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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Annual Report on Research and Technological Development Activities of the European Union in 2013

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1. BACKGROUND TO THE ANNUAL REPORT ON RTD ACTIVITIES

The Annual Report on research and technological development activities of the European Union (EU) is prepared pursuant to Article 190 of the Treaty on the Functioning of the European Union (TFEU). The purpose of this report is to provide an overview of key measures undertaken in the reporting year.

2. THE BROADER POLITICAL CONTEXT IN 2013

In 2013, Member States started and continued significant reforms to return to sustainable economic growth and welfare. The European Commission undertook important measures to enhance and complement these efforts, including strengthening the involvement of social partners in the European Semester framework. As a result, a gradual recovery of Europe's economy has set in since the beginning of 2013, becoming more noticible in the second quarter of 2013. While the recovery is expected to continue, the European Union needs to continue to work together in order to strengthen its ability to compete globally.

Despite the continuing difficult economic climate in the past year, the EU made progress towards the Europe 2020 targets by initiating positive structural trends, such as raising education levels, building a more sustainable energy mix, reducing the carbon intensity of the economy and making progress towards the R&I investment target of 3%.

In order to strengthen Europe's position as a global competitor and put its economy back on track to growth, investment in Research and Innovation (R&I) is crucial. Therefore, R&I continued to be at the core the EU's agenda for smart jobs and growth and at the centre of the EU investments.

Horizon 2020, launched at the end of 2013, is the financial instrument implementing Europe's 2020 flagship initiative 'Innovation Union'. The new framework programme was designed to address and tackle societal challenges and promote economic prosperity by funding excellent science, technology and innovation.

3. HORIZON 2020

Following the set of trilateral negotiations between the EU institutions, the Horizon 2020 package was adopted with clear majorities in both the European Parliament on 21 November 2013 and the Council of the European Union on 3 December 2013.

With an EU budget (2014-2020) of €79.2 billion in current prices, the new EU framework programme[1] represents a break from the past –with major simplification which allows wider

[1] http://ec.europa.eu/programmes/horizon2020/en/news/horizon-2020-brief-eu-framework-programme-research-innovation.

participation, the integration of research and innovation, and a challenge based approach. Horizon 2020 will help to bridge the gap between research and market, while at the same time further strengthen excellence, thus providing powerful opportunities to convert new knowledge and technological breakthroughs into high level innovative services and products.

The new programme is particularly well placed to put together public and private sources of finance, with the aim of boosting Europe's innovative companies:

- More private investment has been secured to address major societal challenges while boosting Europe's industrial competitiveness. On 10 July 2013, the Commission made proposals on a number of public-private and public-public partnership initiatives which are part of the Innovation Investment Package[2]. These partnerships will be one of the key elements of Horizon 2020, as they will allow for large-scale and long term innovation activities by joining forces between the private sector, the EU and Member States with a budget of over €20 billion.

- Measures to overcome the insufficient availability of finance in Europe, a major obstacle to getting innovations to the market, have been put in place. The Risk-Sharing Finance Facility, jointly set up by the European Commission with the European Investment Bank Group, has ensured that for €1 billion of EU budget money the EIB has mobilised €12 billion in loans and over €30 billion in final R&I investment. This has led to additional resources of up to €40 billion since 2007 for research and innovation activities which would have otherwise be left unfunded.

- In line with the mainstreaming approach of Horizon 2020, measures are foreseen to set up a robust support system, in particular, benefiting SME and facilitating their access to funding opportunites across the whole programme. The new dedicated SME instrument supports the most innovative ideas of European SMEs showing a strong ambition to develop, grow and internationalise. Within the target of 20% of the overall funding of the societal challenges and the specific objective 'Leadership in enabling and industrial Technologies' 5% have been allocated for the continuously open call in 2014/2015 and 7% for the overall period of the programme.

Alongside the political decision-making, the Commission made the necessary preparations for implementing the new programme.

(a) The Horizon 2014-15 Work Programmes

On 10 December 2013 the European Commission adopted the first work programme under Horizon 2020. The Commission indicated funding priorities over two years, providing researchers and businesses with more certainty than ever before on the direction of EU research and innovation opportunities. Calls for proposals were opened on 11 December 2013. Among the highlights:

[2] Adopted by the European Parliament on 15 April 2014 and the Council of the European Union on 6 May 2014.

- Special attention is given to Small and Medium-sized Enterprises (SMEs), in particular through a new, dedicated instrument. SMEs will be able to apply for EUR 253 million in innovation grants under this new, exclusive scheme, in 2014 alone.
- As provided for in the 2014/2015 calls, a total budget of nearly EUR 20 million is earmarked for individual grants from the European Research Council (nearly EUR 14 million) and Marie Skłodowska-Curie Actions (nearly EUR 7 million) for research training and mobility.
- To help address the innovation divide, Widening measures include calls for 'European Research Area Chairs' (EUR 34 million), Teaming actions (EUR 12 million) in 2014 and Twinning (EUR 74 million) in 2015.

(b) Simplifying access

A new version of the Research and Innovation Participant Portal with the deployment of an improved IT capacity, a more contemporary technology, a reorganised and simplified navigation, as well as further developed layouts and contents was launched on 4 December 2013. The new online guidance for Horizon 2020 participants – Horizon 2020 Online Manual – was developed in collaboration to facilitate understanding of the processes of the programme. The manual is easily accessible from any section of the Participant Portal[3], leading users directly to the relevant guidance section.

4. THE INNOVATION UNION

The Innovation Union was placed at the heart of the Europe 2020 Strategy with the aim of fostering Europe's capacity to innovate. The Innovation Union is succeeding in building momentum around innovation, by increasing investments in R&I, mobilising stakeholders and mainstreaming innovation in key European, national and regional policies.

As a comprehensive strategy, the Innovation Union addresses a wide range of elements that impact Europe's innovation ecosystem and is succeeding in changing it. Excellent progress has been made in delivering on each of the Innovation Union priorities:

- **Strengthening the knowledge base and reducing fragmentation**: The knowledge base in Europe is being strengthened, notably through: the launch of Horizon 2020; focusing of European Regional Development Funds on Smart Specialisation Strategies; and support for skills development, and progress towards the European Research Area (ERA) – see below under section 5;

- **Getting ideas to market**: Great efforts have been made in delivering the tools for a more innovation-friendly business environment in Europe, such as the unitary patent and the revised public procurement directives which offer better opportunities for innovating. Instruments to ease access finance are in place, notably those under Horizon 2020, and are about to start delivering, including reinforced debt and equity facilities and the venture capital passport.

[3] http://ec.europa.eu/research/participants/portal/desktop/en/home.html.

While public intervention has typically been used, in the past, to stimulate the supply of research and new knowledge, it is increasingly being used to stimulate the demand for innovation with instruments such as pre-commercial public procurement, innovation-friendly regulation, standards-setting, etc. For example, procurement of innovation was facilitated, a methodology for the screening of regulation in terms of its impact on innovation was developed and tested, the eco-innovation action plan was launched, and standard-setting was modernised and accelerated.

- **Maximising social and territorial cohesion**: The Innovation Union has also tackled the challenge of territorial and social cohesion. For instance, Smart specialisation strategies have been established as an ex-ante conditionality for investment priorities under research, technological development and innovation with the aim to promote a better innovation performance across European regions and Member States, without compromising on excellence. The increased emphasis on social and public sector innovation is ensuring a broader uptake and societal impact of innovation, as well as a mind-set change with regards to who should be concerned by innovation and who can be an actor of change in the EU. In particular, momentum is building around public sector innovation, where actions undertaken went beyond the initial expectations of the Innovation Union.

- **The European Innovation Partnerships** (EIPs) provide a new approach to EU research and innovation. Five EIPs have been launched in key areas of active and healthy ageing, water, agriculture, raw materials and smart cities. They are now all in the implementation stage, having identified priorities, engaging a wide range of partners across the demand and supply sides of innovation, and starting to deliver first results, e.g. mapping of good practices, practical toolkits for replication, collections of evidenced impact and implementations of integrated services.

  An expert group has assessed progress and evaluated the overall performance of the EIPs. The group has concluded that the EIP is the right approach to help enable future European economic growth and welfare. Their recommendations imply improvements that can be made to the current EIPs and significant changes to the way that future EIPs are launched and run.

- **Leveraging our policies externally**: The global dimension of innovation has equally been taken into account. Several initiatives have been developed to increase Europe's attractiveness as a research and innovation destination and partnerships between the EU and its Member States have been strengthened in the definition of priorities for cooperation with third countries, including the development of global research infrastructures.

- **Making it happen**: Progress in Europe and Member States' research and innovation performance have been monitored in the framework of the integrated economic coordination ('European Semester'), through the Innovation Union Scoreboard[4], the Innovation Union Competitiveness Report and through the new innovation output indicator. The new indicator uses four indicators from the outputs and firm activities types in the the Innovation Union Scoreboard, grouped into three components (patents, employment in knowledge-intensive activities, and competitiveness of knowledge-intensive goods and services), and a new measure of employment in fast-growing, innovative sectors' firms.

[4] http://ec.europa.eu/enterprise/policies/innovation/policy/innovation-scoreboard/index_en.htm

The monitoring will be continued and improved through the Policy Support Facility under Horizon 2020. Exchange of best practices and mutual learning have equally been facilitated by the EU.

Over the past years, a fundamental shift in the right direction has happened, reducing the innovation performance gap with our main competitors. The latest Innovation Union Scoreboard shows that, since 2008, the EU has managed to close almost half of its innovation performance gap with the US and Japan. Nevertheless, the gap with South Korea is widening and China is quickly catching up. Therefore, the EU, its Member States and other stakeholders need to continue working together to improve the European innovation ecosystem.

5. EUROPEAN RESEARCH AREA (ERA)

Further to the adoption of the Commission Communication on a *Reinforced European Research Area Partnership for Excellence and Growth* (ERA Communication) on 17 July 2012 and the setting-up of the ERA Monitoring Mechanism (EMM) to monitor progress of the implementation of ERA, the Commission continued to consolidate the EMM throughout 2013. The Commission worked in close cooperation with the newly created European Research Area Committee (ERAC) ad hoc working group on monitoring, with a view to refining the ERA indicators and related data collection methods, notably the ERA Survey.

The work on the EMM resulted in the adoption of the first ERA Progress Report in September 2013, which provides a snapshot of the situation in Member States and some Associated Countries and lays down the baseline for a full assessment of progress in the following year[5]. The 2013 ERA Progress Report was discussed during the Competitiveness Council in September 2013, where the need to accelerate structural reforms of national systems and to strengthen the monitoring of ERA progress has been reiterated. The dissemination of the 2013 ERA Progress report provided an assessment of the progress made in target areas such as open and fair recruitment of researchers or better circulation of scientific knowledge.

Moreover, the 2014 Annual Growth Survey[6] adopted in 2013 emphasised the need for Member States to adopt reforms in line with the ERA Communication and has allowed for the ERA Monitoring Mechanism and Progress Report to become fully embedded into the European Semester policy cycle.

The implementation of the ERA Communication at research stakeholders' level has been supported through the widening and reinforcing of the stakeholders' platform. A sixth organisation[7] joined the platform in July 2013. A Joint Declaration was signed by the six

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5 The 2013 ERA Progress Report was accompanied by the Facts and Figures which showed the different levels of progress towards the completion of ERA, reflecting national priorities. See: http://ec.europa.eu/research/era/era-progress-2013.htm

6 COM(2013)800 final.

7 The Conference of European Schools for Advanced Engineering Education and Research (CESAER) joined the Stakeholder Platform on 17 July 2013 as the sixth stakeholder organisation and handed over a Unilateral Statement to the Commission.

stakeholders' organisations[8] and the Commission on 13 December 2013. All organisations reaffirmed their combined commitment to achieving the goals of ERA. At the end of 2013, all stakeholders reported on the progress achieved in their commitments towards achieving ERA and provided their input into the 2013 ERA Progress Report.

The ERA Manifesto – a newly launched European Parliament initiative gathering Members of the European Parliament and research stakeholders - also provided a new impetus to the implementation of the ERA actions at the level of national authorities and research stakeholders.

6. INTERNATIONAL COOPERATION

2013 saw the first full year for the implementation of the Communication 'Enhancing and focusing EU international cooperation in research and innovation: a strategic approach'[9]. In line with the Innovation Union, the strategy seeks to strengthen the Union's excellence and attractiveness in research and innovation and in its economic and industrial competitiveness; tackle global societal challenges; and support the Union's external policies. To this end integration of the strategy into the Horizon 2020 legislative package was ensured during the inter-institutional debate. The package includes a policy for association to Horizon 2020 focusing on Enlargement, EFTA and Neighbourhood countries. Negotiations began with a number of countries in 2013, with initialling of the agreement with Israel in December.

The Strategic Forum for International S&T Cooperation reviewed and streamlined its Rules of Procedures to improve coordination of and with the Member States' international cooperation activities. The Eastern Partnership Panel on research and innovation agreed to work jointly towards the elaboration of a Joint Strategy for cooperation. At the November 2013 meeting of the EU-Africa High-Level Policy Dialogue on Science, Technology and Innovation, the parties agreed to start working towards a long-term jointly funded and co-owned research and innovation partnership with a first focus on food and nutrition security and sustainable agriculture.

The high-level meeting 'The Atlantic: A Shared Resource' was organized in Galway in May, leading to the signature of the Galway Declaration by the EU, Canada and the USA and the launch of the Transatlantic Ocean Research Alliance.

Three Destination Europe conferences were organised in the USA together with the Member States and the Associated Countries to raise awareness of the excellence of European research and the career and funding opportunities available in Europe for researchers worldwide.

In line with the goal of promoting a level playing field for cooperation and addressing framework conditions inhibiting cooperation, the first high-level meeting of the Innovation Cooperation Dialogue with China took place in November 2013 in Beijing. There was a shared interest in promoting predictable, transparent and effective framework conditions

[8] These are: European Association of Research and Technological Organisations (EARTO), the European University Association (EUA), the League of European Research Universities (LERU), NordForsk, Science Europe and CESAER.

[9] COM(2012)497

related to innovation and an Expert Task Force on Innovation Cooperation was created to identify and promote successful practices in the EU and China.

The EU-Russia Year of Science was successfully launched in November. This high-level event provided both sides to reiterate their commitment to EU-Russian cooperation in Science and Technology.

7. JOINT RESEARCH CENTRE (JRC)

The JRC is the European Commission's in-house science service and the only Commission service in charge of direct research. The JRC's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle. Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

In 2013 the JRC responded to a growing number of requests for scientific support to policy from the Commission policy services related to the EU's priorities, especially in the framework of the EU's blueprint for smart growth - Europe 2020. The JRC provided direct scientific support to thematic policy areas such as: financial stability and the Economic and Monetary Union; single market, growth, jobs and innovation; low-carbon economy, resource efficiency environment and climate change; energy and transport; agriculture and food security; health and consumer protection; information society and digital agenda; public health and safety, nuclear safety and security.

In order to manage efficiently its increasing responsibilities, the JRC has taken a more multidisciplinary and cross-sectorial approach by elaborating the first JRC Work Programme (2014-2015) within Horizon 2020, which is based on a newly designed rolling plan, and a project structure of finer granularity. Stronger innovation, combined with new international partnerships, help to address pressing global issues such as climate change, health, food security and poverty. The JRC's strengthened relations and networks with EU and international partners are crucial for global scientific excellence.

Underpinning policies with solid scientific evidence and sound analysis requires state-of-the-art infrastructure for science activities, quality data and appropriate analytical tools. As an example, a new eco-friendly and energy efficient science building was opened at the JRC's Ispra site (Italy).

8. IMPLEMENTING THE SEVENTH FRAMEWORK PROGRAMME

In 2012, the Commission launched the biggest ever set of calls for proposals under the Seventh Framework Programme (FP7). To ease the transition to Horizon 2020, there was a strong focus on actions integrating a breadth of activities, with the potential for creating a high impact. Approximately 45 calls for proposals were concluded in 2013 for a total indicative budget of EUR 4.9 billion. A total of around 20 000 eligible proposals were

received, of which nearly 3 000 were retained for funding, resulting in a success rate of nearly 15 % on a proposal basis.

A total of 67 630 applicants were involved in all eligible proposals, for total project costs of over EUR 34 billion and a total requested EU contribution of nearly EUR 28 billion. A total of 12 702 applicants were involved in the retained proposals, for total project costs of nearly EUR 6 billion and a total requested EU contribution of over EUR 4 billion. The overall success rate was 18.78 % in terms of applicants and 15.96 % in terms of EU contribution requested.

9. OUTLOOK FOR 2014

The Commission remains committed to delivering on the objectives of the Europe 2020 strategy. It is currently working on the implementation of the Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on assessing research and innovation as sources of future growth entitled "Research and innovation as sources of renewed growth".[10]

For the development of the Horizon 2020 work programme 2016-2017, a wider consultation and discussion with Member States will be among the Commission priorities. It will also take into account new intelligence on scientific, technological, economic, market, and social trends and foresight, as well as current and emerging policy needs to build on its competitive advantages and seize new opportunities.

In 2014, the Commission will also continue to deliver on the Innovation Union actions. It will present the '2010-2014 State of the Innovation Union' report, showing results and key findings. However, in the light of the on-going crisis, Europe needs to continue its efforts to make the Innovation Union a reality.

The 2013 ERA Progress Report was discussed during the Competitiveness Council in September 2013, and will pave the way for the adoption of Council Conclusions on ERA in 2014. The Commission will organise a conference following the publication of the 2014 Progress Report to be issued in September. A full assessment of progress in implementing ERA will be made through the 2014 ERA Survey, which aims at identifying implementation actions required to complete a single market for researchers, knowledge and technology. The 2014 ERA Survey will be crucial for identifying areas where progress has been made and where further efforts are required.

The Commission has furthermore launched an EU-wide consultation of all stakeholders on the lessons to be learned and on the main factors that should help it in shaping the next stages of the EU's post-crisis growth strategy for the 2015-2020 period. It will present concrete proposals in early 2015.

[10] COM(2014)339.