

## Overview of EU Funds for research and innovation

### SUMMARY

European funding for research activities was envisaged in the first Community Treaties, related to coal and steel and nuclear energy, and was extended in the early 1980s with the establishment of a European framework programme for research. Research policy was subsequently progressively integrated in the Treaties, to become a shared competence between the European Union (EU) and its Member States.

European funds for research and innovation activities are distributed between several interlinked EU programmes. For the current period (2014-20), the main programme, Horizon 2020 (the eighth framework programme for research and innovation) is fully dedicated to funding such activities across all policy fields. Sectoral programmes also fund research and innovation activities in the fields of space research (Copernicus, Galileo); nuclear energy (Euratom Research and Training Programme, International Thermonuclear Experimental Reactor); and coal and steel production. The European Structural and Investment Funds, implemented at regional level, can be used to support the development of research and innovation capacities at local levels.

These programmes will provide a global estimated budget of more than €120 billion in EU funds to support research and innovation activities in the period 2014-20.

Five other programmes are connected to, or impact on, research and innovation activities: COSME, Erasmus+, the Health programme, the Life programme and the Connecting Europe Facility.



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## Historical and policy context

### From the first steps to a European framework programme for research

The provision of funds for research at European level began in 1951 with the Treaty constituting the European Coal and Steel Community (ECSC). Article 55 of the Treaty allowed the High Authority to use the funds collected to 'encourage technical and economic research concerning the production and the development of consumption of coal and steel, as well as labour safety in these industries.'

In 1957, the Treaty establishing the European Atomic Energy Community (Euratom) placed the promotion of research as its primary objective. Article 4 gave the Commission the responsibility to carry out a Community Research and Training Programme (RTP). Article 8 established the Joint Nuclear Research Centre (JRC), allowing the Community to carry out internal research on nuclear energy.

In 1971, a desire for better coordination of research activities in Europe led 19 countries<sup>1</sup> and the European Economic Community to establish the Cooperation in Science and Technology (COST) [programme](#), to promote networks of researchers throughout Europe. These networks, however, do not fund research activities.

The 1957 Treaty establishing the European Economic Community (EEC) did not directly include the possibility to fund research activities. However, research programmes were established in 1973 by the Council under the EEC. This decision was justified by the fact that research activities 'appear to be necessary to achieve certain Community objectives in the operation of the common market'.<sup>2</sup> In January 1974, Council decisions paved the way to the [coordination](#) of national research policies, the development of joint implementation of research projects, and the idea of a European [programme](#) in the field of science and technology.

In 1981, the then Commissioner for Industry, Etienne Davignon, promoted the idea of a comprehensive European programme funding all European research activities. A 1983 Council [Decision](#) subsequently established the first Framework Programme for Community Research for the period 1984-87.

### Integrating research policy within the legal framework

In 1986, the Single European Act included a new section on research and technological development in the EEC Treaty. Article 130i, in particular, introduced the multi-annual framework programme in the Treaty, with adoption under the consultation procedure. In 1992, the Treaty on European Union added the 'promotion of research and technological development' as a Community activity. From this moment on, the co-decision procedure applied to the adoption of the framework programme, with the Council acting unanimously. However, in 1997, the Treaty of Amsterdam modified the procedure to require a qualified majority in the Council.

With the modification of the [Treaty](#) on the Functioning of the European Union (TFEU) by the [Treaty](#) of Lisbon in 2007, research policy was transformed from a supporting competence to a shared competence, enabling the EU to adopt binding acts in the field.<sup>3</sup> Space research policy was also introduced into the Treaty at that time.

### Policy developments

On 18 January 2000, the Commission defined the European Research Area (ERA) in a [communication](#) to the Council and the European Parliament. The framework programme then served as the financial instrument for implementation of the ERA. In

March 2000, the European Council [adopted](#) the Lisbon Strategy, with its focus on developing a strong knowledge-based economy in Europe through investment, particularly in research and innovation (R&I). This led to the introduction of a stronger focus on R&I in the objectives of the EU Structural Funds in support of regional policy.

The EU 2020 [strategy](#) for smart, sustainable, and inclusive growth, [presented](#) in March 2010, places research and innovation at the heart of European policies, and introduces the Innovation Union flagship initiative. The 2020 strategy influenced the shape of the eighth framework programme for research and innovation, Horizon 2020, as well as the objectives for the European Structural and Investment Funds.

### Innovation Union Flagship initiative

The Innovation Union flagship initiative aims at strengthening research and innovation systems in Europe. The Commission seeks to fully establish the European Research Area, develop strategic research agendas on key challenges, and enhance joint research programming between Member States. It aims to develop innovation in the private sector, with a particular interest in supporting SMEs. The Commission also strives to improve the interactions between education, business, research and innovation. The flagship initiative invites Member States to reform their research and innovation systems to allow for better interoperability at European level and to foster EU cooperation. It also invites them to support education in science, maths and engineering, as well as to prioritise knowledge expenditure.

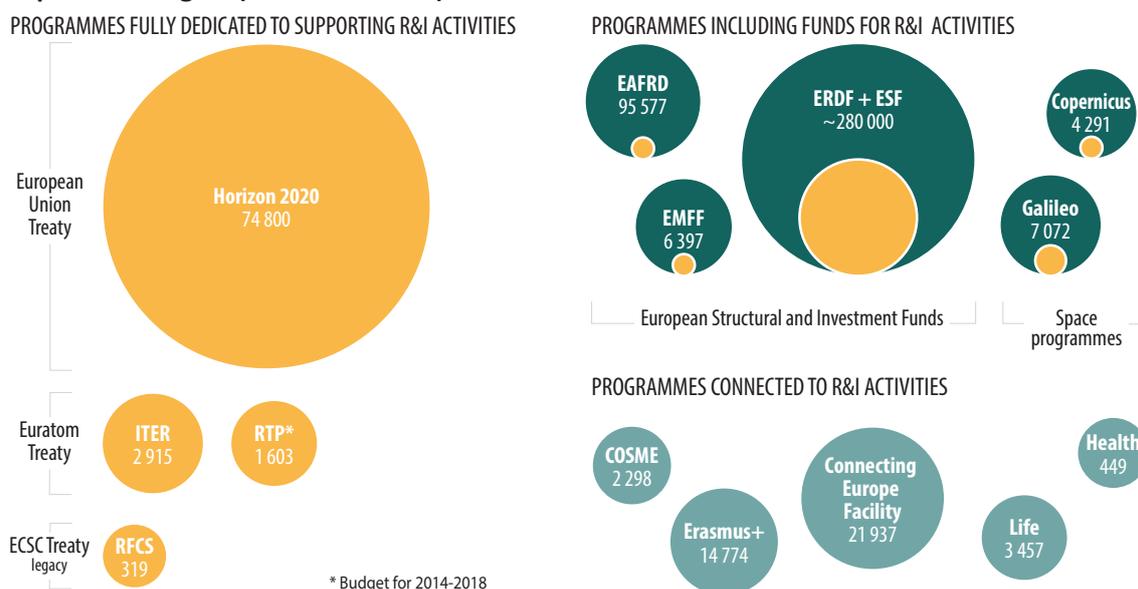
### The current programmes funding research activities for 2014-20

EU funds for research and innovation are provided through a system of EU programmes including:

- Horizon 2020, the largest programme, covering all research fields and fully dedicated to funding R&I activities;
- sectoral R&I programmes (nuclear energy, coal and steel, space);
- European Structural and Investment Funds, implemented at regional level.

These programmes are complemented by five other EU programmes not funding R&I activities directly, but connected to them (figure 1).

**Figure 1 – Overview of EU programmes funding or connected to R&I activities and their respective budgets (in million euros)**



Data source: [Multiannual Financial Framework](#), European Commission, 2015.

## Programmes specifically supporting research and innovation

### Horizon 2020

Horizon 2020, the eighth framework [programme](#) for research and innovation, is the largest EU programme specifically supporting research and innovation activities. The programme's current budget is €74.8 billion.<sup>4</sup> Deducting administrative costs, the Horizon 2020 operational budget is estimated to be around €70 billion. The programme is organised around three main pillars – Excellent Science, Industrial Leadership, and Societal Challenges – and provides funding through a large range of instruments and actions, for example:

- grants to individual researchers for research projects or to support their mobility;
- funding for cooperative research projects;
- support and funding for public-public and for public-private partnerships;
- specific instruments supporting research and innovation in SMEs.

Covering a large range of disciplines, Horizon 2020 is managed by nine Commission Directorates-General (DGs),<sup>5</sup> which define the work programmes for its various components. However, programme implementation is mainly carried out by other bodies, (up to 75% of budget implementation): Commission executive agencies, public-public partnerships between the EU and Member States,<sup>6</sup> public-private partnership with industry,<sup>7</sup> the European Investment Bank, and the European Institute of Innovation and Technology (EIT).<sup>8</sup>

### Nuclear energy programmes

#### *Euratom Research and Training Programme*

The Euratom [Research and Training Programme](#) (RTP) is organised in three areas:

- nuclear safety, security and standardisation, supporting the policies of the EU and implemented mainly by the JRC;
- nuclear fission, including safety of nuclear systems, nuclear waste management, radiation protection and medical applications of radiation;
- nuclear fusion, on the feasibility of fusion as a power source, supporting research activities complementing the International Thermonuclear Experimental Reactor (ITER) project in this field.

Due to the restrictions of the Euratom Treaty, this research programme runs for five years (2014-18). In order to follow the seven-year cycle of the Multiannual Financial Framework, a complementary programme for 2019-20 can be expected to be adopted by the Council in 2018.

#### *International Thermonuclear Experimental Reactor*

The European Union participates in the International Thermonuclear Experimental Reactor ([ITER](#)) project under the Euratom Treaty.<sup>9</sup> Under the previous framework programmes, EU funding for ITER was provided through the Euratom Research and Training Programme. A Council [Decision](#) in December 2013 amended a 2007 [Decision](#) to maintain EU funding for the ITER budget, but as an independent programme for the period 2014-20. ITER's €2.9 billion budget is managed by the Joint Undertaking, Fusion for Energy ([F4E](#)), which undertakes procurement through calls for the production of the different parts of the reactor that constitute the European contribution to the project. It is also responsible for the construction of the site of the reactor; expected to become operational in 2020.

### Research Fund for Coal and Steel

When the European Coal and Steel Community Treaty expired in 2002, and following a [protocol](#) annexed to the Treaty of Nice in 2001, the ECSC's assets were transferred to the Research Fund for Coal and Steel (RFCS). The money generated by these assets is used every year to fund research activities under the RFCS. The measures for the implementation of the protocol were [adopted](#) in 2003 and multiannual technical [guidelines](#) for the RFCS were adopted in 2008.

Revenue of around €45 million is generated annually by RFCS assets. Of this, 27.2% is dedicated to coal research activities, and 72.8% for steel research. The RFCS is completely autonomous in its management, as its budget is unconnected to the MFF. However, funding provided by the RFCS has to be complementary to other sources of funding, such as Horizon 2020, to avoid duplication.

### Programmes including funds for research and innovation

#### The space programmes

Two satellite programmes, Galileo and Copernicus, provide funds for R&I activities that complement the funds available for space research within Horizon 2020.

##### *Galileo*

Galileo is the European [initiative](#) to develop a global satellite navigation system. Begun in February 1999, Galileo should be fully operational in 2020. To date, ten of the system's 30 satellites have been launched into orbit. Funding for space R&I activities is provided through Horizon 2020. However, the [Regulation](#) providing for Galileo allows the programme to fund R&I activities pertaining to fundamental elements of the satellite system, such as electronic components and receivers. The corresponding budget is limited to €100 million for 2014-20.

##### *Copernicus*

In 2010, the EU, in cooperation with the European Space Agency, established the Global Monitoring for Environment and Security (GMES) programme. In 2014, this programme was renamed Copernicus in the [Regulation](#) establishing its funding for the 2014-20 period. The [Copernicus](#) objective is to provide accurate and reliable information and data in the fields of the environment and security, using space and *in situ* infrastructure. The Copernicus Regulation allows use of the funds to support research and innovation activities in the field of earth observation. Several [projects](#) funded under Horizon 2020 also complement existing Copernicus activities, in the fields of marine observation or climate monitoring for example.

#### The European Structural and Investment Funds

Four out of the five European Structural and Investment Funds (ESI Funds) provide support to research and innovation activities: the European Regional Development Fund (ERDF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). The implementation of these funds is delegated to a managing authority at the local level. The four first objectives of the ESI Funds, defined in the [Regulation](#) laying down common provisions for all the funds, are:

- strengthening research, technological development and innovation;
- enhancing access to, and use and quality of, ICT;
- enhancing the competitiveness of SMEs, of the agricultural sector (for the EAFRD) and the fishery/aquaculture sector (for the EMFF);

- supporting the shift towards a low-carbon economy in all sectors.

The ERDF [Regulation](#) requires that between 50 and 80% of the funds are dedicated to, at least, two of these four objectives.<sup>10</sup> The use of funds from ERDF in the field of research and innovation is conditional upon the adoption of a smart specialisation strategy at national or regional level.<sup>11</sup> This strategy sets the priority fields for investment and use of the funds, in connection to local capacities. For example: Midi-Pyrénées in France, Andalucía in Spain, and Podkarpackie in Poland selected Aeronautics and Space as a priority in their strategies, given their local industrial capacity in this field.

The ESF [Regulation](#) states that the funds can be used for the training of researchers and to support networking between research institutions. It is estimated that around €110 billion from these two Structural Funds (ERDF and ESF) will be dedicated to the four objectives mentioned above, with an estimate of €40 billion going to the first objective.

The EAFRD [supports](#) actions to strengthen the links between, on the one hand, actors in the fields of agriculture, food production, and forestry, and, on the other, those performing research and innovation activities. Operational groups gathering together farmers, advisors, researchers, agribusinesses, NGOs and others are financed through the EAFRD under the [European Innovation Partnership](#) on Agricultural Productivity and Sustainability.

Similarly, the EMFF [supports](#) action to connect fisheries and R&I stakeholders. One of the main tools supported by the EMFF is the European Marine Observation and Data Network ([EMODnet](#)); a consortium of organisations, including research institutions gathering and sharing marine data. The EMFF can also directly finance specific research studies to support the development of new policies in the field of fisheries management.

The Regulations on the ESI Funds requires the exploration of funding synergies with other EU programmes, like Horizon 2020. A guidance [document](#) from the Commission explains how these synergies can be implemented by national and regional actors.

## Programmes connected to research and innovation

### COSME

Horizon 2020 funds R&I activities leading to the development of new products and services, for example through the SME [Instrument](#). The COSME [programme](#) offers instruments which support the creation and expansion of companies, particularly with a view to expanding firms' R&I activities, complementing Horizon 2020.

The Enterprise Europe [Network](#) (EEN), financed by COSME, plays a key role in sharing information about European programmes and their funding opportunities, in spreading best practices, and in gathering information on the administrative framework for companies in different Member States. The EEN is also involved in the implementation of the Horizon 2020 SME Instrument to identify local experts.

### Erasmus+

The Erasmus+ [programme](#) encourages [Europeans to relocate](#) in pursuit of education, higher education, and training opportunities. Connections exist with research activities, such as support for doctoral researchers to gain international experience in the early years of their career. Erasmus+ also funds the [Jean Monnet programme](#), which aims to

promote teaching and research activities on European integration worldwide, via, for example, the European University [Institute of Florence](#).

### Third Health Programme

The Third Health [Programme](#) aims at preventing diseases, protecting EU citizens from cross-border health threats, contributing to innovative health systems, and facilitating better access to healthcare. The programme funds joint actions and exchanges of experience and best practice between Member States, and actions aimed at harmonising methodologies in health care. The programme does not directly fund research activities in health, but supports health policies and the framework of healthcare practices, including, potentially, research institutions such as university hospitals.

### Life Programme

The Life [Programme](#) supports actions in the areas of the environment, biodiversity and climate change. The general [objective](#) of the programme is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation, by co-financing projects with European added value. The Life Programme encourages the uptake of results of research activities undertaken through Horizon 2020 in order to better inform environmental and climate policies in the EU.

### Connecting Europe Facility

The Connecting Europe Facility [programme](#) provides [funds](#) to improve trans-European infrastructure in the fields of [transport](#), [energy](#) and [telecommunications](#). This last field, with a budget of €1.14 billion, provides for connections with research and innovation activities. The [development](#) of an extensive [broadband](#) infrastructure and the implementation of digital services infrastructures rely on research activities and pilot programmes in this field, funded by Horizon 2020. Synergies between the CEF in telecommunication and the development of e-infrastructures supported by Horizon 2020 and the ESI Funds are also significant.

### Main references

[List of the programmes under the 2014-2020 Multiannual Financial Framework](#), European Commission, DG Budget, 30 June 2014.

### Endnotes

<sup>1</sup> The then six member states of the EEC (Belgium, Germany, France, Italy, Luxembourg, and The Netherlands) together with Austria, Czech Republic, Denmark, Spain, Finland, Greece, Ireland, Norway, Portugal, Sweden, Turkey, UK and Yugoslavia.

<sup>2</sup> These first non-nuclear research activities were implemented by the Joint Research Centre in the fields of [solar energy](#), protection of the [environment](#) and [teledetection](#) of earth resources.

<sup>3</sup> This possibility has not been used to date.

<sup>4</sup> The initial [proposal](#) of the Commission in November 2011 set a budget of €87.7 billion, whereas the European Parliament had [requested](#) a budget of €100 billion in September 2011. Following the ordinary legislative procedure, the final [Decision](#) of December 2013 set a budget of €77 billion for Horizon 2020. In June 2015, the [adoption](#) of the European Fund for Strategic Investments lowered this budget to €74.8 billion.

<sup>5</sup> The Directorates-General managing the Horizon 2020 budget are the DGs for Research, Communication Networks, Growth, Education and Culture, Agriculture, Transports, Home Affairs, Energy and the JRC.

<sup>6</sup> The public-public partnerships between the EU and the Member States are set up under Article 185 TFEU, with the EU providing up to 50% of the budget.

<sup>7</sup> Public-private partnerships are established under Article 187 TFEU. Joint Undertakings are set up as legal structures to manage the funds of the partnership, which are provided by the EU. Industry provides in-kind contributions.

<sup>8</sup> EPRS plans to publish two in-depth analyses on this topic in late 2015. The first will present Horizon 2020, its budget and its implementation. The second will present the other programmes mentioned in this briefing.

<sup>9</sup> The other participants in ITER are Russia, the United States, Japan, China, India and South Korea. The EU contribution represents 45% of the total cost of ITER.

<sup>10</sup> At least 50% in less developed regions, 60% in transition regions and 80% in more developed regions.

<sup>11</sup> The Joint Research Centre set up the smart specialisation [platform](#) to support local actors in the process of defining their strategy.

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