



European  
Commission

# Annual Activity Report 2022

Joint Research Centre

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## THE DG IN BRIEF

The Joint Research Centre (JRC) provides independent, evidence-based knowledge and science, supporting European Union policies to positively impact society. It contributes to EU policy making in a variety of key areas from agriculture and food security, to the environment and climate change, as well as in digital transition, innovation and industrial policy, and nuclear safety and security.

As an organisation at the interface between science and policy, the JRC provides the cross-sectoral support required by policymakers to tackle and anticipate increasingly complex societal challenges, combined with the capacity to respond rapidly to policy needs, all in close collaboration with the other Directorates-General. The JRC's work has a direct impact on the lives of Europeans through internationally recognised research for crisis and emergencies response, a healthy and safe environment, secure energy supplies, sustainable mobility and consumer health and safety.

The JRC was established following the Treaty on the European Atomic Energy Community (Euratom). It is building its expertise and sharing know-how with Member States and the scientific community. It works in collaboration with over a thousand organisations worldwide, whose scientists have access to JRC facilities.

The EU's framework programme for research and innovation, Horizon Europe and the Euratom Research and Training Programme funded the JRC in 2022. The JRC contributes to the overall objectives of these programmes while being fully aligned with the political priorities of President von der Leyen's Commission.

The JRC is organised in eleven directorates. Two have corporate responsibilities for 'strategy and impact' and 'support services'. Eight are scientific directorates of which six are thematically organised and two are horizontal – 'innovation in science and policymaking' and 'digital transformation and data'. In addition, there is a directorate in charge of nuclear decommissioning and waste management. A Communication Unit is directly linked to the Director-General.



JRC is located in 6 different sites, spread across 5 European countries.

The JRC also manages scientific infrastructures and nuclear facilities. It has an ISO certified quality management system and several of its laboratories are accredited according to ISO 17025.

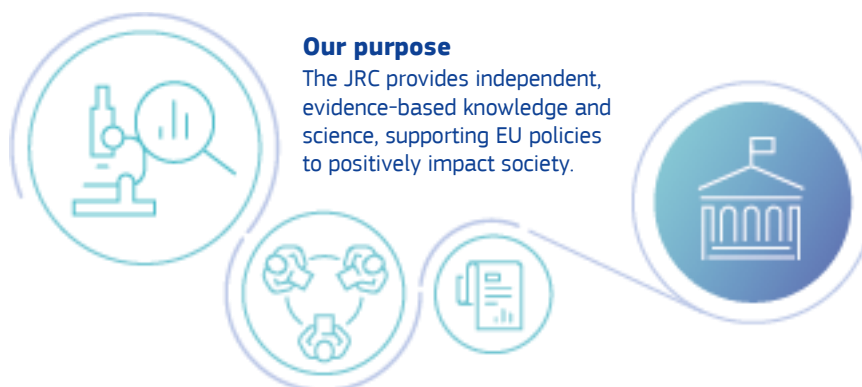
## EXECUTIVE SUMMARY

This annual activity report is a management report of the Director-General of the Joint Research Centre to the College of Commissioners. Annual activity reports are the main instrument of management accountability within the Commission and constitute the basis on which the College takes political responsibility for the decisions it takes as well as for the coordinating, executive and management functions it exercises, as laid down in the treaties <sup>(1)</sup>.

### A. Key results and progress towards achieving the Commission's general objectives and department's specific objectives

#### *Transforming JRC*

In 2022, the JRC **revitalised its 2030 Strategy**, adopted in 2016. The revitalised Strategy 2030 seeks to strengthen the JRC's role at the service of the European project and to improve its capacity to anticipate new challenges and opportunities. This should help policymakers to better understand problems and provide solutions to the complex and interlinked challenges faced by society. The strategy also signals the JRC's intention to engage more actively with its partners in the production and sharing of knowledge and science in support of EU policies to positively impact society.



In addition, the JRC prepared its **scientific work programme for 2023-2024** (adopted in February 2023). The work programme supports the Commission's political priorities and numerous initiatives in the Commission 2023 work programme. Its main building blocks are 33 portfolios allowing a better integration of JRC's work across scientific and policy domains. Integrated scientific evidence should allow policymakers to better anticipate new challenges, develop policies and monitor their implementation and impact. The portfolios will also help to better communicate to partners inside and outside the Commission our core strengths, rooted in anticipation, integration, and impact.

The revitalised strategy and the Work Programme 2023-2024 address some of the recommendations of the **ex post evaluation of the activities of the Joint Research**

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<sup>(1)</sup> Article 17(1) of the Treaty on European Union.

**Centre under Horizon 2020 and Euratom 2014-2020**, for example the need for more holistic policy support that joins the dots between different aspects of a challenge, and for strengthening the JRC's anticipatory capacity. Conducted in spring 2022 by a panel of independent external experts, the ex post evaluation issued a positive assessment of the JRC's performance in 2014-2020. The panel assessed the JRC's added value to be high, but also made crosscutting and thematic recommendations to further improve the JRC's impact in supporting policies.

### ***Supporting EU policy making***

The JRC contributed to the **Commission Communication on the 2022 Strategic Foresight Report** which addressed the technological and systemic avenues necessary for successful implementation of the Green Deal goals. The results of the foresight process are summarised in the JRC's 2022 science for policy report: **Towards a green & digital future**.

Together with DG RTD and DG REFORM, the JRC developed the **Commission Staff Working Document on Supporting and connecting policymaking in the Member States with scientific research** to enhance the use of scientific evidence in policymaking in the Member States. The document identified the rationale behind building capacity of science-for-policy ecosystems, the challenges encountered at the science-policy interface, and good practice at EU and Member State level.

Two years after its launch, the New European Bauhaus (NEB) has become a catalyst for the European Green Deal transformation. The **New European Bauhaus progress report** summarizes the NEB's activities and achievements during the delivery phase. It presents the first results of projects supported by the NEB Lab, a co-creation space that promotes the implementation of concrete NEB projects.

Since February 2022, **Russia's war of aggression against Ukraine** is testing Europe's economic and social resilience at a moment when it is undergoing profound transformations. The JRC provided expertise in various areas including maps on critical infrastructures and migratory flows, and risk preparedness and security of supply of the energy systems and markets. It also strengthened cooperation with its Ukrainian partners (e.g. started a project on feedback from operation of nuclear power plant under war conditions) and set up an exchange programme for Ukrainian researchers.

Furthermore, the JRC supported several legislative and non-legislative initiatives included in the **Commission Work Programme 2022** through modelling policy options and by providing analysis, knowledge tools and methods for the development and implementation of EU policies.

### ***Challenges and mitigating measures***

**Four particular challenges in 2022** were the budgetary pressure because of inflation and the increased energy costs, the smaller-than-anticipated 2021-2027 budget for Euratom, delays in the construction of a new nuclear research building in Karlsruhe, and the continued restrictions imposed by the COVID-19 pandemics, partially lifted in Q2 2022.

To address the first challenge, mitigation measures have been put in place to reduce expenditure (for example on missions and buildings) and a solution to bridge the financial gap was proposed in the frame of the Horizon Europe budget, mandated by the project group of Commissioners. On the second challenge, the JRC developed and started the implementation of Nuclear Strategy, focused on prioritisation and reinforced collaboration to obtain synergies. On the third one, based on lessons learned and on recommendations from the internal audit service, corrective actions were taken and a consulting engagement agreement was put in place. Regarding the fourth one, top priority continued to be given to staff and managers on transparent communication, psychologic well-being, management of remote teams and on-line training.

**Business continuity** of site management services was ensured all the time, including safety, security and environmental protection. The plans to modernise JRC infrastructure took shape. This includes the finalisation of the civil works of Europa Science Experience space in Ispra and the signature of the contract with the winner of the Architectural Design Contest for the basic and construction design of the new building in Seville. The JRC's long term plans to improve energy efficiency of buildings and installations across the sites continued to be implemented.

The **key performance indicators (section B)** show that the JRC continued to exceed its target for scientific excellence, with 45% of its peer-reviewed publications in the top 10% most cited journals. The number of impacts on policymaking demonstrates the continued and increasing high relevance and usage of the JRC's scientific support to policy making, with the customer satisfaction on its highest level since 2019.

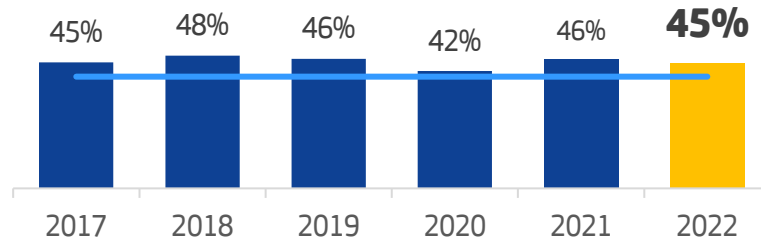
## B. Key performance indicators

### Scientific excellence

The proportion of peer-reviewed publications in the top 10 % most-cited journals<sup>2</sup>

Target (2024):  
>40 %

Source: Scopus® database

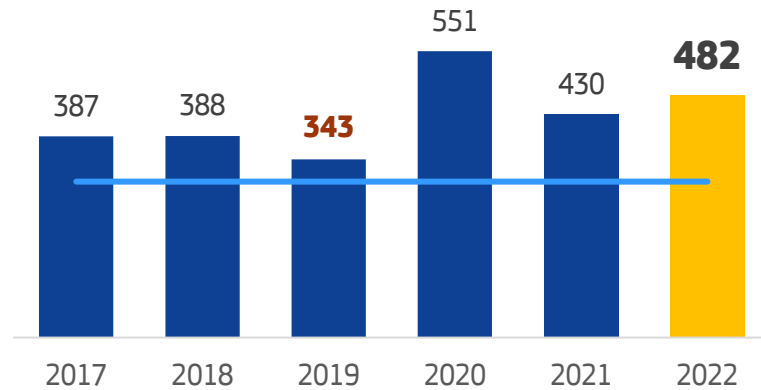


### Impact on policymaking

Number of innovations and scientific results addressing specific EU policy priorities

Target (2024):  
>300

Source: JRC internal process

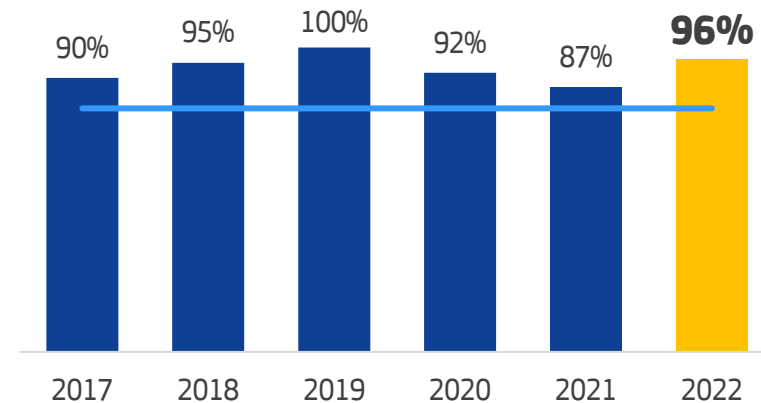


### Relevance

Level of customer satisfaction<sup>3</sup>

Target (2024):  
>80 % of customers are satisfied

Source: JRC customer survey



<sup>2</sup> Data extracted on 14 February 2023. Data for 2022 may still vary.

<sup>3</sup> Results for 'strongly agree' and 'agree' are summed up to obtain the overall satisfaction.



## **C. Key conclusions on financial management and internal control**

In line with the Commission's Internal Control Framework, the Joint Research Centre 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 as minor deficiencies were identified related to supervision, management and execution of procurements and contracts; the harmonised collection and analysis of health and safety data; and updates of the disaster recovery plans. Please refer to AAR section 2.1.3 for further details.

In addition, the Joint Research Centre has systematically examined the available control results and indicators, 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. Improvements are necessary concerning the minor deficiency noted above. The following actions are being taken in this respect: enhanced sharing of good practices and their implementation in procurement; updates and testing of disaster recovery plans; harmonised collection and analysis related to health and safety data. 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 JRC and the Commissioner 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.

# 1. KEY RESULTS AND PROGRESS TOWARDS ACHIEVING THE COMMISSION'S GENERAL OBJECTIVES AND SPECIFIC OBJECTIVES OF THE DEPARTMENT

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

### Specific objective 7.1: The JRC supports evidence-informed policymaking through creating and managing high-quality and fit-for-purpose scientific knowledge

In 2022, the JRC provided scientific evidence to underpin numerous **new policy initiatives**, supported the **monitoring and implementation of legislation**, and helped innovating **better regulation** at the Commission.

It offered methodological advice, training and IT solutions to policy DGs on evaluations and impact assessments. Together with the Publications Office, the JRC piloted a Better Regulation Evidence Transparency Service as part of the rolling action plan for the Data, Information and Knowledge management at the Commission. The JRC also participated in the upstream meetings with the Regulatory Scrutiny Board, in which it advised the policy DGs on methodological issues such as data plans for monitoring and evaluation.

#### **Social Multi-Criteria Evaluation tool for a better impact analysis**

The Better Regulation Toolbox promotes the use of Social Multi-Criteria Evaluation (SMCE) (Tool #62) developed by the JRC as a systematic, transparent and rigorous integrative framework for comparing policy options in impact assessments. In 2022, the JRC made the SOCRATES software publicly available, which has designed for applying SMCE to impact assessment problems. The software has been successfully piloted together with DG ENER, DG SANTE and the International Atomic Energy Agency.

The JRC supported the **Commission Communication on the 2022 Strategic Foresight Report**. It addressed the technological and systemic avenues necessary for successful implementation of the Green Deal goals. The JRC's 2022 science for policy report: **Towards a green & digital future** summarises the results of the foresight process.

Together with DG RTD and DG REFORM, the JRC developed the **Commission Staff Working Document on Supporting and connecting policymaking in the Member States with scientific research** to enhance the use of scientific evidence in policymaking in the Member States. The document identified the rationale behind building capacity of science-for-policy ecosystems, the challenges encountered at the science-policy interface, and good practice at EU and Member State level.

The JRC's support to **the Commission work programme 2022** included:



## The European Green Deal

- **Zero pollution package**
  - **Regulation (EC) No 1272/2008 on classification, labelling and packaging.** The JRC supported the preparation of the impact assessment and carried out a study on the extension of REACH (registration, evaluation, authorisation and restriction of chemicals) information requirements and on the increased use of new methods.
  - **Integrated Water Management – revised lists of surface and groundwater pollutants.** The JRC contributed to updating the list of pollutants covering emerging pollutants, carried out risk assessments, and proposed the safety limits to update the lists considering the latest scientific evidence.
  - **Revision of EU ambient air quality legislation.** The JRC was involved in the coordination of measurement and modelling networks and the management of quality assurance programmes and inter-comparison exercises. It analysed pollutants of emerging concern and helped translating the views of experts into recommendations. Its [2022 report](#) showed how to tackle different pollutants, the importance of integration among different sectoral plans (on emissions, greenhouse gases mitigation) and how to consider other dimensions of the problem (i.e. social aspects) when building air quality plans.
  - **Urban Wastewater Treatment Directive.** The JRC identified areas of improvement of the Directive and supported its review by using wastewater-based surveillance as a tool for public health.
  - **Euro 7 vehicle emission standards.** The JRC published an [emissions dataset of vehicles and engines from tests in the VELA laboratory and on-road](#).
- **Review of the CO2 emission standards for heavy-duty vehicles.** The JRC [2022 report](#) supported the impact assessment with scientific data and analysis of various technological options for the reduction of vehicle energy consumption. It assessed net economic savings and costs for automotive manufacturers, and quantified the effectiveness of CO2 emission reduction technologies.

### **First ever EU-wide security of gas supply ‘dry run’ exercise**

In 2022, Russia disrupted the gas supply to several Member States, putting security of supply at risk. In this context, the JRC, at the request of DG ENER, conducted the first ever EU-wide ‘dry run’ exercise to test the efficiency of the regulatory tools for security of gas supply. The goal of this exercise was to test the operational preparedness of the EU in case of a gas emergency crisis under complete Russian supply disruption and other hypothetical disruptions of supply sources and interconnections.

- **Circular economy package II**
  - **EU policy framework for bio-based, biodegradable and compostable plastics.** JRC's scientific findings on environmental assessment of plastic products were integrated in the Communication and the JRC helped to identify future scientific challenges for the sustainability of plastics. The JRC [developed](#) a Life Cycle Assessment-based method to evaluate the potential environmental impacts of plastic products relying on different feedstock and derived materials.
  - **Carbon removal certification.** The JRC's modelling suggested that a sustainable carbon cycle analysis needed to integrate feedbacks on non-CO2 greenhouse gases, in particular methane and nitrous oxide. The JRC provided scientific advice for carbon removal from forest, land, grassland, cropland, peatland and wetland including carbon farming. It also advised on the capture of CO2 and its storage, agricultural soils and carbon stock changes in soils.
- **Sustainable use of pesticides – revision of the EU rules.** The JRC helped improving the data collection on pesticide use and its reporting. This work fed into harmonised risk indicators for future monitoring of the sustainable use of pesticides. The JRC analysed the development of risk indicators for human health and the environment. It also examined the importance of pesticide use records to monitor progress of the Green Deal objectives and of the Chemical strategy.
- **The legislative framework on sustainable food systems.** The JRC carried out the impact assessment in close cooperation with DGs SANTE, AGRI, ENV and MARE. The legislative framework should be adopted by the end of 2023 and is expected to become the basis to promote policy coherence at EU and at national level mainstreaming sustainability in all food sustainability-related policies. In 2022, the [reflection paper](#) for sustainable EU food system was shared.

#### **Food security knowledge reviews**

In reaction to Russia's war of aggression against Ukraine and the imminent threat on global food security, the Knowledge Centre for Global Food Nutrition and Security produced in 2022 five [knowledge reviews](#) analysing publicly available information making a strategic and complex subject easily understandable. In 2022, visitor numbers of the knowledge centre have gone up (approx. to 15.000 per month) showing that the knowledge centre can be seen as a trustworthy resource for policymakers, practitioners, and researchers with its ever-enlarging knowledge base.

- Two years after its launch, the New European Bauhaus (NEB) has become a catalyst for the European Green Deal transformation. The **New European Bauhaus progress report** summarized the NEB's activities and achievements during the delivery phase. It presented the first results of projects supported by the NEB Lab, a co-creation space that promoted the implementation of concrete NEB projects. The JRC also conducted a preparatory action for the development of the NEB Knowledge Management Platform.

## The JRC contribution to EU taxonomy accelerating decarbonisation

After the examination of the 2021 JRC [technical assessment](#) on the 'do no significant harm' aspects of nuclear energy by two independent expert panels appointed by the Member States, the JRC report provided a scientific basis for the discussion leading to adoption of Commission Delegated Regulation (EU) 2022/1214 in March 2022. The delegated act includes nuclear energy as a transitional activity towards a 'decarbonised' future.



## A Europe fit for the digital age

- **The European Chips Act.** Under the foreign direct investment screening umbrella, the JRC mapped the semiconductors Global Value Chain and analysed the position of EU companies in the different segments of the value chain. It applied a methodology allowing a systematic quantitative assessment of the supply risks in each step of the value chain. It also assessed the supply risks of the different types of semiconductors for the relevant technologies and carried out a survey on structure and bottlenecks of the value chain. In addition, the JRC analysed the supply chains and associated disruption risks for six use-case technologies necessary for the success of REPowerEU.
- **Building an EU space-based global secure communication system.** The JRC carried out a survey of R&I projects related to secure SatCom providing an overview of the research activities on secure satellite communication technologies with a specific focus on the European sector. It also prepared the roadmap and coordination plan for research and innovation activities for the EU Governmental Satellite Communications.
- **Recommendation on improving the provision of digital skills in education and training.** In its [2022 study](#), the JRC introduced the 2.2 update of the Digital Competence Framework for Citizens. The study provides complete reference material for the framework consolidating previously released publications and user guides and providing more than 250 new examples of knowledge, skills and attitudes helping citizens engage with digital technologies.
- **Multimodal digital mobility services.** The [2022 JRC study](#) explored changes in transport and mobility patterns triggered by the Covid-19 pandemic, as well as citizens' potential new expectations regarding public transport policy and urban planning. A survey carried out in 20 cities across 11 European countries with a total of 10000 respondents suggested that the changes in mobility patterns induced by the pandemic were the result of the combination of the degree of mobility restrictions imposed in each city, the adoption of new lifestyle and work patterns and individual choices.
- **Establishment of the European Green Deal data space.** In its [2022 technical report](#), the JRC investigated new developments in geospatial standards and

technologies, foremost the new Open Geospatial Consortium API – Features and SensorThings API standards, within the context of the **INSPIRE work programme**. The JRC developed an evaluation strategy determining how these new and emerging standards can best be used to leverage existing investments by Member States and supporting new developments in e-Government and the Digital Single Market.

### **The road to a digital Europe through the knowledge and use of Artificial Intelligence (AI)**

In 2022, the JRC analysed the uptake of AI in specific sectors and monitored the AI landscape, in Europe and worldwide, in order to assess Europe's position. It mapped the [European landscape on the use of AI by the public sector](#) and combined it with recommendations to policymakers on the sensible adoption and use of AI. A significant part of JRC work focused on the opportunities and risks of AI in scenarios with high societal impact, like facial recognition techniques. Knowledge of methodologies to develop fair and transparent AI systems and algorithms led to the establishment of the [European Centre for Algorithmic Transparency](#) that will provide technical support, research and foresight to enhance accountability for big online platforms.



### **An economy that works for people**

- **Recommendation on adequate minimum income ensuring active inclusion.** In a [2022 report](#), the JRC assessed the effectiveness and possible reform options of the minimum income schemes in the 27 EU Member States, namely their coverage, adequacy and capacity to alleviate poverty. It used the tax-benefit microsimulation model of the EU (EUROMOD) - a tool for cross-country comparative analysis and simulations of tax liabilities and entitlements to benefits in EU Member States.
- **Council Directive on laying down rules on a debt-equity bias reduction allowance and on limiting the deductibility of interest.** The JRC provided evidence on the macroeconomic consequences for households, businesses and public budgets of several policy options to address the pro-debt bias in corporate taxation, contributing to a thorough understanding of the impact of specific policy designs. It helped to identify the preferred policy option, namely the introduction of a deductibility of equity costs in the form of allowance for a notional interest on new equity in combination with a limitation of the deductibility of interest.

### **Systemic transformation through interregional collaboration**

[Partnerships for Regional Innovation](#) (PRI) contribute to the New European Innovation Agenda by strengthening innovation ecosystems through collaboration. Launched in 2022, by the JRC and the Committee of the Regions, 74 territories are working side by side to co-create, share and discuss experiences in what can be described as EU's biggest innovation policy laboratory. The main reference document underpinning the PRIs – PRI playbook - was developed by the JRC with the support of a scientific committee of recognised experts.



### **A stronger Europe in the world**

- **New strategy on international energy engagement.** The JRC developed modelling-based projections of the evolution of the global energy system, spreading the *acquis communautaire* on security of gas supply to neighbouring regions like Ukraine and the Western Balkans, providing evidence on international trade, competition and clean energy technologies, and assessing the evolution of the EU energy innovation landscape. It supported almost all Risk Groups of the EU to develop their new common risk assessments. It carried out simulations of risk scenarios for the Risk Groups Baltic Sea, Belarus, Caspian, Denmark, Libya, North-Eastern, Trans-Balkan and Ukraine.

### **Western Balkans - Status of environment and climate**

The Western Balkans made improvements in aligning environmental and climate monitoring, as well as reporting legislation with EU standards; their implementation is however patchy. These were the main conclusions of the JRC 2022 [report](#) of environment and climate in the Western Balkans presented during the [Ministerial Meeting](#) of the Western Balkans Platforms on Culture, Research and Innovation, Education and Training. The report looked at the status of the environment and climate in the region.

### **Contributing to the EU security**

In 2022, we commemorated the 30 years of Nuclear Forensics research at the JRC. The event was attended by main institutions including the IAEA, the US Department of Energy, the French Alternative Energies and Atomic Energy Commission, the Dutch Authority for Nuclear Safety and Radiation Protection and the German Federal Office for radiation protection. The event highlighted the JRC's support to the detection and identification of radioactive materials out of regulatory control and to the capacity building, through training provided to front-line officers.





## Promoting our European way of life

- **Council Recommendation on cancer screening.** Already in 2021, the JRC delivered the European Guidelines for breast cancer screening and first version of the Quality Assurance Scheme for Breast Cancer. In 2022, the JRC initiated a similar activity for colorectal cancer.
- **European Care Strategy - Council Recommendation on the revision of the Barcelona targets on early childhood education and care.** The [2022 JRC technical report](#) investigated the impact of alternative childcare policies on mothers' employment for selected EU countries. The analysis used the multidimensional discrete choice labour supply model (EUROLAB) and the tax-benefit microsimulation model (EUROMOD), based on the EU statistics on income and living conditions data, to estimate female labour supply reactions to childcare reforms.

### Launch of the European Inequalities Registry and targeted alpha therapy

The JRC, together with the DG SANTE and the Organisation for Economic Cooperation and Development, have developed the [European Cancer Inequalities Registry](#), launched by President Von der Leyen in February, 2022. This flagship initiative of [Europe's Beating Cancer Plan](#) compiles sound and reliable data on cancer burden, prevention and care to identify trends, disparities and inequalities between EU Member States, extending to other inequality dimensions such as age, sex and socio-economic factors.

In 2022, the JRC through targeted alpha therapy contributed to the development and clinical testing of novel radiopharmaceuticals for cancer therapy and provided knowledge transfer to EU Member States (e.g. the Netherlands) and worldwide.



## A new push for European democracy

- To foster discussions and better use of scientific evidence in policymaking in the Member States, the JRC, DG RTD and DG REFORM prepared a **Commission Staff Working Document on Supporting and connecting policymaking in the Member States with scientific research** (SWD(2022) 346 final). This SWD identified the rationale behind building capacity of science-for-policy ecosystems, the challenges encountered at the science-policy interface and good practice at EU and Member State level, along with available EU instruments/policies in support of Member State capacity building in the field of science for policy.

## Fighting misinformation on Covid-19 and climate change

The JRC's Competence Centre on Behavioural Insights published a [science for policy report](#) which provided an overview of the behavioural sciences literature investigating Covid-19 misinformation and highlighted implications for policymakers. It generated insights for future crises and for policymakers working on different topics. Complementary research explored the potential of the European Commission for pre-bunking and debunking misinformation about Covid-19 and climate change. This research is the first step towards understanding if people's lack of trust in the EU hampers the Commission's fight against disinformation.



## Responding to crisis and emergencies

The JRC has a long experience in supporting the management of crises and emergencies. Since February 2022, **Russia's war of aggression against Ukraine** has been testing Europe's economic and social resilience at a moment when it is undergoing profound transformations. In this context, the JRC among others:

- produced 2 to 4 daily maps for the EEAS monitoring conflict situation in Ukraine, migratory flows and consular presence. Ad hoc map on critical infrastructures were finalised and shared with DGs ECHO, HOME and the EEAS;
- worked on crop mapping to help build an open land market in Ukraine to assess war impacts and recovery planning in the agricultural sector and to help Ukraine preparation for EU accession (especially CAP acquis);
- assessed and tested resilience, risk preparedness and security of supply of the energy systems and markets, in collaboration with key EU and national decision makers;
- provided contributions to several policy initiatives proposed by the Commission in 2022, such as the REPowerEU plan, and the regulations on gas storage, gas demand reduction, and gas purchases;
- provided prompt analysis of the electricity market and prices in Europe, as Europe's energy prices surged to unprecedented levels;
- developed together with the Centre of Excellence for Countering Hybrid Threats, a Comprehensive Resilience Ecosystem allowing to examine the effects of hybrid threats, as well as resilience building measures on society as a whole;
- provided modelling for nuclear emergency preparedness and response through nuclear safety assessments of potential scenarios in war conditions (Tchernobyl, Zaporizhzhia and other Ukrainian nuclear power plants and nuclear facilities);
- started a project on feedback from operation of nuclear power plant under war conditions, in collaboration with the Ukraine Technical Support Organisation;
- developed closer collaboration on nuclear emergencies and modelling of nuclear accidents together with the Western European Nuclear Regulators Association;
- initiated technical dialogue with the State Standards of Ukraine on construction standards, in anticipation of the reconstruction phase and a future membership to EU.

In the aftermath of the COVID-19 pandemic, the JRC assessed the economic and social impacts of the pandemic in support of the **European Semester** and the country specific recommendations. The JRC also developed a new approach for the monitoring and implementation phase of the **Recovery and Resilience Plans** and future contributions to the European Semester. Key areas include tax and benefits systems, territorial development, place-based innovation, productivity, education and skills, the impact of the digital and green transitions, and monitoring resilience through the **resilience dashboards** - a reference tool for monitoring resilience. A number of the country reports and the [chapeau Communication of the 2022 Spring Package](#) included references to the resilience dashboards.



## Scientific excellence, impact and efficiency

In preparation for the ex post assessment of the JRC activities under Horizon 2020 and Euratom 2014-2020 launched in 2021, 60 case studies to illustrate the impact of the JRC were carried out, ten of which in 2022. The studies demonstrate how the JRC provided new or improved solutions that help ensuring a secure and inclusive society, protect and preserve the environment and health, or boost the competitiveness of the EU's industry.

The JRC's internal evaluations show that its performance continues to be of high level. In terms of scientific excellence, 45% of its scientific peer-reviewed works are published in 10% top journals (KPI 1) and are cited 2 times the world average, comparable to top European universities and research institutions worldwide with similar goals.

The JRC's 482 impact records (KPI 2) indicate substantial contributions to the EU's response to the war in Ukraine – including the associated energy crisis – and to environmental initiatives including the proposals for a regulation on nature restoration and the revised air quality directive, and a number of direct contributions to the 6<sup>th</sup> IPCC report, monitoring of socio-economic developments through the European Semester, and the annual Cohesion and Economic and Social Developments in Europe reports, as well as continued support to COVID-19 response by developing the PCR-test for the omicron variant.'

The [JRC Publication Repository](#) shows that in 2022 the JRC's scientists published around 181 science for policy reports, 257 technical reports, 695 scientific articles and contributions to academic literature, and 72 scientific methods, data and information.

In 2022, 74 projects and activities engaged in novel research avenues across the JRC as part of the **Centre for Advanced Studies, Collaborative Doctoral Partnership, and Exploratory Research Programmes**. They contributed to 7 Science for policy reports or briefs, 24 publications in peer reviewed journals and 22 technical reports. They included expert views on emerging scientific topics and contributed with novel insights to the priorities of the European Commission. With the 4<sup>th</sup> Science and Art summer school *NaturArchy: Towards a Natural Contract* the JRC reflected with artists, policy makers and

scientists in a transdisciplinary setting on the needs of creating engagement and support around the Green Deal while contributing to the objectives of the New European Bauhaus.



## Working with stakeholders

This revitalisation of the 2030 strategy signals the JRC's increased openness to working with partners in the provision of independent, evidence-based knowledge and science, supporting EU policies to positively impact society. In 2022, at European level, the JRC was collaborating with the European Association of Research and Technology organisations, supporting DG RTD in preparing the implementation of the EU Strategy for Technology Infrastructures. The cooperation with the European Institute of Innovation and Technology and the Knowledge and Innovation Communities (KICs) was deepened and led to a publication of a [science for policy report](#) **Co-creation for policy: participatory methodologies to structure multi-stakeholder policymaking processes**.

The JRC stepped up dialogue with its National Contact Points from Member States and Associated Countries, including through eight online info-sessions where JRC experts presented specific initiatives, tools and opportunities of particular interest to Member States. The JRC also made regular presentations at the Research Working Party of the Council and European Parliament Committees. An action plan with the European Parliament's Research Service was developed.

Furthermore, the JRC reached out to regional and local stakeholders, most notably through the **Science meets Regions programme**, boosting evidence-informed policymaking at local level. The JRC support to macro-regional strategies, in particular on the youth dimension, resulted in the visit of the Danubius **Young Scientist Award** winners to Ispra, helping to build capacities and share knowledge.

**Cooperation with the United States** was revived and strengthened, in line with the joint communication on a new EU-US agenda for global change through an active collaboration on electro-mobility and interoperability with smart grids in the framework of the newly established EU-US Trade and Technology Council. Collaboration agreements have been signed with key US organisations such as National Institute of Standards and Technology and National Oceanic and Atmospheric Administration. The JRC actively contributed to bilateral EU-US dialogues, including the Joint Consultative Group and the Energy Council. The JRC's **relations with Japan and South Africa** received a strong impulse during the visits of JRC senior managers, which prompted the launch of new cooperation initiatives.

The **JRC Alumni Network** organised its 4<sup>th</sup> annual conference, focused on women in science, and four seminars addressing career opportunities for colleagues leaving the JRC. Academia is an important stakeholder for the JRC and with the **Collaborative Doctoral Partnership**, over 40 higher education Institutions signed agreements for collaboration and doctoral research.



## Communication

Communication is of increasingly high strategic importance in the JRC, as reflected in the 2020 initiative to ‘reset, re-imagine and re-energise’ the JRC which identified communication among its top priority follow-up actions.

The JRC’s communication actions are means to foster the credibility of EU’s policies based on scientific evidence and to position the JRC as the science and knowledge service of the European Commission. To this end, JRC’s communication aims to reach EU, national, and regional stakeholders in the EU policymaking cycle.

In 2022, the JRC has made full use of a diverse portfolio of communication channels, ranging from articles intended for scientists and academic stakeholders, over publications that target policymakers, to a rich online offering of news, virtual content, and social media. It organized approximately 100 events in different formats (physical, virtual, and hybrid), leveraging scientific knowledge to its audience. The total number of participants in those events is estimated at 50,000.

The JRC worked closely with other Commission services, notably with DG Communication, to leverage synergies and contribute to shared activities linked to NextGenerationEU, EU’s support to Ukraine, the Future of Europe Forum, strategic autonomy and the New European Bauhaus. As a follow up of intense outreach, **partnership agreements** and programmes for the implementation of 2021-2027 Cohesion Funds of all 27 Member-States include specific references to the **New European Bauhaus** aiming to implement projects on local level. Moreover, the JRC provided advice on issues such as dis/misinformation, behavioural sciences, science for policy and citizen engagement.

In 2022, the JRC’s communication community established five working groups with a goal to present a **new JRC communication strategy**, encompassing internal working methods, reviewing tools and channels, and establishing key impact evaluation criteria by the end of 2023.

To comply with EUROPA web presence, the JRC transferred its EU Science Hub to the EUROPA Web Publishing Platform in February 2022. In addition, to ensure compliance with other Commission’s services and to foster digital collaboration, the JRC took steps to transition to Sharepoint Online and fully integrate the JRC into the new intranet of the Commission. For tangible communication outcomes in 2022, please see Annex 2.

## Specific objective 7.2: The JRC operates modern, sustainable and open research campuses

Unlike other DGs, the JRC owns and manages buildings and related infrastructure on all of its sites, in except Brussels<sup>4</sup> and in Seville<sup>5</sup>.

In 2022, following the reduction of the Euratom budget, the increased cost of energy and the inflation, all JRC major investments were reprioritised according to the JRC strategy for enhancing the modernisation and the energy efficiency of its infrastructures. The main infrastructure works delivered in 2022 were:

- **in Geel:** the refurbishment of the conference centre, the construction of fences around building 040 and the renewal of the site's perimeter cabling and HV cables;
- **in Ispra:** the finalisation of the civil works of Europa Science Experience space, the construction of the foundations for the building hosting the trigeneration plant and the renewal of the sewers;
- **in Karlsruhe:** Wing M 2.0. signature of a new contract for the updated technical specification for the technical building equipment;
- **in Petten:** signature of the contracts for structural repairs of building 313 and the refurbishment of the medical centre and installation of heat pumps in buildings 308/309;
- **in Seville:** the signature of the contract with the winner of the Architectural Design Contest for the basic and construction design of the new building and the completion of the dynamic collaborative space.

In line with the Green Deal ambitions, the JRC made progress towards compliance with the energy efficiency and energy performance directive (see performance tables in Annex 2).

Due to lack of compliant offers and resource issues, some of the planned activities have not been fully achieved (e.g. in Petten, delays to the structural repairs and refurbishments of some buildings). Due to lack of budget, some activities have been postponed (e.g. in Karlsruhe the feasibility study for the renovation of Wing A, the execution of the renovation of the ventilation system in Wing B).

In addition, in 2022, **17 JRC research infrastructures** provided **open access** to institutions from Member States and Associated Countries to Horizon Europe. The JRC signed a collaboration agreement with the Central European Research Infrastructure Consortium to expand its outreach. This allows interested parties to access calls for the Nano-biotechnology Laboratory and Energy Storage facilities through their portal and receive relevant education and training.

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<sup>4</sup> Shared building with DG RTD, managed by the Office for Infrastructure Brussels (OIB).

<sup>5</sup> Rented building.

### **Specific objective 7.3: The Commission has appropriate capacity to manage risks related to intellectual property rights and be compliant with the rules and regulations**

The JRC manages the Commission's **intellectual property (IP) portfolio**, including the European Emblem. It also is responsible for raising awareness of IP issues with the Commission staff and setting out principles and procedures for IP management. In 2022, the College adopted a Communication to the Commission on the corporate intellectual property framework at the Commission, together with a Staff Working Document, setting out the principles and procedures for dealing with IP belonging to the EU. The IP corresponds network adopted two new sets of guidelines drafted by the Central IP Service, on publications and on software distribution.

In 2022, the Central IP Services continued to promote **the use of EURECA** (EU intellectual property Resource Catalogue), the corporate platform for IP management designed by the JRC. One more DG entered IP assets and the total number of Commission services that have entered at least one IP asset into EURECA was 31 by the end of 2022. More than 850 assets have now been uploaded to the EURECA platform.

The management of the portfolio of patents and trademarks required a similar number of actions as in 2021, around 800, including the filing of patent and trade mark applications, registration procedures and payment of annuities and renewal fees.

In 2022, **545 new requests for IP legal advice** were received, 64% of which concerned copyright protected assets. IP assets that raised most questions were written works (141), followed by software (105) and photos and illustrations (60).

The **17 CIPS (Central Intellectual Property Service) training sessions on intellectual property issues** in EU Learn were attended by 723 Commission staff, 42 persons per training on average. The training programme for the EP attracted 195 colleagues in eight sessions, an average attendance of 24 persons per training. Compared to 2021, the number of Commission and Parliament staff trained remained stable. However, the number of participants from Agencies, EU bodies and Europe Direct Centres increased sharply from 74 in 2021 to 878 in 2022.

## **EUROPEAN COMMISSION GENERAL OBJECTIVE 1: EUROPEAN GREEN DEAL**

### **Specific objective 1.1: The JRC progressively decommissions its disused nuclear facilities and safely disposes of its radioactive waste**

Decommissioning and waste management are an integral part of the life-cycle of JRC's nuclear research facilities. They fulfil the final aim of returning the land used to a 'green-

field status'. The nuclear Decommissioning and Waste Management Programme of the JRC entails a complex set of specific activities and projects with related objectives.

The JRC's decommissioning activities are included in a new instrument in the Multi-annual Financial Framework 2021-2027 - **the Nuclear Safety and Decommissioning Programme**. Since 2021, the establishment of a directorate dedicated to these activities is facilitating the implementation of the programme in line with its operational character. The overall objectives of the programme include safe conservation, pre-decommissioning, decommissioning and waste management covering a variety of large installations.

Different levels of advancement/implementation characterise the situation at the four nuclear sites of the JRC.

- **In Ispra**, most of the nuclear facilities ceased to operate before 1999 and there is a well-established organisational structure implementing the programme, while establishment of such a structure in the remaining JRC sites is still at an embryonic stage. In 2022, progress in Ispra on the three main work streams (nuclear material, waste management and decommissioning) included the relocation of fresh nuclear material, advancement in decommissioning of some facilities (e.g. Ispra cyclotron) and design, licensing and in-field and off-site work for waste treatment and characterisation facilities.
- **In Karlsruhe**, the 2022 works included preparation of glove boxes for dismantling and pre-treatment and characterisation of low-level waste. Some of the waste could not be removed as planned to the external German waste treatment and storage facility KTE due to their acceptance limitations.
- **In Petten**, major advancement was on the implementation of the framework contract (established in 2021) with the Dutch operator (Nuclear Research and Consultancy Group) regarding the High Flux Reactor to remove and dispose the historical waste still present on site.
- **In Geel**, based on the established inventory of nuclear material, transport options for removal of the material no longer needed have been investigated.

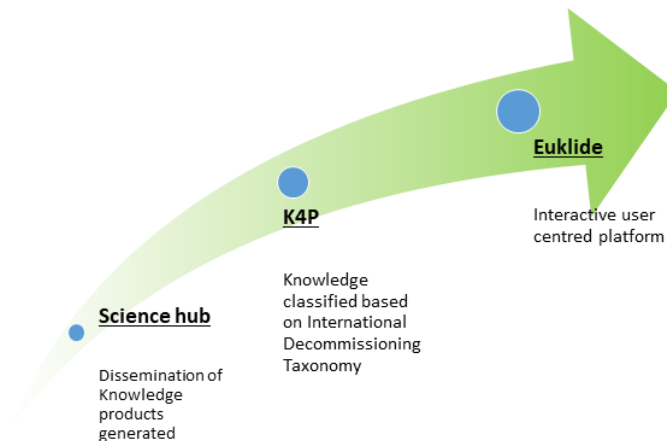
### **Specific objective 1.2: Establish links and tools for nuclear decommissioning knowledge sharing and dissemination with stakeholders in the Member States**

Knowledge sharing is the second component foreseen in the nuclear Decommissioning and Waste Management Programme under the Multiannual Financial Framework 2021-2027.

The Nuclear Decommissioning Knowledge Management initiative is scheduled for 7 years. It starts from creating and collecting knowledge products, then their storage and sharing. Finally, these products are going to be part of a broader knowledge sharing, a platform called EUKLIDE (European Knowledge and Learning Initiative on Decommissioning).



At the end of 2022, a [Nuclear Decommissioning Knowledge Management webpage](#) was created on EU Science Hub.



The steps, envisaged in 2023-2024, are to establish a Knowledge Centre for the Nuclear Decommissioning Knowledge Management and to create a pilot version of the future platform. These steps are envisaged for the period 2023-2024. Subsequently, the EUKLIDE interactive platform will be implemented, leveraging and building on the previous points.

## 2. MODERN AND EFFICIENT ADMINISTRATION AND INTERNAL CONTROL

### 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 / documentation have been considered:

- management reports of sub-delegated authorising officers,
- the contribution of the Director in charge of Risk Management and Internal Control (RMIC), including the results of internal control monitoring at DG level,
- the reports of the *ex post* supervisory controls performed on a sample of the JRC's financial and procurement transactions,
- the limited conclusion of the internal auditor on the state of control, and the observations and recommendations reported by the Internal Audit Service (IAS),
- the observations and the recommendations reported by the European Court of Auditors (ECA).
- The systematic analysis of the available evidence provides sufficient assurance as to the completeness and reliability of the information reported and results in the full coverage of the budget delegated to the Director-General of the JRC.

This section covers the control results and other relevant elements that support management's assurance. It is structured into 2.1.1 Control results, 2.1.2 Audit observations and recommendations, 2.1.3 Effectiveness of internal control systems, and resulting in 2.1.4 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 objectives (ICO)<sup>6</sup>. The DG'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. Annex 7 provides extensive reporting on the components of the financial management and internal control.

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<sup>(6)</sup> 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.

The JRC finances its **research activities** through the voted budget and supplementary credits as presented in Annex 7, detailing the JRC's financing sources for 2022. In addition, the JRC finances its research activities through the following activities:

- **competitive activities** are defined as the provision by the JRC of scientific and technical services to other bodies both within the European Institutions and for third parties. They are performed in line with the Council Decision No 89/340/EEC authorising the Commission to put the JRC's services and installations at the disposal of third parties, public or private, against payment and in line with the Council Conclusions No. 94/C 126/01 on the role of the JRC requiring that additional revenue be generated through competitive activities. The total cashed payments (revenue) actually achieved for JRC services in 2022 was €99.7M (26.31% of the institutional budget<sup>7</sup>).
- During 2022, the JRC received **cross-sub-delegated authority** to use the budgetary resources of other Directorates-General and services of the Commission. Such authorisations are linked to specific research projects or actions. The JRC has not provided cross-sub-delegations to other DGs of the European Commission. In addition, the JRC has put in place **co-delegations** type I, II and III (Art. 3.2 of the Internal Rules) with other Directorates-General of the European Commission. Being a Commission service itself, the JRC is required to implement the appropriations subject to the common Commission rules, responsibilities and accountability arrangements and therefore payments related to the sub-delegations received are subject to the same financial circuits and controls in place. Statements of assurance on the effective and sound use of these funds were received or provided to the Directors-General concerned. Around 58 % of the JRC's financing sources are dedicated to staff costs. It is important to note that the salary payments are authorised and carried out by the Paymaster's Office (PMO) as part of vertical co-delegations.

In 2022, the JRC EUR 32 628 672 (representing 7.6 % of its total financing sources) in commitments) and EUR 19 350 000 (representing 5.65% of total) in payments, allocated to **decommissioning activities** under the new Nuclear Safety and Decommissioning Programme in the MFF 2021-2027. The JRC's decommissioning and waste management (D&WM) programme was started in 1994. This programme aims to dismantle former, obsolete Euratom nuclear installations (historical liabilities) as well as to plan for (and execute in the future) the long-term dismantling of installations which are still in use (future liabilities). Four JRC sites are involved: Ispra, Karlsruhe, Petten and Geel.

All **JRC's operational activities**, both expenditure and revenue, are carried out under **direct management mode** which has been assessed as having a relatively low inherent risk. The risks are effectively mitigated by means of controls as detailed in Annex 6.

The JRC carries out its expenditure operations through procurement operations. The relevant control system(s) (RCS) for budget implementation covering the JRC's procurement

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<sup>7</sup> The institutional budget means 'budget for JRC (direct actions) under the Framework Programme for Research'.

is available in Annex 6. The type of procurement procedures carried out by the JRC during 2022 is described in Annex 7.

The additional income generated through competitive activities is used for purchasing scientific equipment and services, hiring temporary staff, and for financing part of the JRC's infrastructure used for these tasks. An RCS covering the JRC's income from contractual activities is available in Annex 6.

The financial circuit 1, used for the majority of the transactions at the JRC, provides a clear segregation between the operational and financial roles, respectively, and financial agents are hierarchically independent from the authorising officer. Annex 7 provides detailed information on JRC's financial circuits.

The main indicators and/or conclusions on each control objective for the JRC's operational activities are summarised in the overall control results conclusion table (Table 7.4 in Annex 7). Based on these results, the JRC concludes that the control results are factual, complete and reliable. JRC's management factually concludes that the control results, presented in the following sections and related annexes are complete and reliable and thus provide reasonable assurance about the achievement of the internal control objectives.

In line with reporting requirements from the Financial Regulation, DG JRC does not have any of the following cases:

- Cases of 'confirmation of instructions' (new FR art 92.3)
- Cases of financing not linked to costs (new FR art 125.3)
- Financial Framework Partnerships >4 years (new FR art 130.4)
- Cases of flat-rates >7% for indirect costs (new FR art 181.6)
- Cases of 'Derogations from the principle of non-retroactivity [of grants] pursuant to Article 193 FR' (new Financial Regulation Article 193.2)

## **1. Effectiveness of controls**

### **a) Legality and regularity of the transactions**

The JRC uses internal control processes to ensure sound management of 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.

The control objective is to ensure that the JRC has reasonable assurance that the total amount of any financial operation authorised during the reporting year, which would not be in conformity with the applicable contractual or regulatory provisions, does not exceed 2 % of the authorised payments or revenue concerned. To reach this conclusion, the JRC reviewed the results of the key controls in place (as described below). For each item, materiality is assessed in accordance with Annex 5. The main risks together with the control processes aimed to mitigate them and indicators used to measure the performance of the control systems, are outlined in Annex 6.

- **Procurement in direct management mode**

Financial management and control of 'Procurement in direct management mode' (Annex 6 RCS No 1) is grouped around three main stages: 1) procurement (from the assessment of needs to the selection of the suppliers - award decision), 2) financial transactions (from establishing the financial commitment to payment and contract monitoring) and 3) supervisory measures (including *ex post* controls and management checks). In addition to the controls performed during the financial circuits, the JRC has made use of five main supervisory measures (including associated indicators) to assess the legality and regularity of its work, namely exception reporting, the Public Procurement Advisory Group (PPAG), accounting controls, *ex post* supervisory controls and the assurance statements from sub-delegated authorising officers.

### **Exception reporting**

In total 107 exceptions and non-compliance events were recorded in the central register in 2021, 16 of which were classified as exceptions. The exceptions were linked to deviations from standard financial and procurement procedures which cannot be directly associated with a material loss. To put the exception reporting into context, the JRC dealt in 2022 with 24 409 transactions and 17 976 of them were payments. The exceptions and non-compliance events amount to 0.44% of the total number of transactions, meeting the target set in the Management Plan (less than 1% of transactions subject to exception). For further details refer to Annex 7.

### **The Public Procurement Advisory Group (PPAG)**

The PPAG is a consultative body providing *ex ante* controls on the correct application of tendering procedures. The PPAG must be consulted on procurement files for high value contracts ( $\geq$  EUR 500 000) and for most contracts procedure negotiated that are based on the FR 2018, Annex 1, point 11<sup>8</sup>. In 2022, 162 files were submitted to the PPAG; 103 files were screened by the PPAG, representing a value of approximately EUR 157 million<sup>9</sup>. Three procedures received an unfavourable opinion. This demonstrates that the PPAG is an effective *ex ante* instrument for avoiding procedural errors and ensuring the respect of the procurement principles, thus preventing complaints by tenderers in those procedures.

### **Accounting controls**

The main aim of accounting controls is to assure the quality and reliability of the accounts and underlying transactions through methodical checks on the accounting records (data) and timely communication and correction of the errors. The controls carried out in 2022 have followed the Annual Accounting Quality Plan, sent to DG BUDG along with the

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<sup>8</sup> Contracts between EUR 60,001 and EUR 499,999 and contracts deriving from some negotiated procedures (repetition of similar services/works, additional deliveries, for some cases based on FR, Annex 1, point 12 and cases based on FR, Annex 1, point 14(2)) are also submitted to the PPAG for advice on the basis of a sampling system using a risk-based method.

<sup>9</sup> 59 were not selected by the sampling system (representing a value of roughly EUR 9 million)

Accounting Risk analysis. The controls performed are additional to the ex-ante controls performed by Financial Verifying Agents and Sub Delegated Authorising Officers on each transaction, in compliance with the Financial Regulation.

The controls on the General Ledger (GL) account of invoices were performed periodically according to the Accounting Quality plan. A vast majority of invoices is subject to one of the following controls: operational/administrative coherence, Legal Entity default GL, greatest amounts checked, asset risk-based analysis, random sample. The errors detected are either corrected in ABAC or by means of an accounting adjustment at the year end.

In February 2023, after the Accounting closure and the related accounting adjustment, a random stratified sample was extracted representing around 40% of the amount of invoices and internal documents received. The errors detected on the sample —not corrected either in ABAC or by means of an accounting adjustment — have been duly extrapolated leading to an estimated accounting error rate of 0.45%, thus confirming the reliability of the accounts. It is important to highlight that all the errors mentioned above are of an accounting reclassification error and do not lead to irregular payments. DG BUDG's validation of JRC local system, started in December 2020, led to 5 recommendations. All the actions planned have been implemented and all the recommendations closed.

**Ex post supervisory controls**

As part of its control strategy, to determine whether there had been material losses (e.g. due to errors) and whether financial rules and procedures were respected, the JRC periodically carries out checks on the accuracy and regularity of its *ex ante* controls, via *ex post* controls on a sample of financial transactions. Whilst a variety of formal errors were noted, neither systematic errors nor weaknesses in the JRC's control system were observed and no procurement issues were identified. More information on the *ex post* controls is presented in Annex 7. Since the **detected error rate is 0 %**, the JRC estimated its **average error rate (AER)** by taking a most conservative and prudent approach to be at **0.5 %**.

Table 2.1.1.1-1. Results of 2022 ex post controls.

Sampled transactions	Sample size: number	Sample size: value (EUR)	% of total value of transactions	Detected error rate (% of total)
Payments	112	24 739 390	9.6 %	0 %
Procurement	70	11 168 697	4.21 %	0 %

**Management reports from sub-delegated authorising officers**

The authorising officer by delegation (AOD) has the overall responsibility for the budget execution. In these duties, s(he) is assisted by competent authorising officers by subdelegation (AOSD). In accordance with paragraph 4.8 of the Charter of tasks and responsibilities of authorising officers by subdelegation, all 145 assured the JRC Director-General that during the reporting period they effectively managed the risks associated with

their activities; did not raise any matter of importance which might compromise the sound management of appropriations or prevent the attainment of objectives; filed the appropriate exceptions/non-compliance events linked to not respecting standard procedures, rules and regulations, where necessary; no request for written confirmation has been formulated; concluded that no incidents which could have damaged the reputation of the organisation occurred.

- **Revenue operations through competitive activities**

All income and expenses for competitive activities are subject to *ex ante* controls and to the JRC financial circuits. Financial management and control of the JRC's revenue operations through competitive activities (Annex 6 RCS No 2) is grouped around three phases: 1) contract proposal (assessment and valuation of proposal), 2) contract preparation (from signature of contract to forecast of revenue) and 3) contract implementation (including financial management of the contract).

Revenue operations are also subject to the same legality and regularity indicators which are applied to payment and procurement transactions. None of these controls unveiled errors with impact on compliance of the revenue transactions.

During 2022 as a result of the JRC's financial circuits, 6.3 % of the forecast of revenue transactions and 12.3 % of recovery orders (i.e. invoices) have been subject to correction. These errors did not materialise due to the effectiveness of the *ex ante* controls carried out. It can be concluded that the controls carried out on the contractual activities contribute positively to the legality and regularity of the JRC's revenue operations.

- **Conclusion on the assessment as regards legality and regularity**

JRC's portfolio consists of segments with a relatively low error rate. This is, respectively, thanks to the inherent risk profile of the JRC's operational activities, both expenditure and revenue, carried out under direct management mode and the performance of the related control systems.

In addition, the JRC has in place an effective mechanism for correcting errors, through *ex-ante* and *ex-post* controls, resulting in preventive and corrective measures, respectively. Please see table below for details:

Table 2.1.1.1-2. Preventive and corrective measures

		Preventive Measures (m EUR)	Corrective measures (m EUR)
<b>Implemented by the Commission</b>			
	<b>of which from Member States controls</b>	n/a	n/a
	<b>of which from EU controls</b>	nil	nil
<b>DG JRC total</b>		<b>nil</b>	<b>nil</b>

Over 2022, the main issue faced by the JRC and its procurement activities was the energy deficit caused by the war in Ukraine. Whilst this led to the need to use flexible working techniques (such as teleworking) the digitalisation of finance and procurement processes put in place due the COVID 19 pandemic continued to show very clear efficiency gains.

In conclusion, based on the analysis of the results of the above-mentioned control sources, no significant weakness has been unveiled which could have a material impact as regards the legality and regularity of the procurement and revenue operations. Therefore, it is possible to conclude that the internal controls systems implemented by the JRC provide sufficient assurance to adequately manage the risks relating to the legality and regularity of the underlying transactions. Based on all the above, the JRC presents in the following Table 2.1.1.1-3 an estimation of the risk at payment and risk at closure for the expenditure managed during the reporting year:

Table 2.1.1.1-3. Estimated risk at payment and at closure (amounts in EUR million). The full detailed version of the table is provided in Annex 9.

JRC	Relevant expenditure	Estimated risk (error rate %) at payment		Estimated future corrections and deductions		Estimated risk (error rate %) at closure	
(1)	(2)	(3)		(4)		(5)	
	m EUR	m EUR	%	m EUR	%	m EUR	%
Procurement	238.7	1.2	0.5	0.12	0.05	1.08	0.45
Experts	6.3	0.03	0.5	0.00	0.05	0.03	0.45
Administrative expenditure	11.5	0.06	0.5	0.01	0.05	0.05	0.45
<b>DG total</b>	<b>256.6 m EUR</b>	<b>1.3 m EUR</b>	<b>0.5%</b>	<b>0 m EUR</b>	<b>0.05%</b>	<b>1.16 m EUR</b>	<b>0.45%</b>

The **estimated overall risk at payment** for 2022 expenditure amounts to EUR 1.3 million, representing 0.5 % of the DG's total relevant expenditure for 2022, despite the fact that the detected error rate was 0 %.

The estimated overall risk at payment for 2022 expenditure is the AOD's best conservative estimate of the amount of relevant expenditure during the year, 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 and a proportion of the underlying errors will be detected and corrected in subsequent years. This amount corresponds to the conservatively estimated future corrections for 2022 expenditure. The difference between those two amounts results in the estimated overall risk at closure 0.45%. There is no change compared to 2021.

For an overview at Commission level, the DGs' estimated overall risk at payment, estimated future corrections and risk at closure are consolidated in the AMPR. Details of the JRC's estimated overall amount at risk at closure and estimated future corrections can be found in Annex 9.



## b) Fraud prevention, detection and correction

The JRC has developed and implemented its own anti-fraud strategy since 2013 on the basis of the methodology provided by OLAF. It is updated every three years or when necessary, lastly in December 2020. Its implementation is being monitored and reported to the management through annual reports. All necessary actions except one have been implemented. The implementation of the missing one delayed from 2022 is in progress and its completion is expected for 2023. Further information can be found in Annex 7.

The JRC also contributed to the Commission anti-fraud strategy. OLAF's did not issue any financial recommendations in 2022.

The results achieved during the year can be summarised as follows: (1) targeted awareness-raising actions for newcomers, financial officers and managers; (2) reinforced the JRC's 'Scientific Integrity and Research Ethics' framework, with full implementation of the JRC's Research Ethics Board, the Editorial Review Board, the JRC Scientific Integrity Counsellor, as well as guidelines and tools for responsible conduct of research; (3) contribution to OLAF subgroups; (4) assessment of fraud risk in the JRC process-based risk management exercise; (5) timely corrective measures concerning a potential fraud case. More details on the results achieved in 2022 can be found in Annex 7.

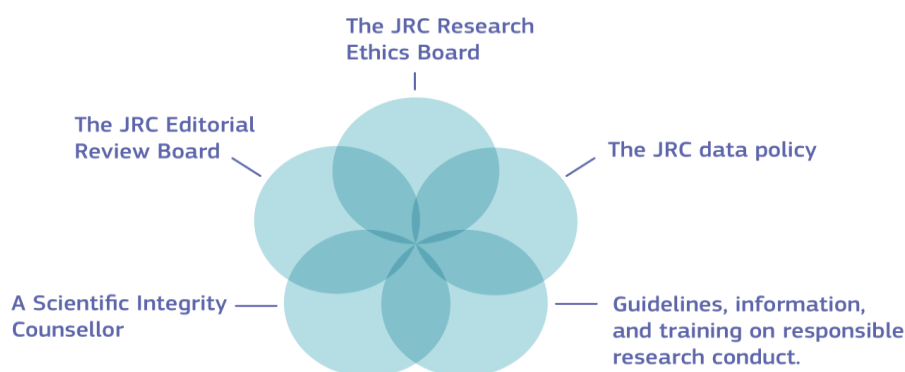


Figure 2.1.1-2. The Framework for Scientific Integrity and Research Ethics.

On the basis of the available information, the JRC has reasonable assurance that the anti-fraud measures in place are effective.

## c) Other control objectives: safeguarding of assets and information, reliability of reporting (if applicable)

The JRC is spread over 6 sites in 5 different countries with more than 40,000 fixed assets with a net book value of about 236 EUR million. The fixed assets are ranging from simple office furniture to complex scientific and laboratory equipment, including nuclear facilities and buildings. The following **measures** are put in place to counterbalance the main risks potentially affecting the JRC sites, i.e. accidents, unauthorised access, intentional acts against safety and security including against the protection of sensitive documents. Regular safety inspections are being carried out on JRC sites regarding laboratory facilities and

hazardous materials, by the JRC itself, external consultants and visits by national authorities. Organisational measures are implemented to ensure that access to JRC sites and critical assets are controlled. Personal security clearances are issued to those staff required to deal with classified information. Certification of laboratories and institutes to internationally recognised quality management standards help to offset risks and ensure compliance with norms and regulations. The JRC strives to perform physical localisation checks of the inventoried items at least on a three-year basis, which is respected in general. The JRC owns stock with a value of EUR 54.5 million (as reported in the JRC's Balance Sheet in Annex 3, Table 4).

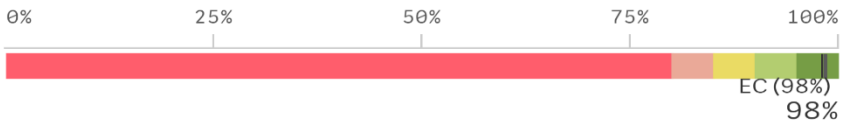
The JRC is the business domain owner for the **eProcurement Programme** which is part of the Commission's actions to put in place a single data interchange area for submitting, storing and processing data in grant and procurement procedures. The progress during 2022 is detailed in Annex 7 and section 2.2.4.

Based on an assessment of the controls in place on the safeguarding of the JRC's assets, management considers that the control results are complete and reliable and that the control objective is achieved. Refer to Annex 7 for further information on safeguarding of assets.

**2. Efficiency of controls**

Based on an assessment of the most relevant key indicators and control results, the JRC has assessed the efficiency of the control system and reached a positive conclusion.

The JRC executed more than 97.5% of its payments on time during the course of 2022 which puts it above the EC average score.

Timely Payments	JRC Score	EC Score
 <p>The chart displays two data points: JRC Score (98%) and EC Score (98%). The x-axis is labeled with 0%, 25%, 50%, 75%, and 100%. The JRC score is represented by a red bar extending to 98%, and the EC score is represented by a green bar also extending to 98%.</p>	<b>98%</b>	<b>98%</b>

The contractual cashing indicator (as a percentage of the institutional budget) has increased from 24.63 % of last year to 26.31 % which remains significantly higher than the target of 15 %. The JRC has reached a positive conclusion on the efficiency of contractual cashing indicator. Economy of controls

**a) Procurement in direct management mode**

The JRC has produced an estimation of the costs of control of the three main stages related to 'procurement in direct management mode'. The criteria for the calculation and the indicators used are shown in Annex 6 RCS No 1.

A quantitative estimation of the volume of errors prevented and detected is not available, therefore it is not possible to quantify the related benefits. The main benefit is that the controls performed ensure that errors are detected and corrected and that potential litigations or contestations from tenderers are kept to a minimum.

In consequence, as it is not possible to determine the cost-effectiveness of controls by comparing costs with benefits, it is necessary to consider the efficiency indicators retained.

The overall costs of control related to 'procurement in direct management mode and of financial transactions' in 2022 was EUR 9 507 367, which represent 3.67% of the total value of payments executed by the JRC during the year. Adding *ex post* controls and those not directly attributable to the control strategies brings total cost of controls for 2022 to 3.71 % of total associated payments. For further detail please see Annex 7, Table Y.

#### **b) Revenue operations through competitive activities**

The overall cost of control related to 'revenue operations from competitive activities' in 2022 was EUR 267 651, which represents 0.21 % of total competitive project value for the year (EUR 126 609 764). The overall cost of control indicator has increased slightly from last year's value of 0.20 %. For further detail please see Annex 7, Table Y.

JRC considers that the necessity of the controls performed on revenue operations process is undeniable, as they are a regulatory requirement. Furthermore, the JRC considers that these controls are necessary to mitigate the risks outlined in Annex 6 (RCS No 2). The costs of controls incurred for the three main phases of the JRC's revenue operations through contractual activities have been estimated. The criteria for the calculation and the indicators used are shown in Annex 6 RCS No 2. As mentioned in the previous section, it is not possible to quantify all of the costs and benefits of controls. Estimating the intangible benefits is particularly problematic.

The benefits of control in non-financial terms cover: accepting only project proposals which have an acceptable level of risk, which are in line with the JRC work programme and which meet customer expectations, deterrents, efficiency gains, limiting the risk of litigation, respect of contractual provisions, system improvements and, as mentioned above, compliance with regulatory and research programme provisions..

### **3. Conclusion on the cost-effectiveness of controls**

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

The error rates and the cost of controls remain below the materiality threshold and the timeliness of payments is significantly higher than the target. JRC's control environment and control strategy remained stable during the reporting year compared to previous years, the conclusion on the cost-effectiveness of controls is deemed to be unchanged.

## 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.

### 1. EC Internal Audit Service (IAS) engagements

The JRC has no critical recommendations from the Internal Audit Service (IAS), nor was any new very important one issued during the reporting period.

The IAS finalised one multi-DG audit on the performance framework for research<sup>10</sup> to which the JRC was associated. This audit did not result in any recommendations addressed to the JRC. An ongoing consultancy engagement on the construction and completion of the Wing M in Karlsruhe (which was initiated upon the initiative of the auditee) contributes to the implementation of appropriate mitigating actions. The IAS launched an audit on the new nuclear decommissioning instrument in JRC; this instrument is part of a dedicated funding programme in the Multi-annual Financial Framework 2021-2027, separate from the research budget. Finally, the JRC responded to IAS requests for input in the context of two multi-DG audits<sup>11</sup>.

As for the very important recommendations:

- There are no very important recommendations under implementation. .
- One, stemming from the audit on JRC's support to EU policy and knowledge management, has been declared completed and the JRC is awaiting the IAS decision.
- Five were closed as a result of IAS follow-up audits.

Further details are presented in Annex 7.

**The Internal Auditor, in its limited conclusion,** stated that the JRC internal control systems in place for the audited processes are effective.

### 2. ECA audits

The JRC has no critical or very important findings from the European Court of Auditors (ECA) audits, and no overdue actions. More information on the follow-up of recommendations is presented in Annex 7.

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<sup>10</sup> Lead audited service : Directorate-General for Research and Innovation

<sup>11</sup> Respectively on the Commission's control system in relation to the reliability of performance information in EU financial programmes and on the coordination in DG HOME and the EU decentralised agencies

In general, during ECA audits, the JRC is an associated DG together with other Commission services, as it disposes of a wide range of expertise in many of the scientific areas underpinning the policy (measures) being audited, monitors the implementation of many policy measures and provides technical support to the stakeholders concerned. The full list of reports published in 2022 and ongoing audits/reviews to which JRC was associated is included in Annex 7.

ECA found no errors in the sampled JRC transactions as part of the **Statement of Assurance** for 2021. Therefore, the ECA's annual report<sup>12</sup> 2021 contained no reference to the JRC in respect of the error rate. In 2022, the ECA reviewed 3 JRC transactions and no errors were found.

### 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.

The JRC 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 JRC continued to work with the integration of the Commission's internal control framework as well as its own integrated management system (IMS) based on the international quality standard ISO 9001. Such integration allows the JRC to combine requirements from different sources including legal requirements, in one management approach.

The JRC 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 minor deficiencies were identified related to:

- Procurement supervision and contract execution.
- Health and safety process data collection and analysis, to be improved and harmonised at corporate level.
- The effectiveness of the IT Disaster Recovery Plan needs to be also improved and further tested.
- The capacity of monitoring data of some contractual arrangements has to be enhanced.

The improvements and/or remedial measures implemented or envisaged are already documented in action plans and are being followed-up.

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<sup>12</sup> 2022/C 391/03

## 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.

The assessment of the elements and the conclusions reported in these sections result from a systematic analysis of the evidence available. The following elements provide sufficient guarantees as to the completeness and reliability of the information reported and results in a comprehensive coverage of the budget delegated to the Director-General of the JRC:

- the JRC's internal controls systems provide sufficient assurance to adequately manage the risks relating to the legality and regularity of the underlying transactions,
- the JRC has implemented appropriate *ex ante* and *ex post* controls, to the extent that they remain cost-effective,
- the JRC has put in place suitable control measures to limit risks of error and prevent, detect and correct fraud and irregularities,
- recommendations issued by the JRC's auditing bodies do not raise any assurance implications and are being implemented as part of the ongoing continuous efforts in terms of further improvements,
- the JRC's internal control systems provide sufficient assurance with regards to the achievement of the other internal control objectives,
- resources were used for the intended purposes, sound financial management was applied, and the non-omission of significant information was ensured.

In conclusion, based on the elements reported above, 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.

## 2.1.5. Declaration of Assurance

*I, the undersigned,*

*Director-General of the Joint Research Centre*

*In my capacity as authorising officer by delegation*

**Declare** that the information contained in this report gives a true and fair view<sup>13</sup>.

**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 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, 31/03/2023*

*(signed)*

*Stephen Quest*

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<sup>13</sup> 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

The JRC aims to recruit, train, motivate and retain highly qualified staff to ensure the effective and efficient operation of the DG as well as the promotion of equal opportunities and diversity. Building on the objective of a ‘people centred organisation’ of its long-term strategy 2030, the JRC started to review its future orientation through a comprehensive ‘Reset, re-imagine, re-energise the JRC’ (3R) initiative. Several working groups associated to the 3R initiative addressed relevant people issues and converted them into clear (pilot) actions, implemented in 2022:

- a scheme for agile working was developed to allow staff to spend up to one day per week across different projects;
- a trust survey pilot was launched with managers to obtain 360° feedback,
- a talent management initiative to highlight the science for policy competencies of our staff was launched,
- a safe space for staff to discuss and exchange views on Human resource (HR) topics in a ‘Culture Club Coffee’,
- a pulse survey on staff engagement was carried out (see below).

The JRC has developed a **local HR strategy** in the form of the HR Pathways and the Staff Satisfaction Survey follow-up action plan, to be implemented in 2023. Launched by the HR Correspondent team in agreement with the Senior Management Team, **the HR Pathways** includes 3 fields for short-term actions (recruitment, diversity, contract agents). The aim is to elaborate other dimensions, in line with the ‘people first’ principle, throughout the coming years in a similar format.

In parallel, the JRC has also completed an action plan as **follow-up to the Staff Satisfaction Survey 2021** results. The HRC team has produced initial analysis and a report to identify the main areas of improvement for the entire organisation. In order to enable a bottom-up approach and to ensure that the local dimensions are taken into account for developing concrete follow-up actions, six working groups of volunteers representing the six JRC sites were formed to develop action proposals under the coordination of the HRC team. The many ideas also contributed to the actions in the HR Pathways.

The JRC continued its efforts to improve the **gender balance** amongst management and scientific staff in 2022. In particular, a significant improvement in the gender balance of middle management was achieved with 8 first female appointments to middle management made by end of 2022. The talent management programmes for potential future managers were fully implemented in 2022, with 33 participants actively engaging in their future career development plans. In addition, the JRC actively participated in corporate initiatives such as the FTDP - female talent development plan.

**Leadership development** opportunities for the JRC managers continue to be promoted, helping them engage with staff by supporting their development and be sensitive to their



well-being. The new Management Forum initiative enabling meaningful exchanges among the JRC middle managers has been created. A new co-development initiative for managers, supported by qualified JRC coaches was launched. JRC trainings on ethics and on prevention of psychosocial risks continued to be offered to managers.

With the creation of the **JRC Off-boarding package**, including a new external career consultancy service for departing staff, the JRC now has a range of offers that cater to **the career needs of contract agents** at all stages of their time in the Commission. This comprises the Welcome Package, the Career Development Package, the Code of Practice for Research Fellows and lastly the Off-boarding package.

In collaboration with DG HR in the larger context of the EC corporate Career Days, **the JRC Career days** took place from 7 November to 9 November. There were 17 online sessions + 10 physical sessions on JRC sites, with almost 900 attendances recorded. Among the sessions, there were also topics dedicated to specific staff groups, including for the Contractual agents.

The **JRC talent management programme for certification** has continued to support AST colleagues in preparing for the certification, with over 60 colleagues participating in 2022.

The **JRC secretaries' (function group AST-SC) competition** reserve list has been published in 2022 with 19 laureates for possible recruitment. The AST3 technician competition was launched and still ongoing.

Since the first pilot in 2021, the JRC has continued to launch the call of expression for interest for **JRC scientific trainees** under the new format in 2022. The new approach has proven to be effective in attracting more geographically diverse applicants, namely from under-represented member states. In total around 1000 candidates have applied and 84 scientific trainees were recruited.

The JRC continued to dedicate effort in maintaining a healthy **social dialogue** with the staff representatives from all JRC sites in the many meetings organised during 2022. The discussions covered both general and more specific topics, including in the context of the JRC reorganisation.

In view of the gradual return to the office, DG HR has adopted a decision on working time and hybrid working on 1 April to clarify the possibilities regarding flexible working. The JRC has produced **JRC Guidelines** for the implementation of the Commission Decision **on working time and hybrid working**. This was complemented with a **JRC Digital Etiquette**, co-created by many colleagues and as part of a 3R action team to help colleagues maintain a healthy work-life balance.

After series of consultations and preparation, **the JRC reorganisation** was prepared for implementation with date of effective on the 1 January 2023, in close collaboration with all actors to ensure a smooth implementation.

The internal communication competency further developed in the JRC following the creation of a communication unit. The HR Correspondent team collaborated closely with internal communication colleagues. Connected remained the main intranet platform for internal announcements exchange within the JRC. In addition, there are other formats such as broadcast (email), monthly newsletter informing all staff on the latest HR news. All staff “town hall” meeting has been organised on HR topics by the HR Correspondent. Career days 2022, already mentioned above, also allowed the JRC to promote relevant offers to the colleagues for their personal development. In view of the site dimensions of the JRC, a JRC internal communication network has been established to amplify the outreach of our actions and to foster exchange between the internal communication colleagues of different sites. To boost staff engagement, 9 **JRC Square** events were organised, where the JRC Director-General meets staff in virtual ‘Town Hall’-style interactive topical events, averaging 670 participants per session. To re-enforce focus on science, the largest multi-day and multi-site hybrid **JRC Science Summit** event got together more than 1000 colleagues to interact during 60+ sessions.

With the Collaborative Doctoral Partnership, Exploratory Research Programme and the Centre for Advanced Studies, the JRC is complementing its competence base with experts and motivated young scientists from specific fields relevant for upcoming policy challenges. By working with artists, curators and designers, the JRC scientists engage in transdisciplinary thinking to address complex issues.

### 2.2.2. Digital transformation and information management

The JRC has a long-standing expertise in providing digital solutions in support to European policies, whether through platforms for data collection, for monitoring indicators and progress; devising platforms for collaboration and information sharing; giving advice and support for effective knowledge management and evidence-based policies.

The JRC is the business domain owner for the eProcurement Programme which is part of the Commission’s actions to put in place a single data interchange area for submitting, storing and processing data in grant and procurement procedures. The progress during 2022 is detailed in Annex 9 as well as section 2.2.4.

The implementation of a future-proof, end-to-end **ICT architecture** that defines capabilities aligned to business needs and supports the JRC 2030 strategy, continued throughout 2022. This architecture addresses aims to ensure a cost effective, fit for purpose, secure and well-coordinated ICT environment.

The JRC supports the digital strategy principles and does this systematically when assessing the JRC IT activities submitted to the JRC **ICT Programme Office**. During the year 2022, 44 files describing JRC IT activities were evaluated by the ICT Programme Office, 32 of which were presented to the Information Technology and Cybersecurity Board (ICTB) and received a positive opinion.

Concerning **ICT security**, the JRC made a huge effort in order to finalise the security risk assessment and security plans in accordance with the objectives defined by the ITCB. The JRC rationalised some security controls, implementing a JRC solution for the inventory of IT assets, vulnerability assessment, and the regulation of data flows inbound and outbound (proxy and reverse-proxy). The JRC collaborates intensively with DIGIT.S to achieve monitoring and improving capability and maturity.

The JRC contributed to the implementation of the post-2021 Rolling Action Plan for Data, Information, and Knowledge Management at the Commission (the Information Management Steering Board (IMSB) work programme). In the context of the DataStrategy@EC action plan, the JRC is leading the **Data Advisory (DA) service action**.

Continued efforts have been made to ensure more coherent **data management** within JRC and in support of implementing the corporate governance and policies (and relevant legislation). Guidance for data owners and data stewards around their tasks and responsibilities was provided. Linked to data governance, 4 Data Committee meetings and 2 Data Contact Points meetings were held in 2022.

In 2022, the **JRC Data Strategy** was adopted and a working team is in charge of planning and monitoring its implementation. Work is ongoing on several main areas: data governance, data support service, data culture, and data infrastructure. The Data Committee and Data Contact Points were kept informed on the steps taken concerning the implementation of the JRC Data Strategy and involved whenever appropriate.

In 2022, the **One Stop Shop for Collaboration** went through a thorough reflection on its mission and future. As a result, a new cross-DG entity was born - the Centre for Organisational Transformation (COT). It aims to provide better support in strategic change, stakeholder engagement, collaboration and new ways of working across the Commission. These services are currently distributed across different DGs and bodies with different governance and operating structures. The COT unites them all under one umbrella to gain efficiencies but also to leverage on broader expertise and provide the latest and best behavioural, scientific, digital and logistical support to support the transformation of the organisation.

In the area of **data protection**, the planned data protection awareness campaign continued in 2022. The DPC team launched – in close collaboration with the DPO team – a new review of all JRC records, as all records have to be now reviewed annually by the operational controllers. All senior managers were asked to ensure that their staff follow one of the available data protection trainings (with a preference for an e-learning course).

With regards to **records management** in 2022, trainings were organised in JRC (about 200 JRC staff trained) including information sessions to raise awareness on the use of the new flag 'Sensitive Personal Data' in Ares. Also, to ensure the implementation of the sensitive personal data flag within systems integrated with HAN (Hermes-Ares-NomCom), action was taken with system owners and system suppliers. In the second half of 2022, under SG.C.1 (e-Domec) coordination, the inventory of preservation needs of JRC information systems also started. Finally, in the context of future migration of collaborative

platform, advice was provided to help identifying which content may be qualified as record thus to be captured in Ares.

In July 2022, the **EU Academy**, piloted at the JRC during 2019-2021, was transferred to a fully operational corporate learning platform. The platform is an EU-owned online hub containing first-hand knowledge, high quality educational resources and valuable insights, directly produced by the EU institutions, for individuals whose work is related to its sphere of action. The aim is to facilitate easy and smooth understanding and successful implementation of EU policies in a wide array of fields. The mission of the EU Academy is to provide a modern and engaging learning environment that can foster and improve the quality of the application of knowledge on EU-matters in a simple, smart and inspirational way. With over 300,000 learner accounts established in 2022, and more than 650,000 individual enrolments recorded to over 1,200 learning content items, the EU Academy is one of JRC's true success stories in 2022.

### 2.2.3. Sound environmental management

In 2022, while carrying out relevant scientific activities, the JRC has worked to reduce energy and resource consumption on a continuous basis, in line with the corporate European Commission EMAS scheme<sup>14</sup> and as reflected in the [2022 EMAS Global Annual Action Plan](#).

The JRC is fully committed to contributing to the Commission's overall environmental efforts through the implementation of the *Greening the Commission* Communication adopted in April 2022. In this regard, the JRC has provided timely input to the Communication and has disseminated it widely to staff. For example, innovative awareness-raising methods (JRC Living Lab Gamification<sup>15</sup>) were used. The '[JRC Environment](#)' intranet page was also redesigned around the main 'pillars' of the Communication. Regarding travel-related CO2 emissions, the JRC has pledged to halve them by 2024<sup>16</sup> and has started to monitor progress via MIPS<sup>17</sup>. In addition, the JRC has:

- Implemented a number of measures to **optimise and/or reduce energy consumption** at the various sites. In particular, the JRC has worked to optimise energy loads in laboratories (e.g. shutting down of certain equipment in Petten);
- Replaced fossil with **renewable energy sources** (38% increase of the photovoltaic energy production in Ispra in 2022 with respect to 2021);
- Continued **insulation of buildings** (e.g. thermal insulation of building 48 ongoing in Ispra, study for renovation/insulation of building 40 in Geel);

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<sup>14</sup> The EU Eco-Management and Audit Scheme (EMAS) is a premium management instrument developed by the European Commission for companies and other organisations to evaluate, report, and improve their environmental performance. EMAS is formalised in Regulation (EC) No 1221/2009 ('EMAS III').

<sup>15</sup> <https://webgate.ec.europa.eu/connected/community/jrc/living-labs/blog/2022/02/11/gamification-for-environmental-sustainability-looking-back-at-the-interinstitutional-emas-days>

<sup>16</sup> [Ares\(2022\)5485714](#)

<sup>17</sup> No tool available yet to monitor travels of experts (Commission is working on a solution based of the AGM tool).

- Promoted **sustainable transportation** by replacing part of the service car fleet with hybrid and electric cars (e.g. replacing two petrol service cars by electric cars in Karlsruhe);
- In the case of non-owned buildings, **encouraged the owner to carry out environmental improvements** (e.g. assessing the feasibility of installing photovoltaic panels and carrying out an energy audit in Seville);
- Improved the **sustainability of its events**.

The Commission's new HR strategy adopted in April 2022 has had an impact on the achievement of some objectives. A clearer picture will emerge in the next few years when this situation of flexible working pattern has matured.

#### 2.2.4. Example(s) of initiatives to improve economy and efficiency of financial and non-financial activities

As set out in the management plan for 2022, the JRC has put an organisational structure in place to ensure that all renewable critical contracts are signed on time so avoiding non-contractual coverage of activities key to site operation. This was a very successful joint operation between the Financial Services Unit and those responsible for JRC's budget execution. Colleagues were asked to plan requests with a contract signature date six months in advance of the actual deadline. This allowed for a re-launch of the procedure should the initial call for tender fail. Monthly reports of calls related to critical contracts were provided and an assessment made whether action is required for the call to be completed in time.

In parallel, the Public Procurement Management Tool (PPMT) was successfully on-boarded in 2022 by all Commission services, other Institutions, agencies and bodies. Although this adoption was slower than originally foreseen, the impacts are now being felt with increasing efficiency gains being identified, in particular with respect to the preparation of calls for tender.

Real progress has been achieved with respect to JRC's new certification program 'license to buy' attesting that scientific/operational staff making use of financial resources have to follow a mandatory training map. The details have been worked out, presented to and agreed by the JRC's senior management team. Implementation is expected in 2023.

Finally, further to the report on simplification presented to the DG BUDG working group on simplification of financial transactions and procurement, DG COMM has decided to take the purchase card initiative (for very low value transactions) forward with the active support of the JRC and the European External Action Service. A market survey is expected in the near future.