

# Research, technology and innovation according to the Community budget

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## The general picture

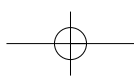
The building block of the Research, technology and innovation (RTI) strategy is the legacy of the "Lisbon Strategy". The main objective is to reshape the European economic area via the expansion of knowledge-driven economic growth. As stressed by the Lisbon strategy the main objective is to create a "knowledge-based economy". Such objective is not driven by a desire to simply modernize European economic and productive assets. The main point is to emphasize the impact of knowledge on growth performances. More specifically it is based on a theoretical perspective that attributes a role to innovation in order to explain growth differentials among the most advanced economic areas. Put another way, if the US or Japan grow more rapidly than the EU as a whole, this is due to more knowledge-based economies in both countries.

Under this perspective the concept of European Research Area (ERA) is essential in order to build a knowledge-based society where research, education, lifelong learning and innovation are mobilized to satisfy ambitions and expectations of European citizens on economic, social and environmental fields. The idea of ERA combines three aspects correlated to each other:

1. The idea of an "internal market" of research where researchers, technology and knowledge can freely circulate;
2. An effective coordination of activities, programmes or research policies defined at national or regional level;
3. The implementation of initiatives financed at European level.

Five years after its creation, the Lisbon Strategy underwent a revision process that showed the need for its re-launch and redefinition of priorities. European policy for research and innovation is not limited to the Framework Programme (FP) but depends on market regulation, cohesion and competitiveness strategy and the following targets:

- Develop research, education and innovation in all forms allowing to convert knowledge in added value to create new and better jobs;
- Foster a dialogue among different the stakeholders, public and private, of knowledge society: cooperation and technology transfer between public research and industry and strategies concerning copyright and patents are fundamental to reach such aim;
- Reach a level of research investments equal to 3% of GDP for each Member State, with an adequate allocation between public and private investments (33% public, 66% private);
- Strengthen European attractiveness for researchers and technological initiatives;



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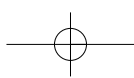
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- Institution of a European Research Council (ERC) to sustain excellence and base research;
- Institution of a European Institute of Technology;
- Creation of an attractive environment for investments and work;
- Put growth and employment to use in social cohesion;

The **Research Framework Programmes** (FP) are the EU's main instrument for funding research in Europe and have been operating successfully since 1984. They have played a particularly important role in bringing European researchers (in academia and in industry) together in collaborative research projects, in facilitating the mobility of researchers across Europe and in supporting economic and social development. The current Seventh Framework Programme (FP7) has a budget of over €50 billion, covering the seven-year period 2007 to 2013 and it has been designed to build on the achievements of its predecessor towards the creation of the European Research Area and carry it further towards the development of the knowledge economy and society in Europe. In particular the 7th Framework Programme emphasizes the creation of the European Research Council. It is structured into 4 specific programmes, designed on the main strategic objectives of European research policy that are:

- **Cooperation:** this specific programme supports all types of research activities carried out by different research bodies in trans-national cooperation and aims to gain or consolidate leadership in key scientific and technology areas. FP7 allocates €32,4 billion to the Cooperation programme. The budget will be devoted to supporting cooperation between universities, industry, research centres and public authorities throughout the EU and beyond. The Cooperation programme is sub-divided into ten distinct themes;
- **Ideas:** This programme foresees the creation of the ERC with an overall budget of € 7.5 billion over 7 years (2007-2013). Main objectives are the improvement of excellence research, dynamism and creativity in European research and the attractiveness of Europe for the researchers. This programme also support 'frontier research' executed by individual teams;
- **People:** Entirely dedicated to human resources in research this programme aims to responding to the needs of Europe's scientific community in terms of training, mobility and career development. the 'Marie Curie Actions' have been regrouped and reinforced with an overall budget of more than €4,7 billion over a seven year period until 2013, which represents a 50% average annual increase over FP6;
- **Capacities:** this programme operates in seven broad areas: research infrastructures, research for the benefits of SME's, regions of knowledge and support for regional research-driven clusters, science in society, support to the coherent development of research policies, international cooperation. It is provided with a budget of €4,1 billion.

The **Competitiveness and Innovation Framework Programme** (CIP) 2007-2013 aims to stimulate the competitiveness of European enterprises. With small and medium-sized enter-



prises (SMEs) as its main target, the programme foster and promote innovation activities, including eco-innovation, accelerate the development of a sustainable, competitive, innovative and inclusive information society, provide better access to finance and deliver business support services in the regions. It contributes to reduce the gap between research and innovation, encourages a better take-up and use of information and communications technologies (ICT) and helps to develop the information society. It also promotes the increased use of renewable energies and energy efficiency. The programme will run from 2007 to 2013 with a budget of €3,2 billion.

The CIP is structured around three main blocks of activities:

- the Entrepreneurship and Innovation Programme, particularly focussing on SMEs;
- the ICT Policy Support Programme, to support the adoption of ICTs in business, administrations and public sector services;
- the Intelligent Energy Europe Programme.

The CIP complements the efforts of the Framework Programmes to bring ERA one more step forward towards a European research and innovation area.

The RTI oriented initiatives within the cohesion policy are mainly focused on reducing the gap between richer and less favoured European regions. In a broad vision (not only RTI initiatives) the EU cohesion policy focuses on three main objectives:

- Convergence;
- Competitiveness and employment;
- Territorial Cooperation.

Financial resources amount to €307.6 billion to the cohesion policy for 2007-2013. 81.7% of that amount will serve Convergence regions, 15.8% will go to regions eligible under the Competitiveness priority, and 2.44% will remain for European Territorial Cooperation.

In the following table we present an overview of these instruments with both financial dimension in EU proposal and in Council approval.

**Figure 1.** A comparison of the three large programmes of EU RTI policy

	Framework Programme	CIP	Cohesion Policy
Ultimate aim	creation of the European research area	fostering innovation within the EU	fostering convergence within the EU
Rationale	market and system failure in RTI policy, provision of EU-wide public goods	market and system failure in RTI policy	redistribution
Primary spatial dimension	European	European	National and regional
Criterion of project selection	bottom-up research excellence (innovative potential) except in some aspects of the capacities programme	impact potential coordination projects	relative national and regional backwardness (country specific financial allocation) evaluation of impact potential on regional (national) economy

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	Framework Programme	CIP	Cohesion Policy
Targeted group	enterprises, researcher and research institutes as well as national and regional decision makers in RTI policy	national and regional decision makers in RTI policy, innovative SMEs, technology transfer institutions	nation states, regions
Funding dimension 2007-2013 (Commission Proposals) <sup>11</sup>	72726 Mio. EUR	4212.6 Mio. EUR	336100 Mio. EUR (total) 20166 Mio. EUR (RTI)
Funding dimension 2007-2013	50521 Mio. EUR	3196 Mio. EUR	307600 Mio. EUR (total) 18456 Mio. EUR (RTI)

Source: Hölzl, W. *Cohesion and Excellence: Two ways to a better Europe*, mimeo, Austrian Institute of Economic Research, 2006, and European Commission

**The budget**

Among other things, sub-heading 1a of the 2007-2013 financial perspective puts forward the European Community's investment plans for research and development. Such investments are clearly targeted to development and innovation in the EU area as a whole. The financial framework gives a ceiling expenditure in order to boost innovation of about 72 billions euros in the six years period considered. The yearly spending ceiling starts at 8 billions and by the end of 2013 gradually reaches 12 billions. The final weight of the initiative in perspective is given by its relative importance on EU's budget in year 2013: expenses for competitiveness growth and employment will constitute roughly 16 percent of total expenses. The title 8 of the EU budget is the one dedicated to "research". The table below for year 2007 may provide an overall view on how money are actually distributed among different headings.

**Figure 2.** Title 08 - Research. General summary of appropriations 2007

Title Chapter	Heading	Commitments
08 01	Administrative Expenditure of 'Research' Policy Area	237 872 302
08 02	Cooperation - Health	688 163 000
08 03	Cooperation - Food, Agriculture and Fisheries, and Biotechnology	204 559 000
08 04	Cooperation - Nanosciences, Nanotechnologies, Materials and New Production Technologies	390 363 000
08 05	Cooperation - Energy	121 023 000
08 06	Cooperation - Environment (Including Climate Change)	214 179 000
08 07	Cooperation - Transport (Including Aeronautics)	339 999 000
08 08	Cooperation - Socioeconomic Sciences and the Humanities	68 617 000
08 09	Cooperation - Risk Sharing Finance Facility (EIB)	p.m.
08 10	Ideas	260 843 000
08 11	People	430 179 000

<sup>11</sup> For the funding dimension for RTI in the Structural Funds is assumed that 6% of the Structural Funds is directed towards RTI.

Title Chapter	Heading	Commitments
08 12	Capacities - Research Infrastructures	136 197 000
08 13	Capacities - Research for The Benefit of SMEs	120 566 000
08 14	Capacities - Regions of Knowledge	9 947 000
08 15	Capacities - Research Potential	24 837 000
08 16	Capacities - Science in Society	37 358 000
08 17	Capacities - Activities of International Cooperation	17 075 000
08 18	Capacities - Risk-Sharing Finance Facility (EIB)	p.m.
08 19	Euratom - Fusion Energy	213 881 000
08 20	Euratom - Nuclear Fission and Radiation Protection	49 000 000
08 21	Completion of Previous Framework Programmes and Other Activities	p.m.
08 22	Research Programme of The Research Fund	
	for Coal and Steel	p.m.
<b>Title 08</b>	<b>Total</b>	<b>3 564 658 302</b>

Source: Official Journal of the European Union, 16.3.2007, III/501

But this is not the only channel through which RTI is financed in by the Union.

The **Structural Funds** play a substantial role to help all regions build research and innovation capacities corresponding to their situation and priorities. Between 2000 and 2006, approximately €13 billion - around 6% of the EU Structural Funds - have been spent on research infrastructures and networks, innovative business start-ups and the modernisation of SMEs. This amount is expected to increase from 2007 onwards, as the EU's regional policy will increasingly focus on knowledge, research and innovation. It has been proposed to earmark 60% of the structural funds for actions contributing to the Lisbon objectives. A significant part should be devoted to R&D and innovation.

The **Regions of Knowledge** initiative aims to support trans-national mutual learning and cooperation between research-driven clusters, bringing together regional authorities and development agencies, public research organisations, industry and other relevant stakeholders. The main activities covered are the following:

- Analysis, development and implementation of research agendas for regional clusters and cooperation between them
- "Mentoring" of regions with a less developed research profile by highly developed ones
- Actions to improve the integration of research actors and institutions in regional economies

This will be complemented by the **Europe-INNOVA initiative** which will provide support to facilitate networking between industrial clusters.

**Risk-sharing finance facility.** Financial markets and financial institutions are traditionally reluctant to invest in R&D projects. This is due to the fact that there is a higher uncertain-

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ty/risk for R&D projects, compared to more traditional business projects. In order to improve access to loans for R&D projects, the Community proposed the Risk-Sharing Finance Facility (RSFF), consisting in the financial collaboration between the European Commission and the European Investment Bank (EIB). The RSFF aims to improve access to the EIB debt finance for participants of European R&D projects. Such a mechanism was specifically called for by the European Council in its decision on the Financial Perspectives for 2007-2013.

### Critical comments

As we come to our critical analysis we have to stress that the decision procedure is certainly inadequate for the implementation of goals such as the creation of a knowledge-driven economy. Two aspects of the decision procedure seem to be particularly inefficient. First of all the political influences of Members on the design of specific amounts of money. Although this problem is general in kind, it is particularly strong on issues such as innovation. Innovation, research, development through technology, are all based on the adoption of a long term perspective on economic and social development. Yet such long term projects are discounted and more pressing issues are most of the time privileged. Research and development is a clear case where the long term common good is sacrificed to maintain short term partial gains. This is even more plausible as we examine the second political problem that the decision process must confront: the role of economic lobbies. Although economic lobbies represent a voice from the real economy, their interest does not always matches the general interest for years to come. In the long run, some sectors are known to be less productive for the future of the EU. Yet such sectors still manage to strongly influence decision-making procedure in European circles.

The inadequacy of the decision procedures brings about a natural result: the inadequacy of funds for the objectives set. Of course, all critical comments to budgetary decisions are guided by the desire to "receive more funds". Yet in this particular case our request is particularly linear. The EU wants to be pillar of a renewed European effort for technological change. Such objective will never be achieved if the EU will continue to set its budgetary trade-offs leaving to research and development what is left over from other expenditures.

A further problem is the use the EU will make of the funds it will assign to research and development. We must keep in mind that our main objectives are economic growth and social cohesion. In this perspective the enhancement of investment in research and development are just a means to an end. The fact that the EU will spend money in order to achieve a knowledge-based economy does suffer from a strong conceptual problem: how does money invested, for example, in technological change lead to greater economic growth and social cohesion? As long as the EU does not put forward a more sophisticated plan to detail how "funds" turn into "development" we will not be able to thoroughly judge the nature of its commitment towards the Lisbon Strategy.

A final comment rests on an often "forgotten link". The link between economic growth

and social cohesion. If we are able to concretely boost economic growth via the construction of a knowledge-intensive economy in the EU, this might more effectively close the gap between Members. There is of course no strong evidence in order to put forward such thesis without some degree of uncertainty. Yet common sense tells us that given the small amounts of money the EU dedicates to effective intra-country redistributive measures, it is probably true that to use such resources in research and development might hold the best long term returns. This is particularly plausible given the strong economic differences among Members.

## Prescriptions

In the following we put forward a short list of prescriptions in order to improve the 2007-2013 financial perspective when it comes to research, technology and innovation.

### *More funds*

When it comes to prescriptions to improve a financial framework, "more funds", is the most abused item on every list. Yet our recommendation does not aim at simply giving RTI more money. Such surplus money must be used to better perform the task of social cohesion. It should be thus used in sectors that are developing in less developed Members and in the no-profit zone.

### *More funds/critical impact*

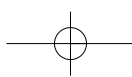
RTI are activities that are often marked by high barriers to entry in order to make them productive. For example, research in the pharmaceutical sector can take years and millions of Euros in order to develop a single product. We are concerned that the actual level of funds available might be ineffective towards the creation of productive knowledge in many sectors. In our outlook, more funds mean to make all funds productive rather than just spending more.

### *A closer look to the problem*

The EU is about to develop a long term project in order to improve research and development in its boundaries. Yet the 2007 financial perspective does not seem to adequately tie investments in RTI and studies concerning their relative effectiveness. Not all funds spent in innovation processes can hold the same returns, this should be acknowledged. Furthermore, the aim of social cohesion should be kept in mind at all times. This is especially true when deciding the relative shares of funding among different projects. Although we should always be conscious of different returns held by different investments in innovation, distributive considerations can impact our final decisions. This point might entail a stronger reliance on public research in order to ensure adequately distributed spill-over effects to the general public.

### *Highlighting the European dimension*

A further problem lies in the recognition of the necessity of a European dimension for research projects. The EU needs to further show the centrality of a European dimension of research problems. After all members could easily ask the EU to simply distribute more money to national research systems. Yet, the European dimension is needed in order to pool resources and promote coordination. The EU needs to clarify and further promote its role in the



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reorganization of resources at the supranational level. Many commentators have called for the creation of centralized European research agency. We see such proposal as only partially convincing. The EU does not need another bureaucratic system of resource administration. A European agency for research would be useful only if able to dedicate most of its funds to actual research and development rather than administrative staff and politicians.