

## Research, Development and Innovation : Europe 2016

By Michel Crispi, Secretary General EIRMA

2016 is a consolidation year based on the description done last year.

European funds for research and innovation activities are distributed between several interlinked EU programs. For the current period (2014-20), the main program, Horizon 2020 (the eighth framework program for research and innovation), started in 2014, is fully dedicated to funding such activities across all policy fields. Sectoral programs also fund research and innovation activities in the fields of space research (Copernicus, Galileo); nuclear energy (Euratom Research and Training Program, 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 programs will provide a global estimated budget of more than €120 billion in EU funds to support research and innovation activities in the period 2014-2020.

Five other programs are connected to, or impact on, research and innovation activities: COSME (Competitiveness of Enterprises and Small and Medium-sized Enterprises), Erasmus+ (Education), the Health program, the Life program (environmental, nature conservation and climate action projects) and the Connecting Europe Facility (Growth, Jobs and Competitiveness through targeted infrastructure investment).

### **Programs specifically supporting research and innovation**

#### **Horizon 2020 (€74.8 Billion)**

Horizon 2020, the eighth framework program for research and innovation, is the largest EU program specifically supporting research and innovation activities. The program's current budget is €74.8 billion. Deducting administrative costs, the Horizon 2020 operational budget is estimated to be around €70 billion. The program is organized 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.

#### **Nuclear energy programs (€4.5 Billion)**

*Euratom Research and Training Program organized in 3 areas (run for 5 years 201-2018):*

- Nuclear safety, security and standardization, supporting the policies of the EU;
  - 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.
- A complementary program for 2019-20 can be expected to be adopted by the Council in 2018.

#### *International Thermonuclear Experimental Reactor (ITER)*

The European Union participates in the ITER project under the Euratom Treaty. Decision in December 2013.

#### **Research Fund for Coal and Steel (€0.3 Billion)**

The Research Fund for Coal and Steel is completely autonomous in its management, as its budget is unconnected to the Multiannual Financial Framework of the European Commission. However, funding provided by the RFCS has to be complementary to other sources of funding, such as Horizon 2020, to avoid duplication.

## **Programs connected to research and innovation**

### **COSME (€2.3 Billion)**

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

### **Erasmus+ (€14.8 Billion)**

The Erasmus+ program 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.

### **Third Health Program (€0.4 Billion)**

The Third Health Program aims at preventing diseases, protecting EU citizens from cross-border health threats, contributing to innovative health systems, and facilitating better access to healthcare. The program funds joint actions and exchanges of experience and best practice between Member States, and actions aimed at harmonizing methodologies in health care. The program does not directly fund research activities in health, but supports health policies and the framework of healthcare practices.

### **Life Program (€3.5 Billion)**

The Life Program supports actions in the areas of the environment, biodiversity and climate change. The general objective of the program 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 Program 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 (€21.9 Billion)**

The Connecting Europe Facility program 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 programs in this field, funded by Horizon 2020.

## **These programs are complemented by 5 other EU programs not funding R&I activities directly but connected to them:**

### **The space programs (2 programs)**

Two satellite programs, Galileo (Global Satellite Navigation System) and Copernicus (Global Monitoring for Environment and Security), provide funds for R&I activities that complement the funds available for space research within Horizon 2020.

### **The European Structural and Investment Funds (3 programs)**

- 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.

## **Europe and international cooperation**

Research and innovation are increasingly interlinked internationally, in a landscape that has been changing rapidly. Alongside industrialized countries, emerging economies have been strengthening their research and innovation systems. The new International Cooperation strategy focuses on research and innovation, in areas of common interest and mutual benefit. The strategy is based in the following 3 objectives.

- Extend the frontiers of scientific knowledge

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The European Union is a world leader in research and innovation, responsible for 24% of world expenditure on research, 32% of high impact publications, and 32% of patent applications, while representing only 7% of the population. Excellent science is at the foundation of economic prosperity and wellbeing. Therefore, Horizon 2020 continues to fund the very best science, rewarding top researchers from Europe and beyond, funding also the establishment of world-class research infrastructures. Researcher training, mobility and career development will continue to be encouraged.

- Tackle global challenges

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Global challenges are important drivers of research and innovation. Our planet has finite resources which need to be cared for sustainably: climate change and infectious diseases do not stop at national borders, food safety needs to be ensured across the globe. For global challenges, worldwide answers are needed and collaboration with developing countries will emphasize joint solutions to specific difficulties, whether it be water management, energy security, agricultural development or particular health issues.

- Invest in competitive industries

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Make industry, and notably SMEs, more competitive by linking research firmly to innovation, leading to better products and services across the globe. Horizon 2020 will build industrial leadership by supporting business R&I and bringing together the public and private sectors from all over the world. Efforts will concentrate on key enabling technologies - such as advanced manufacturing, microelectronics, nanotechnology and biotechnology – that underpin innovation across many industries and sectors.

Of course, as already highlighted, given the number of projects and of participating parties and also considering that all those projects are funded by public money, there is a tight control from the European Commission.

The Commission claims that a significant simplification is a characteristic of Horizon 2020, as compared to the previous framework programs, yet there is substantial administration remaining. That can be a deterrent to the participation of SME's and that is precisely why the European Commission has developed some specific tools in order to facilitate the SME's participation in European R&D consortia programs.

The general European Commission program remains based on the following priorities:

- A New Boost for Jobs, Growth and Investment
- A Connected Digital Single Market
- A Resilient Energy Union with a Forward-Looking Climate Change Policy
- A Deeper and Fairer Internal Market with a Strengthened Industrial Base
- A Deeper and Fairer Economic and Monetary Union
- A Reasonable and Balanced Free Trade Agreement with the U.S.
- An Area of Justice and Fundamental Rights Based on Mutual Trust
- A New Policy on Migration
- A Stronger Global Actor
- A Union of Democratic Change

The H2020 program is definitely a major European undertaking to meet the challenges of the next decade and beyond.

At it is customary at this time of the year; EIRMA wants to present its best wishes for happiness, peace and creativity to colleagues, partners and friends worldwide.

May we meet, exchange, and have fun in the new year!

Michel Crispi

Secretary General EIRMA