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COMMUNICATION FROM THE COMMISSION

**THE EUROPEAN RESEARCH AREA : PROVIDING NEW MOMENTUM
Strengthening - Reorienting - Opening up new perspectives**

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THE EUROPEAN RESEARCH AREA : PROVIDING NEW MOMENTUM Strengthening - Reorienting - Opening up new perspectives

(Act with EEA relevance)

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1. SUMMARY

Launched at the Lisbon European Council in March 2000, the creation of a European Research Area has become the central pillar of EU activities in the field of research and the reference framework for European research policy issues.

Thirty months after it was launched, the European Research Area initiative can be seen to have played a part in reshaping the European research policy landscape. Its implementation has raised awareness of the European dimension of research at national level. It has stimulated a process bringing the parties involved in European research closer together and launching new cooperation initiatives and has led to the definition and adoption of a substantially redefined Framework Programme for Research.

Notwithstanding the progress made in these different respects, the initiative in its current form seems to be hampered, however, by insufficient participation of the Member States. This is reducing the impact of the activities being undertaken, thereby jeopardising the chances of the project achieving its objectives: the creation of a genuine "Internal market in research" and the establishment of genuine coordination of national research policies.

This Communication is based on an assessment of the activities undertaken and the developments which have occurred in different areas, in the process "revisiting" the various dimensions of the initiative. The Communication seeks to identify what should be done to give new momentum to the European Research Area initiative by strengthening efforts where necessary and defining new perspectives which will provide the initiative with more effective means of implementation.

2. INTRODUCTION

Launched at the Lisbon European Council in March 2000 on the basis of an idea proposed by the Commission two months earlier,¹ the European Research Area initiative has since come to represent the central pillar of EU research activities. Moreover, it has very quickly become the main reference framework for thinking on and discussion of research policy issues in Europe, as well as a reference point at international level.²

The creation of the European Research Area is a key component of the strategy defined at Lisbon of making the European Union the world's most competitive and dynamic knowledge-based economy. It should stimulate innovation and economic growth and hence the creation of jobs. In the knowledge-based economy, the industrial exploitation of the results of scientific research in areas such as biotechnology, information and communications technology, and soon also

¹ European Commission, Communication "Towards a European Research Area, COM(2000)6 of 18.1.2000 and working document "First report on progress towards the European Research Area", SEC(2001)465 of 16.3.2001

² See the reference to the January 2000 Communication and the "Key Figures 2001" defined in "Science and Engineering Indicators 2002" of the US National Science Foundation.

nanotechnology and clean energy technologies, is the main driving force behind economic growth.

The idea of a European Research Area grew out of the realisation that research in Europe suffers from three weaknesses: insufficient funding, lack of an environment to stimulate research and exploit results, and the fragmented nature of activities and the dispersal of resources.

The EU spends only 1.9% of its GDP on research and development, as compared with 2.7% for the USA, a figure which is still rising, and 3% for Japan. Although it accounts for one-third of total world output of scientific publications, Europe lags behind its competitors in terms of number of patent applications and its trade balance in high-tech products is in deficit. The level of private sector research in Europe is below that of other leading technological nations, and European countries are slower to exploit promising technological markets on a systematic basis. Moreover, more than 80% of EU research is financed at national level, with very little overall co-ordination. The European Research Area initiative is based on the simple idea that current scientific and technological co-operation activities in Europe are far from sufficient to achieve the target set.

Against this background, the objective of the European Research Area initiative combines three related and complementary concepts:

- the creation of an "internal market" in research, an area of free movement of knowledge, researchers and technology, with the aim of increasing co-operation, stimulating competition and achieving a better allocation of resources;
- a restructuring of the European research fabric, in particular by improved co-ordination of national research activities and policies, which account for most of the research carried out and financed in Europe;
- the development of a European research policy which not only addresses the funding of research activities, but also takes account of all relevant aspects of other EU and national policies.

The European Research Area initiative has led to a number of different activities and is beginning to be translated into specific action in several ways:

- Activities which build on the conclusions of the Lisbon European Council, most of them based on Commission Communications or staff working papers, are underway in relation to benchmarking of research policies; mapping of excellence; mobility of researchers; research infrastructures; networking of national research programmes; private investment in research; intellectual property; electronic networks for research; the international and regional dimensions of research; and issues relating to science and society;
- Contact fora and structures covering private and public research players have been or will soon be set up, most often linked to EU activities and programmes, in order to improve the coordination of national activities and policies in several areas: transport (ACARE for aeronautical research, ERRAC for railway

research);³ the environment (European Platform on Biodiversity Research Strategy - EPBRS); energy: "High-Level Group for Research on Hydrogen and Fuel Cells", in the framework of the global "Civilisation H²" project and in conjunction with the future Commission Communication on clean technologies;

- A new Community Framework Programme for research has been adopted⁴ which has been specifically designed and formulated to help achieve the European Research Area and is likely to become an important tool in setting it up. This has been done through new support instruments which will make it possible to built up critical masses of resources (networks of excellence and integrated projects), strengthen action in certain areas such as research infrastructures and the mobility of researchers, provide a scheme for supporting initiatives for the networking of national activities, and implement the provisions of Article 169 of the Treaty authorising the Community to participate in activities undertaken jointly by several Member States;
- The Joint Research Centre (JRC) has stepped up activities related to the networking of national research capabilities which it carries out to provide the scientific references necessary for EU policies, in particular in the fields of nuclear safeguards and safety, chemical metrology, environmental hazards, and the detection and analysis of GMOs;
- Initiatives undertaken independently of EU activities but defined in the spirit of the European Research Area are being launched or studied spontaneously by the scientific community and by industry. Increasingly, reference is made in national research bodies' programmes to the European Research Area (e.g. the CEA (nuclear research) and INSERM (medical research) programmes in France and the programme of the Fraunhofer Gesellschaft in Germany);
- Bilateral and multilateral links between the main national research organisations (CNRS in France, CSIC in Spain, CNR in Italy, the Max Planck Gesellschaft in Germany, the Research Councils in the UK, TNO in the Netherlands, FNRS in Belgium, TEKES in Finland, etc) are intensifying. These are developing in particular through the creation of "Associated European Laboratories" (laboratories "without walls" combining teams from several different countries).
- New collaboration schemes are also emerging, such as the exchange programme for researchers between the Deutsche Forschungsgemeinschaft and the Royal Society, and the fellowship scheme for young researchers developed in the framework of the EUROHORCS association.⁵

Despite these successes and the progress made, the European Research Area initiative appears to be coming up against certain barriers which are reducing the impact of the activities undertaken. Most of these barriers are due to the low overall level of Member State involvement, as can be seen, for example, in the fact that

³ ACARE: Advisory Council for Aeronautics Research in Europe; ERRAC: European Rail Research Advisory Council.

⁴ OJ L 232/1, 29.8.2002.

⁵ European Union Research Organisations Heads of Research Councils.

national authorities do not always participate in activities at the appropriate decision-making level. This, together with the fact that many of these activities are limited to exchanges of information, reduces further the degree of coordination between national research policies.

Thirty months after it was launched, it is time to revisit the European Research Area initiative to take stock of its implementation and the lessons which can be learned from it.

Such is the aim of this Communication which, in the run up to the Spring 2003 European Council, is closely linked to the Commission's recent Communication on increasing European research to 3% of EU GDP by 2010,⁶ and the views the Commission will shortly be putting forward on the role of universities in a knowledge-based Europe. This role of universities is central in view of their dual research and teaching function and the growing position they occupy in the innovation process. The actions described in this Communication are closely linked to the objectives laid down for the European Union by the Barcelona European Council, as set out in particular in the Broad Economic Policy Guidelines for 2002.⁷ They will furthermore be conducted in compliance with the principles of proportionality and subsidiarity.

3. THE MAIN LESSONS

The 2001 Monitoring Report on European Research Area activities,⁸ the opinion of the EURAB Group⁹ on this subject, and the 2001 Report on the Framework Programme¹⁰ in particular paint a varied picture.

The general lessons which can be drawn are as follows:

- As would be expected in view of the nature of the European Research Area initiative, the progress made depends directly on the degree of mobilisation of the Member States on the various topics and their level of involvement in activities relating to them.
- The fastest progress has been made in areas which are clearly identified and are the subject of clearly defined action at national level.
- One reason why substantial coordination has been achieved on the issue of "women and science", for example, is that, while being a complex area with difficult underlying mechanisms, it is clear in conceptual terms and has been the subject of specific initiatives in the Member States. The same cannot be said of an issue such as science teaching, which covers a number of areas which are related but distinct and are not dealt with together or in the same way at national level.

⁶ European Commission, Communication entitled "More research for Europe: Towards 3% of GDP", COM (2002) 499, 11.9.2002.

⁷ ECFIN/210/02.

⁸ 2001 Specific Monitoring Report on European Research Area Activities (ERA).

⁹ European Research Advisory Board.

¹⁰ 2001 Monitoring Report on the EU Framework Programme for Research and Technological Development.

- It is also more difficult to make progress because policy areas other than research policy in the strict sense are involved. With regard to the mobility of researchers, for example, the real obstacles to freedom of movement are those relating to social policy (social security and pensions), tax policy, etc.
- Very often, activities which are planned or in progress are linked to the EU's Framework Programme for Research and are dependent on funding from it. This trend is likely to increase further with the Sixth Framework Programme which devotes more resources to research. However, the European Research Area project cannot be seen solely in terms of these activities and must by definition create a momentum of its own within a wider framework which draws on separate initiatives.

All in all, this assessment and the lessons which can be drawn from the implementation of the European Research Area project provide an opportunity, at the half-way point before the activities are reconsidered in their entirety, to reinvigorate the initiative. This calls for a renewal of the spirit in which it was launched and the basic principles underlying it.

The general objectives should therefore be:

- **to achieve a substantial increase in Member State involvement and the level of mobilisation of national activities;**
- **to increase the impact of the activities underway;**
- **to consolidate the conceptual and policy framework in which the project is being implemented.**

4. STRENGTHENING AND REORIENTATING ONGOING ACTIVITIES

A more detailed analysis reveals quite substantial differences in progress between different areas. It brings to the fore the need to strengthen the ongoing activities in overall terms, but also to redirect some of them.

4.1. Benchmarking of research policies¹¹

The benchmarking of research policies is a basic component of the "Lisbon method" and thus of the European Research Area project.

It is intended to help improve Member States' research policies by making them generally more consistent with each other through a process of comparison, exchange and mutual learning.

An initial cycle of benchmarking has been concluded, with the following results:

¹¹ European Commission. Working documents entitled "Development of an open coordination method for the comparative evaluation (benchmarking) of national research policies - objectives, methodology and indicators", SEC 1842 of 3.11.2000; "Progress report on benchmarking of internal research policies", SEC (2001) 1002 of 20.6 2001; "Benchmarking of national RTD policies: initial results"; SEC 2002 129 of 31.1.2002

- Twenty quantitative indicators have been defined which enable the situation in the Member States to be monitored as regards, for example, research spending, human resources in this field, and the economic exploitation of the results. The data for 15 of these indicators have been collected and analysed, and 5 additional indicators are being developed.
- Five topics have been analysed: human resources in research and development; public and private funding; the impact on economic competitiveness and employment; scientific and technical productivity; promotion of a scientific culture.
- The results of these analyses and the recommendations arising from them demonstrate the need for the EU research effort to be strengthened if the Lisbon objectives are to be attained, in particular with regard to private investment in research. They were therefore taken into account in the conclusions of the Barcelona European Council.
- The results have been widely distributed for study and discussion at workshops and conferences and made available to the public.¹²

This first cycle also served as a pilot experiment to find out how the exercise could and should be continued. Two lessons which can be drawn are that it is essential to have the active participation of the countries involved, in particular through sufficient mobilisation of resources at national level for data collection, and that it is difficult to arrive at useful conclusions if topics are too broadly defined.

Actions planned or for consideration

- **Concentration on a small number of more targeted topics.** These could, for example, be chosen from among the following: the development of human resources for public and private research, more especially the degree of mobility at all levels and the conditions under which researchers from other European countries are able to stay; public investment in basic research; action by Member States to encourage private investment in research, in line with the Commission Communication "More research for Europe: Towards 3% of GDP";¹³ local clustering of research and development resources; government policies to promote scientific knowledge among the public and action to involve citizens in the discussion of research issues.
- **The setting up, for each of the topics chosen, of "Steering committees"** made up of representatives of the national authorities and "Working parties" consisting of experts appointed by the Member States, with action on each topic being led by one of the participating countries.

¹² Website: <http://www.cordis.lu/rdt2002/era-developments/benchmarking.htm#results>.

¹³ COM (2002) 499, 11.9.2002.

4.2. Mapping of excellence¹⁴

The aim of mapping excellence is to identify existing research capacity in Europe precisely (down to the level of research units or teams). In particular, the aim is to identify, in a dynamic perspective, emerging capacities as they evolve, so as to make them more widely known among the scientific community and policy makers and to promote the exploitation and dissemination of excellence.

A pilot phase has been launched covering the three areas of the life sciences, nanotechnology and economics. The following results have been obtained to date:

- The economics exercise has been completed and a final report is being drawn up;
- Interim results have been obtained for the other two fields, with consolidated results expected at the end of November 2002.

The pilot phase has nonetheless revealed a number of serious technical and methodological problems. In view of the present situation and current practices as regards publication and patents, it will not be possible to consider achieving the target set with the data available unless there is considerable investment in time and effort in comparison with the added value obtained.

Actions planned or for consideration

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| <ul style="list-style-type: none">– Further dissemination of results since the information provided may supplement existing knowledge on this subject within the scientific community, and among political decision-makers, administrations and industry.– Evaluation of the initial phase with the objective of determining the cost/benefit of continuing with the exercise and extending it to other areas. |
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4.3. Mobility of researchers¹⁵

European Union researchers in principle already enjoy mobility within the internal market under the principle of the freedom of movement of persons. However, in practice such movement is very limited due to obstacles of various types: legal, administrative and regulatory, practical, cultural and linguistic, information-related, etc. The activities undertaken on this theme aim to remove these obstacles.

A first category of resources which could be deployed for this purpose relates to financial incentives. In this context, it should be noted that, under the Sixth Framework Programme, resources for activities to support mobility have almost doubled. Moreover, the types of support available have been diversified and adapted in two ways: by extension of fellowships to cover all parts of a researcher's career, and by extension of the period during which fellowships are granted.

¹⁴ European Commission., Communication entitled "Mapping excellence in research and development in Europe", SEC (2001) 434 of 12.3.2001

¹⁵ European Commission, Communication entitled "A mobility strategy for the European Research Area", COM (2001) 331, 20.6.2001.

A second category of resources is that of legal instruments. As mobility of nationals of third countries is not yet organised at EU level, freedom of movement within the EU for researchers from third countries is even more difficult to ensure than for EU researchers. There are specific rules regarding the entry of researchers from third countries in only two Member States. Consideration of the conditions relating to the entry and stay of researchers from third countries began during 2002 with a view to making it easier for them to gain entry to the European Union and to move around within it.

A series of actions has also been started at other levels as part of the process of coordinating Member States' policies. The progress made so far includes in particular:

- The development of a European network of mobility centres (consisting of about 40 institutions) to provide researchers with practical aid and assistance (preparations are reasonably well advanced and the launch will be in early 2003);
- The development of an electronic information system on employment opportunities for researchers and the legal and administrative provisions in EU countries - "Researchers' Mobility Web Portal" - (pilot phase in autumn 2002, operational early 2003, to be implemented in conjunction with the single Internet site for information on professional mobility requested by the Barcelona European Council for the end of 2003 at the latest);

As with all other categories of persons concerned, researchers will benefit from the ongoing review (simplification and extension) of the present EU Regulation 1408/71 on the coordination of social security systems.

Actions planned or for consideration

- **Presentation, during 2003, of measures to facilitate entry and stays for researchers from third countries coming to the EU** and to extend the rules on the freedom of movement of persons to them, including if necessary the creation of an EU residence permit for scientists.
- **Presentation of an analytical document containing recommendations and proposals for action on career development for researchers:** methods of recruitment and performance evaluation, requirements for mobility between the public and private sectors, etc.

4.4. Research infrastructures¹⁶

Research infrastructures top the list of areas where a European approach is called for, given the levels of funding involved and the need for them to be given the means to ensure they are able to provide services on a European scale.

Issues related to major infrastructures cannot be dealt with effectively at national level. Needs in this area must be defined and decisions taken at European level.

¹⁶ European Commission, Working Document "A European Research Area for Infrastructures", SEC (2001) 356, 27.2.2001.

The action being undertaken on this theme is aimed at promoting the gradual development of a European policy. The progress made includes the following:

- The strengthening and diversification of EU action to support access to and the functioning of research infrastructures in Europe in the Sixth Framework Programme..
- The creation of a "European Strategy Forum on Infrastructures" for research to facilitate the emergence of a European policy on the development and use of research infrastructures in Europe, as well as multilateral initiatives in this field.
- An initial series of projects has been launched in this area on three topics: free electron lasers (fourth-generation radiation sources); neutron sources; oceanographic vessels.

The members of the European Forum on Infrastructures do not, however, always have decision-making power in this field at national level. The Forum does not at this stage express opinions either to the Council of Ministers or the Commission. It also does not at this stage have any means of influencing decisions formally, or of taking decisions.¹⁷

Actions planned or for consideration

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| <ul style="list-style-type: none">– Presentation of proposals for establishing, within the <i>European Forum on Infrastructures</i>, formal mechanisms for consulting and advising the Member States, which are responsible for the decisions in this field. |
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4.5. Networking of national research programmes¹⁸

The networking of national research programmes is given a great deal of attention in the part of the Conclusions of the Lisbon European Council relating to the European Research Area.

Networking can take different forms, from the simple exchange of information to the joint implementation of programmes with EU support under Article 169 of the Treaty, and is one of the most effective and symbolic ways of creating a European Research Area. Progress made in this field includes:

- The identification by Member States of four areas where there is scope for opening up their programmes to each other and a keen interest in doing so: marine sciences, chemistry, plant genomes and astrophysics;
- The inclusion in the Sixth Framework Programme of an EU financial support scheme for networking initiatives and opening up programmes, the ERA-NET scheme, which has a budget of €160 million and will enable co-ordination

¹⁷ The conclusions of the Council meeting of 15 June on infrastructures within the European Research Area simply ask the Commission to present regular reports on the progress made on this subject.

¹⁸ European Commission, Communication entitled "The Framework Programme and the European Research Area: Application of Article 169 and the networking of national programmes", COM (2001) 282, 30.5.2001.

activities to be funded at a various levels, from the exchange of information of all kinds to the management of joint programmes;

- The definition of an electronic information system on research programmes and national and regional support instruments in this field in the form of central access to existing information systems in the Member States, which over time could contribute to their further harmonisation;
- The proposal for the creation, under Article 169 of the Treaty, of a platform for clinical testing to combat infectious diseases associated with poverty (malaria, Aids, tuberculosis), which involves a number of non-EU countries,¹⁹ and the study of other possible activities based on this mechanism, in particular in the fields of air traffic management and control (ATM/ATC) and sustainable development.

Despite the initial results obtained, Member States and national authorities have in general shown only limited interest in these activities.

Actions planned or for consideration

- **Continuation of efforts to launch the activities based on Article 169** which are currently being studied and exploration of the possibilities which exist relating to this in other fields (for example nanotechnologies).
- **Exploration of the scope for using Article 169 to establish regional cooperation** between countries participating in the Framework Programme which are geographically near to each other and are linked by historical ties or by common problems, such as EU countries and, where appropriate, associated Candidate Countries in the Mediterranean or Baltic regions.
- **Creation of a consultation forum for strategy managers of the major national research organisations.**

4.6. Boosting private investment in research

The Conclusions of the Lisbon European Council in March 2000 called for the required action to be taken to improve the environment for private research investment in Europe. The conclusions of the Barcelona European Council gave the EU the objective of increasing its research effort so that it approaches 3% of GDP by 2010. Most of the increase on the present figure of 1.9% is to come from greater private investment, which should rise to two-thirds of the total effort.

On the basis of these Conclusions, the Commission has presented a Communication entitled "More research for Europe: Towards 3% of GDP".²⁰ With the aim of launching a debate on how to achieve this objective, the Communication looks at

¹⁹ European Commission, Proposal for a Decision of the European Parliament and of the Council on Community participation in a research and development programme aimed at developing new clinical interventions to combat HIV/AIDS, malaria and tuberculosis through a long-term partnership between Europe and the developing countries undertaken by a number of Member States and Norway, COM (2002) 474, 28.8.2002.

²⁰ COM (2002) 499, 11.9.2002.

what could and should be done to mobilise the relevant policies at national and EU level in a coordinated manner.

At the same time, the Commission and the European Investment Bank (EIB)/European Investment Fund (EIF) have made the necessary arrangements to take complementary or combined action to support research and private investment in this area in Europe. The progress made includes in particular:

- The signature, on 7 June 2001, of a joint memorandum for the development of synergies between the Framework Programme for Research and the EIB Innovation 2000 Initiative to support research and the exploitation of research results, research infrastructures, and investment in research by high-tech companies;
- The development by the EIB, in collaboration with the Commission, of new financial support instruments for research, such as a loan arrangement for medium-sized companies (operational) or a mechanism (being studied) to finance strategic, multi-partner research and development projects;
- A considerable increase in EIB investment in research (€4.6 billion in loans approved since early 2000, against only €245 million from 1990 to 1999), for the funding of research infrastructures (for example in Turku, Finland), technology parks (in particular in Madrid), and incubators (such as a €61 million loan to exploit the results of the European Molecular Biology Laboratory (EMBL) in Heidelberg).

Actions planned or for consideration

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| <ul style="list-style-type: none">– The presentation by the Commission of a second Communication on the “3%” objective, setting out detailed proposals for action based in particular on the conclusions of the broad debate which will take place on this subject and on the conclusions of the Spring 2003 European Council.– The development by the EIB, in collaboration with the Commission, of a range of supplementary instruments (loans, risk-capital support mechanisms and guarantees) suitable for funding research and innovation activities and to be used in synergy with actions under the Framework Programme. |
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4.7. Intellectual property

Results with regard to the creation of a European Research Area in the field of intellectual property are mixed.

On the negative side, discussions on the proposal for the creation of a Community Patent are still blocked in the Council, the main points of disagreement being language use and translation arrangements, the role of the National Patents Offices, and the common jurisdiction to be created.

However, some small steps towards a more efficient approach to intellectual property issues relating to research in Europe have been made:

- The proposal, adoption, or implementation of legislation to promote the development of a more effective and harmonised framework for intellectual

property rights in Europe in specialised fields such as biotechnology and software;

- Consultation of the groups concerned on certain specific regulatory aspects²¹ or on the controversial issue of the "grace period";
- The launching of a process to identify and disseminate good practice and experience with regard to intellectual property systems applicable to public research, the protection and exploitation of university research results and to university/industry collaboration.

Actions planned or for consideration

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| <ul style="list-style-type: none">– Creation of a Community patent, as has been requested by the European Council.– Further activities to adapt and harmonise international intellectual property protection systems at European level, and to ensure the application of adequate protection standards at international level (such as the ADPIC agreement within the World Trade Organisation and in the framework of the World Intellectual Property Organisation).– Strengthening and deepening of exchanges of experience and good practice in the field of knowledge protection and technology transfer, in particular in the context of collaboration schemes between universities and industry.– Actions to support the training of researchers, particularly at university level, in matters relating to intellectual property and technology transfer. |
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4.8. A trans-European electronic network for research

The progress made towards the creation of a very high-speed trans-European electronic network for scientific communications has continued, in particular with:

- The launching of some twenty system development actions based on the "Grid" distributed data-processing technology, in particular in the field of physics, and the "DataGrid" project which, under the leadership of four national and two European institutions (CERN and an institute of the ESA), brings together a total of 17 research organisations active in physics for large-scale exchanges of data at high speed;
- The inclusion in the Sixth Framework Programme of funding of up to €100 million in the priority thematic area "Technologies for the Information Society", and up to €200 million in the "Research infrastructures" part to support the development of the GRID in Europe, and the continuation of the

²¹ For example, consultation of the High-Level European Group on the Life Sciences on the question of the applicability of the directive on patentability to biotechnological inventions, and contribution to the Commission Communication entitled "An assessment of the implications for basic genetic engineering research of late publication of papers on subjects which could be patentable as required under Article 16(b) of Directive 98/44/EC on the legal protection of biotechnological inventions" COM (2002) 2.

Geant project for the interconnection of national high-speed electronic networks.

Actions planned or for consideration

- **The development of GRID-type architectures** in fields other than particle physics in Europe, in particular astrophysics, biology, the genome, and the modelling of world climate change.
- **The extension of these networks to the Candidate Countries.**
- **The continuation and completion, through the Geant project, of the process of interconnecting national electronic research and education networks,** to make a pan-European high-capacity, high-speed network available.

4.9. The international dimension of the European Research Area²²

Following on from the Commission Communication on this topic, several initiatives had been undertaken to take account of, benefit from and exploit the international dimension of the European Research Area and its openness to the world.

Developments in this field include in particular:

- In the Sixth Framework Programme, the unrestricted opening up of the "thematic" part to all third countries, with possible access to the relevant funding in some cases, the introduction of a double fellowship scheme for researchers coming from third countries to the EU and for EU researchers going to third countries, and the redefinition of EU research activities in the field of nuclear fusion on the basis of full EU participation in the ITER (International Thermonuclear Experimental Reactor) project;
- The creation of an electronic information system on entry and residence requirements for researchers from third countries going to Member States;
- In addition to the integrated action concerning co-operation with Russia, undertaken in the framework of the INTAS association and the international ISTC²³ initiative, the development of concerted and coordinated approaches between the Community and the Member States in the EU's scientific and technological dialogue with the major regional groupings of third countries: Mediterranean countries, Latin American countries and ASEAN countries;
- Closer ties between the EU and the ACP countries in the field of research, with an ACP-EU Forum on research into sustainable development held in Cape Town in July 2002.

Actions planned or for consideration

²² European Commission, Communication entitled "The international dimension of the European Research Area", COM(2001) 346, 25.6.2001.

²³ International Science and Technology Centre.

- **The setting up, based on the model of the European Forum on Infrastructures, of a Concertation Forum on international scientific cooperation**, which will make it possible to strengthen the coherence and coordination of Member State participation in international cooperation initiatives at world level: international programmes on global change and to support the Kyoto agreements; actions undertaken in the framework of the G8; international initiatives on ethical matters.
- **Putting in place more powerful mechanisms for the exchange of information and concertation on international scientific cooperation policies**, e.g. networks linking scientific and technological attachés posted to Member State (or, where appropriate, EU) representations in third countries, drawing on the model of the initiatives taken in some third-country capitals, such as the FEAST Forum in Australia.²⁴
- **Exploration of the scope for the combined use of national and EU financial support schemes for the mobility of researchers from third countries coming to the EU**: one possibility could be the payment of an extra EU grant to top up national fellowships for a period of attachment to laboratories in several EU countries, for example, making it possible to attract particularly high-calibre researchers while strengthening the ties between the laboratories concerned.

4.10. The regional dimension of the European Research Area²⁵

The progress made in this area, following the Commission Communication on the regional dimension of the European Research Area, includes the following:

- The launching of a debate on this subject among the interested groups, mainly confined, however, to regional decision-makers and players in the strict sense, with Member State involvement remaining limited;
- The inclusion in the Sixth Framework Programme of several provisions to encourage the regional dimension to be taken into account or to facilitate "return fellowships"; the inclusion of regional research programmes in the ERA-NET support scheme for coordination initiatives; possibilities for combining Framework Programme funding and financing under the Structural Funds in the case of Objective 1 regions; diversification of research support schemes in SMEs;
- Raising awareness in EU regions and the Candidate Countries of the realities of research and co-operation in this field, which will lead, for example, to a meeting in November 2002 bringing together 180 EU regions;
- A very significant increase in support from the Structural Funds for research, technological development and innovation, with, in particular, about €1 billion forecast to be granted in this field for the Objective 1 regions during the years 2000-2006.

²⁴ Forum for European-Australian Science and Technology Cooperation.

²⁵ European Commission, Communication "The regional dimension of the European Research Area", COM (2001) 549, 3.10.2001.

- Study of specific possibilities for interregional cooperation, e.g. between the outermost regions of the EU;
- Development of systematic exchanges of experience in the field of regional scientific and technological forecasting, with the creation of a European association of regions in this field being considered.

Taken as a whole, the progress made is still somewhat limited, however, both in scope and in aspects considered. A special effort is therefore needed to take fuller account of the regional dimension of the European Research Area.

Actions planned or for consideration

- **Making more systematic use of mechanisms for strengthening interregional cooperation: cooperation on research** between regions which are geographically close to each other, share the same profile or have common problems; and cooperation between regions with different levels of technological development, in the form, for example, of initiatives for the transfer of knowledge and technology from centres of excellence.
- **Strengthening and diversification of combined support schemes with EU and national funding** for initiatives to develop regional incubators for technology firms, such as the "biovalleys" in the field of biotechnology.
- **Studies on the needs and priorities of the regions of the Candidate Countries** as regards research, research infrastructure and science and innovation policies.

4.11. Issues relating to science and society²⁶

The general objective of the actions undertaken under this theme is to improve the links between science and society in Europe. The aim is to encourage national efforts and enhance co-ordination in the various areas concerned: the question of scientific expertise and risk; ethical considerations; dialogue with the people and public knowledge about science; attracting young people to science; the role and place of women in science and research.

Arising out of the debate which took place on the basis of a discussion document on this topic, an action plan with 38 actions was presented and discussed, and implementation has begun.²⁷ Given its launch date, it is however at a very preliminary stage of implementation. Only limited progress has therefore been made so far in this complex, varied area, in which little structure is to be found at the national level where largely identical problems are sometimes dealt with in very different ways.

²⁶ European Commission, Working document "Science, Society and the Citizen in Europe", SEC (2000) 1973, 14.11.2000 and Communication "Action Plan for Science and Society", COM (2001) 714, 4.12.2001.

²⁷ European Commission, Working document "Women and Science: the gender dimension as a leverage for scientific reform", SEC (2001) 771, 15.5.2001.

A process for the exchange of information and good practice has been launched within thematic working parties, each of which is led by a Member State which is particularly interested in the issue in question. Further progress has been made in the field of "Women and Science", with the setting up of a study group to look at the situation of female scientists in the Candidate Countries, and a report on women in industrial research will be presented soon.

The inclusion in the Sixth Framework Programme of a section on "Science and society" should furthermore make it possible to launch a number of joint projects and activities for networking, exchanges and coordination in the various areas.

To ensure that there is a real awareness of this dimension in the European Research Area, particular and resolute emphasis needs to be put, in implementing the Action Plan for Science and Society, on the aspects which have not been very well considered so far, for example, the question of the public debate on science and public awareness about science and science teaching in schools.

Actions planned or consideration

- **Initiatives aimed at stimulating, in Europe and at European level, debate, discussion and action on scientific advice at European level** for policymakers and dialogue between researchers and citizens.
- **Networking, at European and national level, of relevant players in scientific education from the school and university systems and from the scientific community** on issues such as the teaching of science and the training of science teachers.

5. NEW PERSPECTIVES

5.1. Creating the conditions for genuine coordination of research policy

The coordination of national research policies is a key element of the European Research Area initiative. Recently, two significant initiatives were launched in this area. The first concerned research into TSE (Transmissible Spongiform Encephalopathies)²⁸. A meeting of senior national research scientists in this area was held. An inventory on the research carried out on this subject has been compiled and circulated. Gaps in knowledge and areas in which detailed research is needed were identified, together with the scope for synergy between national activities. This has stimulated the development of conditions for deeper coordination.

An initiative has also been launched on research to support efforts to combat bioterrorism. The results so far are somewhat limited as national organisations are less inclined to share information in this field given its sensitivity in defence terms. In both cases, the success of the mobilisation effort is largely due to the background of crisis against which the operations have been carried out. It is essential to create conditions in which a comparable degree of coordination can be achieved under normal research conditions.

²⁸ European Commission, Communication on research activities in Europe related to Transmissible Spongiform Encephalopathies, COM (2001) 323, 12.6.2001.

The European Research Area initiative is being implemented with the assistance in particular of the "open coordination method". This was established by the Lisbon European Council as a method of action for the EU in all fields related to the aim of making the EU the world's most competitive knowledge-based economy by 2010.

This method is based on the following principles: the setting of general objectives and guidelines at EU level; the translation of these objectives into specific targets and policy measures for each Member State; the establishment of quantitative and qualitative indicators; the benchmarking of national and regional performance and policies in the area concerned; exchanges of information and experience, as well as "best practices".

The potential of this flexible method, which implies the use of variable geometry in its implementation, has so far not been fully utilised for the creation of the European Research Area, with activities undertaken often being limited to exchanges of information and experience.

To create concrete conditions for genuine co-ordination which is permanent, all-embracing and significant in scope, it seems necessary to go a step further as part of a framework of a more resolute and clearly defined approach.

Actions planned or for consideration

- **Definition of a formal mechanism for the coordination of research policies as a whole**, through a means to be determined. This means could be based on existing provisions of the Treaty, for example the system of annual national reports on the implementation of guidelines used in the fields of economic and employment policies.
- **Making use of the full open coordination method**, without cutting out the first two stages: setting common objectives and translating them into specific targets.
- **The establishment of a structure capable of providing this coordination in an effective manner**. Since it was set up, this task has theoretically been the responsibility of CREST²⁹. The Committee has, however, not carried this out fully up to now. To enable it to perform this task, changes must be made to the way it is organised in terms of composition (representation from the top level of national administrations) and operates.

5.2. Making greater use of legal instruments

Besides tools such as the open coordination method and financial support measures, the EU has a third category of instruments to implement the European Research Area initiative, namely the legal instruments used to implement Community policies, in particular for the internal market (directives, regulations and recommendations).

Action has been taken to encourage more attention to be paid to research needs in the relevant Community legislation, for example on intellectual property, State aid (review of the Community guidelines on State aid), and competition.

²⁹ Scientific and Technical Research Committee.

On the whole, however, only limited use has been made of these legal instruments, the preference tending to be for measures which are easier to put in place or which must be regarded as preparatory only, such as exchanges of information.

Actions planned or for consideration

Increased use of legal measures where they are the most effective means, e.g. as regards the mobility of researchers, in particular the entry and freedom of movement of researchers from third countries. Another area in which the results will involve the creation of a favourable legislative and administrative environment is that of measures aimed at increasing private investment in research to contribute to the objective of increasing the EU's overall research effort to 3% of GDP.

5.3. Optimising the impact of European cooperation initiatives

One group of players in the European Research Area initiative called upon to play an important, special part in this undertaking are the major organisations for European co-operation.

Several major centres and organisations of European scientific and technological cooperation (CERN, ESA, EMBL, ESO, ESRF, ILL, EFDA)³⁰ have joined forces in EIROFORUM to optimise their action and tackle joint problems in a more co-ordinated manner, in conformity with a recommendation made in the Communication on the European Research Area in January 2000.

Space is a field in which research plays a key role and very substantial spin-offs can be expected from the joint efforts of the EU and the ESA to implement the GALILEO satellite navigation project and the GMES³¹ project for monitoring the environment and security and to develop a genuine European space policy.³²

A major effort is also needed to improve task sharing and strengthen links and synergies between cooperation structures and instruments based on collaboration between national organisations and teams. Alongside the EU's Research Framework Programme, the best known initiatives in this area are Eureka, COST,³³ and the activities of the European Science Foundation (ESF).

National research bodies have also started to consider setting up a basic research support structure at European level. This would strengthen European capabilities and actions in this field and be based on existing national and European structures and instruments. It could take the form of a European Research Council and could mobilise a combination of public and private funds. Its benefit would directly depend on its added value in terms of its ability to strengthen excellence, the coordination of national efforts and funding.

³⁰ CERN: European Organisation for Nuclear Research; ESA: European Space Agency; EMBL: European Molecular Biology Laboratory; ESO: European Southern Observatory; ESRF: European Synchrotron Radiation Facility; ILL: Institut Laue-Langevin; EFDA: European Fusion Development Agreement.

³¹ Global Monitoring for Environment and Security.

³² European Commission, Communications entitled "Europe and Space: Turning to a new chapter", COM (200) 597 of 27.9.2000 and "Towards a European space policy", COM (2001) 718 of 7.12.2001.

³³ European cooperation in the field of scientific and technical research.

Actions planned or for consideration

- **Strengthening and diversification of the links between EU activities and those of the European Science Foundation**, particularly as regards activities to support the networking of national research activities, with proposed support of €20 million for the Eurocores initiative.³⁴
- **Restructuring of COST co-operation**, with changes to the management of activities and efforts to strengthen the impact of these activities through modification of the requirements regarding choice of topics and monitoring of scientific standards.
- **Further diversification of the collaboration between EU activities and Eureka** which has been in progress for the last three years.

5.4. Fully involving the Candidate Countries

From the outset, it was agreed that the European Research Area initiative (with which non-EU West European countries are also associated in principle) should fully involve the Candidate Countries which wish to join the EU.

The Candidate Countries have in principle been fully associated with all activities since they began and have become more and more involved in concrete, practical terms.

As with the EU's Fifth Research Framework Programme, the Candidate Countries should also be closely involved in the Sixth Framework Programme on terms which put them on an equal footing with the Member States.

For reasons relating in particular to the state of research systems in these countries, to the way in which these are organised and the lack of means from which they suffer, the integration of the Candidate Countries into the constitution of the European Research Area remains at a rather theoretical level. Both the EU and the Member States need, therefore, to make a joint effort to help the Candidate Countries to play a more significant part in activities conducted within the European Research Area and to become more fully integrated into a more highly structured European research fabric.

Action largely needs to be taken by those who are involved in research and innovation and research policies, namely researchers, high-ranking officials and administrators, in particular the younger ones among them, who should be given access to the EU's best scientific research policy knowledge and expertise.

Activities of this kind are provided for in the Sixth Framework Programme. The JRC has started to make a particular effort in this field. Some activities with the same objective are being conducted at national level. These should be strengthened and optimised.

³⁴ Eurocores is a scheme of joint programmes being conducted by at least four national research organisations. 6 activities are in progress or being prepared in the fields of the physical sciences and engineering, the life sciences, environmental and earth science and the human sciences.

Actions planned or for consideration

- **Study and discussion of the scope for the combined use of measures undertaken at EU and national level to assist the Candidate Countries to strengthen their research policy** and research management capacity: actions under the Framework Programme (support for national "Contact points", action to support the training of project managers and scientific policy administrators) and undertaken by the JRC in the fields for which it is responsible (support for acquisition of the scientific and technical bases needed for adoption of the Community *acquis*) and equivalent activities at national level.

6. CONCLUSION

The analysis presented in this Communication tends to confirm the three observations made at the outset:

- The European Research Area initiative has changed the research environment and research policies in Europe quite radically.
- The progress made has varied from one area to another and in terms of scale;
- Structural constraints have limited the scale of results achieved to date and could jeopardise the achievement of objectives.

The initiative launched in Spring 2000 has given rise to a broad debate, which must continue, as well as to the first concrete developments. What is called for now is a more resolute move to action.

The measures suggested in this Communication are aimed at reinvigorating the initiative, on the basis of the results achieved so far, and to give the initiative a stronger operational basis. They call for a thorough debate, initially within the European institutions but also, beyond that, among the entire research community in Europe.

This is the aim of the proposals set out in this Communication, which are intended to enable initial conclusions to be drawn in good time for the Spring 2003 European Council.