

Information Guide



R&D Policy

A guide to information sources on the European Union's Research and Development Policy, with hyperlinks to further sources of information within European Sources Online and on external websites

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Introduction

While public R&D spending in the EU grew throughout the crisis as governments strived to keep up their R&D investments and thus incentivise businesses to do likewise, recent data point to a potential reversal of this trend.

The on-going economic crisis has also exposed structural weaknesses in Europe's innovation performance. The 2013 Innovation Union Scoreboards shows that the process of convergence in the innovation performance of Member States has come to a halt. [...] As the crisis gets longer and deeper growth disparities between some European regions are increasing.

Europe [...] needs fresh dynamism in its economy. Existing, traditional industries in which Europe excels need to develop new applications and new business models in order to grow and maintain their competitive advantage. Furthermore, in dynamic fields such as ICT based businesses and in emerging sectors Europe needs more high-growth firms. This calls for an innovation-driven structural change, but Europe is at present missing out on the more radical innovations which drive and lead such structural change.

Europe must invest more and better [...]. More research and innovation are critical in order to create sustainable economic growth and jobs and to reinforce Europe's international competitiveness. Research and innovation also help us address major challenges such as combatting climate change, securing a steady supply of clean energy or meeting the cost of an ageing population. However, progress is slow towards the Europe 2020 objective of investing 3% of GDP in R&D [...].

From: 'State of the Innovation Union 2012 – Accelerating change' [COM\(2013\)149 final](#), 21 March 2013; and 'Public-private partnerships in Horizon 2020: a powerful tool to deliver on innovation and growth in Europe' [COM\(2013\)494 final](#), 10 July 2013.

Background

Research has always been on the European Community agenda. The treaties establishing the original Communities each included one or more Articles on research: European Coal and Steel Community (Article 55); European Atomic Energy Community (Articles 4-11); European Economic Community (Articles 41 and 235).

It was not until the 1970s that a common research policy was developed. Momentum was provided by the Paris Summit in October 1972, at which the Heads of State or Government decided to ensure the development of a common science and technology policy. At their meeting in Copenhagen in December 1973 they asked the European Commission to actively develop 'a common policy on industrial, scientific and technological co-operation in all fields' which was set out in a Council Resolution of 14 January 1974 [on an initial outline programme ... in the field of science and technology](#).

This provided the basis for provisions introduced in 1986, when the Single European Act incorporated a common research and development (R&D; also seen as RTD - research and technological development) policy into the Treaty of Rome, confirming science to be an EU responsibility. In 1992 the Treaty on European Union enlarged the EU's role in promoting research and technological development.

Legal basis

According to Article 4(3) of the [Treaty on the Functioning of the European Union](#) (TFEU):

In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programmes; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs.

There are other references to research in the TFEU (e.g. Article 13 on treatment of animals; Article 173(1) on competitiveness of EU industry) but the main provisions are found in Articles 179-190 (Title XIX).

Article 179 states:

1. 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 in its industry, while promoting all the research activities deemed necessary by virtue of other Chapters of the Treaties.
2. For this purpose the Union shall, throughout the Union, encourage undertakings, including small and medium-sized undertakings, research centres and universities in their research and technological development activities of high quality; it shall support their efforts to cooperate with one another, aiming, notably, at permitting researchers to cooperate freely across borders and at enabling undertakings to exploit the internal market potential to the full, in particular through the opening-up of national public contracts, the definition of common standards and the removal of legal and fiscal obstacles to that cooperation.
3. All Union activities under the Treaties in the area of research and technological development, including demonstration projects, shall be decided on and implemented in accordance with the provisions of this Title.

Article 180 sets out the activities to be carried out in pursuit of the above:

- (a) implementation of research, technological development and demonstration programmes, by promoting cooperation with and between undertakings, research centres and universities;
- (b) promotion of cooperation in the field of Union research, technological development and demonstration with third countries and international organisations;
- (c) dissemination and optimisation of the results of activities in Union research, technological development and demonstration;
- (d) stimulation of the training and mobility of researchers in the Union.

Cooperation with the Member States is addressed in Article 181. Provisions on the Framework Programme are set out in Articles 182-186. Articles 187 and 188 allow the Union to establish joint undertakings or other appropriate structures necessary to execute RTD programmes. Article 189 provides for the EU to establish a European space policy. Under Article 190, the Commission is required to present an annual report to the European Parliament and the Council.

European Research Area

Public expenditure on research in the Member States is low by comparison with that in Japan or in the United States - 2% of GDP in the European Union compared with 2.8% in the United States and more than 3% in Japan. The Member States invest roughly £120bn

a year in research and development, compared with more than £210bn spent by the US (BBC - [Stakes high for EU science plans](#), 1.12.04).

Since 2000 efforts have been underway to try to redress this balance. In January 2000, the Commission, concerned about the widening R&D gap between the European Union and the United States and Japan, published the Communication 'Towards a European research area' ([COM\(2000\)6](#)). Problems that the paper addressed included:

- The widening gap in expenditure on R&D
- Fewer researchers in Europe and fewer European firms employing researchers
- Varying levels of R&D investment in individual Members States
- Substantially lower R&D investment in the applicant countries.

In March 2000 at the Lisbon European Council the Heads of State and Government placed the R&D policy of the Union at the centre of the [Lisbon Strategy](#), intended to make the EU the world's most competitive and dynamic economy by 2010. R&D was seen as the main tool to promote Europe's growth and competitiveness and leaders endorsed the creation of a [European Research Area](#) (ERA).

Two years later, the Barcelona European Council stated that 'Research & Development and Innovation is a key driver for the knowledge-based society.' In its Communication of March 2003 'Innovation policy: updating the Union's approach in the context of the Lisbon strategy' ([COM\(2003\)112](#)), the Commission pointed out that innovation can take many forms and considered the 'consequences for the design of innovation policy and for the different means by which innovation policy is put into action, so that they are not hampered by a view of innovation which is too restrictive.' EU-specific issues affecting innovation policy were addressed and new directions for innovation policy were proposed, including interaction with other policy areas. In March 2005, the European Council decided that the Lisbon Strategy should be re-launched, with a focus on 'knowledge, innovation and the optimisation of human capital'. In 2006 the Commission issued 'Towards a more effective use of tax incentives in favour of R&D' ([COM\(2006\)728](#)), saying it was 'desirable to seek an EU-wide tax definition of R&D and innovation and to give such expenditure favourable tax treatment'.

The March 2002 Barcelona European Council agreed that overall spending on R&D in the Union should be increased with the aim of approaching [3% of GDP by 2010](#) with two-thirds of this new investment coming from the private sector and one-third from the public sector. The Commission outlined its ideas for achieving this target in September 2002 with the Communication 'More research for Europe. Towards 3% of GDP' ([COM\(2002\)499](#)).

Further discussion and feedback led to the adoption by the Commission in April 2003 of a major policy paper 'Investing in research: an action plan for Europe' ([COM\(2003\)226](#)) which put forward an action plan focusing on four themes:

- Coordinating the efforts of the current Member States and the accession countries, in particular by creating 'European technology platforms'
- Improving the effectiveness of public support to research through actions to promote the career of researchers and to bring public research and industry closer together
- Increasing the level of public funding for research (budgets, State aid, public procurement)
- Improving the research and technological innovation environment in Europe, in particular with regard to intellectual property protection, the regulation of markets, the competition rules and the fiscal environment.

In related fields the Commission also published communications on the role of

universities in the Europe of knowledge ([COM\(2003\)58](#)) and on the careers of European researchers ([COM\(2003\)436](#)), with the aim of providing better coordination of efforts to improve recognition of the research profession and the careers of researchers.

The Green Paper 'The European Research Area: New Perspectives' ([COM\(2007\)161](#)), published on 4 April 2007, identified six features which the ERA should possess:

- Adequate flow of competent researchers
- World class research infrastructures
- Excellent research institutions
- Effective knowledge-sharing
- Well-coordinated research programmes & priorities
- Openness to the world.

(See Press Release [IP/07/469](#) and [Summaries of EU legislation](#)).

The results of a public consultation on the Green Paper, published in April 2008, identified stakeholders' main concerns as: careers and mobility, international co-operation, research infrastructures, joint programming, and knowledge sharing (see Press Release [IP/08/637](#)).

The Communication 'Competitive European Regions through Research and Innovation: A contribution to more growth and more and better jobs' ([COM\(2007\)474](#)) was adopted on 16 August 2007. It looked at EU funding for research and innovation and called on Member States and regions to make more effective use of funding instruments. Subsequently, a [Practical Guide to EU funding opportunities for Research and Innovation](#) was published by the Commission, offering 'guidance to national and regional authorities on how to interlink Cohesion Policy programmes with innovation and research funding under the Seventh Research Framework Programme and the Competitiveness and Innovation Programme' (Press Release [IP/07/1291](#)).

On 23 May 2008, the Commission issued the Communication 'Better careers and more mobility: a European Partnership for Researchers' ([COM\(2008\)317](#)). The proposed partnership 'would aim to align and focus the efforts of individual Member States' and to make the EU 'a more attractive place for researchers, and allow researchers to be more mobile between countries, institutions, and between the academic and private sectors' (see also Press Releases [IP/08/802](#) and [MEMO/08/343](#)).

The 15 July 2008 Communication 'Towards Joint Programming in research: Working together to tackle common challenges more effectively' ([COM\(2008\)468](#)) set out what the Commission described as 'an ambitious new approach for making better use of Europe's limited public R&D funds through enhanced cooperation'. The proposed Joint Programming approach should help improve the efficiency of research by coordinating Member States' efforts and pooling their resources (see also Press Releases [IP/08/1140](#) and [MEMO/08/503](#)).

On 2 December 2008, Ministers meeting in the Competitiveness Council adopted a '2020 Vision for the ERA', Committing the Member States and Commission to work together through the 'Ljubljana Process' to achieve the aims set out in [Council conclusions on the definition of a '2020 Vision for the European Research Area'](#), summarised as:

By 2020, all players will fully benefit from the 'fifth freedom' across the ERA: free circulation of researchers, knowledge and technology. The ERA provides attractive conditions and effective and efficient governance for carrying out research and investing in R&D intensive sectors in Europe. It creates significant added value by fostering healthy Europe-wide scientific competition whilst ensuring the appropriate level of cooperation and coordination. It is responsive to the needs

and ambitions of citizens and contributes effectively to the sustainable development and competitiveness of Europe.

[MEMO/09/134](#) of 25 March 2009 on 'Research Infrastructures and the Regional Dimension of the ERA' included information on the role of the Structural Funds and synergies of EU funding mechanisms.

A [Smart Specialisation Platform](#) (S3Platform; see also [Press Release IP/11/776](#)) was launched by the Commission on 23 June 2011, with the aim of helping EU regions assess their research and innovation strengths and weaknesses and build on their competitive advantage.

The Commission's Directorate General Research & Innovation published in September 2011 a '[New Practical Guide to EU Funding Opportunities for Research and Innovation – Competitive European Regions through Research and Innovation](#)'. The revised guide aimed at helping stakeholders to quickly identify their access to the different existing European funding supporting research and innovation – these being the Seventh Research Framework Programme, the [Competitiveness and Innovation Framework Programme](#) (CIP) and the Structural Funds – at any stage of their project.

A public consultation on the ERA was launched on 13 September 2011 (see Press Releases [IP/11/1025](#) and [MEMO/11/597](#)). Priorities identified by those who responded included: research careers and mobility, and problems relating to research infrastructures, knowledge transfer and cross-border collaboration (Press Release [IP/12/84](#)).

Responses fed into the 17 July 2012 Communication 'A Reinforced European Research Area Partnership for Excellence and Growth ([COM\(2012\)392](#); see also Press Releases [IP/12/788](#) and [MEMO/12/564](#), and [ERA Communication](#) page). The Communication focuses on five key areas for reform:

- More effective national research systems
- Optimal transnational co-operation and competition
- An open labour market for researchers
- Gender equality and gender mainstreaming in research
- Optimal circulation and transfer of scientific knowledge.

Furthermore, the text and the measures it proposed were at the centre of the discussions held in the [Nicosia Conference](#), on 14 November 2012, where they were welcomed by all the parties involved in the sessions:

The Conference acknowledged the need to join forces and work together to achieve the objectives set in the ERA Communication and there was overall support to the process described by the European Commission. It has been accepted by all that the functioning of the ERA will yield multiple benefits to the European research in its totality, and that the reaping of benefits can only start if well-orchestrated measures are introduced by EU member states, by the Commission and by the stakeholder organisations.

On 21 June 2012, a campaign to attract young women to research careers was launched under the slogan 'Science: it's a girl thing!' (see Press Releases [IP/12/633](#) and [MEMO/12/465](#) and the [Science: it's a girl thing!](#) website).

The launch of the [ERA Survey 2012](#) for Research Funding and Research Performing Organisations took place on 6 December 2012. The survey was open until 25 January 2013 and directed at organisations involved in R&D to provide information on the implementation of ERA in their countries and help the Commission identify the areas

where progress is possible and/or required.

The future of European research

Conscious that the Lisbon and Barcelona goals were still not on track for delivery and the continuing disparity between Europe and its main competitors in R&D, at the beginning of 2004 the European Commission published its Communication 'Europe and basic research' ([COM\(2004\)9](#)), which was intended to stimulate debate on the future of European research policy, and which proposed doubling its budget.

This led to a Commission strategy document issued in June 2004 on 'Science and technology, the key to Europe's future - Guidelines for future European Union policy to support research' ([COM\(2004\)353](#) - summarised in Press Release [IP/04/750](#)). Six major objectives were identified for action:

- creation of European centres of excellence through collaboration between laboratories
- launching of technology initiatives in industrial fields of growth
- stimulating competition between fundamental research teams
- reinforcing human resource making Europe more attractive to the best researchers
- developing research infrastructures of European interest
- reinforcing coordination of national research programmes.

The Commission also proposed focusing future European efforts on key topics, including security and space.

A general consultation took place on these plans during the latter part of 2004 which confirmed backing for stronger support for research at European level (see [detailed results](#)).

In its Communications on the Union's financial perspectives for the period 2007 - 2013, 'Building our common Future: Policy challenges and Budgetary means of the Enlarged Union 2007-2013' ([COM\(2004\)101](#)) and Financial Perspectives 2007 - 2013 ([COM\(2004\)487](#)), the Commission attributed primary importance to research funding.

The Competitiveness Council held in November 2004 (see Press Release [14687/04](#), 26 November 2004, p25-32) discussed future European policy to support research and identified further ways of realising the 3% Barcelona objective.

In November 2004 the [Kok report on the Lisbon Strategy](#) was highly critical of progress on delivering the strategy, blaming a 'lack of determined political action'. In particular the report identified 'increasing Europe's attractiveness for researchers and scientists' and 'making R&D a top priority' among the policy areas requiring urgent action.

In 2004, an EU Industrial R&D Investment (IRI) Scoreboard was produced as a pilot exercise, aimed at developing 'a closer understanding of company-level R&D in Europe by comparing European companies with those elsewhere.' The Scoreboard listed the research investments of the top 500 corporate investors in R&D whose ultimate parent company was located in the EU and of the top 500 companies whose ultimate parent was outside the EU. The text of the Scoreboard and of subsequent ones can be accessed via the Commission's [Industrial Research & Innovation](#) website. The 2005 IRI Scoreboard analysed the worldwide R&D investments of 1,400 companies (the top EU 700 and top non-EU 700) and showed an increase in R&D investment growth of 0.7 % in 2004 for EU companies compared to a decline of 2% in 2003.

July 2005 saw the publication of 'Common Actions for Growth and Employment: The Community Lisbon Programme' ([COM\(2005\)330](#)), the Community's contribution to the partnership for growth and employment established by the re-launched Lisbon Strategy, and aims to complement national measures taken by Member States.

In 2006, the Scoreboard showed that the top 1,000 EU companies increased their R&D by an average of 5.3 % in 2005 and that the top 1,000 non-EU companies raised their R&D investment by 7.7%. The [2007 IRI Scoreboard](#), published in October 2007, covered the top 1,000 R&D investors with registered offices in the EU and the top 1,000 with offices registered elsewhere. It showed a rise of 10% in corporate R&D expenditure, with EU-based companies increasing their R&D investment by 7.4% (see Press Release [IP/07/1448](#)).

In 2006 a new publication, the [Annual Digest of Industrial R&D](#), sought to fill a gap in R&D investment knowledge by highlighting 'recent findings on industrial R&D based on a review of publicly-available sources, including official reports and relevant professional and academic literature.'

In July 2006, the Competitiveness (Internal Market, Industry and Research) Council reached political agreement on the 7th Framework Programme and on the FP7 of the European Atomic Energy Community (Euratom) for nuclear research activities for 2007 to 2011 (see Press Release [11554/06](#)).

The European Institute of Innovation and Technology was established by [Regulation \(EC\) 294/2008](#) of 11 March 2008, with the objective of contributing to sustainable economic growth and competitiveness by reinforcing the innovation capacity of the Member States and the Community by promoting and integrating higher education, research and innovation of the highest standards.

'A strategic European framework for international science and technology cooperation' was proposed by the Commission on 24 September 2008 ([COM\(2008\)588](#)). It 'called on governments to jointly develop a strategy for international cooperation in science and technology' with the aim of contributing to sustainable development worldwide, while simultaneously improving Europe's competitiveness in science and technology (see Press Release [IP/08/1395](#) and track progress via the [PreLex dossier](#)).

Innovation Union

On 6 October 2010, the Commission adopted the Communication 'Europe 2020 Flagship Initiative: Innovation Union' ([COM\(2010\)546](#); accompanied by [SEC\(2010\)1161](#); see also Press Release [IP/10/1288](#), and the [Innovation Union](#) and [Europe 2020](#) websites). In it, the Commission stated:

Perhaps the biggest challenge for the EU and its Member States is to adopt a much more strategic approach to innovation. An approach whereby innovation is the overarching policy objective, where we take a medium- to longer-term perspective, where all policy instruments, measures and funding are designed to contribute to innovation, where EU and national/regional policies are closely aligned and mutually reinforcing, and last but not least, where the highest political level sets a strategic agenda, regularly monitors progress and tackles delays.

Innovation Union sets out such a bold, integrated and strategic approach, exploiting and leveraging our strengths in new and productive ways – and thereby maintain the economic foundation that supports our quality of life and our social model as our population ages. Business-as-usual equals gradually losing our competitive advantages, and accepting Europe's steady decline.

The Innovation Union initiative sets out more than 30 actions intended to achieve three main aims:

- make Europe into a world-class science performer
- remove obstacles to innovation
- revolutionise the way public and private sectors work together.

On 2 December 2011, the Commission adopted the report 'State of the Innovation Union 2011' ([COM\(2011\)849](#)). According to the associated Press Release [MEMO/11/872](#):

Good progress has been made in launching and implementing 30 out of the 34 Innovation Union commitments. Notably, by the end of 2011, based on wide stakeholder consultations, the Commission will have put forward all the six legislative proposals announced in the Innovation Union. These proposals will bring a step change in framework conditions for innovation in Europe.

Although many milestones have been reached already, much is still to be done. In particular, the report highlights that efforts need to be stepped up at national level to prioritise investments in research and innovation and to set aside dedicated budgets for public procurement of innovative products and services to drive demand for innovative solutions. The Commission will also step up efforts to issue eco-innovation action plan and screen the regulatory framework in key areas.

The Commission published 'State of the Innovation Union 2012 – Accelerating change' on 21 March 2013 ([COM\(2013\)149 final](#)). The report revealed that the economic situation in Europe could pose a threat to turning the Innovation Union into a reality and that more needed to be done in order to avoid an innovation divide:

Europe's answer to the uncertainty fuelled by the crisis must be to rigorously pursue and rapidly implement the Innovation Union strategy set out in 2010. Good progress has already been made in many areas.

[...] However, [...] the EU and its Member States must speed up their joint efforts and deepen the Innovation Union.

[...] To help address the reflection on new sources of growth, the Commission will, in addition to pursuing the implementation of the agreed Innovation Union measures, prepare next steps for deepening the Innovation Union.

[...] Innovation Union objectives should drive the future agenda for European integration. No country alone can deliver an innovative EU economy. It is time for European institutions, Member States, regions and all stakeholders to pitch in.

The report was also accompanied by a '[Research and Innovation performance in EU Member States and Innovation Union progress at country level 2013](#)'.

Framework Programmes

The EU promotes scientific research and technological development by funding collaboration between universities and research establishments across Europe. Council meetings in the early 1980s discussed the need for a Framework Programme setting out broad, medium-term objectives for Community research. In June 1983 the Council agreed that more money should be spent on research and adopted a [Council Resolution](#) 'on a Community plan of action relating to the evaluation of Community research and development programmes', in which it approved the First Framework Programme.

Since then, EU R&D policy has been set out in multi-annual Framework Programmes which set objectives, priorities and the financial package of support for a period of several years. Each of these has had the following elements: thematic programmes (key priority areas eligible for funding), international co-operation, improving mobility and training of EU researchers and dissemination of results to maximize industry use of research.

- First Framework Programme (1984-1987)
- Second Framework Programme (1987-1991)
- Third Framework Programme (1990-1994)
- [Fourth Framework Programme](#) (1994-1998)
- [Fifth Framework Programme](#) (1998-2002)
- [Sixth Framework Programme](#) (2002-2006)
- [Seventh Framework Programme](#) (2007-2013)

Each broad Framework Programme (FP) identifies a number of areas in which specific programmes are developed and projects carried out. Three main types of activity can be identified:

- direct projects carried out by the Joint Research Centre
- indirect projects undertaken by groups of researchers, laboratories and universities in the Member States
- concerted projects, carried out by groups of researchers, laboratories and universities in the Member States, but co-ordinated by the Community.

The [Fifth Framework Programme](#) (FP5) had a budget of €14.96bn. It focused on current social and economic research more than pure research, with a view to improving the standard of living and working conditions in Europe.

An [evaluation report](#) into FP5 carried out for the European Commission by independent experts, issued in July 2000, warned that there was a danger of Europe falling behind other economic areas and losing its place as a centre of excellence for the creation of knowledge if European leaders do not place research at the right political level.

Sixth Framework Programme 2002-2006

The [Sixth Research Framework Programme](#) (FP6) marked a new approach, by introducing new instruments aimed at integrating the European research effort, thus avoiding duplication of effort and focusing on the creation of a European Research Area, the goal of which is to make the European Union one of the driving forces for research worldwide.

There were five individual programmes in the overall framework programme:

- Integrating and strengthening the European Research Area (EC)
- Structuring the European Research Area (EC)
- Joint Research Centre activities (EC)
- Nuclear energy (Euratom)
- Joint Research Centre activities (Euratom).

There were seven research areas (themes) which were allocated a budget of €12 billion within the overall programme budget of €17.5 billion:

- Genomics and biotechnology for health
- Information society technologies

- Nanotechnologies
- Aeronautics and space
- Food safety and health risks
- Sustainable development and global change
- Citizens and governance in European society.

FP6 has been very successful, although lack of funds was a problem. Of the thousands of proposals received, only 1 in 5 could be supported due to the lack of funding; just under half of projects considered to be of a very high standard were able to be financed.

FP6 monitoring reports are available for the years [2003](#), [2004](#), [2005](#), with a June 2004 [Evaluation of the effectiveness of the New Instruments of Framework Programme VI](#) also available.

Seventh Framework Programme 2007-2013

The Commission proposed that the Framework Programme for 2007-2013 (FP7) should be larger and more ambitious than its predecessor, with double the budget and a much stronger focus on fundamental research. A [public consultation](#) was launched to allow stakeholders to shape the Programme, and a legislative proposal was submitted in April 2005 as [COM\(2005\)119](#), with an amended proposal [COM\(2006\)364](#) published in June 2006. The resulting [Decision 1982/2006/EC](#) 'concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)' was adopted on 18 December 2006.

FP7 was approved by the European Parliament and the Council in Decision 1982/2006/EC of 18 December 2006. FP7 comprises four main programmes:

- 'Cooperation' aims to stimulate cooperation and improve links between industry and research within a transnational framework, and under nine main themes:
 - health
 - food, agriculture and biotechnology
 - information and communication technologies
 - nanosciences, nanotechnologies, materials and new production technologies
 - energy
 - environment (including climate change)
 - transport (including aeronautics)
 - socio-economic sciences and the humanities
 - security and space.
- 'Ideas' focuses on exploratory research, supporting the most ambitious and innovative research projects.
- 'People' harnesses financial resources for improving the career prospects of researchers in Europe and attracting more high-quality young researchers (this programme will reinforce the existing 'Marie Curie' initiative offering mobility and training opportunities to European researchers).
- 'Capacities' seeks to give researchers the tools needed to enable them to enhance the quality and competitiveness of European research, including research infrastructure.

FP7 also introduces measures to improve the coherence and effectiveness of EU research policy, including:

- simplification of the procedures for participation in the programme

- implementation of the programme and its budget by theme instead of by instrument, so that it may function more coherently and effectively
- creation of the European Research Council under the Ideas Programme to support exploratory research
- improved cooperation with industry via the Joint Technology Initiatives, which will combine private investment and public funding
- the support of a European research infrastructures policy
- creation of a Risk Sharing Finance Facility to make it easier for participants to access European Investment Bank loans.

For more details see [Summaries of EU legislation](#).

On 16 July 2008, the Commission announced a proposal for a legal framework intended to make it easier to set up European Research Infrastructures (e.g. observatories, data banks, super computers; see Press Release [IP/08/1142](#)). The draft Council Regulation 'on the Community legal framework for a European Research Infrastructure (ERI)' was published as [COM\(2008\)467](#). Intended 'to facilitate the joint establishment and operation of research facilities of European interest between several Member States and countries associated to the Community R&D Framework Programme', the proposal was adopted by the Council on 29 May 2009 and subsequently published as [Regulation \(EC\) 723/2009](#) 'on the Community legal framework for a European Research Infrastructure Consortium (ERIC)' (see Press Releases [IP/09/856](#), [MEMO/09/257](#) and the Commission's [Research Infrastructures](#) page and the website of the [European Strategy Forum on Research Infrastructures](#) - ESFRI).

The ESFRI Roadmap 'identifies new Research Infrastructure (RI) of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas, regardless of possible location.' Details are given in the [European Roadmap on Research Infrastructures \(Report 2006\)](#). On 9 December 2008, 10 new RIs were announced (see Press Releases [IP/08/1913](#) and [SPEECH/08/687](#), and the [ESFRI Roadmap](#) page).

In its Communication of 29 April 2009 'On the progress made under the Seventh European Framework Programme for Research' ([COM\(2009\)209](#)), the European Commission stated that the vision of European Research Area:

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.

It also concluded that FP7 is:

a crucial instrument to promote scientific excellence and technological development, responding to EU policy priorities and the needs of industry and society.

The Commission said that an 'Interim Evaluation of FP7' should be completed in the Autumn of 2010 (see Press Releases [IP/09/665](#) and [MEMO/09/209](#); the [Evaluation](#) was published on 12 November 2010).

On 23 July 2009, the report [Towards a world class Frontier Research Organisation: Review of the European Research Council's Structures and Mechanisms](#) was presented to the Commission, which said it would 'respond to the report's recommendations and present its proposals on the future of the ERC' by October 2009 (Press Release

[IP/09/1184](#)).

On 22 September 2009, the Commission adopted a report on the European Research Council's activities in 2008 ([COM\(2009\)488](#)).

In 'The European Research Council - Meeting the challenge of world class excellence' ([COM\(2009\)552](#) of 22 October 2009; see also Press Releases [IP/09/1570](#) and [MEMO/09/476](#)) the Commission reviewed the ERC's progress and concluded that:

After a successful "pioneering phase", the ERC is now entering with confidence the second stage of its development. On the basis of early evidence, the ERC is set to become an important and stable part of the European research landscape and in order to reach its full potential, it will also need the support of the other institutions and stakeholders.

Adopted on 29 April 2010, the Communication 'Simplifying the implementation of the research framework programmes' ([COM\(2010\)187](#)) presented measures and options for simplifying EU research funding. The Communication was intended to promote a debate, the results of which will feed into Commission proposals for an 'Innovation Union' flagship initiative and into ideas for future Framework Programmes.

(A consultation on the successor to the Competitiveness and Innovation Framework Programme was launched on 11 November 2010 - see Press Release [IP/10/1500](#)).

Measures intended to make participation in FP7 more attractive and more accessible were adopted by the Commission on 24 January 2011 (see Press Releases [IP/11/57](#) and [MEMO/11/38](#)).

On 4 April 2011, the Commission adopted the Communication 'Towards a space strategy for the European Union that benefits its citizens' ([COM\(2011\)152](#)) in which it called for greater support for relevant research (see also Press Release [IP/11/398](#)).

On 19 July 2011, the Commission announced that €7 billion is to be made available to fund projects under FP7 (see Press Releases [IP/11/900](#) and [MEMO/11/521](#), Official Journal [2011/C 213/09](#), and [FP7 website](#)).

On 9 July 2012, €8.1 billion of funding was announced in the last round of calls for proposals under FP7 (see Press Releases [IP/12/752](#) and [MEMO/12/528](#) and [Participant Portal](#)).

Horizon 2020

On 9 February 2011, the Commission adopted the Green Paper 'From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding' ([COM\(2011\)48](#); see also the later [Corrigendum](#)). In the context of the Europe 2020 strategy and discussions on the Multi-annual Financial Framework (MFF) for 2014-2020, the Green Paper proposed major changes to EU research and innovation funding to make participation easier, increase scientific and economic impact and provide better value for money.

On 21 June 2011, the Commission announced that the successor to the Seventh Framework Programme will be called 'Horizon 2020' (see Press Release [MEMO/11/435](#)). The decision followed a competition launched on 28 March to find a 'relevant, appealing and catchy' name for the post-2013 research and innovation programme (Press Release [IP/11/371](#)).

Meeting on 4 February 2011, the European Council agreed (see Press Release [EU/CO 2/1/11](#)) that:

Investment in education, research, technology and innovation is a key driver of growth, and innovative ideas that can be turned into new marketable products and services help create growth and quality jobs.

At the meeting, EU leaders also called for:

the implementation of a strategic and integrated approach to boosting innovation and taking full advantage of Europe's intellectual capital, to the benefit of citizens, companies - in particular SMEs - and researchers.

The Council reached agreement on the main elements of Horizon 2020 on 31 May 2011 (see [Council news item](#)).

A formal proposal for a Regulation 'establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)' was subsequently issued by the Commission on 30 November 2011 as [COM\(2011\)809](#) (check progress via [PreLex dossier](#); see also Press Releases [IP/11/1475](#) and [MEMO/11/848](#), and additional information provided in [COM\(2011\)808](#)).

In that proposal, the Commission stated:

Horizon 2020 contributes directly to tackling the major societal challenges identified in Europe 2020 and its flagship initiatives. It will contribute equally to creating industrial leadership in Europe. It will also increase excellence in the science base, essential for the sustainability and long term prosperity and wellbeing of Europe. To achieve these aims, the proposals include a full range of support that is integrated across the research and innovation cycle. Horizon 2020 therefore brings together and strengthens activities currently funded under the 7th Framework Programme for research, the innovation parts of the Competitiveness and Innovation Framework Programme, and the European Institute of Innovation and Technology. In this way, the proposals are also designed to realise a substantial simplification for participants.

Amongst the notable features of Horizon 2020 are:

- a simpler application process
- a more inclusive approach, which aims to encourage young scientists and participants from beyond the mainstream
- the integration of research and innovation, with seamless and coherent funding from idea to market
- greater support for innovation and activities close to the market
- a strong focus on creating business opportunities out of our response to 'societal challenges'.

[COM\(2011\)809](#) was just one of a package of related proposals, the others being:

- [COM\(2011\)810](#): Proposal for a Regulation 'laying down the rules for the participation and dissemination in Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)' (check progress via [PreLex dossier](#))
- [COM\(2011\)811](#): Proposal for a Council Decision 'establishing the Specific Programme Implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)' (check progress via [PreLex dossier](#))
- [COM\(2011\)812](#): Proposal for a Council Regulation 'on the Research and Training Programme of the European Atomic Energy Community (2014-2018)

complementing the Horizon 2020 – The Framework Programme for Research and Innovation’ (check progress via [PreLex dossier](#)).

By the end of 2013, the Parliament and Council are scheduled to adopt legislative acts on Horizon 2020 using the ordinary legislative procedure, with the research and innovation programme finally kicking into action on 1 January 2014.

On 10 July 2013, the European Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn announced that the European Commission, EU Member States and European industry will be investing more than €22 billion over the next seven years; with €8 billion coming from Horizon 2020. The financial package is aimed at sectors that deliver high quality jobs with most of the budget going to five public-private partnerships in innovative medicines, aeronautics, bio-based industries, fuel cells and hydrogen, and electronics ([COM\(2013\) 494 final](#); see also Press Release [IP/13/668](#) and [MEMO/13/669](#), and [SPEECH/13/624](#)).

Joint Research Centre

The 1957 Euratom Treaty established the [Joint Research Centre](#) (JRC) as a Commission Directorate General, carrying out extensive research of direct concern to EU citizens and industry. The JRC is the EU’s scientific and technical research laboratory, providing the scientific advice and technical know-how to support EU policies. The structure is based on seven specialised Institutes located on five separate sites around Europe:

- [Institute for Energy and Transport](#) (IET) at Petten (NL) - to improve knowledge on advanced production, supply and use of energy
- [Institute for Environment and Sustainability](#) (IES) at Ispra (I) - for improving the environment and quality of life in Europe
- [Institute for Health and Consumer Protection](#) (IHCP) at Ispra (I) - for supporting EU policies for health and consumer protection
- [Institute for Prospective Technological Studies](#) (IPTS) at Seville (E) - an early warning observatory on technological innovations with an emphasis on competitiveness and employment
- [Institute for the Protection and the Security of the Citizen](#) (IPSC) at Ispra (I) - to provide research-based, systems-oriented support to EU policies so as to protect the citizen against economic and technological risk
- [Institute for Reference Materials and Measurements](#) (IRMM) at Geel (B) - to promote a common European measurement system in support of EU policies
- [Institute for Transuranium Elements](#) (ITU) at Karlsruhe (D) - dedicated to the safety of nuclear energy.

Scoreboards and statistics

In 2004, an EU Industrial R&D Investment (IRI) Scoreboard was produced as a pilot exercise, aimed at developing ‘a closer understanding of company-level R&D in Europe by comparing European companies with those elsewhere.’ The Scoreboard listed the research investments of the top 500 corporate investors in R&D whose ultimate parent company was located in the EU and of the top 500 companies whose ultimate parent was outside the EU. The text of the Scoreboard and of subsequent ones can be accessed via the Commission’s [Industrial Research & Innovation](#) website. The 2005 IRI Scoreboard analysed the worldwide R&D investments of 1,400 companies (the top EU 700 and top non-EU 700) and showed an increase in R&D investment growth of 0.7 % in 2004 for EU companies compared to a decline of 2% in 2003.

In 2006, the Scoreboard showed that the top 1,000 EU companies increased their R&D

by an average of 5.3 % in 2005 and that the top 1,000 non-EU companies raised their R&D investment by 7.7%. The [2007 IRI Scoreboard](#), published in October 2007, covered the top 1,000 R&D investors with registered offices in the EU and the top 1,000 with offices registered elsewhere. It showed a rise of 10% in corporate R&D expenditure, with EU-based companies increasing their R&D investment by 7.4% (see Press Release [IP/07/1448](#)).

In 2006 a new publication, the [Annual Digest of Industrial R&D](#), sought to fill a gap in R&D investment knowledge by highlighting 'recent findings on industrial R&D based on a review of publicly-available sources, including official reports and relevant professional and academic literature.'

On 15 October 2008, the Commission's [2008 EU Industrial R&D Investment Scoreboard](#) showed that R&D investment by EU companies increased by 8.8%, compared to 8.6% by US companies (Press Release [IP/08/1504](#)). The [2009 Scoreboard](#), published on 16 November 2009, showed that worldwide corporate R&D investment increased by 6.9% in 2008 and that, with an 8.1% increase, EU companies' R&D investment growth was significantly higher than that in the US and Japan (Press Releases [IP/09/1716](#) and [MEMO/09/503](#)). However, the [October 2010 Scoreboard](#) showed that R&D investment by top EU companies fell by 2.6% in 2009 (Press Releases [IP/10/1379](#) and [MEMO/10/522](#)).

The [Science, Technology and Competitiveness key figures report 2008/2009](#), published on 22 January 2009, gave an overview of progress from 2000 to 2006 in both EU R&D investment and in implementing the European Research Area (ERA). It showed that, despite increased investment in research by many Member States and greater efficiency of their research systems, the EU is still far from reaching its Lisbon target of investing 3% of GDP in R&D (see also [MEMO/09/19](#)).

The [European innovation scoreboard 2008: Comparative analysis of innovation performance](#), also published on 22 January 2009, showed that 'Sweden, Finland, Germany, Denmark and the UK are the Innovation leaders, with innovation performance well above that of the EU average and all other countries', while at the other end of the spectrum, 'Malta, Hungary, Slovakia, Poland, Lithuania, Romania, Latvia and Bulgaria are the Catching-up countries with innovation performance well below the EU average' (see also Press Release [IP/09/92](#)).

The [EIS 2009](#), of 18 March 2010, showed the EU struggling to catch up with the US in innovation performance, but doing better than Brazil, Russia, India and China. It also suggested that the economic crisis might be hindering innovation in Member States (Press Releases [IP/10/286](#) and [MEMO/10/82](#)).

Adopted on 5 November 2010 as [COM\(2010\)632](#), the 'Annual Report on research and technological development activities of the European Union in 2009' looked at the achievements of the European Research Area, at the implementation of FP7, and prospects for 2010. On 12 July 2011, the Annual Report for 2010 ([COM\(2011\)428](#)) looked at the Innovation Union (including the ERA), FP7 and prospects for 2011.

On 1 February 2011, the Commission published the first Innovation Union Scoreboard (IUS), which replaces the EIS. The IUS looks at 25 research and innovation-related indicators in the EU Member States and associated countries (Croatia, Serbia, Turkey, Iceland, Norway and Switzerland). The 2010 IUS showed the innovation leaders to be Denmark, Finland, Germany, and Sweden. It also showed that the EU is failing to close the innovation performance gap with the US and Japan (see Press Releases [IP/11/114](#), [MEMO/11/59](#) and [MEMO/11/56](#), and [Innovation Union Scoreboard](#) page).

The IUS is complemented by an Innovation Union Competitiveness (IUC) report, to be issued every two years. According to the June 2011 IUC, (see Press Releases [IP/11/692](#)

and [MEMO/11/392](#), and [IUC 2011](#) pages):

The EU's Research and Innovation (R&I) remains relatively competitive, even in a changing multi-polar world. The EU has one of the highest numbers of researchers in the world and in terms of research funding, scientific production and patenting of technologies, the EU remains the second major R&I centre after the United States of America. However, in many areas, the EU is still behind its main world competitors and its overall competitive position is declining.

The [2011 IRI Scoreboard](#) showed that R&D investment by top EU companies recovered strongly in 2010, rising 6.1% compared to a 2.6% fall in 2009. However, in terms of R&D growth, EU companies as a whole lagged behind major competitors from the United States and some Asian countries (see also Press Releases [IP/11/1205](#) and [MEMO/11/705](#)).

Those findings were reflected in the February 2012 IUS, which showed that the EU is not closing the gap with global innovation leaders US, Japan and South Korea. The Scoreboard showed the EU innovation leaders to be Sweden, Denmark, Germany and Finland, with the innovation followers being Belgium, UK, Netherlands, Austria, Luxembourg, Ireland, France, Slovenia, Cyprus and Estonia (see Press Releases [IP/12/102](#) and [MEMO/12/74](#)). However, the Scoreboard also revealed that despite the on-going economic crisis, top EU firms continued to invest in innovation; and what was more, had increased their investment in the area, nearly matching US firms and setting themselves far ahead of Japanese enterprises (see [IP/12/1324](#)).

On 2 March 2012, the Commission summarised in [MEMO/12/153](#) progress achieved in key areas of EU action on research and innovation, including the Innovation Union Flagship Initiative, the European Research Area, and Horizon 2020. On 18 April 2012, Eurostat published the Pocketbook [Science, technology and innovation in Europe](#), looking at the EU Member States, but also including comparative data for a number of other countries including China, Japan, Russia, and the United States.

On 26 March 2013, the [Innovation Union Scoreboard for 2013](#) was published. The report revealed that although the EU as a whole was more innovative than in previous years and in spite of the crisis the gap between Member States continued to widen with those less innovative lacking progress in their innovation performances. Sweden continued at the top of the ranking within the EU followed by Germany, Denmark and Finland while Estonia, Lithuania and Latvia were noted as those who had improved the most since the previous report (see Press Release [IP/13/270](#) and [MEMO/13/274](#) for individual country summaries).

Information sources in the ESO database

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- [Textbook, monograph or reference](#)
- [Background](#)

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[16.7 Biotechnology, agriculture, fisheries and food, health and environment research](#)
[16.8 Industrial research](#)
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[16.10 Social sciences and humanities research](#)

Further information sources on the internet

- European Commission: DG Research
 - [Homepage](#)
 - [Research website](#)
 - 'Find Funding' (uses pop-up menu - sections include '[Research Executive Agency](#)' and pages on Framework Programmes FP4 to FP7)
 - 'Research Policy' (uses pop-up menu - sections include '[European Research Area](#)' and '[Why European Research?](#)')
 - 'Information' (uses pop-up menu - sections include 'Mailing Lists & Newsletters' and 'Press Centre' and 'Publications')
 - '[What's new](#)'
 - [Participant Portal](#)
- European Commission: DG Joint Research Centre
 - [Homepage](#)
 - [JRC websites](#) (links to the JRC Institutes)
 - [At a glance](#) (includes: 'Annual report', 'History', 'Organisational chart', 'Research facilities', 'Calls for tenders')
 - [Activities](#) (includes: 'Research under FP7', 'Success stories', 'Enlargement & integration', 'IPR management & technology transfer', 'Project database (PKS)')
 - [JRC and the media](#) (includes: 'Press releases', 'Press packs')
 - [News & Events](#) (includes: 'News', 'Agenda', 'Picture galleries')
 - [Download](#) (includes: 'Publications' (amongst which are 'Annual Reports'), 'Advanced training courses')
 - [Collaborations](#) (includes: 'Indirect actions', 'Institutional networks', 'Collaboration agreements')
 - [FAQ](#) (e.g. 'What is the JRC?', 'How is the JRC funded?')
- European Commission: DG Eurostat
 - [Homepage](#)
 - [Science, technology and innovation](#)
 - Statistics Explained: [Science and technology](#)
- European Union: Publications Office
 - [Homepage](#)
 - [CORDIS](#) (Community Research and Development Information Service)
 - [News](#)
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 - [Go local](#) (national research policies and frameworks)
 - [Research*eu magazines](#)
 - [CORDIS Wire](#) (press releases, events and search)
- Europa
 - Policy areas: [Research and Innovation](#)
 - Summaries of EU legislation
 - [Research and innovation](#) (includes factsheets under the headings: [General framework](#), [Research and innovation: international dimension and enlargement](#), [Research in support of other policies](#))
 - European Commission: DG Communication
 - [RAPID](#) press releases database - [Research, innovation and science](#) (pre-set search)
 - EU news: [Science and technology](#)
 - European Union: EUR-Lex

The text of proposed and adopted legislation relating to EU enlargement can be found via EUR-Lex

 - [Proposed](#) - 13 Industrial policy and internal market - [13.10.30 Research and technological development](#)
 - [Adopted](#) (13 Industrial policy and internal market - 13.10.30 Research and technological development)
 - [Treaty on the Functioning of the European Union](#) Articles 179-190
 - Court of Justice of the European Union: InfoCuria
 - [Homepage](#): 'at 'Subject-matter' box, click icon at far right to open list of subjects. Select 'Research and technological development' and click 'Enter' to return to main search page. Select dates if required. Hit 'Search' at top or bottom of page.
 - European Parliament: Legislative Observatory (OEIL)
 - [Homepage](#): Carry out a [Search](#): scroll down left-hand menu and expand 'Subject'; then expand 'Community policies', then expand 'Research and technological development RTD' and select appropriate sub-heading (if no menu is shown, click 'OK' at the search box to display it).
 - European Commission: PreLex
 - [Homepage](#). In [Standard search](#), use the option 'Search on words from the title of the proposal' with 'innovation', "'framework programme'" (in "speech marks") or other appropriate keyword.
 - Council of the European Union
 - [Competitiveness](#) (Internal Market, Industry, Research, Space)
 - European Parliament
 - [Industry, Research and Energy Committee](#) (ITRE)
 - European Parliament: Fact Sheets
 - Section on [Common policies](#) has a Fact Sheet on [Policy for research and technological development](#)
 - European Economic and Social Committee
 - [Single Market, Production and Consumption](#) (INT)

- Committee of the Regions
 - [Commission for Education, Youth, Culture and Research](#) (EDUC)
- European Research Council (ERC)
 - [Homepage](#)
- Research Executive Agency (REA)
 - [Homepage](#)

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