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COVER NOTE

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PART 1/4

COMMISSION STAFF WORKING DOCUMENT

IN-DEPTH INTERIM EVALUATION of HORIZON 2020

{SWD(2017) 221 final}
{SWD(2017) 222 final}

1. EXECUTIVE SUMMARY

This Staff Working Document represents the interim evaluation of Horizon 2020, the EU Framework Programme for Research and Innovation 2014-2020. Horizon 2020 was designed to drive economic growth and create jobs by coupling research and innovation (R&I), with an emphasis on excellent science, industrial leadership and tackling societal challenges. The general objective is to contribute to the EU's overarching jobs and growth strategy by: helping to build a society and an economy based on knowledge and innovation across the Union; by leveraging additional research, development and innovation funding; and by contributing to attaining R&I targets, including the target of 3% of GDP for R&I across the Union by 2020.

This evaluation assesses Horizon 2020's current progress towards its objectives. The findings will contribute to the last Work Programme for 2018 – 2020, will provide the evidence-base for the report of the High Level Expert Group on maximizing the impact of EU Research and Innovation programmes and will inform the design of future Framework Programmes. An interim evaluation, when the first projects have only started three years ago, has obvious limitations. Science and innovation are long term and risky endeavours creating impact that can only very partially be captured after such a short period. A monitoring system with indicators to systematically track impact (in particular for societal challenges) is found to be wanting.

Nevertheless, the interim evaluation finds that the Programme's original rationale for intervention and its objectives and challenges identified at the programme launch are still highly **relevant** also in light of new political priorities. The EU still spends too little on R&I (the 3% R&D expenditure target has not been met but Horizon 2020 only represents a small proportion of the total public R&D spending in the EU) and the innovation gap with key competitors still exists, even though performance is improving. Horizon 2020 supports cutting edge research and technological developments and has allowed for fast reactions to important developments like the Ebola outbreak and the migration surge. But the right balance still has to be found between being too prescriptive or not prescriptive enough to be able to swiftly capture disruptive technologies and business innovations. The relevance of the programme is shown by the sustained interest in its highly competitive calls: more than 30,000 proposals were submitted per year (compared to 20,000 for FP7), a third of which from newcomers. Still, more can be done to bring R&I closer to the public and further improve relevance and impact. The translation and linking of the high-level objectives into work programmes, calls, and projects could be made more systematic, transparent and participatory.

The externalisation of the most resource-intensive parts of the programme to Executive Agencies increased **efficiency** compared to FP7. It helped keep the administrative expenditure below the target of 5% of the budget. Simplification measures have greatly improved operations, notably on the time-to-grant (on average 192 days, 100 days faster than in FP7). More specific feedback to applicants would further improve the evaluation procedure. The attractiveness of the Programme led to very low success rates (11.6% compared to 18.5% in FP7), leaving some parts strongly underfunded. An additional EUR 62.4 billion would have been needed to fund all the high-quality proposals evaluated. Horizon 2020's focus on excellence leads to a high concentration of funding (both in terms of participants and geographical representation). Horizon 2020 is open to the world and has a broad international outreach, in particular through a number of multilateral initiatives; however the number of participations from third countries in Horizon 2020 projects has decreased compared to FP7.

Looking at **effectiveness**, early evidence at this very early stage of implementation indicates that progress is being made towards delivering on all Horizon 2020 objectives. Horizon 2020 is producing world-class excellence in science through for example the creation of multi-disciplinary international networks, training and mobility of researchers and the creation of research infrastructures. Support to innovation and industrial leadership has been effective with some early results on company growth, additional funding leveraged and innovations brought to the market. Horizon 2020 is already generating outputs that contribute to tackling societal challenges. However, the programme falls behind the expenditure target for sustainable development and climate change; still, this expenditure represents a considerable increase compared to FP7. Horizon 2020 is making progress, albeit slowly, in spreading excellence and widening participation and is making slight progress compared to FP7 in generating science with and for society.

Even though Horizon 2020 only represents a small proportion of total public R&D spending in the EU, new macroeconomic models estimate significant socio-economic impact from Horizon 2020 (in the order of over EUR 400 billion gained by 2030).

However, a number of factors may impede full effectiveness in terms of market uptake: technological and regulatory obstacles, lack of standards and access to finance, as well as lack of customer acceptance of new solutions. Also, while supporting established innovators, the programme has not yet been able to reach out to young, fast-growing companies. As currently designed, it is not able to identify and support new innovators that are developing breakthrough solutions at the intersection of different sectors and technologies, or that are capable of creating new markets and have the potential to scale up rapidly.

Horizon 2020, with its three pillars, has a more **coherent** structure than FP7; the use of focus areas to promote interdisciplinary solutions to multiple societal challenges is particularly supported by stakeholders. However, a large number of instruments make the landscape for EU R&I support difficult to navigate and may lead to less coherent interventions. A stronger focus on higher Technology Readiness Levels in some parts of the Programme creates concerns of diverting resources away from preparing future breakthrough innovations, albeit longer-termed ones. Despite initiatives being taken to reinforce synergies with other EU funds, notably the European Structural and Investment Funds, further coherence is hampered by the different intervention logics and complexity of the different funding and other rules such as State Aid rules. The Public-to-Public Partnerships supported by Horizon 2020 co-funding are building lasting collaborations but appear not to have been influential on Member States' policies and strategies.

Horizon 2020 produces demonstrable benefits compared to national and regional-level support to R&I in terms of scale, speed and scope, notably through the creation of trans-national, multidisciplinary networks; pooling of resources and creating critical mass to tackle global challenges. It thus increases the EU's attractiveness as a place to carry out research. Stakeholders find that Horizon 2020 has higher **added value** than other national and/or regional programmes. The programme's additionality (i.e. not displacing or replacing national funding) is very strong (83% of projects would not have gone ahead without Horizon 2020 funding). The strong and direct pan-European competition guarantees the EU added value of single beneficiary programme parts, like the SME Instrument and the European Research Council. The latter is now a beacon of scientific excellence across the world.

2. KEY DEFINITIONS, ACRONYMS AND GLOSSARY

Name or abbreviation	Description
Applicant	Legal entity submitting an application for a call for proposals.
Application	The act of involvement of a legal entity in a Proposal. A single Applicant can apply in different proposals.
ARF	Access to Risk Finance
Associated Country	Third Countries that are party to an association agreement with the European Union. They participate in Horizon 2020 under the same conditions as EU Member States. As of 1 January 2017 16 countries were Associated.[1]
CEF	Connecting Europe Facility
COFUND-EJP	European Joint Programme Cofund
COSME	European Union Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises
COST	European Cooperation On Science and Technology
cPPP	Contractual Public-Private Partnership
CSA	Coordination and Support Action
DG CONNECT	European Commission's Directorate-General for Communication Networks, Content and Technology
DG REGIO	European Commission's Directorate-General for Regional and Urban Policy (DG RE-GIO)
DG RTD	European Commission's Directorate-General for Research and Innovation
EASME	Executive Agency for Small and Medium-sized Enterprises
EESC	European Economic and Social Committee
EFSI	European Fund for Strategic Investments
EIP	European Innovation Partnership
EIT	European Institute for Innovation and Technology
ERC	European Research Council
ERCEA	European Research Council Executive Agency
ESIF	European Structural and Investment Funds
ETP	European Technology Platform
EU-13	BG - Bulgaria, LT - Lithuania, SK - Slovakia, CY - Cyprus, LV - Latvia, CZ - Czech Republic, MT - Malta, EE - Estonia, PL - Poland, HR - Croatia, RO - Romania, HU - Hungary and SI - Slovenia
EU-15	AT- Austria, BE - Belgium, DE - Germany, DK - Denmark, EL - Greece, ES - Spain, FI-Finland, FR - France, IE - Ireland, IT - Italy, LU - Luxembourg, NL - Netherlands, PT - Portugal, SE - Sweden and UK - United Kingdom
FET	Future and Emerging Technologies
FTI	Fast Track to Innovation
High Quality Pro-posal	A proposal that scores above set evaluation threshold, making it eligible for funding.
IA	Innovation Action
ICT	Information and Communication Technologies
INEA	Innovation and Network Executive Agency
JPI	Joint Programming Initiative
JRC	Joint Research Centre
JTI	Joint Technology Initiative
JU	Joint Undertaking
KIC	Knowledge and Innovation Community
KPI	Key Performance Indicators in the legal basis of Horizon 2020.
LEIT	Leadership in Enabling and Industrial Technologies
MSCA	Marie-Skłodowska-Curie Actions
Newcomer	A Horizon 2020 Participant who was not involved in a FP7 Project (not a FP7 partici-pant).
NMBP	Nanotechnologies, Advanced materials, Biotechnology and Advanced manufacturing and processing
P2P	Public to Public Partnership
Participant	Any legal entity carrying out an action or part of an action under Horizon 2020.
Participation	The act of involvement of a legal entity in a Project. A single Participant can be in-volved in multiple Projects.
PCP	Pre-Commercial Procurement
PPI	Public Procurement of Innovative Solutions
PPP	Public-Private Partnerships
Project	Successful proposals for which a Grant Agreement is "signed".
PSF	Policy Support Facility
PSF	Policy Support Facility
REA	Research Executive Agency

3. INTRODUCTION

3.1. Purpose of the evaluation

This Commission Staff Working Document presents the interim evaluation of Horizon 2020 - the Framework Programme for Research and Innovation 2014-2020 -, in line with Article 32 of the Regulation 1291/2013[2] and the Commission's Better Regulation Guidelines[3]. The interim evaluation aims to contribute to improving the implementation of Horizon 2020 in its last Work Programme 2018 – 2020, to provide the evidence-base for the report of the High Level Expert Group on maximizing the impact of European Research and Innovation Framework programmes and to inform the design of future Framework Programmes. It assesses progress made towards achieving the objectives of Horizon 2020, the efficiency and use of resources, its continued relevance; the coherence within the Horizon 2020 and with other instruments and its EU added-value.

3.2. Scope of the evaluation

The interim evaluation of Horizon 2020 covers the entire Horizon 2020 programme and its specific programme, including the European Research Council (ERC) and activities of the European Institute of Innovation and Technology (EIT) with the exception of public-public partnerships (initiatives based on Article 185 of the Treaty), public-private partnerships (initiatives based on Article 187 of the Treaty), activities of the European Institute of Innovation and Technology, and the Euratom Framework Programme. While references are made to those initiatives in this evaluation, this is done without prejudice to the forthcoming separate dedicated interim evaluations of those initiatives.[4] Joint Research Centre (JRC) direct actions are part of the EC and Euratom Framework Programmes, but are evaluated separately. The interim evaluation covers the first half period of Horizon 2020 implementation (2014 - 2016 included). Furthermore, it reports on the wider impacts of the previous European Framework Programmes, with a longer-term perspective.

4. BACKGROUND TO THE INITIATIVE

4.1. Description of the initiative and its objectives

Summary box: Key features of Horizon 2020

- An EU research and innovation Framework Programme that is unique in the world in terms of budget (about EUR 80 billion, the largest Framework Programme budget ever), duration (7 years), budgetary framework stability, and scope (research plus innovation; grants as well as loans, equity, and procurement; broad top-down thematic coverage as well as bottom-up blue sky research; trans-national, cross-sectoral, inter-disciplinary collaboration, mobility, coordination).
- Pursuing an ambitious general objective of 'building a society and economy based on knowledge and in-

[2] See Annex 2 for an overview of the elements covered by this provision.
[3] More information here: http://ec.europa.eu/smart-regulation/guidelines/toc_guide_en.htm
[4] The European Institute of Innovation and Technology, the Euratom Framework Programme and the Article 185 and 187 initiatives have a separate legal base and will be covered by self-standing interim evaluations in separate Staff Working Documents to be published in the second half of 2017.

novation'.

- A simple structure, aligned with the specific objectives, comprising three pillars: 'Excellent science'; 'Industrial leadership'; 'Societal challenges' and two additional priorities
- With a built-in innovation and impact orientation (challenge-based approach; funding all the way from lab to market; enhanced business and SME involvement; impact-oriented call texts; expected impact to be spelled out in proposals; impact looked at in evaluation; regular reporting and monitoring).
- Excellence as guiding principle and main evaluation and selection criterion.
- Allocation of funding through a strategic programming process and two-year work programmes.
- Wide range of instruments and actions.

Research is a shared competence between the European Union (EU) and Member States[5]. The Framework Programmes are the EU's main instruments for the funding of research and innovation (R&I) in Europe. Horizon 2020 is the eighth EU's Framework Programme for research and innovation for the period 2014 – 2020 with a budget of nearly EUR 80 billion, bringing together EU level research and innovation funding into a single programme, covering the scope of the 7th Framework Programme (FP7), the innovation activities from the former Competitiveness and Innovation Framework Programme (CIP), as well as EU funding to the European Institute of Innovation and Technology.

Its general objective is "to contribute to building a society and economy based on knowledge and innovation across the Union by leveraging additional research, development and innovation funding and by contributing to attaining research and development targets, including the target of 3% of Gross Domestic Product (GDP) for research and development (R&D) across the Union by 2020. It shall thereby support the implementation of the Europe 2020 strategy and other Union policies, as well as the achievement and functioning of the European Research Area (ERA)". [6]

It is structured around three pillars ('mutually reinforcing priorities'): excellent science, industrial leadership and societal challenges, each having their own specific objectives and broad lines of actions. It has two additional priorities 'Spreading excellence and widening participation' and 'Science with and for society' with their own broad lines of actions. Furthermore, the JRC and EIT are expected to contribute to the general objectives and priorities.

When Horizon 2020 was adopted, this single framework integrating research, education[7] and innovation aspects was expected to deliver enhanced scientific, technological and innovation impacts

Figure 1 Structure of Horizon 2020

Source: European Commission

[5] Article 4(3) Treaty on the Functioning of the European Union
[6] Article 5, Regulation 1291/2013/EC establishing Horizon 2020.
[7] A big part of the European action related to education is covered by ERASMUS+ and is thus outside Horizon 2020.

which would translate into larger downstream economic, competiveness and social impacts as well as environmental and EU policy impacts.
SMEs were expected to benefit in particular from administrative simplification and closer knowledge triangle coordination particularly concerning research and innovation finance. Horizon 2020 also integrates a major simplification and standardisation of funding schemes and implementing modalities across all areas. Its far-reaching integration, simplification and harmonisation were expected to reduce costs for the European Commission and for applicants. A set of cross-cutting issues (such as gender equality, social sciences and humanities, international cooperation, responsible research and innovation, widening participation, sustainable development, biodiversity and climate action, digital agenda, SME and broader private sector participation) are promoted across Horizon 2020 to develop new knowledge, key competences and major technological breakthroughs as well as to improve the conduct and openness of R&I and translate knowledge into economic and societal value.[8]

The following five specific objectives of Horizon 2020 were identified in its impact assessment:

- Strengthen Europe's science base by improving its performance in frontier research, stimulating future and emerging technologies, encouraging trans-national training and career development, and supporting research infrastructures;
- Boost Europe's industrial leadership and competitiveness through stimulating leadership in enabling and industrial technologies, improving access to risk finance, and stimulating innovation in SMEs;
- Increase the contribution of research and innovation to the resolution of key societal challenges;
- Provide customer-driven scientific and technical support to EU policies;
- Help to better integrate the knowledge triangle — research, researcher training and innovation.

To reach the specific objectives, the following operational objectives have been set in its impact assessment:

- Increase the efficiency of delivery and reduce administrative costs through simplified rules and procedures adapted to the needs of participants and projects;
- Create transnational research and innovation networks (knowledge triangle players, enabling and industrial technologies, in areas of key societal challenges);
- Support the development and implementation of research and innovation agendas through public-private partnerships;
- Strengthen public-public partnerships in research and innovation;
- Support market uptake and provide innovative public procurement mechanisms;
- Provide attractive and flexible funding to enable talented and creative individual researchers and their teams to pursue the most promising avenues at the frontier of science;
- Increase the transnational training and mobility of researchers;
- Provide EU debt and equity finance for research and innovation;
- Promote world-class research infrastructures and ensure EU-wide access for researchers;

[8] Annex 1 Regulation (EU) No 1291/2013

- Ensure adequate participation of SMEs;
- Promote international cooperation with non-EU countries.

For the purpose of the evaluation, the intervention logic of Horizon 2020 was reconstructed based on programming documentation (see Figure 2). It describes the links between the problems to be tackled, the objectives to be achieved, the activities and the expected impacts[9]. It distinguishes between outputs (the direct products from the actions, such as reports, trained researchers, demonstrators, prototypes, new infrastructures), results (that relate to benefits for direct beneficiaries from their participation) and impacts (the wider effects of Horizon 2020), which are categorised into three main categories: scientific impact, innovation/economic impact and societal impact. The analysis of progress performed for this interim evaluation is made according to these main strands of impacts based on the information available so far.

In addition detailed intervention logics were developed for each specific objective of Horizon 2020 to support the in-depth 'thematic' assessments of each programme part that are available in Annex 2. All references in this document to "Annex 1" or "Annex 2" refer to the Annexes of the Interim Evaluation of Horizon 2020 Staff Working Document.

Box: Expected impacts of Horizon 2020

Scientific impact:

- The '*EU world-class excellence in science'* and the '*Emergence of new technologies or fields of science in the EU*' are both long-term impacts in the sphere of R&I, building typically upon long-term research efforts and consolidated - while sufficiently open - long-term partnerships in research.
- *'Better trans-national and cross-sector coordination and integration of R&I efforts*' refers to impacts in the sphere of R&I deriving from the creation of effective and long-lasting knowledge networks and linkages between the various stakeholders in research, education, and industry at European level as well as the creation of synergies and complementarities between R&I policies at the European, national and regional levels.

Innovation/ economic impact:

- '*Diffusion of innovation in the economy generating jobs, growth and investments'* and '*Strengthened competitive position of European industry'* cover the 'innovation' impacts in the economic sphere. The diffusion of innovation should strengthen the competitive positioning of industry; from a longer-term perspective, a critical factor is also the relevant knowledge capital in society (absorptive capacities) reflected in the "*Better innovation capabilities of EU firms*"., deriving also from, for example, standardisation efforts and the strengthening of the Single Market or the development of policies and regulations that are coherent at European level.

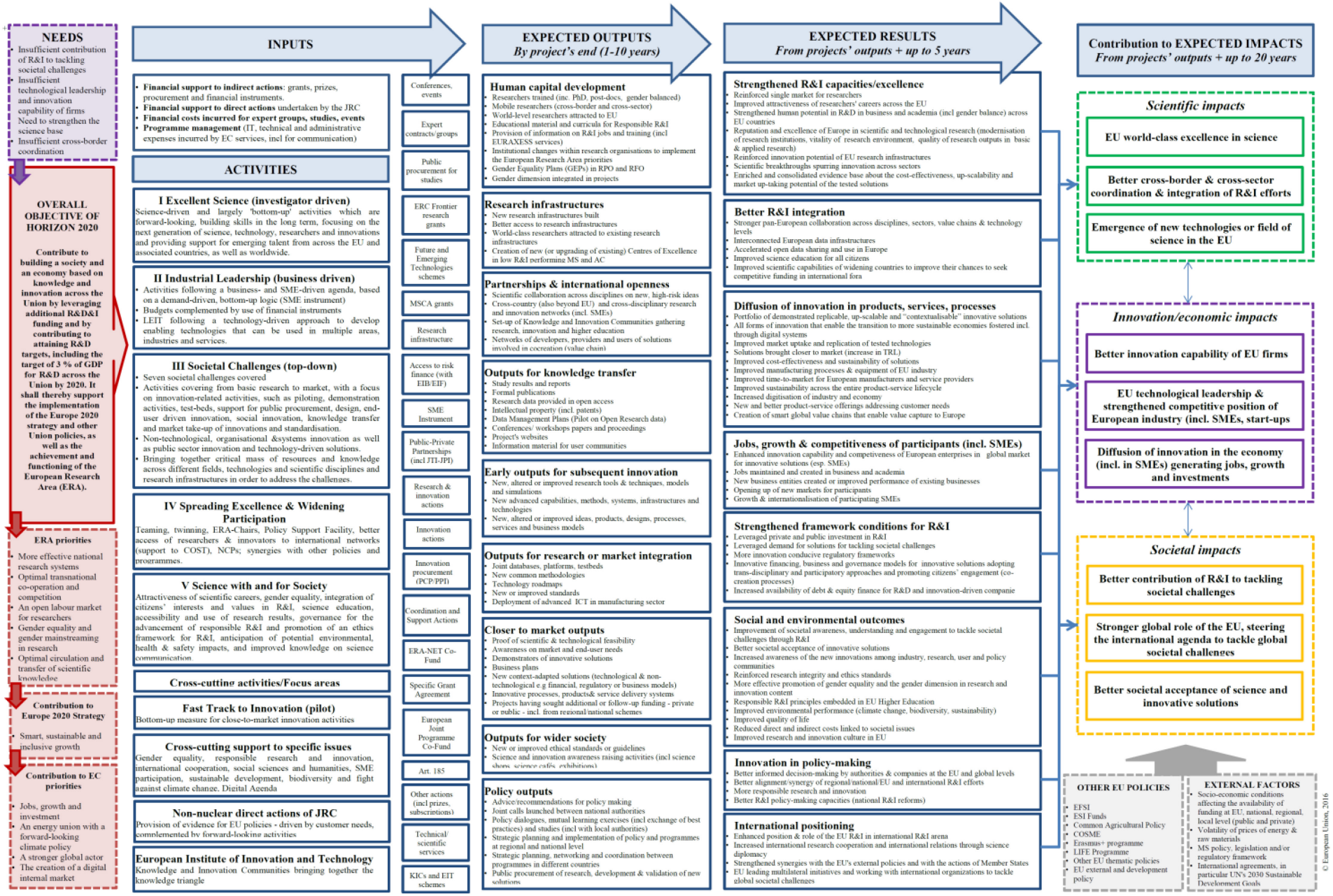
Societal impact:

- *'Better contribution of R&I to tackle societal challenges'* focuses on the impacts of R&I on issues such as quality of life, health, environmental protection, social inclusion, etc.
- '*Stronger global role of the EU, steering the international agenda to tackle global societal challenges'* focuses on the international positioning and influence of EU R&I on issues of global societal relevance.

[9] The intervention logic is based on the following documents: The Horizon 2020 Regulation that defines the general and specific objectives, priorities, budget and principles for the management of the programme; The Council Decision establishing the specific programme implementing Horizon 2020 ('Specific Programme'); The Horizon 2020 Impact Assessment that establishes and assesses the problem definition, objectives and options of the programme; The Work Programmes 2014-2015 and 2016-2017, which detail the activities undertaken so far.

- '*Better societal acceptance of science and innovative solutions'* refers to the role of R&I for supporting policy-making in line with citizen needs and the acceptance and take-up of R&I results by society (also based on broader involvement of society in R&I).

Figure 2 Horizon 2020 Intervention Logic



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Needs coming from H2020 Impact Assessment, **Overall objective** of H2020 coming from Horizon 2020 establishment act Regulation (EU) No 1291/201; **Inputs** coming from Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Article 10); **Activities** coming from Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Annex 1, page 123 and following); **Types of outputs, results and impacts expected** regrouped based on Horizon 2020 establishment act Regulation (EU) No 1291/2013 (Annex 1, page 123 and following), Horizon 2020 specific programme Council Decision (2013/743/EU) + Annexes and Work Programmes 2014-2015 and 2016-2017

4.2. Baseline

When Horizon 2020 was conceived, Europe was facing a series of major challenges that centred on low growth rates, a diverse set of environmental, social and technological challenges, decreasing industrial competitiveness and persistent structural weaknesses hampering innovation. Science and innovation were identified as the key factors in helping Europe move towards smart, sustainable and inclusive growth, while also helping to tackle major societal challenges.[10]

The three pillars structure of Horizon 2020 reflects the set of issues identified as underlying the Europe's innovation gap: the insufficient contribution of research and innovation to tackling societal challenges; the insufficient technological leadership and innovation capability in the private sector; the need to strengthen the science base and insufficient trans-national coordination. A detailed analysis of the situation at the programme launch is provided under the Relevance section.

In many respects, Horizon 2020 constitutes a decisive break with the past. Before Horizon 2020, EU funding for research, education and innovation was covered by separate EU programmes (FP7, the innovation-related part of the Competitiveness and Innovation Programme (CIP), and the European Institute of Innovation and Technology (EIT)), with different rules and implementation modalities. The following box provides an overview of the main changes from FP7 to Horizon 2020 as well as the key expectations resulting from the changes of focus between FP7 and Horizon 2020. Where relevant and possible, the performance of FP7 and these expectations are used as a baseline in this evaluation. An overview of the results and impacts generated through FP7 is provided in Section 11.

Summary box: From FP7 to Horizon 2020

Recommendations from FP7 ex-post evaluation[11]	Horizon 2020
Focus on critical challenges and opportunities in the global context	➢ focuses on society's major challenges ➢ boosts private sector participation, including SMEs ➢ maximises synergies between different areas of research and innovation and new digital technologies
Align research and innovation instruments and agendas in Europe	➢ seeks to support the alignment of national research strategies ➢ better coordinates with EU regional funding ➢ helps EU countries reform their research and in-novation strategies ➢ identifies obstacles to research and innovation ➢ ensures that research proposals support innovation
Integrate different sections of research funding programmes more effectively	➢ focuses on better consistency across the funding programme ➢ ensures cross-cutting issues are considered ➢ simplifies access to research and innovation funding ➢ applies single set of rules consistently ➢ coordinates effectively across the Commission in managing funding
Bring science closer to citizens	➢ better communicates to the general public on science issues in general and on Horizon 2020 in particular ➢ strengthens open access to research publications and data ➢ involves citizens in research strategy and topics
Establish strategic programme monitoring and evaluation	➢ better monitors and evaluates funding and socioeconomic impacts ➢ improves feedback loop from project results to policy making

[10] Introduction to Horizon 2020 Ex-Ante Impact Assessment Report (COM/2011/808)
[11] European Commission, Commitment and Coherence – Ex-Post Evaluation of the 7th EU Framework Programme, Report from the high-level Expert Group, 2016, https://ec.europa.eu/research/evaluations/index_en.cfm

Main novelties of Horizon 2020 compared to FP7

- A single programme for all EU managed research and innovation funding, with a single set of participation rules.
- Full integration of innovation in the programme, meaning more support that is closer to market application (e.g. demonstration, support for SMEs, innovation services, venture capital)
- A focus on the major societal challenges Europe and the world face. This means bringing together different technologies, sectors, scientific disciplines, social sciences and humanities, and innovation actors to find new solutions to these challenges.
- Radically simplified access for participants, including a single web portal for all information and projects, less paper work to make applications, and fewer controls and audits.
- A more inclusive approach with specific actions to ensure excellent researchers and innovators from all European regions can participate, and reinforced support for partnerships with the private sector and with the public sector in order to pool resources and build more effective programmes.
- At the same time, successful elements from FP7 are being scaled up, such as the European Research Council and trans-national collaborative projects.

Main elements of continuity/strengthening of successful elements from FP7

- The *European Research Council,* which had in a few years' time become the point of reference for excellent frontier research in Europe and which has therefore been significantly strengthened;
- The *Marie Curie actions* for training, mobility and career development of researchers and the research infrastructure actions;
- The *collaborative research actions* which have been at the heart of the successive Framework Programmes for Research and are under Horizon 2020 extended to innovation aspects such as market-replication, demonstration, involvement of users, design, intellectual property and standardisation issues;
- The *financial instruments* of both FP7 and the CIP which have been met with great demand and which have been shown to be particular valuable in a time in which debt and equity financing have been severely constrained;
- *Demand side measures* to stimulate innovation (in particular public procurement of innovative solutions), support through clusters, IPR management and exploitation, SME innovation capacity support, stemming from the CIP.
- While aligning with the strategy of Horizon 2020, the *European Institute of Innovation and Technology* maintains its mission: integrating the knowledge triangle and experimenting with new approaches for innovation, notably involving the business community.

Main expectations from Horizon 2020 compared to a continuation as in FP7 (based on the Impact Assessment of Horizon 2020 performed in 2012)

- As under FP7, Horizon 2020 is expected to achieve critical mass at programme and project level. At the same time, it is expected to enhance the promotion of scientific and technological excellence and allow for more flexibility.
- Administrative costs for applicants and participants are expected to reduce drastically, which is expected to significantly improve accessibility, in particular for SMEs, and increase levels of support from all types of stakeholders.
- Knowledge triangle and broader horizontal policy coordination is expected to be enhanced through a single framework integrating, research, innovation, and researcher training and skills development, and explicitly defining links with other policies.
- Scientific, technological and innovation impacts are expected to be enhanced through the provision of seamless support from scientific idea to marketable product, stronger output orientation, better dissemination of research results, clearer technological objectives, enhanced industrial and SME participation and, thus, enhanced leverage, funding of demonstration activities, and provision of innovation financing and support.
- In combination with clarity of focus and high-quality intervention logic, enhanced scientific, technological and innovation impacts are expected to translate into larger downstream economic and competiveness, social, environmental and EU policy impacts.

4.3. Evaluation questions

In line with the 'Better Regulation' guidelines, this interim evaluation addresses evaluation questions under each of the sections, which are structured around the five evaluation criteria of relevance, efficiency, effectiveness, coherence and EU added value.

- **Relevance:** assessment of whether the original objectives of Horizon 2020 are still relevant and how well they still match the current needs and problems;
- **Efficiency:** the relationship between the resources used by Horizon 2020 and the changes it is generating;
- **Effectiveness:** how successful Horizon 2020 has been in achieving or progressing towards its objectives;
- **Coherence:** how well or not the different actions work together, internally and with other EU interventions/policies;
- **EU added value:** assessment of the value resulting from Horizon 2020 that is additional to the value that could result from interventions which would be carried out at regional or national levels.

Figure 3 Evaluation questions and sub-questions

Main evaluation questions	Sub-questions per evaluation criteria
How relevant has Horizon 2020 been so far?	➢ Is Horizon 2020 tackling the right issues? ➢ Does Horizon 2020 allow adapting to new scientific and socio-economic developments? ➢ Is Horizon 2020 responding to stakeholder needs?
How efficient has Horizon 2020 been so far?	➢ How efficient are the programme management structures? ➢ How efficient are the communication and application processes? ➢ How efficient is the distribution of funding? ➢ To what extent is Horizon 2020 cost-effective?
How effective has Horizon 2020 been so far?	➢ What is the progress made towards achieving scientific impact? - What is the progress made on strengthening R&I capacities, reputation and scientific excellence? - What is the progress made on improving R&I integration? - What is the contribution of Horizon 2020 to the achievement and functioning of the European Research Area ➢ What is the progress made towards achieving innovation and economic impact? - What is the progress made on advancing knowledge, IPR and knowledge transfer? - What is the progress made on reinforcing framework conditions for R&I? - What is the progress made on delivering close to market outputs and diffusing innovation in products, services and processes? ➢ What is the progress made towards achieving societal impact? - What is the progress made on tackling societal challenges? - What is the progress made on generating science with and for society? - What is the progress made on generating science for policy? ➢ What is the overall progress of Horizon 2020 towards its general objective?
How coherent has Horizon 2020 been so far?	➢ To what extent is Horizon 2020 coherent internally? ➢ To what extent is Horizon 2020 coherent with other EU initiatives, in particular the European Structural and Investment Funds (ESIF) and the European Fund for strategic Investment (EFSI)? ➢ To what extent is Horizon 2020 coherent with other initiatives at national, regional and international level?
What is the European added value of Horizon 2020 so far?	➢ What is the European added value of Horizon 2020 compared to national and/or regional levels?

4.4. Method

Contrary to the ex-post evaluation of FP7, the predecessor programme, the interim evaluation has not been carried out by one external expert group, but has been coordinated by the Evaluation Unit of the Commission's Directorate-General for Research & Innovation, with the support of a Working Group and an Inter-Service Group comprising other Commission services. The interim evaluation started in April 2016 and has been guided by Terms of Reference adopted by the Commission after a vote by the Member States' Programme Committee. It has been based on the following data sources: [12]

- Monitoring reports of Horizon 2020 and statistical data mainly from the Commission's internal IT Tools as well as Eurostat/OECD data;
- Extensive analysis carried out by the responsible Commission services on the different programme parts of Horizon 2020 ('thematic assessments'[13]), on the 15 cross-cutting issues, on the Horizon 2020funding model and various Horizon 2020 instruments/actions (Article 185/187 initiatives, Fast Track to Innovation, SME Instrument EIT), on participating companies' profiles (ORBIS data), on the New Management modes (based on external evaluations of agencies and internal data), on participations' networks (with the JRC). Most internal assessments benefitted from the support from external expert groups/studies as well as dedicated surveys of beneficiaries.
- External horizontal studies covering the entire Horizon 2020 programme on publications and networking based on Scopus data (Elsevier, forthcoming), the financing of participating companies (Grimpe et al, 2017); on the EU Added Value and economic impact of the Framework Programme (PPMI, forthcoming) - which included a representative survey of Horizon 2020 project coordinators, counterfactual analysis and macro-economic modelling -; and the work of an Expert Group on Evaluation Methodologies using text- and data mining tools to investigate the relevance and impact of the Framework Programme[14];
- Data from other EU Institutions such as the Conclusions on the Interim Evaluation of the Council, work of the ITRE committee of the European Parliament, relevant Court of Auditors' reports and reports/evaluations of the European Economic and Social Committee.

Input from various stakeholder consultations was used to contextualise the findings, in particular the NCP surveys launched in the context of the Horizon 2020 Annual Monitoring reports, the Simplification Survey, the Call for Ideas on the European Innovation Council and the stakeholder consultation on the Interim Evaluation of Horizon 2020 to which more than 3,500 stakeholders replied and more than 300 stakeholder position papers were submitted.[15]

Limitations – robustness of findings

[12] Further details on the methodologies adopted for this interim assessment and results are provided in Annex 1.
[13] Methods used for the 18 in-depth 'thematic assessments' include: expert groups, case studies, surveys, interviews, text mining, statistical analysis, documentary reviews, internal assessments, bibliometric analysis, patent analysis, Social Network Analysis. All 'thematic assessments' are available in Annex 2.
[14] European Commission Expert group on evaluation methodologies for the interim and ex-post evaluations of Horizon 2020, Applying relevance-assessement methodologies to Horizon 2020 (forthcoming report)
[15] A full analysis of the stakeholder consultation (both the questionnaire and the position papers) is provided in Annex – Part 2. The SWD summarises key stakeholder input to dedicated topics. Input received from stakeholders in position papers is highlighted in blue boxes throughout the SWD.

The main limitation of this interim evaluation concerns its timing: it is taking place only three years after the beginning of Horizon 2020, while most projects have only just started (projects completed at time of this evaluation represent 0.6% of funding allocated so far). Whereas for some actions effects may be expected within a short-term period, such as an increase in private R&D investment, this period is too short for many results and wider impacts to emerge. Some lower risk actions have many incremental and short term effects – easier to capture and to report on - whereas long term or high risk actions (such as fundamental research) might bear more radical effects in the longer term (e.g. 20-30 years) and have effects more difficult to capture through usual indicator systems (e.g. the general advancement of knowledge).

Limitations include issues related to data availability and measurability of outcomes (for example, most Horizon 2020 indicators focus on input/outputs but not on results and impact in particular the indicators to track progress on the societal challenges are not challenge specific, i.e. they relate to classical outputs from R&I projects - publications, patents, prototypes - but not to their impacts on e.g. decreasing CO2 emissions, improving health of citizen, or their security, often on the longer term), aggregation (for example monitoring data covering the entire programme comes from various data sources, which are difficult to aggregate) and reliability of certain data (for example data on patents and publications are for many parts of the programme based on self-reporting by project coordinators; data on the cross-cutting issues like gender and social sciences and humanities is based on flagging by project officers). It has also not always been possible to validate findings from external studies/expert groups, for example with respect to macro-econometric modelling results.

Another limitation is the lack of benchmarks to compare performance. Worldwide there is no programme similar to Horizon 2020 in terms of size, thematic coverage and depth: the EU Framework Programmes are rather unique in their form, covering R&I aspects from fundamental research to close-to-market innovation, from programmed topics in specific thematic areas to fully bottom-up blue-sky science. Also, the R&I performance of countries is influenced by many other factors than Horizon 2020 only. The performance of Horizon 2020 should thus be seen in the context of its role in the wider R&I support system in particular as regards its positioning against (and impact on) the national and regional policy initiatives.

To overcome/mitigate these limitations, the interim evaluation is transparent in indicating its data sources and all underlying data sources are made publicly available. The analysis of the evidence by Commission services has allowed identifying data availability/quality problems that could already be overcome over the course of the evaluation. Conclusions are drawn based on the systematic triangulation of evidence from various data sources. All evaluation results have been systematically checked against input from stakeholders. Whenever possible (i.e. in the case of the analysis of participation patterns), FP7 was used as a benchmark.

5. IMPLEMENTATION STATE OF PLAY

5.1. Overview of implementation processes, inputs and activities

The Commission is responsible for programming R&I policy, and in particular the content of the Work Programmes. While the Horizon 2020 legislation sets out the broad lines of action and the budget envelope, the Work Programmes define the priorities for each year as well as the details of the calls for proposals. The priority-setting process and the topics covered under the Work Programmes for each programme part are discussed in depth in Annex 2.

Compared to FP7, the Commission took a **new approach to implementing Horizon 2020.** The strategic programming is the process to shape Horizon 2020's work programmes so that they are forward-looking, responds to new developments, covers the full research and innovation cycle, and contributes significantly towards the EU's overall policy objectives.[16] It also sequences the specific objectives of the Horizon 2020 parts into two-year work programmes and aims to provide for a coherent implementation of the multi-annual approach and strategic orientations.

Following the opinion of the Programme Committee, consisting of Member State representatives, the Work Programme is formally adopted by the Commission. Reacting to calls for proposals, applicants from industry, academia and other players submit project ideas that are evaluated by panels of independent experts. The two-year work programmes is expected to give researchers and businesses more certainty on the direction of EU research and innovation policy. At the same time the strategic programming is expected to allow flexibility in the redefinition of priorities and the response to pressing needs. To make funding flexible and to counterbalance the possible rigidity of the two-year work programmes there is room for Work Programme updates to be issued if necessary and as in this case to activate an emergency procedure to swiftly allocate funds to a particular purpose. [17]

On the implementation side, continuing the trend for **externalising implementation** to Executive Agencies, which began under FP7, four Agencies are responsible for the operational and programme management tasks across most of the programme[18]. For specific parts of the programme, management is carried out through different forms of partnership (Public-Private Partnerships (PPP) and Public To Public Partnerships (P2P)), where the Commission's involvement is at arm's length.

As an evolution to FP7, Horizon 2020 is based on a **broad innovation and impact orientation**, which is not limited to the development of new products and services based on scientific and technological results, but which also incorporates the use of existing technologies in novel applications, continuous improvement, non-technological and social innovation. It includes activities closer to the market and to end-users (e.g. prototyping, testing, demonstrating, piloting, product validation, and market replication) and demand-side approaches. To this purpose, it deploys new types of action: the SME Instrument, innovation actions, innovation procurement and inducement prizes.

Figure 3 provides an illustration of the **different types of actions** used under Horizon 2020. Whereas the bulk of the budget is granted to collaborative R&I projects (most specifically through Research and Innovation Actions and Innovation Actions) support to individual applicants is provided under the European Research Council (ERC) grants, Future and Emerging Technologies (FET) schemes, Marie Skłodowska-Curie Actions (MSCA) and under the SME instrument. Other types of actions include the procurement of innovative solutions (Pre-commercial procurement for innovation (PCP), Public Procurement of Innovative solutions (PPI)), public-public partnerships (including ERA-NET Co-funds, Article 185), public-private partnerships (including Joint Technology Initiatives, contractual Public-Private Partnerships), inducement prizes and financial instruments. Coordination, support and other actions are used

[16] OJ, L 347, p. 974.
[17] As it happened during the Ebola crisis, see section 6.2
[18] Four Executive Agencies are part of the Research family: the Executive Agency for Small and Medium-sized Enterprises (EASME), the European Research Council Executive Agency (ERCEA), the Innovation and Networks Executive Agency (INEA) and the Research Executive Agency (REA).

for studies, expert groups, conferences, as wells as for disseminating and exploiting results. Such grants are also used to underpin R&I policy initiatives (e.g. Policy Support Facility, Belmont Forum, and Innovation Deals). There is also support to communication measures, including to the public at large. A special form of collaborative projects is also piloted, the Fast Track to Innovation, focusing on industrial actors, and rapid turn-around. Also, the Commission undertakes direct actions in the form of R&I activities through its Joint Research Centre.

Figure 4 Types of actions in Horizon 2020

Type of action and objectives pursued	Target Groups	Changes to FP7
COLLABORATION-BASED GRANTS		
Research and Innovation Actions (RIA): Action primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. It may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment **TRL covered[20]: Defined in the Work Programme where appropriate (normally 3-6 in RIAs)**	Consortia of partners from different countries, industry and academia	Changes to funding model and further focus on innovation
Innovation Actions (IA): Actions primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication. They are used for areas where the scientific and technology insights are available and the focus shifts to turning these into applications. **TRL covered: Defined in the Work Programme where appropriate (normally 6-8 in IAs)**	Consortia of partners from different countries, industry and academia	New action and changes to funding model
Fast track to innovation (IA): Continuously open, innovator-driven calls will target innovation projects addressing any technology or societal challenge field	Consortia of partners from different countries	New action
European Joint Programme Cofund (COFUND-EJP): Support to coordinated national research and innovation programmes in implementing a joint programme of activities (ranging from research and innovation activities to coordination activities, training activities, dissemination activities and financial support to third parties)	Independent legal entities from Member States or Associated Countries owning or managing national research and innovation programmes	New action
ERA-NET-Cofund: Support public-public partnerships in their preparation, establishment of networking structures, design, implementation and coordination of joint activities as well as Union topping-up of a trans-national call for proposals	Independent legal entities from Member States or Associated Countries owning or managing national R&I programmes	-
Pre-Commercial Procurements (PCP): PCP actions aim to encourage public procurement of research, development and validation of new solutions that can bring significant quality and efficiency improvements in areas of public interest, whilst opening market opportunities for industry and researchers active in Europe	EU funding for a group of procurers ('byers group') to undertake together one joint PCP / PPI procurement	-

[19] The forms of funding provided in the Financial Regulation are grants, prizes, procurement and financial instruments (debt and equity). Horizon 2020 grants may reach a maximum of 100% of the total eligible costs, without prejudice to the co-financing principle; the grant shall be limited to a maximum of 70% for innovation actions and programme co-fund actions (except for non-profit legal entities where 100% rate applies). Indirect eligible costs shall be determined by applying a flat rate of 25%.

[20] The definition of TRL levels is not a precondition for most of the actions, except if mentioned in the Work Programme (only for RIA and IA).

Type of action and objectives pursued	Target Groups	Changes to FP7
Public Procurement of Innovative solutions (PPI): PPI actions enable groups of procurers to share the risks of acting as early adopters of innovative solutions, whilst opening market opportunities for industry	EU funding for a group of procurers ('buyers group') to undertake together one joint PCP/PPI procurement	-
Coordination and Support Actions: Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of networking and coordination between programmes in different countries	Single entities or consortia of partners from different countries	-
MSCA ITN: ITN supports competitively selected doctoral(-level) programmes, implemented by partnerships of universities, business and other RPOs across Europe and beyond. Partnerships take the form of collaborative European Training Networks (ETN), European Industrial Doctorates (EID) or European Joint Doctorates (EJD).	Consortia of partners from different countries who recruit early stage researchers (of any nationality), i.e. PhD candidates	
MSCA RISE: The Research and Innovation Staff Exchanges (RISE) support international and inter-sectoral collaboration through research and innovation staff exchanges, and sharing of knowledge and ideas from research to market (and vice-versa).	Consortia of partners from different countries who exchange staff (early stage and experienced researchers, technical staff)	
MONOBENENEFICIARY GRANTS		
Marie Skłodowska-Curie Actions (MSCA) Individual Fellowships (IF)**):** support experienced researchers undertaking mobility between countries, and where possible to the non-academic sector.	Experienced researchers (of any nationality)	-
MSCA COFUND: Aims at stimulating regional, national or international programmes (fellowship or doctoral programmes) to foster excellence in researchers' training, mobility and career development, spreading the best practices of MSCA	Independent legal entities from Member States or Associated Countries owning or managing national R&I programmes	-
ERC Frontier Research: Funding for projects evaluated on the sole criterion of scientific excellence in any field of research, carried out by a single national or multinational research team led by a 'principal investigator'	Excellent young, early-career researchers, already independent researchers and senior research leaders. Researchers can be of any nationality and their project in any research field	-
SME Instrument Phase 1 (IA): The SME Instrument is targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise. It provides staged support covering the whole innovation cycle in three phases complemented by a mentoring and coaching service. Phase 1 – feasibility study verifying the technological/practical as well as economic viability of an innovation idea/concept	Only SMEs can participate. Either a single SME or a consortium of SMEs established in an EU or Associated Country	New action
SME Instrument Phase 2 (IA): Phase 2 – innovation projects that address a specific challenge and demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan	Only SMEs can participate. Either a single SME or a consortium of SMEs established in an EU or Associated Country	New action
Specific Grant Agreement (SGA): The Financial Regulation provides the possibility of *Framework Partnership Agreements* for long term partnerships and associated specific grant agreements. Framework Partnership Agreements and Specific Grant Agreements have been used in a limited way when in line with the objectives of the programme parts		-
NON-GRANT ACTIONS		
Prizes: Financial contribution (lump-sum) given as reward following a contest. Prizes are a 'test-validate-scale' open innovation approach that brings together new-to-industry players and small players that	Whoever can most effectively meet a defined challenge	New action

Type of action and objectives pursued	Target Groups	Changes to FP7
may pursue more radically new concepts than large, institutionalized contestants. Inducement prizes offer an incentive by mobilising new talents and engaging new solver communities around a specific challenge. They are only awarded based on the achievement of the target set, solving the challenge defined.		
Public-Public Partnerships also provided via the Article 185 initiatives: Article 185 of the TFEU allows the integration of national efforts into a programme undertaken jointly by several Member States, with the participation of the EU, including participation in the structures created for the execution of the joint programme.	EU Member States	-
Public-Private Partnerships: Support the development and implementation of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership or to address specific societal challenges. They take the form of Joint Undertakings under Article 187 of the TFEU and organise their own research agenda. **Also c**ontractual PPPs are supported.	Partnerships between public and private sector	-
Public Procurement: Supply of assets, execution of works or provision of services against payment	By means of tenders and subject to special procurement procedures	
Financial instruments: Equity or quasi-equity investments; loans; guarantees; other risk-sharing instruments. Horizon 2020's financial instruments operate in conjunction with those of COSME. Strong synergies shall be ensured with the European Fund for Strategic Investments (EFSI) to create the maximum possible impact. Shall be the main form of funding for activities close to market under Horizon 2020.	FI are not directly implemented by the Commission (nor via the WP), but via EIB/EIF.	Replacing RSFF

Source: European Commission

5.2. Overview of implementation status after three years

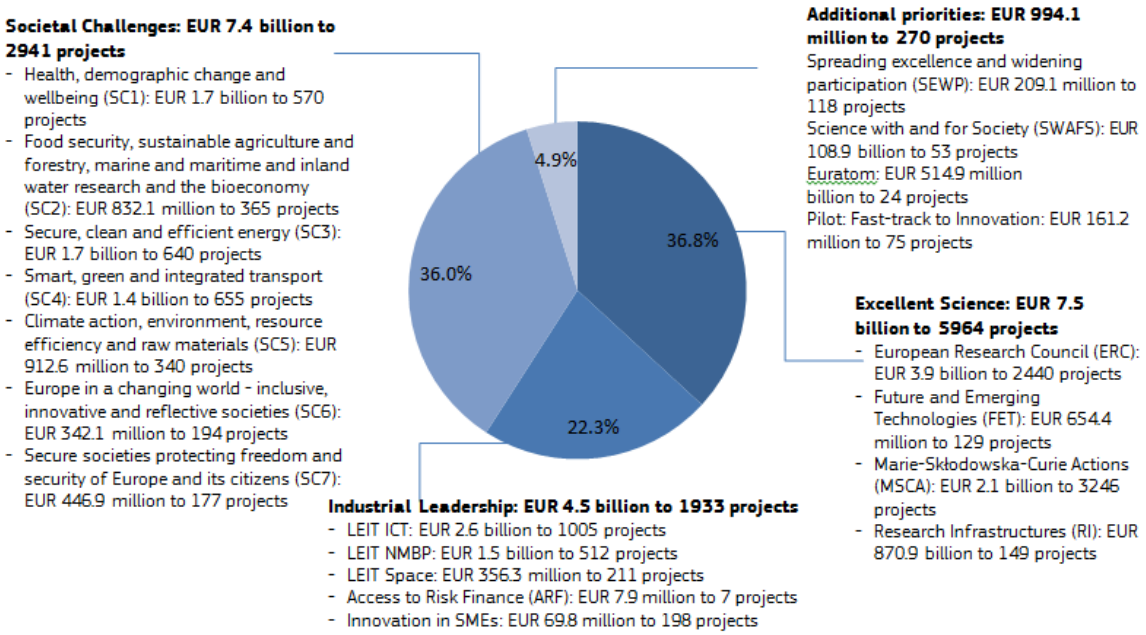
The Commission monitors the implementation of Horizon 2020 through annual monitoring reports[21], based on Horizon 2020 Key Performance Indicators (KPI).[22] The overall budget of Horizon 2020 is EUR 74.8 billion[23]. As of 1 January 2017, EUR 20.4 billion has been allocated to 11,108 signed grants.[24] As shown in the following Figure EUR 7.5 billion was allocated in Pillar 1: Excellent Science (36.8%), EUR 4.5 billion to Pillar 2: Industrial Leadership, EUR 7.4 billion to Pillar 3: Societal Challenges and EUR 944.1 million to additional priorities[25].

Most of the EC funding has been allocated through Research and Innovation Actions (RIA, 39.3% of the funding), followed by frontier research grants awarded by the ERC (19.0%), Innovation Actions (17.2%) and MSCA (10.3%). MSCA accounts for the highest number of grants signed (3,246) followed by ERC (2,440) and RIA (1,680). The programme surpassed the 20% SME target (almost 24% of the total budget for LEIT and Societal Challenges going to SMEs) and is in line with the minimum target of earmarking 7% of the budget for LEIT and Societal Challenges to the SME instrument. However, both the expenditure targets for climate action (35% of the EU financial contribution that is climate-related) and for sustainable development (60% of the EU financial contribution that is sustainability-related) are not met so far (27.0% and 53.3% respectively).

[21] Available at: https://ec.europa.eu/research/evaluations/index_en.cfm?pg=monitoring
[22] https://ec.europa.eu/programmes/horizon2020/en/news/horizon-2020-indicators-assessing-results-and-impact-horizon
[23] Regulation (EU) 2015/1017 of The European Parliament and of the Council of 25 June 2015
[24] Including EUR 0.5 billion in grants under Euratom
[25] Detailed implementation data can be found in Annex 1.

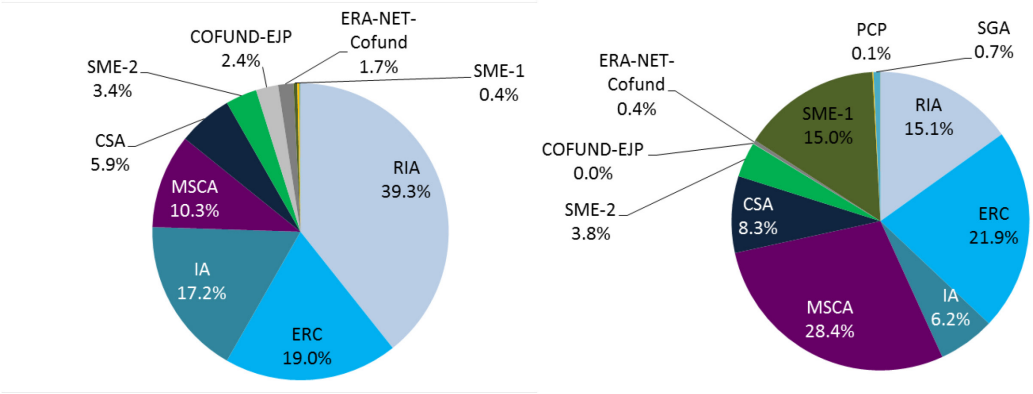
A detailed analysis of the current implementation status and processes is provided under the Efficiency assessment, whereas early results are discussed under Effectiveness and the complementarity of the set of actions is analysed under the Coherence section.

Figure 5 Funding allocation and number of projects per programme part



Source: CORDA, cut-off date by 1/1/2017

Figure 6 Funding allocation (left) and number of grants (right) by type of action



Source: Corda, calls until end 2016, Signed Grants cut-off date by 1/1/2017.

Figure 7 Overview of key programme targets and progress so far (1 January 2017)

Horizon 2020 targets	Current status
Climate action target: 35% of EC financial contribution that is climate-related (RIO-Markers methodology)	27.0%
Sustainable development target: 60% of EC financial contribution that is sustainability-related (RIO-Markers methodology)	53.3%
SME target: 20% of EC financial contribution going to SMEs (only LEIT and Societal Challenges)	**23.9%**
SME Instrument target: 7% of EC financial contribution committed through the SME instrument (only LEIT and Societal Challenges)	5.6%

Source: CORDA, cut-off date 1/1/2017

Figure 8 lists key indicators for FP7 and Horizon 2020 used for benchmarking purposes.

Figure 8 FP7 vs Horizon 2020 benchmarking

		FP7 2007-2013, € 55 billion	**Horizon 2020** 2014-2020, € 74.8 billion **Status as of 01/01/2017**	**Difference**
Eligible proposals submitted (number)		134 535	102 076	-
EC Contribution requested in eligible proposals (EUR million)		216 358	172 748	-
High Quality Proposals submitted (number)		No info	45 632	-
EC Contribution requested in High Quality Proposals (EUR million)		No info	85 006.1	-
Signed grants (number)		25 781	11 108	-
EC Contribution to signed grants (EUR million)		45 452	20 400.1	-
Applications in proposals (number)		563 079	379 169	-
Open Access (share of peer-review publications provided in open access)		61.8%	60.8% to 68.7%	↓1 pps
Peer reviewed publications (number)		219 620	4 043	-
Patent applications (number)		2 669	153	-
Newcomers (share of participants)		Above 70%	52.1%	↓19.9 pp
Collaborative projects (% of total EC contribution)		72%	76%	↑4pps
Time to grant in number of days (excl. ERC)		303 days	192.2 days	↓110.8
Funding rate (EC contribution as % of total project costs)		70%	70%	stable
Concentration of funding to top 100 beneficiaries (% of EC contribution)		34.6%	32.9%	↓1.7 pps
Yearly (2007-2013 for FP7; 2014-2016 for Horizon 2020)	**.. EU contribution to signed grants (EUR million)**	6 493.1	6 800.0	↑4.7%
	.. EU contribution requested in eligible proposals (EUR million)	31 111.1	57 582.7	↑85.1%
	.. eligible proposals submitted	19 219	34 025	↑77.0%
	.. participations supported	19 736	16 363.3	↓17.1%
	.. signed grants	3 683	3 703	↑0.5%
	.. participants supported	4332	5 559.6	↑28.3%
	.. applications submitted	80 440	126 390	↑57.1%
	.. applications submitted from private sector	20 443	47 293	↑131.3%
	.. applications submitted from SMEs	19 027	33 145	↑74.2%
Private sector (PRC)	**.. share of applications**	25.4%	37.4%	↑12.0 pps
	.. share of participations	30.4%	33.2%	↑2.4 pps
	.. share of EU contribution	24.2%	27.7%	↑3.5 pps
SME	**.. share of applications**	23.7%	26.2%	↑2.5 pps
	.. share of participations	18.4%	20.7%	↑2.3 pps
	.. share of EU contribution	14.4%	16.0%	↑1.6 pps
EU-13	**.. share of applications**	9.6%	10.3%	↑0.7 pps
	.. share of participations	7.9%	8.5%	↑0.6 pps
	.. share of EU contribution	4.2%	4.4%	↑0.2 pps
Associated countries	**.. share of applications**	8.4%	7.1%	↓1.3 pps
	.. share of participations	8.2%	7.0%	↓1.2 pps
	.. share of EU contribution	9.0%	6.5%	↓2.5 pps
Third countries	**.. share of applications**	5.6%	3.1%	↓2.5 pps
	.. share of participations	3.6%	1.9%	↓1.7 pps
	.. share of EU contribution	1.3%	0.6%	↓0.7 pps
Success rate	**.. of projects' proposals**	18.4%	11.6%	↓6.8 pps
	.. of total funding requested	19.9%	12.7%	↓7.2 pps
	.. of total applications	21.8%	14.1%	↓7.7 pps
	.. for private sector (applications)	23.3%	13.0%	↓10.3 pps
	.. for SMEs (applications)	20.2%	12.0%	↓8.2 pps
	.. of EU-13 countries (applications)	18.0%	11.1%	↓6.9 pps
	.. of Third Countries (applications)	23.8%	18.3%	↓5.5 pps
	.. of Associated Countries (applications)	21.7%	13.4%	↓8.3 pps
Proposals' evaluation	**Number of proposals evaluated per year**	~20 000	~33000	↑65%
	Time spent per evaluator per proposal	0.8 day	0.7 day	↓0.1 day

Source: CORDA, cut-off date 1/1/2017 and EMM2