:
 - Marketing support for networks and their results (innovation highlights) by common publications, participation in fairs and representation of all networks in international events
 - a common platform for information exchange between networks and on thematic topics,
 - personal consultancy of each network during the bi-annual evaluation process.
 - The initiative organises a yearly meeting of all networks plus regional meetings of networks to trigger interdisciplinary exchange of ideas and to enable all networks to help each other in areas of management and financing.
- Process:
 - Based on applications.
 - It is a bottom-up approach, as we look at existing clusters and admit them if they qualify. It is top down in the sense that a common internet platform is provided.

- Main elements in applications if that is used: The criteria for admission are (1) focused in a technology field, (2) rooted within a region, (2) existing co-operations between companies and universities (3) for at least 24 months, (4) aimed at creating innovations, (5) formally organised, (6) active in training and education, (7) having a high innovation potential
- Evaluation:
 - Results so far/conclusions from evaluations: Number of innovations, Number of new partners in the region, increased importance and international recognition of the cluster
- Planned future: Establishment of a self-evaluation process every 2 years, as a means for strategical development.

2.3. Regional cluster programme

Cluster Competition Baden-Württemberg (working title)

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): EU structural funds, regional and private budgets
 - Budget: up to 10 million EUR (for the period 2007-2013)
 - Time horizon: 2007-2013
- Actor:
 - Programme initiator: Ministry of Economic Affairs Baden-Württemberg
 - Carried out by: Ministry of Economic Affairs Baden-Württemberg
 - The actor was not formed for this purpose.
 - The actor has other tasks apart from this programme.
 - Organisational set up at programme and project level: To be determined
- Scope and target:
 - Geographic coverage: Baden-Württemberg
 - Policy focus (please see the table at p. 17 “policy trends” at the end of this document and relate your comments to this)
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining): To be determined, (probably emerging, mature)
- Programme contents:
 - It is the aim of the planned cluster programme to identify and foster Baden-Württemberg’s clusters with a promising future.
 - Activities: Create a cluster map, Establish a cluster dialogue, Start a workshop series for Baden-Württemberg’s clusters, best practice
 - Ambitions/goals: Activate the clusters with the best potential for the future
 - Target group: Clusters of all fields, commerce-related partners and institutions
 - Particular focus on SMEs: To be determined
 - Level of R&D involvement: To be determined
 - The programme offers funding to the project.
 - Cross-country/interregional activity: Not as a focus. But existing clusters with interregional or across-country activities are not excluded.
- Process:

- Based on applications.
- Top down or bottom-up approach in selection of clusters to support?: To be determined, probably bottom-up, the applications will be screened and selected by a jury, consisting of the Ministry of Economic Affairs Baden-Württemberg and probably scientists, members of the business community as well as business organisations
- Main elements in applications if that is used: To be determined, (probably high level of innovation)
- Evaluation:
 - Results so far/conclusions from evaluations: The programme is in an early stage of development. Evaluation planned after programme implementation.

Planned future: To be determined

Allianz Bayern Innovativ: Bavaria's Cluster Campaign

- Financing:
 - Source of programme financing (ministries, EU structural funds, regional budgets, etc): regional budgets (financed by privatization revenue)
 - Budget: 50 million EUR (2006-2011)
 - Time horizon: 2006-2011
- Actor:
 - Programme initiator (who started it?): Bavarian State Government
 - Carried out by which actor?: Bavarian Ministry of Economic Affairs, Infrastructure, Transport and Technology and the Cluster Management Agencies (called Cluster Platforms)
 - Was the actor formed for this purpose, and if so, when?: Some of them in 2006
 - Does the actor have other tasks apart from this programme?: Some of them do.
 - Organisational set up at programme and project level: The main tasks of the cooperation platforms are to establish and maintain a contact network of companies, research establishments, associations, investors, support institutions, consultants and other players in the cluster in question. In order to ensure that the cooperation platforms can function successfully, the cluster spokesmen and the cluster management specifically build structures for contact and communication between industry and science as the motors driving the cluster process and encourage innovative projects. The respective cluster management is the contact partner throughout Bavaria for the existing cluster networks. It assists with the organization of events, promotes the creation of thematic profiles and development of potential and highlights new fields of application and projects, the implementation of which is then left to the discretion and responsibility of the cluster companies.
- Scope and target:
 - Geographic coverage: Bavaria
 - Policy focus
 - Are clusters in a certain stage of the lifecycle targeted (embryonic, emerging, mature, declining): Mature
- Programme contents:
 - The cluster campaign is a new feature of the modernization strategy designed to enhance Bavaria's role as a top location for business and science, which systematically build on the Bavarian High-Tech Initiative. Its aim is to build state-wide networks interlinking business and scientific potential in 19 defined industry and competence clusters and thus to activate innovation and productivity potential in these clusters. A second

pillar of the „Allianz Bayern Innovativ“ aims at boosting cross-sectoral regional networks.

- Activities – what are the prioritised areas?: The 19 identified clusters already provide a substantial degree of competence in terms of:
 - universal value-creation chains
 - an environment consisting of major user sectors
 - efficiency and application-orientation in research
 - availability of highly qualified staffThe activities of the Bavarian cluster initiative take up these capabilities and promote the formation of networks among participating companies as well as between companies and research establishments: as a basis for developing new products and production processes as well as for positioning companies in growth markets.
- Ambitions/goals: Bringing together companies, research establishments and universities, to permit intensive cooperation and hence release innovative potential.
- Target group: Clusters

2.4 Successful cluster programmes

The majority of the interviewed experts mentioned BioRegio and InnoRegio as successful cluster programmes. Despite its relatively small size BioRegio (see above) had an important symbolic and practical impact on the German biotech innovation system. Even independent observers say that the programme has – more than any other federal initiative – produced rapid, positive results and stimulated the formation of new enterprises, also giving a significant boost to Germany's lagging venture capital industry. This is also reflected by the fact that Germany is today the EU member-state with the highest number of biotech enterprises.

Concerning the InnoRegio competition, a survey conducted by the DIW Berlin research institute among members of those initiatives that were selected for funding in the final stage of the competition substantiated a considerable mobilizing effect concerning the self-organization of innovative networks. Moreover, another DIW survey among the rejected applicants of the InnoRegio competition showed that for each initiative funded in the InnoRegio programme there were at least three rejected initiatives that were realized in spite of their rejection in the InnoRegio programme. In view of this "mobilization surplus" observers argue that the overall mobilization of innovative potential resulting from InnoRegio has considerably exceeded the amount of activity directly funded by the programme. Today, InnoRegio is part of the BMBF innovation initiative "Entrepreneurial Regions".

3. Cluster policies

Above the level of agencies and programmes is the policy level. On the policy level, plans and strategies are developed in the form of policy documents, directives and legislation, rather than concrete programmes and organisations.

There may be one overarching policy for clusters, a "cluster policy", outlining specifically how cluster development should be pursued. In addition, clusters may form a framework in a long range of policy fields. Primarily, this is often the case in three key areas: innovation and technology policies, regional economic development policy, and entrepreneurship/SME policy. However, it can also occur in many other policy areas.

3.1 Overarching cluster policy

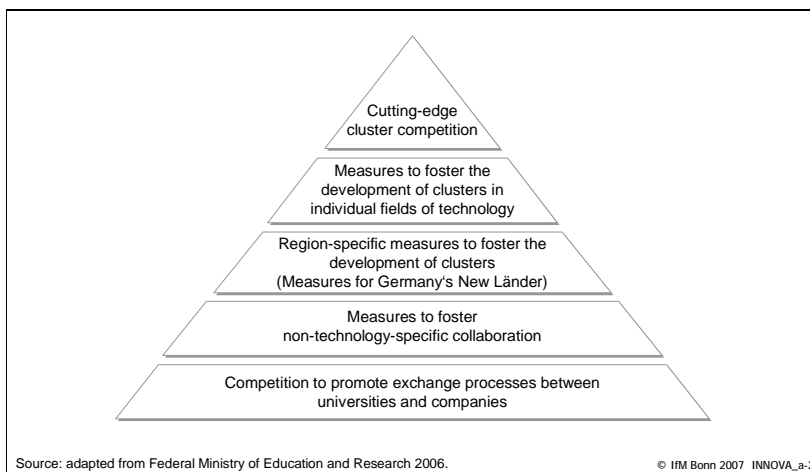
During the last years, cluster policy has become of high importance in Germany both at the national and regional level. In 1995, the BMBF launched a new funding concept, the BioRegio competition. Its main purpose was to encourage local biotech communities to interact more closely and to promote commercial applications. The competition acted as a catalyst on commercial biotech throughout Germany. National and local networks have been generated that have facilitated the exchange of knowledge and led to a striking increase in new start-ups. Since then, the federal government has implemented a number of other technology-specific or region-specific cluster schemes, like BioProfile and BioIndustrie 2021 or the initiative Entrepreneurial Regions including the programme Innovative Regional Growth Cores.

The coalition agreement of the current government signed on 18 November 2005 assumes that “project funding knits together science and business and has proved to be an effective transmission belt between research and practical applications. It encourages the establishment of networks and clusters which provide a mutual stimulus for first-rate scientists and innovative companies.” Concerning cluster policy, the coalition partners therefore declare: “We want an efficient scientific and research system that is internationally competitive. To ensure this, university and non-university research will be better networked and the transfer of technology managed through a modern policy of cluster development.”

In 2006, the federal government has started to develop for the first time ever a comprehensive High-Tech Strategy involving all its ministries. The federal government’s cluster strategy is part of this approach. The range of the cluster strategy extends from measures with a widespread impact to modular, region-specific or technology-specific approaches all the way to fostering and funding high-powered, highly productive leading-edge clusters. This can be considered as a new stage in the federal government’s cluster policy (see below).

At the level of the Länder, programmes fostering network structures between science and industry have been implemented since the 1980s. That means, that the Länder – in particular Baden-Württemberg, Bavaria and North Rhine-Westphalia – performed ancestors of cluster policies long before the federal government started its first cluster programmes in the mid-1990s. But only in the last two or three years the Länder started to use the term “cluster policy”. It is the aim of the new approach to pool the resources of the often unstructured existing activities arisen from grassroot efforts to foster cooperation between science and industry and to set up a comprehensive and coherent cluster strategy.

Summary of the main points of the reports:



The German federal government's cluster strategy encompasses the following activities:

- **Competition to promote exchange processes between universities and companies:** In co-operation with the Donors' Association for the Promotion of Sciences and Humanities in Germany, the BMBF is conducting a competition titled Exchange processes between universities and companies. The aim of this competition is to identify particularly successful exchange processes between science and industry, present them to the public and foster the progressive development of the concept behind such relationships. The contest is designed to mobilise broad segments of science and industry. For the period 2007-2009, the programme has a budget of, in total, 1.25 million EUR.
- **Measures to foster non-technology-specific collaboration:** The Collaborative Industrial Research programme under the BMWi funds sector-based projects conducted by members of the German Federation of Industrial Research Associations "Otto von Guernicke". Funding for cross-industry projects, which is provided through the ZUTECH (Future Technologies for SMEs) programme will be increased. In addition, cluster projects that cover the entire innovation process – starting with basic research and extending to the translation of research findings into new products – are also to receive assistance. The basic research part of such projects will be financed by, for example, the German Research Foundation, while the application-oriented research part will be financed through the Collaborative Industrial Research programme, and product development activities through the private sector.
- **Region-specific measures to foster the development of clusters:** With its Innovation Initiative for the New Länder, the BMBF already has a set of instruments in place for developing efficient, high-powered locations for innovation in Germany's New Länder on a strategy-driven basis. The Innovation Initiative will be progressively developed on an on-going basis in order to take the special aspects of the innovation processes in the New Länder into account and to tap the region's potential to an even greater degree. The BMVBS – which is responsible for the development of Germany's New Länder – will conduct the innovative Industry Meets Research competition, which will have a similar focus and be geared to the New Länder.
- **Measures to foster the development of clusters in individual fields of technology:** The federal government intends to develop new instruments for fostering and funding the development of clusters in cutting-edge fields of technology such as white biotechnology and regenerative medicine. With their help, the government wants to improve the commercialisation of innovation and research findings.

Cutting-edge cluster competition: The BMBF will single out Germany's top cutting-edge clusters in prioritised fields for awards and funding in a competition. This assistance will enable these clusters to improve their profile, eliminate impediments to their strategic development and grow into internationally attractive centres. The federal government expects this competition to have a mobilising effect comparable to that seen with the initiative for excellence in higher education. The cluster policy of the federal government focuses on three targets:

- Upgrading of regional high-tech clusters,
- stimulation of interregional competition for technology and
- better functioning of regional innovation systems.

Through the increased interlinking of application-based research and innovative development in relation to new products and processes, supported by adequate venture capital, the federal government aims to ensure that Germany's scientific potential is used to create new businesses, new products and new, well-paid jobs. Building clusters to take advantage of geographical proximity is seen by the government as an opportunity to optimise technology transfer between science and industry. To support particularly high-profile clusters the federal government allocates promotional funding on the basis of competitive invitations to tender.

Concerning the development of the New Länder the federal government directs to funding policy consistently towards clusters, which can make use of regional strengths to generate sustainable economic growth in the respective regions. The government assumes that such growth centres have also an effect outside their own regions and contribute to a positive economic development in all parts of the New Länder.

The cluster policies of the state governments aim to mobilise the inherent strengths of companies through the formation of tightly woven regional cooperation networks in the form of clusters. In general, the regional cluster policy can be seen as a continuation of former approaches such as e.g. the Bavarian High Tech Initiative and the Initiative Bavaria's Future programmes. The cluster policies are a new feature of the modernization strategies of the state governments designed to enhance the role of the respective region as a top location for business and science. Their aim is to promote the formation of networks among participating companies as well as between companies and research establishments: as a basis for developing new products and production processes as well as for positioning companies in growth markets.

In 1995, the BMBF launched a new funding concept, the BioRegio competition, which most observers consider as starting point of the cluster policy at the federal level. The most significant innovation of the new approach was the explicit recognition of (regional) clustering aspects in federal support programmes. But only in the course of its High-Tech Strategy, the federal government has started to develop for the first time ever a comprehensive cluster strategy for all its ministries in 2006. Due to this fact, some observers argue that at this stage there is no cluster policy at the federal level, because the efforts to formulate a comprehensive and coherent approach are still at an initial stage.

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ter policy in Germany with a particular individual, a political party or a research institution. Others mentioned at least a certain importance of some politicians like the former minister for education, science, research and technology Jürgen Rüttgers or the prime ministers Lothar Späth (Baden-Württemberg), Edmund Stoiber (Bavaria) and Wolfgang Clement (North Rhine-Westphalia).

3.2 Clusters as framework in three key policy areas.

It is the objective of the federal government's innovation and technology policy to bring about sustainable improvement in the conditions for innovation and technological progress, and in this way to promote the innovative capabilities of SMEs in particular. The key points for this are outlined in the High-Tech Strategy of the federal government and the BMWi's concept description for a forward-looking innovation and technology policy. Main elements are:

- The support measures focussing on: "innovation", "research cooperation" and "technological consulting" help to improve the financial basis of innovative SMEs.
- The technical and scientific Federal Institutions: the National Metrology Institute (PTB), the Federal Institute for Materials Research and Testing (BAM), the Federal Institute for Occupational Safety and Health (BAuA), and the Federal Institute for Geosciences and Natural Resources (BGR) provide, among other things, unified measurements, safe technical testing procedures and labour protection regulations.
- Against the background of global economic and technological change, the innovation policy of the federal government is becoming increasingly international in its orientation. The federal government works in close collaboration with its partners in the European Commission, the other EU Member States and with some other countries. As globalisation continues, the promotion measures are increasingly oriented towards the demands of an internationally active economy.

The government is striving to ensure that research institutes are more open to industry's interests. At the same time, industry must be more willing to pick up the findings generated by scientific research:

- **Implement the joint initiative for research and innovation:** Through the joint initiative, the federal government together with the governments of the Länder is giving the Helmholtz Association of National Research Centres, the Max Planck Society, the Fraunhofer Society, the Leibniz Association and the German Research Foundation financial planning stability and is increasing financial grants by at least three percent a year through the year 2010. In return, these bodies have committed themselves to increasing the quality, efficiency and capability of their R&D work and to linking their activities with one another. Most importantly, they are to collaborate with companies more intensively than in the past. For this reason, they have chosen collaboration with industry as their priority theme for the year 2007.
- **Introduce research grants for research contracts awarded by SMEs:** The BMBF plans to introduce a special research grant for research contracts that SMEs conclude with universities or non-university research facilities. These grants are intended to motivate scientific institutes to engage more in industry-relevant subjects and research contracts. They are to be paid out to universities and research institutes.
- **Close the gap between research and commercialisation:** Scientific research findings are often not mature enough to allow their commercial exploitation. To close the gap between research and exploitation, commercially promising applications must be examined to determine their technical feasibility (proof of technology). For this reason, the federal government plans to develop a module for the validation of results, which will initially be used in suitable specialised programmes conducted by the BMBF.

Develop and use public-private partnership models on a targeted basis: Public-private partnership.

It is the aim of the German regional economic development policy to strengthen economic, social and territorial cohesion by reducing disparities in the level of development between the Länder and regions. The main instrument for the improvement of regional economic structures is the so-called joint scheme for the improvement of regional economic structures (Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur" [GA]). The GA's planning committee, consisting of the Federal Minister of Finance and the respective specialized ministers of the federal and state level, decides on the individual projects. In 2005, the Government took the decision to widen the instruments promoting the economic development by supporting clusters. The new funding scheme is titled "cooperation networks and cluster management" and its objective is to strengthen existing regional and sectoral potential and to enhance cooperation between businesses and commerce-related partners and institutions. This involves organizing the funding instruments in a more targeted manner and enhancing their effectiveness in boosting growth and employment. The federal government wants to ensure that the initiative to promote clusters is market-driven, with the interests of businesses and the priorities of the Länder playing a crucial role. In this way, the growth cores are firmly rooted in the regions, and the responsibilities of the Länder for regional economic policymaking are not affected. Following the principle of "strengthening strengths and raising profiles", this requires the pooling of resources. Thus, it also involves abandoning to a certain extent the principle of indiscriminate funding. The promotion of clusters to enhance existing economic strengths – either in a specific region or to strengthen specific industrial value added chains – includes all measures designed to make regions more attractive places to do business. It involves an integrated use of different policies (promotion of economic development, education policy, research policy, labour market policy, etc.) The GA provides support to this process, e.g. by promoting business networks and the development of growth cores and specific industrial concentrations.

In the future, the instruments promoting the economic development of the New Länder should also be deployed in an even more targeted manner in order to promote the industrial and innovative concentrations and clusters that have been created in recent years. These clusters and concentrations provide businesses with a favourable environment for sustainable growth. The State of Brandenburg is playing a pioneering role in realigning its policy to promote economic development. By defining 16 clusters of sectoral excellence and by dividing funding into basic funding, which is not sector-related or location-related, and funding to promote the potential inherent in specific sectors and at specific sites, the state government has moved away from indiscriminate funding towards funding that is targeted and forward-looking, without neglecting the rural areas. It is the aim of the SME policy of the federal government to convert the high innovation potential of SMEs into innovation activities by strengthening their investment capability.

The SME sector provides approx. 70 % of all jobs and 80 % of all training positions in Germany. Therefore, it is particularly important to revive investment activities in this sector. The federal government is to support the growth potential of SMEs by means of a target-oriented SME policy, accompanied by fiscal measures.

Currently, SMEs have to spend approx. 4-6 % of their turnover on administration costs caused by the State. Therefore, less bureaucracy creates new opportunities for creative enterprises with innovative ideas. For this reason, the federal government has launched an SME relief law, aimed at reducing administrative burdens. Furthermore, the federal government introduces the standard cost model used in the Netherlands, with corresponding adjustments, and established a Standards Monitoring Council, an independent body of experts to examine whether certain proposed laws and the resulting administrative costs are necessary.

In addition to introducing limits on bureaucracy and decreasing red tape, the SME policy aims at reducing obstacles to credit financing for SMEs in order to create internationally attractive conditions for venture capital investment. In this respect, the federal government takes action by means of an SME initiative.

SMEs in particular will benefit from the improved tax deductibility of labour costs for maintenance and modernisation measures in private households. This applies in particular to the increase of the turn-over limit for the actual payment of turnover taxes (VAT) in the Länder of former West Germany, from 125,000 EUR to 250,000 EUR, and the extension of this regulation to cover the New Länder (500,000 EUR) by 2009.

The German federal government, the KfW banking group and the industrial enterprises BASF, Deutsche Telekom and Siemens have joined together under the "Partners for Innovation" initiative and started the High-Tech Gründerfonds with 262 million EUR. The High-Tech Gründerfonds invests venture capital in young, high-opportunity technological companies implementing promising research results in an entrepreneurial manner. Over the next five years, the fund wants not only to provide technologically oriented start-ups with the start-up capital they so urgently need; it also wants to ensure the necessary coaching and support for their management.

The interviewed experts came to the conclusion that clusters do not play a significant role as a framework in the German entrepreneurship and SME policy. The interviewed experts came to the conclusion that – except in the context of the initiative “Kompetenznetze Deutschland” (see above) – clusters do not play a significant role as a framework in the German business network policy.

In the course of its High-Tech Strategy the federal government wants to link the cluster strategy with its FDI attraction policy. To meet this objective, first contacts have been established with the Invest in Germany GmbH. Funded by the BMWi, Invest in Germany is the official investment promotion agency and the primary contact for foreign investors in Germany. The task of the agency is the promotion of Germany’s advantages as an excellent business location, the provision of sector-specific information and market analysis as well as the creation of connections to Germany’s business networks.

At the level of the Länder the connection between cluster policy and FDI attraction policy are tighter. The Länder use their existing clusters to promote the respective regions and actively identify business opportunities for international investors.

The interviewed experts came to the conclusion that clusters do not play a significant role as a framework in the German export promotion policy. Only at the level of the Länder there are attempts to use the existing clusters as a framework in the regional export promotion policy, e.g. in the case of North Rhine-Westphalia.

In the tradition of the economic policy of Germany, the state does not use sectoral industry policy to direct resources to targeted industries identified as crucial for the future competitiveness of the country. Thus, the interviewed experts came to the conclusion that clusters do not play a significant role as a framework in the German sectoral industry policy. Opponents of the cluster policy complain that the cluster concept enables politicians to cultivate a new type of sectoral industry policy. The interviewed experts came to the conclusion that clusters do not play a significant role as a framework in the German science and education policy. Only the BMBF programme Learning Regions (2000-2006) can be seen as a first attempt to use the cluster concept in this policy area. It promoted the building

of regional networks of education institutions in order to introduce innovative measures for training and education.

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4.0 Cluster or competitiveness councils

In some countries, councils have been set up to promote a dialogue about clusters and competitiveness. Often, these councils have representatives from the government sector as well as from the academic world and the business community. In 2006, the Federal Government established the "Council for Innovation and Growth" which acts as a high-level advisory board to the Federal Chancellor. But, cluster policy does not play an important role in the agenda of the council so far.

The BMBF established the "Forschungsunion Wirtschaft - Wissenschaft" (Industry Science Research Alliance) to supervise the implementation of the High-Tech Strategy (see above). Experts from both science and industry represent the individual measures and cutting-edge fields in the Research Alliance.

The State of Baden-Württemberg has established an "Innovations- und Technologiebeirat der Landesregierung Baden-Württemberg" (Advisory Board on Innovation and Technology Issues)

5.0 Other policy issues

Sometimes it is useful to know about any other issues that have an impact on clusters in a country. Such issues could be, for example, any macro economic policies that may be relevant for clusters (tax regimes, etc), or if any general evaluation has been made about the country's competitiveness and barriers to competitiveness.

The interviewed experts agreed that a lot of other policy issues are relevant for the development of clusters, for instance:

- fiscal policy
- IPR policy
- labour market policy
- science, education and training policy
- competition policy

Due to the fact that cluster policy is a recent issue in Germany that is becoming only increasingly relevant, the orientation of the cluster concept has not yet shifted.

The interviewed experts identified the following major obstacles to the process of building cluster policy:

- Interdepartmental coordination at the federal level
BMW, BMBF and BMVBS have to work closely together to ensure that their respective measures are fully coordinated. That is not always the case.
- Coordination between the federal and regional level
Some experts argue that there exists in fact no significant coordination between the federal level and the Länder in the field of cluster policy, such that double spending and waste of resources appear very likely.

In Germany, the cluster policy is a matter of considerable debate:

One central question in the policy/academic debate is, whether and by which means and under which circumstances federal or regional governments can create internationally competitive clusters within their territories.

Apart from more general concerns about a cluster-based policy some observers argue that an approach that is "strengthening the strong" is quite problematic because it increases regional disparities. Supporters of a cluster-based policy counter by saying that such a policy is more promising than subsidizing the weakest regions. Especially, if the strategy of "strengthening the strong" is successful, it is likely that this will also benefit peripheral and technologically backward regions. Taking into account the different concerns mentioned in the discussion, some observers argue that the cluster policy has to be as open as possible, that means, the regions participating in a competition for government funding should form spontaneously and no regions should be excluded from this competition. Furthermore and most important, policy measures must conform to market processes and cluster promotion should be understood as an experimental and highly complex matter, requiring a high degree of openness, creativity and willingness to learn on the part of all parties involved.

Some observers argue that at least in federal systems, like in the case of Germany, that are characterized by strong players at the sub-national level the utilization of the cluster dimension and the decen-

tralization of innovation policy can be seen as a promising instrument of improving national innovative performance and competitiveness.

Statistisches Landesamt Baden-Württemberg: Trends und Fakten. Perspektiven der Globalisierung für Baden-Württemberg – Chancen einer Wissenswirtschaft; Stuttgart 2006

PM & Partner: Wachstumsstarke Cluster in Baden-Württemberg; 2003

Prognos: Zukunftsatlas

Prognos: Kompetenzstandort Baden-Württemberg – Die Wachstums- und Leitbranchen Baden-Württembergs im internationalen Vergleich, im Auftrag der L-Bank, Staatsbank für Baden-Württemberg; 2005

Prognos: Baden-Württemberg – Erfolg durch Wettbewerbsfähigkeit; 2004

The Boston Consulting Group: Innovationsstandort Deutschland – quo vadis? Wie gut wir sind, wo unsere Chancen liegen und wie wir die Zukunft meistern können; München 2006.

6. Policy trends

Policy trends			
Policy Stream	Old Approach	New Approach	Cluster Programme Focus
Regional policy	Redistribution from leading to lagging regions	Building competitive regions by bringing local actors and assets together	Target or often include lagging regions Focus on smaller firms as opposed to larger firms, if not explicitly than <i>de facto</i> Broad approach to sector and innovation targets Emphasis on engagement of actors
Science and technology policy	Financing of individual, single sector projects in basic research	Financing of collaborative research involving networks with industry and links with commercialisation	Usually high technology focus Both take advantage of and reinforce the spatial impacts of R&D investment Promote collaborative R&D instruments to support commercialisation Include both large and small firms; can emphasise support for spin-off start ups
Industrial and enterprise policy	Subsidies to firms; national champions	Supporting common needs of firm groups and technology absorption (especially SMEs)	Programmes often adopt one of the following approaches: Target the "drivers" of national growth Support industries undergoing transition and thus shedding jobs Help small firms overcome obstacles to technology absorption and growth Create competitive advantages to attract inward investment and brand for exports

Source: OECD review of national cluster policies: why are they popular, again?, June 2006