

## ISSUES OF THE EUROPEAN TRANSPORT POLICY AND CURRENT STATE OF EU FUNDED TRANSPORT RESEARCH

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**Abstract:** This paper sets out the main lines of the existing EU Transport Policy, and transport research. After a brief description of the main elements of this policy, a discussion is given of its relation with transport research and the basic orientations that existed under the previous Framework Programmes for EU funded research. Then the main elements of the policy for the new (6th) Framework Program are presented.

**Keywords:** Transport policy, transport research, information society, intelligent transport systems, transport telematics.

### 1. INTRODUCTION

The present paper is the result of a series of lectures which the author gave at the Faculty of Transportation and Traffic Engineering of the University of Belgrade in April 2001.

The aim is to present the relation of the European Transport Policy to the transport research funded by the EU, and at the same time to give an overview of the current state and prospects of this research in the future.

Basically, the EU's programme of transport research follows the 4-year cycles or Framework Programmes (FP) of research in all fields. We are currently entering the 6<sup>th</sup> FP of research and the rules are now set for funded research for the period 2002-2006. Within the overall outline of the 6<sup>th</sup> FP, transport related research falls under two main streams: one related to the activities of the Directorate General for Transport and Energy (DG TREN), and one related to the Directorate General for Information Society (DG INFSO). The first is directly aimed at providing Transport Policy makers with the necessary scientific and technical background to formulate and evaluate policies, while the second is aimed at complementing the creation of the so-called European Information Society by providing the creation and implementation of "Intelligent Transport Systems - ITS".



It is hoped that the information in this paper will enhance an understanding of the basic elements of the European transport policy, and at the same time research objectives and requirements, so as to enable researchers who are not familiar with these issues to get better chances at participating in European funded research projects.

## 2. THE MAIN ELEMENTS OF THE EU TRANSPORT POLICY

In September 2001 the EU published a long awaited white paper detailing its Transport Policy for the next decade. The title of this white paper speaks for itself: **"European Transport Policy for 2010: A Time to Decide"**[9]. In it the Commission states the primary goals of its Transport Policy for the decade, its priorities in fulfilling these goals, and the policy measures to achieve them.

There are four primary goals set out as follows:

1. *Shifting the balance between the modes of transport;*
2. *Eliminating bottlenecks in traffic flows in congested networks (all modes);*
3. *Placing the users at the heart of Transport Policy measures; and*
4. *Managing the globalization of transport.*

Within each of them, the white paper describes the priorities and the specific measures and actions that it will take to fulfill them. In all, some 60 specific policy measures are stated in the paper, which will be taken at the EU level under this policy by 2010. At the same time specific milestones are set along the way, notably for monitoring exercises and a mid-term review of the policies followed (i.e. in 2005) in order to check whether the precise targets are being attained and what adjustments are necessary. A most notable feature of the white paper is that it specifically mentions (which hopefully equals to commitment) that the Transport Policy is to be made consistent and adjusted continuously with regard to other relevant Commission policies, namely: the *economic*, the *urban and land-use*, the *social and education*, the *urban transport*, the *budget and fiscal*, the *competition*, and the *transport research* policies.

By implementing these 60 policy measures the Commission expects that there will be, by 2010, a *marked break* in the link between transport growth and economic growth, without any need to restrict the mobility of people and goods. For example, they expect that between 1998 and 2010 there will be an increase of 38% in road haulage instead of 50% if current trends prevail, and in passenger transport by car an increase of 21% against a rise of 43% in GDP.

A brief reference to the main areas and priorities where these 60 policy measures refer (as well as the most notable of these measures) is given below.

1. **Revitalizing the railways:** Here the priority is to open up rail markets with further improvements in interoperability and safety, not only in international services (as already decided in December 2000), but also in the national ones, i.e. lifting of the cabotage principle. Also, the commitment is made that a network of railway lines must be dedicated exclusively to goods services.



2. **Improving quality in the road transport sector:** The measures foreseen under this policy area include: the modernization of the way in which road transport services are operated (while complying with the social regulations and workers rights), and tightening inspection procedures in order to put an end to practices preventing fair competition. Also to put up legislation to protect carriers from consignors and enable them to revise their tariffs in the event of rises in fuel prices.
3. **Promoting transport by sea and inland waterways.** Short sea shipping is seen as a desirable alternative to build "*veritable sea motorways*" within the framework of the Trans-European Networks. Also tougher rules on maritime safety, a genuinely European maritime traffic management system, as well as a tonnage-based taxation system are to be set in place. For the inland waterways, their position as "*intermodal waterway branches*" is conceived, and modern trans-shipment facilities as well as revised inland waterway vessel characteristics are to be promoted.
4. **Striking a balance between the air transport growth and the environment:** Here a reorganization of the European air transport is foreseen to create the "*European single sky*" as concerns air traffic management: also to expand airport capacity while at the same time introducing new regulations to reduce noise and pollution caused by aircraft.
5. **Turning "intermodality" into reality:** This area is aimed at technical harmonization and interoperability between systems particularly for containers, and to promote "*sea motorways*" by targeting innovative appropriate initiatives. This, last, policy is to be effected through a new Community support programme called "**Marco Polo**".
6. **Building the Trans-European Transport Networks:** Based on the experience gained so far from the development of the Trans-European Networks (especially the development of the 14 priority projects adopted by the Essen European Council and the application of the guidelines adopted in the 1996 European Parliament and Council decision, the white paper states that the Commission will concentrate on the revision of the current Community guidelines for the development of the Trans-European Networks. This revision will aim at removing the bottlenecks in the railway network, and completing the routes that are identified as priorities for absorbing traffic flows generated by the enlargement, particularly in the frontier regions. The new revision will also be particularly aimed at introducing the concept of "*sea motorways*", developing airport capacity, linking the outlying regions on the European continent more effectively, and connecting the networks of the candidate countries to the networks of the EU countries.
7. **Improving Road safety:** A number of actions are planned at improving road safety from exchanging good practices, to harmonizing signs (especially for dangerous black spots) and rules for checks and penalties for international commercial transport.
8. **Adopting a common policy in charging for transport:** The general principle is the equal treatment of operators and between the modes of transport as regards the price for using infrastructure. Two basic guidelines are adopted in that respect:



- Harmonization of fuel taxation for commercial users, particularly in road transport, and
  - alignment of the principles for charging for the infrastructure use (integrating the external costs [8]).
9. **Recognizing the rights and obligations of the users:** Perhaps the most significant feature of this new Transport Policy of the Commission is the recognition of the rights and obligations of the **users**. In this respect, the Community legislation is to be put in place for helping transport users to understand and exercise their rights; for example, air passenger's rights to information and compensation for denied boarding due to overbooking and compensation in the event of an accident.
  10. **Developing high quality urban transport:** In this respect the Commission places emphasis on exchanging good practices with aim at making a better use of public transport and the existing infrastructure. All measures to improve the quality of urban transport must be compatible with the requirements for a sustainable environment and the Kyoto treaty provisions.
  11. **Putting research and technology at the service of clean, efficient transport:** Under this area specific actions are promised for a cleaner and safer road and maritime transport and on integrating intelligent systems in all modes to make for an efficient infrastructure management. The specific reference is made to the expectations from the new 6<sup>th</sup> Framework Programme (6<sup>th</sup> FP) for Research and Development and the new policy for creating the integrated "European Research Area - ERA", and the *e-Europe* action plan. Also, in line with the policy priorities under the previous areas, some specific foci for the research are mentioned for: safety standards in tunnels, harmonization of the means of payment for certain infrastructure (particularly motorway tolls), and improving the environmental impacts of air transport (noise, safety, and fuel consumption).
  12. **Managing the effects of globalization:** This area calls for actions that will strengthen the Commission's position and presence in international organizations concerning transport, such as the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO), and the Danube Commission.
  13. **Developing medium and long-term environmental objectives for a sustainable transport system:** This area aims at creating a package of proposals for measures that, if implemented by 2010, will re-direct the common transport policy towards meeting the need for a *sustainable development*. The priority is set to proceed to the adoption of pro-active measures (some of them admittedly difficult to be accepted by the public) for the implementation of new forms of regulations in order to channel the future travel demand for mobility and to ensure that the whole of Europe's economy develops in a sustainable fashion.

The above new Transport Policy guidelines are to be further detailed and specified in the coming years and will be under continuous monitoring and review in order to take account of the results of previous actions and to be always in line with current developments. The present author believes that the white paper is a good basis for developing a coherent and integrated transport system. What remains to be seen is



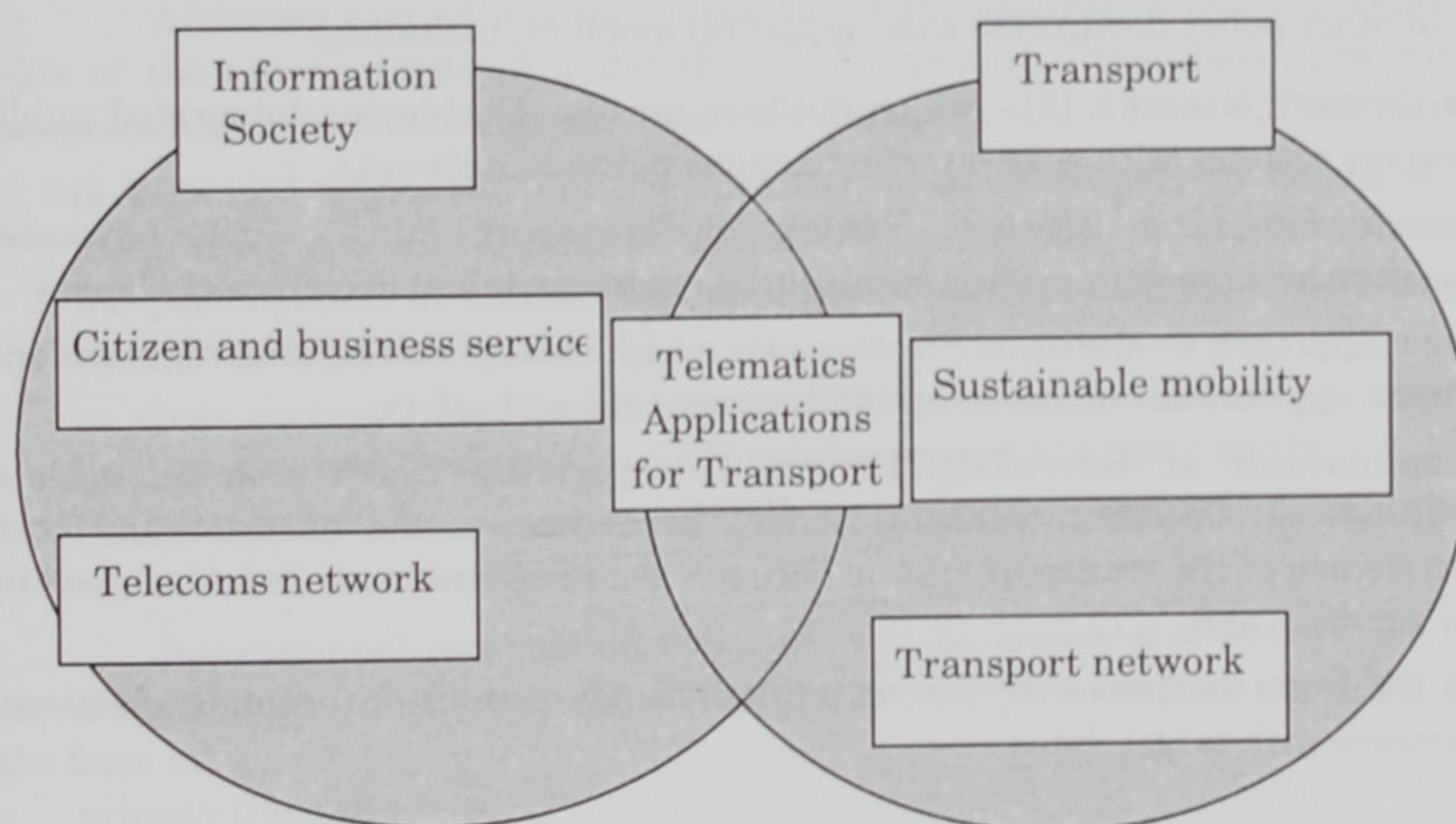
the extent to which the Commission and the national governments will proceed to formulating and implementing the necessary actions that will give substance to this policy document and give the citizens of Europe the benefit of a more efficient, safe, and intelligent European transport system.

### 3. OTHER TRANSPORT POLICY RELATED ISSUES

The free movement of people and goods within and across national boundaries is the ultimate objective of any transport policy with an international perspective. For EU Member States this is a central prerequisite of the European Single Market, and one that has gradually been achieved to a great extent between the EU's member states.

Although most of the governments pursue the above basic principle of the International Transport Policy, other important policy objectives, namely the commitments to sustainability and environmental protection (ref. the 1992 Rio Convention and the 1997 Kyoto Protocol), require transport systems to develop within a framework that respects environmental and social, as well as economic, imperatives.

Industrial competitiveness, employment, quality of life and sustainable growth are also very important considerations that all depend on European countries being at the cutting edge in the development and deployment of new technologies in various fields and transport as well. Thus the so-called "Information Society Technologies" (including Intelligent Transport Systems - ITS) to achieve the European Information Society are among the most important applications in the realisation of the above-mentioned basic goals.



**Figure 1:** Converging information and transport policies



One of Europe's major challenges is to integrate ITS applications and services across stakeholder interests and transport modes to provide seamless intermodal transport for both goods and passengers. This process has started, but greater efforts will be needed. The convergence of the objectives of the EU's Transport Policy and the objectives for a European Information Society created the need for advanced research in what has been known for many years as "telematics applications in transport". Thus transport research has become an integral part of policy formulation (Fig. 1).

#### 4. THE TRANS-EUROPEAN NETWORKS (TENS)

These networks cover telecommunications and energy, as well as transport. They are basically a delineation of major axes of movement, telecommunications, or energy infrastructures and are promoted as a Master Plan. Transport TENs (or TEN-Ts) are designed to strengthen European cohesion by encouraging economic integration, ensuring better long-distance communications (especially between remote and under-developed areas and central regions), and providing the basic infrastructure for the movement of people, goods, services and information across the internal frontiers of EU member states.

The Trans-European Transport Network (TEN-Transport) is due to be established by 2010 through progressive integration of surface and air transport across the EU. It comprises road, rail, air and waterborne network sectors (the road sector being known as the Trans-European Road Network, TERN).

An action plan [1], proposed by the EC and endorsed by EU member states, supports private-sector developments aimed at financing and deploying the infrastructure required for the TEN-Ts realisation. The EC has also published a number of other policy documents that impact on mobility, including:

- The Citizen's Network [2] - which outlines means of achieving integrated public transport systems with easy interconnections between networks;
- Towards Fair and Efficient Pricing in Transport [3] - which advocates differentiated transport pricing to encourage more sustainable transport choices;
- A New Approach to Maritime Strategy [4] - which focuses on shipping registers and common applications on internationally-agreed rules of safety;
- Communication on Intermodal Freight Transport [5]- which proposes optimal integration of different transport modes to encourage the efficient and cost-effective use of the transport system through seamless, customer-oriented door-to-door services; and
- The e-Europe Initiative [6] - a set of 10 priority actions to promote electronic commerce with target dates.



## 5. OBJECTIVES AND BROAD LINES OF THE EU's NEW RESEARCH ACTIVITIES

Activities under the 6<sup>th</sup> Framework Programme for research and technological development (2002-2006) will be carried out in accordance with the following three general objectives:

- strengthening the scientific and technological bases of Community industry;
- encouraging it to become more competitive;
- promoting research activities deemed necessary by virtue of other chapters of the Treaty.

In order to achieve these objectives more effectively, the new Framework Programme will be restructured around three targets:

1. integrating European research;
2. forming and structuring a **European Research Area**;
3. strengthening the foundations of the European Research Area.

The notion of a "**European Research Area**" i.e. a "unified research space" within which there will be uniform research priorities, funding, and exchanges, covers all 15 member countries and it will obviously be extended eventually to new members too.

The activities carried out in order to achieve the last two targets are intended to structure various dimensions of the European Research Area that are closely connected with research and constitute its environment, as well as helping to establish or consolidate the foundations underpinning its operation. They will therefore be implemented across the whole field of science and technology and not only transport.

Activities carried out to further the first objective, which will represent the bulk of the efforts deployed under the 6<sup>th</sup> Framework Programme, are intended to integrate research efforts and activities on a European scale. They will be carried out:

- in a limited number of priority thematic areas exclusively by means of strongly integrating, powerful instruments: networks of excellence, integrated projects and EU participation in national research programmes implemented jointly pursuant to Article 169 of the Treaty;
- in areas corresponding to anticipating EU science and technology needs in the form of certain specific needs of EU policies or new emerging needs;
- in the field of science and technology as a whole in the case of complementary research activities for SMEs.

International cooperation activities will be an integral part of the activities carried out under the first target of the new Framework Programme. They may take the form of:

- priority thematic areas;
- initiatives aimed at securing for Europe a leading role in international research efforts on global issues, and ensuring a coherent contribution by Europe therein;



- integrated bilateral cooperation activities with third countries<sup>1</sup> or groups of third countries;
- the participation of third country researchers and organisations in projects and networks in areas of particular interest to those countries.

As a fundamental and general principle, the rule of support on the basis of competitive calls for proposals and the evaluation of the scientific and technological quality of those proposals, by means of peer reviews, will be used to implement the bulk of the activities under the 6<sup>th</sup> Framework Programme.

## 6. INSTRUMENTS AND DETAILED RULES FOR COMMUNITY FINANCIAL PARTICIPATION

To help bring about the European Research Area, the Community will contribute financially, under specific programmes, to research and technological activities, including demonstration activities, carried out in the priority thematic areas of the Framework Programme as well as in other areas and other themes in the field of science and technology [10].

The Community's financial contribution to these activities will incorporate measures to encourage innovation and will be carried out by means of a range of instruments described below.

The following apply to all areas of research including transport.

### 6.1. Instruments to integrate research

#### 6.1.1. Networks of excellence

In the priority thematic areas of research under the Framework Programme, financial contribution will be provided to form *networks of excellence*.

Support to these networks is intended to promote excellence in Europe by means of a deep and lasting integration of the excellence capacities existing in universities, research centres and industries in several member states into a critical mass of expertise by creating "virtual centres of excellence".

Integration will be ensured by means of a joint programme of activities representing a substantial part of the activities of the entities' networked. The entities will need to have or acquire the operational autonomy necessary to integrate their activities gradually with those of other entities.

The programmes of activities, representing an order of magnitude of several million euros per annum, will be defined on the basis of precise research themes and topics, but not on the basis of pre-defined objectives or results. Implementing them will entail the gradual integration of the work programmes in the areas concerned, a

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<sup>1</sup> Third countries: countries that are not members of the EU and are not associated with the Framework Programme. The countries associated with the Framework Programme, whose organisations and researchers can, by virtue of this association, participate in Framework Programme activities under the same conditions as those of the Member States of the EU are: the European Economic Area countries, the candidate countries, Switzerland and Israel.



precise breakdown of activities, a significant volume of exchanges of personnel, and intensive use of electronic information and communication networks and virtual and interactive working methods. These programmes will necessarily and in a verifiable manner involve activities to manage, transfer and exploit the knowledge produced.

The networks of excellence will be selected on the basis of calls for proposals.

Opening up participation in the networks of excellence to researchers from other European countries than those of the associated entities will be encouraged by means of measures in support of mobility. Participation in the networks of excellence will in addition be open to third country organisations and European scientific cooperation organisations.

### 6.1.2. Integrated projects

In the priority thematic areas of research of the Framework Programme, financial contribution to integrated projects is planned. Consortia often involving intense university/industry collaboration will carry out these projects, representing an order of magnitude of up to several tens of millions of Euros.

The projects may cover "risky" research and will in all cases have clearly defined objectives in terms of scientific and technological knowledge or products, processes or services. The integrated projects may in some cases be made up of clusters dedicated to different aspects of one and the same objective, integrated into a single action by industry and public sector research partners on the basis of a regularly updated timetable.

Carrying them out will necessarily and in a verifiable manner entail activities relating to the dissemination, transfer and exploitation of knowledge as well as the analysis and evaluation of the economic and social impact of the technologies concerned and the factors involved in their successful exploitation.

They will preferably be carried out on the basis of overall financing plans involving significant mobilisation of public and private sector funding, and recourse to other collaboration or funding schemes, in particular Eureka and the instruments of the European Investment Bank and the European Infrastructure Fund.

The integrated projects will be selected on the basis of calls for proposals. Participation in them will be open to third country organisations and organisations for European scientific cooperation. There will be specific measures to encourage SME participation.

Participants with a high level of autonomy will administer the networks of excellence and the integrated projects. They will in particular have the possibility of:

- associating other partners with the activities that they undertake;
- defining projects of limited scale as components of their programmes of activity and launching calls for proposals;
- adapting the content of those programmes according to needs.

The implementation of the programmes of activities carried out by the networks of excellence and in the context of the integrated projects will be regularly evaluated.



### 6.1.3. Participation in national programmes carried out jointly

In the priority thematic areas of research of the Framework Programme, financial contribution to national programmes will be carried out jointly pursuant to Article 169 of the Treaty.

The programmes concerned will be clearly identified programmes implemented by governments or national research organisations. Their joint implementation will entail recourse to a specific implementation structure. This may be achieved by means of harmonised work programmes and common, joint or coordinated calls for proposals. In appropriate cases, the development or operation of common infrastructures may be involved.

The Community may contribute financially to the programmes carried out jointly. Where those programmes are open to other European countries, the Community may also support the participation of researchers, teams or institutions from those countries.

## 7. DETAILED RULES FOR FINANCIAL PARTICIPATION BY THE COMMUNITY

The Community has stated [10] that it will contribute financially towards implementing the instruments defined below in compliance with the Community framework for state aid to research and development, as well as international rules in this area, and in particular the WTO Agreement on Subsidies and Countervailing Measures. It will need to be possible to adjust the scale and form of financial participation under the **Framework Programme** on a case-by-case basis, in particular if funding from other public sector sources is available, including other sources of Community financing such as the EIB and EIF.

In the case of participation of bodies from regions lagging in development, when a project receives the maximum intensity of co-financing under the Framework Programme or an overall grant, an additional contribution from the Structural Funds, pursuant to Council Regulation (EC) No. 1260/99 [7], could be granted.

In the case of the participation of bodies from the candidate countries, an additional contribution from the pre-accession financial instruments could be granted under similar conditions.

Financial participation by the Community will be granted in compliance with the principle of co-financing, with the exception of financing for studies, conferences and public contracts. Depending on the nature of the different instruments, financial participation by the Community may be of an overall nature or take the form of a grant to the budgets for each of the steps in the implementation of the instruments.

Table 2 below shows the rules set out by the Commission for its funding of the various research activities under the new research FP.



**Table 2:** Rules for the Commission's financial participation in research projects

| <b>Instruments</b>  | <b>Financial participation<br/>By the Community under the<br/>Framework Programme</b>  |
|---|--|
| <b>Integrating research</b>   | 2  |
| 1. Financial contribution to networks of excellence.  | The Community may award an overall grant on the basis of the results from the implementation of a common programme of activities.  |
| 2. Financial contribution to integrated projects.   | The Community may award a grant to the budget of these projects corresponding to a maximum of 50% of their total cost.   |
| 3. Financial contribution to national programmes carried out jointly.   | The Community may award a grant to the budget of jointly-executed activities corresponding to a maximum of 50% of their total cost; it may cover on an overall basis the participation of third country researchers and organisations in the activities.   |
| 4. Financial contribution to activities carried out in order to anticipate the EU's scientific and technological needs, including specific research activities for SMEs and specific international cooperation activities | The Community may award a grant to the budgets of these activities corresponding to a maximum of 50% of their total cost and assume responsibility for the entire budget of the JRC.   |
| <b>Structuring the European Research Area.</b>  |  |
| 1. Financial contribution to activities to promote interaction between research and innovation.   | The Community may award a grant to the budgets for these activities.   |
| 2. Financial contribution to the development of human resources and increased mobility.   | The fellowships and support for excellence will be of a global nature.   |
| 3. Financial contribution in support of research infrastructures.   | The Community may award a grant to the budgets for the preparatory technical work, including feasibility studies to a maximum of 50% of their total cost; it may award an overall grant for trans-national access and network development activities and, on the basis of the results, for the implementation of integrated initiatives; it may award a grant to the budgets for the development of new infrastructures corresponding to a maximum of 10% of their total cost. |
| 4. Financial contribution towards the development of harmonious relations between science and society.  | The Community may award a grant to the budgets for these initiatives.  |

<sup>2</sup> In the three categories of activities undertaken under "integrating research", Community funding can cover the participation of bodies and researchers from third countries.



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| <b>Strengthening the foundations of the European Research Area.</b>                                |  |
| 1. Financial contribution to coordination activities.  | The Community may award a grant to the budgets for these activities. |
| 2. Financial contribution to measures in support of the coherent development of research policies. | The Community may award a grant to the budgets for these measures.   |

8. CONCLUSIONS

The new Framework Programme for research and development in the EU countries (in which associated countries can also participate), sets out a new and very ambitious framework for conducting research activities. The main aim is to further integrate these activities and make them more uniform and "European" rather than "national" and varied.

Transport research will be carried out under several of the broad "headings" of the new Framework Programme areas, which are not yet detailed. Transport research under the new programme is, however, expected to be even more "integrated" with the (transport) policy requirements as well as with the broad objective of creating the e-Europe of the future.

To this end competition along with intense control to respect the existing rules and regulations for the financing of this research are expected to be strengthened.

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