DTI 7th EU R&D Framework Programme
Response Form
Office of Science and Technology
April 2004

The closing date for this consultation is 26/07/04

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Please tick if you want us to keep your response confidential ❑

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Please tick the box which most describes your organization:

❑ Large Industry
❑ Small to Medium Enterprise
❑ University
❑ Public Research Institute
❑ Central Government/Devolved Administration
❑ Research Council
❑ Regional or Local Government
❑ Industry Trade Group
☒ Non-Governmental Organisation
❑ Other (please describe)…….

Questions on Requirements and Aims

Question 1: Rationale for the Framework Programme (See Para 5-8)

- What is the rationale for the Framework Programme?
- Is the current €19bn budget appropriate? If you feel a need for change, why?
- Which areas of the Programme have the strongest rationale and which should be assigned lower priority?

Comments:

Rationale

1. The basic rationale and need for a European R&D Programme is accepted - both in terms of competitiveness and support for other EU policies, particularly in relation to the US and Japan, and increasingly the emerging economies of China and India.
2. Europe needs to be able to compete with other major industrial nations that use advanced science and engineering to support a high-technology industrial base. In this context the United States is the main protagonist, closely followed by Japan, but there are other nations that are gaining momentum in specific areas e.g. India in the software and computing area – not only in the area of writing software, but in creating a high quality research base in this domain. The primary focus of the Framework Programme is to support the creation of an effective and coherent European research area that can develop new and innovative ideas and feed these effectively into the European Industrial base. In essence the target is a single European research entity.
3. The title *Framework Programme* covers a number of complementary but different themes e.g. (basic research, applied research, policy research, exploitation, mobility etc).It must be recognised that the objectives and outputs from each are different and should be clearly stated as such. A clear explanation of the proportions of budget that support each of these areas should be stated and the rationale for the proportions should be clearly explained.

Budget

1. An increased budget for the Framework Programme is needed, but the Programme needs an improved focus on the outputs and objectives. It is recognised that R&D is potentially a better use of EU funds than other, larger, programmes (e.g. CAP) and encouragement is welcomed, provided it is not detrimental to national programmes and their concomitant investment.
2. It is recommended that the overall budget be significantly more for FP7. Basic research should also receive significantly more, provided it is based solely on excellence. Infrastructure for science and technology should be significantly increased, again provided it is tied into the main objectives of the FP.

(cont..)

Rationale priority

1. There are considerable benefits in moving to a full economic cost basis for research commissioned within Europe – this would include both basic and policy research. British academia and, to some extent British industry, should not be financially disadvantaged by participation in these programmes.
2. It is highly desirable that any increase in the budget should not be at the expense of national funding. Changes in the UK University sector may create a competitive disadvantage (some may choose to opt-out of Framework altogether).
3. The success rate for the best science and technology proposals must improve. In the case of Integrated Projects and Networks of Excellence, a 3% success rate is totally unacceptable, especially when it is remarked that most of the successful applications were not the best scientifically, but they were the ones that best satisfied social criteria. This situation has to be reviewed if the EU is serious about competing internationally with the USA and Japan. In particular, it is essential that scientific merit should be regarded as the most important criterion for judging proposals. If the EU is not prepared to change its policies its funding should be cut. If the EU is prepared to change its policies and fund excellence, its funding should be increased. In particular, if the EU is serious about funding excellence, its funding should be doubled.
4. Nevertheless, the EU research activity has been one of major sources of research funding and has sustained some of the main research activities in Europe. However, no increase in the budget is recommended until the main weaknesses in the way the Framework Programmes are managed and developed are rectified.

Summary of views on priorities

Compared with FP6, the FP7 budget should be changed as follows (please place an ‘x’)

	Half or less	**Significantly less**	**Same**	**Significantly more**	**Double or more**
Overall budget				**X**	
Basic research				**X**	
Scientific and research infrastructure			**X**		
Mobility for academia and industry			**X**		
Industrial research and competitiveness			**X**		
Small and medium enterprises				**X**	
Research in support of policy			**X**		

Question 2: Requirements for a New Programme (See Para 9)

- What evidence can you suggest on the key issues to be addressed in the new Programme?
- In which areas of the Programme is there evidence that it is working well or that it needs to function better?

Comments:

Key issues to be addressed:

1. The new Programme needs to focus on facilitating the creation of high-quality industry-academia research teams that draw the best specialists into distributed but coherent teams. Currently the Framework Programmes assist in the creation of such teams but do not support their long-term stability so that, as a research contract ends, the teams disband. To counter this trend, it is therefore important that funds be available for basic as well as "near market" developments.
2. There is also a lesson to be learned in that the major sectors of industry within the EU need to adopt their own coherent policy defining system in order to be successful. In each sector industry needs to do two things: a) define clear long-term research objectives, b) develop well defined implementation paths for introducing new techniques, methods and tools into their total design and entry-into-service activities. This requires the definition of a 3-stage activity –
   i) stage 1, definition and implementation of basic research programmes
   ii) stage 2, implementation of basic research into applied research directed at product innovation
   iii) stage 3, implementation of outputs from stage 2 into industrial applications.
   N.B. stage 3 is still a research activity as the introduction of complex and advanced research results into industrial applications is itself complex.

Programme function

1. The amount of administration and the high bid failure rate add to the burden of applying for funding. The “competition” has the “hurdles” set in the wrong place. The EU may receive (say) 800 applications in response to an Initiative. Currently as many as 500 get through the Initial Review stage. Then much more work is required of successful first round applicants expanding their proposals in Stage 2. But only about (say) 30 of the proposals are ultimately accepted. So 470 applicants have undertaken significant proposals aimed at a final review process with a probability of winning set as low as 6%.
2. It is also considered that the feed-through from research outputs from projects to industrial application has been very weak. There is not currently enough commercial exploitation of IPR.
3. The balance between industrial and academic partners is also an issue and could be greatly strengthened and developed by the use of Cooperative Research Companies. These would be companies set up to undertake the research to be funded by the EU. The shareholders would be the participating companies, research centres and universities. The companies would be set up with their own board of management. This arrangement would mean that IPR would be safeguarded and the implementation of the end results greatly facilitated. A model for such an approach could be the Australian Government funded Cooperative Research Centres.
4. On a positive note, the aeronautical research activity within the various Framework Programmes has been effective and, to a certain extent, productive. It has created international research teams of very high calibre that have achieved significant advances particularly in the development of multi-disciplinary design tools and methods. Compared with other areas in the EU research programmes a significant number of these developments have found their way into the design, manufacturing and test programmes of the European aeronautical companies. This limited success has been achieved because the industry has adopted a coherent policy supported by an effective policy management activity. It has been able to define research objectives and persuade the EU Commission to base its research objectives in accordance with norms set by the industry.

Questions on Science and Human Capital

Question 3: Basic Research and Promoting Excellence in Science and Technology (See Para 10-14)

- How strong is the case for a major increase in EU funding to improve excellence in basic research?
- Is basic research a priority compared with applied research?
- If there is a basic research element in FP7, how should this be administered to maximise its effectiveness?
- Should new support for basic research involve a requirement to collaborate across borders or, as is proposed, award grants to individual teams?
- Do the proposed criteria look appropriate ones to apply when judging proposals for a basic research action?

Comments:

Funding for basic research

1. There is a strong case for significantly increasing the funding in basic research. Both Basic and Applied research are equally important, and it is also important to allow the research to take place without too much administration hindering progress.
2. However, an increase in EU funding to improve excellence must include a mechanism for measuring the "excellence" produced by the additional money. This requires a mechanism for setting clear targets and the creation of an effective management structure.

Priorities for basic research and collaborative teams

1. Grants for high-quality basic research need to have the freedom to be awarded on both a national and multi-national scale. National awards could create problems if it was felt that certain nations (the larger and more powerful) received more than their fair share
2. The funding should be given to those scientists and engineers who have a high international reputation for research and who are recognised international leaders. In this context it is felt that it is perhaps not always appropriate to request that funded projects meet the EU aim of facilitating transnational research activity. It is appreciated that the encouragement of such collaborative research is extremely beneficial for the purposes of sharing solutions and knowledge on issues which apply Europe wide. However, research teams should not be forced to collaborate with unknown scientists in other countries for the sake of social engineering. If the EU is serious about competing with the USA and Japan (and ultimately with China) it has to fund the best scientists and engineers and best research projects, and social engineering should not be a consideration. The requirement to collaborate across borders should only be applied when it makes sense from a scientific or engineering viewpoint. Basic research grants should be given to at least two and not more than three teams in at least two countries. After careful selection, the researchers should be allowed to carry out their research under their own management.

Are the judgement criteria correct?

1. Proposals should be judged on the basis of novelty and spirit of adventure – researchers should be allowed to push boundaries and learn from their mistakes.

Question 4: Scientific Infrastructure (See Para 15-21)

- What should be the role for the European Community in funding scientific infrastructure development and maintenance?
- What areas are in greatest need of support and how should any Community support be delivered?
- How can infrastructure funding (by its nature long term) be reconciled with the four-year cycle of the Framework Programme?
- What is the best arrangement to support more strategic decision making on future research facilities and funding?

Comments:

1. EC funding is necessary to maintain both a high level of research activity relative to global competition and for upgrading and replacing existing equipment.
2. Each Framework Programme should have a significant allocation of funds for infrastructure support, recognising that this will always be a continuing need.
3. Infrastructure funding needs to be separate from the funding of research and requires a funding line that employs different criteria and conditions from those used in the research lines.
4. Basic infrastructure could be made available as ‘free-to-use’ services once they have been developed through appropriate research projects. The facilities, tools and programs available would be subject to charge –possibly this could be achieved through the use of a Public Private Partnership (PPP) at the European level.

Question 5: Human Capital and Mobility (See Para 22-28)

- What are your views on the human resources and mobility activities in the Framework Programme?
- Do you agree that some restructuring is needed in FP7 to boost industry (especially SME) participation in the mobility activities?
- If so what structure would be optimal?
- Do you have any ideas for new activities (e.g. those that might encourage "brain gain" from third countries or foster inter-sectoral mobility in industry)?

Comments:

Human Resources and Mobility

1. The experience of securing staff mobility and the creation of pan-European teams has been one of difficulty.
2. At university level the human resources and mobility Framework Programme is reported to have been a great success. Unfortunately, this success has not been reflected at an industry level because of staffing difficulties. With respect to larger companies it is difficult to envisage changes that would allow them to view the moving or sharing of skilled staff with another company, as a viable option.
3. Anecdotal evidence suggests that the allocation of team members and joint organisations from third countries has been carried out too late and in an ad hoc manner. Projects start with a carefully balanced plan and then new partners are allocated on a political basis, as distinct from technical or professional reasons i.e. contributory specialist expertise. This can unbalance teams and delay progress.

SME participation in mobility activities

1. SMEs should be clear beneficiaries of mobility grants. They are often looking for help to support new initiatives or simply to gain experience in developing research programmes. To be able to draw skilled individuals from across Europe would allow them to take advantage of existing expertise to develop their own research activities and gain some understanding of operating outside the UK market
2. In addition to this there is a need to consider how the staff and management from SMEs can be helped to secure a clear picture of research opportunities. It is a possibility that special grants could be made available to SMEs only, to permit staff and managers to be seconded into companies operating outside their homelands. Provision would need to be made for appropriate covering consultants to be brought into the participating SMEs so that essential work would not suffer whilst the seconded staff are on location. Loss of staff for even short periods of time can be crippling for small companies

Questions on Business and Competitiveness

Question 6: Industrial Competitiveness (See Para 29-34)

- How can the Framework Programme be made more attractive to industry and increase private sector R&D investment?
- Are there alternative delivery mechanisms which could foster industrial participation?

Comments:

1. A radical method proposed for funding and running projects that have major industrial participation, is the use of Cooperative Research Companies (CRCs), where a company is formed from the main players in a project – industry, academia and research centres.
   The shareholders would be the partners in the project; there would be a management board appointed by shareholders and a CEO. The company would manage the project and hold all the IPR and be responsible for subsequent exploitation of the research results. The advantage of this system is that industry would be locked into operating a research company together with the academic and research centre partners. The projects would be managed through a standard company management system and all partners would be locked-in and obliged to ensure that the project was successful with "profitable" outputs. However the disadvantage of the CRC concept is that it would only be useful for major projects and a different process would be required for smaller projects.
2. Another way in which to assist industry in benefiting from programmes is to award joint Industry/Academia contracts. This would also encourage partnership bids, which on the whole are more successful in attracting funding.
3. The contractual process needs to be streamlined in order to encourage industrial entry into Framework Programmes. Anecdotal evidence suggests there are projects which have reached completion before the contract for the proposal has been agreed and signed. This can deter potential industrial partners from getting involved in projects where such a complex contract might be needed.

Question 7: Addressing the Needs of Small and Medium Enterprises (See Para 35-38)

- How can EU funding best address the needs of SMEs?
- How useful are existing SME-specific measures and what form should future SME instruments take?
- If necessary, how can SMEs be integrated into mainstream Framework Programme projects?
- How could mobility for SME employees be increased to access technology and skills?

Comments:

Addressing the needs of the SME

1. Previously SMEs have not featured in any significant numbers within the EU Framework Programmes because they usually do not have the resources or the time to participate in the proposal cycle. Neither do they have the spare resources to be active in the research once the project starts. This may suggest perhaps the needs of SMEs can best be met by linking grants to experienced Academic Groups to join in mainstream Programmes and encourage mobility of SME staff.

Specific Measures for SMEs

1. In order to assist SMEs in getting started it is suggested that special "project set-up grants" are made available to SMEs to cover the costs associated with proposal preparation. This would address the issue of cash flow problems caused by expensive initial outlay in making the bid for funding.
2. A second set of grants could then be made available to assist SMEs in covering their costs in the initial phase of a project, once they have been successful in their funding bid. This would be an "introductory grant" providing an SME with 100% funding for (hypothetically) the first 2 years. Once the project is well advanced the SME should be in a position to continue working with other partners without special support.
3. The EU should consider how to provide SMEs with "mentors" who would give expert help, assisting SMEs to understanding the requirements and the processes needed to submit a proposal. Some of this type of support is available at the present time but needs further development.

Question 8: Better Exploitation and Spin Out of Research (See Para 39-42)

- What should be done to make the Framework Programme better focused on exploitation and spin out?

Comments:

1. The system needs to be improved to connect joint Industry/Academia Research and development funding
2. The EU Commission needs to exert much better control over the projects during the course of the programme and after it is completed.

Questions on Support for Policy

Question 9: Research in Support of Policies (See Para 43-45)

- How should FP7 be balanced to meet the needs of both research in support of policy and that in support of competitiveness outcomes?
- Should there be a clearer delineation between the two types of research in the structure of the Programme?
- How could the interests of end-users of policy-related research be better met?
- How can the need for transparency and dissemination of policy-related research be balanced with the need to protect IPR?
- What should be the future role of support for the Joint Research Centre (JRC)?

Comments:

Policy and Competitiveness

1. Whereas research that directly contributes towards improving EU industrial competitiveness is vital, there remains a real need to support basic research. Applied research demands a continual inflow of ideas from basic or "blue skies" research.

End users of policy related research

1. The Fellows of the Royal Academy of Engineering report no problems in the dissemination of ideas emerging from EU research programmes– particularly if universities are partners – since they rely on publishing results in order to maintain their prestige. The major problem is that of persuading consortia, subsequent to contract completion, to develop the research results into an exploitable form. Anecdotal evidence suggests that in the few occasions when research results have been aggressively exploited following contract termination there has been no problem over IPR – if there is money to be made partners are eager to trade IPR for profit.

Dissemination and IPR issues

1. The imposition of IPR rules means that it is more difficult to effectively disseminate results, progress and best practice. This is particularly so for projects covering similar ground, or for academic studies seeking case histories.

The JRCs

1. The JRCs need to have their position changed with respect to direct funding. The UK and USA governments have found that keeping government research laboratories fully funded does not, necessarily, lead to good research being undertaken or give rise to exploitable ideas or products.
2. Concern was expressed that the JRCs do not operate as transparently as they could do.

Questions on Funding Instruments and Research Priorities

Question 10: Science and Technology Priorities (See Para 46-49)

- What criteria should be applied for identifying the S&T priorities for FP7?
- Can you suggest evidence that identifies key areas for support?

Comments:

1. Within the overarching criteria set for identifying the science and technology priorities there are a number of specific broad target areas. Two of these are general to all industrial sectors. The first is for the EU to develop a set of research objectives that supports the concept of designing for key targets such as environmentally friendly products; design for disposal etc. The second is the area of developing tools and methods that can introduce advanced and intelligent systems into the total manufacturing and entry-into-service process.
2. A key S&T priority area is materials research. The Japanese Government recently included materials in its nanotechnology initiative, naming the initiative Nanotechnology and Materials; recognising the importance of materials research not only in nanotechnology, but also for a wide range of industries. The United States is also giving materials research a high priority. Europe is losing a lot of its key materials scientists to other countries because of the high priority they give to materials research, and there is now a severe shortage of materials scientists throughout Europe. If the EU is to compete in the key area of materials, this needs to be a key area for support in the next Framework Programme.

Question 11: Role of Member State and European Funding Mechanisms (See Para 50-54)

- What is the future role of EU funding in supporting links between Member State programmes?
- Which mechanisms are best suited for this purpose and how might they develop?
- Should European legal provisions allowing support for Member State collaboration be more widely applied in FP7?
- Is there a need for European aspects of regional programmes to be better coordinated?
- Should this be supported through the Framework Programme or are existing mechanisms at national level and through the EU Structural Funds sufficient?

Comments:

1. The weakness of the current situation is that there is disjointedness between UK internal research programmes and those supported by the EU.
2. The EU should support inter-Member State links in programmes where it is appropriate and a selection of experienced programme co-ordinators adds to the effectiveness of the team. Inter-Member State links should not be forced where they are unsuitable.
3. Legal provisions should, in most cases, require collaboration between countries, for the purposes of sharing knowledge where the subject matter is appropriate.

Question 12: Strategic Technology Development (See Para 55-59)

- Could the European Technology Platform concept be expanded to a wider range of technologies in FP7?
- What technologies would benefit from this approach and what criteria should be applied in the selection process?
- What level of funding would be appropriate for an ETP?

Comments:
No answer returned for this question.

Question 13: Impact of Collaborative R&D Funding Instruments (See Para 60-64)

- Which options would you support for funding collaborative R&D?
- What priority should this area be given?
- Could the number of instruments be reduced and how?
- How might alternative instruments function?

Comments:
No answer returned for this question.

Questions on Delivery and UK Support

Question 14: Programme Management and Delivery (See Para 65-74)

- Are there barriers facing business and the science base in effective engagement with EU research programmes?
- How can the UK more effectively influence and benefit from EU research funding and policies?
- How could management and administrative procedures be changed to make it easier for UK organisations to participate?

Comments:

Barriers

1. The UK government does not seem to be as well organised as other member states in supporting those involved in developing proposals at the EU level. There is a need for the UK government to review how it can provide assistance to those spending significant sums of money and effort in preparing bids for the Framework Programme. In particular, France and Germany appear to be able to provide significant support in reviewing proposals before they go forward to Brussels when the coordinating partner is from one of those nations, and support of the EUREKA programme is automatic in most European countries. This is not the case in the UK.
2. The Research Councils have no earmarked funds for such research proposals, and the DTI only have very small funding available. For this reason, there are very few UK universities or industries involved in EUREKA programmes; hence the UK has lost out in a major way. In Framework Programmes that are supported financially by the EU, many other countries give additional support to their universities or industries participating in these programmes. The UK does not do this at all.
3. Another major barrier is the unequal cost of staff of the same grade in different countries.
4. Research Projects typically run for 5 years. But there is only enough funding to support 2/3 years of work. So in the long term organisations are left to practise a bespoke approach with little or no continuity between projects.

Increased UK influence and benefit

1. The UK government appears not to take the development of the Framework Programme sufficiently seriously. A real effort needs to be made to place UK ideas firmly before the developers of the Framework Programmes and to back this up with a major lobbying activity

Management and Administration

1. The UK must insist on adequate representation on the Committees determining and allocating resources.
2. Bidding is bureaucratic and time consuming, requiring significant inputs from management resources. Some of this effort would be better invested in the actual research.

Questions on General Issues

Question 15:

- Are there any areas we have not anticipated in this document?
- Do you have any other comments that might aid the consultation process as a whole?
- Comments on the layout of the document would also be appreciated.

Comments:

1. Although the EU does evaluate the outputs from the Framework Programmes it has not established any serious and objective metrics for measuring both the performance of individual consortia in attempting to meet the programme targets nor the effectiveness of each of the Framework Programmes. This is a major omission.
2. It is also suggested that the Framework Programme should do more in the fields of social sciences and humanities – recognising that the exploitation of science, technology5 and engineering has as much of a sociological effect as a technological one. This could encompass, for example, EU efforts in the area of research and policy making for environmental protection. There is also support for the need to endorse research into areas which reflect current political issues – namely space and security - within Framework Programme 7.

Thank you for taking the time to let us have your views. We do not intend to acknowledge receipt of individual responses unless you tick the box below.

Please acknowledge this reply ☒

Here at the Department of Trade and Industry we carry out our research on many different topics and consultations. As your views are valuable to us, would it be alright if we were to contact you again from time to time either for research or to send through consultation documents?

Yes ☒ **No** ❑