

MONITORING 2004

***IMPLEMENTATION OF ACTIVITIES
UNDER THE EC AND EURATOM FRAMEWORK
AND CORRESPONDING SPECIFIC PROGRAMMES***

AUGUST 2005

Final Version

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PART A: REPORT OF THE 2005 FRAMEWORK PROGRAMME MONITORING PANEL

1. Executive summary

In 2004 the Research Framework Programmes (FPs) had their 20th anniversary. From their inception in 1984 until now, with the Sixth Framework Programme (FP6), the FPs enjoyed steady growth and might, if present intentions for the Seventh Framework Programme (FP7) become true, experience even higher growth in the future. The record of the FPs is truly astounding. What was inconceivable when the European Union (EU) was founded is now daily practice in the European RTD community: enterprises, universities and research institutions from all member states collaborate with great ease to create new scientific and technological knowledge for the good of society.

Competition for scarce resources paired with collaboration creates – as we know from evolution – a hotbed where innovation can flourish. The fundamental concepts of FPs have been highly successful not only through their continuous enabling of RTD hotbeds on a European scale but also as role models for member states' RTD programmes. The firm establishment of competition and collaboration within the emerging European Research Area (ERA) through today's FP asks for enormous learning efforts from researchers and involved institutions alike. In particular, the invention of new instruments to enable RTD endeavours of a size and complexity rarely found in Europe before FP6 has caused (and is still causing) some stress due to the major shifts it has required actors to take along learning curves. This is a good sign, indicating the positive effect FP6 is having on learning and innovation.

So successful has FP6 been so far that in some areas the competition for funding has far exceeded the availability of funds. However, competition for funding is only stimulating up to a certain level. If this threshold is passed, actors might retreat and possibilities could be lost. The Panel shares the Commission's concern about oversubscription and welcomes all activities to overcome it.

Although the FP has matured and is now the single largest source of RTD funding in Europe, it is reassuring to find that it has not lost its ability to be innovative and create new initiatives. However, with the continuous growth and new initiatives comes an obligation to learn continuously from past experience. Apart from the five-year assessment, annual monitoring is at present the main institutionalized learning exercise and this report covers the lessons learned from monitoring FP activities carried out in the year 2004.

In 2004, implementation of FP6 reached a steady pace and intensive preparations for FP7 were under way. Thus, the Panel considered not only issues relating to implementation of FP6 but also emerging issues concerning implementation of FP7. Taking up a recommendation of the 2003 Monitoring Panel, the 2004 Panel looked more at effectiveness than at efficiency. The issues that emerged as being particularly relevant for the years to come were identified by the Panel as coming into the following areas:

- New Initiatives
- Implementation Process
- Participation of Actors
- Evaluation.

On these issues, the Panel proposes the following recommendations:

Crosscutting issues

- 1) Learning from the experiences with new initiatives and implementation of new instruments could be enhanced by the development of more organised knowledge transfer. The internal learning and sharing between scientific and financial officers and the sharing of experiences with stakeholders are already “good practices” that should be carried out on a much broader scale. For Technology Platforms and ERA Nets, the Panel considers that systematic analyses of their dynamics might prove insightful.

New Initiatives

- 2) Technology Platforms, which gather stakeholders led by industry, seem to have become an important route for emergence of new research priorities. It is thus essential that there are clear “rules of the game” for the process of recognising a Technology Platform as such.
- 3) ERA Nets emerge as an instrument for enlarging institutional cooperation between member states beyond the remit and scope of the FPs. This dynamic should be maintained and even enlarged in FP7. However, confining support for ERA Nets to the thematic priorities of the Cooperation programme might endanger this dynamic. Thus, the Cooperation programme should include a horizontal line dedicated to “institutional cooperation between member states”.
- 4) From their enthusiastic take-up, it is clear that researchers hold the FPs’ FET and NEST initiatives in high esteem. This drives the Panel to recommend strongly that both the thematic priorities of the Cooperation programme and the Ideas programme should develop specific NEST-like activities for areas of new and emerging science and technology, fostering in particular the interdisciplinary approaches that the FPs have proved to be successful for achieving innovation.
- 5) Despite the big efforts made, there are still different views and approaches to the definition and implementation of Networks of Excellence (NoEs). Thus, even more effort is required to establish a common view of NoEs. In addition, a systematic review of the dynamics of the whole process of implementing NoEs needs to be undertaken. Also, preliminary returns from the first annual reviews show that further work should be done on the methodology used to measure the degree of integration of NoEs.

Implementation Process

- 6) The use of remote individual assessment of proposals should be maintained and increased wherever feasible. This approach should make it easier for independent experts of high international calibre to participate in proposals evaluation.
- 7) A tighter link between the overall planning and implementation of the FPs and IT tools development should be established. Workflows, procedures and standard reporting used by Units within and across DGs should be analyzed to achieve a better integration. Additionally, to support the new approach proposed by the Commission for programme evaluation in FP7, appropriate IT tools for data mining and decision support systems could be designed well in advance.

Participation of Actors

- 8) Budgets for the part of the INCO programme handled under thematic priorities should be clearly earmarked as such and publicised better to scientific officers and researchers. It would be useful to establish a more efficient means for exchange with the INCO programme for projects implemented under thematic priorities. It would also be helpful to integrate international cooperation objectives into the evaluation criteria used for proposals evaluation.

Evaluation

- 9) Potential users should be involved in the process at an early stage. Impact assessments based on statistical analyses give little insight without more in-depth analyses; it could be useful to investigate and report individual examples of successes and failures in more depth.
- 10) Regarding the envisaged changes in the overall evaluation process in FP7 (i.e. the replacement of the five-year assessments by a mid-term evaluation of the ongoing FP and an ex-post evaluation of the past FP), the Panel recommends that the ex-post evaluation should be conducted in two steps. This would allow the Commission to prepare relevant analyses for step two on problem areas identified in step one. Further, the mid-term review should include specific studies on the new initiatives developed by the ongoing FP. To prepare the ex-post evaluation of FP6, research on methodologies and horizontal studies should be launched at the latest in 2006.

As with any executive summary, this one cannot incorporate all the insights, comments and lessons laid out in the monitoring report. The Panel thus urges you to take time to read the whole report, especially as this should take little more than half an hour. The FP certainly deserves that much time being spent on what can be learned from 2004.

Special thanks from the Panel are due particularly to Birgit de Boissezon and to Charles-Henri Metzger but also to all the interviewees listed in Annex I for their openness, involvement and willingness to share their views, concerns and thoughts with us. For us, the Panel, it has been both a pleasure and an honour to serve the FP in its path to the future.

2. Mandate and approach

This report reviews implementation of the FPs in 2004. In that year implementation of FP6 reached a steady pace and intensive preparations for FP7 were under way. The report makes recommendations on issues of implementation of the remaining part of FP6 up to 2006 and suggests improvements on emerging issues related to FP7.

The 2004 monitoring was carried out by a panel of seven independent, high level experts (referred to as the Panel in this report) from a range of fields in science, technology and the social sciences and coming from different member states. The Panel undertook its assessment on the basis of a comprehensive and extensive range of evidence organised for the exercise. This included: self assessments produced by the services; analyses by independent experts; presentations from Commission staff; and a database of evaluation and implementation documents. Panel members also undertook their own research and data gathering including interviews with Commission staff. Full lists of the documentation and information used by the Panel are in Annex I.

The Panel carried out its work between June and August 2005 and held four one- or two-day meetings in Brussels.

Follow up of recommendations of the 2003 monitoring report

The 2003 Monitoring Panel recommended that future monitoring exercises should be supported by a concise table of expected and observed proposal-related workflows. Such information was not available at the time of the 2004 monitoring exercise. However, the Panel acknowledges the Commission's efforts in setting up a taskforce on "Rationalisation and acceleration of Framework Programme implementation".

In its analyses and choice of specific topics the Panel took into consideration the recommendation of the previous panel that the focus of monitoring should shift from efficiency towards the effectiveness of FP6 in terms of achievements and outcomes. Further, significant attention was devoted to evaluation and assessment as suggested by the 2003 monitoring report.

The Panel has no further recommendations related to the Commission's response to the 2003 monitoring report.

Focus of the work of the Panel

Following its mandate to monitor the follow-up of prior recommendations, the self assessments by services, and the achievements of the implementation of the FPs, the Panel decided to report its findings on the basis of the issues that emerged in 2004 as being particularly relevant for the years to come. Several such overarching issues were identified and grouped into four major thematic areas:

- Review of new Initiatives
- Implementation Process
- Participation of Actors
- Evaluation.

3. Review of new initiatives

The main objective of FP6 is to contribute to creation of the ERA by improving the integration and co-ordination of research in Europe which till now has largely been fragmented. At the same time, research should be targeted at strengthening the competitiveness of the European economy, solving major societal questions and supporting the formulation and implementation of other EU policies. To achieve these objectives, new initiatives have been launched by the Commission and stakeholder groups. The Panel decided to focus on Technology Platforms, the ERA Net scheme, research infrastructures, the NEST and FET initiatives, and new developments in Marie Curie actions. These, between them, address some topics key to establishment of the ERA:

- fostering exchanges between industry and other stakeholders in key areas of technical interest
- encouraging coordination of initiatives of the member states
- sharing knowledge and research facilities across Europe
- detecting at an early stage innovative research topics and European capacity to address them
- promoting mobility of researchers, especially at the early stage of their career, across the ERA.

3.1 Technology Platforms

Technology Platforms are a new concept while not being a formal instrument of the FP. The overall approach is that stakeholders, led by industry, get together to define a Strategic Research Agenda on a number of important issues with high societal relevance. Although the oldest Technology Platforms were launched three or four years ago, the bulk of activity in this area took place in 2004. Over twenty Technology Platforms have now been launched. The Panel identified four main foci: (i) frontier RTD (e.g. nano-medicine, hydrogen and fuel cells, nano-electronics); (ii) high tech industries (e.g. aeronautics, space, mobile and wireless communications, embedded computing systems); (iii) infrastructures and environment (e.g. transport, water, sustainable chemistry, animal health); and (iv) classical industries (e.g. steel, textiles, construction).

The Commission services envisages three stages to the development of a Technology Platform¹:

- 1) stakeholders, with industry in the lead, get together around a vision statement that identifies clear challenges
- 2) broad consultation process to define a Strategic Research Agenda (SRA)
- 3) implementation of the SRA.

The longer-established Technology Platforms, e.g. aeronautics and hydrogen and fuel cells, have already gone through the first two stages. Regarding the third stage, the Panel considers that the Technology Platform's role in implementation of the SRA is not clear – whether it will be to provide a place for fostering alliances and consortia and/or be an operator for certain activities. The latter would raise the issue of a platform's legal status.

The Commission services see their role as one of encouraging, guiding, occasionally providing limited funding for a Secretariat, and (in the third stage) funding collaborative research projects where appropriate. The Commission services believe that the Technology Platforms have already had a strong impact on the definition of FP7 (especially on the Cooperation Programme) and this

¹ See the following reports compiled by a Commission Inter-Service Group on Technology Platforms: EUR 21256 – *Technology Platforms from definition to implementation of a common research agenda*, September 2004; *Status report: development of Technology Platforms*, February 2005.

was reinforced by anecdotal evidence gathered by the Panel. It is hoped that this will lead to increased industrial participation in FP7 via the main collaborative research instruments. In addition, a new mechanism is to be introduced in FP7 which will enable coherent, large-scale structures (Joint Technology Initiatives – JTIs) to be set up to support the implementation of those parts of some SRAs that are ambitious enough to require mobilisation of big public and private investments and large material and human research resources.

Comments of the Panel

The significant take-up of the approach by stakeholders in 2004 shows that Technology Platforms can turn into an important support mechanism for the emergence and formalisation of future research priorities. In this respect the Panel has three major comments:

- There appears to be de-facto recognition by Commission services of given platforms through their inclusion on the CORDIS website. But there is, apart from the application of a set of very general principles, no established process for this de-facto recognition. The Panel considers that, if the Commission wishes to continue to use Technology Platforms as important routes for the emergence of new research priorities, there should be clear “rules of the game” for the recognition process. The Commission should also consider whether a small budget line should be established to help, solely through Specific Support Actions(SSAs), those platforms that do not fit into current FP priorities.
- The Commission highlights the fact that Technology Platforms are industry-led. This might address a present-day priority, but there is no reason why only industry should develop visions and be faced with research challenges. Hospitals, cities, development agencies and utilities at large are also concerned and could be active promoters of Technology Platforms. These actors might well be covered already under the present definition, but this was not visible from the documentation given to the Panel or the interviews made. The approach would thus benefit greatly from clarification and probably also from a wider definition of promoters to include, for instance, those actively involved in supply of public services.
- As for any new initiative, an important learning phase has to be undergone to delineate the different types of platforms and identify key success factors or critical turning points in their dynamics. Meetings between promoters have taken place to share experiences and good practices. The Panel considers that a more systematic analysis of the dynamics of the current platforms would be useful in nurturing the learning process and shaping it in a form useful to new promoters.

3.2 ERA Nets

ERA Nets have been presented as standing between the coordination of policies and cooperative projects. They focus on coordination of national research programmes and “operators”. The “clients” of the action are ministries, funding agencies and research organizations.

Up to June 2005, there have been four successive cut-off dates under an open call with a total of 110 M€ of support granted. Up to the third cut-off date, support could be requested either for the initial phase of exploration and definition of the ERA Net only (via an SSA) or for establishing the ERA Net’s strategic plan and initiating joint activities, in particular “joint calls” (via a Concerted Action (CA)). The fourth cut-off date requested proposals for CAs only.

For ERA Nets, the normal peer reviewing process has been adapted to take account of the specific nature of the activities: the peers are other “research managers” (selected from fields other than that of the proposal) complemented by an expert in the field covered by the proposal.

Nearly 200 proposals (just over a third for SSAs) were received during the first four cut-off dates, representing over 1600 country participations from all members states (and beyond) and requiring four times the available budget. Forty six percent of all the proposals were funded. The success rate

for SSA proposals was 37% and for CA proposals 52%. On average, a selected ERA Net involved 14 participants and 11 countries.

The Commission classifies ERA Nets into broad themes. Life sciences, environment/energy and industrial technologies/IT have roughly similar numbers of ERA Nets while social sciences and humanities and fundamental research have rather less. However, this approach does not aid the understanding of the underlying dynamics of ERA Nets. A very preliminary categorisation highlights five main types, which:

1. coordinate wide research fields (e.g. social sciences, humanities, chemistry, materials or marine research)
2. build specialities at EU level (e.g. plant genomics, functional genomics, bio-energy, catalysis research, complex systems research)
3. focus on research on specific ‘collective problems’ (e.g. infectious diseases, rare diseases, cancer clinical practice, flood management)
4. coordinate sector-driven technology (e.g. space, transport, wood, construction)
5. address horizontal issues in research and innovation (e.g. women in science, coordination of bilateral cooperation with specific third countries, science awards, foresight, science education, support to SMEs).

When discussing the relationship of the selected ERA Nets with FP6 priorities, the Commission services considered that 80% did not fall in any clear FP6 category, none corresponded to any bullet point of the FP6 work programmes, and quite a number were not expected at all.

In a few cases (e.g. hydrogen fuel cells, aeronautics), the ERA Net exists alongside a Technology Platform, acting as both a support to the functioning of the platform and a complementary approach to coordinate member state public interventions.

Comments of the Panel

Coordination of policies between member states has always been a challenge. Although it is too early to analyse effective dynamics, it is clear that the ERA Net concept is attractive and drives “research operators”² to gather together “bottom-up” and enter into the process of sharing information, practices and, we hope, resources. This Panel has two major comments:

- ERA Nets respond to the longstanding quest for a means of extending cooperation beyond the themes covered by the FP priorities. It is thus important to continue the experience in FP7 at a sufficiently significant level. The inclusion of a new incentive in ERA Net+ (where the Commission tops up member states’ funding of “joint calls”) will probably increase the attractiveness of the instrument, thus providing a pragmatic and effective means of building the ERA in public sector research. However, this will only take place if the scope of the instrument is not restricted to established FP7 priorities. The thematic variety observed so far (which extends far beyond the FP6 priority areas) calls for expanding the present FP7 proposal (which sees the ERA Net solely as an instrument mobilised by the thematic priorities) and including a specific “horizontal line” within the Cooperation programme for “operator or institutional cooperation”.
- Even more than with Technology Platforms there is a need with ERA Nets to share experience and lessons learned about key steps, common pitfalls and success factors. The large number of ERA Nets calls for more than the informal accumulation of knowledge by

² The term was created during the 1980s by Robert Chabbal in his report about the organisation of the evaluation process for EU research activities. It encompasses all the established bodies, programmes and procedures that lie between governmental policy-making and research performers. The main research operators are: research councils, funding agencies, research institutions (like CNRS or Max Planck), national programmes or ‘procedures’ like the research tax credit.

programme managers or monitoring panels. It calls for establishment of an “observatory” that could also act as a space for provision of advice for promoters and coordinators.

3.3 Research infrastructures

Within the scope of the Community action, the term “research infrastructures” refers to facilities that provide essential services to the scientific community for basic or applied research. They may concern any of the whole range of scientific and technological fields, from astronomy to social sciences (an area largely neglected previously as far as research infrastructures are concerned) through genomics or nanotechnologies. Examples of research infrastructures include libraries, databases, biological archives, clean rooms, communication networks, synchrotrons, accelerators, telescopes. They may be single-sited, distributed, or virtual. Research infrastructures are essential tools for the development of leading-edge scientific and technological research in Europe. By attracting users from various countries and through networking they integrate and structure the scientific community and play a major role in the construction of the ERA.

The calls for proposals published so far under FP6 have attracted large numbers of proposals in a wide range of fields. The total funds requested were much greater than the financial resources available. So far, calls for proposals have been through a bottom-up approach. Call 4 covered Design Studies and Construction of New Infrastructures and closed in March 2004; it resulted in 121 evaluated proposals. Call 5, on Transnational Access and Integrating Activities, closed in March 2005 with 145 proposals.

In 2003, the Commission established the European Strategy Forum on Research Infrastructures (ESFRI). In September 2004, ESFRI began preparations for development of a European roadmap for new large-scale research infrastructures. So far, a “list of opportunities” comprising 23 research infrastructure projects has been developed.

Comments of the Panel

Sharing expensive infrastructure and using complementary facilities can increase the competitiveness of the ERA and support capacity building.

- The Panel recognizes the need to develop a vision and roadmap for research infrastructures in Europe for the next 10 to 20 years. In this context, ESFRI should play an important role.
- However, although the need for a strategic approach is undisputed, the Panel is also aware that processes of filtering tend to favour well-established research areas to the disadvantage of recent and emerging scientific topics. Thus it is important that the bottom-up approach be maintained by, for example, increasing the scope and number of feasibility study actions.
- Organising knowledge in public web-based archives open to all citizens should be encouraged and receive support as a particularly cost-effective way of combining opportunities for international cooperation in support of a strengthened science infrastructure with a legitimate *modus operandi* that ensures high public support.

3.4 NEST / FET

The New and Emerging Science and Technology (NEST) and Future and Emerging Technologies (FET) initiatives are aimed at promoting novel and emerging scientific ideas. NEST is managed by DG Research and was created in FP6 outside the thematic priority areas. FET, on the other hand, is managed by DG INFSO within the IST thematic priority and has a longer tradition that dates back to Esprit Long Term Research. The FP6 budget available to NEST is 240 M€ over four years. FET has a budget of about 300 M€ (i.e. 9% of the overall budget for the IST priority).

In both these initiatives, the research areas supported can be determined by researchers who can submit proposals of any topic using a bottom-up approach, as in NEST-Adventure, NEST-Insight and FET-Open. Alternatively, they can be predefined in the calls using a top-down approach as in NEST-Pathfinder and FET-Proactive. NEST-Pathfinder focuses on topics determined in consultation with the scientific community. Similarly, FET-ProActive focuses on a small number of strategic areas identified after consultation with relevant scientific and technological communities and research associations like ERCIM. Both initiatives encourage interdisciplinary and innovative research.

It is worth noting that FET and NEST have supported activities that ended up in the mainstream programmes. Examples are nano-electronics, quantum computing, mathematics, pervasive computing.

NEST uses traditional instruments only, whereas FET uses both traditional and new instruments. Open call research proposals follow a two-stage submission and evaluation process. The evaluation starts with remote assessment of outline proposals, typically consisting of few pages, followed by assessment of a reduced number of full proposals. Despite the open nature of the calls, oversubscription has not been too high and the overall success rate has been in the acceptable range for up-stream research of around 10%.

FET-Proactive initiatives are implemented through the new instruments and evaluation of the proposals is based on remote assessment followed by a consolidation meeting and project hearings in Brussels.

Comments of the Panel

- The Panel recognizes the importance of initiatives like NEST and FET for the development of new scientific knowledge and technological capabilities with very high potential impact. It suggests that they be given a higher visibility within the Commission for strategic considerations.
- The Panel supports the idea of including new and emerging science and technology in the next FP in each thematic priority area of the Cooperation programme (as has been the case for FET in the present and previous FPs) as well as in the Ideas programme implemented by the European Research Council.

3.5 Marie Curie enlarged in FP6

Due to the numerous new developments introduced in FP6 Marie Curie Actions and the recognised importance of research training for the ERA, the Panel decided to devote a specific section to this theme in its review of new initiatives. The panel was struck by two main aspects which are considered separately below: the very high oversubscription rate of the different incentives supporting mobility; and the important activities devoted to framing an adequate European environment.

Framing the European environment for mobility

Mobility requires an adapted institutional framework and “generic infrastructures” that support it. Establishment of these is an important task of the Directorate in charge of Human resources, mobility and Marie Curie actions.

As pointed out by the Commission, the main 2004-2005 policy developments are the Directive and recommendations on entry and residence of third country researchers, and adoption of the European researchers’ charter and the code of conduct for the recruitment of researchers.

The Commission also promotes a set of “infrastructures” to support mobility as witnessed by the rapid development of the pan-European researchers’ mobility portal, launch of ERA-MORE (a network of 170 centres in 33 countries aimed at providing information and practical assistance to

researchers and their families relating to their mobility experience), and preparatory work for the ERA-link network of EU researchers working in the US.

There have also been important awareness activities, with the 2005 awareness campaign (the call for proposals selected 29 projects), the first European researchers' night (planned for 23 September 2005), the second Marie Curie week in Warsaw (during which the Marie Curie awards were presented), the 2004 Paris conference on "brain drain, brain gain", two documentaries on the researcher's profession (with ARTE), and the preparation of a television series expected for 2006. Finally, the Commission has given IPTS a contract to develop a methodology for measuring researchers' flows and the role of mobility in career paths. These developments are critical for the future.

Incentives to increase researchers' mobility

Although the funds allocated to mobility were increased in FP6, the increase does not match demand, as witnessed by a rate of increase in proposals received of 70-80% for all the major Marie Curie instruments. As a result, success rates are low – around 7% for training networks, host fellowships for early stage training (EST) and excellence grants, and between 12% and 15% for individual fellowships including chairs. Only the new initiatives have better rates: 24% for host fellowships for transfer of knowledge and >90% for reintegration grants.

The Commission considers that, to diminish pressure, it should target the calls more and take some restrictive measures concerning eligibility. The latter – even if they are useful in, for instance, preventing one individual from submitting five different applications for a fellowship – are of marginal impact and only for the short-term. Other solutions tested this year have been to merge the two EST calls into one and to restrict one of the research training networks calls to inter-sectoral and multi-disciplinary projects, thus reducing the number of applications. In addition, the 2005 deadlines for EST and RTN have been brought close together, which could reduce proposal numbers since many consortia have in the past posted multiple near-to-similar applications to the different annual calls. The problem however remains: bearing in mind the very limited share of on-going "early stage researchers" covered by the present scheme, the pressure can but increase for a number of years. Even the tripling of the budget in FP7 might not be enough to arrive at the 20% success rate considered acceptable by the Marie Curie advisory board. The Directorate considers that at current budget levels it cannot provide support for all types of mobility. Rather, its role has to be one of setting the scene and providing relevant benchmarks, which means that systematic implementation is the remit of member states.

Whatever the viewpoint, the Directorate will be faced with a continuous increase in the numbers of activities it has to handle in the future. It is thus critical for it to focus on administrative implementation. To overcome long times-to-contract, the Directorate has been reorganized to achieve better balance, all individual actions being pooled together. It is also worth noting that the Marie Curie initiatives are at the forefront in using IT tools for remote evaluation. The Panel recognizes that all these steps are important starting points for coping with the present situation.

Comments of the Panel

The Panel considers that support of training activities and, therefore, capacity building is a priority for establishment of the ERA.

- The Panel recognizes the important role of the Commission in establishing a shared European framework for research training and suggests that the ex-post evaluation of FP6 considers these activities specifically as part of their overall analysis.
- The current oversubscription rate is an indicator of an important need. The Panel recognizes that with the present budget the Commission can only develop actions that provide initial leverage for further actions of the member states. The Panel recommends that the

Commission should be given sufficient budget to ensure broader coverage of mobility for researchers.

- The Panel considers that, after project selection and contract negotiation and drafting, the next stage the Commission will have to address is contract implementation, where staff increases might not be enough to cope with the expected growth. It might be interesting for the Directorate to examine other approaches to the management of contracts.

4. Implementation Process – EC at work

During the implementation of FP6 some difficulties were encountered, especially during the initial phases where experience with new instruments had to be gained. The Commission reacted to this experience and to the recommendations of previous monitoring panels. Therefore, the present Panel focused in particular on two aspects: the performance of new measures undertaken to rationalise and accelerate project selection and implementation; and the role of IT tools in the different stages of the implementation process. The annual management plans of the Directorates-General were consulted on specific topics; the Panel felt these were useful sources but found it difficult to locate relevant information in them.

4.1 Interpretation of new instruments

FP6 was designed with the explicit purpose of contributing to the creation of the ERA. To this end, it introduced novel instruments – notably, Integrated Projects (IPs) and Networks of Excellence (NoEs) – aimed at providing a powerful structuring effect and reducing fragmentation of research efforts and capacities in Europe. In addition, new approaches to facilitating the implementation of these instruments were introduced. These were intended to achieve a move from *ex ante* to *ex post* control by the Commission, greater autonomy and flexibility in the management of projects by the participants, and simpler financial and administrative rules compared to previous FPs. Much effort has been spent providing explanations of the purpose and modalities of the new instruments, but a number of start-up problems did occur. The massive response to the first calls for proposals resulted in higher-than-expected oversubscription, creating disappointment in unsuccessful applicants. Based on the experience of its own services and input from proposers, Programme Committees and other stakeholders, the Commission started implementing corrective measures, which contributed to alleviating the situation in the subsequent round of calls.

Many of the corrective measures introduced by the Commission were in line with the recommendations of the Marimón panel of high-level experts entrusted with carrying out a mid-term review of the impact of the new instruments. In its Communication published in August 2004, the Commission welcomed the main conclusions of the Marimón report and gave details of the corrective measures already taken or to be taken in the future in response to the report.

Scientific officers and contractors together put a great deal of effort during 2004 into establishing the NoEs funded from the first FP6 calls – particularly their Joint Programmes of Activities. However, it is apparent that different Directorates and Units still have different perspectives of what constitutes an NoE.

During 2004, programme managers in individual thematic priority areas refined their concept of the particular role they expect each instrument (IP, STREP, NoE, etc.) to play.

Comments of the Panel

- The Panel endorses the Action Plan prepared by the Commission in response to the Marimón report, and its implementation started in 2004. However, anecdotal evidence suggests that information and guidance from the top level of Commission staff does not always reach the implementation level of scientific officers and project coordinators. Thus, particular attention should be paid to informing and training all the staff involved – sharing experience and using this experience to plan how future issues should be dealt with. A Task Force dealing with all complaints raised by proposers or project coordinators might be a good starting point for defining further improvements in accelerating and simplifying procedures.

- The Panel suggests that even more effort should be put into establishing a common view of NoEs. Additionally, it seems that a more systematic review of the dynamics of the whole process of implementing NoEs is needed.
- The Panel suggests that, in attempting to simplify matters in FP7 by removing the legal distinction between IPs and STREPs, care should be taken that the different concepts associated with the current IP and STREP instruments should not be lost.
- The Panel recommends that more flexibility be permitted in the handling of instruments to allow them to respond to different requirements, such as different sizes and kinds of project, or the needs of growing research fields such as social sciences or interdisciplinary research.
- Despite progress, participation in FP6 remains complex for non-administrators and, in particular, smaller actors. Further simplification and rationalisation is a *conditio sine qua non*. In this context, the proposal for FP7 represents both an opportunity and a challenge. The Panel therefore greatly welcomes the establishment of a Commission inter-services working group to bring forward proposals for simplification under FP7 and the set up of the Sounding Board of smaller actors with the aim of removing or reducing the barriers faced by small players participating in FP7.

4.2 New selection mechanisms

FP6 introduced as major new instruments IPs and NoEs. A two-stage proposal process has been used in a number of thematic areas for IPs, NoEs and, in a few cases, for STREPs. A major reason for introducing two-stage evaluation for IPs and NoEs was to reduce the workload for proposers and improve the quality of full proposals. However, apart from anecdotal evidence, it is not clear if these goals have really been achieved. Some coordinators consider preparing a first-stage proposal to be nearly as much work as preparing a full proposal. Other problems have arisen from lack of continuity in the evaluation process. In some cases not a single member of the evaluation panel for the first-stage evaluation participated in the second stage. In a few cases this resulted in contradictory assessments of key elements of the research approaches chosen by proposers. The Panel cannot judge if the reported problems are exceptions since systematic analyses are not available. The Commission plans to continue the two-stage evaluation processes and to support submission formats for full proposals where the proposal text can be transferred directly to Annex I of the contract. This could speed up the negotiation process and reduce the time required for contract preparation.

A two-stage proposal evaluation process was also used for STREPs in FET and NET, to scan for innovative ideas. The high success rate in the second stage is a sign of the success of this procedure.

Given the size of some of the large projects, the number of high-level European researchers involved in the application processes, and the ambitious nature of many programmes, it has been increasingly difficult to find independent experts of sufficient international calibre. Overall, it was reported that reviewers welcome remote individual assessment but prefer face-to-face meeting for reaching consensus. The Commission services noted that briefing new experts for remote evaluation is challenging and requires specific tools. It also reported that some stakeholders expressed concern about the potential lack of confidentiality associated with individual remote assessment.

Comments of the Panel

The Panel recognizes clear advantages of a two-stage evaluation process in case of large collaborative projects and networks and to screen innovative ideas in new emerging areas of research.

- The Panel recommends that a careful analysis based on empirical evidence be carried out to ascertain whether the two-stage process has really reduced the workload for proposers and if the quality of proposals has indeed increased.

- A certain degree of continuity in the membership of evaluation panels for first- and second-stage proposals should be ensured.
- The Panel recommends that use of remote individual evaluation be increased, even though some stakeholders expressed concerns.
- So far, experience of remote consensus is limited. The Panel expects that the use of the remote evaluation tool RIVET will enable further experience of remote consensus to be gained. This should be monitored to enable judgements to be made on the potential benefits, problems and areas of application.

4.3 Annual review of new instruments

The first-year reviews of the oldest FP6 projects are currently under way. In the majority of cases, the review is carried out by one or more peer reviewers with relevant expertise from the scientific community. The reviewers examine the first-year reports and financial information, make a site visit, and report to the Commission scientific officer. In general, the reviews are proving a success. The following points are worth noting:

- Project participants who have had review meetings seem to have found the experience valuable.
- Review of NoEs is proving particularly difficult. Reviewers are required to evaluate the degree of integration achieved by the network using a methodology based on a number of performance indicators. Interpretation of these indicators for a particular NoE takes a good deal of time on the part of the reviewer and scientific officer working together. The results are essentially subjective.
- Similarly, it is proving difficult to evaluate the financial information submitted by NoE contractors. The contract was negotiated on the basis of per capita information whereas the first year report breaks the information down by activity and contractor. It is therefore difficult to compare the actual data with the contract budget.
- The question as to whether contractors who have done no work in the first year are legally obliged to submit audit certificates needs to be resolved.
- It was reported that the time allocated to external experts for reading deliverables and reports of the project under review was not always sufficient.
- The rule that the reviews must be completed with 45 days of receipt of the contractors reports is proving difficult to meet and needs reassessing.

In one specific instance the Panel saw a different approach. In this case the review process was organized around a panel of external experts who prepare for the review at their own site and then meet in Brussels for a week, listen to the project presentations, ask questions and write the review reports with the recommendations about the continuation of the projects. This review process seems efficient in terms of time and mobilized resources.

Comments of the Panel

- The Panel suggests that, when the current round of reviews has been completed, the efficiency and effectiveness of the procedure should be assessed.
- The Panel found the “panel-based review procedure” compelling and recommends that information on this process be spread as a “good practice”, to be adopted when feasible.
- Further work should be done on the methodology to be used for measuring the degree of integration of NoEs.

- As the effort needed to become familiar with an IP or NoE is typically large, any requirement to rotate experts should be reconsidered. It is advisable that the pool of experts who review a given project does not change (or only changes to a limited extent) during the lifetime of the project itself.

4.4 IT tools

IT tools which support the management and implementation of the FP currently serve five DGs with a large variety of needs and requirements. The activities across DGs and Units within DGs are organized in different ways and involve very different workflows. Hence, the design a single set of IT tools that suits all workflows is highly challenging.

In the design and development of IT tools, time and formal constraints often play a crucial role at the expense of reliability and innovation. Some tools (especially in their earlier versions) met with strong criticism from users within and outside the Commission because of bugs and poor usability. Moreover, tools developed early in the FP (e.g. CFP for contract management) did not always conform to the state-of-the-art in the IT field. More recently developed tools (e.g. RIVET for remote proposal evaluation) conform better.

Since the beginning of 2005, the Unit responsible for IT tools has devised more “acceptance tests” for the prototypes of the software tools being developed. These tests involve users from inside and outside the Commission. The objectives of these tests are to evaluate the design specifications of the tools and to assess the latter’s robustness and usability. Specific Commission staff are responsible for checking the functionality of the tools, whose development is contracted outside the Commission. The Panel was told that, despite the importance of these activities, not all of the five user DGs participate in the definition of the tool specifications and in the acceptance tests in a way recommended for effective IT-development.

Comments of the Panel

The Panel recognizes that the task of designing and implementing in a short period of time an integrated information system capable of addressing the heterogeneous workflows of Units in different DGs is complex and challenging. Nevertheless, the lack of an information system accepted by all the “actors” leads to inefficiencies (e.g. data inconsistencies) and waste of resources (when, e.g., different tools to perform the same task are developed by different Units).

- A tighter link between the overall planning and implementation of the FP and IT tools development should be established. Workflows, procedures and standard reporting used by Units within and across DGs should be analyzed to achieve a better integration.
- The Panel recognizes the key role played by acceptance tests to evaluate tools being developed and to identify possible corrective actions at earlier stages. These tests represent a useful vehicle to promote the use and acceptance of IT tools. They should be applied to a greater extent and involve a larger number of users.
- To support the new approach being proposed by the Commission for programme evaluation in FP7, the Panel recommends that appropriate IT tools for data mining and decision support systems could be designed well in advance. These tools should provide Commission senior management with quantitative data for monitoring implementation and tracking progress of the FP.

5. Participation of Actors

One of the main measures of the success and effectiveness of FP programmes is the participation of major actor groups. The Panel decided to examine the involvement in the programme of three groups which are significant in establishing the ERA, strengthening the competitiveness of the European economy, and increasing Europe's role in the global science and policy arena. These are the INCO partner countries, small and medium-sized enterprises (SMEs) and the new member states.

5.1 International S&T cooperation – INCO partner countries

The EC has long-standing experience of international S&T cooperation. This has evolved over more than 20 years into a constituent part of the FPs, being known as 'INCO' since FP4. Research priorities for international S&T cooperation sponsored by the Union, even when not clearly identified as such in the programme priorities, have been formulated through bi-regional dialogue or by reference to EU commitments in international negotiations such as the Kyoto Protocol, the Convention on Biological Diversity (CBD), the Millennium Development Goals (MDGs) and the Johannesburg Plan of Implementation (JPOI) adopted at the World Summit on Sustainable Development in 2002. Recognition of the continuum between education, life-long learning, research and innovation as a core factor for sustainable development is increasing and informs policy formulation in Europe and elsewhere.

Compared to previous programmes, a novelty of FP6 is a stronger emphasis on international cooperation in the Specific Programmes. Three major routes have been designed for international S&T cooperation, as follows.

1. The opening of the Specific Programme 'Focussing and integrating Community research' to third country organisations, with substantial funding. Through this, participation of third countries in the seven thematic priorities and the specific activities covering the wider field of research (e.g. policy support and SMEs) has been encouraged. The funded work is carried out from the perspective of European interest and/or contribution to global efforts. 285M € has been allocated for INCO partner countries' participation.
2. Specific measures in support of international cooperation (INCO) based on mutual interest and benefit. The aim is to research issues from the perspective of contributing to problem-solving in the partner regions. 315M € has been allocated to this.
3. Support for international researcher mobility using both incoming and outgoing Marie Curie fellowships.

The total budget for international S&T cooperation through routes 1 and 2 is 600M €. To date, route 2 (the specific INCO programme) has spent its allocation as planned.

An example of international cooperation that combines different routes and shows high potential impacts is provided by research on integrated water resources management. The European Water Framework Directive is a highly innovative and ambitious piece of environmental legislation. Under FP5, 350M € was spent on the key action water (precursor of part of FP6 Thematic Priority 6) to build up a basic knowledge base supporting implementation of the WFD. At the same time, INCO invested significant resources into more than 60 water-related scientific cooperation projects with teams from different parts of the world. During the UN World Summit on Sustainable Development held in Johannesburg in 2002, the EC launched the European Water Initiative to support sustainable water resources management in developing countries, the EC launched the European Water Initiative to support sustainable water resources management in developing countries by raising political awareness about crucial water issues, capacity building in partner regions, improved coordination and by mobilizing the necessary financial support. As part of the

opening of FP6 to third country organisations (route 1 above), a number of the current Priority 6 projects have the goal of providing efficient knowledge and technology transfer between European and developing countries. Efforts are under way to increase coordination with support from the specific INCO budget line (route 2) and enhance effectiveness overall, seeking improved links between research and other international policies (RELEX, Development, Environment, Trade). The potential for strengthening Europe's international political and economic impact is substantial.

Despite the good intentions and potential prospects, however, there has been a general under-use of route 1 – the FP6 285M € budget for INCO target third countries' participation in the thematic priorities. The problems were analysed by an internal Steering Group and an external pilot working group established at the request of the Programme Committee. The main reasons given for the under-spend were: lack of awareness; lack of information and trust on both sides; lack of research potential in third countries; IPR; an evaluation process that does not take account of international cooperation objectives; different administration and financial procedures. Unfortunately, the budget for opening the thematic priorities to international cooperation was not clearly earmarked as such and as a consequence part of the money initially targeted might have been allocated for other purposes.

The lack of success illustrates the need to integrate international cooperation objectives fully into proposals evaluation criteria. It also underlines the existence of a separation within the European research community between those researchers who have been working in the INCO programme and those who have mainly focused on research within thematic priorities from the normal European perspective. This suggests the need to involve in the programme as much as possible researchers able to integrate and balance the objectives and needs of the INCO programme and those of the thematic research priorities.

The guiding principles of the INCO programme are that the objectives of the project work programmes are determined together with the partner countries in the target regions, and that the benefits and profits from the research are shared equally. Mutual trust requires long-term partnerships and the need to build on past achievements. The establishment of long-term partnerships would benefit from more coordination at EU level. However, attempts to further increase the impact of cooperation with developing countries suffer from the lack of a coordinated foreign policy and a lack of common understanding of what constitutes good practice. As a result, good experience at the INCO projects and programme level has not been amplified – as would be desirable – through uptake in other policy areas with international dimensions, such as RELEX, Development, Environment, Trade, nor has upscaling so far taken place in the thematic priorities.

Comments of the Panel

- The Panel recognizes the need for the development of a plan for establishing collaborations and S&T exchange with third countries, particularly international cooperation partner countries (INCO target countries), which would guide and support individual projects and support the establishment of long-term collaboration and enduring relationships of mutual trust.
- Budgets for INCO country participation in work handled under the thematic priorities should be clearly earmarked as such and publicised better to scientific officers and researchers.
- It would be useful to establish a more efficient means for exchange with the INCO programme for projects implemented under thematic priorities, transferring to the latter the experience collected during years of successful international cooperation through INCO.
- International cooperation objectives and priorities should be fully integrated into the evaluation criteria used for evaluating proposals concerned with international cooperation.

- It would be useful to strengthen the connections at policy and programme level between all aspects of international S&T cooperation in the RTD and other external policy areas (RELEX, Development, AIDCO, Environment and Trade), as suggested by an on-going INCO impact study expected to provide detailed analyses and recommendations.

5.2 Involvement of SMEs

The encouragement of SME participation in European research is a strong element of FP6, with the introduction of a new horizontal activity (Collective Research) and with the setting of a target of 15% of total funding for SMEs. The Panel made two observations on the current definition of SMEs adopted by the Commission. The first is that it includes all private for-profit and non-profit organizations, thus making it difficult to link the recorded SME rates of participation to actual industrial involvement in the thematic priorities of FP6. Secondly, the term SME is too broad to describe the technological status and the research capabilities of the relevant entities.

However, with regard to the second observation, the Panel was pleased to note that the FP7 proposal on SME specific measures targets both low to medium tech SMEs with little or no research capability and research-intensive SMEs in need of outsourcing research to complement their core research capability. This also clarifies the scope of the participation of research performing SMEs in the horizontal research activities involving SMEs.

In surveying SME actions during 2004, the Panel has focused on three topics: the horizontal activities of FP6; the thematic priorities; and the preparation for FP7.

The very high oversubscription rates during 2004 in Cooperative Research (CRAFT) and Collective Research horizontal activities testify to the interest that these programmes have generated among European SMEs and their Associations. This oversubscription has meant that only about 12% of proposals received funding. Given this wide interest, the Panel believes that there is need for specific impact assessment exercises to be carried out on the horizontal SME activities in FP6. As the Commission envisages a doubling of the budget for FP7, the Panel feels that it is important to know as early as possible what the relative impact of the various horizontal programmes has been so far.

In the thematic priorities of FP6, SME participation in 2004 was below the target of 15% of overall funding and the Commission is already taking actions to improve matters. There exist vast differences in SME participation rates among instruments, with STREPs being the SMEs' instrument of choice. The Panel still cannot be sure whether the difficulty of SMEs with the new instruments is a structural problem or whether we are still in the middle of a learning process, in which SMEs may gradually be getting acquainted with the new instruments. If the latter is the case, it is important to define more effective ways to encourage SME participation in IPs as already initiated under the thematic priorities of FP6.

The Panel was pleased to discover that, in preparing for FP7, the Commission intends to tackle a number of issues aiming to optimize the participation of SMEs. However, there is a management bottleneck that already poses problems, and the manner in which it will be addressed in FP7 may have serious implications for the implementation of SME projects. In FP6, the horizontal SME projects are managed by the 15 scientific officers in the SME Unit. That means that each scientific officer is currently in charge of 40 – 50 FP6 projects. The situation is likely to worsen in FP7, as the proposed budget for horizontal SME activities in FP7 is twice the FP6 budget. This has prompted the idea that the management of projects could be delegated to an external agency under the auspices of the Commission. Strategic and policy matters would remain within the Commission. This raises the concern that establishment of the agency might weaken the interaction and feedback between strategy and management of the programme.

Comments of the Panel

To ensure efficiency and effectiveness of measures taken to increase SME involvement, the Panel has three comments:

- Impact assessment of horizontal activities in FP6 must be conducted in 2005, as it may prove of great value in designing future research policy towards the strengthening of the innovation capacity of SMEs.
- As the Commission is already implementing SME IPs, it is important to be able to assess the experience of these IPs as early as possible.
- Extra care must be taken to ensure good coordination between operational management and strategic considerations if third parties are involved in managing project implementation.

5.3 New member states

It is of major concern that there should be sufficient participation of the new member states in the FPs to avoid creation of a knowledge divide in Europe. Available statistical data show new member states' involvement in research projects to be below that of the EU-15 countries if contracted participation or funds relative to the capacity of the national RTD system (e.g. per 1000 researchers) are examined. However, more detailed analyses³ provide additional information from which more important conclusions can be drawn.

The new member states usually have a lower intensity of RTD investment (Gross Expenditures on RTD – GERD) than the old member states. In the EU-15 the average spend reaches ~ 2% of GDP, whereas in the new member states the average spend is >1%.

Analysis of (nationally) contracted funds and GERD (see Annex II) provides clear evidence of a remarkably close relationship between GERD and contracted funds – higher GERD leads to higher subsidy of national research from the FP. Consequently, the best way to increase the participation (and contracted funds) of new member states is to invest more in RTD at the national level, i.e. to develop the national research capacity.

In this context, the potential of Structural Funds for developing national RTD capabilities in new member states should be considered. The experiences of Portugal and Ireland prove the success of such programmes. Measures eligible for structural fund support include RTD infrastructure, RTD equipment and instrumentation, training of RTD personnel, technology transfer mechanisms.

There is also the issue of whether different statistics should be used to assess FP participation. For instance, if the index relating contracted funds to GERD is used, i.e. “how many euros (or, rather, eurocents) are yielded by 1€ of GERD”, the new member states' participation appears much more successful than if traditional indicators like contracted funds or participants per 1000 researchers are used.

Comments of the Panel

- The Panel recognizes that high national investment in RTD is an essential prerequisite for a developed national research capacity and creates the conditions required for successful participation in the FP.
- Investments into capacity building in member states are considered to be a better strategy for ensuring long-term successful participation in the FP than enforcing participation of new member states by setting fixed quotas in the thematic priorities. The latter may be

³ See Annex II

detrimental to the quality of research proposals in areas where research capacities are not yet developed.

6. Evaluation

FP6 introduced major changes in rationales for intervention and instruments. In addition, new requirements were established for the introduction of new policies, the main one being linked to ex ante impact assessment. The changes caused the Commission to reconsider the overall FP evaluation process. In doing this, it benefited from inputs from the active network of evaluation practitioners working at EU level, the European RTD Evaluation Network facilitated by the Commission services, which discussed these issues at their conference in Maastricht in 2004. The Panel therefore addressed the changing evaluation scene as part of its 2004 monitoring.

6.1 Ex ante impact assessment

It is now mandatory for every EU policy, including FP7, to be accompanied by an ex ante impact assessment and ex post evaluation. The 2003 monitoring panel recommended that future panels should pay attention to the state of implementation of ex ante and ex post assessments as a means of judging the effectiveness of FP programmes.

The Panel looked into the Commission's ex ante impact assessment for FP7. The authors of the assessment report point out clearly that it is difficult to assess impacts of research policies because of the lack of unambiguous causalities between research investments and effects, and the time-lags of effects. The assessment investigates impacts along the three dimensions of sustainability – economic, social and environmental – and was based on both past experience from previous FPs and forecasting methods.

Past experience provides clear evidence that FPs boost scientific performance and increase international competitiveness. Firms participating in FP projects are more innovative and produce more patents. It remains unclear whether the more innovative firms are more likely to participate in FP projects and/or whether participation in FP projects increases the potential for innovation. Participants in FP6 projects are more likely to collaborate. Hence one can conclude that FPs support capacity building. However, capacity building without investment in long-term cooperation has little impact. Overall, past FPs supported the establishment of trans-national research collaborations and the integration of national research in the EU – and, therefore, the establishment of the ERA.

Economic models were used to make forecasts of the micro- and macro-economic effects of the planned FP7. Expected impacts include increased turnover and profitability and a benefit of 4-7 € per 1 € invested in RTD. Impacts on GDP and employment were quantified for different FP7 funding scenarios. Assessment of the potential economic impacts of research programmes was not linked to any plan for ex-post evaluation to test if the assessments were appropriate. Numbers were given with a high level of accuracy without uncertainty boundaries.

Impact assessment is an important but – from the viewpoint of how the results are used – sensitive issue. The evidence base and data collection, including the reporting process, need to be improved. Methodological gaps and lack of experience with impact assessment may have an effect on the quality of the results. In particular, it is difficult to establish causal links between input (i.e. the money spent on RTD) and output (i.e. the benefits for society).

Comments of the Panel

The use of impact assessment to support the policy process is very welcome. The Panel acknowledges the first attempts made.

- To increase the usefulness and political impact of an impact assessment, potential users should be involved in the process at an early stage. It might, for instance, be beneficial to make joint identification of indicators and uncertainties, and involved a representative user group in scenario development.

- Impact assessments based on statistical analyses give few insights without more in-depth analyses. It could be useful to investigate and report individual examples of successes and failures in more depth, instead of providing only overall statistical summaries.

6.2 Reshaping the evaluation process

The evaluation process has now been established in its present shape for a decade. However, it is faced with a set of transformations that have driven the Commission to reconsider the overall system. The Panel considers these in turn before making some suggestions for the future.

Four challenges facing the present evaluation process

The first two challenges are linked to the overall evolution of the objectives and implementation of the FP. They require the evaluation process to reconsider two assumptions which are key to present methodologies. The first assumption considers that programmes are made of such large numbers of quasi-similar projects that the overall programme results will not be endangered by the failure of any one project. With the advent of IPs and NoEs, this might no longer be the case: whole topics in thematic priorities' work programmes are now often addressed by one large project. Thus, the fate of individual projects might have strong influence on the overall impact of a programme.

The second assumption is that collaboration as such is a positive output whatever the initial situation. It is now recognised that, over a certain threshold, diversity turns into fragmentation and is counter-productive. There is thus a need for mapping and judging the initial state, and adopting measures that will foster not only project-based collaborations but also lasting integration. How to measure the degree of fragmentation? How to monitor integration? These new questions cause evaluations (both ex-ante and ex-post) to face difficult theoretical and methodological issues. They probably call for radically new approaches based less on global indicators that are mostly derived from opinion surveys or econometric models, and more on "maps" similar to those produced by geographic information systems.

The third challenge is linked to the adoption of a new decision-making process within the Commission and the systematic requirement for ex-ante assessments. This faces evaluation with a lasting issue since the causality between very broad objectives (e.g. improving competitiveness or employment) and precise actions (which are limited in scope to match the RTD support) is difficult to establish. This calls for focusing attention on the ways political "broad" goals are transformed into "research policy objectives" and expression of the latter in ways that are "verifiable", i.e. subject to quantification or description which can later be measured or traced. This has three implications for the proposed process. (i) The establishment of verifiable objectives should be a major deliverable of ex-ante impact assessment activities, requiring strong articulation between both activities. (ii) However, one should be cautious, at least for the coming period, to keep open the notion of "verification" and recognise that in many instances, "qualitative indicators" (which are better labelled "descriptors") are better suited to analyse effects. (iii) This calls for considering the first round of such evaluations as "real size experiments", thus accepting a trial-and-error process and remaining realistic in terms of what it can deliver.

The last challenge relates to the blurring of evaluation results due to the disconnection introduced by five-year assessments between effective FPs and the evaluation results. Introduction of five-year assessments answered a difficult problem. Typically, an ex-post evaluation arrives two years after the programme is finished, at a time when the new programme is being shaped. It means that evaluation provides lessons only from the previous FP and thus has limited (anecdotal) input to the new initiatives or activities developed by the on-going FP. Hence, the five-year assessments covering both the end of the previous programme and the first years of the on-going programme have been introduced. This can, however, bring confusion, especially when there is a need to address the specific effects of given programmes or activities.

Toward a new evaluation framework – the Commission’s proposal at a glance

The Commission considers the last issue in the previous paragraph to be a major problem. It therefore proposes to go back to classical ex-post evaluation that delivers results some two years after programme-end. To feed the preparation of the next FP with preliminary lessons from the on-going FP, the Commission proposes to add a new mid-term evaluation, based on the use of science panels, that focuses on the RTD content and development of the programme. This would be complemented by specific horizontal studies and a specific budget for methodological developments. Finally, the Commission has highlighted an internal need to improve the quality and reliability of available data.

Comments of the Panel

- The Panel supports the new evaluation process proposed. It suggests that the mid-term evaluation should also include specific activities to look at the development and potential of new initiatives. It would, for instance, have been useful to have had a specific analysis on the interest in and limitations of the IP instrument before deciding to discontinue it.
- For the ex-post evaluation, the Commission should consider whether a two-step panel process would not prove more fruitful. The first step would take a generic approach based on some initial studies. This would allow identification of the specific issues which require more in-depth analysis. The second step would take place a few months later, after the needed studies have been conducted, thus enabling the panel to tailor its recommendations.
- The Panel strongly recommends that the first sets of methodological research and horizontal studies are launched as soon as possible. This would prepare for the ex-post evaluation of FP6, enabling the future evaluation panel to start addressing the above-mentioned challenges.
- The Panel recognises that the requirement for information presents an important bottleneck. However it does not seem realistic to think that such a situation can be alleviated through changes to the central database. The Panel suggests that it would be useful to invest in the development of a “second layer” of IT tools to enable construction of a “data clearing house” that taps into existing disseminated information.
- Finally, the Commission should reconsider the present approach to annual monitoring (the object of this present report). The Panel supports the idea that the present approach to annual monitoring is not satisfactory and that it would be better to internalise it within the Commission, turning it into “self assessment” with publicly-available annual reports.

Annex I

A.1 Interviews of Commission services by the Panel

27 June 2005:

- **ERA-Nets:** F. Gautier, W. Wittke, M. Weydert, RTD B2
- **Research infrastructures:** H. Pero, RTD B3
- **Methodology of impact assessment:** B. Sloan, RTD A5
- **Rationalisation / acceleration:** M. Richards, RTD A3

28 June 2005:

- **Review of projects :**
 - **From a general point of view:** N. Hartley, RTD G1
 - **Life Sciences, genomics and biotechnology for health:** A. Vanvossel, RTD F2
 - **Information society technologies:** A. de Albuquerque, INFSO D1
 - **Nanotechnologies and nanosciences, knowledge-based multifunctional material, and new production processes and devices:** J. Suominen, RDT G2
- **NEST + FET/IST:** W. Cannell, RTD B1 & T. Van der Pyl, INFSO F1
- **IT tools:** M. Bohle & H. Van Delft RTD R5
- **SMEs:** T. Arnold, RTD M4 & Maria Pia Vigliorato, DG ENTR D1
- **Technology Platforms:** P. Kerr & S. O'Reagain, RTD B2

18 July 2005:

- **Marie Curie actions:** R. Liberali, RTD D
- **Project evaluation process and external agencies :** G. Stroud, RTD A2
- **Review of projects :**
 - **Food quality and safety:** J. Claxton, RTD E3
 - **Aeronautics and space (Surface Transport):** J. de Bock, RTD H2
 - **Aeronautics and space (Aeronautics):** D. Knoerzer, RTD H3
 - **Sustainable development, global change and ecosystems:** K. Zaunberger, RTD I3
- **Science and Society:** E. Magnien, RDT C1

19 July 2005:

- **Evaluation under FP7:** B. de Boissezon, RTD A4
- **International cooperation:** A. Karaoglou, RTD N2

A.2 List of reports / documents consulted by the Panel

Key Issues as set out in mandate	Name of doc	Ref.
0) General Information on FPs	Fifth Framework Programme	0.1
	Sixth Framework Programme	0.2
	Decision making - general	0.3
	Expression of interest Sixth Framework Programme	0.4
	Expression of interest Seventh Framework Programme	0.5
	NEST evaluation summary report - Confidential (June 2005)	0.6
	NEST - Information Seminar, October 2003	0.7
	NEST - A review of NEST experience, relevant to the FP7 "Co-operation" programme	0.8
	NEST - Dossier on RESEARCH POLICY and DG RESEARCH	0.9
	NEST - A 'successful experiment', November 2004	0.10
	NEST - Feathering the NEST	0.11
	FET - Open, Impact Assessment 1994-2004 (December 2004)	0.12
	FET - Collaborative basic research in ICTs in FP7, November 2004	0.13
	FET - IST Workshop, 'New Directions for ICTs in FP7: Grand Challenges for Basic Research'	0.14
	I) Follow up	
1. Overall follow up	Follow up of recommendations 2003	I.1.1
	The Monitoring report 2002	I.1.2
	The Monitoring report 2003	I.1.3
	Responses by Commission services to the 2003 Monitoring Report	I.1.4
2. Objective/ Indicators	Annual Management Plan 2004 RTD	I.2.1
	Annual Management Plan 2005 RTD	I.2.2
	Annual Management Plan 2004 INFSO	I.2.3
	Annual Management Plan 2005 INFSO	I.2.4
	Annual Management Plan 2004 ENTR	I.2.5
	Annual Management Plan 2005 ENTR	I.2.6
	Annual Management Plan 2004 FISH	I.2.7
	Annual Management Plan 2005 FISH	I.2.8
	Annual Management Plan 2004 JRC	I.2.9
	Annual Management Plan 2005 JRC	I.2.10
	Annual Management Plan 2004 TREN	I.2.11
	Annual Management Plan 2005 TREN	I.2.12
	Work programme 2004 - Life sciences, genomics and biotechnology for health	I.2.13
	Workprogramme 2004 - Nanotechnology	I.2.15
	Workprogramme 2004 - Aeronautics and space	I.2.16
	Workprogramme 2004 - Food quality and safety	I.2.17
	Workprogramme 2004 - Sustainable Energy	I.2.18
Workprogramme 2004 - Sustainable surface transport	I.2.19	
Workprogramme 2004 - Global change and ecosystems (call 2)	I.2.20	
Workprogramme 2004 - Global change and ecosystems (call 3)	I.2.21	

	Workprogramme 2004 - Citizens and governance in a knowledge-based society	I.2.22
	Workprogramme 2004 - New and emerging science and technologies (NEST)	I.2.23
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Annex II

FP6 – an instrument for balancing R&D spending in the member states?

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Introduction

With the end of FP6 drawing near, international discussion on its course so far has often followed a predictable pattern: the new member states are unambiguous in making clear that it has been less advantageous for them than they expected. The aim of this contribution is to compare “*a success of participation*” obtained using two different interpretation of official statistical data – (i) relating the total contracted funds to the national research capacity, and (ii) associating the total contracted funds to GERD (Gross Expenditures on R&D).

Statistics of participation in FP6⁴

The usually presented data on FP6 participation give absolute values for participation in FP6 projects by teams from the individual states. It is obvious that project participation is determined rather by the total capacity of the country’s research system than by the actual size of the population. Contracted FP6 participation converted to 1,000 researchers in the EU-25 states is given in the graph in Figure 1. It is immediately apparent that the new (vertically hatched bars) and old (horizontally hatched bars) member states are quite mixed – with Cyprus actually taking first place. Nonetheless, the new member states tend to appear in the “second” (right) half of the graph while the EU-15 states are usually in the first (left) half of the graph. The average ranking of the nine new member states is 16.6 while the average ranking of old member states is 12.4. Hence, when *taking into account only the total personnel capacity of the R&D systems, the new member states have a lower participation rate than the old members.*

⁴ Data sources:

Contracted contributions: European Commission, database of the SPI Programme Committee, January 2005;
GERD: Science and technology in Europe, Statistical pocketbook, Data 1993-2003, Eurostat, European Commission, 2005.

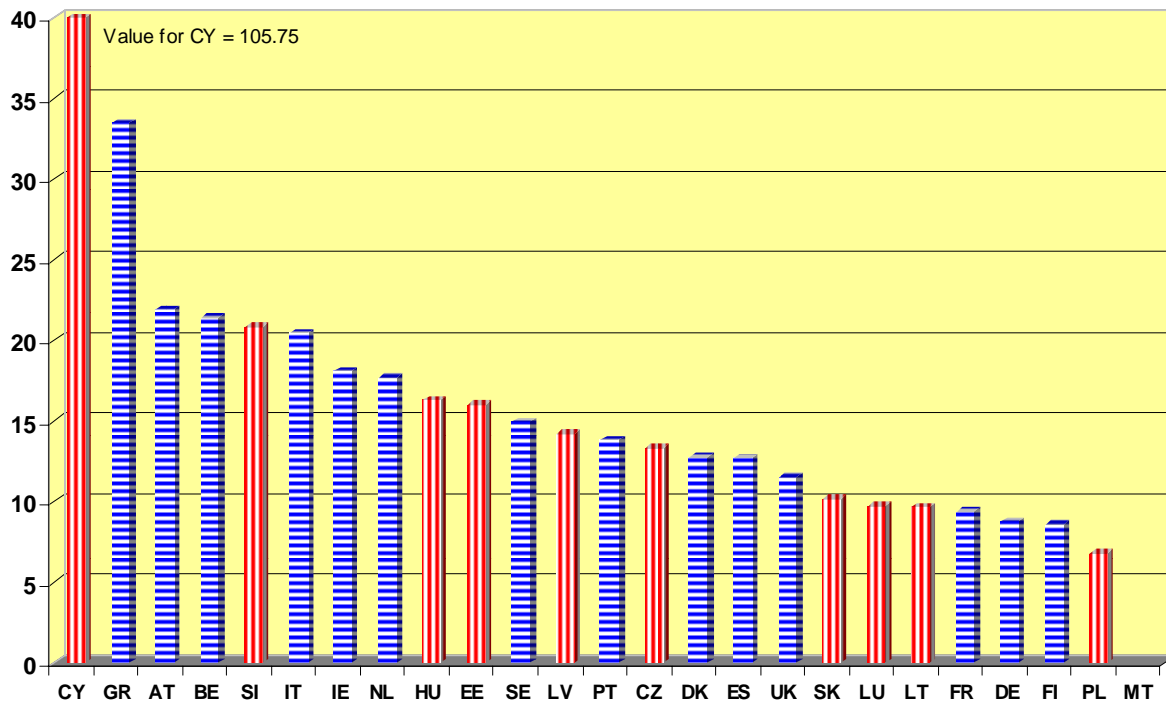


Figure 1. Participation in contracted FP6 projects per 1,000 research workers. (Data for Malta (MT) not available).

The interpretation of the statistical data presented in Figure 1 does not take into consideration the “importance of participation”. This is quite difficult to measure; nevertheless, the sum of FP6 funds contracted by teams from any given state does provide some information. Even here, it is obvious that the total contracted funds are strongly related to size of country. A comparison can be made by “contracted funds per research worker” for the EU-25, which is presented in Figure 2. This time, however, the new member states (except for Cyprus) are markedly concentrated on the right part of the graph, meaning that they systematically contract less per researcher than the old member states. This is undoubtedly due to the fact that the new member states have lower GDP per capita than the old member states (and the local costs of projects have a lower price level), but another cause lies in the structure of the contracted projects. For example, contributions to co-ordination projects and specific support actions are usually lower than contributions to research (thematic) projects themselves. Therefore, Luxembourg, which has the highest GDP per capita of the EU-25 but which participates in specific support actions more frequently than in costly research projects, ultimately contracted fairly small amounts.

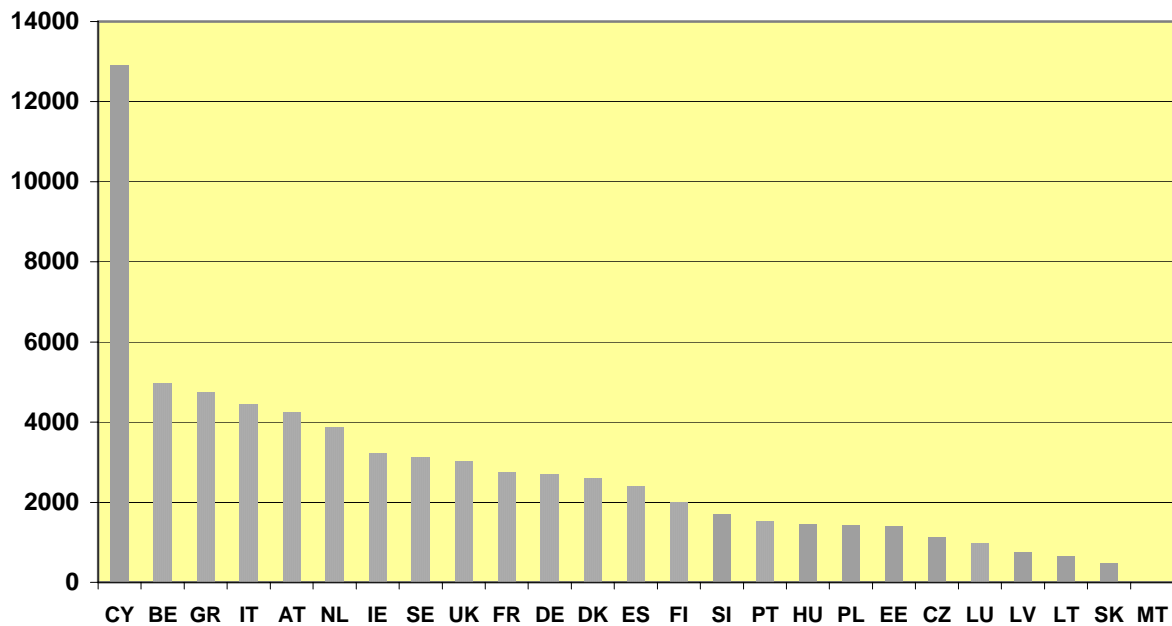


Figure 2. Total sum (€) contracted per researcher FP6 so far (Data for Malta are not available).

These statistics show that FP6 involves unequally-prepared states and that the new member states may feel they are “poor relatives” since they cannot ably compete with the old member states either in their GDP level or in their participation structure. However, there is a question: *are they creating conditions to extricate themselves from this disadvantageous position more quickly than imposed by the dynamics of GDP equalisation among the EU-25?*

New member states in FP6

The new member states usually have a lower intensity of R&D investment (i.e. GERD as a percentage of GDP) than the old member states, while the EU-15 spend approximately 2% of their GDP on R&D, the average among the new member states is less than 1%. *Let us therefore analyse the relation between the total contracted FP6 funding and the GERD.* The relation between the national contracted funds and GERD can be described by a simple regression formula expressing the contracted funds as a function of GERD - Figure 3. The contracted sum is expressed as a quadratic function of GERD. The strength of the relationship between the dependent variable (contracted sum) and the independent variable (GERD) is measured by the R^2 coefficient the value of which determines the percentage of the dependent variable’s distribution that can be explained using the independent variable. In this case, R^2 equals 0.9761, i.e., GERD explains approx. 98% of the contracted funds’ variability. This extraordinarily close relation between GERD and the contracted funds thus allows us to conclude that *“the contracted funds are determined (with high precision) by R&D spending (i.e., GERD)”*.

Especially the large states (DE, UK, FR, ES) follow the above regression relation closely, with Italy representing a distinct deviation from the common trend – Italy contracts more from FP6 than would correspond to this theoretical dependence on its GERD.

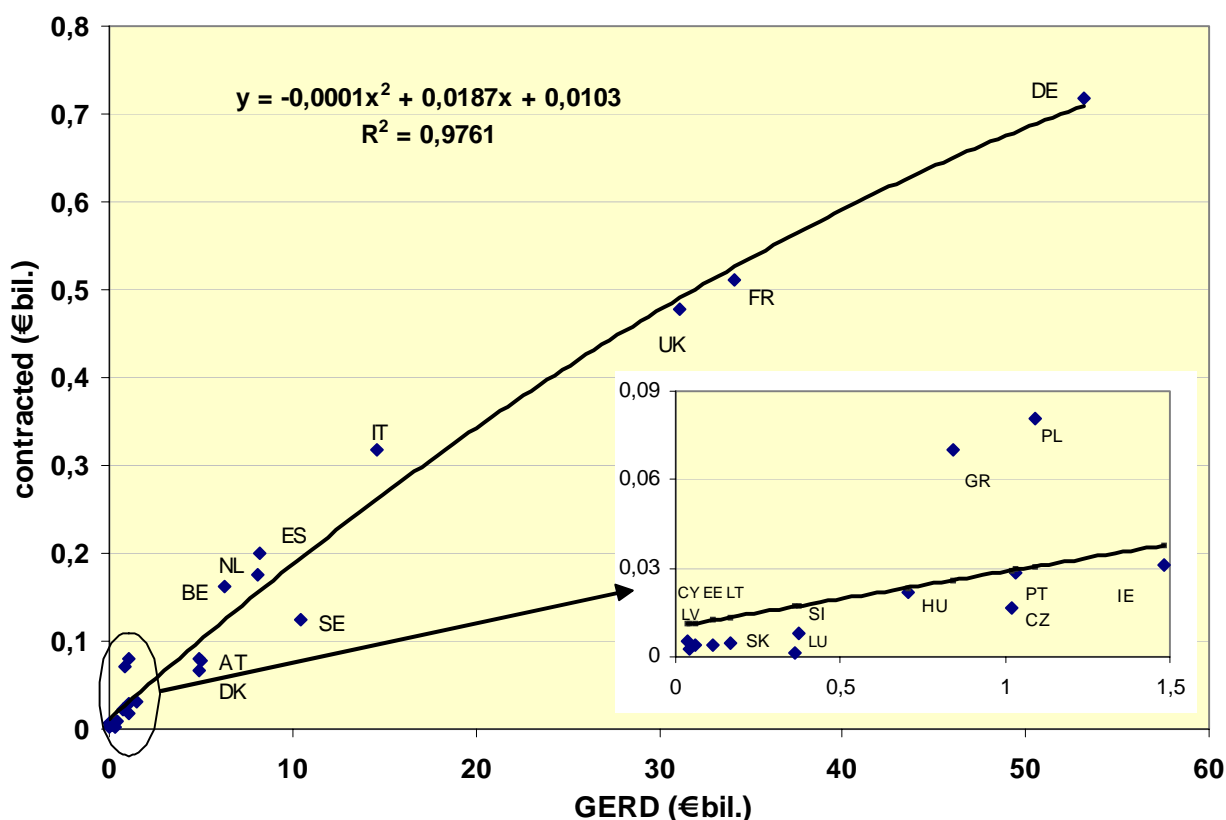


Figure 3. Relation between national GERD and financial resources contracted during FP6

Figure 3 gives a clear message: *new member states may obtain more resources from European research funds for their teams, if they invest a higher percentage of their GDP into their own R&D systems.*

How to assess participation in FPs?

The above analysis suggests that perhaps an additional set of statistics should be used to assess participation in framework programmes – the index relating the contracted funds to GERD, i.e. the ratio indicating “*how many euros (or, rather, eurocents) contracted in FP6 are yielded by € 1 of GERD*”. It should be noted that this ratio (“contracted funds/GERD”) changes according to the above mentioned regression curve: it is higher for states with low R&D spending than for states with high R&D spending. This is due to the quadratic variable in the regression relation.

In Figure 4, the EU-25 states are arranged according to the ratio of total funds contracted in FP6 to GERD. It is immediately apparent that the new member states have this index significantly higher than the EU-15 states. In the left half of the graph – i.e., among the first 12 states as defined by this statistic – there are seven (out of nine) new member states. Only Slovenia and the Czech Republic appear in the second half of the graph.

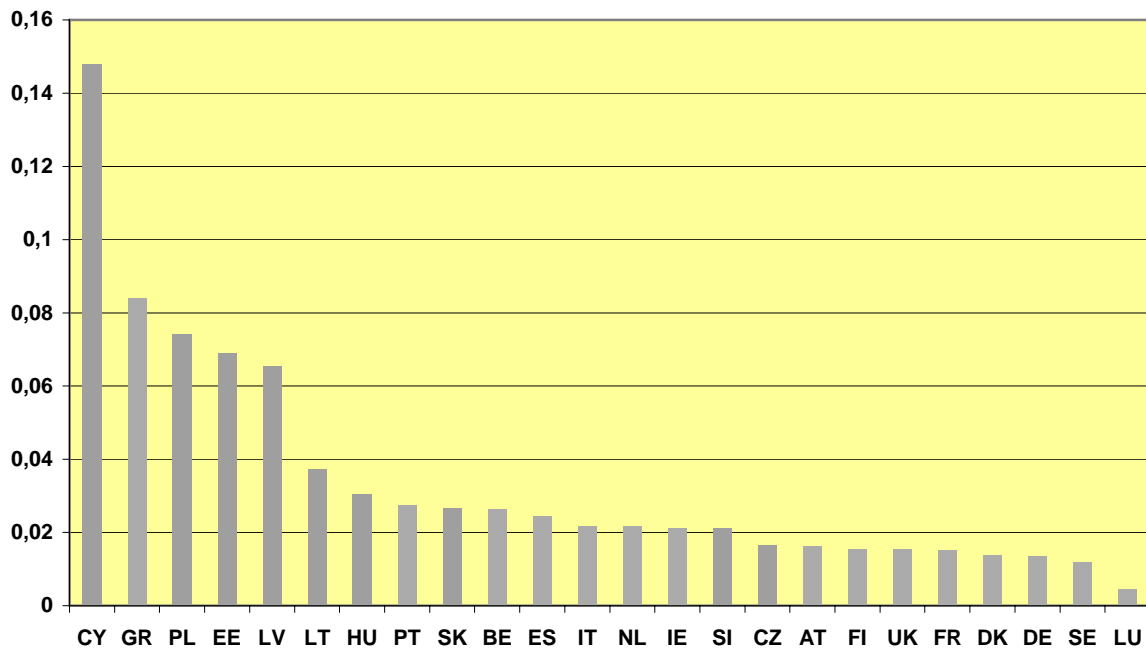


Figure 4. Total sum contracted during FP6 related to the country's GERD for the EU-25 states.

We thus arrive at the issue anticipated by the title of this contribution – the role of FPs is definitely to increase a global EU competitiveness but it seems that they also play a secondary role. That role, undoubtedly important, is enhancing the weaker investments into research capacity made so far by new member states. In that respect there are other resources - Structural Funds – that seem to be more suitable and powerful for building research capacities.

The role of Structural Funds

Strengthening research capacity should be considered in a context of Structural Funds. The lower investment in R&D in new member states made so far could be enhanced by a combination of public and private national resources using Structural Funds, with an enhanced research capacity as a result. The experiences of Portugal and Ireland are positive examples. Eligible measures for Structural Funding may include R&D infrastructure, R&D equipment and instrumentation, training of R&D personnel, support for technology transfer mechanisms.

Enhancement of research capacity in new member states should then lead to a more balanced ERA with an increased EU potential for success in the battle of “global competitiveness”.

PART B:

RESPONSES OF THE PROGRAMME MANAGEMENT TO THE EXTERNAL MONITORING REPORT

Monitoring of the implementation of the Sixth Framework Programmes in 2004

In the context of the Monitoring of the implementation of the Sixth Framework Programmes in 2004, a Panel of independent experts was established to assist the Commission. The Panel made recommendations and comments to which the Commission services provide the following response.

Commission services' response to the expert Panel's recommendations and comments

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1. CROSS CUTTING ISSUES

Panel's recommendation:

Learning from the experiences with new initiatives and implementation of new instruments could be enhanced by the development of more organised knowledge transfer. The internal learning and sharing between scientific and financial officers and the sharing of experiences with stakeholders are already "good practices" that should be carried out on a much broader scale. For Technology platforms and ERA-Nets, the Panel considers that systematic analyses of their dynamics might prove insightful.

Commission services' response:

The Commission concurs with the Panel's views on the importance of sharing experience within Commission services and with external stakeholders, for example regarding the implementation of the FP6 instruments, as well as the need to continually analyse the way in which initiatives such as Technology Platforms and ERA-NETs are developing. The Commission is placing particular emphasis on a co-ordinated approach at regional, national and Community levels and the raising of awareness of the activities and results of these initiatives, where relevant.

In respect of Technology Platforms, in early 2004 the Commission services set up an Inter-Service Group (ISG), with representation from some 15 of its Directorates-General. This group coordinates all the Commission's activities on Technology Platforms and is supported by a wide network of experts from the Commission services who follow the activities of each of the Technology Platforms on a day-to-day basis. With a view to raising awareness of the rationale, concept and state of play of technology platforms, the ISG compiled two major reports: Technology Platforms: from Definition to Implementation of a Common Research Agenda (September 2004) ; Technology Platforms - Status Report (February 2005) ftp://ftp.cordis.lu/pub/technology-platforms/docs/tps_status_report_final_090305.pdf A Commission Staff Working document was also presented to the June 2005 European Council. ftp://ftp.cordis.lu/pub/technology-platforms/docs/tp_report_council.pdf

The Commission services have begun work on a further Status Report on Technology Platforms to be published by summer 2006.

Since mid-2004, the general aspects of Technology Platforms have been presented at some 115 meetings across Europe. 11 of these meetings were major awareness raising “events” on Technology Platforms, attracting several hundreds of participant. A similar major event was held in Turkey. Some 45 of the other meetings were with the central authorities of EU Member States and the rest were with regional authorities, industrial or research associations, advisory bodies such as EURAB and individual platforms. Awareness of the Technology Platforms is not as high as would be desirable in some of the new Member States and initiatives are planned in order to correct this situation.

Action:

Building on continued efforts to ensure learning and sharing of experience through:

- Future Status report on Technology Platforms Group (Summer 2006)
- Particular efforts to help redress awareness in new Member States (for example a major awareness raising event took place in the Czech Republic (November 2005))

2. TECHNOLOGY PLATFORMS

Panel's recommendation:

Technology Platforms, which gather stakeholders led by industry, seem to have become an important route for emergence of new research priorities. It is thus essential that there are clear "rules of the game" for the process of recognising a Technology Platform as such.

Commission services' response:

The overall concept of Technology Platforms is encapsulated in the following definition: "Stakeholders, led by industry, getting together to define a Strategic Research Agenda on a number of strategically important issues with high societal relevance where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major research and technological advances in the medium to long term."

It should be noted that they are being set up as informal discussion frameworks upon the initiative of industry and that they are not instruments of the Community Framework Programmes. The Commission is not therefore the "owner" of Technology Platforms, nor is it directing the way in which they are undertaking their activities. In this context, in all their reports on Technology Platforms and on the dedicated CORDIS web on Technology Platforms, the Commission services have made their policy vis-à-vis of Technology Platforms quite clear. Rather, the Commission is encouraging this bottom-up, flexible and industry-led approach to defining medium to long-term research needs and using the results of the work of Technology Platforms in the course of developing research policy, including notably when formulating its proposals for the 7th Framework Programme⁵ (FP7).

Action:

- Encouragement of all Technology Platforms to establish a wide stakeholder base which ensures that the interests of all concerned parties are reflected in their Research Agenda (ongoing)
- Developments in sites concerning Technology Platforms (ongoing).

Panel's comments:

There appears to be de-facto recognition by Commission services of given platforms through their inclusion on the CORDIS website. But there is, apart from the application of a set of very general principles, no established process for this de-facto recognition. The Commission should also consider whether a small budget line should be established to help, solely through Specific Support Actions (SSAs), those platforms that do not fit into current FP priorities.

The Commission highlights the fact that Technology Platforms are industry-led. This might address a present-day priority, but there is no reason why only industry should develop visions and be faced with research challenges. Hospitals, cities, development agencies and utilities at large are also concerned and could be active promoters of Technology Platforms. These actors might well be covered already under the present definition, but this was not visible from the documentation given to the Panel or the interviews made. The approach would thus benefit greatly from clarification and probably also from a wider definition of promoters to include, for instance, those actively involved in supply of public services.

As for any new initiative, an important learning phase has to be undergone to delineate the different types of platforms and identify key success factors or critical turning points in their dynamics. Meetings between promoters have taken place to share experiences and good practices.

⁵ COM (2005) 119 final of 6.04.2005

Commission services' response:

The Commission services set up a dedicated CORDIS web-site on Technology Platforms as an important element of its role in encouraging and facilitating the work of Technology Platforms and in helping to raise awareness, to provide a much needed central source of information and to promote overall transparency and openness on this important development. As of November 2005, this site contains detailed information (including notably links to the specific web-sites) on some 25 Technology Platforms. http://europa.eu.int/comm/research/rdtinfo/index_en.html

Before the addition of any new case to this site, the Technology Platform must be of sufficient maturity in the sense that it has launched its vision statement with broad stakeholder support and that the stakeholders concerned are adhering to codes of good practice in respect of openness and transparency.

Since Autumn 2005, every proposed new initiative for a Technology Platform should be presented in a first step to the Commission's Interservice Group on Technology Platforms which takes a position on its appropriateness to be pursued as a European Technology Platform.

The Commission does not fund European Technology Platforms. Limited Community financial support may, however, be provided on an ad hoc and case-by-case basis to support operational activities (notably a Specific Support Action for the provision of an independent Secretariat) for a Technology Platform.

The technological area and objectives however must coincide with the current FP6 thematic priorities. Technology Platforms have been set up in areas where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major research and technological advances in the medium to long term. It is therefore essential that industry takes the lead.

Nevertheless, the approach is inclusive and the range of stakeholders involved is wide (national and regional public authorities, research community, financial institutes, regulators, civil society, operators, users and consumers etc).

It is for the platforms themselves to build up their stakeholder base (which will naturally differ on a case-by-case basis) and it is certainly the case that actors such as those mentioned by the Panel should contribute whenever this adds value. The Commission concurs with the utility of holding meetings with promoters, industrial associations, advisory bodies etc. with a view to following the dynamics of this rapidly evolving development and to identifying appropriate follow-up actions.

By the end of 2004, many of the Technology Platforms had reached maturity and were already making good progress on defining their Strategic Research Agendas. At that time, the Commission services therefore took the initiative to bring the industrial leaders of each Platform together to discuss a number of key issues of common importance (openness and transparency, participation of SMEs, the international dimension, interaction between Platforms, financial engineering etc.). Such seminars are now organised at approximate six monthly intervals and their results and proceedings are made public on the dedicated CORDIS web-site on technology platforms:

ftp://ftp.cordis.lu/pub/technology-platforms/docs/summary_report_090605.pdf

These actions continue to be followed up and are being expanded to discussions in such fora as EIRMA, UNICE and EURAB (which produced a specific report on Technology Platforms:

<http://europa.eu.int/comm/research/eurab/pdf/recommendations9.pdf>).

3. ERA NETS

Panel's recommendations:

ERA-Nets emerge as an instrument for enlarging institutional cooperation between member states beyond the remit and scope of the FPs. This dynamic should be maintained and even enlarged in FP7. However, confining support for ERA-Nets to the thematic priorities of the Cooperation programme might endanger this dynamic. Thus, the Cooperation programme should include a horizontal line dedicated to "institutional cooperation between member states".

Commission services' response:

Even if the main part of the ERA-Nets is expected to be within thematic priorities, the scheme is meant to remain bottom up. The Commission's proposals for FP7 (April 2005) state that the ERA-Net scheme may cover subjects not directly linked to the nine themes in as far as they have a sufficient EU added value. The Commission's proposals for the Specific Programmes (September 2005) further specify that: "Where the actions are of a horizontal nature, they will be supported jointly across all of the relevant themes. Where the actions are within the scope of another Specific Programme...they will be implemented under that Specific Programme."

Action:

- Reform to horizontal ERA-Nets actions in Specific Programmes Proposals (September 2005).

Panel's Comments:

Co-ordination of policies between Member States has always been a challenge. Although it is too early to analyse effective dynamics, it is clear that the ERA-NET concept is attractive and drives "research operators" to gather together "bottom-up" and enter into the process of sharing information, practices and, we hope, resources. This Panel has two major comments: ERA-Nets respond to the longstanding quest for a means of extending cooperation beyond the themes covered by the FP priorities. It is thus important to continue the experience in FP7 at a sufficiently significant level. The inclusion of a new incentive in ERA-Nets+ (where the Commission tops up member states' funding of "joint calls") will probably increase the attractiveness of the instrument, thus providing a pragmatic and effective means of building the ERA in public sector research. However, this will only take place if the scope of the instrument is not restricted to established FP7 priorities. The thematic variety observed so far (which extends far beyond the FP6 priority areas) calls for expanding the present FP7 proposal (which sees the ERA-Nets solely as an instrument mobilised by the thematic priorities) and including a specific "horizontal line" within the Cooperation programme for "operator or institutional cooperation".

Even more than with Technology Platforms there is a need with ERA-Nets to share experience and lessons learned about key steps, common pitfalls and success factors. The large number of ERA-Nets calls for more than the informal accumulation of knowledge by programme managers or monitoring panels. It calls for establishment of an "observatory" that could also act as a space for provision of advice for promoters and coordinators.

Commission services' response:

The Commission services considers that the provisions outlined above are sufficient to ensure for the ERA-Net scheme a scope that is larger than that of the 9 proposed themes, but consistent with the overall objectives of FP7. It is the express intention of FP7 to broaden and strengthen the ERA-Net scheme, notably through the introduction of "ERA-Net+", as recognised by the Panel.

The Commission agrees with the Panel on the importance of sharing experience and lessons learnt. For this purpose a number of actions have taken place such as a conference on ERA-Net by the UK

Presidency on 21 October 2005.

Several exercises are underway or are planned to look at specific issues of the ERA-Net scheme such as impact on restructuring the European research landscape, the administrative and legal hurdles to coordination of national programmes and joint activities, and common issues such as joint calls or common evaluations. The Commission also organises meetings with coordinators and NCPs where these issues are discussed.

However, it is not considered necessary to set up a formal observatory as such.

Action:

- Conference on ERA-Nets by the UK Presidency on 21 October 2005.

RESEARCH INFRASTRUCTURE

Panel's comments:

Sharing expensive infrastructure and using complementary facilities can increase the competitiveness of the ERA and support capacity building.

The Panel recognizes the need to develop a vision and roadmap for research infrastructures in Europe for the next 10 to 20 years. In this context, ESFRI (the European Strategy Forum on Research Infrastructure) should play an important role. However, although the need for a strategic approach is undisputed, the Panel is also aware that processes of filtering tend to favour well-established research areas to the disadvantage of recent and emerging scientific topics. Thus it is important that the bottom-up approach be maintained by, for example, increasing the scope and number of feasibility study actions. Organising knowledge in public web-based archives open to all citizens should be encouraged and receive support as a particularly cost-effective way of combining opportunities for international cooperation in support of a strengthened science infrastructure with a legitimate modus operandi that ensures high public support.

Commission services' response:

As concerns FP6, the current work related to infrastructures is based on an OMC (Open Method of Co-ordination) method implemented by ESFRI with the aim of identifying as clearly as possible the needs for Pan-European research infrastructures for the next 20 years. The Framework Programme will support the decision making process between all stakeholders in guarantying the criteria of excellence, impact and quality of implementation, including the Community added value. In this context, it is planned to have the first ESFRI roadmap in Autumn 2006.

As concerns FP7, the Specific Programme "Capacities" foresees that the strategic approach to supporting the construction of new research infrastructure will be based on a two-stage approach: preparatory phase and a construction phase. Building on the work by ESFRI on the development of a European roadmap for new research infrastructure, the Commission will identify priority projects to which a possible EC support could be given under the FP7. For those projects, the Commission will act as a facilitator, in particular in facilitating financial engineering mechanisms for the construction phase, including facilitating access to EIB loans through the Risk Sharing Finance Facility. Most of the FP7 actions, and all FP6 actions, will be (and have been) organised on a 'bottom-up' approach. However, the emerging fields, as well as some strategic, will be considered in the support to the integration of existing national or regional research infrastructures through a targeted approach, to be developed under FP7, through coordination with the thematic areas. This process will allow in particular consideration of not so well established areas (but important for the future). Efficient knowledge use, preservation and access will be increasingly important objectives of the European actions in support of Research Infrastructures. This will be supported under FP7, not only within each contract, but also through targeted actions to be carried out in close collaboration between DG Research and DG Information Society and Media.

Action:

- First ESFRI roadmap (Autumn 2006).

4. NEST/FET

Panel's recommendations:

From their enthusiastic take-up, it is clear that researchers hold the FPs' FET and NEST initiatives in high esteem. This drives the Panel to recommend strongly that both the thematic priorities of the Cooperation programme and the Ideas programme should develop specific NEST-like activities for areas of new and emerging science and technology, fostering in particular the interdisciplinary approaches that the FPs have proved to be successful for achieving innovation.

Commission services' response:

The Commission proposals for FP7 and for the four Specific Programmes implement and go beyond, this recommendation. Each of the nine Themes in the "Co-operation" Specific Programme include elements aimed to address new scientific and technological opportunities and unforeseen policy needs through support for spontaneous research proposals.

The "Ideas" Specific Programme⁶ will be implemented by establishment of the European Research Council. This will operate under the guidance of an independent Scientific Council which had its first meeting in October 2005. It will have an important role, including: establishment of the overall scientific strategy for the programme; set up of peer review - pool of reviewers, nomination of review panels, evaluation guidelines, oversight of the evaluation procedure, communication and dissemination activities - It will undertake its tasks under full and autonomous scientific governance and will support research selected on the sole basis of excellence.

Action:

- Establishment of the European Research Council as referred to in the Specific Programme proposal on "Ideas"; first meeting of the Scientific Council in October 2005.

Panel's comments:

The Panel recognises the importance of initiatives like NEST and FET for the development of new scientific knowledge and technological capabilities with very high potential impact. It suggests that they be given a higher visibility within the Commission for strategic considerations.

The Panel supports the idea of including new and emerging science and technology in the next FP in each thematic priority area of the Cooperation programme (as has been the case for FET in the present and previous FPs) as well as in the "Ideas" programme implemented by the European Research Council.

Commission services' response:

The establishment of the European Research Council is an initiative with extremely high visibility in the scientific community and on the political level.

⁶ COM 2005 441 final 2005/0186 (CNS) of 21.09.2005)

MARIE CURIE

Panel's comments:

The Panel considers that support of training activities and, therefore, capacity building is a priority for establishment of the ERA. The Panel recognises the important role of the Commission in establishing a shared European framework for research training and suggests that the ex-post evaluation of FP6 considers these activities specifically as part of their overall analysis. The current oversubscription rate is an indicator of an important need. The Panel recognizes that with the present budget the Commission can only develop actions that provide initial leverage for further actions of the Member States.

The Panel recommends that the Commission should be given sufficient budget to ensure broader coverage of mobility for researchers.

The Panel considers that, after project selection and contract negotiation and drafting, the next stage the Commission will have to address is contract implementation, where staff increases might not be enough to cope with the expected growth. It might be interesting for the Directorate to examine other approaches to the management of contracts.

Commission services' response:

The Commission services fully agree with the Panel that support of training is a priority for establishing the ERA. This is foreseen in the future Framework Programme proposal. The services also agree that human resources and mobility have an important role to play at European level and that ex-post evaluations should be specific to these activities at the end of FP6.

The oversubscription is indeed a grave problem, for which a very obvious remedy, that is raising the budget for the Marie Curie actions in FP6, unfortunately is not an option. To tackle the FP6 oversubscription, a number of the following targeted measures have been implemented at Work Programme level since 2004: repartition of the budget and concentration of calls for proposals; (re)focussing and targeting the objectives of the different actions; introduction of a two-stage submission and/or two step evaluation of proposals and limitation of simultaneous proposals by the same applicant for the same action.

Nevertheless, in its proposal for the FP7, the Commission proposed a budget of 7.129 billion EUR for the "People" programme, i.e. doubling of the annual budget of FP6. The Commission considers the long time to contract as a serious problem, mainly due to the very high number of proposals while the number of staff resources remains the same. In the meantime, measures have been taken in order to improve these delays.

In the frame of FP7 implementation, the Commission has proposed several ways to improve the situation, including the creation of Executive Agency type structures.

Action:

- Ex-post evaluation, notably 2 years after the end of FP6 (2008)
- FP6: a number of initiatives to reduce oversubscription already implemented and to be continued (targeting of actions, two-stage submission/evaluation, limitation of simultaneous proposals...) (ongoing)
- FP7: proposal for a doubling of the annual budget dedicated to the "People" programme proposed in the Specific Programme "People"⁷ (September 2005)
- FP7: Executive Agency type structures

⁷ COM (2005) 442 final - 2005/0187 (CNS) of 21.09.2005)

5. NEW INSTRUMENTS

Panel's recommendations:

Despite the big efforts made, there are still different views and approaches to the definition and implementation of Networks of Excellence (NoEs). Thus, even more effort is required to establish a common view of NoEs.

In addition, a systematic review of the dynamics of the whole process of implementing NoEs needs to be undertaken.

Also, preliminary returns from the first annual reviews show that further work should be done on the methodology used to measure the degree of integration of NoEs.

Commission services' response:

The key issues in implementing NoE, linked to their novelty as an instrument, were identified early enough by the Commission and highlighted by the Marimon Panel report.

In its response to the latter, the Commission spelled out and went on to implement a series of corrective measures. These included a clearer explanation of the objective of the instrument, the content of the Joint Programme of Activities, the notion of "critical mass" and "size" of consortia, the notion of "integration" and ways of measuring it, the financial regime, a description of the main characteristics of the NoEs in the "synoptic table" in the guides for proposals from beginning of 2005 etc.

Workshops regarding the implementation of NoE were organised by various services and a forum for NoE discussion was set up. As a result, the understanding of NoE has become better and the need to ensure a more uniform understanding and implementation of the instrument by the Commission services themselves also received serious attention, and various measures were implemented to this effect (internal seminars, training sessions, etc). As a result, the situation has improved following the last calls.

Nevertheless, a more systematic study of the experiences learned from launched NoEs in order to study the dynamics of the whole process is indeed important. Lessons learnt, including an analysis of experiences by proposals and NoE coordinators, will be addressed by the Task Force on the Funding Schemes of FP7 which has already been set up and is operating. The measurement of the degree of integration in the context of NoEs is a central issue, and work on how best to do it is continuing.

It is the clear intention of the Commission to ensure a uniform implementation of NoEs under FP7, and work on this issue is already under way in the context of the above-mentioned Task Force. Effective communication on NoEs, both internal and external, as well training of Commission staff dealing with them, will be a high priority.

Action:

- The dedicated Task Force on the funding schemes of FP7 tackles all the highlighted issues (ongoing)
- Information events for staff and external stakeholders on FP7 including Funding Schemes (2006-2007).

Panel's comments:

The Panel endorses the Action Plan prepared by the Commission in response to the Marimón report, and its implementation started in 2004. However, anecdotal evidence suggests that information and guidance from the top level of Commission staff does not always reach the implementation level of scientific officers and project coordinators. Thus, particular attention should be paid to informing and training all the staff involved – sharing experience and using this experience to plan how future issues should be dealt with. A Task Force dealing with all complaints raised by proposals or project

coordinators might be a good starting point for defining further improvements in accelerating and simplifying procedures. The Panel suggests that even more effort should be put into establishing a common view of NoEs. Additionally, it seems that a more systematic review of the dynamics of the whole process of implementing NoEs is needed.

The Panel suggests that, in attempting to simplify matters in FP7 by removing the legal distinction between IPs and STREPs, care should be taken that the different concepts associated with the current IP and STREP instruments should not be lost.

The Panel recommends that more flexibility be permitted in the handling of instruments to allow them to respond to different requirements, such as different sizes and kinds of project, or the needs of growing research fields such as social sciences or interdisciplinary research. Despite progress, participation in FP6 remains complex for non-administrators and, in particular, smaller actors.

Further simplification and rationalisation is a condition sine qua non. In this context, the proposal for FP7 represents both an opportunity and a challenge. The Panel therefore greatly welcomes the establishment of a Commission inter-services working group to bring forward proposals for simplification under FP7 and the set up of the Sounding Board of smaller actors with the aim of removing or reducing the barriers faced by small players participating in FP7.

Commission services' response:

As said above, it is the clear intention of the Commission to ensure a uniform implementation of NoEs under FP7, and work on this issue is already under way in the context of the above mentioned Task Force. Effective communication on NoEs, both internal and external, as well as training of Commission staff dealing with them, will be a high priority. Already, in the context of the Commission's response to the Marimon Report recommendations, intensive information and training seminars took place for the benefit of Commission staff dealing with the new instruments. Lessons learnt, including an analysis of experiences by proposers and coordinators, will be addressed by the dedicated Task Force on the Funding Schemes of FP7 which has already been set up and is operating.

The proposed "Collaborative Project" funding scheme under FP7 aims precisely to do that: cover the whole spectrum of projects implemented today by means of STREPs and IPs fully recognising the particularities of each.

Detailed explanatory documents on the FP7 Funding Schemes will be published. The Commission proposes to introduce the "Individual Project" aimed at supporting research carried out by a single team. This instrument (funding scheme) will add considerable flexibility and is likely to be attractive particularly to the communities of social sciences and humanities. Its use is foreseen in the "Ideas" Specific Programme. It is precisely in order to allow Work Programmes an increased flexibility to meet their objectives, coupled with increased flexibility for proposals to adapt their projects to the requirements of the research topic being called for, that the "Collaborative Project" funding scheme has been proposed under FP7. A particular effort will be made to ensure that Work Programmes describe as clearly as possible the scientific objectives pursued, the type of participants aimed at, the scale of the effort envisaged and the spectrum of funding schemes available for each research area or topic.

The simplification process, a major objective of the Commission for a long time already, includes a strong cultural dimension as it reflects the perception a priori of the Commission staff and of the research Community by the other stakeholders: trust makes simplification much easier. Simplification was the most recurrent message during the preparation of the FP7 and it is true that the success of the future Framework Programme very much relies on how this effort meets its objective. Simplification involves a lot of aspects referring together to legal aspects (content and possible recurrence of information required from the researchers during the selection process; nature of the evaluation system; type of criteria used; implementation of two-steps procedures; degree of intervention of Committees in projects selection ...) but also the financial rules

(appreciation of financial capacity of participants; type of the financial regime; flat rate or cost based payments...).

On a number of these parameters, FP7 will use solutions aiming at saving time both for the participants and the services.

But it must be kept in mind that the need of Member States and the European Parliament for information on programme implementation and their results and outcomes can contradict the wish for simplification. The trend towards simplification is also limited by the necessity to ensure a proper and safe distribution of public money.

Action:

- Internal information and training sessions on NoEs (2006)*
- publication of detailed explanatory documents on FP7 funding schemes (end 2006)*
- increased flexibility through the introduction of “ individual projects” and “collaborative projects” under FP7*
- Focus of FP7 proposal on simplification.*

NEW SELECTION MECHANISMS**Panel's recommendation:**

The use of remote individual assessment of proposals should be maintained and increased wherever feasible. This approach should make it easier for independent experts of high international calibre to participate in proposals evaluation.

Commission services' response:

The use of remote individual evaluation has steadily increased under FP6 and this tendency still continues. It is intended to apply it for the large majority of FP7 calls. Past experiences have shown that remote individual evaluation improves considerably the evaluation task and the quality of the evaluation as well as the possibility to attract the best experts worldwide. In applying remote or local evaluation in the most optimal context and spreading the evaluation task among two-stages, evaluators spend individually less time in Brussels. In particular women and industrialists welcome this type of evaluation process. Continued analysis of the selection and evaluation arrangements will be carried out during the preparation phase for FP7 to further develop options for more efficient and effective evaluation and selection procedures.

Action:

- Further increase of remote individual evaluation under FP6 and FP7 (as of start of 2006)
- Analysis of the selection and evaluation arrangements including analysis of remote consensus and two-stage evaluation (as from spring 2006).

Panel's comments:

The Panel recognises clear advantages of a two-stage evaluation process in case of large collaborative projects and networks and to screen innovative ideas in new emerging areas of research. The Panel recommends that a careful analysis based on empirical evidence be carried out to ascertain whether the two-stage process has really reduced the workload for proposals and if the quality of proposals has indeed increased.

A certain degree of continuity in the membership of evaluation panels for first- and second-stage proposals should be ensured.

The Panel recommends that use of remote individual evaluation be increased, even though some stakeholders expressed concerns. So far, experience of remote consensus is limited. The Panel expects that the use of the remote evaluation tool RIVET will enable further experience of remote consensus to be gained. This should be monitored to enable judgements to be made on the potential benefits, problems and areas of application.

Commission services' response:

The Commission services agree in principle with the views of the Panel, but point out that a choice between single and two-stage submission is not a straightforward decision. It has to be based on a careful analysis of the balance between constraints and benefits. Advantages of the two-stage procedure are entirely linked to the degree of targeting of the Work Programme and/or calls as well as the nature of the scientific community addressed; the oversubscription expected and the type of instruments. The Commission believes that it is very important to have a rational basis for choosing two-stage submission and evaluation.

In this perspective, the Commission services intend to launch in mid 2006 an in-depth survey collecting data on the views of applicants (unsuccessful and successful ones) of the constraints and benefits of the two-stage submission and evaluation procedure. The outcomes will be compared and integrated with the results from the survey of evaluators (an ongoing survey since the start of FP6) as

well as with the views from the independent observers, in order to receive a clear picture on the conditions to use the two-stage process optimally.

Feedback from independent observers and evaluators under FP6 indicate a noticeably higher quality of the proposals submitted to the second stage in comparison with FP5 single stage proposals. The feedback to the first stage proposal; the time provided between the stages and the streamlining of the proposal submission process considerably increased the quality of information provided to the evaluators.

Based on the experiences under FP6, the Commission services intend to develop and clarify in mid 2006 further guidance rules for implementation of the two-stage procedure.

As concerns the continuity of proposal evaluation panels for first- and second-stage proposals, Commission services share the view of the Panel that such a continuity should be ensured and the practice is in most cases in conformity with this point of view.

Feedback from the survey of evaluators and Independent Observers' reports indicate that remote consensus formation is in general not appreciated by the evaluators. This has been confirmed by some trials under FP6. Further analysis will be carried out in mid 2006 to investigate if remote consensus formation is useful for clear cases of unsuccessful proposals or when the consensus stage is merged with the panel stage. Remote individual evaluation followed by a panel meeting in Brussels reduces considerably the number of evaluators required to come to the central facility in Brussels. This evaluation process flow has been tried out successfully in NEST under FP6.

Action:

- *Further guidance rules for implementation of the two-stage procedure (mid 2006).*

ANNUAL REVIEW OF (NEW) INSTRUMENTS

Panel's comments:

The Panel suggests that when the current round of reviews has been completed, the efficiency and effectiveness of the procedure should be assessed.

The Panel found the “panel-based review procedure” compelling and recommends that information on this process be spread as a “good practice”, to be adopted when feasible. Further work should be done on the methodology to be used for measuring the degree of integration of NoEs.

As the effort needed to become familiar with an IP or NoE is typically large, any requirement to rotate experts should be reconsidered.

It is advisable that the pool of experts who review a given project does not change (or only changes to a limited extent) during the lifetime of the project itself.

Commission services' response:

The Commission services agree that the different good practices (panel-based review procedure, use of the software “Sesame”, implementation of the IT tool using “Project Quality indicators” -PQI-...) should be disseminated for appraisal by the services.

A document explaining how to measure progressive integration of resources and capacities has already been published and is available on Cordis:

(http://europa.eu.int/comm/research/fp6/pdf/performance_indicators_noes.pdf)

As concerns the suggested stability of the pool of experts reviewing a given project, a balance must be found between a minimum of continuity in the composition of the pools and the renewal of its members. On one hand, the continuity helps to ensure homogeneity in the assessment of the performance of the project, while saving time and energy from the expert's side. On the other hand, the renewal of the experts in charge of the review avoids routine and favours an objective appreciation of the outcomes produced. It seems that the best policy to be followed in this respect should be based on an empirical appreciation of the complexity of each project, while keeping in mind the advantages of a minimum of stability.

Action:

- Diffusion of good practices including through the Interservices Evaluation Network (beginning 2006).

7. IT TOOLS

Panel's recommendations:

A tighter link between the overall planning and implementation of the FPs and IT tools should be established. Workflows, procedures and standard reporting used by Units within and across DGs should be analyzed to achieve a better integration. Additionally, to support the new approach proposed by the Commission for programme evaluation in FP7, appropriate IT tools for data mining and decision support systems could be designed well in advance.

Commission services' response:

The Commission has revised its IT- policy (Communication of the Commission from September 2004, SEC 2004 1267) and aims to straighten its IT governance. This includes the goal to align overall planning and development of IT tools. The inter DG IT-Management board supervising the common IT- development of Research DGs has instructed in September 2005 DG Research to test the Commission's new methodology for IT- developments (Rational Unified Process). This methodology includes features to analyse in more detail working procedures before launching IT- developments.

In addition, the research DGs have started in autumn 2005 a comparison exercise of IT-tools for contracting and contract management, which builds on analyses of workflows. Thus, work in line with the Panels's recommendation is in progress. At this stage of preparation of FP7, it cannot yet be anticipated how resources should be allocated. Thus, the panel's recommendation is welcomed although data mining tools are lesser priority.

In order to improve the acceptance of IT tools, steps have already been implemented towards the testing of tool, involving a large number of users.

Action:

- Launch of the test phase of a new methodology for IT developments (end 2005)
- Ongoing analysis of working procedures before launching IT developments (end 2005)
- Start of comparison of IT tools for contracting and contracts management (autumn 2005)
- Increasing use of tests in IT tools definition (end 2006)

Panel's comments:

The Panel recognises that the task of designing and implementing in a short period of time an integrated information system capable of addressing the heterogeneous workflows of Units in different DGs is complex and challenging. Nevertheless, the lack of an information system accepted by all the "actors" leads to inefficiencies (e.g. data inconsistencies) and waste of resources (when, e.g., different tools to perform the same task are developed by different Units). A tighter link between the overall planning and implementation of the FP and IT tools development should be established. Workflows, procedures and standard reporting used by Units within and across DGs should be analysed to achieve a better integration. The Panel recognises the key role played by acceptance tests to evaluate tools being developed and to identify possible corrective actions at earlier stages. These tests represent a useful vehicle to promote the use and acceptance of IT tools. They should be applied to a greater extent and involve a larger number of users.

To support the new approach proposed by the Commission for programme evaluation in FP7, the Panel recommends that appropriate IT tools for data mining and decision support systems be designed well in advance. These tools should provide Commission senior management with quantitative data for monitoring implementation and tracking progress of the FP.

Commission services' response: See above.

8. INTERNATIONAL CO-OPERATION

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Panel's recommendations:

Budgets for the part of the INCO programme handled under thematic priorities should be clearly earmarked as such and publicised better to scientific officers and researchers.

It would be useful to establish a more efficient means for exchange with the INCO programme for projects implemented under thematic priorities.

It would also be helpful to integrate international cooperation objectives into the evaluation criteria used for proposals evaluation.

Commission services' response:

The "opening up" of Specific Programme "Integrating and strengthening the European Research Area"⁸ for partners from third countries and having a single cross-cutting budget allocated for their participation in the thematic projects of FP6 was not communicated clearly. The Commission services share the view that this should be remedied in the remaining period of FP6, where relevant, in addition to making specific efforts to increase international participation in the thematic priorities.

Coordination of international cooperation activities implemented across FP6 is entrusted to the International Steering Group reporting to the Deputy DG of DG Research. It is composed of representatives of all thematic Directorates and the Directorate responsible for the INCO programme. In view of learning lessons from the experience with FP6, 'twinning teams' between specially identified representatives of the thematic Directorates and the Directorate responsible for the INCO programme have worked on preparing inputs on the specific international cooperation part of the 'Cooperation' Specific Programme of FP7. There are also a number of opportunities to improve sharing international experience between INCO and the thematic priorities, e.g. through working groups under the EU Water Initiative and multi-stakeholder dialogue processes set up in the context of ASEM (Asia-Europe Meeting), ALCUE (América Latina y el Caribe y Unión Europea) and/or Mediterranean partnership. The Commission services are considering the possibility of organising interactive seminars with staff and project coordinators to intensify experience exchange. The Commission services are unconvinced that amending the evaluation criteria would be the most effective way to address the Panel's concerns, a view also shared by Member States, both for the remainder of FP6 and in view of FP7. It seems more pertinent to include specific requirements in work programmes and calls against which proposals will then be evaluated, using the standard set of quality assessment criteria. General participation conditions allow for international configurations of consortia in FP6.

Action:

- Specific calls are being developed to extend existing contracts and contracts under negotiation to teams from target countries outside EU (launch end 2005 - deadline: February 2006)
- Continuation of the coordination through the existing International Steering Group + twinning teams INCO/thematic Directorates for preparation of FP7 (ongoing)
- Coordination through working groups under multi-stakeholders dialogue in the context of ASEM, ALCUE and Mediterranean partnership
- Maintain of evaluation criteria but specific requirements in work programmes and specific calls.

Panel's comments:

⁸ Council Decision 2002/834/EC of 30 September 2002

The Panel recognises the need for the development of a plan for establishing collaborations and S&T exchange with third countries, particularly international cooperation partner countries (INCO target countries), which would guide and support individual projects and support the establishment of long-term collaboration and enduring relationships of mutual trust.

It would be useful to establish a more efficient means for exchange with the INCO programme for projects implemented under thematic priorities, transferring to the latter the experience collected during years of successful international cooperation through INCO.

International cooperation objectives and priorities should be fully integrated into the evaluation criteria used for evaluating proposals concerned with international cooperation.

It would be useful to strengthen the connections at policy and programme level between all aspects of international S&T cooperation in the RTD and other external policy areas (RELEX, Development, AIDCO, Environment and Trade), as suggested by an on-going INCO impact study expected to provide detailed analyses and recommendations.

Commission services' response:

The Commission services share the assessment of the Panel for a need of an international scientific cooperation strategy with third countries. This need is also underscored by several Member States, particularly in the run-up to FP7. The forthcoming Communication on international scientific cooperation will contribute to the definition of this strategy. It will also deal with how to strengthen the connections at policy and programme level between all aspects of international S&T cooperation in the RTD and other external policy areas.

The Commission's proposal for rules of participation⁹ for FP7 spell out that the minimum requirements for international cooperation are two partners each from Europe and associated countries on the one hand and partner countries on the other. As such, this requirement determines eligibility and also has implications for the evaluation criteria (e.g. quality and balance of partnership).

The Commission services agree with the necessity of strengthening the connections between all aspects of international S&T cooperation and other external policy areas. These aspects will be taken into account in the forthcoming Communication on international S&T cooperation. The strategy will be defined in line with all other external policy areas. Due to the importance of international cooperation in FP7, it is expected that a coordination of all activities with international implications will be put in place in a way that is coherent with other external policy areas.

Action:

- Commission Communication on international scientific cooperation (first semester 2006)

⁹ COM (2005)... (to be completed once adopted)

INVOLVEMENT OF SMES

Panel's comments:

To ensure efficiency and effectiveness of measures taken to increase SME involvement, the Panel has three comments: Impact assessment of horizontal activities in FP6 must be conducted in 2005, as it may prove of great value in designing future research policy towards the strengthening of the innovation capacity of SMEs.

As the Commission is already implementing SME IPs, it is important to be able to assess the experience of these IPs as early as possible.

Extra care must be taken to ensure good coordination between operational management and strategic considerations if third parties are involved in managing project implementation.

Commission services' response:

The Commission services agree that the assessment of the horizontal activities is very valuable in designing future research policy and especially with respect to FP7. The Commission services have therefore planned for an evaluation of SME activities in 2005 and launched the assessment of horizontal activities, entitled "Impact assessment for improving SME specific research schemes and measures to promote SME participation in the framework programme (final report: 2006).

This assessment aims to obtain more evidence on the impact of the SMEs' specific schemes for future policy formulation, policy elaboration and for the whole decision-making process. This will be instrumental for identifying ways to improve the SMEs schemes in the future. The evaluation therefore focuses on the proposed SMEs specific measures for FP7 ("Research for SMEs" and "Research for SME-associations") and on the "Activities for SME-support", taking account of the Collective Research scheme (in FP5 and FP6) and the Cooperative Research scheme (in FP4, FP5, FP6), as well as the Economic and Technological Intelligence (ETI) scheme (in FP5, FP6).

The Commission services agree in principle with the usefulness of the assessment suggested. But it is a little too early to assess the outcome of the Integrated Projects. The first project reviews in the first seven "IP for SMEs" are taking place between mid 2005 and end 2006. These experiences will be introduced into the recently started ex ante impact assessment on the SME schemes.

The Commission services have already got in 2004 the results of an independent study on entrusting, which found a slight economic benefit in externalising non-policy tasks to an agency, to which the panel referred. They fully agree with the Panel recommendation for extra care on the coordination of operational and strategic/policy activities, in case the former are carried out through executive agency structures.

Action:

- *Launch of the assessment of horizontal activities in September 2005 (final report: 2006)*
- *Ex ante impact assessment for SMEs support (end 2006).*

NEW MEMBER STATES

Panel's comments:

The Panel recognises that high national investment in RTD is an essential prerequisite for a developed national research capacity and creates the conditions required for successful participation in the FP. Investments into capacity building in member states are considered to be a better strategy for ensuring long-term successful participation in the FP than enforcing participation of new member states by setting fixed quotas in the thematic priorities. The latter may be detrimental to the quality of research proposals in areas where research capacities are not yet developed.

Commission services' response:

The Commission services take note with a high degree of interest of the original and in depth analysis produced by the experts on the conditions of participation of the new Member States in the FP6 and on the reasons explaining why this participation has been less advantageous than possibly expected.

In particular, the conclusion that new Member States may obtain more resources from EU research programmes for their teams, if they invest a higher percentage of their GDP into their own research and development system renews usefully the perspective, not least in the context of the use of Structural Funds.

9. EX ANTE IMPACT ASSESSMENT

Panel's recommendations :

Potential users should be involved in the process at an early stage. Impact assessments based on statistical analyses give little insight without more in-depth analyses; it could be useful to investigate and report individual examples of successes and failures in more depth.

Commission services' response:

As part of the preparation of FP7, a vast number of consultations, preparatory meetings and discussions with concerned parties took place from an early stage, including stakeholder consultations (nearly 2000 responses received, as well as submissions by national ministries, European Parliament, industry and academic bodies etc). The debate about impacts was a key component of this, and the feedback from potential users was carefully examined during the IA process. Overall it was felt to be important to integrate IA in the FP7 policy debate, rather than set up a separate parallel user discussion on impacts. Indeed, IA was set up as an integral part of the FP7 policy process. There was, throughout, a very close interaction between the IA and the work on preparing the FP7 proposal, including participation in inter-service groups, following the Parliamentary debate, and analysing the reactions of Member States and research players. Emerging findings of the IA were discussed with those involved in developing the FP7 proposal and fed into the policy formulation process. Similarly, new elements arising from the policy debate were taken into account in the IA. This interactivity between policy development and IA was a cornerstone of the process, and it took considerable effort to implement it efficiently and in "real time". In addition, at the more technical level, a number of meetings were held with various experts in the fields of evaluation and economics of innovation.

Action:

- Integration of users as an integral part of FP7 definition.

Panel's comments:

To increase the usefulness and political impact of an impact assessment, potential users should be involved in the process at an early stage. Impact assessments based on statistical analyses give little insight without more in-depth analyses; it could be useful to investigate and report individual examples of successes and failures in more depth.

Commission services' response:

The IA report represents a qualitative and quantitative leap towards obtaining the wider picture of effects across the FP, and across the EU economy and society. The IA has provided for the very first time estimated effects of the FP on growth, employment and competitiveness, profiling of innovative activities and outputs of FP participants, and analysis of collaboration patterns. The position of the Panel is somewhat surprising given that the provision of such aggregate statistics had been repeatedly called for in previous monitoring and evaluation reports (see for example Monitoring Report 2002). While individual examples and case studies can be useful - and are indeed used in the IA report (e.g. in the sections on past impacts and on European added value) - they are without value if one has no statistics on the bigger picture. In the past there has been no lack of project-level evidence of success and failure. However, the FP7 IA provided important new insights on aggregate FP impacts.

Action:

- Efforts to develop insights from individual examples (forth coming FP6 ex post evaluation)

10. EVALUATION PROCESS

Panel's recommendations:

Regarding the envisaged changes in the overall evaluation process in FP7 (i.e. the replacement of the Five-Year Assessments by a mid-term evaluation of the ongoing FP and an ex-post evaluation of the past FP), the Panel recommends that the ex-post evaluation should be conducted in two steps. This would allow the Commission to prepare relevant analyses for step two on problem areas identified in step one. Further, the mid-term review should include specific studies on the new initiatives developed by the ongoing FP. To prepare the ex-post evaluation of FP6, research on methodologies and horizontal studies should be launched at the latest in 2006.

Commission services' response:

The Commission services welcome the Panel's support for the proposals for a new system of evaluation under FP7.

The proposed changes to the system for Community research evaluation, as contained in the proposals for FP7 and the corresponding IA include new types of evaluation exercise, notably an ex post evaluation following the completion of an FP and an interim (or mid-term) evaluation. In addition, the text of the Council's Partial General Approach on the FP7 suggests that the interim evaluation be preceded by a progress report as soon as enough data becomes available, giving initial findings on the effectiveness of the new actions initiated under FP7 and of the efforts made on simplification.

For the proposed interim evaluation, the primary aim will be to evaluate the quality of research activities and to track progress against objectives set. However, it may also be appropriate to cover certain issues at a strategic level, connected to the implementation and management of research, in so far as these affect research quality and progress.

Pending the final Decision on FP7, the Commission services are currently developing the modalities to be followed with the ex post evaluation exercise. The Commission services share the idea of preparing the relevant supporting studies and analyses in a phased manner. A first phase would involve studies defined by the Commission services starting in 2006. This could be followed by complementary studies and analyses (subject to the conditions of public procurement) in order to take account of the views of external stakeholders including evaluation experts.

Action:

- Development of the modalities of future ex post evaluation (on going)
- Launch of supporting studies (as of 2006)

Panel's comments:

The Panel supports the new evaluation process proposed. It suggests that the mid term evaluation should also include specific activities to look at the development and potential of new initiatives. It would for instance have had a specific analysis on the interest in and limitations of the IP instrument before deciding to discontinue it.

For the ex post evaluation, the Commission should consider whether a two-step panel process would not prove more fruitful. The first step would take a generic approach based on some initial studies. This would allow identification of the specific issues which require more in-depth analysis.

The second step would take place a few month later after the needed studies have been conducted, thus enabling the panel to tailor its recommendations. The Panel strongly recommends that the first

sets of methodological research and horizontal studies are launched as soon as possible. This would prepare for the ex-post evaluation of FP6, enabling the future evaluation panel to start addressing the above-mentioned challenges.

The Panel recognises that the requirement for information presents an important bottleneck. However it does not seem realistic to think that such a situation can be alleviated through changes to the central database. The Panel suggests that it would be useful to invest in the development of a “second layer” of IT tools to enable construction of a “data clearing house” that taps into existing disseminated information. Finally, the Commission should reconsider the present approach to annual monitoring (the object of this present report). The Panel supports the idea that the present approach to annual monitoring is not satisfactory and that it would be better to internalise it within the Commission, turning it into “self assessment” with publicly-available reports.

Commission services’ response:

The interim (or mid-term) evaluation will contain sufficient flexibility for very specific exercises of the type proposed on new initiatives, as connected to research quality and progress. However the Commission services do not accept the implication that changes to funding instruments have been made without sufficient analysis. The proposals for funding schemes under FP7 have taken into account a range of evidence including, notably, the Marimon reports and the Five Year Assessment (1999-2003).

On the question of the Panel’s proposed two-step approach to future ex post evaluation, the comments of the Commission services are already noted above. However it must also be noted that great care will be needed with any phased or stepped process. Particular issues would include the time duration of different types of studies, public procurement rules, and the need to support the most efficient working practices most likely to ensure a focused and in-depth analysis.

Plans are in preparation for a comprehensive programme of evaluation studies to provide the evidence base which will support the ex post evaluation of FP6. FP level evaluation studies planned for 2006 include those on the structuring and behavioural aspects of FP participation. It is planned to undertake evaluation activities at the level of the Framework Programme and Specific Programmes/thematic areas. The evaluations will be based on a set of commonly agreed questions aiming at analysing and assessing technological, knowledge and socio-economic impacts and outcomes. The co-ordinated approach will allow conclusions to be drawn across thematic areas at the same time allowing issues of specific interests to be tackled. The work will be accompanied by activities to derive an overall synthesis.

Although full details are yet to be finalised, the ex ante Impact Assessment which accompanied the FP7 proposals anticipated substantial improvements to the routine collection of data and its analysis. In addition, a specific initiative is being discussed for better coordination in the handling of data.

It is proposed that the current annual exercise be replaced with continuous and systematic internal monitoring of the FP and Specific Programmes. This will be carried out by senior Commission management with annual check points. It will include analysis of management indicators on the different aspects of implementation such as workflow and research participation. The Commission will regularly report and disseminate the results of this monitoring.

Action:

- Efforts to improve the routine data collection (mid 2006)*
- Internalisation of Monitoring under FP7.*