THE SEVENTH FRAMEWORK PROGRAMME FOR RESEARCH AND TECHNOLOGICAL DEVELOPMENT (2007-2013): AN INSTRUMENT FOR DEVELOPING THE EUROPE OF KNOWLEDGE

Xabier Goenaga Beldarrain* and Marta Truco Calbet**

At the heart of the Lisbon Strategy, research forms part of the "knowledge triangle" that, together with education and innovation, is needed to promote growth and employment in the European Union (EU) within the globalised economy. The Seventh Framework Programme for Research and Technological Development, which covers the 2007-2013 period, has a total budget of 50.5 billion euros, which represents an average annual increase of 40% in relation to the sixth Framework Programme.

The article first briefly reviews the new developments of the Seventh Framework Programme for Research and Technological Development (2007-2013) and how it will contribute to the renewed Lisbon Strategy. It also presents some of the complementary initiatives in the field of research.

Despite the fact that many elements from the preceding programme have been continued, the seventh framework Programme does bring in a number of significant new developments. It puts more emphasis on research that responds to the needs of European industry by way of joint technology initiatives, for example. It gives support for the first time to the best European research through the setting up of the European Research Council (ERC), and it also offers new opportunities for the regions to play a leading role in implementing the Lisbon Strategy. Participation in the seventh framework Programme will for the majority and in general be much easier and simpler.

* Xabier Goenaga is Head of the C3 Unit, "Analysis and monitoring of national research policies and the Lisbon Strategy", Directorate General for Research, European Commission.
** Marta Truco is Expert in research policies, with the C3 Unit, " Analysis and monitoring of national research policies and the Lisbon Strategy", Directorate General for Research, European Commission.

Abstract:

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1. Research at the heart of the renewed Lisbon Strategy

There is consensus between European leaders on the urgent need to invest more in education, research and innovation, with the aim of putting knowledge at the service of growth and employment in Europe. The European Commission fully exercises its role as the driving force to coordinate this.

The Lisbon Strategy was designed six years ago with the aim of making Europe "the most competitive and dynamic knowledge-based economy in the world". In the spring European Council in March 2005, the Member States of the European Union decided to reconsider and relaunch the Lisbon Strategy by concentrating efforts and goals on growth and employment, with social cohesion and sustainable development as permanent points of reference.

To achieve these goals, the need was recognised to establish a solid association between the European Union, the Member States and other participants, including private enterprise. The most significant aspect is that knowledge forms the basis of the revised Lisbon Strategy.

Some of Europe's trade partners currently compete by using their primary resources (which Europe no longer has). Others compete by using cheap labour (which Europe does not allow) or at the expense of the environment (which Europe seeks to protect). Europe can only compete by increasing the knowledge capability of its society and enterprise to provide the rest of the world with the best products, services and processes.

Private enterprise, the universities and other players in Europe must lead what is known as the "knowledge triangle", or the generating of new knowledge through research, its exploitation

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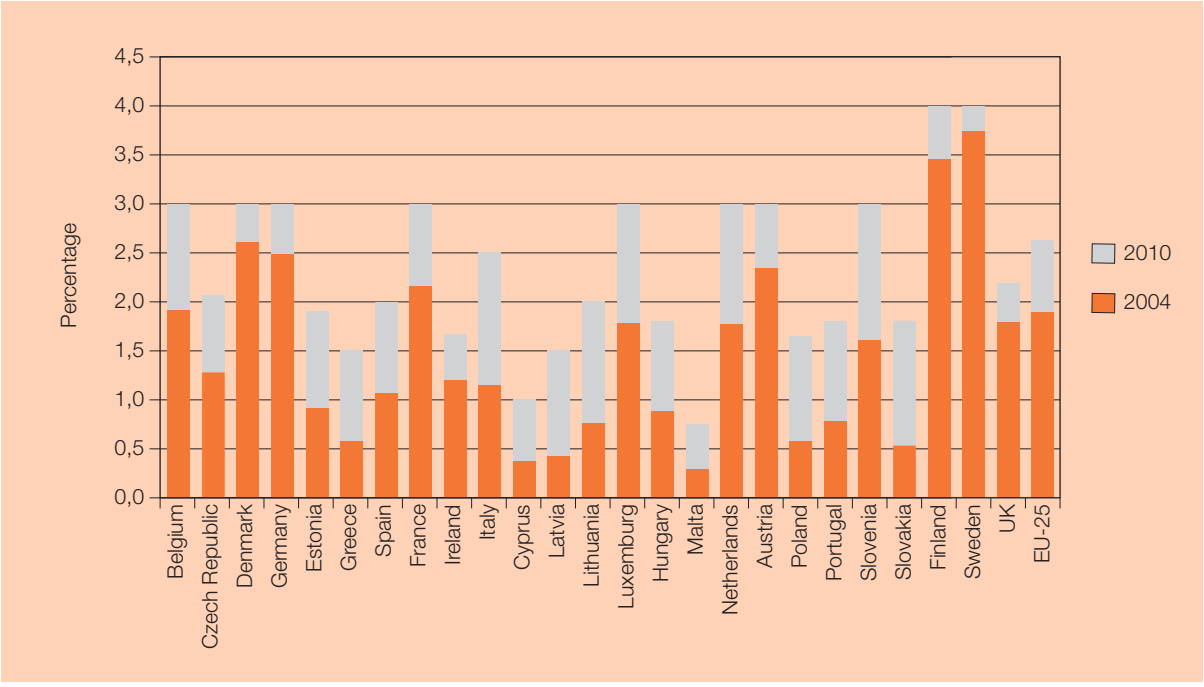
through innovation and technology, and its dissemination through education.

Research therefore has a fundamental role to play in consolidating the knowledge society, and the budgetary target of 3% of GDP in R&D is the emblematic proof of this priority. The European Council in Barcelona in 2002 recognised the importance of research in its proposed aim to increase the overall level of investment in Europe in R&D from 1.95% to 3% of GDP prior to 2010. Two thirds of this investment would need to come from private sources. In this context, the goal of 3% should not be seen as being a mere goal but a source of inspiration for creating an attractive business environment and as an incentive to invest more and in a more effective way in research.

Up until now, all the Member States have set R&D expenditure goals that have generally been too ambitious (see graphic 1), either within the framework of national reform programmes (NRPs) that the Member States submitted to the European

Graphic 1
Expenditure in R&D as a percentage of GDP, by country, in 2004 and goals set for 2010



Commission in October 2005 or shortly after they were submitted.[1] NRP documents detail how the Member States are carrying out general economic policy approaches and how they are focusing policy on growth and employment.

Evaluation of these national reform programmes shows that research is considered to be a foremost priority for all Member States. Spain, for example, has made considerable progress and implemented new measures to promote R&D and mobilised public investment at the Community, national and regional levels in order to achieve the goal set for investment in research (2% of GDP by 2010).

Nevertheless, even though the Member States were to achieve the goals that have been set, expenditure in R&D for Europe as a whole would only account for 2.6% of GDP in 2010, and it would therefore still be below the 3% of GDP agreed by the European Council. The Member States would therefore need to continue to maintain their efforts to increase investment in R&D and, even more important, would need to improve the effectiveness and consistency of their national research policies. This will be one of the determining factors for achieving greater mobilisation of corporate investment in R&D.

National and regional endeavours aimed at consolidating the knowledge society will only fully develop if they are completed in a coherent and coordinated way with actions at the European scale. This is the reason why the Framework Programme for research has played and will continue to play a crucial role in promoting transnational cooperation and structuring the European Research Area.

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2. General features of the Seventh Framework Programme for Research and Technological Development (2007-2013): adoption, structure and aims

The Framework Programme, which is the main instrument used by the European Union to fund research in Europe, was conceived to bring about impacts that Member States, acting individually, cannot achieve: to bring together the critical mass of knowledge and resources; to facilitate the flow of ideas, knowledge and researchers everywhere in Europe; to counter the fragmentation of R&D policies and activities in Europe; to increase excellence through pan-European competitiveness; to improve the mobility, training and career development of researchers; and provide support for a European strategy in research infrastructure and international scientific cooperation. The Framework Programme also makes an additional contribution to the leverage effect of national, regional and private expenditure in R&D to enable the research effort in Europe to reach 3% of GDP.

Efforts by the European Union to carry out the renewed Lisbon Strategy have consolidated in

[1] In the spring of 2005, the European Council agreed that each member state of the EU would submit a national reform programme to the European Commission, structured around twenty-four integrated guidelines for growth and employment 2005-2008.

the clear determination to increase the budget of the seventh Framework Programme and to make it a more effective programme.

The seventh Framework Programme has come into effect in December 2006 and will be in operation until the end of 2013. Its main ambition is to bring about an increase in knowledge, which provides growth and employment, through a series of instruments and procedures that are more flexible and simpler than in previous programmes, with the focus on consolidating the strong points, tackling the weaknesses, and responding to the needs of industry.

The budget of the seventh Framework Programme was established in May 2006, following agreement on the European Union's financial prospects for 2007 to 2013. A total budget of 50.2 billion euros was allocated, which represents an average annual increase of 40% in relation to the preceding Framework Programme.

The Cooperation programme focuses on stimulating co-operation and reinforcing the links between industry, the universities, research centres and public authorities in a transnational context.

The adoption of the seventh Framework Programme (FP7), together with the budget project, had followed the co-decision procedure, which means that the European Commission's proposal regarding FP7 must be approved by both the European Council and the European Parliament. The Commission submitted its proposal in April 2005. This proposal was prepared after a wide-scale public consultation that took into account the opinions expressed by the Member States, the European institutions, industry and the scientific community, amongst others. After the European Parliament adopted its first report on 24 July 2006, the Council came to a political agreement on FP7. The Framework Programme was finally adopted by the Council following a second reading by the Parliament.

The Seventh Framework Programme identifies four main aims, which correspond with the four main specific programmes that structure the Seventh Framework Programme for Research and Technological Development (2007-2013). FP7 has a simple structure:

– Cooperation
– Ideas
– People
– Capacities

2.1. Cooperation

The Cooperation programme represents the core of the Seventh Framework Programme for Research and Technological Development (2007-2013) and it is the largest in budgetary terms (60%). It focuses on stimulating co-operation and reinforcing the links between industry, the universities, research centres and public authorities in a transnational context. Its aim is to build and consolidate European leadership in scientific and technological fields that are key to research. International cooperation between the European Union and third countries is also included.

With a budget of 32.2 billion euros, it will provide support to cooperation in research in new thematic fields that are autonomous in the way they are

managed but complementary in their application: 1) health; 2) food, agriculture and biotechnology; 3) information and communication technologies; 4) nanosciences, nanotechnologies, materials and new production technologies; 5) energy; 6) environment (including climate change); 7) transport (including aeronautics); 8) socio-economic sciences and humanities, and 9) the security and space.

In addition to these themes, the seventh Framework Programme will also fund the direct actions of the Joint Research Centre (JRC).

The nine thematic areas are a significant element in the continuity of the preceding programme. They establish the most important fields of knowledge that will allow Europe to deal with the social, economic, public health, environmental and industrial challenges and issues that it faces. Industry will benefit greatly from this and its role will be important in terms of the definition of themes that will require funding within the various thematic areas.

Reinforcement will be given in all areas of the Cooperation programme to the coordination of national research programmes through continuation of the ERA-NET programme. Coordination of non-Community research will also continue to be improved through Community participation in jointly applied national programmes (initiatives provided for under article 169 of the Treaty). The aim is to increase the complementarity and synergies of research programmes across Europe. Examples include the European Metrology Research Programme (EMRP), the Baltic sea science joint research programme (BONUS-169), etc.

The Seventh Framework Programme for Research and Technological Development (2007-2013) will focus more on international cooperation within each theme and by way of a cross-thematic approach. Measures will also be taken to assure the optimum participation of SMEs throughout the nine areas.

2.2. The Ideas programme

The Ideas programme, which accounts for 14% of the total budget (7.4 billion euros), will reinforce exploratory research in Europe, which deals with the discovery of new knowledge in fields that may fundamentally change our vision of the world and the way in which we live.

Exploratory research, which is the core of the Ideas programme, represents a new approach as regards basic research. The new European Research Council (ERC) will provide support to more ambitious and innovative European research projects, evaluated exclusively according to their scientific excellence.

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2.3. The People programme

Highly trained researchers are needed to advance science and underpin innovation, and to attract and sustain public and private investment in research. The People programme mobilises an important amount of financial resources (4.7 billion euros) to

improve the career prospects of researchers in Europe and to attract young, quality-level researchers.

Based on the success of the Marie Curie action in the sixth Framework Programme (which for various years has offered the possibilities of mobility, training and the development of career prospects to European researchers), this programme in turn offers a better approach in certain areas. This includes improvements in the coordination of regional, national and international (non-Community) programmes that provide postdoctoral grants, actions to develop capabilities to better understand research by private enterprise, and closer cooperation with researchers from third countries.

The People programme mobilises an important amount of financial resources (4.7 billion euros) to improve the career prospects of researchers in Europe and to attract young, quality-level researchers.

2.4. The Capacities programme

The Capacities programme, with a budget of 4.2 billion euros, offers researchers powerful tools to reinforce the quality and competitiveness of

Table 1
Structure and breakdown of the budget for the Seventh Framework Programme for Research and Technological Development (2007-2013) (in milions of euros)

Cooperation*	**32,292**
Health	5,984
Food, agriculture and biotechnology	1,935
Information and communication technologies	9,110
Nanosciences and nanotecnologies, materials and new production technologies the production	3,467
Energy	2,265
Environment (including climate change)	1,886
Transport (including aeronautics)	4,180
Socio-economic sciences and the humanities	607
Security and space	2,858
Ideas	**7,460**
People	**4,727**
Capacities	**4,291**
Research infrastructure**	2,008
Research for SMEs	1,266
Regions of knowledge	126
Research potential	350
Science and society	359
Internacional cooperation activities	182
Non-nuclear actions by the Joint Research Centre	**1,751**
TOTAL	**50,521**

*Including joint technology platforms and the part of the international cooperation activities funded within each thematic area.
**Including the contribution of one billion euros to the European Investment Bank to set up the joint venture funding mechanism.

European research. Its priorities are to invest more in research infrastructure in less prosperous regions, to set up development foci for regional research, and research in support of SMEs. This programme also reflects the importance of international cooperation in research and the function of science in society. Of equal importance is the support that it offers in stimulating the coherent development and effectiveness of research policies by the regions and Member States.

3. Main new developments of the Seventh Framework Programme for Research and Technological Development (2007-2013)

The Framework Programme has been in existence for almost twenty-five years. It was begun in 1984 with an annual budget of 800 million euros, with the emphasis on transnational collaboration and the development of very small industrial projects. The first main change occurred in the sixth Framework Programme, which gave support to more long-term cooperation and on a wider scale through networks of excellence and integrated projects. Funding bodies were also encouraged to cooperate at the national or regional scale through the ERA-NET programme, and the Member States to coordinate their research policies using the Open Method of Coordination (OMC). This was also the beginning of article 169 of the Treaty, whereby the Member States may take the initiative to jointly apply national research programmes.

At the same time that it conserves the best aspects of the previous programmes, the Seventh Framework Programme for Research and Technological Development (2007-2013) introduces new measures to improve the coherence and effectiveness of the EU's research policy. The most significant new developments in the programme are described below.

Priorities of the Capacities programme are to invest more in research infrastructure in less prosperous regions, to set up development foci for regional research, and research in support of SMEs.

3.1. Extended duration of the Framework Programme and an increase in the budget

It is envisaged that the seventh Framework Programme will be applied between the end of 2006 until the end of 2013, and a budget of 50.5 billion euros has been set aside. The extended duration of the programme, from four to seven years, and the significant increase in the budget (an average annual increase of approximately 40% in relation to the sixth Framework Programme), symbolise the will to act in the long term with the purpose of giving impetus to the Europe of research within the framework of the Lisbon Strategy. It is anticipated that the first calls for proposals will be published either at the end of 2006 or at the beginning of 2007.

3.2. Reinforced cooperation with industry through technology platforms and new joint technology initiatives in the Cooperation programme

The programme will put more emphasis on the development of research that responds to the needs

of European industry, through the work of technology platforms and new joint technology initiatives.

Technology platforms have been created in various areas where competitiveness, economic growth and well-being in Europe depend on the development of strategic research and technological progress in the medium to long term. Under the leadership of industry, the technology platforms bring together the research community, financiers, regulators, end users and the broadest of social interests, with the aim of defining a strategic research plan. The technology platforms have already played a valuable role in that, when their strategic plans are of a truly European scope and of great industrial importance, they must now be given consideration in the priorities of the Framework Programme.

The programme will put more emphasis on the development of research that responds to the needs of European industry, through the work of technology platforms and new joint technology initiatives.

In limited cases, some of the strategic research plans may reach a scale and scope in which the existing funding schemes (integrated projects, specific focus projects, etc.) are insufficient. In these cases, the Seventh Framework Programme for Research and Technological Development (2007-2013) envisages the possibility of setting up public/private associations in the long term, in the form of joint technology initiatives.

These initiatives, which cover an aspect or limited number of aspects of research in their field, will combine private sector investment and national and European public investment, including grants under FP7 and loans from the European Investment Bank. Joint technology initiatives will be decided on the basis of article 171 of the Treaty and decisions concerning the specific programme, in accordance with article 166 of the Treaty. Aeronautics and medicine are two of the areas considered for these initiatives.

3.3. Setting up of the European Research Council (ERC) within the framework of the Ideas programme to provide support to exploratory research

The European Research Council (ERC) is one of the important new developments of the Seventh Framework Programme for Research and Technological Development (2007-2013). It will offer a pan-European funding mechanism to support exploratory research. It seeks to provide support to the highest quality research in all disciplines by funding individual teams that will be selected solely on the grounds of excellence.

The European Research Council (ERC) is based on two essential elements, an independent Scientific Council and a dedicated implementation structure. The Scientific Council is the body that will supervise the ERC and it will be made up of twenty-two top-level scientists from different institutions and disciplines. The implementation structure will be responsible for the practical carrying out of the scientific programme and all operational management. The European Commission will be responsible for guaranteeing the ERC's total autonomy and integrity.

The basis for all of the ERC's operations will be two funding programmes:

– Grants for starting independent research: in the first stage of the ERC, priority will be given to the most talented researchers who are in the stage of setting up their first research team or carrying out their own independent research. This programme will represent approximately one third of the ERC's annual budget (300-350 million euros per year). It is anticipated that around two hundred grants will be awarded annually, each one for a maximum period of five years.
– Grants for advanced research: in a second stage, these grants will be established to fund projects directed by researchers in all stages of their careers.

The European Research Council (ERC) seeks to provide support to the highest quality research in all disciplines by funding individual teams that will be selected solely on the grounds of excellence.

3.4. Setting up of a joint venture funding mechanism to provide access to loans from the European Investment Bank

Financial markets and institutions are not often inclined to invest in research projects. This is due to the fact that, in comparison with conventional corporate projects, research projects entail a higher risk. In order to deal with this market weakness and improve access to loans, the Commission has proposed to set up a joint venture funding mechanism.

The joint venture funding mechanism consists of a contribution from the seventh Framework Programme to the European Investment Bank (EIB). It seeks to improve access to EIB loans for participants in large-scale European research projects. This mechanism will make a larger volume of loans available to research projects and also allow for the funding of high-risk projects that the EIB would otherwise not be able to carry out.

EIB loans will benefit research projects that are clearly strategic (including infrastructure projects) with a European dimension. The participants will be able to address the EIB either individually or through joint legal entities. Beneficiaries will thereby be able to include large companies, SMEs, public and private research organisations, etc. Partners in large projects that receive support from the seventh Framework Programme (such as joint technology initiatives, collaboration projects and research infrastructure) will be automatically eligible. The EIB will examine eligible requests according to customary banking practices.

In addition to benefiting higher risk projects, the mechanism will have a demonstration effect: research developers and financial institutions will learn to work together, making way for other loans to R&D in Europe.

3.5. More support for infrastructure research

The generation of knowledge and, by implication, innovation depends directly on the quality and availability of research infrastructure. Infrastructure however is costly, it requires broad experience to be developed, and it must be used by a large community of scientists and industries at the European scale.

The proposal of the Capacities programme within the Seventh Framework Programme for Research and Technological Development (2007-2013) seeks to optimise the use and development of the best

Partners in large projects that receive support from the seventh Framework Programme will be automatically eligible for the EIB loans.

research infrastructures that exists in Europe. Various areas where support will be provided include important equipment and groups of instruments used in research, data management systems, etc.

The seventh Framework Programme will also go beyond this and help set up new pan-European research infrastructures in all fields of science and technology, based on the European Strategy Forum on Research Infrastructures (ESFRI). This action will be coordinated closely with other Community funding instruments, especially from the Framework Programme and structural funds.

Support for the projects will be divided in two stages: a) support during the preparatory stage, and b) support during the construction stage. Respective decisions will be adopted on the basis of article 171 of the Treaty and specific decisions for the programme, in accordance with article 166 of the Treaty.

The Capacities programme will also support new needs: bearing in mind the primordial importance of the coordination of policy regarding research infrastructure, support measures will be made available for this coordination (including the development of international cooperation).

3.6. Improvement and simplification of the procedures to participate in the Framework Programme

The number of administrative and financial procedures that form part of EU action with regard to research have progressively increased in the different framework programmes since 1984. The Commission wishes to maintain efforts aimed at simplification launched in the sixth Framework Programme to improve the effectiveness of funding and research project management. Specific measures to simplify the application of the seventh Framework Programme imply:

- The rationalisation of funding systems, with a reduced choice of instruments;
- The use of language that is simpler, less bureaucratic and closer to the public;
- The reduction in the number and size of official documents;
- The simplification of formalities called for by the participants;
- The reduction in controls prior to approval of a project, and
- The simplification of the selection process of projects.

In terms of the system of funding, the principle agreed in the seventh Framework Programme is that of co-funding. The success of this principle in previous programmes has lead not only to the pooling of resources at the European, national, regional and public scales, but has also motivated and increased funding for research.

In the previous Framework Programmes, there were three cost models: that of additional costs, whereby 100% marginal expenditure on the project could be recovered plus 20% as indirect costs (many non-profit universities and institutes used this model); total costs, where up to 50% of actual direct and indirect expenditure was recovered; and set rate total costs, where up to 50% of actual direct expenditure could be recovered plus 20% of spending as indirect costs.

The new rules of the Framework Programme eliminate these cost models. The funding rules of FP7 will allow all public bodies, universities and research organisations to recover up to 75% of eligible costs in research and development activities. In order to encourage and promote the participation of SMEs in the Framework Programme, these will also be able to apply for 75% of eligible costs.

Guidelines regulating participation in the Framework Programme were adopted towards the end of 2006. These represent an important part of the Commission's efforts to simplify the implementation of the Seventh Framework Programme for Research and Technological Development (2007-2013).

The seventh Framework Programme will go beyond the optimisation of the use and development of the best research infrastructures that exists in Europe and will help set up new pan-European research infrastructures in all fields of science and technology, based on the European Strategy Forum on Research Infrastructures (ESFRI).

4. The necessity for greater policy coordination

Approximately 94% of all public investment in R&D is currently made by the Member States. Even though there has been a substantial increase in the Framework Programme's budget, the Member States will need to continue to increase their investment in R&D in the future. The framework programmes have played and will continue to play an important role in giving incentive to transnational cooperation and structuring the European Research Area. The balance between Community investment and national investment in research however clearly makes it necessary to improve the effectiveness and consistency of research policies by the Member States.

With this aim in mind, the European Council in March 2003 decided to apply the Open Method of Coordination (OMC) in support of the 3% objective of GDP investment in R&D.

The Open Method of Coordination is a method designed to help Member States jointly make progress in the reforms necessary to achieve the aims of Lisbon. In the case of research, it offers Member States the possibility of learning from each other and of sharing their experience, so they can improve their policies and encourage better and more investment in R&D. In its "Investing in Research" Action Plan in April 2003,[2] the European Commission identified twenty-five actions of which the main competence falls on the Member States and where the Open Method of Coordination can be applied. The Scientific and Technical Research Committee (CREST), whose role it is to advise the Council and the Commission in research matters, took on the task of supervising its application. The Commission has given and continues to give its support to the CREST in carrying out this work.

[2] COMMISSION OF THE EUROPEAN COMMUNITIES (COM) 2003

The Open Method of Coordination is a method designed to help Member States jointly make progress in the reforms necessary to achieve the aims of Lisbon.

The OMC helps the Member States to improve the effectiveness of their policies. First, it encourages mutual learning by the Member States, peer reviews and the identification of good practices. Second, it helps Member States to develop more coherent and concerted policies as well as joint initiatives on issues of common interest. Thirdly, it helps to identify areas where Community initiatives could reinforce actions at Member State level.

Following its application in two cycles, various objectives have been achieved. The two reports[3] on "Application of the OMC 3% of GDP in research" adopted by the CREST provide guidance to the Member States so they can improve their R&D policies. Policy recommendations have been agreed, good practices identified, and mutual learning intense. Various examples are given below.

Some countries considering reform of public research organisations have benefited from the experience of countries that have recently undertaken such reforms. Some countries are introducing new fiscal measures for research enterprises or modifying the old ones to increase their effectiveness. Work on improving the design of policy mixes has also been of great use. Four countries have had peer reviews of their research policy mix and six countries have notified an interest to be peer reviewed in the next cycle.

As a complement to the CREST's application of the OMC, the Commission launched a pilot call for proposals (OMC-NET) in September 2005, in order to support bottom-up initiatives by groups of Member States to develop and coordinate their policies in areas of common interest This scheme allows regional authorities and other stakeholders to be involved in policy co-ordination initiatives. The number and quality of the proposals confirms the need and interest for this initiative, which will be continued in FP7 (2007-2013) within the context of the Capacities programme.

The national reform programmes (NRPs), which were presented in the autumn of 2005 in the context of the revised Lisbon strategy, and their progress reports presented in autumn 2006, are an extremely valuable complement to the OMC process. While the OMC focuses on very specific R&D policies, the NRPs provide information on broad policy developments concerning R&D. In November 2006, CREST has used the NRPs and its progress reports as the basis for mutual learning and has also drawn up a report for the Council and the Commission on the progress towards the objective of 3%.

5. The regions and the Framework Programme for Research and Technological Development (2007-2013)

5.1. The regions, the driving force of European development

The regions play a key role in carrying out the aims of Lisbon, especially in maximising the potential of the European Research Area and consolidating a common market for knowledge. The statistics show

[3] Scientific and Technical Research Committee (Crest) 2004

that regional investment in research gives results: the regions that have maintained high investment in R&D from one year to the next are at the forefront of national and European economic growth. For example, the eight European regions with an R&D intensity of more than 3% of GDP in 2002 were as follows: Braunschweig in Germany (7.1%), Pohjois-Suomi in Finland (4.2%), Eastern England (3.9%), Stredni Cechy in the Czech Republic (3.5%), Vienna and Île de France (both approximately 3.4%). All of these regions are the driving force of European development.

Regions with high R&D intensities (over 2.9% of GDP) are mainly situated in Germany (11 regions), although it is not Germany but Finland that has the highest average level of national investment in R&D in Europe (with three regions over 2.9%). France, Austria and the United Kingdom each have two regions where investment in R&D is over 2.9% of GDP. Almost 33% of all European investment in research takes place in ten European regions.

In the case of Member States like Spain, Greece, Portugal, Poland and Hungary, investment in R&D in all of the regions is below the EU average of 2%. In Catalonia, the objective of the Plan for Research and Innovation for 2005-2008, which governs policy for research and innovation, is for investment in research and development to reach 2% of the Catalan GDP by 2008.

5.2. The contribution of the Seventh Framework Programme to less favoured regions

Before dealing with this section, it is important to remember a basic principle: the aim of research policy is to reward excellence; it therefore can and must not be a cohesion policy. European research funding goes to the applicants who submit the best projects and are committed to giving excellent scientific results. The FP7 does not work on the basis of a distributive principle, but according to competitive criteria.

The regions play a key role in carrying out the aims of Lisbon, especially in maximising the potential of the European Research Area and consolidating a common market for knowledge.

It is said that the less developed regions, due to economic and institutional difficulties and infrastructure, are at a disadvantage in a competitive environment like the Framework Programme. It is true that regions in Germany, United Kingdom and France are more active in the Framework Programme, but the statistics also show that objective 1 regions, for example, account for approximately 14% of the participants in the sixth Framework Programme, and that Cyprus is the Member State that receives the most money per capita from the Framework Programme.

As a result of European research projects, various innovative enterprises in convergence regions have established links with important technology networks and regenerated their profile and capacity. Several remote universities have experimented with innovative ways to adapt their research models and become actual conductors of development in their regions. Framework Programme projects have helped to combat regional insularity and technological provincialism.

The FP7 does not work on the basis of a distributive principle, but according to competitive criteria.

In addition to the Regions of Knowledge call for project proposals, the sixth Framework Programme contributed to R&D in less favoured regions in different ways:

- SME networks participating in the Framework Programme have improved their technological competence. A total of 129 companies from Spain, Italy, Portugal, Greece and Ireland have benefited from these schemes.
- Marie Curie fellowships have contributed to the development of R&D human resources in convergence regions.
- The Framework Programme has strongly supported regional innovation policy, allocating more than 120 million euro in the fifth Framework Programme to regional innovation strategy projects (RIS) (plus some 200 million for joint SME/Innovation activities). This money has translated into a number of thematic networks and specific projects, including the setting up of the Innovating Regions in Europe Network, a platform for European regions to exchange best practices in innovation policy
- The OMC-NET call for proposals has provided the regions an opportunity to become involved in activities to coordinate research policies with the Member States.

5.3. New opportunities for the regions

The regions have been a central element in the development of European research during recent decades. For this reason, the Seventh Framework Programme for Research and Technological Development (2007-2013) clearly intends to provide the regions with new tools so they can also be main figures in implementing the Lisbon Strategy.

The Regions of Knowledge call for proposals is one of the results. It was started in 2003 as a pilot action funded by the European Parliament, with a budget of 2.5 million euros and aimed specifically at regional actors in research. Its aim is not to fund scientific research as such, but transnational cooperation in research policy between regions. Following its success, a second pilot action was funded under the sixth Framework Programme with the Regions of Knowledge call for proposals 2, with an increased budget of 8.95 million euros. The primary aim was to stimulate investment in R&D at the regional scale and increase the contribution of the regions in compliance with the objective of Barcelona of 3% of GDP.

In the Seventh Framework Programme for Research and Technological Development (2007-2013), the Regions of Knowledge (with a budget of 126 million euros) has gone from being a pilot action to become an action in itself. It is based on three mainstays:

- Analysis: prospective studies and exercises using forecasting, comparative assessment and other approaches to identify working plans for cluster development.
- Tutoring: setting up of associations between regions that are more or less technologically advanced, with the aim of identifying good practices that lead to cluster development.
- Integration: transnational associations of public and private research centres in search of strategies to maximise R&D investment at the regional scale.

The Seventh Framework Programme for Research and Technological Development (2007-2013) also aspires to develop the research potential of convergence regions in the EU by supporting the temporary transfer of research staff, equipment acquisition and organising conferences for technology transfer. This will be done through the new Research Potential initiative in the convergence regions, and 350 million euros are to be set aside for this.

Both of these initiatives seek to stimulate technology parks, regional competence centres, to open doors to national/regional teams of scientists and provide access to research infrastructure; in short, to improve the performance of R&D in Europe and support all the regions on their way towards the Europe of knowledge.

The OMC-NET call for proposals will also support group initiatives by Member States, regions and others actors to develop and coordinate their research policies in areas of joint interest. Around 40 million euros are to be set aside for this call.

5.4. Structural funds to Spain and synergies with the Seventh Framework Programme for Research and Technological Development (2007-2013)

The structural funds, and particularly the European Regional Development Fund, have contributed throughout their course of development to investment in research. During the 2000-2006 period, the quantity of funding allocated to research, technological development and innovation infrastructure in the eligible regions of the EU amounted to 8% of the total budget of the European Regional Development Fund. In Spain, funding attributed to research during the same period (including cohesion funds) amounted to approximately 4.9 billion euros, or 7.7% of the total funds. Ensuring synergies between the structural funds and the Framework Programme has thus been a clear priority for the EU. For example, the BONUS action allowed applicants in the sixth Framework Programme established in an objective 1 region to ask for additional grants to fund research through the structural funds.

The Regions of Knowledge call for proposals aim is not to fund scientific research as such, but transnational cooperation in research policy between regions.

This aspect of the structural funds will now be promoted even more: the Regulation which establishes the general rules for structural and cohesion funds, adopted in July 2006, identified research, innovation and the transition to the knowledge economy as a main priority in the three new objectives (convergence, regional competitiveness and territorial cooperation).

The structural funds will put more emphasis on stimulating research capacity, supporting research infrastructure, human resources in research, innovation enterprises, technology parks, incubators and specific research projects in the beneficiary regions. They will also stimulate the involvement of the private sector in investing in R&D, and they will improve the access to funding of innovative SMEs.

In the case of Spain, there are still no official figures on the quantity of structural funds allocated for the 2007-2013 period. They can be estimated to be around 25 billion euros (excluding

R&D funds). In view of the importance given to the Lisbon objectives, investment in research and innovation may well amount to more or less 20% of the total, that is, 5 billion euros for Spain.

General rules for structural and cohesion funds, identifie research, innovation and the transition to the knowledge economy as a main priority in the three new objectives of these funds (convergence, regional competitiveness and territorial cooperation).

Spain will benefit from an additional allocation of 2 billion euros from the European Regional Development Fund to increase research and development in benefit of enterprise (as stipulated in articles 4.1 and 5.1 of the FEDER Regulation). In principle, 75% of this amount will be for regions under the convergence objective and 25% for the regions under the regional competitiveness objective. This amount comes close to the figure Spanish entities expect to receive from the seventh Framework Programme (6% of the total, that is, around 3 billion euros). The structural funds and R&D funds therefore represent a great opportunity to give impetus to R&D capabilities and reinforce the efforts that Spain is making to become a modern, knowledge-based society.

Although it is impossible to combine funding from two Community sources for a project funded by structural funds, it will always be possible for funding to be complemented. For example, structural funds and funds from the seventh Framework Programme can fund different stages of a research project, on the condition that the funding specifications are respected.

Moreover, the National Strategic Reference Frameworks, which establish the funding priorities for structural funds to each country, emphasise the importance of research for increasing the competitiveness of the regions.

The Seventh Framework Programme for Research and Technological Development (2007-2013) and the structural funds will ensure synergies with the Competitiveness and Innovation programme, which will also provide support and funding for research and innovation.

6. Complementary initiatives to the Framework Programme for Research and Technological Development (2006-2013)

The Seventh Framework Programme for Research and Technological Development (2007-2013) not only formulates a new approach to research funding at the European scale, but at the same time offers a complement to initiatives –that have been announced or that are being prepared– in the restructuring of the European Research Area and realisation of a Europe that is more attractive to researchers and investment. Two important examples are the recently adopted communications of the European Commission: "Delivering on the Modernisation agenda for Universities: Education, Research and Innovation"[4] and "The European Institute of Technology: further steps towards its creation".[5]

[4] COMMISSION OF THE EUROPEAN COMMUNITIES (COM) 2006a
[5] COMMISSION OF THE EUROPEAN COMMUNITIES (COM) 2006b

6.1. Communication of the European Commission on the modernisation agenda for the universities

The European Council, at the Hampton Court meeting in October 2005, identified the universities and research as key issues that will form the future of the EU. The Communication, adopted on 10 May 2006, highlighted the need for the reform of the universities in Europe in order for it to successfully turn into a knowledge-based economy and society.

The Communication covers all the activities of European universities, from their mission of developing educational and research activities to their potential as innovation conductors. It calls for the modernisation of the universities and research carried out there. European universities have an enormous potential, many of which unfortunately are not used to the full because of various restrictions, excessive regulation and the imposition of a certain degree of uniformity.

While research must continue to be a key task of university systems as a whole, this does not mean that all European universities need the same balance between education and research, the same approach to research and research training, or the same combination of services and academic disciplines. What is required is differentiation and concentration.

The communication therefore suggests new priority areas for action, essentially at the Member State and university scale. These action areas include: eliminating the barriers surrounding the universities in Europe, ensuring university autonomy and responsibility, offering incentives for associations structured with the corporate community, rewarding excellence at the highest level, etc. The EU's role is to complement national actions and reinforce them at the European scale, on the basis of the principle of subsidiariety and joint responsibility.

European universities have an enormous potential, many of which unfortunately are not used to the full because of various restrictions, excessive regulation and the imposition of a certain degree of uniformity.

6.2. Communication of the European Commission on the European Institute of Technology

The proposal to set up the European Institute of Technology (EIT) was first presented in 2005 as part of the mid-term review of the Lisbon Strategy. In a communication to the European Council on the 22 February 2006, titled "Implementation of the renewed association for growth and employment. Establishment of a new flagship for knowledge: the European Institute of Technology", the European Commission defined the general features of the EIT, for consideration by Heads of State and government. In the new Communication, "The European Institute of Technology: further steps towards its creation", the Commission provided

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more information on its proposal and suggestions regarding the setting up of the EIT.

The European Institute of Technology does not aspire to be a university or a mere network, but an organisation funded to carry out the three elements of the knowledge triangle: education, research and innovation.

The EIT responds to the need to promote an innovation and entrepreneurial culture in research and education, as well as new organisational models that are suited to today's needs. It will bring together the best teams and university departments in Europe that work in strategic fields of research. These will work in parallel with leaders in the corporate sector to develop and exploit knowledge and research, and to increase the management capabilities of research and innovation. The new EIT model will also act as a catalyst for reform by inspiring change in existing institutions.

The EIT structure will have two levels: a Governing Board (which will identify strategic social and economic challenges) and a group of Knowledge Communities (associations made up of universities, research organisations and industry distributed all over Europe). These will carry out activities in strategic transdisciplinary areas in the medium and long term (10-15 years).

It is anticipated that the EIT will receive funding from the EU, the Member States and the corporate community. The EIT will therefore offer the private sector a new relationship integrated with education and research, with new opportunities for commercialising research and closer exchange. The Commission will submit a proposal formal to the Council before the end of 2006.

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