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

**On the progress made under the Seventh European Framework Programme for
Research**

{SEC(2009) 589}

1. INTRODUCTION

Scientific research drives the production and exploitation of knowledge, it generates ideas and solutions that foster economic growth, competitiveness and employment and it helps address long-term challenges, such as climate change and population ageing. The overarching objective of the Seventh Framework Programme for Research¹ (FP7) is to help build the European Research Area, a European internal market for researchers, scientific knowledge and technology which increases scientific and technological excellence through more competition, more coordination of research activities, and more focus of programmes and policies on major societal challenges. With its scientific and technological priorities focused on sustainable development, FP7 is central to the implementation of the Lisbon strategy, to support Europe's sustainable growth in a globalised economy and to transform it into a dynamic and low-carbon knowledge-based economy responding to society's needs.

The long-term challenges we faced before the crisis have not disappeared, and the Lisbon strategy goals are more valid today than ever. It is time to boost, not cut, spending on research and innovation, both to face these challenges and to lay the basis for recovery.

This report assesses progress in implementing FP7 and what remains to be done to fully reach its original objectives. It fulfils a legal obligation of the EC FP7 Decision² and provides a basis for the 2010 Interim Evaluation of the programme³. The accompanying Commission Staff Working Document provides more details on the topics covered.

2. THE START OF AN AMBITIOUS AND COMPLEX ENDEAVOUR

FP7 is considerably bigger in size and scope than the previous FP6 programme. It combines continuity with novelty. Well-proven elements of FP6 are continued, such as the Marie-Curie fellowships, support to European Research Infrastructures and EURATOM activities, and the funding of the Joint Research Centre (JRC) as a provider of robust and independent scientific and technical support for EU policies. At the same time, FP7 introduces novelties and radical innovations in both content and implementation, which require simplification and management changes.

The available evidence for 2007 and 2008 indicates that FP7 had a good start:

- The response of the scientific community to its calls for proposals shows a strong demand for Community research. Nearly 36.000 proposals were received, and over 5.500 proposals were selected for funding. The overall participation rate is at 21.7 %, taking into account two-stage application procedures.

¹ Two Seventh Framework Programmes under the EC and Euratom Treaties (together called “FP7”) started in 2007. For information on the FP7 objectives and structure as well as on its implementation up to now, see e.g. the Annual Reports 2007 and 2008 at <http://ec.europa.eu/research/index.cfm?pg=reports>.

² Art. 7(2) OJ L 412, 30.12.2006, p. 1.

³ This Report benefits from the opinion by the European Research Advisory Board (ERAB) of February 19, 2009, reproduced in annex to the Staff Working Document.

- The quality of the evaluation process is recognised, with 91% of the evaluators stating that the quality of the evaluation process was similar to or better than national evaluations in which they participated.

The novel approaches embodied in FP7 seem to be paying off:

- The success of the European Research Council is evident from the more than 11.000 proposals received for the first call. Already over 500 frontier-research projects have started in prestigious research institutions across Europe resulting from the first calls of the ERC Starting Grant and ERC Advanced Grant schemes.
- Five large-scale public-private partnerships – Joint Technology Initiatives (JTI) – have been set up, each as an independent legal entity under Article 171 of the EC Treaty: Innovative Medicines (IMI); Embedded Computing Systems (ARTEMIS); Clean Sky; Nanoelectronics (ENIAC) and the Fuel Cells & Hydrogen (FCH) JTI. ARTEMIS and ENIAC have launched projects from their first calls and have just published their second calls. The other JTIs have launched their first calls for which evaluation and selection of first projects are underway.
- Demand for the new Risk Sharing Finance Facility (RSFF) has been strong since its launch in June 2007, with 30 RSFF operations approved and the value of signed loans reaching EUR 2 billion by the beginning of 2009.
- Two agencies - the Research Executive Agency and the ERC Executive Agency – have been set up to ensure efficient management of a continuously growing FP7 budget without direct staff increases in the Commission.
- Progress has been made in simplifying participation in FP7: A new Guarantee fund has made most ex-ante financial viability checks obsolete; a Unique Registration Facility allows one-off submission of legal documents, and audit certificates and ex-ante financial capacity checks have been reduced by a factor of ten compared to FP6.

Some issues deserve further attention and reflection:

- The adjusted overall share of SMEs participation in retained proposals under the specific programmes "Cooperation" and "Capacities" is around 11% in terms of requested EC contribution.
- Below average FP7 participation rates for most new Member States are balanced by higher financial contributions: EU 12 participants obtained almost 5% of the total requested FP7 contribution, compared with a 2.8% share of EU12 in the total EU27 intramural R&D expenditure.

3. PROGRESS TOWARDS ACHIEVING FP7 OBJECTIVES

3.1 Realising the European Research Area

In December 2008, Member States adopted their joint vision of the European Research Area (ERA) in 2020⁴. Through the "Ljubljana process", they committed to a process of working together to realise this vision, in mutual partnership and with the Commission. The vision of ERA is one which offers the right conditions and incentives for high-impact research and R&D investments, adding European value by fostering healthy competition for excellence, especially between researchers; allowing researchers, scientific knowledge and technology to circulate freely ('fifth freedom'), while supporting coordination between research funders and cooperation between industry and academia.

FP7 acts as a catalyst in the efforts towards the realisation of the ERA through 4 specific programmes with each having a specific mission:

COOPERATION programme: Gaining EU leadership in key S&T areas through supporting R&D collaboration and open innovation

The collaborative research instruments of the Cooperation programme enable industry and academia to collaborate in an 'open innovation' environment, contributing to the free circulation of knowledge and technologies. The European added value and structuring effects with respect to ERA are decisive criteria for choosing the priority topics, independent of the size and scope of the instrument. While smaller scale R&D projects may serve individual research teams or specific policy needs, FP7 recognised the need for a more strategic approach for gaining science and technology leadership and for structuring ERA, moving to larger programmes and strategic initiatives with wider scope and critical mass: the 'Joint Technology Initiatives' (JTIs) and public-public partnerships, so-called Article 169 initiatives through which the EU participates in R&D programmes jointly undertaken by Member States.

JTIs embody an innovative approach to public-private partnerships, but their establishment as 'community bodies' has been long and tedious. It is too early to judge whether JTIs will have the expected impact in terms of advancing EU technology leadership in key areas, but they seem promising for leveraging EU research investments, in a more simplified framework, in the future. Three new Article 169 initiatives were launched in FP7: Ambient Assisted Living (AAL), EUROSTARS⁵ and European Metrology Research Programme (EMRP). Taking into account the experience and lessons learnt with the first Article 169 initiative in FP6, the European and Developing Countries Clinical Trials Partnership (EDCTP), and building on the ERA-NET schemes, such common endeavours between national programmes are proving their worth, also in view of possible future initiatives to jointly implement programmes.

IDEAS programme: Stimulating the creativity and excellence of European Research

The European Research Council has become a highly visible and influential component of the European Research Area. With a budget of roughly €7.5 billion over a 7 years period it provides stable support to frontier research in Europe with a critical mass only achievable at EU level. In recognition of benefits coming from Europe-wide competition, a number of EU

⁴ ERA Vision 2020 adopted by the Competitiveness Council on 2 December 2008, see doc 16767/08

⁵ The BONUS proposal to be tabled before end of 2009.

Member states have already decided to award national grants to non awarded high performers in the ERC grants evaluation process.

At the core of the achievement has been the establishment of the independent Scientific Council composed of eminent scientists. It has autonomously shaped the scientific strategy for frontier research in Europe and, in partnership with the Commission, set up structures and mechanisms to implement investigator-driven grant schemes in all fields of research based on the sole criterion of excellence.

Despite having coped with the challenges that are inherent in launching an institutional operation of such scale, there is no room for complacency. During 2009, the transition of the implementing structure into the ERC Executive Agency must be completed. An independent review of the ERC should objectively look into the extent of this apparent early success and help in identifying further improvements. This should contribute to the ERC's durable success as one of the most important components of a true European Research Area.

PEOPLE programme: Strengthening the human potential of European research through 'brain circulation'

Application numbers in the first calls demonstrate that the Marie-Curie fellowships offered by the PEOPLE programme remains as attractive as ever, contributing to a balanced "brain circulation" both at European and global levels and the creation a high-quality and mobile European R&D workforce. However, the use of industry-academia fellowships could be improved by better communicating opportunities to industries and SMEs.

CAPACITIES programme: Enhancing the research and innovation capacity in Europe

All actions under the Capacities programme are in heavy demand, notably those supporting research for SMEs and SME associations.

The limiting factor in building the 44 priority infrastructure projects of strategic European interest identified by the 'European Strategic Forum on Research Infrastructures' (ESFRI) are a lack of Community and national resources, and the insufficient integration with other financial instruments (EIB, Structural Funds). The adoption of new legal framework for European Research Infrastructures should provide a further boost and financial planning security. The most advanced international network in the world, GEANT, implemented an innovative hybrid networking technology and a range of user-focused services, enabling worldwide research collaboration. Together with GEANT, the EGEE (Enabling Grids for E-Service) e-Infrastructure enables scientists to access computational resources all over the world.

The "Research potential" and "Regions of knowledge" activities provide value in building scientific capacity across regions, particularly in convergence regions, but seem to lack budget for having a sizeable impact, in particular in the New Member States. Better and more targeted use of Structural Funds, which have in the period 2007-2013 earmarked for research and innovation a budget of approximately the same size as FP7, could in synergy with FP7 objectives and instruments do much more to raise the level of scientific and technological excellence across the EU.

Efforts to build a European level partnership between research and society have been strengthened. A new funding scheme is enabling Civil Society Organisations to participate in

FP7 and Societal Platforms are developing research agendas, for example on issues like socially cohesive urban settings.

In the context of the ERA, FP7 contributes to the development of more coherent and coordinated research policies in Europe through the support to the Open Method of Coordination and to the development of ERA partnerships under the Ljubljana process.

3.2 Contributing to sustainable development

One of the key objectives of FP7 is to contribute to sustainable development, responding to the needs of industry and society and, in coherence with other policies and instruments, to bring about a low carbon knowledge-based economy.

Responding to interdisciplinary challenges, societal needs and policy priorities ...

FP7 strongly focuses on addressing societal challenges and responding to the policy priorities of the Community. In the first two years of FP7 this resulted in 44% of the cooperation programme's budget being allocated to interdisciplinary research supporting the renewed **sustainable development strategy**, mainly through the environment, energy and food, agriculture and biotechnology themes, and including the "Clean Sky" and the "Hydrogen and Fuel Cells" JTI as key elements.

FP7 plays an important role in addressing **environmental challenges**, notably in the context of the Climate Action and Renewable Energy package. This includes issues like biodiversity, disaster reduction and earth observation.

Responding to the challenges of **health and demographic change**, FP7 has supported the development of novel tools and services to manage medical knowledge and deliver new ways of healthcare in particular through the Health programme (and notably the Innovative Medicines JTI), the ICT for Health programme, the e-Health lead market initiative, the Ambient-Assisted-Living programme and ICT for Ageing Well.

FP7 has substantially increased its efforts to address **security challenges**, for example by funding initiatives in the field of bioterrorism, both to deliver the technologies to respond to incidences but also to understand the psychological dimension and preparedness which are important elements of prevention, crisis and after-crisis management.

FP7 is responding to **inter- and multidisciplinary challenges** cutting across areas such as environment, energy, transport, and biotechnology - for example in launching a cross-thematic call for proposals on biorefineries⁶ - and in helping to establish and to start implementing a European Strategy for Marine and Maritime Research. Efforts to gain a better understanding of the underlying factors shaping societal and economic development in Europe are complementing pure technological research. Support for socio-economic sciences and humanities produces evidence for developing new policy options (as for example in the case of the recent financial crisis).

Joining forces, pooling resources and developing joint strategies through **'joint programming'** is seen as a way ahead for dealing more effectively with major societal challenges. The Strategic Energy Technology (SET) Plan can serve as a model, by delivering

⁶ OJ 2008/C 226/06.

processes and tools for more effectively engaging governments, industry and the research community, through a Steering Group of Member States, European Industrial Initiatives and the establishment of the European Energy Research Alliance, respectively – all based on a coherent strategic European research agenda.

...while addressing the needs of the real economy ...

FP7 has seen a renewed commitment to meeting the needs of industry, in particular through the cooperation with European Technology Platforms (ETPs). The 36 existing ETPs help to coordinate and pool R&D efforts in particular in the thematic areas with high industry participation, such as ICT, Nanotechnologies, Energy, Transport and Space. Through cooperation with Member States and via National Technology Platforms, ETPs bring about a structuring effect that goes well beyond the Framework programme⁷. In some cases, they have resulted in the establishment of JTIs.

Progress in reaching the 15% target for SME participation has been below expectation. With tailor-made SME support schemes, such as the newly launched EUROSTARS initiative addressing research-intensive SMEs, possibly becoming more attractive, the usefulness of targets and of the current SME instruments deserves further analysis and reflection.

The new Risk Sharing Finance Facility (RSFF), jointly funded by FP7 and the European Investment Bank and providing loans for high-risk R&D investments, experienced strong demand from industry, in particular mid-sized companies. Current loan operations cover energy, ICT, life sciences and automotive companies in 14 European countries and will be further extended in 2009.

... and fully exploiting EU's R&D potential by optimising coherence and synergy between policies and instruments

In the face of competing priorities, it is more important than ever to stress the value of Community research in attaining the EU's objectives of sustainable growth and jobs. Exploiting the full EU research potential, however, can only be achieved through a better coherence and coordination between policies and instruments related to research, innovation and education, at national and EU level, and in particular between the Community funding instruments, including the Competitiveness and Innovation Programme (CIP), the Education and Life-Long Learning programmes and the Structural Funds. Such coordination should intervene both at the phase of their design as well as during their implementation.

Europe is still lagging behind when it comes to transforming knowledge and research results into innovative products and services. Barriers to the free circulation of knowledge and technologies and the products in which they are embedded need to be removed, and demand side measures such as standardisation, public procurement and regulation can help the emergence of markets for innovative products that respond to the needs of society ('lead markets')⁸.

A continued challenge, particularly in the current crisis, is to balance the need for short term actions that boost demand with "smart" R&D investments which reinforce Europe's move towards a low-carbon knowledge-based economy. This is emphasised in the context of the

⁷ <ftp://ftp.cordis.europa.eu/pub/technology-platforms/docs/evaluation-etps.pdf>

⁸ COM(2009)116: A Strategy for ICT R&D and Innovation in Europe: Raising the Game

European Economic Recovery Plan⁹: by investing in energy efficiency to create jobs and save energy; clean technologies to boost sectors like construction and automobiles in the low-carbon markets of the future; and infrastructure and inter-connection to promote efficiency and innovation.

3.3 Opening EU research to the world

Major global challenges such as climate change, poverty, infectious disease, threats to energy, food and water supply and security of the citizen highlight the need for effective **international research cooperation**. FP7 aims to support joint research activities in areas of common interest that are of benefit to both the EU and third countries through a variety of new schemes such as Specific International Cooperation Actions, targeted open calls, 'twinning of projects' and coordinated calls at programme level. International cooperation activities are thus better integrated into the whole programme and no longer treated as a separate activity.

The newly developed European Strategic Framework for International S&T Cooperation stresses the need for a strengthened partnership between Member States and the Community if we are to contribute effectively to stability, security and prosperity in the world. The framework facilitates the opening of ERA to the world by integrating Europe's neighbours into the ERA through association to FP7, by fostering co-operation with key third countries through geographic and thematic targeting, and by improving the framework conditions for international S&T co-operation, such as for global research infrastructures, the mobility of researchers, mutual opening up of research programmes and intellectual property rights.

Science and engineering provide many solutions for poverty reduction and socio-economic development in Africa. The Africa-EU Partnership on Science, Information Society and Space¹⁰ provides the basis for combining development and research funding from European and national sources around projects which respond to needs identified by the African Union and its member states.

The **International Thermonuclear Experimental Reactor** (ITER) represents a major step towards the demonstration of viability of provision of clean and plentiful energy through nuclear fusion technology. As a unique and truly collaborative global project it also represents an important and challenging test case for conception, management and financing of international large scale scientific infrastructure.

3.4 Improving Management, Control and Simplification

The fundamental management objective of FP7 must be to maximise the research impact of each Euro invested (performance), whilst providing assurance that research funding complies with the rules (legality and regularity) and ensuring that the financial impact of errors is minimised (correction). Although not mutually exclusive, there are trade-offs between these objectives and achieving the right balance between them and between the limited resources allocated to each is critical to the success of the programme.

Performance of the programme is guaranteed by highly competitive calls and by their independent scientific evaluation. Management processes, procedures and tools need to be

⁹ COM(2008)800: A European Economic Recovery Plan

¹⁰ http://ec.europa.eu/development/icenter/repository/EAS2007_action_plan_science_en.pdf

simple and effective to ensure responsible and accountable investment of Community funds and to avoid administrative burden. In addition to achievements outlined in section 2, progress towards simplification is evident:

- Cost reimbursements are being simplified through gradual introduction of flat rates and lump-sums, with actual cost reporting retained where beneficiaries say that this is simpler.
- Average personnel costs methodologies are being progressively introduced. This is a very important step as personnel costs remain the principal cause of errors. However, their use will only be possible for a limited number of beneficiaries in a first pilot phase.
- Documentation has been streamlined and harmonised across the entire programme, and new electronic tools facilitate the negotiation of contracts.
- Frequency of reporting has been reduced and a web-based system for collecting financial reports has been launched.
- Clear written guidance and a helpline are available to help beneficiaries avoid the most frequent errors.

But simplification can take place only within the given legal context, in particular the Communities' Financial Regulation, and Rules for participation and dissemination. As it cannot change these rules itself, the Commission's efforts outlined above focus on removing administrative hurdles, streamlining procedures and providing clear guidance. While these incremental changes go in the right direction, there is a growing recognition that real and substantial simplification will require changing the rules themselves¹¹, while keeping errors in transactions at an acceptable level. This will entail:

- Agreement of all actors concerned on the proper balance between accountability and risk-taking. The European Research Advisory Board has called upon the European Parliament and the Council to enable a risk-tolerant and trust-based approach in research funding. The Commission has launched proposals to achieve this into inter-institutional debate in its Communication "Towards a common understanding of the concept of tolerable risk of error"¹² and intends to put forward a detailed tolerable risk analysis, inter alia, for the Research policy area in 2010 should there be sufficient encouragement from the Budgetary Authority.
- A substantial review by the legislative authorities of the Community financial rules relating to framework programmes in the future. This should pave the way to greater clarity and fewer burdens, but also enable effective operation of the new instruments, which provide the basis for a more strategic approach to research programme management.

A Commission Communication is planned for 2010, which would be the occasion for reflecting on these issues.

The EU's research agenda is increasingly geared towards reaching policy objectives which relate to wider economic, societal and environmental challenges. Alternatives to direct

¹¹ Report on the Ex-post evaluation of FP6:

http://ec.europa.eu/research/reports/2009/pdf/fp6_evaluation_final_report_en.pdf

¹² COM(2008)866.

management should therefore be considered in order to increase the leverage and structuring impact of EU research policy and the associated funding in support of the EU's overall policy objectives. The two agencies created to implement parts of FP7 - the Research Executive Agency (REA) and the ERC Executive Agency - have enabled the increased budget of FP7 to be managed efficiently without direct staff increases in the Commission. They will fully assume their responsibilities during 2009. Evaluations of these agencies will contribute to further optimise their operation, in order to allow for the management of far larger research budgets whilst separating project and financial management from policy making. More emphasis may also need to be given to approaches which aim to increase the structuring effect of financial support in partnership with stakeholders and Member States, such as in the case of joint technology initiatives and article 169 investments.

4. CONCLUSIONS

The 7th Framework Programme is adapting to help the EU meet its goals of creating a low carbon, knowledge-based society. It seeks to increase its leverage effect on public and private R&D investment and to diversify its instruments in order to maximise European added value.

FP7 remains a crucial instrument to promote scientific excellence and technological development, responding to EU policy priorities and the needs of industry and society. The current adverse economic context underlines its importance even more. FP7 contributes to sustained research efforts, both private and public, as exemplified in the public private partnership initiatives for green cars, energy efficient buildings and factories of the future launched as part of the European Recovery Plan.

In order to obtain advice for further improving and possibly adapting FP7, the Commission will be seeking advice from an independent expert group, which will undertake an **Interim Evaluation of FP7**. Their mandate should be adopted in autumn 2009, and the evaluation should be completed in the autumn of 2010.

The analysis and the specific issues presented in this Communication and its accompanying staff working document provide a basis for the forthcoming Interim Evaluation and further political discussions in the Council, the Parliament and with stakeholders. These should address the following key questions:

- How can the impact of FP7 and future FPs on shaping the European Research Area be improved?
- Are the novel measures (ERC, JTIs, Article 169, RSFF) efficient with respect to reaching their intended objectives?
- How can the impact and added value of collaborative research that cuts across scientific disciplines, industrial sectors and policy fields be further enhanced with a view to better address large societal challenges?
- Does FP7 play an adequate role in positioning Europe on the global map of science and technology?
- To what extent have simplification measures been effective? Will further steps create the desired results or do we need to consider radically new approaches?

The findings of this Interim Evaluation will not only be relevant for a possible revision of FP7, but also be of great influence on the emerging debates on future financial frameworks of the European Union, the post-2010 Lisbon strategy and the next Framework Programme.