

Country Report for Innovation Programmes

(that have been specified in the questionnaires)

1. Country:
Germany

2. Description of the national innovation system (short overview)

On federal level, the main actors in innovation policy among the federal ministries are the Federal Ministry of Education and Research (BMBF) and the Federal Ministry of Economics and Technology (BMWt). Each ministry has a specific innovation policy approach. The BMBF is responsible for the development of strategies in research policy and for financing research activities. So the BMBF's main activities in innovation policy refer to financing public R&D infrastructure, running technology programmes (direct R&D promotion through thematic programmes) and fostering innovation in Eastern Germany. The focuses of the BMWt are industry, technology and competition policy. In this way, the innovation policy of the BMWt are R&D support programmes for small and medium-sized enterprises (SMEs) as well as R&D programmes in energy, aviation and multimedia. In addition to grants, other instruments are loans and venture capital; especially with regard to SMEs and start-ups. Several other federal ministries are also engaged in innovation policy to some extent. Numerous implementation agencies, e. g. the Ministry of Transport, are responsible for generic and thematic programmes.

A general principle of the federal innovation system is to channel both public and private research, as well as development activities to defined fields of technology (the so called leverage). So direct grants for research and development projects in the framework of technology programmes are the main instruments of German innovation policy.

The federal states (the so called Bundesländer) that are also very active in funding innovation have the full legal competence to design their innovation policy independently. On the level of the federal states, the main actors are the ministries of economy, research and development, focusing on funding SMEs within innovation programmes. Some federal states have their own technology programme. Furthermore, the federal states are supporting technology centres as well as graduates by employing them in innovation projects of SMEs.

In addition, some regions are being supported by federal innovation programmes, e. g. to strengthen regional innovation networks (BioRegio, BioProfile, InnoRegio).

Universities, technical colleges, and research institutes, like Fraunhofer Institutes, Max-Planck-Institutes, Helmholtz Research Centres, Leibnitz-Institutes, as well as research and development agencies, represent the public research sector of Germany. Nevertheless, enterprises are the most important players with regard to innovation activities. About 70% of total expenditures on R&D in Germany are being spent by enterprises (source: BMBF 2005). The state-owned KfW banking group plays an important role in the field of financing enterprises by public programmes.

SMEs in Germany are presently funded by co-operation programmes (Pro Inno II, InnoNet, industrielle Gemeinschaftsforschung), regional programmes at new federal states, technology specific programmes, programmes for founders and high-growth companies (High-Tech-Gründerfonds, ERP-Innovationsprogramm der KfW), and other regional programmes of federal states. SMEs have to invest extraordinary expenses in the application for EU-funding. These expenses result from bureaucracy based on the complex requirements for the participation in transnational co-operation projects.

The close interaction between the public research sector and the enterprises can be considered to be an advantage of the German innovation system. These co-operations cover common research and development, technology and knowledge transfer, as well as consulting and training.

The German state plays an important role in funding industrial research and development in Germany. Its funds amount to about 4% of the total expenditures on R&D of the economy. Big enterprises gain about 80% of the public expenditures on R&D. On the other hand, 55% of the total expenditures on R&D in Germany are being carried out by big enterprises (source: Bericht zur technologischen Leistungsfähigkeit Deutschlands 2006).

The High-Tech Strategy, issued in 2006 by the German government, concentrates on how Germany can make the best use of the means at its disposal. The 6 billion Euro programme focuses on where Germany can employ additional funds so that they exert the greatest leverage on growth and employment. With its 6 billion Euro programme, the federal government is providing an important contribution to achieving the three percent objective agreed upon by the European Heads of States and governments in Lisbon in 2000. R&D expenditures are to rise to 3% of GDP in the European Union by 2010. At present, this percentage amounts to 1,9. Industry is to contribute two thirds of these funds, while the state - the federal government and the federal states – are to contribute the remaining one third (source: BMBF).

By the High-Tech Strategy, the federal government is identifying objectives for 17 prospective fields, which are considered as elementary for employment and wealth. There is a definite roadmap of initiatives for each field presenting research funding and the intelligent placing of framework in conjunction. Within the 17 fields the High-tech Strategy is focusing on areas of particular national interests and commercial/scientific potentials.

Apart from the funding of special technology areas by the Federal Ministry of Economics, funding activities amenable to technology will be allocated for innovative medium-sized businesses and for new high tech founders. For these activities, the budgets will rise disproportionately high, in fact by more than 10 per cent p.a. from 450 million EUR to 670 million EUR in 2009. A further focal point is the creation of an innovative framework, i.e. the improvement of the conditions for venture capital and utilization of standards in order to realize the distribution of German high tech products on global markets (source: BMWi).

The development of complex innovations on the basis of known technology tracks can be considered to be the core competence of the German innovation system. Positive examples are electrical and mechanical engineering, automotive, aerospace and chemicals. On the other hand, in terms of new technology challenges concerning information and communication technologies, as well as biotechnology, German enterprises lie behind the main competitors in the world.

3. Names of innovation programmes that have been specified in the questionnaires (national programmes, regional programmes)

National programmes:

- Microsystems Technologies
- InnoNet
- Concentrating Solar Power

Abbreviation:

MSTG
InnoNet
CSP

Regional programmes:

- Research and Development in SMEs of Brandenburg
- Innovation Assistant for SMEs in Brandenburg
- Microsystems Technologies in Bavaria
- R&D Project Support for Individual Companies in Saxony
- Joint Research Projects of Companies and Research Institutes in Saxony
- Future Fund Berlin

RDB
IAB
MSTBa
RDS
CRS
FFB

4. Comparative description of national and regional innovation programmes incl. pointing out similarities and specifics according to the topics

Main Objectives and rationale of the programme

In half of the programmes we analysed in Germany, “innovation” is explicitly stated to be an objective of the programme in terms of innovative products, processes and services. To reach this objective, there is a strong focus on the support of industrial innovation, on the increase of competitiveness of companies and industries, and on the support of SMEs.

Objectives	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Support of industrial innovation	X	X	X	X		X	X	X	X
Development of knowledge-based industries									X
Improvement of scientific knowledge			X						X
Increase of competitiveness of companies/industries	X	X	X	X	X	X	X	X	X
Exploitation of scientific knowledge		X							X
Address of social/environmental challenges									
Increase of internationalisation									
Development of industry/science relations					X				X
Support of SMEs	X	X		X	X		X	X	X

(The respondents should tick the 3 main objectives.)

The rationale for the innovation programmes according to the programme focus varies as follows:

- CSP: Application-oriented research and development of concentrating solar power technologies
- RDB: Improvement of SMEs' competitiveness by supporting the establishment of internal R&D capacities
- IAB: Support of small companies by improving the transfer of knowledge in person from science to practice
- MSTBa: Strengthening of the competitiveness of the Bavarian economy in the sector of Microsystems technologies as well as creating new jobs
- RDS: Utilisation and support of the research and development resources of the SMEs
- CRS: SMEs have too little resources for research and development

Technological focus

The technological focus of most innovation programmes is related to NMP, to ICT, as well as to new manufacturing and industrial technologies. The technological focus of the programme FFB refers to ICT, biotech, medical technology, traffic systems and optical technology. Two programmes (InnoNet, IAB) do not have any technological focus.

<i>Technological focus</i>	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Related to NMP	X			X		X	X	X	
Related to ICT				X			X	X	X
Related to new manufacturing and industrial technologies			X	X			X	X	
Related to biotech, medical technology, traffic systems and optical technology									X
No focus		X			X				

SME focus

Two programmes (RDB, IAB) are for SMEs only. Four programmes (MSTG, InnoNet, RDS, CRS) have a specific focus on SMEs. The programme FFB includes the requirement, that projects without SME-participation are not being accepted for funding. Two programmes (CSP, MSTBa) do not have any specific focus on SMEs.

Focus on cluster strengthening

Four programmes include various features that affect clusters and their strengthening; The specific advantage of the programme MSTG for the cluster constitution is the support of focused subjects that are significant for cluster development. In the programme RDB, SMEs can sub-contract other SMEs or research partners within the cluster. The programmes RDS and CRS also have a specific advantage for the cluster constitution, since grant for cluster is directly embedded in the programme. The programme FFB focuses exclusively on clusters at the Berlin/Brandenburg region, and on middle- and long-term effects in establishing co-operations with structural benefits. The programmes InnoNet, CSP, IAB and MSTBa do not have any specific advantage for the cluster constitution.

Programme design

Subject: Collaboration

In the programmes MSTG, InnoNet, MSTBa, CRS and FFB, collaboration within the projects is mandatory. However, collaboration is not mandatory in the programmes CSP, RDB, IAB and RDS. All programmes support the collaboration between science and industry.

Collaboration	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Collaboration is mandatory	X	X				X		X	X
Collaboration is not mandatory			X	X	X		X		
Support of science/industry	X	X	X	X	X	X	X	X	X
Support of industry/industry	X		X	X		X		X	X
Support of science/science	X		X						X

Subject: Types of projects that are allowed

All programmes allow applied research and technology transfer; in the programmes MSTG, InnoNet and MSTBa, technology transfer is mandatory.

Types of projects	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Feasibility studies	X		X		X				
Basic research					X		X	X	X
Applied research	X	X	X	X	X	X	X	X	X
Technology transfer	X mandatory	X mandatory	X voluntary	X voluntary	X voluntary	X mandatory	X voluntary	X voluntary	X voluntary
Support of market launch					X				
Dissemination	X				X				

Subject: Duration of the programme and of the projects

The most interesting features are “When the programme will be closed” and “Programme future”. The programmes RDB, IAB, RDS and CRS that will be closed by end of 2007, respectively 2009, will be prolonged in all probability.

Duration of the programmes and projects	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Programme duration (years)	6	10	2,3	1	1	10	6	6	13
Programme runs until	2009	2009	2008	2007	2007	not specified	2009	2009	2013
Programme future	unknown	unknown	unknown	prolongation is probable	prolongation is probable	unknown	prolongation is probable	prolongation is probable	-
Minimum project duration (years)	1	1	1	0,5	2	2	undetermined	undetermined	0,5
Maximum project duration (years)	5	3	3	3	2	4	2	2	4,5

Programme openness

Within all 9 programmes there is no additional budget to support transnational or international cooperation measures. But the following programmes involve innovation participants:

MSTG: from all over the world when there is a clear benefit, on the basis of subcontractors to national partners and on the basis of unpaid partners

InnoNet: from European countries on the basis of unpaid partners

CSP: from all over the world as subcontractors to national partners

RDB: from all over the world as subcontractors to national partners

MSTBa: from European countries, when non-residents come from ERA-NET and when there is a Bavarian added value.

The programme IAB does not involve innovation participants from other countries so far, but non-residents can be involved as innovation assistants to be employed by the beneficiary. The programme FFB does not involve innovation participants from other countries so far either, but they may participate on the basis of unpaid partners.

RDS and CRS: In certain cases the programme owner decides separately whether non-residents can participate in the programmes. The requirement is that there is no national capacity as a subcontractor. At best, non-residents can participate on the basis of unpaid partners.

In 8 programmes, the proportion of non-residents' costs of the programme budget is less than 5%, respectively 0% in the case of FFB.

6 Programmes have not been involved in any transnational joint calls. Only MSTG and MSTBa have been involved in the joint call MNT ERA-NET as well as InnoNet in the EraSME joint calls.

The transnational research funding is related both in 3 cases to EFRE (IAB, RDS, CRS) and in 3 cases to the ERA-NET framework (MSTG, InnoNet, MSTBa). The programmes CSP, RDB and FFB have no relation to any of the existing multilateral frameworks.

3 programmes (RDB, IAB and FFB) reported on no benefits so far by means of transnational activities. The other programmes reported on the following benefits:

<i>Benefits by means of transnational activities</i>	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Lower costs			X						
Higher quality of results		X	X			X			
Faster exploitation			X			X	X	X	
Increased research capacity	X	X							
Opening of foreign markets	X	X	X			X	X	X	
Dissemination			X						
No benefits				X	X				X

Decision making

The decision making of the programmes is closely linked to their objectives and focuses. Each programme has its own special decision making features.

Decision making features	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Call for proposals	Dedicated thematic calls (4 per year)	Timed calls (2 per year)	Open calls	Open calls	Open calls	Open calls	No calls	No calls	No calls, application is possible at any time
Average number of proposals (per call, per year)	40	120	50	180	100	18	95	238	25
Average success rate (funded proposals vs. rejected proposals)	25%	30%	50%	56%	90%	33%	67%	68%	40-50%
Selection process	Two-stage	Two-stage	Two-stage	Single	Single	Single	Single	Single	Two-stage
Who is involved in evaluating and selecting proposals?	Internal agency staff, programme owner	Internal agency staff, national external evaluators, programme owner	Internal agency staff, national external evaluators, programme owner	Internal agency staff, programme owner	Internal agency staff	National external evaluators, programme agency	Programme owner, regional board	Programme owner, regional board	Internal agency staff, scientific council of the governing Mayor
Who takes the final decision?	Programme owner	Programme owner	Programme owner	Programme owner	Internal agency staff	Programme owner	Programme owner, regional board	Programme owner, regional board	Scientific council of the governing Mayor
Average duration between submission of proposals and final decision (months)	1	6	2	6	1	4	2	2	8

Moreover, various dedicated selection criteria are being applied in the innovation programmes. 7 of the 9 innovation programmes use 4 or 5 of the 5 main selection criteria.

Selection criteria	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Compliance with programme objectives	X	X	X	X	X	X	X	X	X
Quality of applicants	X	X	X			X	X	X	X
Overall quality of proposals	X		X	X		X	X	X	X
Scientific/technological excellence		X	X			X	X	X	X
Exploitation and dissemination approach	X	X	X			X			X
Compliance with programme requirements				X	X				
Ability to contribute to establishing centres of excellence in the main funding areas									X

Financial capacity

The financial capacity of the 9 programmes differs highly from 2,0 million € (MSTBa) to 56,0 million € (MSTG) p. a. The table below contains the individual numbers:

Financial capacity p. a.	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Total programme budget (million €)	318,2	160,0	not specified	12,0	8,0	8,0	302,0	327,0	250,0 planned, 60,0 available
Annual programme budget (million €)	56,0	20,0	6,0	12,0	2,5	2,0	43,0	47,0	5,0 to 10,0
Average public budget for each project (million €)	1,6	0,62	0,3	0,17	0,028	1,5	0,689	0,784	1,0

Funding conditions

The main type of financing are grants. 6 programmes (MSTG, CSP, RDB, IAB, MSTBa, FFB) include higher funding rates for SMEs.

Funding conditions	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Type of financing	grants	grants	grants	grants	grants	grants	grants	grants	grants, loans, silent partnerships
Financial conditions	prepayment for research institutes, refunding for private companies	according to fixed periods	according to milestones reached	refunding	refunding	according to fixed periods	according to fixed periods	according to fixed periods	according to submittance of payed bills
Re-payable terms?	in case of offence against funding rules	No	no	no	no	no	no	no	if project results had been successfully commercialized
Average funding rate for projects	50%	68%	50%	55%	41%	40%	47%	61%	50%
Incentives for SMEs?	higher funding rate of 10%	No	higher funding rate of 10%	higher funding rates for small enterprises (< 50 employees)	better funding rates conditions for start-ups and young enterprises	higher funding rate	no	no	higher funding rate of 10%
Is the funding restricted to certain types of organisation?	no	to RTOs	no	to SMEs	to profit making SMEs	to companies	to SMEs	to SMEs and to research institutes related to economy	not specified

Accompanying measures for the innovation programmes

All programmes are being promoted by agency staff and internet. In addition, almost all programmes are being promoted by newspapers/journals and information sessions/dissemination workshops.

In the field of dissemination activities, the programmes IAB and MSTBa have not planned any specific measures.

<i>Accompanying measures</i>	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Promotion of the programme by									
- Agency staff	X	X	X	X	X	X	X	X	X
- Internet	X	X	X	X	X	X	X	X	X
- Newspapers/journals	X	X	X				X	X	X
- Information sessions/dissemination workshops	X	X	X	X	X	X			X
- exhibitions	X								
In detail: dissemination of project results by									
- Reports/summaries via Internet and booklets	X	X	X				X	X	X
- Workshops/seminars	X	X	X				X	X	
- Presentations at tradefairs	X	X	X	X			X	X	

<i>Accompanying measures</i>	MSTG	InnoNet	CSP	RDB	IAB	MSTBa	RDS	CRS	FFB
Support during proposal stage									
- Support to find consortium partners	X		X	X		X	X	X	X
- Guidance with administrative information	X	X	X	X	X	X	X	X	X
- Guidance with technical or scientific information			X		X		X	X	
- General advice on proposal	X		X	X	X	X	X	X	X
- Helpdesk or hot-line provided	X	X	X	X	X	X	X	X	X <small>(questions are answered by phone)</small>
- Pre-assessments of proposals offered			X	X	X				X <small>(in difficult cases)</small>
Support after proposal stage									
- Programme specific information	X	X	X	X	X	X	X	X	X
- Guidance in contractual issues			X		X	X			X
- Information concerning conferences, tradefairs in relevant fields	X	X	X				X	X	
- Offering assistance when projects run into trouble	X	X	X	X	X	X	X	X	X

5. a) Interfaces between regional and national innovation programmes that have been specified in the completed questionnaires

Interfaces between regional and national innovation programmes are especially important in terms of programme objectives, technology focus, SME focus, focus on cluster strengthening, several features of programme design, programme openness, financial capacity, type of financing, and incentives for SMEs. In these fields, certain interfaces between the programmes could be found.

National programmes	Interfaces in terms of	Regional programmes
All	Objectives - support of industrial innovation - increase of competitiveness of companies/industries - support of SMEs	All
MSTG	Technological focus related to NMP	RDB, meta, RDS, CRS
MSTG, InnoNet	Specific focus on SMEs	RDS, CRS
MSTG	Focus on cluster strengthening	RDB, RDS, CRS
MSTG, InnoNet	Collaboration is mandatory	meta, CRS, FFB
All	Support the collaboration between science and industry	All
MSTG, CSP	Support the collaboration between industry and industry	RDB, MSTBa, CRS, FFB
All	Allowance of applied research and technology transfer	All
MSTG	Programmes run until 2009 and later	RDS, CRS, FFB
MSTG, InnoNet, CSP	Participants from other countries so far	RDB, MSTBa
MSTG, InnoNet	Involvement in joint calls within the EC	MSTBa
MSTG (56,0 million €)	Highest financial capacity	CRS (47,0 million €)
All	Grants as type of financing	All
MSTG, CSP	Incentives for SMEs	RDB, IAB, MSTBa, FFB

b) Interfaces between programmes and funding support mechanisms within cluster policies in Germany

In Germany, cluster policy is based on division of labour by national initiatives and regional funding programmes. National initiatives are being carried out by the Federal Ministry of Economics and Technology and the Federal Ministry of Education and Research.

The Federal Ministry of Economics and Technology is organising the initiative *Kompetenznetze Deutschland*. This initiative is considered to be a club of the best German networks and clusters as well as an instrument to internationally market the best networks and clusters in Germany. At the same time it is an attractive source of research and a communication platform for those seeking information and partners in Germany. The initiative supports the networks in different areas, like network management, internationalisation or matching with others. It helps clusters and regions to develop a visible profile, to promote Germany on the international market and it provides access to a variety of information and communication channels. It permits members to present themselves to their target groups on other platforms, such as trade shows, conferences and publications, and provides ongoing support to the networks in their further development and in current activities such as press and public relations work. The target groups addressed by the initiative include investors and startup companies seeking a business location, research scientists and students, decision-makers in business and industry, government and public administration, and the media and interested public. At the most recent count, presentations of about 130 networks and clusters in 18 fields of innovation and more than 30 regions can be found under the ensign of *Kompetenznetze Deutschland*. This initiative does not fund any network or cluster directly.

The Federal Ministry of Education and Research supports outstanding regional alliances in the new federal states in Germany, which aim at developing regional competences with innovation capability on a high technological level, as well as according to business criteria at regional clusters. The funding shall be deemed to be seed capital and investment for entrepreneurially thinking, planning and acting regions. Therefore the ministry created an umbrella, named Innovation Initiative New Federal States "Enterprise Region", there under consisting of the single initiatives "InnoRegio", "Innovative Regional Centres of Growth", "Centres for Innovation Competence", "Forum of Innovation" and "InnoProfile". With "Enterprise Region", the ministry pursues a forceful bottom-up-approach. This approach focusses on proactive persons in charge of regional business and science. They should bundle and develop the existing competences of their companies and facilities to combine advantages on the market.

In general, the funding of clusters in Germany is being carried out by regional programmes. There are no national innovation programmes with the focus of funding existing clusters.

6. Conclusions with regard to existing and emerging clusters

The members of the clusters that are located in Germany should deliberately use the innovation programmes they can reach. The national programmes MSTG and InnoNet, as well as the regional programmes RDB, RDS, CRS and FFB, are especially well suited. On the one hand they are SME oriented, on the other hand – apart from InnoNet – they include various features that affect clusters and their strengthening. With little reservations, also the other innovation programmes can be used for cluster members. Basically, all programmes can involve non-residents from the EC as innovation participants. The funding of existing and emerging clusters in Germany should be more promoted and included in the European cluster-funding activities.