Federal Ministry
of Education
and Research

Position paper by the German Federal Government on the 7th EU Research Framework Programme

Advancing the European Research Area

RESEARCH

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Structure:

The present paper is structured as follows:

It begins with a summary of the most important requirements which FP7 should meet in the German Government's view.

Section II contains general considerations on FP7, e.g. concerning the budget, the instruments and the management of the programme.

Section III comments on the central part of the Commission's Communication of 16 June 2004, namely the "six major objectives".

Section IV addresses horizontal activities which are not mentioned or only mentioned in passing in the Commission's Communication of 16 June 2004, but which are important as part of the Research Framework Programme.

Summary of the most important German positions

In the Federal Government's view the following points are of particular importance:

1. **The thematic priority areas** must continue to be the **core** – also financially – of the RFP. Special emphasis should be placed on the areas of

   - life sciences/biotechnology;
   - information and communication technologies;
   - nano and micro-technologies, materials technologies and production;
   - climate and environment/sustainability/mobility and transport;
   - energy and energy technology, sustainable energy technologies;
   - aeronautics.

   These areas should be strengthened.

   The humanities and the social sciences should be given due consideration as a priority in its own right.

2. Translating R&D results into products and processes is important for stimulating economic growth and dynamic development. It is therefore necessary to again intensify technology transfer and the commercialization of results.

3. The area of "Science and society" should continue to be a separate topic.

4. Compared with FP6, the FP7 **budget** should be **increased** in line with the targets set by the European Councils of Lisbon and Barcelona, while adhering to an overall EU budget of not more than 1% of the EU-wide gross national income.

5. **Excellence must be the decisive criterion applied in selecting projects.**

6. The **European Technology Platforms (ETP),** which are to be placed in the context of the thematic priority areas, must first be tested through pilot projects.

7. The funding of **basic research** should be entrusted to a **European Research Council**. Essential prerequisites in this connection are that projects should be selected exclusively on the basis of excellence and that autonomous management should be a responsibility of the scientific community.

8. As far as support for **research infrastructures** is concerned, the principle of "variable geometry" with regard to funding by the member states has in principle proved successful. A **European concept for infrastructures** establishing clear-cut procedures should be drawn up in order to achieve increased European participation in financing the establishment and operation of such infrastructures.

9. **FP7 must be made more user-friendly**. Red tape must therefore be reduced, and choosing a funding instrument must be left mainly to the applicants.

10. Promotion of **human resources and mobility** of researchers continues to increase in importance. This includes the need to interest more young people in science and to create equal career opportunities for women scientists.

11. In order to increase **participation by industry,** in particular by SMEs, more favourable terms and conditions for participation must be introduced. Interfaces with EUREKA must be improved.

12. If **space applications** are supported by the EU, funding should be provided within the respective application areas. The proposal to set up a **European security research programme** is welcomed in principle; it should be focussed on internal security. Funding of defence research from the FP budget must not take place.

I. Introductory remarks

The Seventh EU Framework Programme for Research (FP7) is to promote the further development of the European Research Area and to help achieve the goals set forth in the Treaty, of increasing competitiveness and supporting other Community policies.

FP7 must be clearly directed at the goals agreed in Lisbon and must also take into account longer-term reform approaches such as the European strategy for sustainable development.

The Commission's Communication of 16 June 2004 entitled "Science and Technology, the key to Europe's future - Guidelines for future European Union policy to support research" presents a first outline of the Commission's ideas concerning FP7.

With the present paper the German Federal Government wishes to introduce its ideas concerning FP7 into the political discussion process.

II. General considerations concerning FP7

Budget – More money for research, but adherence to a 1% ceiling for the Financial Perspective 2007 – 2013

The German Government is in favour of limiting the EU's total expenditure to a maximum of 1% of the EU's gross national income. The funds available for FP7 must be increased, but at the same time the budget must be in line with the German negotiating position concerning the AGENDA 2007. Coupling the increase in expenditure to the EU's economic growth in nominal terms will create scope for providing increased funds for some of the EU's policy areas in the future. Additional expenditure on areas of priority such as research and education must also be financed without exceeding the 1% ceiling. If more funds are considered necessary for education and research, they will have to be taken from nominal economic growth or must be found by making cuts in other policy areas, thereby adhering to the 1% limit.

The EU's expenditure on research, development and innovation must take due account of the 3% target.

Maintaining and strengthening the European competitive position in global competition is a central challenge. To meet this challenge, the European Council meeting in Barcelona in 2002 decided to increase the Union's total expenditure on research and development to nearly 3% of the EU's gross national income by 2010. The Federal German Government has set itself the same target for its national R&D expenditure. As two-thirds of the 3% are to come from private investment, the operational set-up of FP7 must provide strong incentives for companies to increase their R&D expenditure.

Strengthening European competitiveness – Excellence to be the decisive criterion for funding

Excellence of the proposed projects must be the decisive criterion for granting funds**.** Raising the standard of national research capacities towards achieving excellence is a task for the member states, however. The structural funds should also make a contribution in this connection.

Removing bureaucratic obstacles

Even though major improvements have been made in response to urgent requests by the member states and as a result of external evaluation, the number of complaints about the bureaucratic procedures to be followed under the EU's ongoing FP6 have increased considerably. User friendliness is a critical factor for acceptance and hence the success of the Framework Programme. Further improvements are therefore necessary.

Increasing the budget and including new actions must therefore be combined with making bureaucratic procedures leaner and simpler. Also, pertinent legal texts must be available in good time before calls for proposals are published. Every excellent proposal should have a real chance of being funded. Excessive oversubscription must be prevented by making more frequent use of the two-stage selection procedure and by focussing the calls for proposals.

The costs of preparing and implementing European research projects will continue to go up as strategic projects are deliberately being given more weight. It is necessary to increase the effectiveness of the funds provided in the sense of a comprehensive cost-benefit analysis of European research funding ("more research for the money invested").

Therefore the basic legal rules (financial rules, rules for participation, etc.) and their practical application should be examined to see whether they can be made more user-friendly.

Instruments

The Federal Government agrees with the findings of the Marimon Group and its major recommendations. In particular, it must primarily be the applicants who **select the funding instrument** for a project while taking into account specific requirements to achieve research policy goals. In many cases the well-established instruments **"STREPS"** or Integrated Projects **("IPs")** will probably be best suited. The number of instruments must be manageable. The handling of these instruments must be as simple as possible and their purpose transparent for applicants.

Procedures which increase the chance of unconventional and high-risk R&D projects to be funded should be given more room.

Management of the Framework Programme

In its Communication of 16 June 2004, the Commission proposes to use a largely externalized type of management; it points out the possibilities provided by Article 171 (joint undertakings) and Article 169 (participation in R&D programmes undertaken by several member states) as well as the possibility of setting up executive agencies. As far as funding of basic research by a European Research Council is concerned, the Federal Government supports its externalization in order to strengthen autonomy.

These measures, like other proposals to externalize funding tasks, would have to prove their efficiency and necessity.

Guarantee scheme

The creation of an additional guarantee scheme for financing large-scale projects, e.g. as part of the ETPs, which has been prepared by the Commission, must be carefully examined because of the substantial risks involved.

Enhancing the evaluation of the Framework Programme

More and better use must be made of the experience gained with achieving the original goals and with implementing previous framework programmes for defining and implementing subsequent framework programmes. In order to make it a "learning programme", FP7 should,

from the outset, provide for evidence-based professional evaluation. Such evaluation must comply with international standards, be appropriate in proportion to the overall financial volume of the Framework Programme and serve as an instrument for any adjustments which may be necessary during the FP7 as well as for the preparation of the successor programme.

Space and security research

In its Communication of 16 June 2004, the Commission recommends that space and security research should be strengthened. The Federal Government in particular supports the formulation of a European space strategy in cooperation with ESA.

Space **research** should continue to be funded under the Framework Programme. To the extent that space **applications** are to be funded by the EU, funding is to be provided via the respective application areas. The development of launchers and the implementation of space projects must continue to be financed by ESA.

The Federal Government in principle supports the setting-up of a **European security research programme**, with a focus on domestic security, in the Seventh Research Framework Programme.

A European security research programme should systematically promote the development and use of the results of civilian research for security policies. For this purpose it is necessary to develop suitable technology transfer mechanisms.

Funds for financing defence research must by no means be taken from the budget of FP7.
Industry must also contribute a fair share to projects under a security research programme.
The member states must be allowed to participate in the implementation of the security research programme via a programme committee.

III. Comments concerning the six major objectives proposed by the Commission

The Commission Communication outlines six major objectives of European research support. The German Government would like to comment on these objectives as follows:

1. First objective: "Creating European centres of excellence through collaboration between laboratories"

Transnational cooperation on thematic priority areas must continue to be the central element of the Framework Programme. By focussing attention on future-oriented topics, this objective is to make a decisive contribution to maintaining and increasing European competitiveness.

In accordance with Germany's national innovation initiatives and taking up the thematic focuses listed in the joint letter by Federal Chancellor Gerhard Schröder, President Jacques Chirac and Prime Minister Tony Blair dated 18 February 2004, we consider that the following thematic priority areas of the Framework Programme are of particular importance:

- Life sciences/biotechnology;
- Information and communication technologies;
- Nano and micro-technologies, materials technologies and production;
- Climate and environment/sustainability/mobility and transport;
- Energy and energy technology, sustainable energy technologies;
- Aeronautics.

These areas should be strengthened considerably.

In order to be flexible enough to take up novel research areas and respond to new developments, a certain amount (about 10%) of the funds for each thematic priority area should be set aside for purposes to be defined later. In addition, each thematic priority area should include funds for research projects which support the development of Community policies.

a) Life sciences/biotechnology

The life sciences and biotechnology include health, environmental and nutritional research. They are areas of research that are aimed at people's well-being and have a far-reaching impact on health care and all aspects of life in our societies. The pooling and focussing of European research activities on the basis of national support measures and bioethical guidelines provides great potential for improving our quality of life and for creating new, secure jobs in Europe. Major research tasks relate to the most common diseases, infectious diseases, medical technology, white biotechnology, nanobiotechnology, nutrition/food safety as well as the demographic changes in our societies.

b) Information and communication technology

The information and communication technologies (ICT) are of tremendous economic importance because they are key technologies for innovations. The promotion of these technologies is therefore aimed at creating new jobs on the basis of new ICT both in the ICT industry itself and in the industries applying ICT (motor-vehicle construction, mechanical engineering, logistics, etc.). For this purpose it is necessary to strengthen the industrial policy aspects of research support; targeted and mission-oriented support should therefore take centre stage. Major research tasks relate to nano-electronics, communication technologies, embedded software and the next generations of electronic networks.

c) Nano and microtechnologies, materials technologies and production

The R&D work which is necessary to strengthen the competitiveness and innovative ability of European industry increasingly requires an interdisciplinary approach which takes aspects of basic research and applications into account early on. Such an approach will ensure quick transfer of basic research results to industrial application and can in fact contribute to increasing the innovative power of European companies (in particular SMEs).

In view of the great importance of nanotechnology for economic and science policy, it makes sense to combine the aspects supported in the relevant fields in order to design an overall EU funding strategy to be applied in various fields, eg technology applications, participation by SMEs, support for young researchers, as well as to the assessment of relevant risks and opportunities. Major research tasks relate to nanotechnology, microsystems technology, materials research, optical technologies and production research.

d) Climate and environment/sustainability/mobility and transport

Today sustainability is the guiding principle for fostering viable development – a concept which reconciles the requirements of environmental protection, economic growth and social justice. Research provides us with problem-solving and action strategies which can make these three conflicting goals of sustainability compatible with each other, and it provides the basis for honouring the relevant political commitments made at the international level. Such research will be effective if joint research structures are used at the European level and research activities are being coordinated and combined. Major research tasks relate to health and the environment, to influencing the causes and phenomena of global change, to studying relevant natural and anthropogenic phenomena of global change; they relate to climate protection and also include environmental technologies as well as compatible, efficient high-speed transport technologies which are at the same time safe and environment-friendly.

e) Energy and energy technology, sustainable energy technologies

Energy policy is linked to the sustainable development strategy pursued by the EU. The sustainability goal requires the use of the most advanced energy technologies. Therefore the development of new efficient and environment-friendly technologies is imperative in order to ensure the supply of economical, environmentally sound and climate-protecting energy. The funding of research and development in cooperation with industry is a strategic policy element at the European level as well. The Seventh Research Framework Programme must contribute to realizing the EU's policy goals, e.g. the EU's climate protection targets (including the target of increasing the proportion of renewable energy). The focus of activities should therefore be both on renewable energy technologies and on technologies to increase energy efficiency (along the whole chain from energy conversion to energy utilization). Priority should also be given to modern power plant engineering, fuel cells (hydrogen), fusion research/construction of ITER as well as nuclear safety and final storage research.

f) Aeronautics

Due to worldwide annual growth rates of more than 5%, air traffic offers tremendous opportunities for European industry. In order to enhance the global leadership role of the European aircraft industry, it is necessary to meet the challenges posed by the increasing traffic volume, the requirements of environmental protection, passenger comfort and safety, as well as to increase competitiveness. This means that we must develop and use the most advanced technology in this field.

The humanities and the social sciences

Accelerating globalization has considerable consequences for the conditions of economic, social and political action in Europe. In order to meet the challenges of EU enlargement and the transformation of the European societies into knowledge-based societies, we need to fully understand the underlying processes and their conditions. Likewise, the effects of these processes on growth and employment, the prerequisites for successful innovation and the scientific study of social integration processes constitute important topics for research under the Framework Programme.

2. Second objective "Launching European Technological Initiatives"

The German Government sees the European technology platforms (ETPs) in the context of the thematic priority areas and as a structuring measure for setting long-term research policy priorities and for strengthening the European innovation process in key, pace-setting technologies. However, technology platforms involve a high degree of sophistication, making the complex cooperation between the participating players even more complicated, and they will therefore cause serious management problems. To be successful, European technology platforms must meet the following essential requirements: a clear demand and mission orientation, political visibility, transparent decision-making processes with regard to the selection of topics, a leadership role for industry with regard to definition and financing as well as a clear-cut implementation strategy. The ETPs can be implemented by making use of funding instruments such as the Integrated Projects, and in a few exceptional cases measures pursuant to Article 171 can be considered. From the more than twenty ongoing ETPs under FP6, it would be plausible to choose, for example, nano-electronics or transport research or, perhaps, new areas such as optical technologies, next generation network or nanomedicine for implementation under FP7.

As a new instrument, the platforms should first be tested through pilot projects in a few selected areas. These projects should make use of the extensive experience gained in national projects and in EUREKA cluster projects, thereby ensuring a link to EUREKA.

3. Third objective "Stimulating the creativity of basic research through competition between teams at the European level"

Framework programmes to date have been concentrating on the funding of application-oriented, civil research and research into generic societal issues. In view of the need for

maintaining and strengthening the EU's competitiveness on a comprehensive and long-term basis, fundamental research should in future be included.

Internationally competitive basic research at the European level plays a central role in providing ideas and impulses for maintaining and increasing the EU's competitiveness. It is suggested to set up and test a new project support mechanism in order to overcome the fragmentation of the European scientific landscape, where basic research is funded almost exclusively under national programmes. The new mechanism must ensure the highest standard of scientific research.

Essential prerequisites for supporting basic research are: the awarding of grants in Europe-wide competition, excellence of the proposed research as the only criterion for selection as well as early and flexible, research-friendly and largely autonomous decision-making by the science community. Independence from political influences must be given the highest priority already during implementation of the new activity. Unless these requirements are met, the new support approach will not meet with the degree of acceptance by the scientific community that is necessary for success. It will have to be clarified what mechanism or what organizational form is best suited for this purpose. Linkage with the thematic priority areas of FP7 must be ensured through suitable measures.

The German Government takes the view that support for basic research will only make sense if projects are selected **exclusively** on account of excellence and if decision-making is in the hands of the scientific community itself.
Funding of basic research through this new mechanism should be introduced in a step-by-step procedure, e.g. by first testing it on a few topics and then extending it, if successful.
Funds for basic research must not be allocated at the expense of support for the thematic priority areas.

4. Fourth Objective "Making Europe more attractive to the best researchers"

Promotion of human resources and mobility is an important element in creating the European Research Area, and it helps to increase the attractiveness of academic jobs in Europe. The level of funds allocated to the Marie Curie grants awarded under FP6 should at least be maintained. Efforts should be made to increase mobility between public research institutions and private industry, not least in order to assist the transfer of research results into the practical work of companies. Promotion of excellence to enable scientists to set up their own

research groups should be intensified. Increased efforts should also be made to create more attractive working conditions in Europe for highly qualified researchers from third countries.

5. Fifth Objective "Developing research infrastructures of European interest"

EU support measures for financing access to research infrastructures as well as for design studies should be continued.

In view of the high costs involved in building and operating large-scale research infrastructures, European cooperation in this field is of great importance. The relevant need could be met by increasing the present Community share of 10% (in accordance with Annex III, item 2 of the Decision on FP6) to up to 20%. However, the member states' financing of most of the cost of infrastructures in accordance with the "variable geometry" principle, meaning that each member state contributes funds for a facility in keeping with its interest in that facility rather than contributing a fixed GNI percentage, has proved successful and should in principle be retained.

As a first step, common European mechanisms for a European research infrastructures strategy should be drawn up in order to answer the following questions in Europe:

- What large-scale facilities are needed?
- How can such facilities be financed?
- Where would be the best location for them?

The European Strategy Forum on Research Infrastructures (ESFRI) as an informal body for reaching agreement on new large-scale equipment in Europe already plays a key role in this connection, and this role should be strengthened.

Apart from large-scale equipment, medium-sized research infrastructures must in future also be given much greater attention because they are of increasing importance for ensuring high performance of the European research and innovation system. In the life sciences, for instance, there is a specific need for electronic databases, tissue banks and facilities for model organisms. In order to provide a basis for continuous research and to make better use of synergies, it should be possible to also support infrastructures as part of projects in the thematic priority areas.

6. Sixth Objective: "Improving the coordination of national research programmes"

Most of the support for research, development and innovation is provided under national programmes by the member states with their different research systems. These systems require a tailor-made set of political instruments to expand national research. The Community supports national research policies by encouraging the exchange of experience between member states and by helping to identify best practices examples of how to stimulate R&D.

The **"method of open coordination"** plays an important role in this connection. Such coordination should continue **to be the responsibility of member states on a voluntary basis.**

In addition, the successful concept of "ERA-NET Projects" can also contribute to coordinating research policies. These projects are not intended to provide support for researchers themselves but to assist programme planners and managers in the member states in coordinating joint new national programmes. The first ERA-NET projects were launched a few months ago.

The German Federal Government suggests that the experience gained with these qualitatively new approaches should be thoroughly evaluated in 2 or 3 years' time and that a decision should then be taken on whether or not the ERA-NET projects should be expanded.

IV. Horizontal activities

SMEs, international cooperation, science and society/socio-economics, COST, Joint Research Centre (JRC) are not mentioned or only mentioned in passing in the Commission Communication of 16 June 2004. Nevertheless, these action areas have been important elements of research funding by the Community. They should continue to receive support with individual aspects being restructured as follows:

1. Increasing the participation of small and medium-sized enterprises (SMEs)

SMEs make a substantial contribution towards increasing European competitiveness. The fast-growing, technology-based companies in particular ensure the early conversion of new research results into new products, processes and services. Many SMEs not doing research can be motivated to increase their innovation activities by letting them participate in R&D

collaborations. This can make a major contribution to reaching the 3% target. Efficient European research and innovation collaborations are essential for these processes. It is therefore important to give special attention to the participation of SMEs in research and development activities at the European level and in particular in the Framework Programme.

SMEs have a particular need for continuous open-topics application procedures, early and unbureaucratic decision-making, the possibility of realizing smaller research projects and a sufficient chance of receiving support. It is therefore necessary to take the following measures:

- **The terms and conditions for participation by SMEs in thematic priority projects must be made far more attractive.** In particular, funding of smaller projects with few partners and a flexible use of funding instruments which meet the needs of SMEs (eg SME-led IPs, STREPS) must be possible.

- **In addition, specific measures for SMEs are to be improved or created** to encourage SMEs doing research and those not doing research to launch innovations. While the topics should be determined by the SMEs and the SMEs are to be given the property rights, the measures should be open to participation by research institutions and bigger companies. The quality of the planned innovation and its application potential must be the central selection criterion.

    a) On the basis of present experience, **CRAFT** and **Collective Research** should be strengthened considerably and at the same time be focussed in a way to ensure a sufficient chance of receiving funding. CRAFT should focus on fast-growing companies not doing their own research while the Collective Research measure should focus on research associations of industrial companies.

    b) In June 2004 the EUREKA Ministerial Conference demanded that, during preparations for the Seventh Research Framework Programme, concrete financing mechanisms for closer cooperation between EUREKA and the Framework Programme be examined, amongst which mechanisms aimed at increasing support for SMEs. The Commission and EUREKA organized an exchange of ideas which envisage strengthening EUREKA's successful

bottom-up approach by combining it with funding under FP7. These activities are to be continued. Support could cover initiation, coordination or implementation of projects. The funding procedure should be designed in such a way that overlap of funding is avoided.

Innovation

Measures to support innovations should be better geared to the needs of SMEs. Two essential elements include support for the innovation relay centers as regional advisory and technology centres and, second, extending the mobility programmes to cover technology transfer projects to SMEs. Measures to promote innovations should be concentrated more than before and be focussed on projects with a clearly European added value.

2. Science and society, socioeconomics

The topic of "science and society" should continue to be a separate area in FP7, but more emphasis should be placed on technology acceptance, gender mainstreaming, bioethics, good governance and on interesting more young people in research and technology. However, these aspects should also be incorporated as integral parts into projects supported within the thematic priority areas.

3. Cooperation with third countries (INCO) and INTAS

Openness to the world is an important characteristic of the framework programmes. EU research policy is part of the EU's general policy of intensifying cooperation with third countries. Cooperation in research between the EU and third countries as well as individual member states must be coordinated more closely. The current basic structure of funding (INCO Programme) and of the associated procedures and the volume of international cooperation should mostly be retained

One important concern of **INTAS** (International Association for the Promotion of Co-operation with Scientists from the New Independent States of the former Soviet Union) is the promotion of partnership collaborations with researchers from the New Independent States, also by making use of the Framework Programme. Being a well-established and effective instrument of research cooperation, INTAS should be continued.

4. COST

COST as a flexible instrument for coordinating national research activities should also be continued under FP7 and receive adequate funds.

5. Joint Research Centre (JRC)

The JRC is the Community's research-based facility providing services to the Commission and the member states. Increasingly, the JRC should render its services and make its research contributions by submitting proposals in response to the FP7 calls, that is, in competition with public and private research institution in the member states.