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**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND  
THE COUNCIL**

**Annual Report on Research and Technological Development Activities of the European  
Union and Monitoring of Horizon Europe and Horizon 2020 in 2021**

## 1. BACKGROUND

This report, drafted in accordance with Article 190 of the Treaty on the Functioning of the European Union and Article 7 of the Regulation (EU) 2021/695 of the European Parliament and the Council establishing Euratom Treaty, in conjunction with [Article 50 of the Horizon Europe Framework Programme for Research and Innovation](#) and Article 12 of the [Council Regulation \(Euratom\) 2021/765 establishing the Research and Training Programme of the European Atomic Energy Community](#), provides a non-exhaustive overview of the EU's key research and innovation (R&I) activities in 2021 and the monitoring of Horizon Europe, Horizon 2020 and the Euratom Programme.

## 2. POLITICAL CONTEXT AND POLICY DEVELOPMENTS

The EU's R&I activities in 2021 were again focused on tackling the **COVID-19 pandemic** and mitigating its effects on European society and economy. To boost the post-pandemic recovery in the EU, the **Recovery and Resilience Facility** was launched (making EUR 800 billion available in loans and grants).

In 2021, **Horizon Europe** – the EU's flagship programme for R&I in the current 2021-2027 Multiannual Financial Framework – was launched with a budget of EUR 95.5 billion and an additional EUR 5.4 billion contributed by the Recovery and Resilience Facility.

### 2.1. COVID-19 pandemic

The Commission continued to invest in R&I for vaccines and treatments, especially for the emergence of new variants. By the end of the previous R&I programme Horizon 2020, EUR 872.18 million had been mobilised to fund coronavirus-related research, including diagnostics, treatments, vaccines, epidemiology, preparedness and response to outbreaks, socioeconomics, mental health, production and digital technologies, as well as the infrastructure and data resources that enable this research. These efforts were reflected in several activities that are listed below:

- The adoption of the HERA package, which consists of the [communication Introducing the Health Emergency Preparedness and Response Authority \(HERA\)](#) (September 2021), the Commission [Decision on the establishment of HERA](#) and the [proposal for a Council Regulation on a framework of measures for ensuring the supply of crisis-relevant medical countermeasures in the event of a public health emergency at Union level](#). Over the next 6 years, EUR 1.7 billion will be allocated under Horizon Europe to contribute to achieving HERA's objectives.
- [The communication HERA Incubator: Anticipating together the threat of COVID-19 variants](#) (February 2021) aims to address the increased spread of new SARS-CoV-2 variants.
- [The EU strategy on COVID-19 therapeutics](#) (May 2021) clarified that the investment under Horizon Europe will support vaccine and therapeutic trials.

- [Drawing the early lessons from the COVID-19 pandemic](#) (June 2021) lists 10 lessons learnt, including that ‘a pan-European approach is essential to make clinical research faster, broader and more effective’.
- On 17 December 2021, a COVID-19 ‘research to policy action’ dialogue was organised to facilitate research on the Omicron variant.
- The [European COVID-19 data platform](#) has continued to grow, currently holding close to 10 million records of different data types, including over 4.5 million viral genomes and more than 4.3 million raw viral sequences.
- The [EU COVID-19 manifesto](#) to maximise uptake of research results has been extended.

## 2.2. Green and digital transition

With the entry into force of the [European Climate Law](#) (June 2021), the targets of net zero greenhouse gas emissions by 2050 and reducing emissions by at least 55% by 2030, compared to 1990 levels, became legally binding in the EU. In July 2021, the Commission adopted the [Fit for 55 package](#) to make the EU's climate, energy, land use, transport and taxation policies fit for reaching the targets - including the target of using 35% of research and innovation funding under Horizon Europe for green investments. Related to energy the main objectives of the Fit for 55 package were to:

- Accelerate energy efficiency efforts across all sectors;
- Make it mandatory to renovate buildings and make new buildings zero-emission by 2030;
- Boost the deployment of renewable energy so that at least 40% of energy consumption is covered by renewables by 2030.

The [Sixth report on the state of the Energy Union](#) was accompanied by a report on the competitiveness of clean energy technologies, which shows the EU remains at the forefront of clean energy research.

The implementation of the [EU’s sustainable and smart mobility strategy](#) included several legislative proposals in 2021 as part of the “Fit for 55 package” (e.g. the [Alternative Fuels Infrastructure Regulation](#) and the [ReFuelEU aviation](#) and [FuelEU maritime](#) initiatives) and the efficient and green mobility package in December (e.g. revisions of the [TEN-T Regulation](#) and the [ITS Directive](#), as well as a new [EU urban mobility framework](#)).

The [communication Sustainable Carbon Cycles](#) (December 2021) promoted R&I to increase removals and storage of carbon from the atmosphere.

To prepare for the unavoidable impact of climate change and become a climate-resilient society by 2050, the [EU strategy on adaptation to climate change](#) was adopted (February 2021), underlining the role of science.

In 2021, for the first time since the launch of the [Emissions Trading System – Innovation Fund](#), the EU is investing over EUR 1.1 billion in seven innovative projects, aiming to bring breakthrough technologies to the market for (i) energy-intensive industries; (ii) hydrogen; (iii) carbon capture, use and storage; and (iv) renewable energy.

The environmental dimension of the European Green Deal was also supported in 2021 by the adoption of a series of initiatives in the framework of the [Biodiversity strategy](#) (such as the Forest strategy and the Soil strategy), the [Zero Pollution Action Plan](#) and the [Circular Economy Action Plan](#). The research proposed under Horizon Europe topics in 2021 supported these policy initiatives.

The agreement on the reform of the [common agricultural policy](#) was adopted (December 2021) as well as an [organic action plan](#), which gives R&I a strong role to play. R&I will also be important for the development of carbon farming following the [communication on sustainable carbon cycles](#).

The Commission adopted a proposal for a [Council Recommendation on ensuring a fair transition towards climate neutrality](#), adopted by Council on 16 June 2022, in which Member States commit to put in place comprehensive policy packages, in line with national circumstances, to ensure the green transition is fair and inclusive.

The [Communication on Sustainable Blue Economy in the EU](#) (May 2021) focuses on a Green Recovery for the Blue Economy – Transforming the EU's Blue Economy for a Sustainable Future, underlining the role of R&I in driving this transformation.

The [Marie Skłodowska-Curie Actions Green Charter](#) promotes the sustainable implementation of research activities. It is a code of good practice for any individuals and institutions who benefit from funding.

The Commission proposed a [path to the Digital Decade](#). This sets out concrete digital targets that the EU is expected to achieve by 2030. The proposal also sets up a cooperation cycle between the Commission and Member States that provides a framework for developing multi-country projects that no single Member State could develop alone (e.g. high-performance computing, secure quantum communication).

### **2.3. Industry**

The updated [industrial strategy](#) (May 2021) confirms R&I as a driver to move European industry forward in the green and digital transitions. A new vision for a green, resilient and human-centric industry was developed in the '[Industry 5.0](#)' concept (January 2021). The Commission published the 2020 [Transitions Performance Index](#), which monitors the transition towards a circular and regenerative EU industry, and the 2021 [EU Industrial R&D Investment Scoreboard](#), which lists the top 2 500 private R&D investors.

In 2021, an integrated [EU space programme](#) was launched. It brings together operational activities for satellite navigation, Earth observation, and the new [EU governmental satellite communications](#) and space situational awareness components, including space surveillance and tracking of satellites and space debris.

## 2.4. Security

The Commission published a staff working document [Enhancing security through research and innovation](#), which gives examples of how law enforcement authorities and border guards benefit from EU security research. The document describes how to take up research results into operational tools, including the new [Community for European Research and Innovation for Security](#), which brings together all stakeholders.

## 2.5. Partnership with Member States

In 2021, there was major progress in the renewed European Research Area (ERA) with the [Council Recommendation for a Pact for research and innovation](#) and the [ERA policy agenda](#). It sets out 20 measures for 2022-2024, including sharing open knowledge and promoting attractive scientific careers.

Knowledge valorisation is key for the uptake of R&I results in society and the economy. The Commission prepared the draft Council recommendation on the [European guiding principles for knowledge valorisation](#) and organised the first EU Knowledge Valorisation Week (April 2021).

The European semester cycle of economic policy coordination was temporarily replaced by the [national recovery and resilience plans](#). The Commission received 26 plans and endorsed 22 of them – all the plans include solid proposals for R&I investment and reforms.

With the [Ljubljana declaration on gender equality in R&I](#), the Commission, 25 Member States and 12 associated countries strengthened their efforts towards fair, open, inclusive and gender-equal research systems.

## 2.6. International aspects

The [communication on the Global Approach to Research and Innovation](#) reaffirms the EU's commitment to preserve openness in international R&I cooperation, while promoting reciprocity underpinned by fundamental values with an emphasis on protecting the EU's open strategic autonomy.

On 6 October 2021, the EU and Western Balkans leaders launched the [Western Balkans agenda on innovation, research, education, culture, youth and sport](#) at the [Brdo Summit](#).

Six post-2020 priorities for R&I were incorporated in the [Eastern Partnership's](#) revised architecture in 2021 to boost the innovation capacities of eastern partners.

A new [R&I cooperation agenda](#) was developed with the Mediterranean. Furthermore, the work on an EU-China joint roadmap for future science and technology cooperation has progressed. R&I also featured prominently in the [EU-US Summit held in Brussels on 5 June 2021](#). The successful R&I cooperation with Latin America and the Caribbean was noted by the Council in the endorsement of the [EU-Community of Latin American and Caribbean States \(CELAC\) strategic roadmap](#).

As emphasised in the 2021 [Trade Policy Review](#), innovation is key for the EU's long-term competitiveness and its open strategic autonomy, strengthening its regulatory impact and position in key sectors, including digital trade.

## **2.7. Non-nuclear direct actions implemented by the Joint Research Centre of the Commission (JRC)**

The JRC supported numerous Commission initiatives with scientific evidence and analyses. For example, it helped fight COVID-19 by monitoring the performance of the most used testing methods and developing reference materials; compiling information on COVID-19 test devices and making it publicly [available](#); contributing to the creation of a [common list of COVID-19 rapid antigen tests](#) and providing daily updates for [safe travelling](#).

## **3. IMPLEMENTATION AND MONITORING OF HORIZON EUROPE, HORIZON 2020 & EURATOM**

### **3.1. Horizon Europe in 2021 – Highlights & Novelties**

In early 2021, the legal acts of the new impact-driven framework programme [Horizon Europe](#) and its [strategic plan](#) 2021-2024 were adopted. The Commission adopted the main 2021-2022 work programme in early 2021 (dedicated to COVID-19) and the full version in June. There were then further amendments in October (Article 22(5)) and in December (amendment on Missions). The respective configurations of the programme committee were set up and the first calls were launched. To prepare for the main 2023-2024 work programme, draft orientation papers were co-created with all services concerned.

In 2021, the Commission promoted Horizon Europe through communication activities for citizens and stakeholders. For example, specific webinars at the European R&I Days 2021 were organised (with 21 000 participants), and 14 info sessions were held to explain the funding instruments (235 000 views).

New R&I instruments in Horizon Europe include the [European Innovation Council](#), the next generation of [European Partnerships](#), and [Missions](#). The five Missions were launched in September 2021 as an innovative approach to achieve bold and measurable goals by 2030. The Commission promoted Missions through communication activities, such as a [video featuring eight Commissioners](#) (41 000 views), factsheets and social media campaigns.

In 2021, the first [European Innovation Council](#) (EIC) work programme made over EUR 1.5 billion available through funding opportunities, including the strands described below:

- [EIC Accelerator](#) (around EUR 1 billion) finances start-ups and small and medium-sized companies (SMEs) to develop and scale up high impact innovations with the potential to create new markets or disrupt existing ones.

- [EIC Pathfinder](#) (EUR 300 million) takes on visionary research with the potential to lead to technology breakthroughs.
- [EIC Transition](#) (around EUR 100 million) aims to turn research results into innovation opportunities.

The first two work programmes of the [European Research Council](#) were adopted, making EUR 1.9 billion and EUR 2.4 billion available respectively to help top researchers pursue frontier research.

At the [Climate Change Conference in Glasgow](#), the [EU catalyst partnership](#) was officially launched. This partnership will mobilise up to EUR 820 million (2022-2026; EUR 200 million from Horizon Europe). Investment will be directed towards EU-based projects with high potential for green hydrogen, sustainable aviation fuels, direct air capture, and long-duration energy storage.

In the [EU space programme](#), the space R&I part of Horizon Europe becomes more important for future-proofing the EU's strategic investment in space. This includes the evolution of the space programme components, strategic autonomy in satellite technologies, access to space, and market take-up of space-enabled services and applications.

Under Horizon Europe, the [Marie Skłodowska-Curie Actions](#) put more emphasis on inter-sectoral collaboration, effective supervision and career guidance. The programme remained a best practice of support to female researchers (who make up 41.6% of all research fellows). The programme celebrated its 25th anniversary in 2021 and has supported over 145 000 researchers since 1996.

The [legal basis of the European Institute of Innovation and Technology](#) (EIT) was consolidated. The EIT's new [strategic innovation agenda](#) for 2021-2027 sets out the objectives, key actions, mode of operation, expected results and impact. In 2021:

- The EIT signed grant agreements with eight existing knowledge and innovation communities (KICs) worth EUR 357.5 million;
- 1 006 people graduated from EIT-labelled master and doctoral programmes;
- 32 start-ups were created by students on EIT programmes, and 101 start-ups resulted from EIT innovation projects;
- 1 378 start-ups received support from KICs;
- The [innovation capacity building for higher education initiative](#) was launched.

The 2021-2022 work programme includes 210 topics that are specifically targeted at **international cooperation** (around 20% of all topics). These include the ambitious EUR 350 million [Africa initiative](#) with calls for collaborative research in public health, the green transition, and innovation and technology.

By end 2021, **negotiations for association** with 18 non-EU countries were conducted, 9 of which have already been concluded and producing legal effects. The assessment of candidate associated countries to participate in calls covered under [Article 22\(5\)](#) of the

Horizon Europe Regulation was carried out in 2021. This work will inform on the use of limitations in Horizon Europe work programmes over the coming years.

**Open science** has become Horizon Europe's way of working. With the launch of the first calls, open science practices are now considered when evaluating project proposals (as part of the 'excellence' and 'quality and efficiency of implementation' criteria).

Horizon Europe has strengthened **gender equality** rules, including a new eligibility criterion enforced as of 2022. All public bodies, research organisations and higher education bodies in Member States or associated countries must have a gender equality plan in place to be eligible for funding.

### 3.2. Monitoring data analysis – Calls launched<sup>1</sup>

In 2021, more than a hundred calls for proposals and other actions in the 2021-2022 Horizon Europe work programme were launched:

- **Pillar 1 – Excellent science** had 15 calls for proposals and 7 calls for other actions supporting frontier research and breakthrough scientific ideas (EUR 3 billion).
- **Pillar 2 - Global challenges and European industrial competitiveness** had 42 calls for proposals (EUR 5.3 billion) and 26 calls for other actions (EUR 328 million) in six different clusters<sup>2</sup>.
- **Pillar 3 – Innovative Europe** had 14 calls for proposals and 8 calls for other actions (EUR 1.6 billion), which aim to support the development of disruptive innovations.
- **Widening participation and strengthening the ERA** had 5 calls for proposals and 4 calls for other actions (EUR 266.5 million).

### European Partnerships

The Commission launched 23 new European Partnerships:

- **Eleven co-programmed European Partnerships**: 17 calls for proposals (EUR 1.6 billion) related to co-programmed partnerships were launched, primarily in the digital (cluster 4) and climate (cluster 5) domains, but also from the research infrastructures work programme.
- **Eleven institutionalised European Partnerships**: Out of the institutionalised European partnerships, the High Performance Computing and Key Digital Technologies Joint Undertaking launched four calls for proposals (EUR 215 million).

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<sup>1</sup> Source: Common Research Data Warehouse (CORDA) data and Call Passport System (CPS) policy monitoring metadata. Cut-off date: December 2021, extraction date: January 2022.

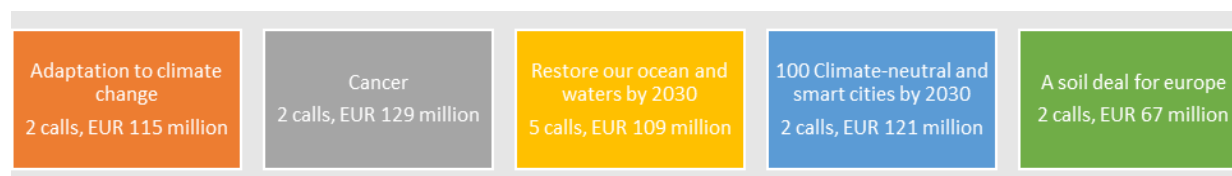
<sup>2</sup> Cluster CL 1: Health, CL 2: Culture, creativity and inclusive society, CL3: Civil security for society, CL 4: Digital, industry and space, CL 5: Climate, energy and mobility, CL 6: Food, bioeconomy, natural resources, agriculture and environment.



- **One co-funded European Partnership:** The [European Biodiversity Partnership](#) has launched one call for proposals: 46 funding organisations from 34 countries have reserved a total amount of over EUR 40 million.

## Missions

For the five Horizon Europe Missions, 13 calls for proposals (around EUR 541 million) were launched.



## Expected contribution to the Commission's priorities

For now, Horizon Europe's contribution to this Commission's 2019-2024 priorities can only be estimated based on data collected for calls<sup>3</sup>:

- 33 calls aimed at contributing to the **European Green Deal** (around EUR 4 billion across all clusters<sup>4</sup>);
- 29 calls aimed at contributing to a **Europe fit for the digital age** (around EUR 2.2 billion<sup>5</sup>).

In 2021, the Commission also [mobilised EUR 123 million for research on coronavirus variants](#) as announced in April and in line with the [HERA incubator](#).

## Success rates<sup>6</sup>

By end 2021, 64 of the over 100 calls for proposals had been closed and fully evaluated. The calls generated 7 460 eligible proposals that requested a total EU contribution of EUR 18.8 billion. Although 66% of the eligible proposals were above the quality threshold, only 1 290 could be selected, bringing the **overall success rate of eligible proposals to 17.3%** for the first year of the programme.

By end 2021, 19 grant agreements had already been signed for a total EU contribution of EUR 245.6 million shared across different thematic areas (see Table 1). The other grants were still under preparation.

<sup>3</sup> The following analysis refers to top-down calls in clusters for which sufficient information on topics are available. It excludes bottom-up calls (e.g. EIC, ERC, MSCA calls) and calls for European Innovation Ecosystems, Research infrastructures, Missions and Widening and ERA. The analysis refers to the cumulative budget, i.e. the full budget of the topics is considered even though topics might contribute to more than one policy priority.

<sup>4</sup> CL 5 (9 calls, EUR 1.4 billion, 34.5% of total cumulative budget), followed by CL 4 (6 calls, EUR 1 billion, 26.2%), CL 6 (8 calls, EUR 976 million, 24.3%) and CL 1 (5 calls, EUR 545 million, 13.5%).

<sup>5</sup> CL 4 (7 calls, EUR 978.4 million, 44.2% of total cumulative budget), followed by CL 5 (7 calls, EUR 643 million, 29%).

<sup>6</sup> Source of data: CORDA, cut-off date: December 2021, extraction date: January 2022.

Thematic area	EU contribution (EUR)	Average grant size (EUR)	No. of grants signed
European Research Council (ERC)	517 828.75	517 828.75	1
Marie Skłodowska-Curie Actions (MSCA)	150 000.00	150 000.00	1
Research infrastructures	400 000.00	200 000.00	2
Health	88 527 007.06	9 836 334.118	9
Culture, creativity and inclusive society	703 796.75	351 898.38	2
Climate, energy and mobility	250 000.00	250 000.00	1
Widening participation and spreading excellence	153 000 000.00	153 000 000.00	1
Reforming and enhancing the European R&I system	2 100 000.00	1 050 000.00	2
	<b>245 648 632.56</b>		<b>19</b>

Table 1: Grant agreements signed by thematic area

The first grants signed involve 120 participants from 28 different countries. Excluding the specific co-funded action [COST](#) (EUR 153 million), 13.7% of the EU funding will go to 10 participants from SMEs and 8.5% will go to non-EU countries. Higher education (37%) and research organisations (24%) have the biggest share of participants.

### 3.3. Horizon 2020 in 2021<sup>7</sup>

By end 2021, 955 Horizon 2020 call deadlines had passed, and 283 065 eligible proposals had been submitted, requesting a total EU contribution of EUR 473.2 billion. Of these proposals, 33 798 were selected for funding, bringing the overall success rate of eligible proposals in 7 years to 11.9%. In 2021, 3 160 grant agreements were signed for a total of EUR 6.1 billion bringing the total EU budget allocation for 2014-2021 to EUR 68.2 billion, from which the Excellent Science pillar had the biggest share (36.7%) followed by the Societal challenges (38.5%) and Industrial leadership (20.2%) pillars.

Among the distinct 41 200 beneficiaries, higher education organisations remain the largest group of recipients (39.2% of all recipients), followed by the private sector (28.2%), while 16.5% of Horizon 2020 funding goes to SMEs. So far, EU-funded projects under Horizon 2020 have resulted in more than 151 000 peer-reviewed publications above 2 600 patents applications and 1 168 patent awards.

<sup>7</sup> Source: Public Horizon Dashboard, R&I proposals dashboard and key performance indicators. Cut-off date: December 2021, Extraction date: January 2022.

### 3.4. Dissemination and exploitation

Different activities supported the dissemination and exploitation of R&I project results.

- New features to characterise results were added to the [Horizon Results platform](#) and 500 new key exploitable results from the framework programmes were uploaded by beneficiaries.
- The [Horizon Results Booster](#) provided targeted dissemination and exploitation services to beneficiaries.
- [CORDIS](#) disseminated the results from the EU funded R&I projects. It reached professionals in the field to foster open science, created innovative products and services and stimulated growth across Europe. It further produced a range of topical multilingual editorial products.
- The new [H2020-Interreg synergies mapping tool](#) integrates data from projects funded under Horizon 2020 and the 4th Interreg Central Europe call. This helps make geographical and thematic matches, pointing to potential synergies at regional level.
- New dashboards for the [Horizon Dashboard](#) were developed, providing data across several framework programmes.
- Monthly releases of Horizon 2020 data were made available to Member States and associated countries (with Horizon Europe data made available from August 2021).
- The [European data for research and innovation policy initiative](#) went ahead, focusing on national funding micro-data.
- Under the new [Horizon Europe dissemination and exploitation strategy](#), the 2021-2022 dissemination and exploitation action plan was adopted.
- The [Innovation Radar](#), which identifies EU-funded R&I projects with high potential, was expanded to the whole framework programme in 2021.

Examples of specific activities to support the dissemination and exploitation of results from the Framework Programmes in thematic areas are:

- The [Blue Invest initiative](#) provided assistance and access to investment for several maritime start-ups and SMEs, many of which had developed services and products in previous framework programmes.
- The promotion of complementary sources of EU funding under the [Internal Security Fund](#), the [Border Management and Visa Instrument](#) and [the Customs Control Equipment Instrument](#) for taking up security research results.

### **3.5. In-depth analysis: Horizon Europe Monitoring flashes and other studies**

#### **Contribution of EU R&I funding to COVID-19 related research**

[This analysis](#) showed that EU R&I funding has contributed to about 3 000 research papers on COVID-19. These papers come from almost all parts of the framework programmes, but the health programme, European Research Council, and Marie Skłodowska Curie Actions account for about 80% of them. 56% of the publications were internationally co-authored.

The analysis tentatively identified the most important discoveries to which EU R&I funding has contributed, as well as research on past coronavirus outbreaks on which the fight against the current pandemic builds.

#### **Informing global climate action**

The results of [this analysis](#) indicate that EU funding (Framework Programme 7 and Horizon 2020) has contributed to over 2 500 publications referenced in the four reports of the sixth Intergovernmental Panel on Climate Change (IPCC) assessment cycle (11.5% of all references). When considering publications authored/co-authored by researchers from Member States and associated countries, this share stands at 21.5%. For the [latest report](#), 14% of the references were supported by EU funding.

To support the [European Green Deal](#), the Commission launched in 2020 the last and biggest Horizon 2020 call. The EUR 1 billion call attracted 1 550 proposals, involving 28 000 applicants, and selected 73 projects (1 778 applicants) for funding. Organisations from 75 countries were selected to receive funding. 38% of the successful participants come from the private sector, and about half of those are SMEs. The Commission launched a [climate impact pilot survey](#) to collect data for assessing the expected benefits from this call.

#### **Evaluation study results**

A series of evaluation studies has been launched as part of the final ex-post evaluation of Horizon 2020. In 2021, three studies on specific aspects of Horizon 2020 were completed on focus areas, the open access policy and the proposal evaluation system.

### **3.6. Implementation and monitoring of the Euratom Programme**

In May 2021, the Council adopted a regulation establishing the Euratom Research and Training Programme 2021-2025. The Commission adopted work programmes for:

#### **a) Nuclear direct actions implemented by the JRC**

JRC published 105 articles in peer-reviewed journals and 22 in monographs/other journals and co-drafted 7 policy documents and released 6 science-for-policy reports, 89 technical reports, and 2 contributions to standards. Technical outputs include 13 reference materials, methods and measurements, 17 technical systems, and 8 scientific databases and datasets.

JRC organised 14 training courses for Member States and the Commission addressing the [Basics Safety Standards Directive](#) implementation and support the International

Atomic Energy Agency and Member States capabilities in nuclear safeguards and security.

In the nuclear safeguards field the JRC provided technical support to inspections, operated the Euratom on-site laboratory in France, and analysed nuclear materials. It also developed improved analytical methods and provided support to peer review of the nuclear stress test in Belarus and Turkey.

#### **b) Indirect actions of the Euratom Programme (grants)**

Euratom grants fund research in fusion energy and nuclear fission. Fission research covers nuclear safety, security, radioactive waste management and radiation protection, non-power applications, and education and training. For fission research, the EU contribution is set at EUR 99.9 million for 2021-2022.

The Commission awarded a EUR 547 million grant to implement the co-funded European Partnership for fusion research during 2021-2025.

## **4. OUTLOOK 2022**

In 2022 the main Horizon Europe 2023-2024 **work programme** will be drafted and adopted. Moreover, further preparatory steps and drafting of the **strategic plan 2025-2027** is planned.

In 2022, the Commission will continue carrying out **communication activities** on Horizon Europe, announcing the launch of the 2023-2024 work programme via media and social media outreach. The Commission will also provide visibility to the launch of the development of the strategic plan through communication activities that reach out to stakeholders and citizens.

The Commission will seek citizens' engagement through many initiatives, such as the [EU Contest for Young Scientists](#), the [Horizon Europe young observers pilot](#) and ERA4You, to raise awareness about and debate on EU R&I projects. The Commission will continue communicating with stakeholders on Missions and Partnerships, connecting with a growing community to address some of Europe's most pressing challenges.

The Commission will organise the [R&I Days 2022](#), bringing together policymakers, researchers, entrepreneurs and the public to debate and shape the future of R&I in Europe.

Lastly, the Commission will highlight the role of the EU as a global player through the promotion of the EU for the Mediterranean R&I agenda; the EU Africa Union joint innovation agenda and the [EuroScience Open Forum](#).