

ROADMAP	
TITLE OF THE INITIATIVE	Orientation paper on the measures that are needed to further develop the Innovation Union in all its aspects (funding, ERA, partnerships, horizontal measures...)
TYPE OF INITIATIVE	CWP <input checked="" type="checkbox"/> Non-CWP • Implementing act/Delegated act
LEAD DG – RESPONSIBLE UNIT	DG RTD
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A. Context, problem definition

- (i) What is the political context of the initiative?
- (ii) How does it relate to past and possible future initiatives, and to other EU policies?
- (iii) What ex-post analysis of the existing policy has been carried out and what results are relevant for this initiative?

(i) What is the political context of the initiative ?

The Europe 2020 strategy has reconfirmed the importance of research and innovation to ensure rapid recovery from the crisis and building a sustainable economic and societal future for Europe. Europe 2020's priorities of smart, sustainable and inclusive growth, and the accompanying 5 headline objectives, are currently being further developed into 7 flagship initiatives. The Commission's proposals for the Innovation Union flagship initiative has been published in October 2010. Innovation Union outlines a strategy for transforming Europe into a knowledge based society, through a range of actions, both of a legislative and a non-legislative nature. Innovation Union also provides first broad orientations on how the Union's major funding instruments in the field of research and innovation, including the Framework Programmes for research, should be re-oriented to contribute in the most effective way possible to the objectives of Europe 2020 and Innovation Union.

Against this background, this Communication will help set the scene for the new programme by reviewing the European research and innovation landscape, lessons learned from FP7 (including its interim evaluation), and recall external policy drivers. This will provide the context for a series of questions addressing the key issues that will shape FP8, and the achievement of the European research Area.

In this way, the Communication will trigger a debate, and launch a wide stakeholder consultation, involving the institutional actors, stakeholders in the research and innovation community, and the public at large. The formal Commission proposals for the next Framework Programmes (FP8) will be developed, by taking careful account of the feedback so obtained

(ii) How does it relate to past and possible future initiatives, and to other EU policies ?

The next FPs have seven predecessors launched successively by the European Union since 1984. There is therefore a well established tradition of Framework Programmes to learn lessons from. The Single European Act (1986) provided explicit Treaty recognition for the Framework Programme. There is a tradition of having an orientations paper setting out broad options preceding the publication of the actual proposals for the Framework Programmes.

The Framework Programmes have a close relationship with many European policies. With the entry into force of the Treaty on the European Union in 1993¹ the mandate of the European research policy grew to embrace and contribute to all European policies (not only to the initial industrial competitiveness). This is reflected in the fact that the FPs fund research in areas such as energy, health, transport, ICT and environment, all closely linked to other EU policies. Several other EU policies are promoted by the FPs such as the EU policy for small and medium sized enterprises (SME), the regional policy via the promotion of regional clusters in research, the internal market policy via the free circulation of researchers, etc.

The development of the next Framework Programmes, and therefore also the orientation paper, is closely linked to the discussions on the next multi-annual financial framework (MFF) for the European Union as the scope and type of activities to be funded through the Framework Programme depend strongly on the overall budgetary envelope available.

The overriding objectives are those set out in the Treaty on the Functioning of the European Union (see section B, below).

¹ Art.130f of the Treaty on European Union stipulates that the objective of European research policy is “strengthening of the scientific and technological bases of Community industry and encouraging it to become more competitive at the international level, while promoting all the research activities deemed necessary by virtue of other chapters of the Treaty”

(iii) What ex-post analysis of the existing policy has been carried out and what results are relevant for this initiative?

FP6 – FP6 Ex-post Evaluation

The FP6 Ex-post Evaluation was carried out by a group of independent experts. The report², presented in February 2009, provides a detailed assessment of FP6 in terms of achievements, design and implementation. Corresponding main conclusions can be summarised as follows:

- § A general conclusion is that the overall achievement of the Sixth Framework Programmes has been very considerable and that no alternative mechanisms exist which could have achieved the same impact.
- § There is however, some criticism concerning the FP design, in particular regarding transparency in the process and the clarity of the rationale and the objectives.
- § Considerable room for improvement is seen regarding some aspects of FP6 implementation and management, including simplification.

The report also presents 10 detailed recommendations in view of future Framework Programmes, addressing aspects such as the Framework Programme rationale, the coordination of European Union and national research efforts, collaboration with developing countries, growth economies and with industrialised countries outside the EU, participation of SMEs and industry in general, gender balance, research infrastructures, the need to attract young researchers, as well as FP impacts and evaluation culture and FP administration and simplification. The experts underline the need for investments in research and innovation to build global competitiveness, also in view of meeting the Grand Challenges.

The Commission response to the report³ focussed on the 10 recommendations, highlighting what had improved already in FP7 and how and to which extent the Commission intends to take on board these recommendations in the future.

FP7 – FP7 Interim Evaluation

The FP7 Interim Evaluation, based on Article 7(2) of the FP7 Decision is currently ongoing. It is being carried out by a group of independent experts and should be finished in October 2010.

Euratom FP7

An interim evaluation of the on-going Euratom 7th Framework Programme has been completed in March 2010. A panel of independent experts has concluded that Euratom FP7 makes an important contribution to reaching the objectives of the SET Plan and is essential in taking forward commonly defined strategic research agendas in both fusion and fission (which also includes radiation protection). The panel made a number of important recommendations to be taken into consideration in future programmes.

What are the main problems which this initiative will address?

Europe is facing major societal challenges such as a security of energy supply, ageing population or climate change. At the same time, Europe is struggling to recover from the economic crisis and to continue being a competitive player on the world scene.

As the Europe 2020 strategy acknowledges, research and innovation have a key role to play in addressing these problems. The rationale for public intervention in research is well accepted and it is linked with the "public good" nature of research: difficulty to appropriate all the benefits deriving from research due to knowledge spill overs or externalities (negative for the research performer and positive for the public actor) and uncertainty on whether the efforts will translate into new knowledge and innovation. The pure reliance on market forces would result in underinvestment in research (market failure) which the public actor is trying to minimise.

Despite progress since 2000, Europe's overall position in research is stable or showing signs of deterioration compared to its main competitors including US, Japan, Korea, BRICs.

- ◇ European R&D spending intensity is still below 2% of GDP, compared to 2.6% in the US and 3.4% in Japan,

² http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/fp6_ex-post_evaluation_expert_group_report.pdf#view=fit&pagemode=none

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0210:FIN:EN:PDF>

mainly due to lower level of private investments in research.

Chinese R&D intensity was 1.49% in 2007, compared to 0.95 in 2001⁴. China also has one of the world's highest shares of business financed R&D - 70.4% (2007), just behind Japan (77.7%) and South Korea (73.7%). US multinational are delocalising more R&D to Asia and less to Europe.

- ◇ Europe is also underperforming in science output and US superiority over the EU is at the top if measured by the higher proportion of US articles cited in the scientific literature compared to Europeans (this pattern is repeated across all science fields).
- ◇ Europe has too few researchers in its labour force, despite being a major producer of S&T graduates;
- ◇ The European Research Area is not yet sufficiently well organised, making it unattractive and resulting in net outflows of R&D investments, students and researchers.

The Framework Programmes have a large role to play in enhancing the efficiency and the effectiveness of the European research and innovation system, as they focus on alleviating the deficiencies caused by a purely national organisation of research, such as inability to cooperate cross-border, lack of critical mass, lack of Europe wide competition to stimulate excellence, lack of cross-border mobility,...

The orientations paper will propose a number of broad orientations for the next Framework Programmes, for instance as regards its main objectives, its scope, the areas it will cover or the instruments it will use.

Who will be affected by it?

- ◇ Research performers across the world, both in the public (universities, research organisations) and in the private sector (companies) will be directly affected as direct beneficiaries of funding;
- ◇ As the Framework Programme becomes increasingly geared towards exerting leverage and influence on national policies, Member States' public policy makers are also likely to be affected;
- ◇ Via their contribution to the achievement of the Europe 2020 objectives, actions at EU level in the field of research will have the potential to affect the lives of all European citizens.

(i) Is EU action justified on grounds of subsidiarity?

(ii) Why can Member States not achieve the objectives of the proposed action sufficiently by themselves? (Necessity Test)

(iii) Can the EU achieve the objectives better? (Test of EU Value Added)

(i) Is EU action justified on the grounds of subsidiarity?

Research and innovation are both explicitly recognised as EU competences by the Treaties. In both cases, however, the competence is not exclusive to the EU, so the subsidiarity principle applies. National and European research policies are allowed by the Treaties to run in parallel with consistency among the two as a primary objective the EU and Member States have to ensure. The Commission takes the lead in ensuring this consistency by offering its coordination, exploration and representation services to all interested Member States.

Depending on the scale and scope of the public intervention envisaged and after having obtained a positive answer to both the necessity test and the test of EU value added research, several actions to support research quality as more effective if taken at EU level rather than at national, regional or local level.

(ii) Why can Member States not achieve the objectives of the proposed action sufficiently by themselves?

(Necessity Test)

There are inherent deficiencies linked to a strict national organisation of research and innovation policies : a lack of cross-border collaboration (to exploit synergies and complementarities between research teams), a lack of critical mass (to tackle challenges of a scope and scale beyond the capabilities of any single Member State), a lack of European wide competition (to stimulate excellence), a lack of cross-border mobility (to allow for a free circulation of researchers and knowledge across Europe). Therefore, clear economies of scale and scope exist in joining efforts at European scale.

By their nature, national research funding mechanisms are bound by nationality clauses and are limited to funding mainly research organisations and enterprises established in the Member State (or region) itself. Cross-border funding is in many cases only allowed to a very limited extent and only if it is to the benefit of the funding Member State.

On the contrary, European research funding allows Europe to benefit from the most excellent transnational interdisciplinary research teams which is essential to meet the ambitious goals of this initiative, by promoting competitive funding at European level.

⁴ Recent growth in R&D expenditure in China is just above 19% annually in inflation adjusted dollars over the past-decade.

(iii) Can the EU achieve the objectives better? (Test of EU Value Added)

The European value added in research is intimately linked to cross border effects, economies of scale, contributing to the resolution of market failures.

The public support to research is more effective at European level than at national level when a number of conditions are met (historically inspiring Framework Programme's actions):

- ◇ Critical mass: Some research activities are of such a scale and complexity that no single Member State can provide the necessary financial or personnel resources, and hence need to be carried out at an EU level in order to achieve the required "critical mass". This occurs where a large research capacity is needed and resources must be pooled to be effective or where there is a strong requirement for complementary knowledge and skills (e.g. in highly inter-disciplinary fields);
- ◇ Increase competition in research: EU funding helps to promote more intense competition in research leading to higher quality and excellence;
- ◇ Improving S&T capabilities: Research teams wishing to develop their S&T capabilities in specific fields can participate in top trans-national teams, benefit from learning and synergies, and so become recognised world centres of excellence;
- ◇ Leverage on private investment: Through EU research schemes, private companies can collaborate with foreign partners at a scale not possible at national level, which induces them to invest more of their own funds than they would under national funding schemes;
- ◇ Attractiveness of the European Research Area and international breath of European research;
- ◇ EU scale dissemination of results: It is more efficient to disseminate the results of research at an EU level - to users, industries, firms (SMEs in particular), citizens, etc. – leading to a better exploitation of research, and giving a larger impact than would be possible only at Member State level.

B. Objectives of the initiative

What are the main policy objectives?

A distinction has to be made between the objectives of the Framework Programmes themselves and the objectives of this orientation paper.

The Treaty on the functioning of the European Union (TFEU, Title XIX Research and Technological Development and Space, Article 179.1) stipulates that "the Union shall have the objective of strengthening its scientific and technological bases by achieving a European research area in which researchers, scientific knowledge and technology circulate freely, and encouraging it to become more competitive, including its industry, while promoting all the research activities deemed necessary by virtue of other chapters of the Treaties"⁵.

In order to achieve the TFEU general objectives the European Union is entrusted with the duty to set out a multiannual Framework Programme establishing "the scientific and technological objectives to be achieved, and ...the relevant priorities, fixing the overall amount and the detailed rules for Union financial participation and the respective shares in each of the activities provided for"⁶.

Furthermore, in terms of providing support to innovation, it should be noted that under Article 173.1 of Title XVII Industry: 'The Union and the Member States shall ensure that the conditions necessary for the competitiveness of the Union's industry exist. For that purpose, in accordance with a system of open and competitive markets, their action shall be aimed at [...] fostering better exploitation of the industrial potential of policies of innovation, research and technological development.'

The Euratom Treaty stipulates that it "it shall be the task of the Community to contribute to the raising of the standard of living in the Member States and to the development of relations with the other countries"⁷. "In order to perform its task the Community shall, as provided in the Treaty promote research and ensure dissemination of technical information"⁸. For this purpose "the Commission shall be responsible for promoting and facilitating nuclear research in the Member States and for complementing it by carrying out a Community research and training programme"⁹.

The main objective of the Communication is to trigger a debate, and to receive feedback, on how the next

⁵ Art. 179 TFEU

⁶ Art. 182 TFEU

⁷ Art. 1 of the Euratom Treaty

⁸ Art. 2 of the Euratom Treaty

⁹ Art. 4 of the Euratom Treaty¹⁰ http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/fp6_exp-post_evaluation_expert_group_report.pdf#view=fit&pagemode=none

Framework Programmes should be shaped to respond to the current context and contribute to the ambitions of the Europe 2020 strategy and Innovation Union. The Communication will therefore touch upon issues such as :

- How best to address the broad objectives already set out in the policy context
- How the research programme can embrace all parts of the innovation cycle
- How to develop a critical mass to address societal challenges
- How to help achieve the European Research Area

The outcome of this consultation will form the basis for the development of the actual FP8 proposals by the end of 2011.

Do the objectives imply developing EU policy in new areas?

No.

C. Options

- (i) What are the policy options being considered?
- (ii) What legislative or 'soft law' instruments could be considered?
- (iii) How do the options respect the proportionality principle?

(i) What are the policy options being considered?

As regards the orientations paper, the only alternative option would be not to produce it and go straight for the adoption of the actual FP8 proposals. Given the size, importance and length of the Framework Programmes, a preceding orientations paper and subsequent broad discussion has, however, in the past proven to be beneficial as it is a good basis for having a structured consultation process with stakeholders and it can forge broad agreement on a number of broad principles, thus facilitating the adoption of the actual proposals in a further stage.

(ii) What legislative or 'soft law' instruments could be considered?

The orientations paper would take the form of a Commission Communication.

(iii) How do the options respect the proportionality principle?

The orientations paper will not make concrete proposals for the next Framework Programme, only set out broad options, so this question is not relevant for this initiative.

D. Initial assessment of impacts

What are the benefits and costs of each of the policy options?

The benefit of publishing an orientation paper have been outlined above.

Could any or all of the options have significant impacts on (i) simplification, (ii) administrative burden and (iii) on relations with other countries, (iv) implementation arrangements? And (v) could any be difficult to transpose for certain Member States?

(i) Simplification is expected to be a considerable element of the debate on the next Framework Programme and as such, will also be addressed in the orientation paper. The basis for this will be the Communication on simplification which was published in April 2010 and the ensuing debate.

(ii) The issue of administrative burden will be addressed in the ex-ante impact assessment which will accompany the proposals for the FP8 rules for participation (EU and Euratom).

(iii) Cooperation with third countries, both developing and developed, is an essential element of the Framework Programmes. The current Framework Programme is open to participation from countries across the globe, albeit under a variety of conditions. How to further develop the international cooperation aspect of the next Framework Programmes may be one of the elements of the orientation paper.

(iv) No implementation arrangements are required from Member States for the Framework Programme.

(v) No transposition is required from the Member States.

(i) Will an IA be carried out for this initiative and/or possible follow-up initiatives? (ii) When will the IA work start? (iii) When will you set up the IA Steering Group and how often will it meet? (iv) What DGs will be invited?

(i) Will an IA be carried out for this initiative and/or possible follow-up initiatives?

No IA will be carried out for the orientations paper, as it will not set out clear policy choices, but rather present a set of broad options. The actual FP8 proposals will be accompanied by an IA.

(ii) When will the IA work start?

Not relevant

(iii) When will you set up the IA Steering Group and how often will it meet?

Not relevant

(iv) What DGs will be invited?

Not relevant

(i) Is any of options likely to have impacts on the EU budget above €5m?

(ii) If so, will this IA serve also as an ex-ante evaluation, as required by the Financial regulation? If not, provide information about the timing of the ex-ante evaluation.

(i) Is any of options likely to have impacts on the EU budget above €5m?

The orientations paper itself will not have an impact on the EU budget. All options considered for FP8 will obviously have an impact on the EU budget above EUR 5 million.

(ii) If so, will this IA serve also as an ex-ante evaluation, as required by the Financial regulation? If not, provide information about the timing of the ex-ante evaluation.

No IA will be produced for the orientation paper. The Impact Assessments for FP8 will serve also as an ex ante evaluation, in line with article 21 (1) of the Implementing Rules of the Financial Regulation.

E. Evidence base, planning of further work and consultation

(i) What information and data are already available? Will existing impact assessment and evaluation work be used?

(ii) What further information needs to be gathered, how will this be done (e.g. internally or by an external contractor), and by when?

(iii) What is the timing for the procurement process & the contract for any external contracts that you are planning (e.g. for analytical studies, information gathering, etc.)?

(iv) Is any particular communication or information activity foreseen? If so, what, and by when?

(i) What information and data are already available? Will existing impact assessment and evaluation work be used?

Relevant and recent impact assessment and evaluation work will be extensively used. Data already (or soon) available include:

1) The Ex-post Evaluation of the Sixth Framework Programmes (FP6)^{10,11};

2) Report of the Expert Group on the Future of Networks of Excellence (FP6)¹²

3) Study on the Impact of the Framework Programme on Network Formation (FP6)¹³

4) Study on Participation survey and assessment of the impact of the actions completed under the 6th Framework Programme (FP6)¹⁴

5) Study on assessing the behavioural additionality of the Sixth Framework Programme (FP6)¹⁵

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0210:FIN:EN:PDF>

¹² http://ec.europa.eu/research/evaluations/pdf/archive/fp6-evidence-base/evaluation_studies_and_reports/evaluation_studies_and_reports_2008/expert_group_on_the_future_of_networks_of_excellence.pdf#view=fit&pagemode=none

¹³ http://ec.europa.eu/research/evaluations/pdf/archive/fp6-evidence-base/evaluation_studies_and_reports/evaluation_studies_and_reports_2009/structuring_effects_of_community_research_-_the_impact_of_the_framework_programme_for_rtd_on_network_formation.pdf#view=fit&pagemode=none

¹⁴ http://ec.europa.eu/research/evaluations/pdf/archive/fp6-evidence-base/evaluation_studies_and_reports/evaluation_studies_and_reports_2009/participation_survey_and_assessment_of_the_impact_of_the_actions_completed_under_the_6th_framework_programme.pdf#view=fit&pagemode=none

¹⁵ http://ec.europa.eu/research/evaluations/pdf/archive/fp6-evidence-base/evaluation_studies_and_reports/evaluation_studies_and_reports_2009/assessing_the_behavioural_additionality_of_the_sixth_framework_programme.pdf#view=fit&pagemode=none

- 6) The FP7 Progress Report (Communication) and related Commission Staff Working Document^{16, 17}
- 7) The 2007, 2008, 2009 FP7 Monitoring Reports^{18, 19, 20};
- 8) The EU FP7 Interim Evaluation (expected by October 2010);
- 9) Study on Evaluating the Long-term Impact of Framework Programme Research (launched recently)
- 10) Study on Assessing the Effectiveness of Simplification Measures under FP7 (about to be launched)
- 11) The Euratom FP7 Interim Evaluation
- 12) Other horizontal and area-specific studies

(ii) What further information needs to be gathered, how will this be done (e.g. internally or by an external contractor), and by when?

No further information is needed for producing the orientation paper.

(iii) What is the timing for the procurement process & the contract for any external contracts that you are planning (e.g. for analytical studies, information gathering, etc.)?

Not relevant

(iv) Is any particular communication or information activity foreseen? If so, what, and by when?

The organisation of a conference to present and discuss the outcomes of the consultation process is being considered.

Which stakeholders & experts have been or will be consulted, how, and at what stage?

The European Research Area Committee (ERAC), composed of representatives of the Member States and Associated Countries, will be consulted during the drafting of the orientation paper. Discussions with a sounding board of experts are also being considered. Following its publication, a broad range of stakeholders will be consulted : other EU institutions, Member States, regions, representative groupings, individual research organisations/universities/companies and the public at large.

¹⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0209:FIN:EN:PDF>

¹⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:0589:FIN:EN:PDF>

¹⁸ http://ec.europa.eu/research/reports/2009/pdf/first_fp7_monitoring_en.pdf#view=fit&pagemode=none

¹⁹ http://ec.europa.eu/research/reports/2009/pdf/second_fp7_monitoring_en.pdf#view=fit&pagemode=none

²⁰ http://ec.europa.eu/research/evaluations/pdf/archive/fp7_monitoring_reports/third_fp7_monitoring_report.pdf#view=fit&pagemode=none