



Annual Activity Report 2020

DG RESEARCH AND INNOVATION

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THE DG IN BRIEF

Directorate-General for Research and Innovation (DG Research & Innovation) defines and implements European **research and innovation policy** with a goal to reinforce the scientific base of the Union, to secure its technological sovereignty and to support innovation. The DG under supervision of **Mariya Gabriel, Commissioner for Innovation, Research, Culture, Education and Youth**, contributes to **the seven headline ambitions of Commission President von der Leyen**.



Our vision is a sustainable, fair and prosperous future for people and planet, based on respect for common European values.



Our mission is to design and implement research and innovation policies and programmes in collaboration with Member States, international partners, stakeholders and citizens. Supported by investment and relevant regulation, they deliver new knowledge and innovation and help to accelerate transition towards a sustainable, fair and prosperous future. DG R&I aims to have a high scientific, technological and societal impact, built on scientific evidence and strong input from citizens. The DG operates in an ethically robust, effective and efficient manner and keep a strong focus on the European added value.

DG Research and Innovation is responsible for the **Horizon 2020** and the **Euratom** framework programmes. 2020 was the last year of implementation of Horizon 2020 and intensive preparations of its successor **Horizon Europe** - the largest R&I programme globally, with the agreed budget of 95.5 billion euro.

DG Research and Innovation organises its directorates around three key dimensions of sustainable development - **People, Planet, and Prosperity**. In 2020, the DG was broadly involved in **tackling health, economic and social impacts of the COVID-19** pandemic and building **future resilience of the Union**.

We put strong emphasis on **engagement with citizens and society** and the strategic role of **data analysis and business intelligence**. The architecture of the DG aims at breaking silos and facilitating a horizontal flow of information and skills. Shared strategy units, matrix structures and close cooperation with other Commission's services facilitate the **co-creation of policies and strategic priorities for implementation of Horizon Europe**.

An important part of the Horizon 2020 programme management has been already delegated to Executive Agencies and other bodies. The DG will deepen this process to focus on the development of its policies.

DG RESEARCH & INNOVATION SPECIFIC OBJECTIVES TO THE COMMISSION'S HEADLINE AMBITIONS

GENERAL OBJECTIVE 1: A EUROPEAN GREEN DEAL

- Specific objective 1.1: High-quality science, knowledge and innovative solutions support climate policies and help to preserve biodiversity, ecosystem and natural resources
- Specific objective 1.2: Mainstreaming of the public and private research and innovation investments for climate actions strengthens the European Green Deal's impact
- Specific objective 1.3: Co-creation of Horizon Europe and its missions and partnerships increases awareness of the key role of research and innovation for achieving climate neutrality

GENERAL OBJECTIVE 2: A EUROPE FIT FOR THE DIGITAL AGE

- Specific objective 2.1: High-quality science, knowledge and innovative solutions facilitate a digital transition in Europe, including a new European approach to Artificial Intelligence
- Specific objective 2.2: The revitalised European Research Area sets directions for societal, economic and ecological transitions in Europe and contributes to spreading excellence, closing research and innovation gap and working out a common global response to emerging challenges
- Specific objective 2.3: Research and innovation actions and the European Innovation Council in particular support development and scaling-up of SMEs with breakthrough and disruptive technologies

GENERAL OBJECTIVE 3: AN ECONOMY THAT WORKS FOR PEOPLE

- Specific objective 3.1: Research and innovation actions, increased R&I investments and the R&I component of the European Semester boost economic growth and jobs creation

GENERAL OBJECTIVE 4: A STRONGER EUROPE IN THE WORLD

- Specific objective 4.1: Regional research and innovation strategies and broader association policy contribute to promoting common European R&I values and creating a global Research and Innovation Space

GENERAL OBJECTIVE 5: PROMOTING OUR EUROPEAN WAY OF LIFE

- Specific objective 5.1: Research and innovation develop and deploy solutions, technologies and innovations to tackle emerging threats and improve crisis preparedness
- Specific objective 5.2: Research and innovation support the European health initiatives, including the European plan to fight cancer

GENERAL OBJECTIVE 6: A NEW PUSH FOR EUROPEAN DEMOCRACY

- Specific objective 6.1: European research and innovation support citizens' involvement, social inclusion and equalities in Europe, including through communication of the European R&I added value

GENERAL OBJECTIVE 7: A MODERN, HIGH PERFORMING AND SUSTAINABLE EUROPEAN COMMISSION

- Specific objective 7.1: The Common Implementation Centre and the Policy and Programming Centre provide user-friendly services and tools to the European Commission for effective and efficient planning, programming and implementation of the Research and Innovation Framework Programme and other EU programmes

EXECUTIVE SUMMARY

2020 marked the **finalisation of political negotiations on the future R&I Framework**

well as the final phase of the

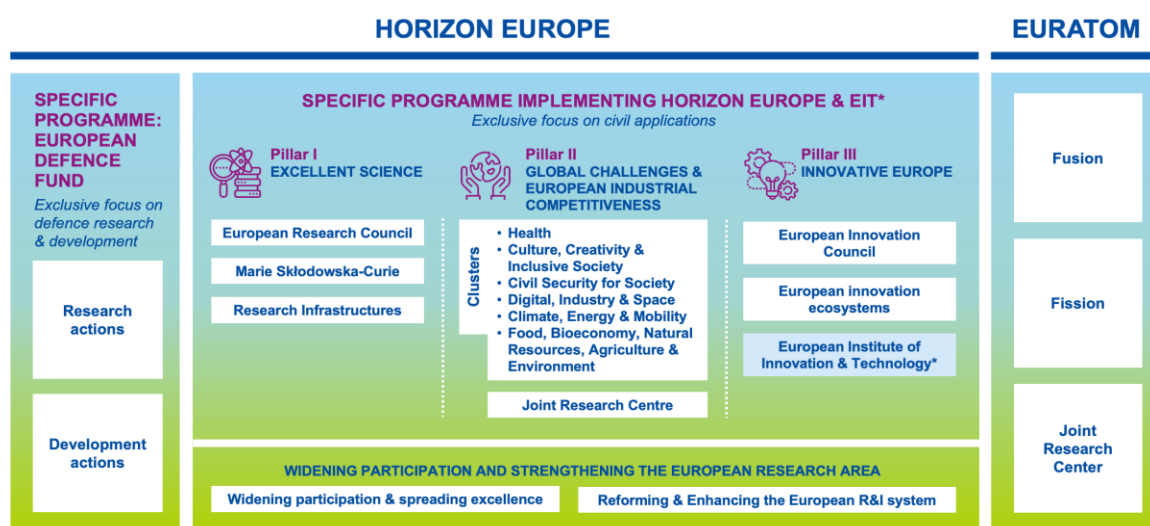


Investing in

Horizon Europe. The three institutions shared a common belief that only increased investment

Horizon Europe and other European and national policies and instruments were included to the Annex IV of the programme.

In 2020, DG Research & Innovation developed the first **Strategic Plan for Horizon Europe**, that sets out the scientific and technological contributions towards green, digital, healthy and resilient future. The first **Work Programme** was prepared to contribute to achieve this long-term goal. The **visual identification** of the programme has been developed. The DG's services supported Member States in launching Horizon Europe and in informing local R&I communities of its novelties.



* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme



2020 was also a very successful year of implementation of **Horizon 2020** – its modern instruments and measures, combined with excellent quality of supported R&I projects and the synergies with other EU policies and programmes, allowed to deliver on the key priorities of the Commission. By the end of 2020, more than **32.000 grant agreements** were signed with more than **EUR 62 billion** investments in research and innovation at EU level.

European R&I proved to be indispensable for Europe severely hit by the global pandemic – starting from researching the nature of the novel virus, through development of rapid testing methods, new treatments and new generation of vaccines, to handling different aspects of social and economic impact of the COVID-19 outbreak.

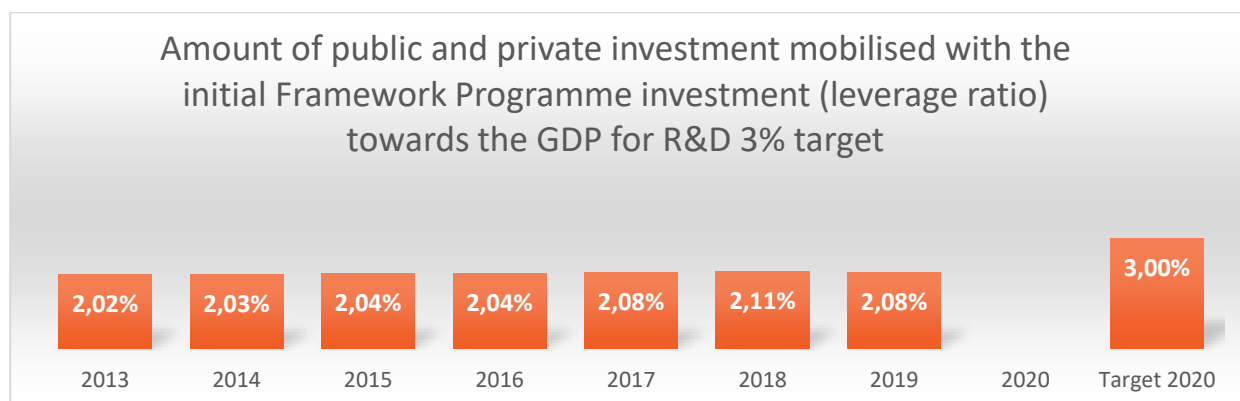
Although the challenges brought with the pandemic broadly shaped and influenced the DG's activities in 2020, the Directorate-General timely delivered on the activities foreseen in Management Plan for 2020. The DG **contributed to all headline ambitions** of the European Commission under the leadership of President Ursula von der Leyen, with the broadest scope of achievements supporting green and digital ambitions.

The key activities of Directorate-General for Research and Innovation in 2020:

-  Using the potential of European R&I **to handle health, social and economic aspects of the COVID-19 pandemic**, including through updated Horizon 2020 work programmes, the Manifesto for EU Covid-19 Research, the ERAvsCorona action plan and the European COVID-19 Data Platform.
-  Political negotiations and preparations to the implementation of **Horizon Europe**, including development of the Strategic Plan, the Work Programmes and the proposals for **European partnerships** and **Horizon Europe missions**.
-  Effective implementation of **Horizon 2020** to fight the global pandemic, to deliver on the **European Green Deal**, to accelerate the digital transition, to boost Europe's R&I capacity and its global technological leadership.
-  Development of the **European Research Area**, including through the Commission Communication on the New European Research Area (ERA) in R&I.
-  **Supporting European economies and innovation**, including technology diffusion and development of innovative SMEs and start-ups, through dedicated instruments of the EU R&I framework programmes and the **European Innovation Council**.
-  Intensified **R&I international cooperation** to strengthen the global impact of European science and technology, to support the global response to the COVID-19 pandemic and to prepare the implementation of the association policy for Horizon Europe.
-  **Facilitating synergies** between EU R&I framework programmes and other EU and national policies and funds to ensure maximised impact of measures and resources.
-  Encouraging **innovation and investment in thematic policy areas** key for accelerating green and digital transitions, Europe's recovery (eg. circular economy, industrial technologies, clean and renewable energy, Artificial Intelligence, health).
-  Measuring and encouraging investments in R&I through publication of the **European Innovation Scoreboard, Industrial R&D Investment Scoreboard**, the R&I country-specific recommendations in the **European Semester** and the Policy Support Facility.
-  Strengthening Europe's **Open Science policy** through digital tools and networks.
-  **Communication** of the R&I results and strengthened involvement of citizens and stakeholders in **co-creation and co-design** of the R&I policies, including through the **European R&I Days**.
-  Continuation of the **R&Innovate process** and preparation of a new HR Strategy.

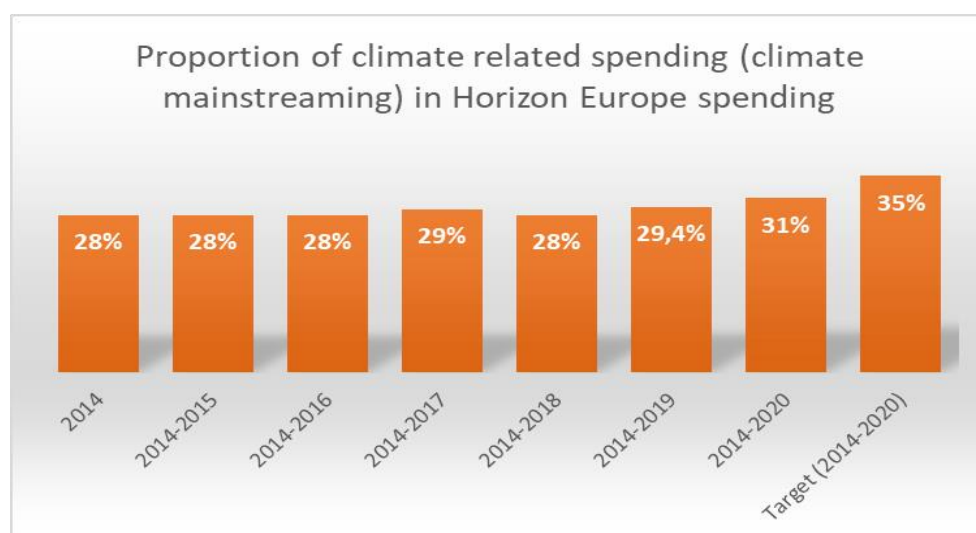
B. KEY PERFORMANCE INDICATORS (KPIs)

1. Amount of public and private investment mobilised with the initial Framework Programme investment (leverage ratio) towards the GDP for R&D 3% target (Result indicator 8 in the performance tables - specific objective 2.1)



The data for 2020 is not yet available.

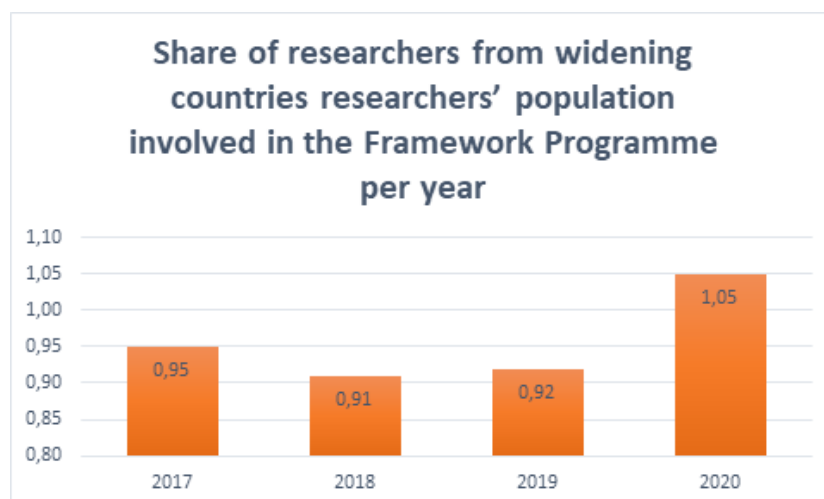
2. Proportion of climate related spending (climate mainstreaming) in Horizon Europe spending (Result indicator 3 in the performance tables - specific objective 1.2)



3. Progress towards R&I missions' targets related to the European Green Deal (Result indicator 5 in the performance tables - specific objective 1.3)

Data not available as Horizon Europe Missions have not been launched yet.

4. Share of researchers from expanding countries researchers' population involved in the Framework Programme (Result indicator 10 in the performance tables - specific objective 2.2)



While the methodology is unchanged, the 2017 baseline presented in the Strategic Plan 2020-2024 has been recalculated: Instead of 8,9%, the actual baseline is 0,95% and the value increased to 1,05% in 2020.

C. KEY CONCLUSIONS ON FINANCIAL MANAGEMENT AND INTERNAL CONTROL (EXECUTIVE SUMMARY OF SECTION 2.1)

In accordance with the governance arrangements of the European Commission, (the staff of) DG R&I conducts its operations in compliance with the applicable laws and regulations, working in an open and transparent manner and meeting the expected high level of professional and ethical standards.

To ensure the achievement of policy and management objectives, the Commission has adopted a set of internal control principles, based on international good practice. The financial regulation requires that the organisational structure and the internal control systems used to implement the budget be set up in accordance with these principles. DG R&I has assessed its internal control systems during the reporting year and has concluded that it is effective and the components and principles are present and functioning well overall, but some improvements are needed. Please refer to AAR section 2.1.3 for further details.

In addition, DG R&I has systematically examined the available control results and indicators, including those for supervising entities to which it has entrusted budget implementation tasks, as well as the observations and recommendations issued by the internal auditor and the European Court of Auditors. These elements have been assessed to determine their impact on

management's assurance about the achievement of the control objectives. Please refer to Section 2.1 for further details.

In conclusion, management has reasonable assurance that, overall, suitable controls are in place and working as intended; risks are being appropriately monitored and mitigated; and necessary improvements and reinforcements are being implemented. The Director General, in his capacity as Authorising Officer by Delegation has signed the Declaration of Assurance.

D. PROVISION OF INFORMATION TO THE COMMISSIONER(S)

In the context of the regular meetings during the year between the DG and the Commissioner(s) on management matters, the main elements of this report and assurance declaration have been brought to the attention of Commissioner Mariya Gabriel, responsible for Innovation, Research, Culture, Education and Youth.

There are no reservations for any of the programmes managed by DG Research and Innovation. Due to the rule of 'de minimis' threshold for financial reservations², there is no quantified reservation for FP7 and Research Fund for Coal and Steel.

E. SPECIFIC ACTIONS ON COVID-19



DG Research & Innovation broadly contributed to the coordinated response of the European Commission to the global health crisis caused by the COVID-19 outbreak and its impact on economies and societies.

DG R&I efforts brought not only new testing and treatment methods, but also long awaited vaccines. The DG supported Pfizer-BioNTech and Moderna in delivering new generation mRNA based vaccines.

² According to this threshold, quantified reservations related to residual error rates above the 2% materiality threshold, are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million.

The companies wrote history by reaching the market with the new vaccines in less than a year. The R&I results were also essential to develop and implement the recovery strategy for the Union.

The DG played a key role in increasing cooperation with partners around the world, including its contribution to the **international Pledging Event** in May 2020. The flexibility of Horizon 2020 allowed the EU to pledge **over EUR 1 billion**.

A **first emergency call for research on the pandemic** was launched by the DG on 30 January 2020 – the same day World Health Organisation declared COVID-19 a Public Health Emergency of International Concern. This was possibly a very first call of a kind worldwide. A rapid evaluation and immediately signed Grant Agreements allowed researchers to deliver scientific results in a few months.

As of the end of January 2021, **EUR 602.3 million** has been awarded to support R&I projects focusing on development of diagnostics, treatments and vaccines, on epidemiology, preparedness and response to outbreaks, socioeconomics, mental health, production and digital technologies, as well as the infrastructures and data resources enabling this research.

The European Research Area proved to be a unique forum to discuss, work out and implement common European solutions to the emerging challenges. In spring 2020, the Commission services brought together representatives from the EU institutions and agencies, the Member States and Associated countries. The agreed **ERAvsCorona Action Plan** helped a unified Europe to respond to the most pressing needs of the pandemic.



EUROPEAN COVID-19 RESEARCH DATA PLATFORM

In April 2020, the **European COVID-19 Research Data Platform** was launched by the European Commission, the European Molecular Biology Laboratory and other international partners, in line with the ERAvsCorona Action Plan.

The platform has expanded quickly and continues to do so. It allows for rapid sharing and collecting available data crucial for handling COVID-19 pandemic, including data from clinical trials, epidemiological and social sciences data.

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The EU mobilised **EUR 400 million from the Horizon 2020 InnovFin**, including InnovFin European Fund for Strategic Investments (EFSI) and Infectious Diseases Finance Facility (IDFF). EUR 221.6 million in IDFF financing will be still awarded under Horizon 2020.

The financing source comes from **reprogramming of research and innovation activities** across all Commission services, achieved with an excellent cooperation of all Directorates and the Executive Agencies. A large coordination exercise was launched to identify and classify the projects with existing and potential results to fight the pandemic emergency. This allowed the immediate redeployment of significant resources for COVID-19 actions.

The DG launched the **Manifesto for EU Covid-19 Research**, which provides guiding principles for beneficiaries of European research grants focused on the pandemic. It has received more than 2500 endorsements from universities, research institutes and private companies from 64 EU and non-EU countries.



DG R&I has provided foresight analyses of the effects of the COVID-19 outbreak and dedicated studies and workshops on how to stimulate the recovery from the pandemic. The high-level **Expert group on the economic and societal impact of research and innovation (ESIR)** provided policy advice on how R&I can best accelerate the recovery.

The DG was directly involved in ensuring an adequate development of the **R&I strand in the NextGenerationEU** package and in the **Recovery and Resilience Facility initiatives**, contributing to the Annual Sustainable Growth Strategy.

The response to the pandemic and transformative recovery from the crisis has been a major point of consideration for the strategic planning and programming of Horizon Europe. This included the proposed frontloading and additional investment of EUR 13.5 billion from 'Next Generation EU' recovery instrument for health and climate-related R&I activities under Horizon Europe, the cooperation between Member States through a new **European partnership on "European partnership on Pandemic Preparedness"** as well as the potential synergies with the proposed self-standing EU4Health programme (EUR 9.4 billion).

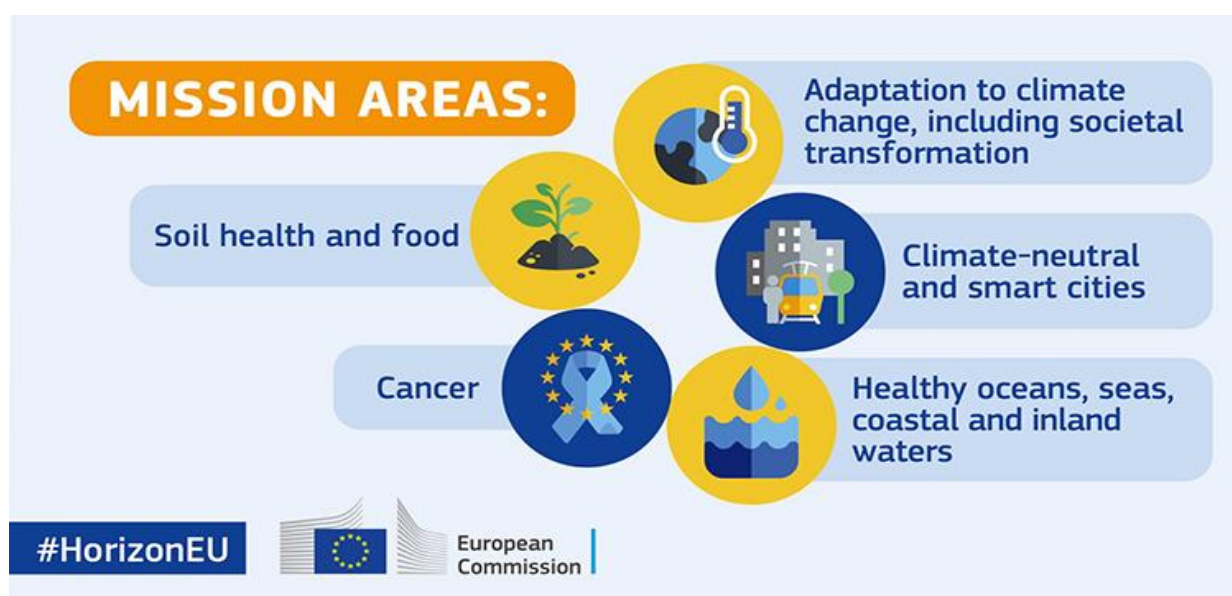
The pandemic required additional management efforts to motivate and support staff – the DG put in place different strategies to reduce the direct impact of the pandemic and to provide the best work environment.

DG Research and Innovation cancelled all on-the-spot missions as of March 2020. The Common Implementation Centre of DG Research and Innovation converted in-house audit assignments into desk audits. The performance of outsourced audits was assessed on a case-by-case basis in light of the applicable contractual provisions. Despite these changes, annual targets were met.

1. KEY RESULTS AND PROGRESS TOWARDS THE ACHIEVEMENT OF THE COMMISSION'S GENERAL OBJECTIVES AND DG'S SPECIFIC OBJECTIVES³

COMMISSION'S OBJECTIVE 1: A EUROPEAN GREEN DEAL

Both Horizon 2020 and Horizon Europe were designed to accelerate the necessary changes for the **European Green Deal** and achieving **climate neutrality by 2050**. Horizon 2020 has already delivered and tested numerous technologies for clean energy, zero-emission transport, circular bioeconomy, clean steel, sustainable agriculture, clean ocean and inland waters. As agreed with co-legislators, Horizon Europe will dedicate at least 35 % of its budget for the **climate mainstreaming target**.



Pending the finalisation of the current preparatory phase, four out of five **Horizon Europe missions** would support climate neutrality. In September 2020, the Mission Boards delivered their recommendations for future missions, aiming at saving three million additional lives from cancer by 2030, having 100 climate neutral cities, developing resilience to climate change, protecting clean ocean and inland waters, securing healthy food chains. To ensure that missions are supported by the other EU, national and third country programmes and to identify potential regulatory bottlenecks to be tackled through the innovation principle, a **Communication on Horizon Europe research and innovation missions** was prepared (preparatory phase concluded in the end of 2020, adoption in 2021). Targeted audiences, key

³ An Executive Agency uses as heading: "Implementation of the Agency's Annual Work programme - Highlights of the year".

messages and tools have been developed to raise awareness and enable citizens' engagement in missions. The concept was promoted via videos, citizen summaries, news alerts covering the Mission Boards' reports, a social media campaign (April 2020), especially successful with the **#EUmissions** hashtag.

In the course of 2020, twelve Impact Assessments for the **institutionalised European partnerships** were coordinated, completed and approved by the Regulatory Scrutiny Board. The inter-service consultation on a Single Basic Act was launched for this set of partnerships. In addition, the Project Group of Commissioners adopted the list of candidates for **co-funded and co-programmed partnerships**, which was included to the first work programme of Horizon Europe.

The rationalisation of the partnerships' landscape will allow to launch in 2021 several **Horizon Europe partnerships with a particular focus on climate neutrality**, for example: European partnership for chemicals risk assessment, Clean Steel, Process for Planet, Clean Aviation, Clean Hydrogen, Towards zero-emissions road transport, Zero-emission waterborne transport, Clean energy transition, European Industrial Battery value chain.

The European Green Deal Call under Horizon 2020 with its enormous EUR 1 billion budget

shows clearly that links between research, innovation, economy and industry are necessary to address the urgency of climate action and green recovery. The call was launched in September 2020, based on extensive co-creation with the Programme Committee of Horizon 2020 and stakeholders. The call's

areas and topics are closely aligned to the eight principal areas of the Green Deal.

In 2020, DG Research & Innovation has also contributed to the **Biodiversity Strategy for 2030** and the new EU **Chemicals Strategy for Sustainability**. It has delivered a contribution to the R&I component of the **Farm to Fork, sustainable and smart mobility and hydrogen strategies** and provided scientific advice in the set-up of the second pan-European **Important Project of Common European Interest (IPCEI) on Battery Innovation and Development**.

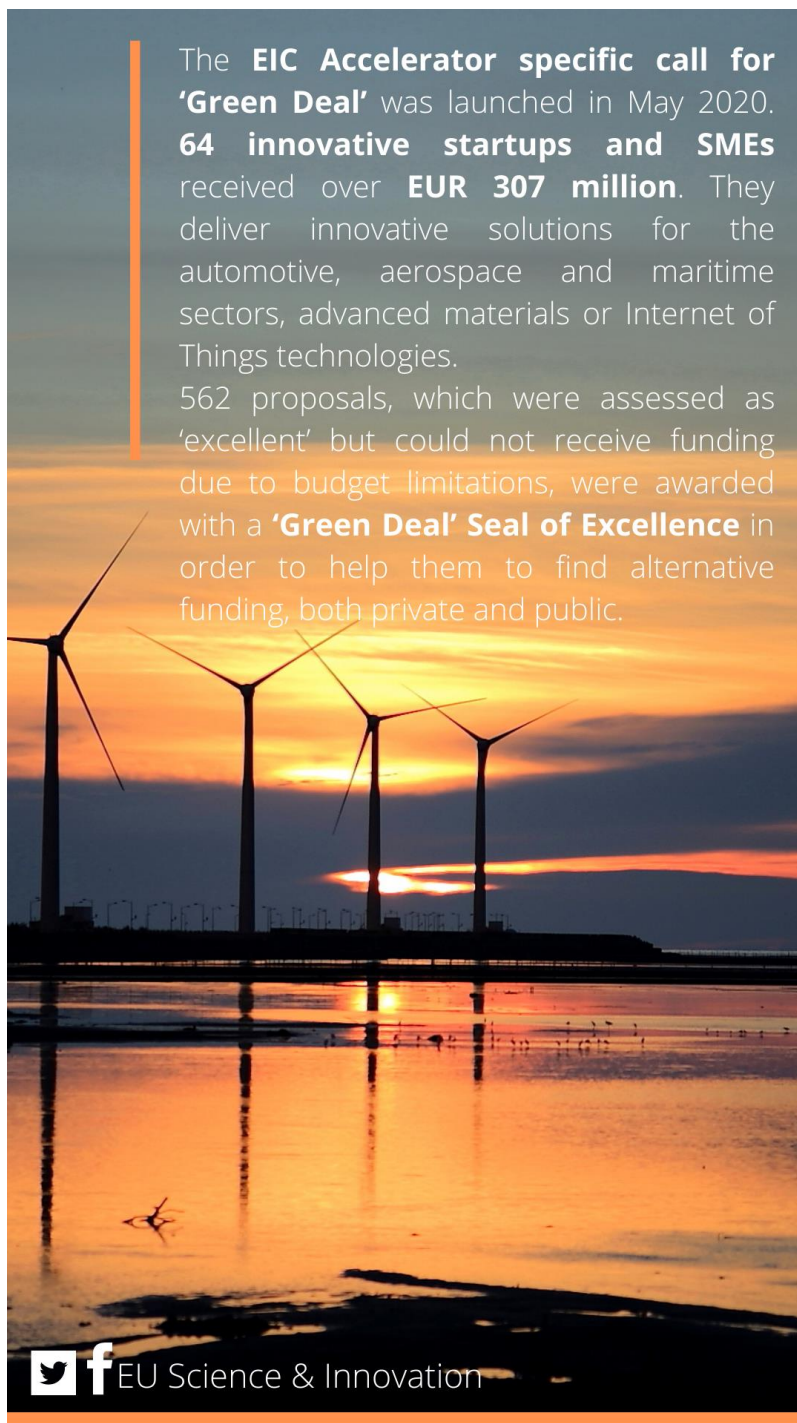


The Modernisation Package of the Research Programme of the **Research Fund for Coal and Steel (RFCS)** was delivered to support collaborative research in these sectors, while supporting breakthrough technologies leading to near zero-carbon steel making and research projects for managing the just transition of the coal sector and coal regions in line with the Just Transition Mechanism.

The **European Innovation Council (EIC)** has reinforced European leadership in breakthrough green technologies and introduced targeted funding measures for emerging technologies and high potential start-ups in the Green Deal areas. In March 2020, the Commission amended the **pilot EIC 2020 Work Programme** in order to include a EUR 300 million budget through the EIC pilot Accelerator for funding game-changing, market-creating green innovations.

In 2020, the **European Circular Bioeconomy Fund (ECBF)** raised EUR 175 million to foster sustainable innovations in support of the Green Deal. The fund was launched by the Commission and the EIB under InnovFin. The Commission's contribution reached EUR 100 million. ECBF is the **first equity fund exclusively focused on the bioeconomy and the circular bioeconomy** in the EU. The

fund provides equity investment to innovative growth-stage bioeconomy and circular bioeconomy companies and projects. It fills a financing gap in this area by mobilizing public and private investments to scale up innovative companies and projects.



THE EIC FOR GREEN INNOVATIONS

Breakthrough Energy Ventures – Europe (BEVE) fund

Operates since February 2020, invests in early stage companies developing breakthrough technologies for reducing greenhouse gas emissions. The EIB (under the InnovFin mandate with the Commission) and Breakthrough Energy Ventures invested each EUR 50 million in BEVE. The Fund has already made one investment of EUR 750.000 in a company producing biochemicals from crop waste and signaled interest in two more deals on green cement and green hydrogen.

InnovFin EDP

This risk finance instrument was created in June 2015. It bridges the 'valley of death' from demonstration to commercialization. Supports innovative clean energy projects at commercial scale in the areas of renewables, energy storage, smart grids, carbon capture utilisation and storage, circular economy. The portfolio currently consists of nine projects covering a broad range of technologies corresponding to EUR 312 million of EU support (loan or equity-type) and EUR 707 million of project costs.

Three deals were signed in 2020:

- **Steelanol, Belgium**, on low-carbon steelmaking (EUR 75m loan, EUR 215m project costs)
- **Mobility House, Switzerland**, on smart energy systems (EUR 15m loan; EUR 30,7m project costs)
- **Nilar, Sweden**, on battery manufacturing (EUR 47m loan; EUR 99m project costs).

DG Research & Innovation sets-up the post-2020 **Mission Innovation** initiative, shifting its focus from inputs to outcomes, accelerating the pace of innovation and strengthening knowledge sharing and international collaboration on clean energy innovation.

The **2020 EU Industrial R&D Investment Scoreboard** (comprising 2500 companies investing the largest sums in R&D in the world in 2019/20) confirmed increased R&I investment of the European companies and **the EU global leadership in high-value green patents**

The activities of the DG contributing to the ‘European Green Deal’ headline ambition are reflected by the following specific objectives. The relevant performance tables are included to the annexes.

- Specific objective 1.1: High-quality science, knowledge and innovative solutions support climate policies and help to preserve biodiversity, ecosystem and natural resources
- Specific objective 1.2: Mainstreaming of the public and private research and innovation investments for climate actions strengthens the European Green Deal’s impact
- Specific objective 1.3: Co-creation of Horizon Europe and its missions and partnerships increases awareness of the key role of research and innovation for achieving climate neutrality

COMMISSION’S OBJECTIVE 2: A EUROPE FIT FOR THE DIGITAL AGE

High quality science, knowledge and innovative solutions accelerate all aspects of the digital transformation through innovative measures of the R&I Framework Programmes and modernised European Research Area.

Both Horizon 2020 and Horizon Europe were created in a way to multiply results for successful green and digital transitions, including through synergies with other European and national policies.

Horizon 2020 supports for example Member States’ cultural policy, with a special emphasis on digitisation and online access to cultural material and digital preservation and curation. From 2014-2020, around EUR 70 million from Horizon 2020 was dedicated for the **digital heritage cloud**. Such projects as ARCHES, iMareculture or EU-LAC-MUSEUMS harness digital technologies like 3D modelling, virtual and augmented reality, bringing culture and heritage closer to the EU citizens, increasing attractiveness and openness of cultural institutions. .

Developed last year, the **New EU Industrial Strategy** highlights the importance of research and innovation to turn the twin transition into business opportunities and puts **Horizon Europe partnerships** as one of the key enablers to strengthen EU industrial eco-systems and alliances.

In 2020, DG Research and Innovation contributed to the development of the **Digital Education Action Plan** with a dedicated action to train university students on Artificial

Intelligence ethics by design as well as the **Intellectual property action** plan with a chapter on intellectual property generated by research.

The R&I policy massively contributes to the digitalisation of the health sector and providing a quick and targeted response to the Covid-19 crisis. **Recommendations for Artificial Intelligence in Health** have been provided in 2020. The Artificial Intelligence Matrix Task Force delivered an **ethics by design guidance for the Artificial Intelligence related research projects** to ensure that the ethical aspects are considered and fundamental values respected. This guidance helped to prepare of the first Horizon Europe work programme.

The **European Innovation Council**, aiming at putting Europe at the forefront of breakthrough and disruptive innovation, has pioneered business advisory and support services, equity investment through the new EIC Fund, and new ways of managing funding with the first EIC Programme Managers. It plays a critical role in supporting start-ups and SMEs in the European economic recovery.



THE EIC FOR BREAKTHROUGH INNOVATIONS

Digital transformation requires strengthened ecosystem of innovative and resilient industries and companies in Europe and all of its regions.

The **EIC Fund** became an official entity in June 2020.

It provides equity from EUR 0.5 million to EUR 15 million to breakthrough innovation companies.

This is the first time the European Commission is making such direct equity investments in companies, with ownership stakes expected from 10% to 25% in startup companies.

The European Investment Bank, as advisor of the EIC Fund on behalf of the European Commission, is managing the ownership stakes of the Commission.

Since June 2020, the investment Committee and the EIC Fund board have **examined more than 50 equity support schemes stemming from the EIC Accelerator calls**. First agreements should be concluded early 2021.

On 6 January 2021, the EC announced direct investments in **42 startups and SMEs selected under the Enhanced EIC Accelerator pilot calls** for an amount of EUR 178 million.



NEW ERA: FOUR OBJECTIVES

- **prioritise investments and reforms** in R&I to support the digital and green transition and Europe's recovery
- improve **access to excellent R&I** for researchers across the EU
- **translate results into the economy** to ensure market uptake and Europe's competitive leadership in technology
- **free circulation of** knowledge, researchers and technology through stronger cooperation with EU countries



EU Science & Innovation

Following an extensive stakeholder consultation in Member States, on 30 September 2020 the Commission adopted the **Communication on a new ERA in Research and Innovation**.

The renewed ERA will support twin green and digital transition, strengthen mobility of researchers and the flow of knowledge, prioritise and boost investments in R&I, promote gender equality and diversity in science and enhance cooperation among universities, business and other R&I actors. The EU will work on **14 actions** in close cooperation with EU countries to achieve four main objectives of the new ERA. It will also strengthen the R&I dimension of universities through a **transformation agenda** to be developed together with stakeholders and Member States, in synergy with the European Education Area. A consultation process was kicked-off at the Education Summit in December 2020, and will entail an open online consultation, expert

meetings, and targeted meetings with stakeholder organisations in the first half of 2021. The new European Research Area (ERA) calls for translating R&I results into the economy and enhancing the take-up and visibility of results in a society as a whole.

During the global COVID-19 pandemic, the European Research Area serves as a forum to develop and implement common European solutions to emerging challenges. Created with Member States the **ERAvsCorona action plan** allowed to respond to the most pressing needs in testing, treatment and prevention. In line with this plan, the **European COVID-19 Data Platform** has been provided.

Specific exploitation obligations (immediate open access, royalty-free non-exclusive licences) were introduced for COVID-19 emergency call for proposals, to maximise research results endorsed by the World Health Organisation.

DG Research & Innovation contributed to assessing and further developing the **Open Science** policy with a view to establish recommendations for future development, including measures to improve the reproducibility of research results.

The 'soft' launch of **Open Research Europe (ORE)**, the open access publishing platform for Horizon 2020 and Horizon Europe beneficiaries, will pave the way to the official launch of the platform in spring 2021 with manuscripts ready to be openly peer-reviewed.

FOR RESEARCHERS' CAREERS

Human Resources Strategy for Researchers in 2020:

- over **250 assessments** were performed in the frame of the HRS4R process
- **105 institutions endorsed** the European Charter for Researchers and the European Code for the recruitment of Researchers (**Charter and Code**)
- **120 started the HRS4R process**
- **62 research institutions** received the **HR award**



A European Open Science Cloud Association was set up in 2020 with more than 180 organisations joining it and a renewed ambition: developing a Web of FAIR data and services for Science.

In the course of 2020, DG Research & Innovation continued defining and implementing policies for **high-level research infrastructures**, sharing excellence all over the EU.

In May 2020, the DG received the formal application for the setting up of the **ELI-ERIC**, the first research infrastructure of a global impact established in the Central and Eastern Europe. It was supported with the European Structural and Investment Funds.

The **European Strategy Forum on Research Infrastructures (ESFRI) White Paper** on 'Making science happen' was adopted in June 2020. It presents the vision for Research Infrastructures helping to meet the challenges of the ERA. Spreading excellence in Europe and full mobilisation of all available talents and capacities remain a core priority of **the Widening actions** agreed under Horizon Europe. It aims to boost the participation in Horizon Europe of the less performing Member States, Associated Countries and regions. A **Joint Action Plan with the Committee of the Regions** has been agreed and the Knowledge Exchange Platform 2.0 has been kicked off.

The DG's contribution to the 'Europe fit for Digital Age' headline ambition is reflected by the following specific objectives. The performance tables were included to the annexes:

- Specific objective 2.1: High-quality science, knowledge and innovative solutions facilitate a digital transition in Europe, including a new European approach to Artificial Intelligence
- Specific objective 2.2: The revitalised European Research Area sets directions for societal, economic and ecological transitions in Europe and contributes to spreading excellence, closing research and innovation gap and working out a common global response to emerging challenges
- Specific objective 2.3: Research and innovation actions and the European Innovation Council in particular support development and scaling-up of SMEs with breakthrough and disruptive technologies

COMMISSION'S OBJECTIVE 3: AN ECONOMY THAT WORKS FOR PEOPLE

It is estimated that Horizon Europe will **return up to 11 euro in gross domestic product** gains for every euro invested and that up to **100,000 jobs** in research and innovation will be created before the end of 2027.

Therefore, European research and innovation policy remains at the heart of the short and long-term post-pandemic recovery. In the course of 2020, DG Research & Innovation proved its effectiveness and flexibility in quick targeting the reorientation of its priorities to facilitate recovery and resilience. Following the adoption of the Next Generation EU Scheme, EU R&I will

be among the main drivers to boost Europe's resilience and competitiveness. This is clearly reflected in the first batch of draft national Recovery and Resilience Plans that Member States are submitting for comments.

The European Innovation Council has designed tailored measures to support top European startups with the potential to scale up and become sustainable global deep-tech leaders. A **pilot action in the 2018-2020 Work Programme** of Horizon 2020 aims at accelerating investments and partnerships among a number of the most mature EIC beneficiaries and create European deep-tech success stories.

Until May 2020, **EIC Accelerator portfolio companies had attracted over € 5.3 billion in private funding**. On average, EIC-supported companies have doubled their number of employees in the last two years. Considering the data available, around 66% of companies had their teams grow in size. The average increase was 108% over 2.2 years (24 employees per company).



Since May 2020, the EIC is guaranteeing that the pool of the best applicants passing all the quality thresholds and being invited to interviews will be composed of at least 25% of companies led by women CEOs (or equivalent positions). This measure has already produced concrete results: out of 64 companies selected in May, 34 % are led by women.

In 2020, the work continued on the **European Semester** with a record number of 23 Member States that received in 2020 a Research and Innovation related Country Specific Recommendation. In addition, the renewed **Horizon Policy Support Facility** was approved and will be ready to assist interested Member States and Associated Countries to define, design and implement research and innovation related reforms in order to boost the efficiency and effectiveness of the R&I investment in the coming years.

A Work Programme guidance has been developed within the Handbook for Horizon Europe Work Programme Preparation to support **knowledge valorisation** through standardisation.

In the reported year, the work continued on the implementation of the 2019-2020 work programme for **Euratom**, with projects that will cover nuclear safety, radioactive waste management, radiation protection and medical applications, education and training. In the end of 2020, after over 18 months of blockage related to the contribution of nuclear energy to climate neutrality, a compromise was found on the new **Euratom programme 2021-2025**.

The DG's contribution to the Commission's headline ambition 'An economy that works for the people' is reflected by the following specific objective. The performance tables were included the annexes:

- Specific objective 3.1: Research and innovation actions, increased R&I investments and the R&I component of the European Semester boost economic growth and jobs creation

COMMISSION'S OBJECTIVE 4: A STRONGER EUROPE IN THE WORLD

2020 marked intensive works on updating the **EU strategy for international cooperation in research and innovation** with a view to the adoption of a Commission Communication in second quarter of 2021. The new strategy will support the delivery of the Commission's key strategic objectives and adapt activities to the current geopolitical context, including the impact of the global pandemic, recovery from the crisis, promoting and protecting Europe's strategic autonomy and defining new level of the **R&I relations with the United Kingdom**.

In parallel, work continued on ensuring a strengthened international dimension of the Horizon Europe Strategic Plan and its first work programme.

The Research and Innovation **cooperation with Africa** was brought to the next level, contributing to the implementation of the Comprehensive Africa Strategy. The First European Union-African Union R&I Ministerial was organised and it put forward the main pillars for future R&I activities. DG Research & Innovation delivered a Memorandum of Understanding concluded with DG DEVCO on strengthening synergies between R&I and Development Cooperation.

The DG put forward the **EU-China Joint Roadmap for Future Science, Technology and Innovation Cooperation** focused on reaching a level playing field and reciprocity in cooperation with this strategic partner. Advanced, extremely complex and sensitive negotiations with Chinese counterparts have been conducted. A **China knowledge network** was established, including experts from Member States, to exchange and enhance knowledge in the EU on China's Research and Innovation system and inform the establishment of a coordinated EU position in its Research and Innovation relations with the country.

R&I COOPERATION WITH WESTERN BALKANS

DG R&I together with DG EAC and JRC prepared **Agenda for the Western Balkans**.

On 6 October 2020, the European Commission adopted a comprehensive **Economic and Investment Plan** for this region, which aims to spur the long-term economic recovery, support a green and digital transition and integrate the regional efforts with the European agenda. The proposed **Agenda for the Western Balkans on Innovation, Research, Education, Culture, Youth and Sport** supports reaching the goals of this Economic and Investment Plan and ensuring the sustainability of investment. **Smart Specialisation Strategies** are also implemented to share best R&I practice and boost academia-industry cooperation.

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2020 brought considerable efforts towards strengthening research and innovation cooperation with global leaders. A **Letter of Intent on Strengthening Cooperation in Science, Technology and Innovation with the Government of Japan** was signed, an Implementing Arrangement with the Japan Agency for Medical Research and Development (AMED) were set for the ERC grants.

DG Research & Innovation continued to promote scientific research cooperation with the Russian Federation as an essential part of the overall EU-Russia relationship. In addition, the DG achieved very good results from its **dialogue with Canada** in terms of participation and co-funding. DG Research & Innovation maintained a dialogue with the United States of America (USA) at both the Department of State and sectorial levels. Finally, the **renewal of the Agreement for scientific and technological cooperation with India** and the signature of an Implementing Arrangement with Indian Council of Social Science Research under the framework of ERC grants were ensured.

To boost the R&I dimension of the **Eastern Partnership** (EaP), DG Research & Innovation developed the new **post-2020 R&I deliverables** (tangible outcomes to be measured against specific indicators) aiming at reinforcing the innovation capacities of EaP partners and intensify their integration with the EU R&I systems. Finally, **cooperation with the Latin America and the Caribbean region** was strengthened through the successful organisation of the EU-CELAC Joint Initiative on Research and Innovation Senior Officials Meeting, which paved the way to adoption of a 2021-2023 Strategic Roadmap.

The **Green Agenda for the Western Balkans** was endorsed in support of the Green Deal call. High-level events took place to engage third countries and regions in the green transition (eg Latin America and the Caribbean) and to promote the Green Deal call among policy-makers and the R&I communities (eg in Russia).

DG Research & Innovation continued to engage in the full implementation of the Central Asian Water Regional Science Diplomacy Stakeholders' Platform.

In the course of 2020, the DG prepared the ground for negotiations on **association of the non-EU countries to Horizon Europe**. A position of DG Research & Innovation on the scope of association for Israel and Switzerland was developed, based on a data gathering conducted by the International Cooperation Service Facility. Reports on Japan, Canada, South Korea and Singapore progressed to an advanced stage.

The regular R&I policy dialogue with the Horizon 2020 Associated Countries continued, notably with Israel, the Faroe Islands, Moldova, Switzerland and Ukraine. The renewal of the Ukraine S&T Agreement was prepared, and subsequently adopted by the Council and the European Parliament in the second quarter of 2020.

DG Research and Innovation assisted the **United Kingdom Task Force (UKTF) in the UK negotiations on aspects related to Horizon Europe association**, in particular concerning specific terms of association to Horizon Europe in the Protocol I of the EU-UK Trade and Co-operation Agreement. Once the Protocol I will be adopted, the UK will be associated to Horizon Europe and will be able to participate in the first calls of the new programme.

The DG's contribution to the Commission's 'A Stronger Europe in the World' headline ambition is reflected by the following specific objective. The performance were included to the annexes:

- Specific objective 4.1: Regional research and innovation strategies and broader association policy contribute to promoting common European R&I values and creating a global Research and Innovation Space

COMMISSION'S OBJECTIVE 5: PROMOTING OUR EUROPEAN WAY OF LIFE

DG Research and Innovation was at the forefront of coordinating international research efforts to combat the COVID-19 and massively contributed to the **international Pledging Event** in May 2020. The response to the pandemic has been a major point for the strategic planning and programming of Horizon Europe, expected to deliver knowledge-based solutions and nurture evidence-based policy making for health and resilience.

DG Research and Innovation contributed to the **Commission Communication 'Building a European Health Union: Reinforcing the EU's resilience for cross-border health threats'** (led by DG SANTE).

The EIC played a key role in **supporting corona-related innovators**. A **dedicated Accelerator call** to startups and SMEs with innovations helpful in treating, testing, monitoring or coping with other aspects of the COVID-19 outbreak was published. The EIC provided EUR 166 million to 36 startups and SMEs tackling the pandemic: 3 focusing on testing, 22 on treatment, 5 on prevention and 6 on other innovations.

The EIC organised the **EUvsVirus Hackathon and Matchaton**, which was a virtual initiative to link researchers and innovators working on COVID-19-related innovations with procurers and potential funders interested in these solutions.

Thanks to the strong cooperation with the EIB and by combining two investment initiatives - the European Fund for Strategic Investments and the InnovFin - the EU could provide **financing to the champion of the Covid-19 vaccine developer BioNTech**. The EUR 100 million deal signed in June 2020 supported the development of a prophylactic vaccine against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

The **fast track 'Call 21' under the Innovative Medicines Initiative (IMI)** – the partnership between the European pharmaceutical industry and the EU – was launched for research proposals responding to the COVID-19 outbreak. EUR 72 million were dedicated from Horizon 2020, and EUR 45 million commitment was provided by the industry (EFPIA and Associated Partners).

The **European and Developing Countries Clinical Trials Partnership (EDCTP)** focusing on infectious diseases research in sub-Saharan Africa, launched three emergency calls to manage the COVID-19 outbreak and prevent it from spreading in sub-Saharan Africa, with a cumulated budget of EUR 35 million.

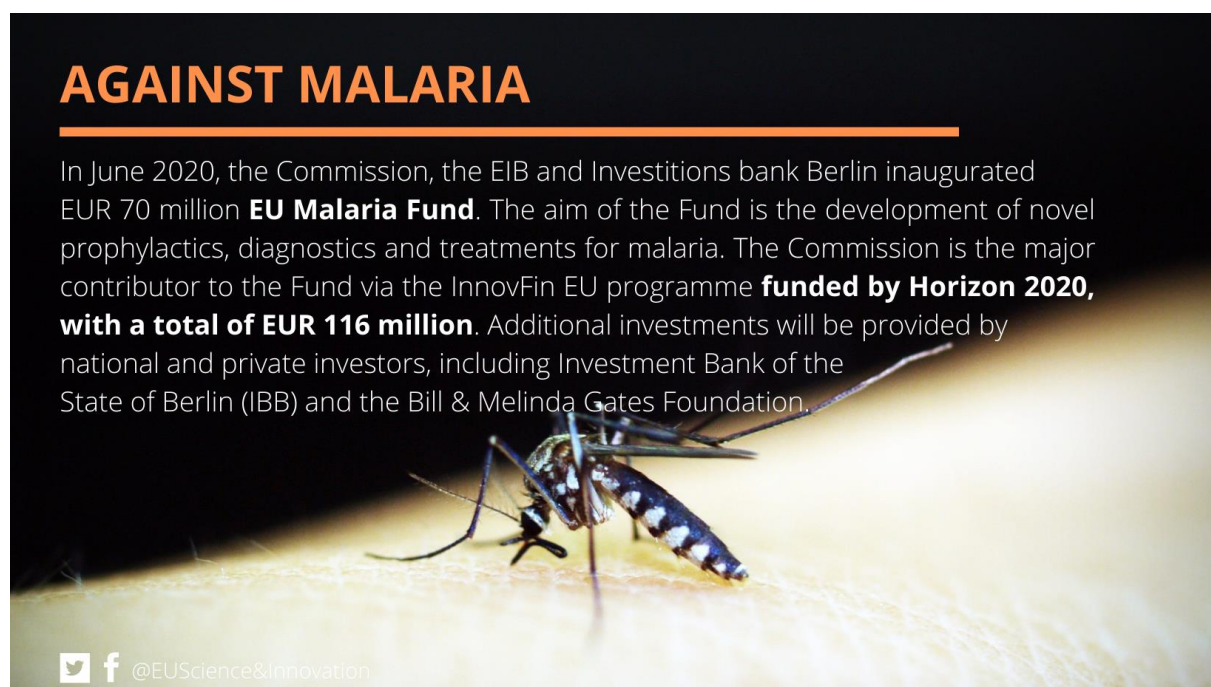
The DG contributed the Joint (EC and High Representative) **Communication on Tackling COVID-19 disinformation - Getting the facts right**. The R&I services set up a specific web section on Europa website and delivered a dedicated factsheet on the role of research in the fight against disinformation.

The DG contributed to several other Commission communications, including 'Guidelines on different COVID-19 tests and their performance' (April 2020), 'EU Strategy for COVID-19 vaccines' (June 2020), 'Considerations for COVID-19 vaccination strategies and vaccine deployment', 'European Health Union: preparedness and resilience for cross-border health threats', 'Pharmaceutical Strategy' (October 2020), 'Intellectual property action plan to support the EU's recovery and resilience', 'EU Strategy for continued COVID-19 control measures' (November 2020).

In the reported year, DG Research & Innovation was involved in preparations of the **Europe's Beating Cancer Plan**, building on its experience with **Horizon Europe mission on cancer**, which aims to save 3 million additional lives by 2030 and focuses on five major themes: Understanding, Prevention, Treatment, Equitable Access and Quality of life/Survivorship,

through 13 recommended actions. The DG contributed to the conference launching Cancer Plan, which took place on 4 February 2020. Cooperation was established with the new Parliamentary **Beating Cancer Committee (BECA)**.

DG Research & Innovation contributed to the Staff Working Document (SWD) on the evaluation of the **Orphan and Paediatric Regulations** led by DG SANTE. Work has already started on revision of the orphan and paediatric legislation, with DG Research & Innovation contributing to the Inception Impact Assessment.



As part of preparation for the potential future **Innovative Health Initiative** Joint Undertaking, that will enable the integration of cross-sectoral technologies, know-how, products, services and workflows for health care, an impact assessment was submitted to the Regulatory Scrutiny Board. In view of the future **Global Health EDCTP3 Joint Undertaking**, the impact assessment has been concluded. The DG continued discussions with potential partners of these JUs

At the end of 2020, the **European Joint Programme on Rare Diseases (EJP RD)** produced a first comprehensive set of the core data interoperability standards for RD genotype-phenotype databases, biobanks, patient registries. This will improve the accessibility of health research and health care data for Rare Diseases.



FIGHTING INFECTIOUS DISEASES

Infectious Diseases Finance Facility (IDFF) exists since 2015. It is joint EC-EIB financial instrument, which provides loans to innovative players active in developing vaccines, drugs, medical and diagnostic devices, and research infrastructure for combatting infectious diseases.

In April 2020, the Commission agreed with the EIB to give an absolute priority to projects dealing with the COVID-19 pandemic. The IDFF funding was increased by EUR 400 million. The total EU contribution to the IDFF via the Horizon 2020 is estimated to reach almost EUR 700 million.

In 2020, IDFF financed seven projects:

- **AM-Pharma** (EUR 24 million): a novel therapy against diseases such as Sepsis associated acute kidney injury.
- **CureVac** (EUR 75 million): Covid-19 vaccine.
- Three projects developing treatments against Covid-19 (**Atriva** - EUR 24 million, **Immunic** - EUR 24,5 million and **AB Science** - EUR 15 million).
- **Scope Fluidic** (EUR 10 million): diagnostics equipment for Covid-19.
- **Evaxion** (EUR 20 million): artificial intelligence platforms used to determine vaccine development strategy.

The DG's contribution to the 'Promoting our European Way of Life' headline ambition is reflected by the following specific objectives. The performance tables are included to the annexes:

- Specific objective 5.1: Research and Innovation develop and deploy solutions, technologies and innovations to tackle emerging threats and improve crisis preparedness
- Specific objective 5.2: Research and innovation support the European health initiatives, including the European plan to fight cancer.

COMMISSION'S OBJECTIVE 6: A NEW PUSH FOR EUROPEAN DEMOCRACY

DG Research & Innovation was actively involved in the preparation of the **European Democracy Action Plan** (EDAP), the media and audio-visual action plan, the strategy to strengthen the application of the **Charter of Fundamental Rights**, and the **EU Citizenship Report 2020**. The DG succeeded to introduce a stronger emphasis on citizens' engagement and deliberative democracy in the **European Democracy Action Plan**, aiming at fostering trust in governance, overcoming polarisation, tackling online hate-speech and violence against female politicians or journalists. The R&I actions on citizen engagement and democratic governance supported by Horizon 2020 and Horizon Europe were included to the document, as well.

The 2020 actions focused on developing a new and ambitious approach towards **strengthened gender equality objectives in Horizon Europe** to support an inclusive and sustainable institutional change, overcome the barriers to women entrepreneurship, and ensure an efficient integration of the gender dimension across the entire Programme.

The requirement has been set for all public Horizon Europe applicants to provide a **gender equality plan**, as an eligibility criterion.

The DG was involved in the development the new actions on gender equality with Member States and ERAC Standing Working Group on Gender Equality, focusing on addressing gender-based violence in academia, integrating a gender dimension in research and innovation content, and addressing the impact of Covid-19 on gender equality. DG Research & Innovation contributed to the new **EC Gender equality strategy for 2020–2025**.

Moreover, the DG worked on the gender-sensitive impacts of the COVID-19 pandemic, delivering a case study prepared by the Expert Group on Gendered Innovations, and an accompanying factsheet on gender equality and COVID-19. The expert group 'Gendered Innovations' has completed its work, and the related final policy review was published in November 2020 along with a factsheet highlighting that Artificial Intelligence systems need to be developed in a bias-sensitive way, to avoid exacerbating existing stereotypes and negative

economic and social consequences. In the reported year, the DG launched the **EUwomen4future campaign**.



In order to overcome the underrepresentation of women as leaders of innovative start-ups/SMEs and venture capitalists, the EIC 2020 Work Programme has been updated to include a targeted positive measure for woman innovators. For the final two cut-offs of the EIC accelerator (May and October 2020), at least 25% of the SMEs and start-ups invited to the final interview phase of the selection process will be led by women as the CEO or equivalent position.

Through the **Horizon 2020 Science with and for Society (SWAFS) Work Programme**, the Commission aims at overcoming the barriers to women entrepreneurship and encourage more women to start their own companies and to become inspiring leaders in innovation.

In the second semester, the yearly **'EU Prize for Women Innovators'** was awarded to four outstanding European women innovators, who founded a successful company and brought an innovation to market. Thirteen candidates have competing for three prizes of €100,000 each in the main category, while eight others under the age of 35 have competing for the Rising Innovator title, with a €50,000 award.

The sixth edition of the **European Capital of Innovation Awards (iCapital)** rewarded cities stimulating innovation among citizens. The call received 35 applications (30% more than in 2019) from 20 countries. The award ceremony took place during R&I days in September 2020. The city of Leuven in Belgium was awarded the title of European Capital of Innovation 2020 for its inspiring governance models and the systems put in place for the public to innovate and to get involved in critical decision-making processes. The municipality was awarded a EUR 1 million prize funded under Horizon 2020. The five runner-up cities –

Cluj-Napoca (Romania), Espoo (Finland), Helsingborg (Sweden), Valencia (Spain) and Vienna (Austria) – were awarded EUR 100,000 each.

DG Research & Innovation contributed to the **Commission's Report on the impact of demographic change**, focusing on active aging, quality of life, healthcare and healthcare systems.

The DG's contribution to the 'New Push For European Democracy' headline ambition is reflected by the following specific objective. The performance tables were included to the annexes:

- Specific objective 6.1: European research and innovation support citizens' involvement, social inclusion and equalities in Europe, including through communication of the European research and innovation added value

COMMISSION'S OBJECTIVE 7: A MODERN, HIGH PERFORMING AND SUSTAINABLE EUROPEAN COMMISSION

The **Common Implementation Centre** (CIC) provides the framework for implementing the Research & Innovation framework programme. Simplification, harmonisation, and equal treatment of beneficiaries are its overarching priorities to be achieved through optimised tools and processes, feedback to policy-making and dissemination and exploitation of results.

Together with the **Policy and Programming Centre** (future Common Policy Centre), the Common Implementation Centre moderated the co-creation of an even more efficient and inclusive governance structure of Horizon Europe, together with new **Horizon Europe Operating Rules** to be adopted in the first quarter of 2021.

The fine-tuned **Implementation Strategy for Horizon Europe** covers the processes and tools of the entire project lifecycle, including legal documents, guidance and training. They should reduce red tape and ensure consistent treatment within all Commission services.

Horizon Europe Model Grant Agreement is being finalised. It will introduce wider reliance on beneficiaries' usual practices for internal invoicing and, in line with the corporate approach, simplified calculation of personnel costs based on daily rates. It is in line with the corporate Model Grant Agreement for the 2021-2027 MFF. It incorporates new developments regarding open science, open access and data management.

The Common Implementation Centre and the Policy and Programming Centre continued to **promote synergies** between Horizon Europe and other programmes, and to improve the framework conditions for synergies with state aid rules. In addition, progress was achieved in highlighting the potential of synergies for the exploitation of R&I results, especially at regional level.

The Common Implementation Centre contributed to the compulsory **Cost-Benefit Analysis** for the delegation of the Horizon Europe programme and Horizon 2020 legacy to Executive Agencies. It contributed to the drafting of the delegation instruments, the specific financial statements for the Executive Agencies, to the single establishment act for the six Executive Agencies as well as to the preparation of a Single Basic Act for all institutionalised partnerships with the aim to foster simplification and harmonisation.

The CIC leads the corporate IT suite for grant management (**eGrants**) and ensures smooth operation and continuous enhancement of the **Funding and Tenders Portal**, which serves as a one-stop shop for all the applicants, beneficiaries, and external experts. Preparation of eGrants for Horizon Europe and adaptation of the Funding and Tenders Portal to the 2021-2027 MFF has progressed. Already 29 Commission programmes are using the eGrants IT tools and the Funding and Tenders Portal under the MFF 2014-2020. On boarding is on going to eventually incorporate 49 programmes managed via eGrants under the new MFF.

The Common Implementation Centre also co-created a new **Dissemination & Exploitation Strategy** for Horizon Europe, based on the lessons learned from Horizon 2020. The new strategy introduces an integrated dissemination and exploitation ecosystem allowing beneficiaries to increase the uptake of their R&I results, based on demonstrated needs. The **Horizon Results Platform**, the main platform allowing investors and policy makers to discover the results of the projects, contributed to the fight against Covid-19 as well as the fight against climate change by attracting and promoting related project results. **The new Horizon Results Booster** was launched and delivers targeted dissemination and exploitation services to beneficiaries based on their needs. **The Horizon Impact Award**, a prize that recognises and celebrates outstanding Horizon 2020 or FP7 projects with demonstrated social value, was successfully repeated for a second edition.

The Common Implementation Centre also optimises **Feedback to policy** through the set-up of a common framework for feedback to policy ensuring a better knowledge sharing and collaboration between all Commission services and implementing bodies.

The DG's contribution to the 'Modern, high performing and sustainable European Commission' headline ambition is reflected by the following specific objective. The performance tables are included to the annexes:

- Specific objective 7.1: The Common Implementation Centre and the Policy and Programming Centre provide user-friendly services and tools to the European Commission for effective and efficient planning, programming and implementation of the Research and Innovation Framework Programme and other EU programmes

EXAMPLES OF EU ADDED VALUE:

1. The development of **the COVID-19 and Green Deal calls**: these ‘tailor made’ calls have demonstrated the importance of R&I to the European Commission specifically, to the Member States and the EU citizens at large. They also proved agility, flexibility and reactivity of the European Union in addressing emerging urgencies. The calls have already delivered and will deliver in a future a scope of new solutions, technologies and knowledge to support the European Green Deal and its main tasks, to tackle the COVID-19 outbreak and to build healthy and resilient future to everyone. Delivering of the anti-corona vaccines – developed and produced in Europe – is a clear added value to all Europeans.



The banner for the European Research & Innovation Days 2020 Virtual Event features a purple background with a white header. The header contains the event title 'EUROPEAN RESEARCH & INNOVATION DAYS' in large, bold, white letters, the dates '22 → 24 SEPTEMBER 2020' in white, and a small robot character with a speech bubble saying 'VIRTUAL EVENT'. Below the header, the main text is in white, describing the event's success and the Commissioner's statement. At the bottom, there are social media icons for Twitter and Facebook, and the text 'EU Science & Innovation'.

The on-line 2020 edition of the **European Research & Innovation Days** gathered a record number of researchers, innovators, entrepreneurs, policy makers, national and regional representatives, citizens. The digital format of the event allowed to cut down the overall budget from EUR 6 millions in 2019 to 4.6 millions, while increasing the number of participants from 4.000 to 35.000 over the three days.


- The 2020 edition of the European Research & Innovation Days was a fantastic interactive event. With the policy conference covering ten thematic hubs including the Green Deal and Horizon Europe, co-design sessions as well as prize ceremonies and the Science is Wonderful! exhibition, there was opportunity for everyone to get involved and share their thoughts on the future of European research & innovation - said Commissioner Mariya Gabriel.

  EU Science & Innovation

2. A renewed ERA Strategy: The new strategy with a reinforced policy agenda and renewed governance has been adopted as the core policy framework to organise and coordinate research and innovation in Europe and build stronger synergies between European, national and regional investments and policies. The new ERA will boost cooperation between research, business and academia from all Member States as well as the R&I cooperation within the Union and beyond, creating a critical mass to handle the current and the future global challenges.

3. Ebola: In May 2020, the European Medicines Agency (EMA) recommended granting the marketing authorisation to Janssen Pharmaceutical

Company for a new Ebola vaccine, co-developed with the Innovative Medicines Initiative 2 Joint Undertaking (IMI2 JU) funding under the Ebola+ programme (the marketing authorisation was granted by the European Commission on 1 July 2020). The Ebola vaccine regimen is indicated for active immunization for the prevention of Ebola Virus Disease caused by the Zaire ebolavirus species in individuals aged one year and above. The project largely contributed to tackling the epidemic and strengthening global resilience.



2. MODERN AND EFFICIENT ADMINISTRATION AND INTERNAL CONTROL

This section explains how DG Research and Innovation (DG R&I) delivered the achievements described in the previous section. It is divided into two subsections.

The first subsection reports the control results and other relevant information that supports management's assurance on the achievement of the financial management and internal control objectives⁴. It includes any additional information necessary to establish that the available evidence is reliable, complete and comprehensive. It covers all activities, programmes and management modes relevant to the DG.

The second subsection deals with the other components of a modern and efficient administration: human resources, better regulation principles, information management and external communication.

DG RESEARCH AND INNOVATION AND THE RESEARCH AND INNOVATION FAMILY

The control framework presented in this report should be seen in the overall context of the responsibilities of DG R&I in implementing Horizon 2020 (H2020) and finalising the implementation of the Seventh Framework Programme (FP7). These responsibilities have increased as the budget for research and innovation has grown from the Seventh Framework Programme to Horizon 2020, prompting the use of new management modes.

Management modes for the programmes' implementation

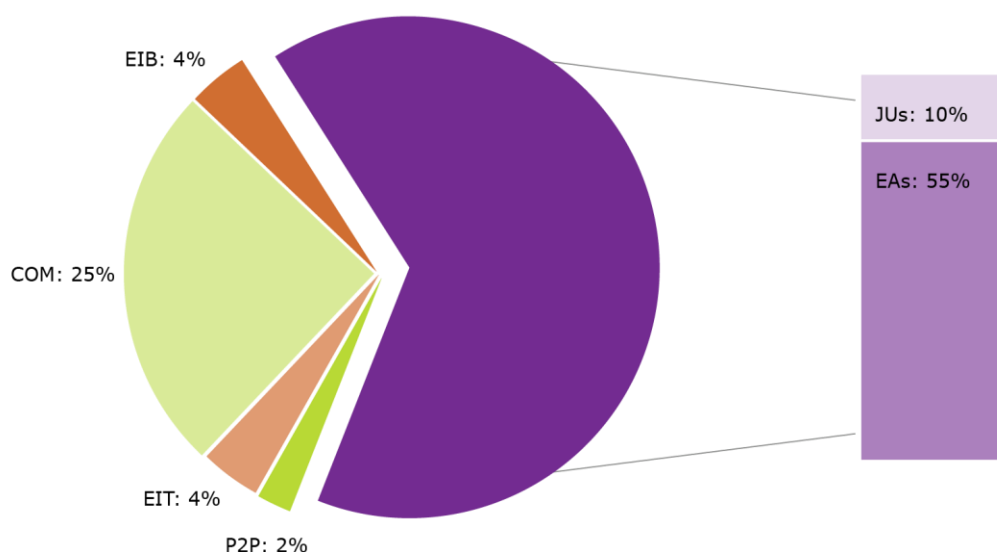
The responsibility for implementing the EU Framework Programmes for Research and Innovation is shared among different Directorates-General in the Commission. In order to focus on core institutional tasks, these Directorates-General have delegated parts of the programme implementation to Executive Agencies, Joint Undertakings (also called Article 187 bodies) and public-public partnerships with the Member States (also called Article 185 bodies). This multitude of actors involved in the implementation of the EU Framework Programmes for Research and Innovation is referred to as the '**Research and Innovation Family**' (R&I Family).

In its 2011 Communication on the 2014-2020 Multi-annual Financial Framework, the Commission set a target of at least 66% for the share of the Horizon 2020 budget to be managed externally which could eventually reach 75% over the lifetime of Horizon 2020.

⁴ Art 36.2 FR: a) effectiveness, efficiency and economy of operations; b) reliability of reporting; c) safeguarding of assets and information; d) prevention, detection, correction and follow-up of fraud and irregularities; and e) adequate management of risks relating to the legality and regularity of underlying transactions

Figure 6. Horizon 2020 budget share by implementing body

H2020 budget share by implementing body



The implementing bodies in figure 6 are the European Commission (COM), Executive Agencies (EA), Joint Undertakings (JUs), Public-Public-Partnerships (P2Ps), the European Investment Bank (EIB) and the European Institute of Innovation and Technology (EIT).

DG R&I coordinates the Research and Innovation Family

DG Research and Innovation, as the lead DG of the R&I Family, invests considerable resources in coordinating the management of Horizon 2020 by the members of the family, even on parts that are not in its own budget appropriations and not included in the assurance provided in this report. In addition to its coordination activities the DG, as parent DG of the R&I Executive Agencies, monitors the activities of these agencies whereas, in the cases of REA and ERCEA, where the DG is the lead parent DG, it also carries out supervision functions⁵.

Annex 7 presents the Horizon 2020 implementation model and the key role of the Common Implementation Centre in simplifying, harmonising and supporting the underlying H2020 business processes. It also presents in detail the objectives and achievements of the European Innovation Council (EIC) pilot (implemented by the EIC Task Force), launched by the European Commission in 2018 in order to strengthen breakthrough innovation and boost high-growth companies coming out of Horizon 2020.

⁵ Supervision of Executive Agencies is described in section 5 of annex 7

2.1 Financial management and internal control

Assurance is provided on the basis of an objective examination of evidence of the effectiveness of risk management, control and governance processes.

This examination is carried out by management, who monitors the functioning of the internal control systems on a continuous basis, and by internal and external auditors. The results are explicitly documented and reported to the Director-General. The following reports have been considered:

- the reports submitted by the AOSDs;
- the report from the Director of the European Innovation Council task force ("EIC")⁶;
- the activity report from the Common Implementation Centre ("CIC") to all research related services;
- the reports from Authorising Officers in other DGs managing budget appropriations in cross-delegation;
- the reports on control results from entrusted entities in direct management (Executive Agencies) as well as the results of the DG's supervisory controls on the activities of these bodies;
- the contribution by the Director in charge of Internal Control and Risk Management, including the results of internal control monitoring at DG level;
- the reports on recorded exceptions, non-compliance events and any cases of 'confirmation of instructions' (Art 93.2 FR);
- conclusion of the Internal Auditor on the state of internal control in DG Research and Innovation and observations and recommendations reported by the Internal Audit Service (IAS);
- the observations and the recommendations reported by the European Court of Auditors (ECA).

These reports result from a systematic analysis of the evidence available. This approach provides sufficient guarantees as to the completeness and reliability of the information reported and results in a complete coverage of the budget delegated to the Director-General of DG Research and Innovation.

This section reports on the control results and other relevant elements that support management's assurance. It is structured into (a) Control results, (b) Audit observations and

⁶ See objectives and achievements of the European Innovation Council pilot in annex7 section 2

recommendations, (c) Effectiveness of internal control systems, and resulting in (d) Conclusions on the assurance.

2.1.1 Control results

This section reports and assesses the elements identified by management which support the assurance on the achievement of the internal control objectives⁷. The Directorate-General's assurance building and materiality criteria are outlined in Annex 5. Annex 6 outlines the main risks together with the control processes to mitigate them and the indicators used to measure the performance of the relevant control systems.

Direct management concerns grants given to beneficiaries through the implementation of the EU Framework Programmes (Seventh Framework Programme, Horizon 2020 and the Research Fund for Coal and Steel) as well as subsidies paid to Executive Agencies and financial instruments provided by the EIC fund.

Indirect management concerns subsidies to grant-implementing entrusted entities: Joint Undertakings (Article 187 bodies), Public-Private Partnerships (Article 185 bodies) as well as financial instruments provided by the European Investment Bank and the European Investment Fund.

Table 1: Overview of the budget implemented in 2020 by DG Research and Innovation broken down by the different control systems under which the payments were authorised⁸

| Control system | Payments 2020 | | Cumulative |
|--|---------------|--------|------------|
| | (M€) | % | % |
| Grants | 2.132,59 | 49,61% | 49,61% |
| Subsidies to grant implementing entrusted entities: Joint Undertakings (article 187 bodies) and Public Public Partnership (article 185 bodies) | 988,28 | 22,99% | 72,60% |
| Financial Instruments (EIB/EIF) | 676,11 | 15,73% | 88,33% |
| Financial Instruments (EIC FUND) | 278,10 | 6,47% | 94,80% |
| Executive Agencies | 131,39 | 3,06% | 97,86% |
| Procurement | 69,61 | 1,62% | 99,48% |

⁷ 1) Effectiveness, efficiency and economy of operations; 2) reliability of reporting; 3) safeguarding of assets and information; 4) prevention, detection, correction and follow-up of fraud and irregularities; and 5) adequate management of the risks relating to the legality and regularity of the underlying transactions, taking into account the multiannual character of programmes as well as the nature of the payments (FR Art 36.2). The 2nd and/or 3rd Internal Control Objective(s) (ICO) only when applicable, given the DG's activities.

⁸ No payments have been authorised under cross sub-delegations by other Commission DGs in 2020. The report on the cross sub-delegations received from of the Service for Foreign Policy Instruments reporting on commitment did not provide indication of any particular unfavourable observation with regard to the regularity and legality of the transactions concerned.

| | | | |
|-------------------------|-----------------|-------------|---------|
| Other | 8,38 | 0,19% | 99,67% |
| Prizes | 6,75 | 0,16% | 99,83% |
| Experts contracts | 3,74 | 0,09% | 99,92% |
| Administrative | 3,50 | 0,08% | 100,00% |
| Grand Total (M€) | 4.298,44 | 100% | |

In 2020, direct management by means of grants remained DG Research and Innovation's main budget management mode (50% of Payments).

Indirect management accounts for 39% of payments in the form of i) subsidies to entrusted entities (23% of 2020 payments to Joint Undertakings and Article. 185 bodies) and ii) guarantees to financial instruments (16% of 2020 payments to European Investment Bank/European Investment Fund).

Both direct and indirect grant management⁹ plus financial instruments together accounted for about 98% of the DG Research and Innovation payments in 2020, therefore this section mainly focuses on those two control systems.

With respect to the additional reporting requirements in Annual Activity Reports as introduced by the 2018 Financial Regulation, the following should be noted:

- DG Research and Innovation had no cases of '**confirmation of instructions**'¹⁰ in 2020.
- There are no cases of **financing not linked to costs** (2018 FR art 125.3)
- There have not been any **cases of flat rates >7% for indirect costs in 2020**¹¹. According to the Horizon 2020 Rules for Participation, indirect eligible costs of Horizon 2020 grants are determined by applying a flat rate of 25% of the total direct eligible costs. It is the basic act that derogates from the Financial Regulation. This applies to all Horizon 2020 grants, although in some cases the 25 % could be directly embedded within a unit cost (e.g. unit cost for clinical studies). In certain cases, the indirect costs are included within a larger unit cost or lump sum (e.g., SME instrument Phase 1 or the unit costs for institutional cost under Marie Skłodowska-Curie actions). In such cases, the percentage of indirect costs cannot be determined separately.
- 121¹² grant agreements signed in 2020 **derogated from the principle of non-retroactivity** pursuant to Article 193 of the Financial Regulation. In such cases, costs

⁹ Including payments to Executive Agencies

¹⁰ new FR art 92.3

¹¹ new FR art 181.6

¹² The 2020 increase of cases is mainly linked to the EIC pilot grants (to meet market conditions) and to the 1st Coronavirus call for expression of interest which clearly stated "Please note that expenditures can be covered from the date of submission of the proposal, but at the applicant's own risk".

incurred prior to the date of submission of the grant application were not eligible.

There are no Financial Framework Partnerships with a duration of more than 4 years¹³ which entered into force during the reporting year 2020.

2.1.1.1 Effectiveness = the control results and benefits

This section looks at the effectiveness of the control system for the main expenditure items, i.e., direct and indirect grant management.¹⁴ The effectiveness of the control systems is assessed based on (i) legality and regularity of transactions, (ii) fraud prevention, protection and detection and (iii) other control objectives, namely safeguarding assets and information and reliability of reporting.

- Legality and regularity of the transactions

DG Research and Innovation uses internal control processes to ensure the adequate management of the risks relating to the legality and regularity of the underlying transactions it is responsible for, taking into account the multiannual character of programmes and the nature of the payments concerned.

Ex-post control results for grant management

Since 2007, the R&I Family have adopted a common audit strategy intended to ensure the legality and regularity of expenditure on a multi-annual basis, including detection and correction of systematic errors.

For Horizon 2020 the Common Audit Service of the Common Implementation Centre undertakes all audits, including those concerning the Executive Agencies and the Joint Undertakings. This is a major step towards ensuring a harmonised approach and minimising the audit burden on beneficiaries. The Common Audit Service applied this process to the Seventh Framework Programme, in the framework of which it carried out audits for the DGs funding research grants. When relevant, the Common Audit Service carried out audits jointly with the European Court of Auditors.

The **main indicators** on legality and regularity¹⁵ of EU Framework Programmes for Research and Innovation are:

- **Representative detected error rate**, based on errors detected by ex-post audits on a Common Representative Sample of cost claims across the R&I Family.

¹³ new FR art 130.4

¹⁴ For the other expenditure items, unless indicated, the estimated level of legality and regularity is found in the section “Estimated risk at closure”.

¹⁵ These indicators are described in point 1.1 of annex 4.

- **Cumulative residual error rate**, which is the extrapolated level of error after corrective measures have been implemented by the Commission services following the audits, accumulated on a multi-annual basis.

The **targets** set for this control system are:

- for the Seventh Framework Programme for Research and Innovation (2007-2013, 'FP7') and the Research Fund for Coal and Steel (in DG Research and Innovation) to ensure that the cumulative residual error rate does not exceed 2% by the end of the Framework Programme's management cycle.
- for Horizon 2020 to obtain a cumulative residual error rate within a range of 2-5 % aiming to be as close as possible to 2%, without necessarily expecting it to be lower than 2%.

Progress against these targets is assessed annually based on the results of the implementation of the ex-post audit strategy and taking into account the frequency and importance of the detected errors along with cost-benefit considerations regarding the effort and resources needed to detect and correct the errors.

It should be noted, however, that due to its multi-annual nature, the effectiveness of the control strategy of the R&I Family can only be measured and assessed fully in the final stages of the EU Framework Programme for Research and Innovation, once the ex-post control strategy has been fully implemented and systematic errors have been detected and corrected.

Because of the COVID-19 pandemic crisis and related travel limitations during 2020, the Common Audit Service – in line with the instructions of the Commission – had to postpone on-the-spot missions until further notice. To minimise the impact of COVID-19 on the implementation of the audit campaign, the CAS converted traditional in-house audit assignments into desk audits, in line with international best practice and auditing standards. Regarding outsourced audits, the CAS instructed the audit firms to perform remotely the maximum possible amount of audit tests, while complementing those with on-the-spot audit missions once travel restrictions were eased.

Despite travel restrictions and other objective challenges due to the pandemic, the CAS reached the remarkable result of finalising audits on 790 participations corresponding to the 94% of the planned 2020 target.

The following table presents the error rates calculated for the two Framework Programmes by the end of 2020.

| | FP7 EX-POST AUDITS | HORIZON 2020 EX-POST AUDITS |
|--|--------------------|-----------------------------|
|--|--------------------|-----------------------------|

| | | |
|---|-------|-------|
| REPRESENTATIVE DETECTED ERROR RATE | 5,45% | 2,95% |
| CUMULATIVE RESIDUAL ERROR RATE | 3,51% | 2,24% |

Results of the Seventh Framework Programme ex-post audits

The error rates based on the audit work for the Seventh Framework Programme for Research and Innovation on 31 December 2020¹⁶ were:

- Representative detected error rate¹⁷: **5,45%**¹⁸
- Cumulative residual error rate: **3,51%** for DG Research and Innovation

As in the 2019 Annual Activity Report, the target cumulative residual error rate of 2% has not been attained. Nevertheless, the lessons learned from the Seventh Framework Programme's audits contributed significantly to the development of the improved Horizon 2020 control framework.

In 2019¹⁹, a 'de minimis' threshold for financial reservations was introduced stipulating that quantified Annual Activity Report reservations related to residual error rates above the 2% materiality threshold are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million. As is the case for the Seventh Framework Programme expenditure²⁰, a quantified reservation is no longer required.

Results of the Horizon 2020 ex-post audits

In 2020 the Commission re-defined its methodology for calculating the Horizon 2020 error rates in line with the European Court of Auditors' observations in its 2018 and 2019 Annual Reports. The methodology applied is described in Annex 5 'Materiality criteria'. As of January 2020, the application of the revised methodology on 790 samples resulted in an error rate higher, on average, by 0,41 % in comparison to the error rate calculated by applying the methodology used in the past on the same 790 samples. Consequently, the detected error rate for 2020 calculated according to the methodology used in the past has been corrected by

¹⁶ The last Common Representative Sample for the Seventh Framework Programme was launched in 2016. With only one Common Representative Sample item remaining open, the audit strategy for the Seventh Framework Programme is now considered to be fully implemented. The audit coverage for the Seventh Framework Programme is presented in annex 7.

¹⁷ This is calculated on a multi-annual basis.

¹⁸ This is based on 480 cost statements (out of a total of 481) for which the audit has been completed

¹⁹ Agreement of the Corporate Management Board of 30/4/2019.

²⁰ FP7 payments represent 0.3% of 2020 R&I payments and the financial impact is EUR 1.8 million.

adding 0.41%. This results in the following error rates for Horizon 2020²¹ on 31 December 2020:

- Representative detected error rate: **2,95%**²²
- Cumulative residual error rate for the Research and Innovation Family DGs: **2,16%** (2,24 % for DG Research and Innovation).

The error rates presented above should be treated with caution. Since not all audit results are available yet, the error rate is not fully representative of the expenditure under control. Moreover, the nature of expenditure in the first years of the programme may not be fully representative of the expenditure across the whole period.

Despite the above-cited caveats, DG R&I considers that the 2020 cumulative residual error rate for Horizon 2020 will fall within the target range (2-5%) established in the Financial Statement²³, and therefore a reservation is not necessary for the Horizon 2020 expenditure.

Since Horizon 2020 is a multi-annual programme, the error rates, and the residual error rate in particular, should be considered within a time perspective. Specifically, the cleansing effect of audits will tend to increase the difference between the representative detected error rate and the cumulative residual error rate, with the latter finishing at a lower value.

As was the case last year, there is evidence that the simplifications introduced in Horizon 2020, along with the increasing experience acquired by the major beneficiaries, affect positively the number and level of errors. However, beneficiaries still make errors, sometimes because they lack a thorough understanding of the rules, sometimes because they do not respect them.

²¹ The Horizon 2020 audit campaign started in 2016. At this stage, three Common Representative Samples with a total of 467 expected results have been selected. By the end of 2020, cost claims amounting to EUR 24.3 billion have been submitted by the beneficiaries to the services. The audit coverage for Horizon 2020 is presented in annex 7. In addition to the Common Representative Samples, Common Risk Samples and Additional Samples have also been selected. The total of all samples represents 4 047 participations. The audits of 2 906 participations were finalised by 31/12/2020 (out of which 790 in 2020). This sampling accommodates special needs of certain stakeholders with regard to audit coverage and selection method. In addition, top-ups, which are participations of selected beneficiaries and which are added to the selected participations, are included in the total participations selected.

²² Based on the 334 representative results out of the 467 expected in the three Common Representative Samples.

²³ The legislative financial statement accompanying the Commission's proposal for the Horizon 2020 regulation states: "The Commission considers therefore that, for research spending under Horizon 2020, a risk of error, on an annual basis, within a range between 2-5% is a realistic objective taking into account the costs of controls, the simplification measures proposed to reduce the complexity of rules and the related inherent risk associated to the reimbursement of costs of the research projects. The ultimate aim for the residual level of error at the closure of the programmes after the financial impact of all audits, corrections and recovery measures will have been taken into account is to achieve a level as close as possible to 2%."

Given the results of the audit campaign up until 2020, and the observations made by the European Court of Auditors in its 2018 and 2019 Annual Reports, the Common Implementation Centre, in close cooperation with central Commission services, is defining actions aimed at reducing further the multiannual error rate of Horizon 2020, and paving the way for a simpler and, to the furthest extent possible, error free Horizon Europe. Actions including further simplification, increased use of simplified forms of funding (including lump sums), focused communication campaigns to more “error-prone” types of beneficiaries with higher than average error rates, such as SMEs and newcomers, and enhanced training to internal project officers and external audit firms performing audits on behalf of the Commission. Focusing on the most common errors, these events will be short and simple, reaching more participants and achieving higher impact.

In the context of further reducing the error rates, the Common Implementation Centre will revisit the existing tools for ex-ante controls. It will consult the stakeholders in order to collect their views on possible improvements in the grant management risk module.

It should be noted, however, that irrespective of the immediate launching of the above-mentioned actions, a reduction of the multiannual error rate may take time to materialise.

Control results for Research Fund for Coal and Steel (RFCS)

Pure vaccines

The DIVINE project championed a new technique for the purification of vaccines. This method produces much higher yields than conventional ones. Current methods involve several steps, which add to the cost of individual doses and tend to be wasteful, removing significant amounts of product along with the impurities. The DIVINE solution involves just one main step. It demonstrated the potential of an innovative, partly bio-based type of membrane – produced by project partner Aquaporin – to extract clean water from the effluent cost-effectively and sustainably. Affinity chromatography uses ‘hooks’ known as ligands to ‘fish out’ the desired molecules. The ligands used in DIVINE are reengineered proteins supplied by project partner Affilogic under the trade name Nanofitins. These are then prepared for use in the chromatography process by another project

²⁴ C(2015) 5757 final COMMISSION DECISION of 26.8.2015 on the multi-beneficiary model grant agreement for the Research Programme of the Research Fund for Coal and Steel.

²⁵ Three participations audited in 2019 and three in 2020. The GSK company decided to adopt the technology for one of its candidate vaccines.

Participants: Portugal, Italy, Germany, Denmark, France

Total costs: EUR 7 632 281

EU contribution: EUR 5 790 580

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In order to be in line to the current Framework Programme's rules and to allow for simplification aimed at reducing the error rates and administrative expenditure, a new “Horizon 2020 inspired model” grant agreement²⁴ was used for all grants signed after 1 January 2016.

Under the new RFCS Ex-post audit strategy (2018-2024), audits on only 6 participations have been finalised²⁵ resulting in a cumulative detected error rate of 0.3% and no identified systemic errors. Owing to the limited number of audit results, the error rate affecting the payments is considered to be a

preliminary estimate. Therefore, following a conservative approach, the residual error rate of the previous RFCS audit strategy (under FP7) i.e. detected error rate of 4.26% and Residual error rate of 3.13% has been used to calculate the 2020 amount at risk for all RFCS expenditure²⁶.

Because of the 'de minimis' threshold for financial reservations introduced in 2019²⁷, a quantified reservation is not required for Research Fund for Coal and Steel²⁸.

Control results for Joint Undertakings, Public-Public Partnerships and Executive Agencies

Supervision arrangements

The established supervision strategies for all entrusted entities include participation in steering committees or governing boards, regular reporting, as well as examination of reports from audit services such as the Internal Audit Service and the European Court of Auditors. For further information on supervision arrangements for entrusted bodies see Annex 10 (for Joint Undertakings (Article 187 bodies) and Public-Public Partnerships (Article 185 bodies) and Annex 7 for Executives Agencies.

Control results for Joint Undertakings (Article 187 bodies)

The Joint Undertakings - Bio-Based Industries (BBI), Innovative Medicines Initiative 2 (IMI2), Fuel Cells & Hydrogen 2 (FCH2) and Clean Sky 2 (CS2) - implement parts of the EU Framework Programmes for Research and Innovation (Seventh Framework Programme and Horizon 2020), under the governance and oversight of DG R&I²⁹.

In 2020, they received from DG Research and Innovation a total of EUR 807.9 million for operational and running costs.

Under Horizon 2020, the Joint Undertakings are fully integrated in the Common Implementation Centre's structures and apply the same audit strategy as the Commission services. DG Research and Innovation reviewed the draft 2020 Annual Activity Reports of the

²⁶ The previous RFCS Audit Strategy (under FP7) expired and no more audits have been launched nor closed during 2020 under this framework. As a consequence the error rates related to the old RFCS Audit Strategy were reported last year and can be considered as final for the RFCS under FP7 i.e. Detected Error Rate of 4.26% and Residual Error Rate of 3.13% for DG Research and Innovation based on 159 audited participations

²⁷ Agreement of the Corporate Management Board of 30/4/2019. According to this threshold, quantified AAR reservations related to residual error rates above the 2% materiality threshold, are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million.

²⁸ RFCS payments represent 0.9% of 2020 R&I payments and the financial impact is EUR 1.8 million. The deminis threshold was already applied in the AAR 2019.

²⁹ Annex 10 of this report summarises the underlying legal and financial parameters of the JUs' operations.

Joint Undertakings under its governance and oversight and did not identify any particular issues warranting mention in this report.

The Court of Auditors gave a positive opinion on the 2019 accounts of all the Joint Undertakings, under DG Research and Innovation's governance and oversight, with a residual error rate below 2%.

Control results for Public-Public Partnerships (Article 185 bodies)


Target: breast cancer

One woman out of eight will be diagnosed with breast cancer before she turns 85.

NANOCARGO project, supported by funds from Marie Skłodowska-Curie Actions, aims at targeting and destroying cancer cells in vivo. The multifunctional hybrid nanocarriers (HNCs) are minimally invasive. They can deliver the drugs to the tumour in a controlled way, precisely at the right time and dosage needed by the patient. Once this is done, they can provide a diagnosis by increasing the visibility of cancer cells in multiple imaging modalities. We can monitor the therapy outcomes in real-time.

To 'activate' the nanocarriers, the research team use a physical energy stimulus to overheat the tumour and destroy it. Thanks to their extensive research, they uncovered that magnetic (activated by a magnetic field) and plasmonic (activated by light) nanocarriers were the best possible candidates. The path to patient treatment in a clinical setting is still long, but NANOCARGO succeeded in all of its objectives.

Participants and coordination: Poland
Total costs covered by the EU: EUR 146 462



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Article 185 of the Treaty enables the EU to participate in research programmes undertaken jointly by several Member States including participation in structures created for the execution of national programmes. The bodies supported under Article 185 in 2020 are the following: Research for the benefit of SMEs (EUROSTARS2), European Metrology Programme for Innovation and Research (EMPIR), European and Developing Countries Clinical Trial Partnership (EDCTP2), Joint Baltic Sea Research Programme (BONUS) and Partnership for Research and Innovation in the Mediterranean Area (PRIMA).

In 2020, DG Research and Innovation paid a total of EUR 180.4 million to Art.185 bodies for operational and running costs³⁰.

Following the review of the reports submitted in 2020, DG Research and Innovation did not identify any particular issues warranting mention in this report.

³⁰ Annex 10 details on the respective legal bases and the amounts entrusted to each body.

Control results for Executive Agencies

With regard to the Executive Agencies, DG Research and Innovation monitors and supervises their activities according to Council Regulation (EC) No 58/2003 and the respective Memoranda of Understanding³¹.

In 2020, DG Research and Innovation was the lead DG of the Research Executive Agency (REA) and the European Research Council Executive Agency (ERCEA). DG Research and Innovation was also a parent DG (but not lead) of the European Agency for Small and Medium-sized Enterprises (EASME) and the Innovation and Networks Executive Agency (INEA) as these two agencies implement parts of Horizon 2020.

DG Research and Innovation paid EUR 131.4 million to the REA and the ERCEA to cover their administrative expenses.

DG Research and Innovation effectively supervised the two Executive Agencies throughout 2020. No issues warranting mention in this report were identified. As in 2019, the Seventh Framework Programme segment of REA's 2020 expenditure affected by material errors falls within the 'de minimis' threshold, thus no reservation was introduced in the respective declaration of assurance regarding this type of REA's expenditure.

Control results for financial instruments

INNOVFIN (EU Finance for Innovators)

In 2020, DG Research and Innovation transferred a total of EUR 676.11 million to the European Investment Bank (EIB) and to the European Investment Fund (EIF) for InnovFin-EU Finance for innovators. InnovFin is a joint initiative launched by the European Investment Bank Group (EIB and EIF) in cooperation with the European Commission under Horizon 2020. It aims to utilise specific financial instruments in order to accelerate access to finance by innovative businesses and other innovative entities in Europe.

The principles and details regarding the supervision of the budget entrusted to the EIB and EIF for InnovFin were established in 2015 along with the respective internal control system aiming to ensure that the achievement of operational objectives was based on sound financial management. These principles are presented in Annex 7.

³¹ Research Executive Agency (REA) – Ref. Ares(2016)664704

European Research Council Executive Agency (ERCEA) – Ref. Ares(2015)5928723

Innovation and Networks Executive Agency (INEA) – Ares(2016)266571

Executive Agency for SME (EASME) - Ref. Ares(2016)1478242

The provision of assurance for the management of the Risk Sharing Finance Facility (RSFF), the InnovFin instruments and the underlying financial transactions for the year 2020 is based on the review of the following documents:

- Management declaration of assurance for the three instruments (EIB Loans, EIF SME Guarantee (SMEG) and EIF InnovFin equity (IFE)),
- Report on Agreed Upon Procedure for the three instruments (EIB Loans, SMEG and IFE),
- The EIB audited financial statements for InnovFin and for the Risk Sharing Finance Facility (RSFF),
- The EIB summary reports on audits and controls.

Due to the additional Brexit-related reporting requirements, the audited financial statements and summary reports on audits and controls of the EIF financial instruments SMEG and IFE will be issued on 15/04/2021.

Considering the values of the relevant indicators contributing to the objective of enhancing access to risk finance for investing in research and innovation (Industrial leadership), the performance of InnovFin exceeded expectations. More specifically, based on the latest data provided by the entrusted entities on 1 March 2021, the total volume of investments mobilized via debt financing and venture capital investments since the launch of the programme reached EUR 70 billion against a target of EUR 15 billion in 2020. The cumulative number of funded organisations reached 32 021 against a target of 5 000. Finally, the total amount of leveraged private funds reached EUR 41 billion against a target of EUR 35 billion.

Fight fake news

The COMPROP team, funded by the European Research Council, identifies sources of misinformation and maps the conspiracy theories in social media. The project championed an innovative method for this analysis, combining traditional coding with automated techniques like sentiment analysis and topic modelling. They developed new techniques to analyse visual disinformation (images, memes, videos). In 2018, the research led to a report on Russian interference in the US presidential elections, shared with the US Senate. Scientists monitored Brexit and important elections in Latin America, India and across Europe. They investigated socio-political issues such as climate change and COVID-19-related misinformation. Each project finding was communicated through short reports carried by prominent news organisations and media channels. The consortium engaged with government organisations, activists and social media platforms to disseminate research findings and generate impact. The project highlighted how misinformation on social networks has effectively changed modern political campaigning and how computational propaganda can influence democratic process.

Participants: United Kingdom

Total costs: EUR 1 980 112

EU contribution: EUR 1 980 112



The EIC Fund provides equity from EUR 0.5 million to EUR 15 million to breakthrough innovation companies selected for EIC Accelerator blended finance support. The European Investment Bank, acting as advisor to the EIC Fund on behalf of the European Commission, is managing the ownership stakes of the European Commission.

The EIC Fund has been authorised by Commission decision C(2020)4001 and was incorporated on 22 June 2020. The acts of incorporation and the Private Placement Memorandum (PPM) of the EIC Fund are annexed to the Decision.

The Board of the EIC Fund ensures that this fund operates in accordance with the principles of sound financial management,

transparency, proportionality, non-discrimination, equal treatment and subsidiarity, and in accordance with the requirements contained in the PPM. The Board's supervision role is described in Annex 7. The control strategy for the EIC Fund's financial instruments will be developed and finalised in 2021.

In 2020, DG Research and Innovation transferred a total of EUR 278.1 million to the EIC Fund. A total of 48 files were reviewed by the Investment Committee and submitted to the

EIC Fund Board. An equity agreement has been signed leading to a payment close to EUR 9 million.

The draft financial statements of year 2020 have been prepared in cooperation with central services and sent to the independent external auditor whose report is expected by 15/04/2021.

The reports foreseen in the Private Placement Memorandum (PPM) of the EIC Fund are expected to be finalised in April. As this is the first time these are prepared, their layout and content requires consultation and approval by the EIC Fund Board, prior to their submission to the Commission.

Benefits of control

Under Horizon 2020, the rejected funding following DG Research and Innovation ex-ante checks amounts to EUR 6.5 million in 2020 (0.5% of the requested EU contribution in 2020).

In 2016, DG Research and Innovation adopted its Horizon 2020 Control Strategy, a reference to other Commission implementing bodies, and the Common Horizon 2020 Ex-post Audit Strategy.

The control system for Horizon 2020 has significantly improved the overall efficiency and coherence of the Framework Programme's implementation thanks to the creation of a streamlined control environment with embedded automatic controls based on harmonised processes and tools.

Conclusion

DG Research and Innovation's portfolio consists of segments with a relatively low error rate, for example, the Horizon 2020 financial instruments with their inherent low risk profile of funding modalities and segments with a relatively higher error rate such as the Horizon 2020 grants. The relatively higher level of error in Horizon 2020 grants is linked to the applicable funding model, which is based on the reimbursement of eligible costs. Most of the errors relate to incorrect claims for personnel costs that are mainly due to beneficiaries' lack of thorough understanding of the rules. New entrants and Small and Medium Enterprises (SMEs) are more prone to this type of error in comparison to other, more experienced beneficiaries. There is evidence that the simplifications introduced under Horizon 2020 along with the ever-increasing experience help in reducing the number of errors made by the beneficiaries, especially when compared to the Seventh Framework Programme. Notwithstanding these efforts, however, beneficiaries still make errors.

Management actions to address these weaknesses are reported in the section "Results of the Horizon 2020 ex-post audits" and include mainly focused communication campaigns to the

more error-prone types of beneficiaries, enhanced training to project officers and external auditors and actions aimed at improving ex-ante checks.

Estimated overall risk at closure

Table 2 presents the DG Research and Innovation relevant expenditure, estimated overall risk at payment, estimated future corrections and risk at closure.

The estimated overall risk at payment for 2020 expenditure amounts to EUR 74.73 million, 2.14% of the DG's total relevant expenditure for 2020. This is the AOD's best conservative estimation of the amount of relevant expenditure during the year that is not in conformity with the contractual and regulatory provisions applicable at the time the payment was made.

This expenditure will subsequently be subject to ex-post controls with part of the underlying errors being detected and corrected in subsequent years. The estimated future corrections for 2020 expenditure amount to EUR 17.49 million. This is the amount of errors that the DG conservatively estimates to be identified and corrected by controls carried out in subsequent years.

The difference between those two amounts results in an estimated overall risk at closure of EUR 57.24 million, 1.64 % of the DG's total relevant expenditure for 2020.

In 2020, the estimated overall risk at closure has decreased by EUR 3.13 million in comparison to EUR 60.37 million in 2019. This decrease is mainly due to the lower Seventh Framework Programme relevant expenditure (with a residual error rate of 3.5%). The simplifications introduced in Horizon 2020 along with the ever-increasing experience of major beneficiaries, contributed to reduced errors by beneficiaries and to a lower estimated overall risk at closure.

In the context of the protection of the EU budget, the DG's estimated overall risk at payment, estimated future corrections and risk at closure are consolidated at Commission level in the AMPR.

Table 2 - Estimated overall risk at closure

| DG R&I | "payments made" (2020; m€) | minus new prefinancing (in 2020; m€) | plus cleared prefinancing (in 2020; m€) | "relevant expenditure" (for 2020; m€) | Average Error Rate (weighted AER; %) | estimated overall risk at payment (2020; m€) | Average Recoveries and Corrections (adjusted ARC; %) | estimated future corrections (for 2020; m€) | estimated overall risk at closure (m€) |
|---|-----------------------------|--|--|--|--|---|--|---|--|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Programme, Budget Line(s), or other relevant level | as per AAR annex 3, table 2 | as per ABAC DWH BO report on prefinancing | as per ABAC DWH BO report on prefinancing | = (2) -/+ (3) +/- (4) | Detected error rates, or equivalent estimates | = (5) x (6) | H-ARC (as per ABAC DWH BO report on corrective capacity), but adjusted | = (5) x (8) | = (7) - (9) |
| Administrative exp. | | | | | | | | | |
| Administrative | | | | | | | | | |
| H2020 | 3,39 | - | | 3,39 | 0,50% | 0,02 | | | 0,02 |
| RFCS | 0,11 | | | 0,11 | 0,50% | 0,00 | | | 0,00 |
| Procurement | | | | | | | | | |
| H2020 | 42,62 | 0,23 | 0,45 | 42,84 | 0,50% | 0,21 | | | 0,21 |
| DG's Subsidies to Executive Agencies | | | | | | | | | |
| H2020 | 131,39 | 131,39 | 179,38 | 179,38 | 0,50% | 0,90 | | | 0,90 |
| Operational exp. | | | | | | | | | |
| Experts contracts | | | | | | | | | |
| H2020 | 3,50 | | | 3,50 | 0,50% | 0,02 | | | 0,02 |
| RFCS | 0,24 | | | 0,24 | 0,50% | 0,00 | | | 0,00 |
| Financial instruments | | | | | | | | | |
| H2020 EIB/EIF | 676,11 | | | 676,11 | 0,50% | 3,38 | | | 3,38 |
| EIC FUND | 278,10 | | | 278,10 | 0,50% | 1,39 | | | 1,39 |
| Grants | | | | | | | | | |
| FP7 | 12,68 | | 37,56 | 50,24 | 5,45% | 2,74 | 1,94% | 0,97 | 1,76 |
| H2020 | 2.079,66 | 1.419,12 | 658,14 | 1.318,68 | 2,95% | 38,90 | 0,71% | 9,36 | 29,54 |
| RFCS | 40,25 | 15,45 | 34,14 | 58,94 | 4,26% | 2,51 | 1,13% | 0,67 | 1,84 |
| Other | | | | | | | | | |
| H2020 | 8,38 | | | 8,38 | 0,50% | 0,04 | | | 0,04 |
| Prizes | | | | | | | | | |
| H2020 | 6,75 | | | 6,75 | 0,50% | 0,03 | | | 0,03 |
| Procurement | | | | | | | | | |
| H2020 | 26,99 | | | 26,99 | 0,50% | 0,13 | | | 0,13 |
| Subsidies to Article 187 and 185 bodies | | | | | | | | | |
| FP7 | 10,82 | | | 10,82 | 2,00% | 0,22 | | | 0,22 |
| H2020 | 977,46 | 180,43 | 24,55 | 821,58 | 2,95% | 24,24 | 0,79% | 6,49 | 17,75 |
| DG TOTAL | 4.298,44 | 1.746,61 | 934,22 | 3.486,05 | 2,14% | 74,73 | 0,50% | 17,49 | 57,24 |
| Share of risk at closure of the total relevant expenditure: | | | | | | | | | 1,64% |
| DG's subsidies to Executive Agencies | | | | | | | | | |
| H2020 REA | 79,21 | 79,21 | 75,68 | 75,68 | 0,50% | 0,38 | | | 0,38 |
| H2020 ERCEA | 52,18 | 52,18 | 103,70 | 103,70 | 0,50% | 0,52 | | | 0,52 |
| Net' total, i.e. after deduction of the subsidies to Executive Agencies² | 4.167,05 | 1.615,23 | 754,84 | 3.306,67 | | 73,84 | | | 56,34 |

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Footnotes related to table 2

(2) Payments made or equivalent, e.g. expenditure registered in the Commission's accounting system, accepted expenditure or cleared pre-financing. In any case, this means after the preventive (ex-ante) control measures have already been implemented earlier in the cycle. In all cases of Co-Delegations (Internal Rules Article 3), "payments made" are covered by the Delegated DGs. For Cross-Sub-Delegations (Internal Rules Article 12), they remain with the Delegating DGs.

For subsidies to article 187 and 185 bodies the H2020 payments include running costs for 23 million euros which have not been provided in a separate line as the impact on the estimated overall risk at closure is not significant.

(3) New pre-financing actually paid by out the department itself during the financial year (i.e. excluding any pre-financing received as a transfer from another department). "Pre-financing" is covered as in the context of note 2.5.1 to the Commission annual accounts (i.e. excluding "Other advances to Member States" (note 2.5.2) which is covered on a purely payment-made basis).

"Pre-financing paid/cleared" are always covered by the Delegated DGs, even for Cross-Sub-Delegations.

(4) Pre-financing actually cleared during the financial year (i.e. their 'delta' in the Financial Year 'actuals', not their 'cut-off' based estimated 'consumption').

DG R&I proceeded in 2021 with an internal correction directly in SAP for the amount of € 52.178.495,00, to reverse the cleared pre-financing amount of DG R&I 2020 subsidies to ERCEA's. This clearing should have been made after the outturn of the accounts of ERCEA has been received (in 2021), This correction could not be taken into account in Data Warehouse AAR reports. The calculation of the relevant expenditure with and without the erroneous cleared pre-financing, shows a difference of 0.02% at the level of the 'Share of Risk at Closure of the Total Relevant Expenditure' and therefore it is not material.

(5) For the purpose of equivalence with the ECA's scope of the EC funds with potential exposure to legality & regularity errors (see the ECA's Annual Report methodological Annex 1.1), our concept of "relevant expenditure" includes the payments made, subtracts the new pre-financing paid out], and adds the previous pre-financing actually cleared during the Financial Year. This is a separate and 'hybrid' concept, intentionally combining elements from the budgetary accounting and from the general ledger accounting.

(6) In order to calculate the weighted Average Error Rate (AER) for the total relevant expenditure in the reporting year, the common representative error rate for the Seventh Framework Programme and the Research Family representative error rate for H2020 have been used. For low-risk types of expenditure, where there are indications that the equivalent error rate might be close to 'zero' (e.g. administrative expenditure, operating subsidies to agencies), 0.5% as a conservative estimate was used.

(8) Even though to some extent based on the 7 years historic Average of Recoveries and financial Corrections (ARC), which is the best available indication of the corrective capacity of the ex-post control systems implemented by the DG over the past years, the AOD has adjusted this historic average (1.3%), further to 2017 ECA/IAS recommendations, and used as best estimation:

*for the Seventh Framework Programme, H2020 and RFCS grants: the difference between overall detected error rate and DG R&I residual error rate

*for H2020 subsidies to article 185 and 187: the difference between overall detected error rate and the family residual error rate

*For other expenditures, it is assumed that the ex-post future corrections would be 0%.

Fraud prevention detection and correction

DG Research and Innovation, together with the members of the Research and Innovation (R&I) Family, updated the Common Anti-Fraud Strategy in the Research Family (RAFS 2019) on 26 June 2019 jointly with its Action Plan, in line with the Commission Anti-Fraud Strategy. The RAFS 2019 sets out broad principles to counter external fraud in grant expenditure within the implementation of the Research programmes, by building relevant preventive and detective measures. The Chair of the Fraud & Irregularities in Research (FAIR) Committee, (the Common Audit Service (CAS)), will regularly report to the Executive Committee of the Common Implementation Centre on the implementation of the 2019 RAFS Action Plan.

The main RAFS 2019 actions implemented this year include the revision of the common anti-fraud training material by the FAIR Committee and awareness raising actions by the CAS on anti-fraud measures in the Commission, targeting H2020 beneficiaries and National Contact Points (NCPs). The detection of plagiarism and double funding has been improved through a dedicated IT tool. In addition, the CAS performed robust data analysis in order to inform the selection of risk audits and assess how the Horizon Europe control strategy could better tackle fraud risks under the next Programme.

This year, the CAS continued to actively cooperate with the European Anti-Fraud Office (OLAF) as well as coordinating the monitoring of the implementation of OLAF financial recommendations. When other R&I family services were concerned by the implementation, coordination meetings were organised by the CAS, ensuring a harmonised approach to the implementation of OLAF financial recommendations.

During 2020, 48.57% of the financial recommendations (issued in 2016-2020) have been fully implemented; 2.85% have been partially implemented and 14.28% have not been implemented due to the insolvency of the relevant beneficiaries. The AOSDs requested the waiver of the claims pursuant to Article 101(2)(b) (insolvency of the debtor) of the Financial Regulation (34.30% are still under analysis). The delay in implementation is due to several factors such as ongoing national judicial proceedings, the need to assess the insolvency status of the beneficiary, contestations of the amounts to be recovered or OLAF's findings and missed deadlines of the repayment.

DG Research and Innovation has developed and implemented its own anti-fraud strategy since August 2010 (R&I AFS). The R&I AFS and its action plan were last updated on 02 July 2019, in line with the Commission Anti-Fraud Strategy. It covers areas not related to Grant Management, i.e. fraud risks related to financial instruments, procurement, expert management, internal fraud etc. The Action Plan against internal fraud in DG Research and Innovation focuses on raising staff awareness on the rules of ethics, with particular emphasis

on possible conflicts of interests in the DG. Its implementation is being monitored and reported to the management twice a year. All necessary actions have been implemented. The results achieved during the year thanks to the anti-fraud measures in place can be summarised as follows:

- All newcomers attending the Welcome sessions in 2020 (including online) were made aware of the importance of Ethics in their duties.
- DG R&I staff received communication related to ethical aspects during confinement and teleworking, and 43 members of R&I staff attended the Ethics trainings of DG HR.

On the basis of the available information, DG Research and Innovation has reasonable assurance that the anti-fraud measures in place are overall effective.

- Other control objectives: safeguarding of assets and information, reliability of reporting

The main DG Research and Innovation assets³² are:

- available for sale financial assets of financial instruments which amount to EUR 3 220 million as of end 2020;
- pre-financing paid to the research grant beneficiaries and to the different entrusted entities implementing parts of Horizon 2020 which amount to EUR 1 810 million as of end 2020.

These assets are managed and controlled in the context of direct and indirect grant management and the management of financial instruments.

The intangible assets are IT software amounting to EUR 31 million at the end of 2020.

In conclusion, the regular supervision of direct and indirect grant management and financial instruments did not identify particular issues warranting mention in this report or that could have a material impact on the assurance. Overall, DG Research and Innovation considers that its safeguarding of the assets is effective and appropriate.

- Reliability of reporting and accounting

³² Table 4 in Annex 3 reports on DG R&I's overall assets.

The findings and recommendations of the DG BUDG reports on the validation of Local Systems are subject to a systematic follow up by DG Research and Innovation. The state of play of the action plans is detailed in annex 7. The DG has implemented most of the actions and there is only one recommendation to be implemented in year 2021.

DG Research and Innovation implements a significant part of its budget through indirect management. It therefore relies on the reports and accounts provided by the relevant implementing bodies and considers that, overall, the reporting received is reliable and adequate for drawing assurance conclusions.

2.1.1.2 Efficiency = the Time-to-... indicators and other efficiency indicators

Based on an assessment of the most relevant efficiency control results, DG Research and Innovation has assessed the efficiency of the control system and reached a positive conclusion.

Grant management

This section presents the main efficiency performance indicators for the activities carried out in DG Research and Innovation for Seventh Framework Programme and Horizon 2020, namely **Time-to-Inform (TTI), Time-to-Grant (TTG) and Time-to-Pay (TTP)**. Some additional indicators on ex-post audits are presented in annex 7.

In DG Research and Innovation, the Seventh Framework Programme accounts for a total of 4 932 granted agreements, out of which 4 918³³ were completed and closed by the end of 2020. The remaining 14 ongoing projects and 6 closed projects with a 'reste à liquider' account for a total of EUR 14.8 million. In 2020, 52 grant agreements were closed. For the entire programme, 25 163 proposals out of 135 805 were retained for funding with the success rate standing at 18.53%³⁴.

In DG Research and Innovation, Horizon 2020 accounts for a total of 2.025 grant agreements³⁵, of which 495 were completed and closed by the end of 2020. In 2020, DG Research and Innovation signed 588 grant agreements with a total EU contribution of EUR 2.15 billion. For the entire programme, around one out of eight proposals was retained for funding with the success rate standing at 11.96%.

³³ Data from budgetary and financial monthly report December 2020

³⁴ Dashboard dataset of 03/11/2020 – consulted on 26/01/2021

³⁵ with a total EU contribution of EUR 10.77 billion

The Research Fund for Coal and Steel (RFCS) supports research and innovation projects in the coal and steel sectors and every year funding is made available to universities, research centres and private companies to support projects. In 2020, 24 proposals were selected for funding with an EU contribution of EUR 31.64 million, bringing the overall success rate of the eligible proposals since 2014 to 19.32%.

Time-to-Inform (TTI)

During 2020, 88.61% of the DG Research and Innovation main-listed proposals received information letters within 5 months (153 calendar days) from the respective call deadline, against a target of 100%. The main cause for the delays can be attributed to the COVID-19 pandemic and the time necessary to adapt to the new working conditions. On average, information letters for all main-listed proposals were sent within 69.1 days. It is important to note that as the number of grants signed in 2020 was relatively small (with Horizon 2020 drawing to a close), any delay carries more statistical weight. Moreover, 98.5% of the cases were delayed by 10 days or less.

For the period covering 2014-2020, the respective figures were 95.27% and 84.7 days.

Table 3: Horizon 2020 Time-to-Inform

| Period | DG Research and Innovation | | Research and Innovation family | |
|-----------|---|--|---|--|
| | Signed Grant Agreements where TTI <= 153 days | Average TTI for main-listed proposals (days) | Signed Grant Agreements where TTI <= 153 days | Average TTI for main-listed proposals (days) |
| 2014-2020 | 95.27% | 94.7 | 82.59% | 129.3 |
| 2020 | 88.61% | 69.1 | 83.86% | 136.1 |

Time-to-GRANT (TTG)

During 2020, 77.89% of the DG Research and Innovation grant agreements from main-listed proposals were signed within 8 months (245 calendar days) from the respective call deadline, against a target of 100%. The average Time-to-Grant for all main-listed proposals, however, was 181 days.

For the period covering 2014-2020, the respective figures were 85.83% and 206 days.

Table 4: Horizon 2020 Time-to-Grant

| Period | DG Research and Innovation | | Research and Innovation family | |
|--------|-----------------------------------|--|-----------------------------------|---------------------------------------|
| | Signed Grant Agreements where TTG | Average TTG for main-listed proposals (days) | Signed Grant Agreements where TTG | Average TTG for main-listed proposals |

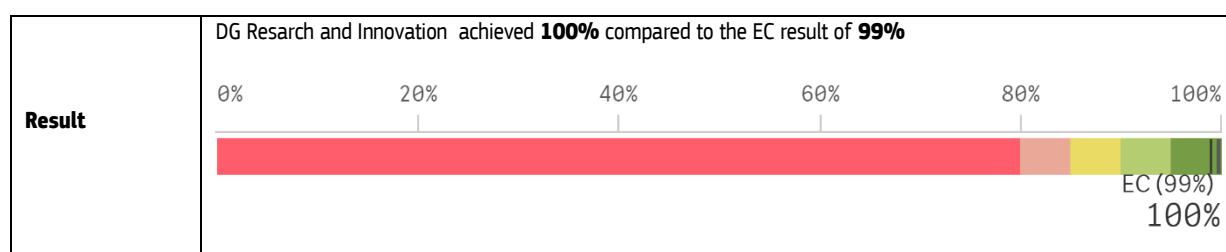
| | <= 245 days | | <= 245 days | (days) |
|------------------|-------------|-------|-------------|--------|
| 2014-2020 | 85.83% | 206.0 | 89.17% | 184 |
| 2020 | 77.89% | 181.0 | 92.45% | 204 |

The complexity of actions in certain programme parts of Horizon 2020, namely Research Infrastructure and FET-OPEN (Future and Emerging Technologies) calls and, most importantly, the impact of the COVID-19 pandemic, resulted in longer Time-to-Grant extending beyond the target of 8 months.

Time-to-Pay (TTP)

DG Research and Innovation achieved the 100% target on the efficient processing of payments within the legal deadlines. Although some payments were completed out of the legal deadlines, the associated amounts were small and therefore, practically, the total amount was paid by the DG in time³⁶.

Table 5: Timely Payments



Initiatives taken to improve control efficiency in grant management

Most of the work in the field of simplification relates to the lump sum pilot, which is testing this simplified form of funding in grants. This Horizon 2020 pilot for lump sum funding provides a broad base to judge the feasibility of lump sum funding, and its potential to be used more widely. To properly assess the pilot, the Common Implementation Centre launched surveys among participants and expert evaluators involved in the lump sum pilot. Feedback and lessons learned will help services Europe to decide to what extent, and in which areas, lump sum funding should be used in Horizon Europe.

Steps taken to ensure a sound financial management in the context of COVID-19 pandemic

³⁶ 'Details on the calculation of this Timely Payments' indicator is presented in annex 4: Financial Scorecard

DG Research and Innovation provided appropriate support for quick mobilisation of funds and the drafting of ad hoc Frequently Asked Questions on the implementation of on-going projects under H2020 rules.

In addition to main calls, activities in 2020 were focussed on COVID-19 -related actions. The deadline for submission of proposals for the main 2020 SC1 calls was postponed from April to June 2020³⁷.

Virus archive

The European Virus Archive was once just a European network. Now it involves 50 institutes worldwide focusing on viral pathogens. They were among the first to receive the information on COVID-19 from the Chinese authorities and reacted immediately, developing reagents to detect the new virus in clinical samples, drawing up detailed guidance. The rapid response capability had already been tested during outbreaks of Zika, Ebola and Middle East respiratory syndrome (MERS). The network's web-based catalogue lists some 1900 viruses and about 1000 derived articles, such as antigens and detection reagents. It is essential for researching emerging viruses and for the treatment and control of the diseases they cause. The project harmonised methodologies and developed guidelines for the use of diagnostic tools. Scientists from 15 institutes were trained to produce their own material for detection of emerging viruses in their regions. The project will expand in the recently launched EVA-Global, which will attempt to reconstitute historical strains for which genomic

³⁷ The evaluation was performed in September. The grant preparation phase for 75 main-listed grants was launched in late October and will last until early February 2021.

Switzerland, Slovenia, Slovakia, Italy, Netherlands, South Africa, Russia, China, Australia, Sweden

³⁸ <https://europa.eu/!fg44Rd>

Total costs: EUR 12 168 054

EU contribution: EUR 10 792 868

**HORIZON
2020
SUCCESS
STORY**

Consortia have taken full advantage of the flexibility provided under the horizontal COVID-19 Horizon 2020 Frequently Asked Questions³⁸ and requested 6-month extension of project duration without further justification. During 2020, DG R&I signed 294 amendments with extension of duration. The resulting postponement of certain payments has been taken into account during the draft budget 2022 preparation and the revision of the 2021 budget.

The CIC produced tailored Frequently Asked Questions (FAQs) for the implementation of on-going projects under H2020 rules (extension of project duration, eligibility of costs, submission of reports and

deliverables) taking into account the guidance provided by the Commission following the COVID-19 situation and delivered new training modules as an interactive e-training via WebEx. These sessions turned out to be a great success with several hundreds of colleagues participating. Likewise, the H2020 Coordinators' Days in May, October and November were held in digital format and reached more than 3000 external participants.

Joint Undertakings, Public-Private Partnerships and Executive Agencies

To respond urgently to the COVID-19 pandemic, the Annual Work programme 2020 of the Innovative Medicines Initiative (IMI2) was amended.

For Clean Sky 2 (CS2) the timely exploitation of results may be impacted by the pandemic. The Joint Undertaking programme office and the Governing Board closely monitor the programme and project evolution. Detailed management reports include COVID mitigation measures wherever possible. There is also a delay in the reporting and certification of private in-kind contributions. This is caused by difficulties in certifying these contributions under COVID conditions.

The three-year evaluations for the two Executive Agencies for which DG Research and Innovation is the lead parent DG (the Research Executive Agency - REA and the European Research Council Executive Agency - ERCEA) concluded that during the 2015-2018 period, these agencies continued to implement the delegated programme management tasks in an effective, efficient and coherent manner and that delegation to Agencies scenario is justified in terms of cost-savings and value added. These evaluations were finalised in 2019 and the respective Commission Staff Working Documents on the evaluation of REA and ERCEA were published in April 2020³⁹.

In general, Joint undertakings, Public-Private Partnerships and Executive Agencies are supervised and coordinated in an efficient manner (see paragraph on economy).

Financial instruments

The financial instruments are managed efficiently, in accordance to the delegation agreements concluded with the EIB and the EIF (see information in section 2.1.1.3).

EIC Fund

³⁹ COM(2020) 184 final

As the EIC Fund was only established in June 2020, and its activity and monitoring report is under preparation, the efficiency of controls cannot be fully assessed until next year. However, from the information available, it can be concluded that it is managed efficiently.

2.1.1.3. Economy = the estimated cost of controls

This section assesses the costs of the internal control system.

Grant management

In accordance with the Commission central services' guidance⁴⁰, the cost of controls in direct grant management is assessed by the cost of the different control stages. The overall assessment is derived from the ratio between all of these costs and the total amount paid in the year for grants.

The overall cost of the controls in grant management is estimated **at 2.6% (EUR 55.44 million)** of the total implemented budget (in terms of payments) in 2020. Following the increase of the amount paid in 2020, the cost of controls is slightly decreased in comparison to 2019 (3%). Therefore, the implementation of controls is considered to be a cost effective operation.

The costs of controls for direct grant management can be divided into three main categories:

- Costs of controls in DG Research and Innovation (detailed calculation is provided in Annex 7);
- Costs of common support services provided by REA for proposal evaluation/selection (detailed calculation is provided in REA annual activity report and the percentage is provided in Annex 7);
- Costs of services provided by the Common Implementation Centre which is hosted by DG Research and Innovation.

The costs of Common Implementation Centre services represent 0.46 % of the total Horizon 2020 implemented budget (in terms of payments to grants) for ex-ante checks and ex-post audits carried out for all Research and Innovation family DG's, Executive Agencies and Joint

⁴⁰ Ares(2018)4917637

Undertakings implementing Horizon 2020 (additional information on the calculation is provided in Annex 7).

| Part of Common Implementation Center costs in ex-ante and ex-post controls for all research DGS, executive agencies and joint undertakings implementing H2020 | | | | | |
|---|--|----------------|-------|--|---|
| Direct grant management | Costs (M€) (data from Atlas 14.01.21 for internal costs and budget execution CIC 11.01.2021 for external costs) | | | 2020 Grants payments for H2020 Family (M€) (data from corda 08.01.2021) | Overall rate (total costs/total amount paid) |
| Common Implementation Center costs | Internal costs | External costs | Total | Total amount | % |
| Ex-ante controls (mainly Common services in IT systems and operations, business processes) | 6,1 | 29,7 | 35,8 | 10.068,9 | 0,36% |
| Ex-post audits | 8,4 | 2,3 | 10,7 | | 0,11% |
| TOTAL | 14,6 | 32,0 | 46,5 | | 0,46% |

Joint Undertakings, Public-Public Partnership and Executive Agencies

Total costs for supervision of Joint Undertakings (Art. 187 bodies-JUs) incurred in 2020 by DG Research and Innovation are estimated at EUR 2.83 million, i.e., 0.35% of the payments made to these bodies in 2020.

Total costs of supervision of Public-Public Partnerships (Art. 185 bodies) incurred in 2020 by DG Research and Innovation are estimated at EUR 1.15 million, i.e., 0.64 % of the payments made to these bodies in 2020

Total costs of supervision **of Executive Agencies (EA) incurred** in 2020 by DG Research and Innovation are estimated at EUR 1.47 million, i.e., 1.12% of the total expenditure sub-delegated by DG Research and Innovation to the agencies, covering administrative costs.

Table 7: DG Research and Innovation cost of supervision of EAs, JUs and Public-Public Partnerships (Art 185 entities)

| Executive agencies and Indirect Grant Management | Payments (a) | FTE | Total direct costs (b) | Horizontal costs (0,12% of payments see table Y annex 6) (c) | Total costs (b) + (c) | Total costs as % of (a) |
|--|--------------------|-------|------------------------|--|-----------------------|-------------------------|
| Executive Agencies | 131.387.351,79 € | 11,30 | 1.314.773,90 € | 157.664,82 € | 1.472.438,72 € | 1,12% |
| Article 185 | 180.426.183,79 € | 8,00 | 930.813,38 € | 216.511,42 € | 1.147.324,80 € | 0,64% |
| Article 187 (JU's) | 807.851.536,39 € | 16,00 | 1.861.626,76 € | 969.421,84 € | 2.831.048,60 € | 0,35% |
| Total | 1.119.665.071,97 € | 35,30 | 4.107.214,04 € | 1.343.598,09 € | 5.450.812,13 € | 0,49% |

The supervision of Executive Agencies includes the implementation of their operational budget. During 2020, REA and ERCEA implemented a total of EUR 2 499 million payment

appropriations on the budget line 08⁴¹. In 2020, EASME and INEA implemented EUR 1 150 million payment appropriations on the same line. These amounts should also be taken into account when assessing cost-effectiveness of supervision.

Overall, the control system put in place for Executive Agencies and indirect grant management is considered to be cost-effective.

Financial instruments

EIB/EIF

In year 2020, DG Research and Innovation's payments to the European Investment Bank (EIB) and the European Investment Fund (EIF) amounted to EUR 676.11 million, out of which the EIB and the EIF deducted EUR 25.41 million for administrative, treasury asset management and policy-related incentive fees.

The European Investment Bank withdrew from the EU account EUR 1.17 million for administrative fees, EUR 3.12 million for policy-related incentive fees and EUR 0.49 million for treasury asset management fees and unforeseen expenditures. The cumulative amount of fees (2014-2020) drawn by the EIB from the EU account as of 31/12/2020 was EUR 51.41 million.

The European Investment Fund (EIF) withdrew from the EU SMEG account EUR 1.82 million for administrative fees, and EUR 5.85 million for policy-related incentive fees. The cumulative amount of fees (2014-2020) related to InnovFin SMEG drawn by the EIF as of 31/12/2020 was EUR 56.77 million.

The European Investment Fund withdrew from the EU IFE account EUR 6.02 million for administrative fees, and EUR 6.94 million for policy-related incentive fees. The cumulative amount of fees related to InnovFin IFE drawn by the EIF as of 31/12/2020 was EUR 32.12 million.

The share of fees of the three instruments in the 2020 payments is 3.76 %. These fees were withdrawn from the EU account according to the terms of the Delegation agreements, which were drafted specifically for the purpose of the sound management of funds.

⁴¹ Not a direct part of the DG R&I budget and thus not covered directly by the assurance in this report.

The amounts transferred for the management and other fees payable each year vary. For this reason, a full account of the share of management fees out of the total implemented amounts will only be possible upon the closure of the programme.

During 2020, the designated services (EIF and/or EIB) recovered, EUR 450.19 million from the Seventh Framework Programme Risk-Sharing Finance Facility (RSFF) reflows, EUR 50 million from the Seventh Framework Programme Risk sharing Instrument (RSI) reflows, EUR 6.72 million from InnovFin SMEG treasury income, EUR 2.20 million from the InnovFin IFE treasury income, and EUR 17.74 million from the Competitiveness and Innovation Framework Programme High Growth and Innovative SME Facility 1 (CIP GIF 1).

The supervision of the activities implemented by the EIB and the EIF was carried out in 2020 by 2.5 FTE DG Research and Innovation staff. The total costs of this supervision were estimated at EUR 0.29 million in addition to the costs of the horizontal control tasks estimated at EUR 0.82 million (0.12% of payments. See table Y in annex 7).

EIC FUND

During 2020, the amount of EUR 278.1 million was transferred to the EIC Fund. The draft annual accounts for year 2020 of the EIC Fund indicated that audit fees amounted to EUR 0.02 million and administration fees to EUR 0.26 million.

The cost of DG Research and Innovation supervision of EIC Fund in 2020 is estimated at EUR 0.33 million⁴²

Conclusion on the cost-effectiveness of controls

Based on the most relevant key indicators and control results, DG Research and Innovation has assessed the effectiveness, efficiency and economy of its control system and reached a **positive conclusion** on the cost-effectiveness of controls for which it is responsible.

The first objective of the control system is to achieve the main policy objective – to create growth and jobs, in particular, by contributing to more and better research and innovation in Europe. In this sense, the controls aim to ensure good work programmes, select the best proposals to be funded and verify the scientific deliverables.

The second objective of the control system is to ensure that the EU contribution paid to the beneficiaries complies with internal control objectives. This means, in short, legal and regular

⁴² Horizontal cost of controls representing 0.12% of payments. See table Y in annex 7

transactions carried out in a cost-effective way. This report develops at several points how the balance between these two requirements is found.

Overall, given:

- the achievements of research and innovation policy as set out in Part 1,
- the quantitative and qualitative benefits arising from the control systems adopted (common approach on processes and interpretation of rules thanks to the Common Implementation Centre, quality of proposals due to reviews which are performed by panels of independent external experts in the scientific field complemented by a real competition for funds, amount of rejected funding following Research and Innovation ex-ante checks and amount recovered following the implementation of audit result),
- the error rates set out above, which are at levels considered as being appropriate, when balanced between different policy objectives and between trust and control,
- the costs of the control system compared to the level of expenditure,

it is considered that a cost-effective control system has been put in place, balanced with the objectives of research and innovation policy.

The same conclusion applies to the financial instruments which are managed in accordance with the delegation agreements concluded with the EIB, EIF, EIC Fund, Joint Undertakings (Article 187 bodies), Public-Private partnerships (Article 185) and Executive Agencies which are monitored in conformity with the supervision arrangements described above. They were all monitored in a cost-effective manner.

2.1.2 Audit observations and recommendations

This section sets out the observations, opinions and conclusions reported by auditors – including the limited conclusion of the Internal Auditor on the state of internal control. Summaries of the management measures taken in response to the audit recommendations are also included, together with an assessment of the likely material impact of the findings on the achievement of the internal control objectives, and therefore on management's assurance (Annex 7).

INTERNAL AUDIT SERVICE (IAS)

According to the IAS, DG R&I's internal control systems in place for the audited processes proved to be effective with the exception of the observations giving rise to four (4) 'very important' recommendations related to i) ex-post audit strategy by the Common Audit Service (two (2) recommendations) and the management of experts (two (2) recommendations).

Action plans for all recommendations have been defined and approved.

More details are available in Annex 7.

EUROPEAN COURT OF AUDITORS

Annual Report 2019

For the financial year 2019, the Court reported a 4% error level for Chapter 4 stressing that research expenditure (FP7 and Horizon 2020) remains a higher-risk area and the main source of error in this chapter.

Regarding the 2019 DG R&I Annual Activity Report, the Court concluded that it gave a fair assessment of the DG's and agencies' financial management in relation to the regularity of underlying transactions.

The Court identified weaknesses related to documentation, sampling consistency, reporting and, in some cases, the quality of the audit procedures. The Court issued four recommendations, which the Commission has accepted and are currently under implementation.

On Horizon 2020 performance, the Court concluded that although the information available is limited, there are no indications that performance is at risk and examples of successful projects are plentiful. The Court considered that Horizon 2020 provides EU added value through its uniqueness and pan-European character.

Annex 7 presents the recommendations and the respective action plan drawn by the responsible Commission services.

Special reports

The Court published two special reports in 2020 that relate to DG Research and Innovation activities. The first special report (N° 02/2020) titled **“The SME Instrument in action: an effective and innovative programme facing challenges”** was published in January 2020. The second report (N° 16/2020) titled **“The European Semester – Country Specific Recommendations address important issues but need better implementation”** was published in September 2020.

In the special report on the SME instrument, the Court issued five recommendations of which the Commission accepted four in full and one in part. As regards the special report on the European Semester, the Court issued five recommendations to the Commission, one of which is addressed to DG Research and Innovation. DG Research & Innovation partially accepted this recommendation, insofar as it cannot commit to issuing CSRs for all Member States, which lack progress.

For more details, please see the respective sections of Annex 7.

OVERALL CONCLUSION ON AUDIT OBSERVATIONS AND RECOMMENDATIONS

Internal and external audit work contributes significantly to continuous improvements in DG Research and Innovation systems and operations. The Directorate-General systematically addresses and follows up the recommendations submitted by the Internal Audit Service (IAS) and the European Court of Auditors. The four very important recommendations from IAS were issued by IAS reports that were finalised at the beginning of 2021. They were accepted and action plans have been prepared and presented to the IAS in February. Recommendations issued by the Court of Auditors were also systematically addressed. The current residual risk from the audit recommendations that remain open in DG Research and Innovation does not impair the declaration of assurance.

2.1.3 Assessment of the effectiveness of internal control systems

The Commission has adopted an Internal Control Framework based on international good practice to ensure the achievement of its policy and management objectives. Compliance with the internal control framework is a compulsory requirement.

DG Research and Innovation uses the organisational structure and the internal control systems suited to achieving its policy and internal control objectives in accordance with the internal control principles and has due regard to the risks associated with the environment in which it operates.

The internal control assessment was performed in compliance with the methodology established by DG BUDG⁴³. It was based on an evaluation of monitoring indicators defined in the DG Research and Innovation Internal Control Framework and a desk review of the analysis of information from various sources such as:

- the indicators set out in the Internal Control Framework of the DG;
- the Director's reports for 2020 and the 2020 risk assessment exercise at Directorate and Directorate-General level;
- the reports on recorded exceptions, non-compliance events and any cases of confirmation of instructions (art 93.2 FR);

⁴³ Implementation guide of the internal control framework of the Commission.

- the observations and recommendations reported by the Internal Audit Service and conclusion of the Internal Auditor on the state of internal control in DG Research and Innovation;
- the observations and recommendations reported by the European Court of Auditors;
- the DG BUDG reports on follow-up of recommendations on the validation of Local Systems;
- the error rates for the Seventh Framework Programme, Horizon 2020 and the Research Fund for Coal and Steel.

The evaluation and analysis showed that:

- The majority (30 out of 35) of the Internal Control Monitoring Criteria are well within the set targets.
- All recommendations of the Court of Auditors, including the four classified as ‘very important’, have an expected completion date of 31/12/2021 at the earliest and remedial actions for many are underway;
- Action plans are in place for all recommendations of the Internal Audit Service, including the four classified as ‘very important’⁴⁴ (see Annex 7);
- All actions identified in the action plan addressing DG BUDG’s reports on the validation of Local Systems (2017) have been implemented, except for the guidelines for cash management that will be prepared by 30/06/2021;
- No major deficiencies identified in previous assessments are currently pending any actions.

The conclusions combining DG Research and Innovation’s assessment and the audit results confirm that the internal control system meets the control objectives and is being implemented effectively.

None of the issues underlying the findings and recommendations cast significant doubt on the overall efficiency and effectiveness of the internal control system or even hint a reservation as to the required assurance.

⁴⁴ - Two recommendations from the ‘IAS Audit on H2020 Ex-Post Strategy (CAS) - Final report’ (26/01/2021). Action plan presented to the IAS on 19/02/2021.
 - Two recommendations from the ‘IAS Audit on the Management of Experts in H2020 Grants - Final report’ (27/01/2021). Action plan presented to the IAS on 26/02/2021.

DG Research and Innovation has assessed its internal control system during the reporting year and has concluded that:

It is effective and the components and principles are present and functioning well overall, but some improvements are needed as important deficiencies were identified especially in relation to component II (Risk Assessment - principles 6 and 7) and III ('Control Activities' – principles 10 and 12) with some attention required on principle 15 (component III – Information and Communication). See audit observations and recommendations - IAS.

2.1.4 Conclusions on the assurance

This section reviews the assessment of the elements already reported above (in Sections 2.1.1, 2.1.2 and 2.1.3), and the sub-conclusions already reached. It draws an overall conclusion to support the declaration of assurance and whether it should be qualified with reservations.

Based on the analysis of the results of the controls in place shown in the indicators outlined above, and the examination of the evidence available, DG Research and Innovation's management is in a position to provide **reasonable assurance on the following areas:**

- policy-development activities;
- the processes relating to the selection of contractors and beneficiaries and the underlying financial operations (legal and financial commitments);
- payments relating to administrative expenditure and procurement;
- Horizon 2020 payments for grants;
- management of the RSFF/INNOVFIN financial instruments and the underlying financial transactions with the EIB and EIF;
- management of the EIC Fund;
- payments to Joint Undertakings and Article 185 initiatives;
- the operating subsidy paid to the Executive Agencies.

Because of the 'de minimis' threshold for financial reservations introduced in 2019⁴⁵, a quantified reservation is no longer needed for **the Seventh Framework Programme and Research Fund for Coal and Steel**⁴⁶.

DG Research and Innovation considers that its overall control strategy is appropriate as it ensures **a good balance between low errors and efficient controls at a reasonable cost**. Aiming to achieve a residual error rate of 2% at all costs is not a viable approach. This was set out explicitly in the financial statement accompanying the Horizon 2020 legislation, which was accepted by the co-legislators.

OVERALL CONCLUSION

In conclusion, management has reasonable assurance that, overall, suitable controls are in place and working as intended; risks are being appropriately monitored and mitigated; and necessary improvements and reinforcements are being implemented.

The Director General, in his capacity as Authorising Officer by Delegation has signed the Declaration of Assurance.

⁴⁵ Agreement of the Corporate Management Board of 30/4/2019. According to this threshold, quantified AAR reservations related to residual error rates above the 2% materiality threshold, are deemed not substantial for segments representing less than 5% of a DG's total payments and with a financial impact below EUR 5 million.

⁴⁶ FP7 payments represent 0.3% of 2020 R&I payments and the financial impact is EUR 1.8 million. RFCS payments represent 0.9% of 2020 R&I payments and the financial impact is EUR 1.8 million. The deminis threshold was already applied in the AAR 2019.

2.1.5 Declaration of Assurance

I, the undersigned,

Director-General of Research and Innovation

In my capacity as authorising officer by delegation

Declare that the information contained in this report gives a true and fair view⁴⁷.

State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment, ex-post controls, the work of the Internal Audit Service, and the lessons learnt from the reports of the Court of Auditors for years prior to the year of this declaration.

Confirm that I am not aware of anything not reported here which could harm the interests of the institution.

Brussels, 31 March 2021

[Signed in ARES]

Jean-Eric Paquet

Director-General DG Research and Innovation

⁴⁷ True and fair in this context means a reliable, complete and correct view on the state of affairs in the DG/Executive Agency.

2.2 Modern and efficient administration – other aspects

2.2.1. HUMAN RESOURCE MANAGEMENT

2020 was a pivotal year for the internal organisational development of the European Commission and of the Directorate-General, marked by the impetus on a greening agenda and a revamped Human Resources (HR) strategy, the spread of COVID-19 and its impact on internal working modalities, and the adoption of an innovative financial package for the next seven years.

In addition to the regular HR related activities, the HR Business Correspondent (HR BC) team focused on the following three main priorities:

- The continuation of the R&Innovate process to transform the administration

A staff survey was launched at the beginning of 2020, a year after the start of the R&Innovate process. The main objective of this survey was to take stock and identify areas for possible improvements. The survey covered four main areas: change and innovation, how we work together, how staff feel at work, and learning and development. Based on the R&I staff survey results, a core team was set up to follow-up the results and two virtual workshops were organised with senior and middle managers. A first list of proposed actions were drawn on the basis of the reflections and discussed with the Director's General Board. They were also discussed with the assistants to Directors towards the end of the year and will be considered/integrated in the development of a new local HR Strategy, which is foreseen in 2021.

- Preparation for the delegation of programme implementation to Executive Agencies and other EU bodies

The R&I HR BC team contributed to the works of the Matrix Team in charge, assessed and made proposals concerning human resources management, liaised with the central services (e.g. DG BUDG, DG HR) and coordinated various actions across concerned services in a continuous changing context.

Staff received appropriate HR support and were informed on relevant aspects related to the delegation, such as the expected new portfolios of the Executive Agencies for the next MFF period (2021-2027) and the potential consequences on staff working on the parts of the programme to be delegated in an early stage of the delegation process. Furthermore, the job-shadowing programmes with the executive agencies, EASME and respectively REA, presented an additional opportunity for staff in the Directorate-General to get to know the Agencies better and possibly explore career opportunities.

During this very difficult period of the Covid 19 pandemic, a quick response and strategy was developed to ensure business continuity and provide continuous support to staff.

The period of confinement during COVID-19 pandemic changed significantly the working modalities by rapidly passing to virtually working together and a new way of managing staff. The Directorate-General implemented the measures taken by the central services (i.e. new teleworking rules) and adopted as well complementary measures to support managers and staff.

The HR BC regularly participated as a member of the DG crisis management team which gathered regularly during the year to discuss the covid context and the implementation of related measures at DG level. In particular the approach to requests for teleworking from abroad was a topic of regular discussion as well as the on-boarding of newcomers staff and trainees in the virtual teams.

A specific Coronavirus intranet page was created to keep staff updated on the latest developments, a Coronavirus intranet Diaries and Coronavirus Support Group were as well created to psychologically and mentally support staff by exchanging information, experiences and thoughts. Furthermore, specific mindfulness sessions for management and staff were organised and an office in ORBN building was made available for the coaching activities.

Middle Management café gatherings continued to be organised virtually and addressed the experiences and the lessons learnt by managers during COVID-19 pandemic.

Concerning the newcomers joining the Directorate-General during the corona crisis lockdown, DG Research and Innovation replaced the traditional half-day newcomer sessions organised twice a year by virtual sessions organised regularly to help new colleagues integrate in an optimal way.

2.2.2. DIGITAL TRANSFORMATION AND INFORMATION MANAGEMENT

Digital solutions

The **eGrants IT suite and the Funding & Tenders Portal**, the one-stop shop for applicants and beneficiaries, cover all stages of the grant lifecycle in a fully electronically way. The on-boarding of other programmes beyond Horizon 2020 is a continuous exercise.

Currently, **eGrants supports 29 programmes under the MFF 2014-2020** (in service mode, including one pilot) with a further three on-boarding (including two pilots). As regards

the **MFF 2021-2027, 30 programmes** are on-boarding with another one to come on-board at a later stage. This will result in a total of 49 programmes which will be managed via eGrants.

As such, eGrants is contributing to the Digital Transformation of the Commission, with a high visibility to the external stakeholders. These IT tools will be further developed, to release their full potential, for instance in terms of support to policy making as technologies today allow harvesting information from large corpus of unstructured or semi-structured documents, even across programmes.

Data assets

With the 2019 reorganisation, DG Research & Innovation has enshrined the priority for Data, Information and Knowledge Management in its core structure, creating a unit largely dedicated to these activities (The Common data and Knowledge service RTD.B6).

In 2020, DG Research & Innovation has designed its **R&I Data Strategy**, fully aligned with the Corporate Data strategy and the Commission's 2020-2021 work programme on data, information and knowledge management. It covers:

- **Horizon Dashboard:** the Horizon Dashboard was further developed to support policy-making and efficient programme implementation, monitoring and evaluation.
- **European data for R&I Policy:** this new initiative to increase the sharing of micro R&I data across ERA governments was put forward and progress was achieved to officially launch at the ERAC Plenary in late September 2020. First workshops were organised with Member States end of November 2020 and an action plan is under preparation.
- **Data Inventory:** In the first half of 2020, an extensive compilation of all data sources being used or created by DG Research & Innovation was achieved.
- **Data Linking:** External data sources can be exploited to complement, enrich or validate the R&I data we collect even after the projects have ended. This will allow for better assessing the results, outcomes and impact of our programmes, without increasing the burden on the beneficiaries, and for improving data quality.
- **Cortex (which stands for “Core Text Mining”):** the Cortex text Mining application was further developed, enriching its data and functionalities in response to user needs. the tool was successfully used in the preparation of policy feedback products and demonstrated its benefits in generating “smart” project portfolio's resulting in real efficiency gains (time saving).

Knowledge Management

The data and knowledge management unit was reinforced end of the year with two experts in Knowledge Management who will design the new DG Research & Innovation Knowledge Management Strategy. Two key Knowledge Management projects were delivered in 2020:

- **Countrypedia:** A new collaborative knowledge platform was created and is now open to all. It includes quantitative and qualitative R&I information for all 27 Member States.
- **Teams/Microsoft 365:** Working with the corporate team, three pilots have been launched to test the tool and prepare its roll-out in 2021. This corporate tool should facilitate collaboration and knowledge management in the current challenging period.

Data protection

The CIC provided support in more than 20 instances to the R&I family to ensure compliance of personal data processing operations with Regulation 2018/1725.

105 requests of colleagues were further processed for the review of **Data Protection Notices (DPNs)** and their correct implementation. The **Data Protection sector (DPs)** has answered to: 7 Helpdesk questions on personal data protection (most of them coming from the NCPs) and more than 60 questions from the R&I colleagues on the correct implementation of **the EU Data Protection Regulation**. The DPs assessed more than 10 requests for access to the EC database of experts. It has also dealt with: the data protection aspects of 4 requests for public access to documents, 6 inter-service consultations, as well as with 6 requests from data subjects. It helped 'operational controllers' to manage and report 5 data breaches (4 to the European Data Protection Supervisor (EDPS) and one to the EC Data Protection Officer (DPO).

Trainings were promoted via communication to staff, notably via a quiz and also via an EU Survey. Five Data Protection trainings via EU Learn, 3 to newcomers, 2 to other staff (with 60 colleagues Data Protection trained) were organised.

The DPs continued working on the implementation of the Commission Data Protection Action Plan requested by the SG. In particular, it has finalized the registration of a new R&I corporate record (SINAPSE), and coordinated the answers to the survey and inquiry of the EDPS relating to DG Research & Innovation relations with Executive Agencies (EAs) and to the mapping of DG Research & Innovation international transfers.

Further to the endorsement of the CIC Executive Committee, it published the two new Privacy Statements on 'participant registration/grant management' and 'expert management', reviewed by the Data Protection Advisory Working Group (DPAWG).

Further to Schrems II (and the invalidation of the US Privacy Shield), the DPs conducted a stock-taking exercise and reported (SG, DIGIT and the EC DPO) with the DG R&I inventories of: a) processing agreements involving transfers of personal data to non-EU/EEA countries (none was reported); b) any other international transfers (6 reported, under as legal basis valid Adequacy Decisions, Standard Contractual Clauses or public interest).

It held also two meetings of the Task Force on Elimination and Retention Safeguards (TFERS), and, further to the endorsement of the CIC Executive Committee, launched the first wave of elimination of obsolete personal data, whilst agreeing to take into account the learnings of the current works on elimination (e.g. relating to unstructured personal data and to denomination of roles) to include them in the Horizon Europe templates and IT tools.

Within the scope of the further drafting of the R&I Joint Controllershship Agreement (formerly Memorandum of Understanding), the DPs initiated discussions within DG Research & Innovation and with Executive Agencies about the sharing of responsibilities between Joint-Controllers vis-à-vis our new implementing rules (enforced on 3 July, but not applicable to Executive Agencies/Joint Undertakings) and the new concept of 'operational controller', consistently with the line taken by the Data Protection Corporate Working Group (DPCWG, replacing the DPAWG).

2.2.3. SOUND ENVIRONMENTAL MANAGEMENT

Under the umbrella of EMAS and in the broader context of greening, DG Research & Innovation adopted a ten-point greening plan, comprising actions with direct and significant impact on emissions (reduction of travels), actions in the traditional EMAS sphere (waste management) and actions of a voluntary nature. With the investment of 1.8M€ in web / video-conferencing equipment goes a commitment to reductions in air-travel (missions, experts and events) throughout the Covid-19 recovery phase. On top of these actions on related to the Covid-19, the circulation of paper copies of newspapers and journals was completely suspended. This action will be turned into a permanent measure.

Specifically, the 2020 R&I days – the major annual event of DG Research & Innovation - was carried out in a fully virtual environment, with great success in terms of participation, while saving thousands of tons of greenhouse gas emissions.

In the area of voluntary action, DG Research & Innovation made a small financial contribution to the installation of an herb-garden in the courtyard of the ORBN building. Finally, in anticipation of increasing its activities in greening, the DG recruited a new full-time 'greening correspondent'.