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**COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE ECONOMIC AND SOCIAL COMMITTEE
AND THE COMMITTEE OF THE REGIONS**

**Comments of the Commission on the conclusions of the RTD Framework Programmes
5-Year Assessment**

1. INTRODUCTION

With the present document, the Commission communicates to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, the conclusions of the five-year assessment of the Framework Programmes (1995-1999) and its comments to it, as foreseen by the Decisions on the Fifth Framework Programme for research¹. The assessment covers the Community RTD activities carried out under three successive Framework Programmes: results from the 3rd (1990-1994), implementation and results of the 4th (1994-1998) and implementation of the first year of 5th (1998-2002).

The assessment has been conducted by a committed panel of high-level independent experts, chaired by Mr Joan Majò. The Panel has carried out a thorough work based on a large variety of inputs, including in particular similar assessments undertaken for each of the specific programmes composing the Framework Programme, a summary of which is annexed to the report of July 2000.

This assessment is valuable in view of the preparation of future Community activities in the field of research. The Commission finds it particularly useful that the Panel has enlarged the scope of the assessment to take account of the latest overall political developments and initiatives. Recommendations and observations are placed in a wider political context, and are in particular related to the strategic goal set for the Union by the Heads of governments at the European summit in Lisbon in March 2000: *“to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion”* achieved via an overall strategy aimed, i.a., at *“preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market.”*

The report comprises an assessment of the activities' relevance to European needs, efficiency of implementation and overall effectiveness and impact . It also offers recommendations concerning future RTD activities at EU and national level, overall funding levels and initiatives for the improvement of frame conditions for research and innovation.

The Chairman emphasises in his introduction to the report that it *“ is a contribution to the work of the Commission and a plea to European leaders, both in the Union and in the Member States, for the substantial policy review needed in order to implement a coherent follow-up to the statements made in Lisbon.”* In line with this, the Commission considers the report as a very welcome reference source for all stakeholders in research.

In the following comments, the Commission has endeavoured to respond to all the points highlighted in the report (here indicated in italics), presented as far as possible according to the structure of “Executive Summary and Recommendations”. In addition, brief comments

¹ Decisions n° 182/1999/EC and 1999/64/Euratom, Article 5.2, state: « Before submitting its proposal for at sixth framework programme, the Commission shall have an external assessment conducted by independent highly qualified experts into the implementation and achievements of Community activities carried out during the five years preceding that assessment in the light of the criteria set out in Annex I, the scientific and technological objectives set out in Annex II and the implementation of this Decision via the specific programmes based thereon. The Commission shall communicate the conclusions thereof, accompanied by its comments, to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions.”(EC)

are presented on some specific points made in the summaries of the assessment reports on specific programmes. The Commission will examine in detail all conclusions and recommendations transmitted and ensure an appropriate follow-up within the context of the preparation of the next framework programme.

2. MAIN CONCLUSIONS OF THE PANEL

Three main messages can be retained from the overall report:

- The Framework Programme should be placed in a wider context and be developed in close partnership with Member States and other Community policies, in particular in the perspective of enlargement;
- The Framework Programmes have overall been a success, representing considerable work and impact in strategic areas that could not have been achieved otherwise;
- The Framework programme must now evolve to match the new political context with emphasis on focusing of efforts, flexibility and effectiveness.

The Commission subscribes entirely to these three conclusions, as set out in more detail in this and following sections.

The introductory paragraphs of the report's Executive summary and recommendations state:

- ***“The most important conclusion of our Panel is that the Framework Programme alone will not be enough to serve the goals set at Lisbon. [...] Our Panel is convinced that the required changes need to be conceived within an overall strategy for Europe, articulated at the level of the EU and supported by all the Member States.”***

The idea of an overall European strategy in the area of research was presented by the Commission, fully in line with this overall recommendation from the Panel, in its Communication « Towards a European research area » of 18 January 2000. It has since then been endorsed politically by the European Council and the Research Council; and by the European Parliament, the Economic and Social Committee, and the Committee of the Regions. In addition, the academic world, enterprises and users have wholeheartedly supported and provided valuable contributions to the implementation of this strategy.

In the light of current challenges and of past experience, there is indeed need for an overall research and innovation policy in Europe ensuring coherence and interaction between national and Community policies and actions, and a better organisation and use of human, material and financial resources. This requires action at both Community and Member state level as pointed out also in the conclusions and resolutions from the Council and the European Parliament.

The Commission agrees that the policy instruments have to be adapted and supplemented to match this strategy. The Framework Programme concept must be substantially reviewed to become a central instrument in the implementation of the European research area, serving as leverage and catalyst for increased co-operation and complementarity between policies, programmes and activities at European, national and regional levels. In this context, the strategy should be able to build upon other policies, instruments and actions, notably in the field of enlargement, regions, Internal Market, education and training and innovation.

The implementation of this strategy, as imbedded in the concept of European Research Area, will furthermore be the basis for input to an overall European strategy, for example through the contribution to the annual spring European Council, in the context of the follow-up to the European Summit in Lisbon.

3. FRAMEWORK TOMORROW

- ***“There is still a need for these activities and they deserve to be continued, but the scope of the Framework Programme should also be increased in line with the need to meet the Lisbon goals and the demands of enlargement. The Panel recommends:***
 - *“Maintaining the emphasis on social relevance and continuing to use Key Actions as a way of focusing programmes;*
 - *Maintaining a strong emphasis on collaborative RTD projects supplemented by a variety of other actions;*
 - *Emphasising excellence and the participation of leading-edge researchers;*
 - *Encouraging participants to propose ‘riskier’ projects;*
 - *Enhancing measures encouraging the mobility of researchers within the EU and between the EU and elsewhere;*
 - *Retaining support for generic, competence-building RTD activities;*
 - *Increasing the emphasis on the research needed to support other EU policies.”*

The Commission agrees that the Framework Programme must be reviewed and adapted to the new policy context. In particular, the objectives must take account of new challenges and should be focused on main European priorities. While preserving the best of the past, the mix of instruments and modalities for action should be flexible and adapted and tailored for each set of objectives, including some degree of “variable geometry”.

The Commission endorses the view that socio-economic objectives and relevance of Community research is still essential. The key action concept, introduced with the 5th Framework Programme, has proven to be valuable in reaching these objectives and could be used further, when appropriate, as a mean of concentrating the activities.

In order to contribute to goals of other EU policies, such as in the fields of environment and sustainable development, and education, the Commission will endeavour to further consolidate and develop the partnership between research and other EU policies, building adequate co-operation mechanisms from the onset, especially when setting strategic objectives and for the dissemination and valorisation of results, devoting more attention and resources to the delivery of results. This approach should not be limited to cases in which research directly relates to economic competitiveness or economic development. EU policies help setting strategic research objectives. Conversely, research should help in defining objectives for other policies which can contribute to improved conditions for carrying out research and co-operation in research.

The Commission entirely agrees that scientific and technological excellence, possibly obtained by increased participation of leading-edge researchers, is the basis for achieving the

set objectives. Modalities and management procedures should be adapted in order to enhance further excellence in Community research.

The Commission acknowledges the need for “riskier” Community projects to promote excellence and breakthroughs. The implementation of such projects are conditioned by particular features like more openly defined objectives, more flexible procedures and also the acceptance of potential failures. The Commission is prepared to review and adapt the criteria and procedures in order to encourage this type of action.

As far as implementation modalities are concerned, the Commission is, as the Panel, convinced that collaborative RTD actions promote a collective approach to problems and stimulate trans-national and research/industry co-operation that has proven to be very effective. Adaptations to the concept are necessary, e.g. in particular towards support of “programmes” of research, and networking with national programmes or seeking complementarity with other financing sources, in particular to take into account the needs for promotion of centres of excellence and research infrastructures.

Mobility measures are other tools that have been very much appreciated and effective in the Framework Programmes. In the future, these measures should be given even higher priority than in the past and make EU attractive to the best researchers world wide. Mobility as an effective means of transferring knowledge should be given particular attention.

The Commission also recognises that there is a need for generic RTD activities. In the perspective of preparing the grounds for tomorrow’s society and competitiveness in a knowledge-based economy, there is a growing demand for longer term, competence-building, cutting-edge RTD activities, through multidisciplinary projects or the creation of an “open domain” for emerging technologies.

- ***“The Panel is convinced that existing policy tools need to be further exploited in a restructured and expanded Framework Programme”***

The Commission shares the view that all relevant Treaty provisions should be exploited in order to ensure flexibility and appropriateness of scope and scale of modalities and actions. This is particularly important in the perspective of enlargement. Measures should aim at fostering open co-ordination among Member states. Variable geometry actions through EU contribution to national programmes, supplementary programmes etc. can be envisaged. A renewed Framework Programme should be equipped with a suitable mix of instruments.

- ***“The Panel recommends a major review of the systems and procedures used to decide overall goals, specify delivery mechanisms and implement programmes.[...] We recommend adoption of a European RTD strategy at the highest political levels. The Heads of Government should then delegate the task of formulating and implementing this strategy to the European Commission, supported by an appropriate advisory structure.[...] the Panel sees no need to continue the programme committees.”***

The Commission attaches the greatest importance to the fact that, following the orientations presented by the Commission, an overall research strategy has indeed already been adopted for research at the highest political level in the Council and in the European Parliament. Research has been attributed a central role in the framing of the knowledge-based society, and the implementation of a European Research Area, as appropriate, in close co-operation with Member states has been fully endorsed. This shall condition all future Community action in the field of RTD.

The Commission shares the view that responsibilities should be clearly placed at all levels of the designing, adoption and implementation of policy. The Treaty, and other subordinate legislation, in particular the Council decision on the delegation of implementing powers to the Commission, give guidelines on this point. It is also important that the different actors in the chain are associated to and interact during the different processes in order to ensure coherence and impact. The use of programme committees is a well-established practice in many parts of the Community budget. The Commission is keen to ensure that it continues to have access to advice of the highest quality on science policy priorities and strategic choices.

- ***“Re-engineering existing structures and procedures to delegate responsibility for tasks downwards within the Commission, or externalise them”.***

The Commission is fully committed to the improvement of the management of Community research programmes towards best management practices in line with the reform of the Commission. The organisation of the Commission services must take into account the changing objectives as well as the available means, including through clarification and delegation of responsibilities at different levels. Where appropriate and on the basis of cost-benefit analysis, the Commission can give specific tasks to other bodies, precise control measures would be applied.

4. BEYOND FRAMEWORK

- ***“The Panel recommends increasing the relative size of the budgets allocated to science and technology compared to other policy domains. The Panel is convinced that the percentage of GDP spent in the EU on public and private RTD should rise to at least 3% over the next ten years”. “The Panel recommends the use of indirect measures such as RTD tax incentives across the EU”***

The Commission has pointed out that Europe is lagging behind our main competitors, United States and Japan, in terms of research funding and human resources. It therefore supports that every possible effort should be made, at Community and Member state level by the private and public sectors, in order to improve this situation. It is understood that public sector finance should not be used directly to close the growing gap between private sector RTD expenditure in Europe and the USA but rather to use all possibilities to promote in particular private expenditures, i.e. collaboration with the European Investment Bank and taking account of the lessons from benchmarking activities should be explored.

Further analysis of the effect of tax incentives on promoting private sector expenditure on RTD may be desirable. The main action in this respect, however, has to be taken at the level of the Member states. Progress may be achieved by promoting benchmarking and exchange of best practices, for example in the field of favourable RTD tax incentives, venture capital and start-ups. Where the measures employed have an element of state aid, Community rules on state aids should always be respected. Attention should equally be paid to the Code of Conduct for business taxation, in order to avoid the creation of distortions in the internal market. Indirect measures may to some extent be stimulated by Community action, e.g. the recent Commission proposal for a Community patent within the general context of the stimulus to competitiveness and innovation generated by the internal market.

- ***“RTD policies in the Member States need to reinforce rather than duplicate each other.”***

There is a growing common understanding, reinforced by the European Council and the Research Council, of the need for interaction between policies and programmes in the Member states and at Community level. In line with this, benchmarking of national policies will be launched shortly. The development of mechanisms for the networking of national and

joint programmes as called for by the Lisbon European Council, will be addressed in the Communication on guidelines for future EU research. The Commission will play a catalytic and supporting role in this context.

- ***“The Panel recommends that support provided to these [applicant Central and Eastern European] countries for RTD activities be channelled temporarily through the existing scientific Academies until new competitive structures for the organisation of science and industry can be developed.”***

The Commission agrees that the involvement of these countries is a major advance for European research. Nevertheless, it is not convinced that the approach suggested by the Panel is the most appropriate in the current context. Many of the countries already have made considerable progress, e.g. through EU support, in restructuring their science and innovation sector, including through revising the size and role of the Academies. The Commission favours a more comprehensive approach, taking into account all socio-economic factors, that will make use of the experience gained, not only with Central and Eastern European countries but also with less favoured regions in the Union, as concerns support for their policy making, programming and capacity building in science, technology and innovation.

- ***“The Panel recommends urgent action to counter envisaged skill shortages over the next decade.”***

Due to the growing importance of the knowledge-base for our society, there is generally increased attention attached to current educational and skills’ shortages in certain high tech areas and to potential skills’ shortages due to the ageing population even in more traditional areas. Benchmarking and best practice exercises co-ordinated in an open manner by the Community may help overcome this situation, as the Member States are having a crucial role to play in this context. Enhanced Community activities related to human resources development via training and mobility of researchers with emphasis on women and young researchers will also contribute. These will include improved availability, use and impact of e-learning tools.

- ***“The Panel urges the Commission to ensure that innovation-related activities are high on the agenda of actions supported by the Community Structural Funds and the Accession Funds for the applicant countries”***

The Commission shares the views of the panel concerning innovation policy and the strategy of a European research area, initiated by the Commission, emphasises the importance of innovation related activities. The promotion of innovation is and will remain a key objective of the Commission guidelines for the future of EU research. As required by the Lisbon European Council, “research activities at national and Union level should be better integrated and co-ordinated to become as efficient and innovative as possible.” New and innovative processes and products should also be able to permeate the new knowledge-based economy. In its recent Communication on innovation, the Commission presents five objectives: coherence of innovation policies, regulatory frameworks more conducive to innovation, means to encourage the creation and growth of innovative enterprises, improve key interfaces in the innovation system and open the society to innovation. In this overall approach, Structural Funds and Accession Funds should assist regional actors and candidate countries to devise and implement appropriate research and innovation policies at regional level.

5. FRAMEWORK ASSESSMENT

- ***“The Panel’s positive assessment of activities over the last five years is the basis for recommending continuation and expansion of the Framework Programme”.***

In designing future Community activities, the Commission will put the emphasis on the expansion and adaptation of the Framework Programme to the new political context and goals. Further efforts will be undertaken to improve the socio-economic impact assessment of EU RTD activities.

- ***“The Panel recommends making procedures much simpler and easier to understand.”***

Past experience and teething problems encountered in the launch of the 5th Framework Programme have provided the focus for the Commission to take initiatives to simplify management procedures and make them more user-friendly and efficient. To that end, a working group was set up. It has identified a number of items for simplification and streamlining that have already been implemented or will be so shortly. The Commission acknowledges the need for continued attention and efforts in this area.

- ***“The Panel recommends an urgent re-engineering of the overall management and administration of the Framework Programme”***

A review of the effectiveness of the overall programme management and administration has been attributed high priority. The aim is to streamline procedures and to clarify the definition of responsibilities and tasks at all levels.

The Commission sincerely thanks Mr J. Majo and the Panel members for this valuable report which provides an important input to the preparation of the future Community research activities.

COMMISSION'S COMMENTS ON THE SPECIFIC PROGRAMMES' 5-YEAR ASSESSMENTS

The Summaries of the Specific Programmes' 5-Year Assessments are presented in Appendix I to the Report on the Framework Programme 5-Year Assessment.

Brief comments regarding the summarised recommendations, are set out below (Horizontal issues are already dealt with in the Commission's responses to the Framework Programme 5-Year Assessment report itself).

Quality of Life and Management of living resources

The Commission recognises the current pervasiveness of life sciences and technologies, from agriculture and food to health care, environment and biological resources. Progress in this field therefore encompasses also ecological aspects, ethical perspectives and debates with responsible citizens. Commissioner Busquin has established a Life Sciences High Level Group to address this concern. Further initiatives include specific calls for proposals in the fields of bio-ethics and impact assessment, more networking, and sharing of good practice between Member States to raise the level of consciousness towards the societal dimension.

The Panel's recognition of the value of policy-driven research (in key actions) is encouraging. The Commission agrees that this approach should be further explored in the context of the implementation of the European Research Area, paying careful attention to required synergies with national programmes, as well as to achieving European added value.

The Commission also notes with interest the recommendation for increased attention to generic bottom-up research, longer-term investments in human resource development and centres of excellence and support for key research infrastructures and major scientific facilities including electronic access. The recommendation for new, flexible and customer-driven modalities for its implementation is also supported.

User-friendly Information Society

The Commission agrees that it is of fundamental importance to continue pursuing RTD in the area of information society technologies at Community level and has taken note of the Panel's view that a path of evolutionary change and additional focus is appropriate.

It notes with interest the proposal for interpreting European added value in terms of achieving European technological leadership and a broader European technological capability, notably in the context of the European Research Area and e-Europe initiatives.

The Commission fully supports the wish to improve efficiency and effectiveness underlying the Panel's recommendation to distinguish between three types of RTD and to vary, as appropriate, the administrative approach applied to each. This proposal will be analysed further during the preparation of the future Framework Programme.

Particular attention will be given to the Panel's view that linkages should be created to other initiatives and that debate should be supported on key issues that will condition the exploitation of RTD. The European Research Area initiative will encourage a more co-ordinated implementation of national and Community research programmes and also foster a more structured dialogue between interested parties, including on societal issues such as "info-ethics".

Competitive and Sustainable Growth

The Commission notes the Panel's view that the socio-economic focussed approach followed in the 5th Framework Programme is important but may need further clarification, and that the impact of many RTD activities would increase by increased involvement of users at all stages of programme implementation, not least in the fields of transport and standards, measurement and testing.

It is also fully in line with the Commission's European Research Area initiative to increase the co-ordination between the activities at national and Community, including those regarding dissemination of results, in line with the Panel's recommendation.

As rightly stated, a strong longer-term research activity is of the utmost importance if Europe and its industry is to compete effectively with the rest of the world. A proper balance between "scientific and technological breakthrough" and "incremental innovation" needs to be found, including, through particular attention to "risky projects". The Commission also takes note of the Panel's support for the diversification of actions, including the introduction of "Expressions of Interest" for bottom-up initiated activities which the Panel considers as a useful source of ideas.

Energy, Environment and Sustainable Development

Environment and Sustainable Development

The Panel states that "a significant part of the funding should be redirected towards generic activities and long-term research". In the Commission's view, this is an important issue in Community as in other research programmes; an appropriate balance between mission-oriented, medium to long time-scale and policy relevant actions has to be achieved, where some research outputs are being tailored for specific user groups. Moreover effective diffusion of the research results is actively pursued.

In line with the Commission's European Research Area orientations, the positive interaction between Community and national research, including in the candidate countries, should certainly be promoted, e.g. this could apply to the establishment of a European environmental research strategy. The Panel states that the current environmental concerns addressed do not necessarily cover those of an enlarged Community; however, one out of seven applicants during the first period of implementation was from an institution outside the European Union. It is encouraging to note the Panel's view that the EU can have a strategic role with respect to key environmental infrastructure.

Non-Nuclear Energy

The Commission agrees that a strategic approach and clear focusing are needed. The on-going mid-term revision of the Energy Work Programme has indeed taken on board this recommendation. As a consequence, a number of selected priority areas will be targeted, while emphasising socio-economic needs and the integration of multidisciplinary research. The suggested optimisation of impact will be reached mainly by increasing the size and critical mass of actions.

The Commission also notes the request for modalities and action types which ensure flexibility in implementation, allowing activities to cater better for emerging questions and to achieve more clearly identifiable impact.

Nuclear Energy

Nuclear Fusion

The Commission shares the view that important achievements have resulted from the co-ordination and co-operation provided by the Associations between the Community and national research programmes. Europe has become a leading actor in the world in this field, but there are still a number of important scientific, technological and engineering issues to be addressed before a commercial power plant can be realised. The Commission notes that the Panel considers that the next research programme should continue to be reactor oriented and should include the start of the construction of the "Next step" device such as the International Thermonuclear Experiment Reactor (ITER). The Commission will review the options available. In the mean time, the Commission agrees that maintaining this leadership requires exploiting JET and specialised devices in the Associations up to their full value.

The Commission is seeking directives from Council to conduct negotiations with third parties, possibly including Canada and USA, to jointly prepare for the future establishment of a legal entity for the construction and operation of ITER if and when so decided. Financial costs and benefits of siting ITER in Europe, Canada or Japan and of fall-back possibilities will be thoroughly reviewed.

Nuclear Fission and Radiological Sciences

A number of recommendations are fully in line with the development of the European Research Area and they will be carefully taken into account, e.g. increased emphasis on co-ordination, networking, training, etc.

Efforts will be made to broaden the scope of the studies on risk governance, including both technical and social factors, as suggested by the Panel.

The Commission agrees that there is need to improve communication to non-specialists, decision-makers and the public.

Confirming the International Role of Community Research

The Panel emphasises, as does the Commission, the particular role this programme's activities play in providing "essential contributions" both to Community RTD policy and to other EU policies.

In the Commission's view, research is international by nature and excellence results from a combination of favourable local conditions and openness to international sources of knowledge. An important asset is therefore the multiplying effect as regards the impact of research investments and circulation of knowledge between countries and regions in the world. It reinforces Europe's capabilities to contribute to the solution of world-wide problems as well as specific regional issues. It also enhances the position and role of Community research in the international scientific and technological arena.

Promotion of Innovation and Encouragement of Participation of SMEs

The Panel's recommendations, including regarding the definition of a clear strategic role and focussing on customers where the highest leverage effects can be achieved, are constructive and helpful. The Commission will take them into account in the implementation of the current Framework Programme and in the preparation of future Community activities.

The Commission also notes that the recommendations are in line with the priorities it set for the European Research Area, in particular concerning SMEs and co-ordination of innovation activities at the regional, national and European level.

Improving the Human Research Potential and the Socio-economic Knowledge Base

The Commission welcomes the conclusion that this programme is a good instrument to meet the challenge of the transition to a knowledge society. The actions for supporting training of very high quality, mobile researchers with international experience, such as fellowships and training networks, must therefore be further explored in future Community programmes. The Commission agrees that the mobility concept, presently focused on the training of researchers, can be extended to stimulate transfer of knowledge and technology. This could be a feature of future schemes. The Commission welcomes the recommendation to give higher visibility to the socio-economic research activities and results, in line with the new political context and goals as defined in Lisbon.

The Commission wishes to point out that this programme also contributes to promoting the attractiveness of Europe to researchers and avoiding brain drain. It welcomes the Panel's recommendation for a more ambitious approach to European research infrastructure and will develop a policy for a better support of research infrastructure in co-operation with other stakeholders.

The Joint Research Centre

The Commission welcomes that the Panel has emphasised the appropriateness and relevance of the new mission of the JRC in support of European policy formulation, implementation and monitoring.

It notes with interest that the Panel expressed strong support for the increased outward-looking attitude of the JRC and called for a strengthening of its networking with organisations in the Member States within the European Research Area. This should be accompanied by a reinforcement of the JRC's interfaces with its main customers. The Panel also recommended to consider the full range of the provision of S&T support and not just the R&D part.

The process of change that the JRC has been engaged in should continue. The Commission agrees that the visibility of the Centre and its achievements need to be further improved in order to confirm and develop its position within the European system of scientific and technical reference for policy implementation. It will further address these recommendations in a communication on the implementation of the JRC mission, to be prepared in the context of its contribution to the development of the European Research Area initiative.

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The Commission expresses its particular thanks to all the Panels that have carried out the 5-year assessment of the Specific Programmes for their dedicated work and the efforts invested in this complex task

Annex: conclusions of the report of the Panel on the five-year assessment of the RTD Framework Programmes (the full report is available on request, this report is also available at the internet address http://www.cordis.lu/fp5/5yr_reports.htm).

ANNEX

**Conclusions of the five-year assessment of the Framework
Programmes of Research and Technology Development,
1995-1999**

Chairman's Introduction

New circumstances call for new goals. And new goals call for new policy tools.

Our Panel has been appointed to evaluate the performance over the last five years of a tool, the Framework Programme. But we felt obliged to go beyond this task.

You will find in our report the expected evaluation, an evaluation that shows lights and also darks. I hope that our suggestions make a useful contribution to the task of preparing the next Framework Programme and fine-tuning the current one.

Our main message is that if the European Union wants to face the challenges of the new economic situation and attain the goals outlined by Heads of Government in Lisbon, the Framework Programme alone is not enough to implement European research and technological development (RTD) policy. It needs to be complemented by other tools.

It is my conviction, shared by the members of the Panel, that these challenges will not be successfully met without a real European RTD policy, a policy which does not exist today. Improving and enhancing the Framework Programme will be necessary but it will not be enough.

Let me go further. The absence of research policy is due to the lack of a real strategy for the future of Europe. It is very difficult to imagine how the ambitious goals decided in Lisbon can be achieved if this void is not filled.

For this reason, an important part of the report is devoted to the threats faced by our industrial and scientific communities and to the actions which need to be taken both at the level of the Union and, in a co-ordinated form, at the level of the Member States. Looking from the side of economy, the most important threat is of Europe falling further behind other economic areas over the next decade. Looking from the scientific community, the fear is of Europe losing its place as a centre of excellence for the creation of knowledge. I am convinced that both threats are the same.

This report is a contribution to the work of the Commission and a plea to European leaders, both in the Union and in the Member States, for the substantial policy review needed in order to implement a coherent follow-up to the statements made in Lisbon.

Executive Summary and Recommendations

The EU currently faces great challenges. At the March 2000 meeting of the European Council in Lisbon, the Union set itself the goal of becoming the most competitive and dynamic knowledge-based economy in the world. This puts research and technological development (RTD) policy at the heart of development strategies.

The most important conclusion of our Panel is that the Framework Programme alone will not be enough to serve the goals set at Lisbon. Although there is much to commend in past and current Framework Programmes, the challenges we face as we move towards the new economy call not only for the Framework Programme

itself to become a much more flexible policy instrument, but also for additional instruments and actions.

RTD policy is inextricably linked with policies in other spheres, especially education and innovation. **Our Panel is convinced that the required changes need to be conceived within an overall strategy for Europe, articulated at the level of the EU and supported by all the Member States.**

Framework Tomorrow

The Framework Programme has helped academic and industrial partners all across the EU to tackle problems collaboratively. It has also contributed to the training of researchers and to the development of the European research infrastructure.

There is still a need for these activities and they deserve to be continued, but the scope of the Framework Programme should also be increased in line with the need to meet the Lisbon goals and the demands of enlargement. The Panel recommends:

- Maintaining the emphasis on social relevance and continuing to use Key Actions as a way of focusing programmes;
- Maintaining a strong emphasis on collaborative RTD projects supplemented by a variety of other actions;
- Emphasising excellence and the participation of leading-edge researchers;
- Encouraging participants to propose ‘riskier’ projects;
- Enhancing measures encouraging the mobility of researchers within the EU and between the EU and elsewhere;
- Retaining support for generic, competence-building RTD activities;
- Increasing the emphasis on the research needed to support other EU policies.

But more is needed in Europe today. The EU Treaty allows for the use of other policy instruments to support scientific and technological activity. Some of these have been used, but **the Panel is convinced that existing policy tools need to be further exploited in a restructured and expanded Framework Programme.**

This under-utilisation is a consequence of the way the Framework Programme is determined and implemented. **The Panel recommends a major review of the systems and procedures used to decide overall goals, specify delivery mechanisms and implement programmes.** Specifically, we are convinced of the need to distinguish carefully between these activities and to allocate responsibility for them accordingly. **We recommend adoption of a European RTD strategy at the highest political levels. The Heads of Government should then delegate the task of formulating and implementing this strategy to the European Commission, supported by an appropriate advisory structure.**

These changes will necessitate a greater level of trust by the Member States in the ability of the Commission to deliver an effective Framework Programme. In particular, **the Panel sees no need to continue the Programme Committees.**

At the level of implementation, a review of the management and administration of the Framework Programme should concentrate on ways of **re-engineering existing structures and procedures to delegate responsibility for tasks downwards within**

the Commission, or externalise them. At present there is excessive focus on adherence to procedures and not enough emphasis on ensuring overall goal attainment.

The changes recommended by the Panel to create a more flexible, expanded Framework Programme will require support at the highest political levels. This is because they call into question some of the basic principles governing the operation of the European Commission as a whole, not just the way research policy is formulated and implemented.

Beyond Framework

It will be necessary for Heads of Government to reconsider the priority attached to science, technology and innovation. These activities are critical to the development of the knowledge-based society envisaged at Lisbon. Accordingly, **the Panel recommends increasing the relative size of the budgets allocated to science and technology compared to other policy domains.**

The Panel is convinced that the percentage of GDP spent in the EU on public and private RTD should rise to at least 3% over the next ten years. Higher levels will be necessary without parallel efforts to avoid duplication of effort across the EU. Private sector RTD expenditure will need to be stimulated if Europe is to keep pace with its competitors. **The Panel recommends the use of indirect measures such as RTD tax incentives across the EU** in order to flag to the rest of the world that Europe is an attractive place to conduct RTD.

RTD policies in the Member States need to reinforce rather than duplicate each other. In the Panel's view, the European Commission has a key facilitation role to play in this area. The Commission should take the lead in outlining the steps needed to pool infrastructure and policy-intelligence resources across the EU. The Panel also urges all the Member States to lend their unequivocal support to these efforts.

The enlargement of the EU presents great social and economic opportunities for all, but only if appropriate actions are taken. The Central and Eastern European countries are waiting for the EU to take the lead by implementing a European RTD strategy which takes their needs fully into account. **The Panel recommends that support provided to these countries for RTD activities be channelled temporarily through the existing scientific Academies until new competitive structures for the organisation of science and industry can be developed.**

The Panel recommends urgent action to counter envisaged skill shortages over the next decade. This will involve measures to increase the attractiveness to young people of careers in science, actions encouraging retraining, and steps to ensure that the potential increase of scientific talent as a result of enlargement is fully tapped. The Panel also supports the creation of truly European centres of teaching and research excellence capable of attracting the best minds in the world to live and work in the EU.

Innovation is another policy area in which new initiatives are needed to improve the position of Europe. Innovation policy is linked with RTD policy but is much broader, involving financial, market, legal, fiscal and cultural aspects, and will require actions

outside the Framework Programme. The Panel supports such endeavours and **urges the Commission to ensure that innovation-related activities are high on the agenda of actions supported by the Community Structural Funds and the Accession Funds for the applicant countries.**

Framework Assessment

The Panel's positive assessment of activities over the last five years is the basis for recommending continuation and expansion of the Framework Programme. The emphasis on collaborative RTD projects was much appreciated by academic and industrial participants, allowing them to undertake strategically important work which would have been difficult to undertake otherwise. Networking, training-related activities and adequate procedures for the involvement of SMEs were also widely regarded as successful features of the Framework Programme.

Concerning programme administration, many participants were dissatisfied with application procedures and, to a lesser extent, with payment delays. **The Panel recommends making procedures much simpler and easier to understand.**

The overall orientation of the Fifth Framework Programme was endorsed by the Panel, though the initial implementation of the programme was not smooth. The new matrix management structures put in place to ensure adequate communication within and across programme areas did not function well. **The Panel recommends an urgent re-engineering of the overall management and administration of the Framework Programme.**

The system of evaluation can be considered as well established. Impact assessment should become one of the most important elements of evaluation.

THE FRAMEWORK PROGRAMMES' FIVE-YEAR ASSESSMENT PANEL

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