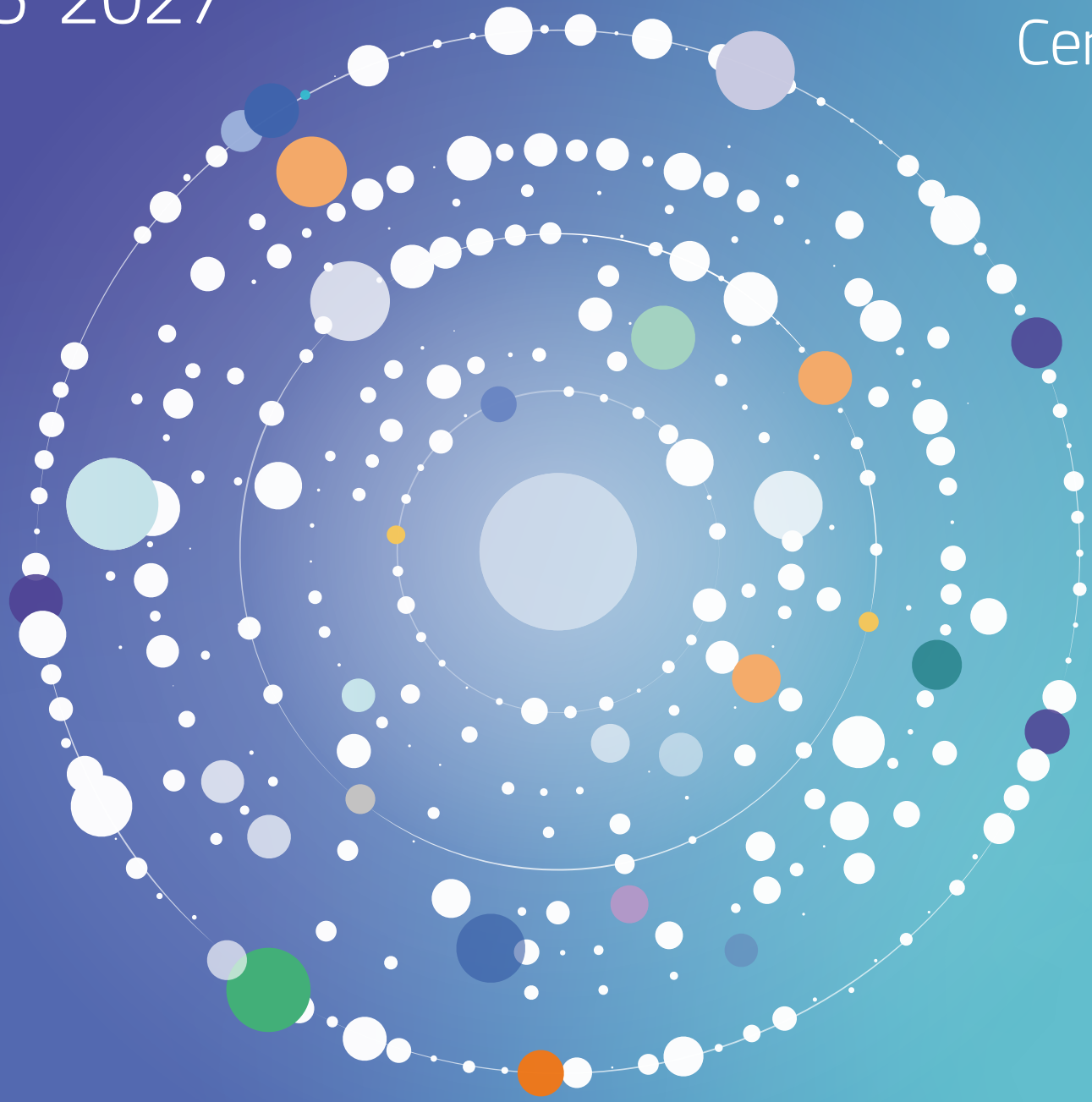
European Commission

Work Programme 2025-2027

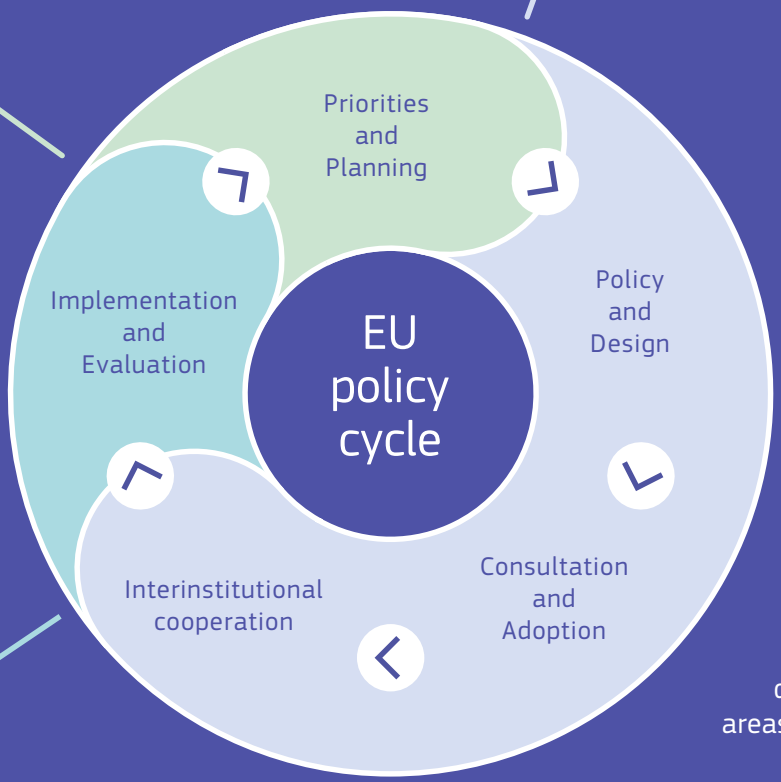
Joint Research Centre



The JRC's three core strengths underpin the full EU policy cycle

1. Anticipation

Looking ahead to be better prepared and provide the scientific underpinning for future policy initiatives



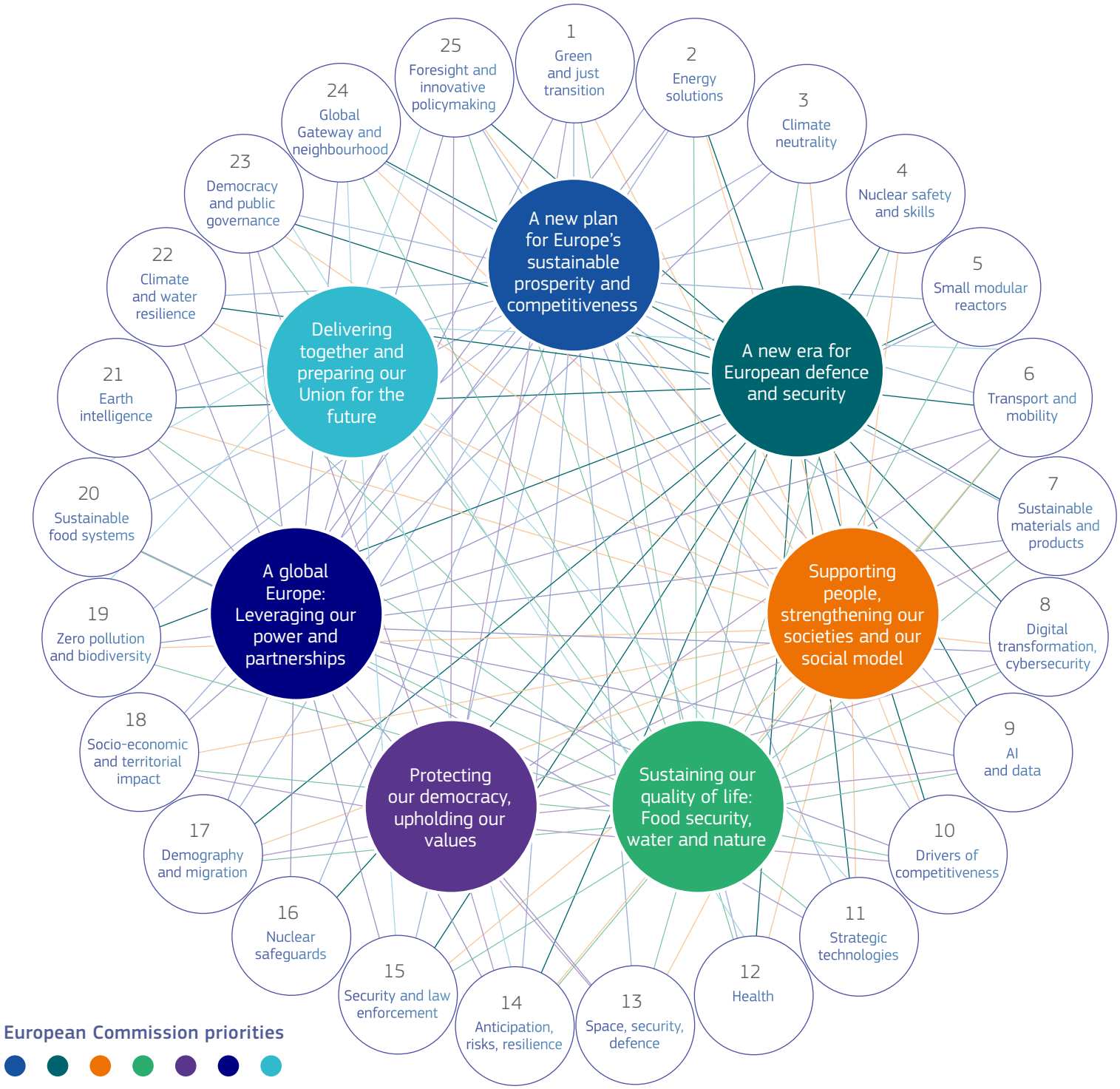
2. Integration

Building links between the different scientific and policy areas thanks to multi disciplinary and analytical capability

3. Impact

Measuring the impact of EU policies, supporting the design and monitoring of policies and performance indicators

The JRC's 25 portfolios are strongly linked with the 7 priorities of the European Commission



The Joint Research Centre matters – for good policymaking but also in our daily lives. Research undertaken here does not remain in laboratories or reports. It feeds directly into policymaking to positively impact society.

We do Science for Policy

Foreword by Ekaterina Zaharieva

European Commissioner for Startups, Research and Innovation

Good policy builds on good science. In a world that is evolving faster than ever, we must be able to act quickly and decisively. And for this, we need timely, reliable and independent scientific evidence.

The Joint Research Centre (JRC) acts as Europe's scientific compass, ensuring that EU policies are rooted in evidence, not uncertainty. With this Work Programme, I am proud to present how the **JRC's scientific excellence will underpin the Commission's priorities** and help reinforce our Union over the next three years.

It is clear from this Work Programme that the research undertaken at the JRC does not remain in laboratories or reports - it **feeds into policymaking to positively impact society**.

The Startup and Scaleup Strategy is an obvious illustration where the JRC will provide the analytical foundations needed to inform policy decisions that will impact entrepreneurs across Europe. Our researchers will investigate the development of innovative firms, clarify the reasons for technology transfer and identify barriers to market roll-out, ensuring the policy outcomes translate into tangible innovation on the ground.

Supporting the **Clean Industrial Deal**, the JRC will continue to chart energy and industrial infrastructures across Europe. This helps Member States and industry to pinpoint clusters of energy demand and supply, so they can better focus their investments on renewable go-to areas with high potential.

This Work Programme matters – for good policymaking but also in our daily lives. With droughts, wildfires and floods becoming more severe and more frequent, JRC scientists play a critical role in supporting civil authorities in their response efforts thanks to quick, **precise satellite monitoring** for prevention as well as real-time and post-event assessments.

As we embark on this next phase of the JRC's work, I encourage everyone — policymakers, research institutes, Member States, industry leaders and citizens —to engage with this Work Programme. Use its insights! And help us build a more sustainable, secure, and innovative Europe!

With a focus on excellence, independence, relevance and scientific collaboration, the JRC is committed to providing evidence-based knowledge and science to inform decision-making and drive positive change.

Welcome to our Work Programme

Introduction by Bernard Magenhann

Acting Director-General of the Joint Research Centre

The Joint Research Centre is at the heart of the European Commission's efforts to strengthen evidence-informed policymaking. As the European Union faces unprecedented global and societal challenges, the JRC remains committed to providing robust, independent and timely scientific support to shape policies that deliver for citizens and businesses alike.

The JRC Work Programme 2025-2027 is built on three key principles: **better prioritisation, enhanced collaboration,** and the reinforcement of our core strengths – **anticipation, integration and impact**. These principles underpin our mission to deliver scientific excellence and ensure that EU policies are based on the best available evidence.

Developed in strategic partnership with Commission services and external stakeholders, the Work Programme is aligned with the EU's overarching priorities and objectives of the Horizon Europe and Euratom programmes. It reflects a deep understanding of emerging policy needs and responds with a structured approach, organised around **25 dynamic portfolios**. These portfolios serve as the main building blocks of our Work Programme, fostering an integrated approach across scientific and policy domains.

Through this approach, the **JRC strengthens its role as a key partner within the European Commission and beyond**. By bridging the gap between science and policy, we help to shape strategic decisions that enhance Europe's prosperity, competitiveness and resilience.

Contents

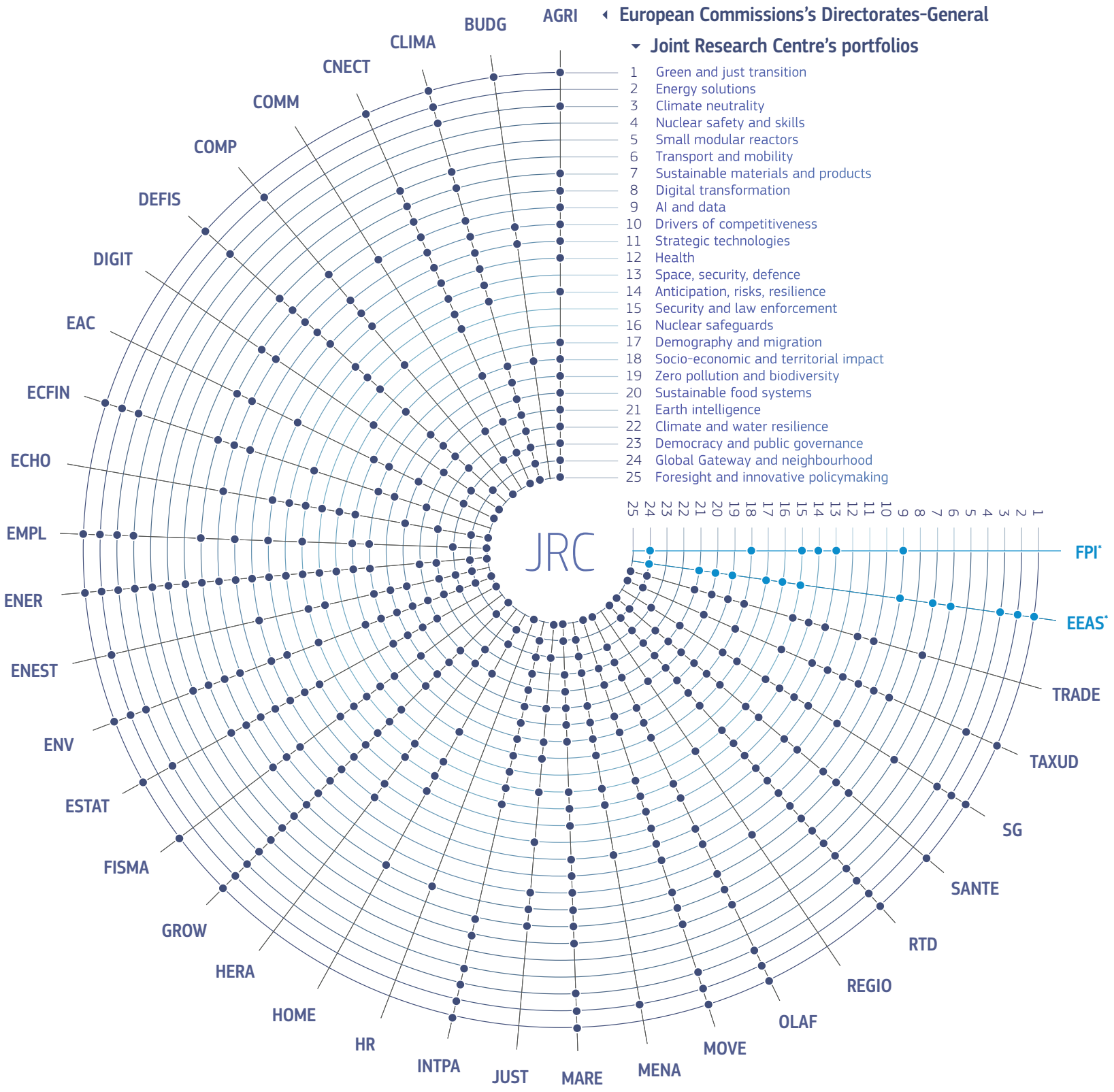
The JRC portfolios support almost all Commission DGs in their work

Our portfolios will ensure a better integration of the content within the JRC and across scientific and policy domains. This helps to maximise our support for anticipating and developing policies and monitoring their implementation.

European Commission Directorates-General which the JRC supports

AGRI Agriculture and Rural Development
BUDG Budget
CLIMA Climate Action
CNECT Communications Networks, Content and Technology
COMM Communication
COMP Competition
DEFIS Defence Industry and Space
DIGIT Digital Services
EAC Education, Youth, Sport and Culture
ECFIN Economic and Financial Affairs
ECHO European Civil Protection and Humanitarian Aid Operations
EMPL Employment, Social Affairs and Inclusion
ENER Energy
ENEST Enlargement and Eastern Neighbourhood
ENV Environment
ESTAT Eurostat - European statistics
FISMA Financial Stability, Financial Services and Capital Markets Union
GROW Internal Market, Industry, Entrepreneurship and SMEs
HERA Health Emergency Preparedness and Response Authority
HOME Migration and Home Affairs
HR Human Resources and Security
INTPA International Partnerships
JUST Justice and Consumers
MARE Maritime Affairs and Fisheries
MENA Middle East, North Africa and the Gulf
MOVE Mobility and Transport
OLAF European Anti-Fraud Office
REGIO Regional and Urban Policy
RTD Research and Innovation
SANTE Health and Food Safety
SG Secretariat-General
TAXUD Taxation and Customs Union
TRADE Trade and Economic Security

*The visual refers also to the **EEAS** (European External Action Service) and **FPI** (Foreign Policy Instruments) as important partners for the portfolios and the JRC.


European Commissions's Directorates-General
Joint Research Centre's portfolios
1 Green and just transition
2 Energy solutions
3 Climate neutrality
4 Nuclear safety and skills
5 Small modular reactors
6 Transport and mobility
7 Sustainable materials and products
8 Digital transformation
9 AI and data
10 Drivers of competitiveness
11 Strategic technologies
12 Health
13 Space, security, defence
14 Anticipation, risks, resilience
15 Security and law enforcement
16 Nuclear safeguards
17 Demography and migration
18 Socio-economic and territorial impact
19 Zero pollution and biodiversity
20 Sustainable food systems
21 Earth intelligence
22 Climate and water resilience
23 Democracy and public governance
24 Global Gateway and neighbourhood
25 Foresight and innovative policymaking
JRC
AGRI
BUDG
CLIMA
CNECT
COMM
COMP
DEFIS
DIGIT
EAC
ECFIN
ECHO
EMPL
ENER
ENEST
ENV
ESTAT
FISMA
GROW
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SANTE
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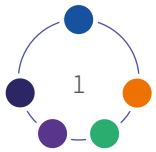
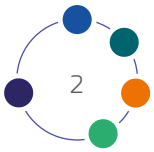
TAXUD
TRADE
EEAS*
FPI*

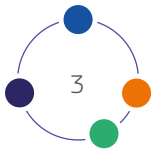
JRC Portfolios



Green and just transition

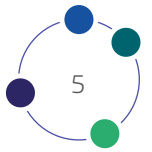


Energy solutions



Climate neutrality

Nuclear safety and skills



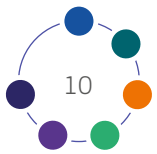
Small modular reactors

Transport and mobility

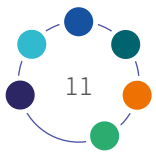
Sustainable materials and products

Digital transformation, cybersecurity

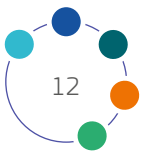
AI and data



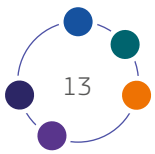
Drivers of competitiveness



Strategic technologies



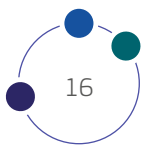
Health



Space, security, defence

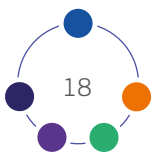
Anticipation, risks, resilience

Security and law enforcement



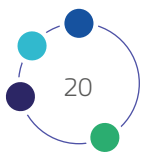
Nuclear safeguards

Demography and migration



Socio-economic and territorial impact

Zero pollution and biodiversity



Sustainable food systems

Earth intelligence

Climate and water resilience

Democracy and public governance

Global Gateway and neighbourhood

Foresight and innovative policymaking

European Commission priorities

- A new plan for Europe's sustainable prosperity and competitiveness
- A new era for European defence and security
- Supporting people, strengthening our societies and our social model
- Sustaining our quality of life: Food security, water and nature
- Protecting our democracy, upholding our values
- A global Europe: Leveraging our power and partnerships
- Delivering together and preparing our Union for the future

JRC Scientific Portfolios 2025-2027

Scan the QR code to visit:

JRC Scientific Portfolios

https://joint-research-centre.ec.europa.eu/scientific-portfolios_en

Portfolio 1

Just, competitive and sustainable green transition

The EU has both the need and the opportunity to use its green ambitions to drive competitiveness, resilience and prosperity. But EU green targets must also lead to a just and fair transition, especially in such a fast-evolving and uncertain global environment.

This portfolio will strive to achieve a green transition that works for the economy, for businesses and for people. It will design and apply new science-based data, methods, models and tools to explore policy options and solutions. It will align the green transition with the new EU priorities for competitiveness, resilience and fairness, while considering their impact on nature and society.

Scan the QR code to visit:

Green and just transition

https://joint-research-centre.ec.europa.eu/scientific-portfolios/green-and-just-transition_en

Portfolio objectives

Support achieving European Green Deal targets by:

- identifying enablers and successful cases;
- providing step-by-step plans to implement the European Green Deal at national, regional and local level;
- offering practical input to increase green investments and protect the environment.

Provide tools for sustainable competitiveness

Find green solutions and practical tools for a sustainable industrial transition that balances sustainability throughout value chains, competing policy goals and competitiveness, considering how the economy relies on the environment and natural resources.

Help to measure a fair and just green transition

Create tools to measure sustainable and inclusive wellbeing, and identify and address how such measures can help to achieve European Green Deal objectives and understand their effects on society and the economy.

Analyse environmental data effectively

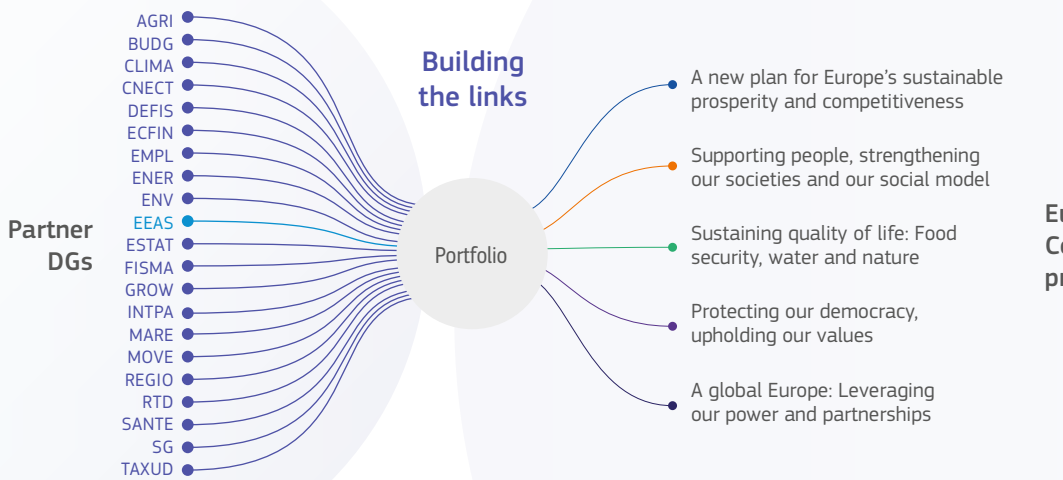
Increase data interoperability to monitor and evaluate policy more effectively and build on the knowledge base of the JRC Biomass Mandate.

KEY PORTFOLIO ASPECT

Environmental extension of EUROMOD

Green EUROMOD is the environmental extension of the tax benefit microsimulation model EUROMOD, which links household consumption patterns to their respective greenhouse gas, energy or water footprints. This enables quick and detailed socio-economic analysis of environmental policies related to different environmental pressures (greenhouse gas pollutants such as nitrogen or water scarcity) — in particular European Green Deal policies such as the EU-ETS2 (EU Emissions Trading System) and the Social Climate Fund.

Learn more about **Green EUROMOD** (https://joint-research-centre.ec.europa.eu/scientific-activities-z/fiscal-policy-analysis/taxation-and-social-policy-households/taxation-consumption-including-green-taxation/green-euromod)



Portfolio 2

Energy solutions

Energy production and consumption account for 75 % of EU greenhouse gas emissions. Achieving a cleaner energy system will be crucial for attaining future European targets. This green transition must support European industries' competitiveness, whilst providing affordable, sustainable and secure solutions.

This portfolio will pave the way towards an emissions reduction target of at least 55 % by 2030. It will support REPowerEU and Fit for 55 policy targets, and will help to implement the Energy Efficiency Directive and Energy Performance of Buildings Directive by analysing the national progress reports.

Scan the QR code to visit:

Energy solutions

https://joint-research-centre.ec.europa.eu/scientific-portfolios/energy-solutions_en

Portfolio objectives

Support the increase of renewables and clean energy

Shape future energy markets, and greater integration of renewables with efficient solutions into the existing system, while ensuring supply security.

Analyse energy-related issues requiring policy intervention

Examine complex issues including technology, infrastructure, buildings, competitiveness, supply chains and standards.

Assess EU clean energy ecosystems

Develop tools to reflect new geopolitical and sustainability challenges and policy objectives by assessing EU clean energy ecosystems.

Identify effective instruments for energy policy

Identify tools to reduce energy consumption and promote decarbonisation in buildings, considering financial and social aspects.

Identify measures against growing energy needs

Address energy demand in the ICT sector, decarbonise buildings and transport, and promote energy citizenship through behavioural economics, while considering energy poverty.

Help to integrate skills in hydrogen and gas

Explore how to integrate skills in hydrogen technologies, decarbonised gases and liquids, with expertise in gas infrastructure.

Upgrade energy models

Integrate energy models into a comprehensive system to assess capacity expansion needs.

Support grid digitalisation

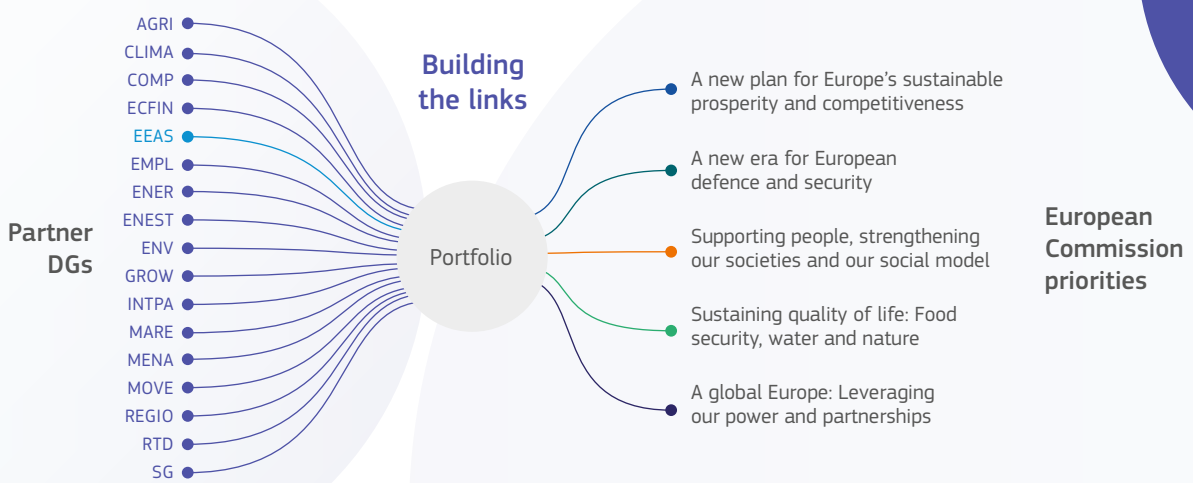
Support digitalisation with innovative tools and work on the interoperability of grid infrastructure by facilitating data exchange.

KEY PORTFOLIO ASPECT

Research infrastructures for the energy transition in a competitive Europe

The JRC's pre-normative research on strategic energy technologies helps to bridge the innovation gap and accelerate EU industries' competitiveness. JRC scientists develop the methodologies leading to standards required to sustain this transition. At the European Solar Test Installation, the JRC anticipates innovative photovoltaic technologies for mass deployment. The Hydrogen Testing Facilities help to verify methods for the performance and safety of electrolysers and hydrogen pipelines. At the Smart Grids Interoperability Laboratory the interoperability of smart grid systems and components are tested.

Learn more about **JRC laboratories** (https://joint-research-centre.ec.europa.eu/laboratories).



Portfolio 3

Pathways to climate neutrality

The EU has committed to achieving climate neutrality by 2050. The energy transition presents unprecedented challenges but also offers significant opportunities in terms of energy security, resilience and competitiveness. Capitalising on these opportunities will require smart policies based on a deep understanding of future energy systems and their related impacts on the land sector.

This portfolio will analyse and integrate models from the energy and the land sectors to help shape science-backed pathways to climate neutrality. It will also contribute to monitoring progress towards meeting global climate commitments.

Scan the QR code to visit:

Climate neutrality

https://joint-research-centre.ec.europa.eu/scientific-portfolios/climate-neutrality_en

Portfolio objectives

Evaluate the impact of climate policies and strategies

Analyse policies and strategies for the implementation of the Climate Law and the Clean Industrial Deal, and analyse their impact on competitiveness and fairness.

Analyse 2040 climate target policies

Analyse how new climate policy proposals would impact the economy, distribution of wealth in society and competitiveness.

Anticipate climate and energy trends

Contribute to developing the new EU reference scenario for climate and energy by analysing Member States' national energy and climate plans.

Enhance spatial data details for key tools and analysis

Increase the spatial resolution of the JRC's datasets, tools, and models beyond a regional level, focusing on integrated land-use modelling and the transition of energy infrastructure.

Develop models for energy and land-use

Use AI-generated land-use models to integrate modelling systems for energy, agriculture, forestry and land use.

Analyse climate and mitigation strategies

Measure the economic impact of different adaptation and mitigation strategies.

Create standards and methods for carbon farming

Develop methods to reduce greenhouse gas levels by storing carbon in soils, plants and trees, under the EU Carbon Removal Certification Framework.

Support assessment of progress in meeting climate targets

Update the global datasets on greenhouse gas emissions, including land use.

KEY PORTFOLIO ASPECT

General Equilibrium Model for Economy-Energy-Environment (JRC-GEM-E3)

To help chart pathways to climate neutrality, the JRC has been maintaining the General Equilibrium Model for Economy-Energy-Environment (JRC-GEM-E3) since 2003. This model covers the interactions between the economy, the energy system and the environment, and is crucial in helping policymakers evaluate and predict potential effects of policies across different fields. Analysis based on the JRC-GEM-E3 is used by many European Commission services and published widely.

Learn more about the **JRC-GEM-E3 Model** (https://joint-research-centre.ec.europa.eu/scientific-tools-and-databases-0/general-equilibrium-model-economy-energy-environment)

Portfolio 4

Nuclear safety: technology and skills

Several EU policies are linked to nuclear technology, including energy, space and health, and some Member States plan to build new reactors to reach EU decarbonisation goals. We must therefore maintain and grow a skilled EU workforce with nuclear expertise.

This portfolio focuses on skills, knowledge and expertise centred around current nuclear technologies. It will undertake further research on the safe use of nuclear technologies, complementing Member States' own research programmes and supporting nuclear policy. In doing so, it will serve as both an advisor and collaborator for several strategically important EU policies.

Scan the QR code to visit:

Nuclear safety and skills

https://joint-research-centre.ec.europa.eu/scientific-portfolios/nuclear-safety-and-skills_en

Portfolio objectives

Contribute to safe operation and use of nuclear energy

This includes research on safer fuel variants, severe accidents and emergency preparedness, ageing management and integrity assessment of reactor components, material properties, supply chain of safety-classified structures, systems and components, responsible and safe waste management and decommissioning, characterisation of legacy and other waste, multi-recycling, reprocessing and storage.

Provide policy support and independent advice for nuclear safety

Provide the European Commission, EU decision-makers, Member States and external stakeholders with technical, scientific and monitoring advice, including on foresight activities.

Maintain and develop nuclear skills and expertise

Expand nuclear skills and expertise by coordinating with Member States and enhancing the JRC's visibility as a key player in this area, including by providing open access to JRC nuclear research infrastructures. Support is also provided to third countries, helping to strengthen nuclear safety outside the EU.

Contribute to harmonisation efforts

Develop nuclear codes, standards and best practice guidelines on integrity and lifetime assessment of reactor components and in-service inspections.

KEY PORTFOLIO ASPECT

Open access to nuclear research infrastructures

The JRC nuclear research infrastructures are essential for implementation of the nuclear safety, waste management and decommissioning programmes. Open access is provided to support Member States. It is also provided to infrastructures in Geel, Petten and Karlsruhe, and includes laboratories for nuclear materials, reactor components and nuclear data. Altogether, these cover a large domain of scientific activities in the nuclear field, which provides external users the opportunity to explore an extended spectrum of research on the nuclear fuel cycle, as well as on non-power applications.

Learn more about the open access to **JRC research infrastructures** (https://joint-research-centre.ec.europa.eu/tools-and-laboratories/open-access-jrc-research-infrastructures)

Portfolio 5

Small modular reactors and innovative reactor systems

Advanced nuclear reactors, particularly small modular reactors (SMRs), are being designed for improved sustainability, economics, safety and security. They are also gaining increasing attention for the delivery of clean power and heat.

This portfolio supports their development and deployment. It provides policymakers with a realistic view of how SMRs and other innovative reactor systems can complement the European energy mix. It ensures that dedicated policy options are evidence-based, and it supports the work of the new European Industrial Alliance on SMRs, the Sustainable Nuclear Energy Technology Platform and the Generation IV International Forum.

Scan the QR code to visit:

Small modular reactors

https://joint-research-centre.ec.europa.eu/scientific-portfolios/small-modular-reactors_en

Portfolio objectives

Evaluate safety and sustainability of SMR design

Assess different designs of small modular reactors (SMRs), innovative reactors and fuels, in terms of safety, viability and sustainability.

Promote early integration of safety, safeguards and security

Aim to ensure that designers and vendor companies integrate safety, safeguards and security constraints early in the design process, thereby facilitating and accelerating licensing.

Integrate nuclear technologies and non-electric applications in energy modelling

Provide policymakers with a realistic view of how SMRs and other innovative reactor systems and their applications can complement the European energy mix, together with renewables.

Support the improvement of data and standards

Contribute to EU efforts to improve existing data, codes and standards for the design, manufacturing and in-service inspection of SMRs.

Help to establish a European supply chain

Support the creation of a European supply chain for safety-related structures, systems and components.

KEY PORTFOLIO ASPECT

Fuels and materials research laboratories

The Fuels and Materials Laboratory in Karlsruhe provides the scientific basis for the objective assessment and simulation of the safety-related behaviour of nuclear fuels that are tested under normal or extreme temperature conditions and chemical environments. It is complemented by the Environmental and Mechanical Materials Assessment facilities in Petten which support the development of codes and standards for components and materials, based on the testing of samples at high temperatures and in corrosive environments.

Learn more about the **Fuels and Materials Research Laboratory** (https://joint-research-centre.ec.europa.eu/laboratories-z/fuels-and-materials-research) and the **Environmental and Mechanical Materials Assessment facilities** (https://joint-research-centre.ec.europa.eu/tools-and-laboratories/open-access-jrc-research-infrastructures/environmental-mechanical-materials-assessment-emma)

Portfolio 6

Future transport, mobility and related infrastructure

Transport is a pillar of our society. It sustains international exchanges, has fuelled unprecedented economic growth, and underpins the functioning of our economic and social systems. Yet the transport sector faces significant challenges. As it strives to become more energy-efficient, climate-resilient, safe, sustainable and fair, it must also remain competitive in the global industrial ecosystem.

This portfolio aims to anticipate and support the design and implementation of EU policies on transport and mobility. Building on independent and evidence-based scientific expertise, it will support research and promote innovation.

Scan the QR code to visit:

Transport and mobility

https://joint-research-centre.ec.europa.eu/scientific-portfolios/transport-and-mobility_en

Portfolio objectives

Explore standards for sustainable and smart vehicles

Support the development and revision of standards for the deployment of sustainable and smart vehicles in a functional single market.

Help to build a smart, safe and competitive mobility ecosystem

Support the development of regulatory framework, enabling the seamless deployment of advanced technologies for smart and safe mobility, and a supporting and competitive industrial ecosystem.

Support sustainable and efficient transport

Contribute to transport for climate ambitions, energy efficiency and sustainable prosperity by supporting transport decarbonisation targets.

Promote innovative multimodal transport

Advance innovation in the use of multiple modes of transport.

Contribute to a modern and resilient mobility ecosystem

Support research and innovation on infrastructure for a modern and resilient transport network and mobility ecosystem, including in dual-use transport infrastructure and military mobility.

Integrate digital innovation into transport policymaking

Advance data harvesting and artificial intelligence (AI) for innovative policymaking in transport.

KEY PORTFOLIO ASPECT

European Interoperability Centre and Advanced Vehicle Testing Facilities

This centre combines four state-of-the-art laboratories which bring together knowledge and test facilities for transport and mobility. This includes in the areas of efficiency, hybrid exhaust emissions, electromagnetic compatibility, connectivity, smart grids and battery testing. The European Centre establishes a transatlantic bridge with its partner facility at the U.S. Department of Energy's Argonne National Laboratory.

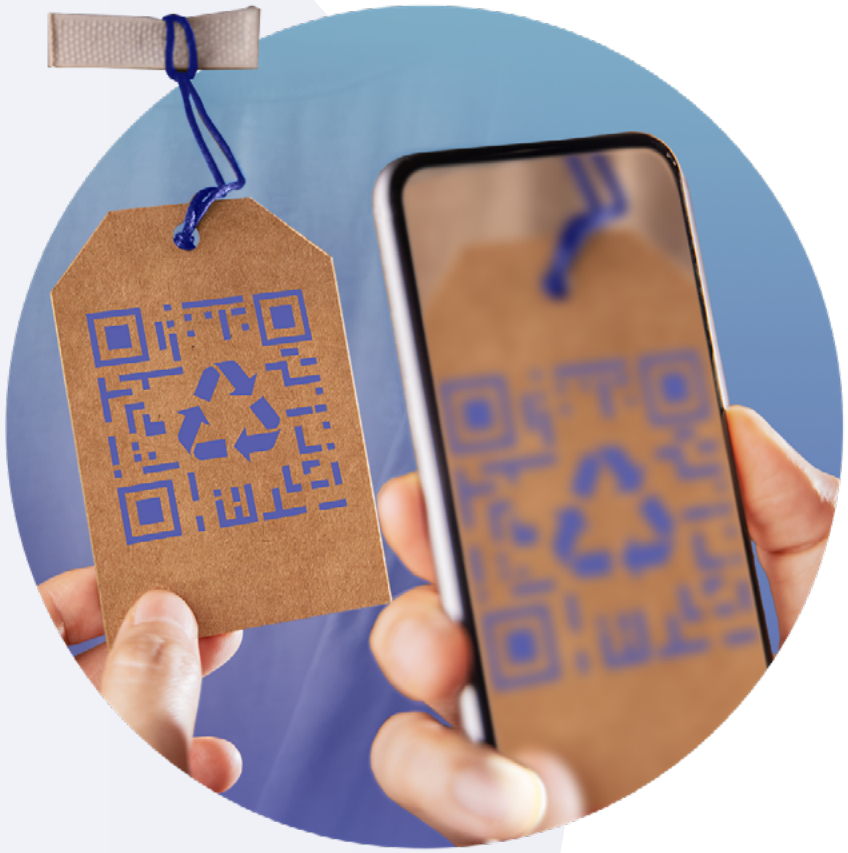
Learn more about the **European Interoperability Centre and Advanced Vehicle Testing Facilities**: (https://joint-research-centre.ec.europa.eu/laboratories-z/eu-interoperability-centre-electric-vehicles-and-smart-grids)

Portfolio 7

Sustainable materials and products for a circular, resilient and competitive Europe

Upscaling the use of sustainable and circular materials and products will be the basis for a strong future-proof EU economy. Securing more affordable energy and resources internally, including critical raw materials, will make the EU more independent, and therefore more resilient and competitive.

This portfolio aims to provide solutions to help shape this new reality. Scientific and technical insight can support this shift, by helping to develop new advanced materials to widen the range of policy options, by sustaining effective and smart implementations, but also by giving consumers confidence in these innovative and sustainable products and business models.



Scan the QR code to visit:

Sustainable materials and products

https://joint-research-centre.ec.europa.eu/scientific-portfolios/sustainable-materials-and-products_en

Portfolio objectives

Develop methods to evaluate product sustainability and safety

Create new tools to measure and verify the sustainability, circularity and safety of a broad range of products, materials, value chains and waste management options during their life cycles.

Promote green products

Make green products the norm through research and scientific support for policy, including public procurement, while ensuring consistency between the various policy instruments.

Provide knowledge for clean and circular industrial policy

Improve the knowledge base to support Green Deal policy implementation and inform the Clean Industrial Deal and circular economy policies.

Foster EU competitiveness through sustainable production

Inform policy options to promote sustainable and efficient production and consumption systems, to improve EU competitiveness and open strategic autonomy, for example, through developing single market instruments.

Improve raw materials knowledge and its accessibility

Strengthen knowledge of raw materials, their criticality, circularity and use across sectors and technologies. Make such knowledge accessible and policy-relevant, for example through the JRC's Raw Materials Information System.

KEY PORTFOLIO ASPECT

Battery Energy Storage Testing Laboratory

Batteries are central to the green and the digital transitions. This lab features state-of-the-art equipment for analysing the safety and performance of battery materials and cells. JRC scientists carry out extensive experiments on new battery technologies to understand how they will behave, including under extreme circumstances. By analysing the entire life cycle of lithium-ion batteries, scientists in this lab help to shape circularity standards and regulations in the EU and beyond.

Learn more about the **Battery Energy Storage Testing Laboratory** (https://joint-research-centre.ec.europa.eu/laboratories-z/battery-energy-storage-testing)

Portfolio 8

Digital transformation: technologies, cybersecurity and socio-economic impact

A sustainable and secure digital transformation is essential for Europe's future. The design of the future European digital society must be built on solid foundations, most importantly, trustworthy and fair digital technologies. It must also be secure, requiring a cybersecurity-by-design approach across all layers of the European digital space, and ensure an inclusive take-up of digital technologies.

This portfolio will focus on emerging digital technologies, cybersecurity, and their impact on society and the economy, contributing to key aspects of the digital transition and cutting across various key application domains.

Scan the QR code to visit:

Digital transformation, cybersecurity

https://joint-research-centre.ec.europa.eu/scientific-portfolios/digital-transformation-cybersecurity_en

Portfolio objectives

Provide a holistic perspective

Focus on emerging digital technologies such as the Internet of Things 4.0, distributed edge computing, quantum computing, next-generation internet and virtual worlds.

Support radio spectrum policy

Support radio spectrum policy initiatives in the context of the Digital Decade strategy and the goals of the multiannual Radio Spectrum Policy Programme 2023-2025.

Advance knowledge on cybersecurity and cyber defence

Conduct research on post-quantum cryptography, cyber threats intelligence, cyber resilience, standardisation and technology transfer to enhance horizontal and sectorial security measures and policies.

Examine the economic impacts of digital transformation

Focus on investments, technology adoption, digital ecosystems, legislative impacts, competitiveness, strategic autonomy, labour implications, and the dynamics of data and platform economies within private and public sectors.

Investigate the societal implications

Analyse societal resilience, public infrastructure, skills development, inequalities, the gender and digital divide, social inclusion, digital wellbeing, ethics, behavioural aspects, democratic engagement, counter mis/disinformation.

Assess the environmental consequences

Explore the dual nature of digital technologies as both enablers and obstacles in the green transition and contribute to the discourse on digital sustainability.

Support understanding of the roaming market

Contribute to in-depth understanding of the functioning and evolution of the roaming market and the assessment of socio-economic impacts of the roaming policy, to ensure the smooth functioning of the internal market, including for the Internet of Things.

KEY PORTFOLIO ASPECT

European Platform for Internet Contingencies

This large-scale simulation system aims to explore and analyse the behaviour of the internet during unforeseen events or emergencies, such as cyber-attacks, hybrid threats against critical infrastructures or technical failures. The platform incorporates various tools and techniques for data collection, analysis and visualisation to facilitate the research process and can also be used as cyber-range to organise cyber defence exercises. It is also the testing playground for the development of the EU Internet Standards Deployment Monitoring Dashboard.

Learn more about the **EU Internet Standards Deployment Monitoring Dashboard** (https://ec.europa.eu/internet-standards)

Portfolio 9

Artificial intelligence and data

Artificial intelligence (AI) and data are cross-cutting technologies, affecting many policy areas. AI and digital technologies have the potential to improve efficiency, drive innovation and enhance customer experience. However, there are also significant risks, hinging on ethical concerns and lack of evidence to build trust and encourage take-up.

As reliance on AI and data grows, Europe faces significant challenges, in particular in sectors such as healthcare, energy and transport. This portfolio will look into innovative solutions to tackle these challenges, and will help contribute to an EU ecosystem of excellence and trust in AI and data.

Scan the QR code to visit:

AI and data

https://joint-research-centre.ec.europa.eu/scientific-portfolios/ai-and-data_en

Portfolio objectives

Use evidence to support AI and data policies

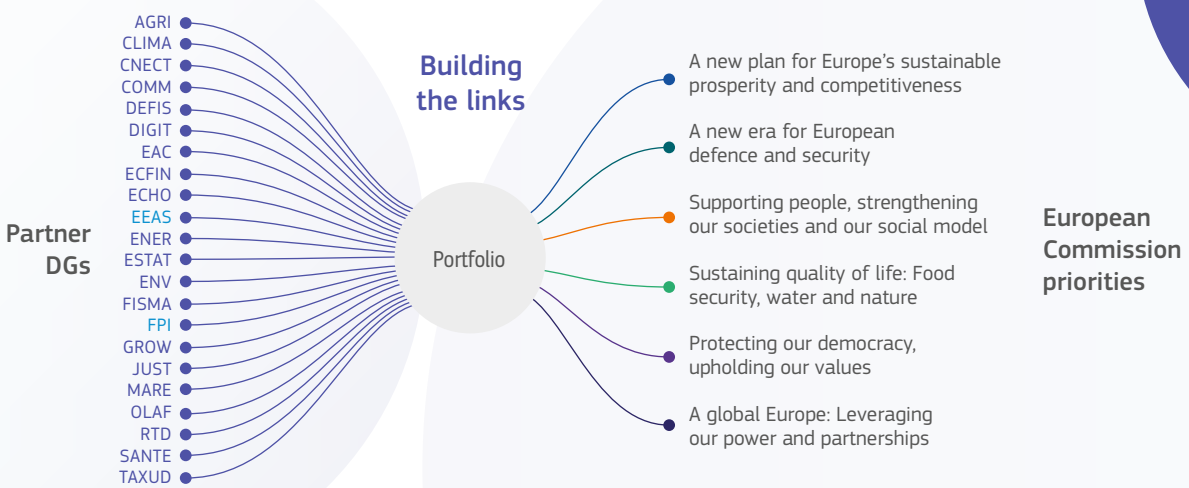
Provide evidence-based, scientific and technical support for EU policies related to AI and data at different stages of the policy cycle.

Contribute to AI and data science research

Research and innovate in the AI and data science domains, from an EU and policy perspective, acting as a bridge between the European Commission and the research community.

Drive the effective use of AI and data at the JRC:

- develop research infrastructures, platforms, and relevant datasets and models;
- upskill the JRC scientific community;
- foster innovation, collaboration, and governance in AI and data.



KEY PORTFOLIO ASPECT

The European Centre for Algorithmic Transparency

The European Centre for Algorithmic Transparency (ECAT) supports the enforcement of the Digital Services Act (DSA) and implementation of the AI Act. ECAT provides technical guidance, conducts platform assessments and inspects algorithms to ensure fair, transparent and accountable practices. It integrates ethical, legal, and economic perspectives, studies risks of algorithmic systems and informs policymaking. ECAT also fosters international collaboration for research and discussions on algorithmic transparency and data access under the DSA.

Learn more about **ECAT** (https://algorithmic-transparency.ec.europa.eu)

Portfolio 10

Drivers of competitiveness

Disruptive shifts in the global economy underline the importance of safeguarding EU competitiveness, investment and innovation. The Draghi report, along with the Letta Single Market report, emphasises the need for the EU to deepen the internal market, secure its supply chains, increase its resilience and support the transformation of its industry.

This portfolio aims to boost the analytical support for EU competitiveness by combining economic, social and technical expertise with extensive quantitative and qualitative capacities and strong impact assessment tools.

Scan the QR code to visit:

Drivers of competitiveness

https://joint-research-centre.ec.europa.eu/scientific-portfolios/drivers-competitiveness_en

Portfolio objectives

Help to bridge the innovation gap

Monitor cross-border investments, analyse private research and development, and look at private capital, with the aim of increasing EU productivity and competitiveness.

Explore finance as a driver of competitiveness

Analyse several aspects of finance, such as the availability of different sources of funds and associated cost of capital. Focus on finance's contribution to investment and innovation, including low-carbon technologies.

Support European Commission risk assessments for key supply chains

Identify economic risks of cross-border investments and monitor trade dependencies. Detect structural breaks, anomalies and trends in trade flows, and conduct macro- and microeconomic analysis.

Contribute to policy developments in corporate taxation

Use JRC models such as Cortax and DiRECT to support corporate taxation policy.

Support the design of EU innovation, industrial and trade policies

Assess the quantitative impact of such policies on industry at EU, national and regional levels with the use of JRC's FIDELIO model.

Explore and monitor drivers of European industry's competitiveness

Monitor energy prices and technologies, and investigate how they contribute to European industry's competitiveness.

Analyse startups and scaleups

Research startups and scaleups in relation to industrial competitiveness, (such as EU performance in the global context, and at EU national/regional levels, and relocation dynamics).

KEY PORTFOLIO ASPECT

Global value chains and cross border financial flows

The JRC identifies economic flows and economic activities that may pose a risk to the EU's economic security. The JRC monitors the main trends in cross-border investments, specifically mergers, acquisitions and greenfield investments for the creation of new companies. It also analyses the value chain for non-EU products and technologies of strategic importance, such as semiconductors to better understand the role and impact for EU companies.

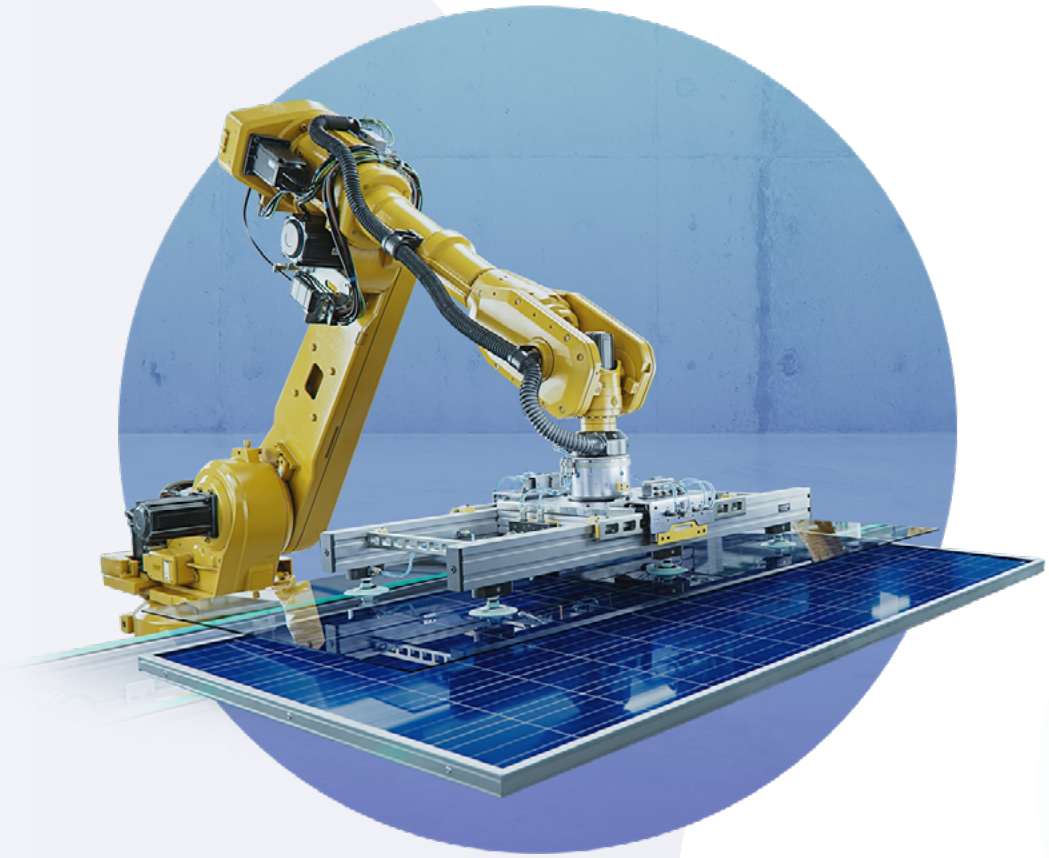
Learn more about the **JRC's work on global value chains and cross border financial flows** (https://joint-research-centre.ec.europa.eu/scientific-activities-z/global-value-chains-and-cross-border-financial-flows)

Portfolio 11

Strategic technologies for economic security and innovative industrial ecosystems

Global powers are locked in a race to secure stable and competitive access to strategic technologies. The EU will need bold, innovative measures to support such technologies and accelerate their deployment.

This portfolio will offer new analysis and tools to guide technology-specific policymaking at EU level. Reinforcing this analytical basis will help to deliver complete, reliable and up-to-date data for entire value chains. This will be crucial for informing policy measures that will best strengthen the EU's competitiveness, sovereignty and twin green/digital transition.



Scan the QR code to visit:

Strategic technologies

https://joint-research-centre.ec.europa.eu/scientific-portfolios/strategic-technologies_en

Portfolio objectives

Identify strategic technologies for EU sustainability and competitiveness

Leverage existing and emerging technologies and analysis tools, and assess potential dependencies to support a greener and more competitive EU industry.

Analyse strategic technology ecosystems and value and supply chains

This includes mapping key actors and networks and assessing performance (such as carbon footprint) and impact on trade and competitiveness.

Identify drivers and barriers to support technology and research

Focus on knowledge valorisation, standardisation, technology transfer models and instruments fostering industry-academia cooperation to support translational research and technology transfer.

Inform policies on strategic technologies

Engage with industry and innovators to evaluate technology readiness, performance, maturity and cost-effectiveness. Assess social acceptance and skills requirements, and provide insights into the challenges that industries face.

Identify areas critical to economic and research security

Identify and assess areas critical to economic and research security, focusing on potential threats and effective mitigation strategies to ensure comprehensive protection and resilience.

KEY PORTFOLIO ASPECT

Trade and industrial policy analysis and modelling

The JRC provides analysis of the effects of trade and industrial policies to support policymaking. The 'Analysis and modelling of trade and industrial policies AMADEUS' project uses input-output economics as its main toolbox. With this analysis, European countries can gain insights for increasing their competitiveness in the global market, and ensure their industries remain viable and resilient, while fostering cooperation.

Learn more about the **JRC's trade and industrial policy analysis and modelling** (https://joint-research-centre.ec.europa.eu/scientific-activities-z/trade-and-industrial-policy-analysis)

Portfolio 12

Blueprints for a strong European Health Union

In the EU, noncommunicable diseases (NCDs) are the primary cause of death and incur significant healthcare costs. Differences in NCDs prevention and care across Member States lead to inequalities in incidence and mortality. NCDs have common preventable risk factors, such as tobacco and alcohol use, unhealthy diets and physical inactivity.

To help mitigate the growing burden of NCDs, the portfolio aims to support the Europe's Beating Cancer Plan and the EU Mission on Cancer by developing evidence-based guidelines, providing harmonised data, supporting research on diagnosis and treatment, and offering scientific support for EU policies focusing on cancer, cardiovascular diseases and mental health.

Scan the QR code to visit:

Health

https://joint-research-centre.ec.europa.eu/scientific-portfolios/health_en

Portfolio objectives

Support public health and wellbeing policies

Support policymakers in public health, and promote health and wellbeing by addressing NCDs, including cancer, cardiovascular diseases and mental health issues.

Support the implementation of the Europe's Beating Cancer Plan

Support the Plan and the EU Mission on Cancer with EU cancer guidelines, data tools and knowledge hubs.

Improve disease prevention and care through guidelines

Provide evidence-based cancer screening and diagnosis guidelines and quality assurance scheme for the entire cancer care pathway, to help tackle inequalities in accessing care across Europe.

Provide harmonised data and information on cancer burden and inequalities

Operate the EU Cancer Information System and EU Cancer Inequalities Registry, and collaborate with the European National Cancer Registries.

Inform current health policy agenda and strengthen knowledge on NCDs

Focus on mental health, tobacco, preventing NCDs and societal burden, and preparedness of health systems to adopt new therapies through the Health Promotion and the Disease Prevention Knowledge Gateway.

Help to improve disease diagnosis

Provide certified reference materials to standardise examination results obtained with various in-vitro diagnostic assays.

Support research on innovative cancer treatments

Conduct research to help implement the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA), as part of the Cancer Plan

KEY PORTFOLIO ASPECT

European Knowledge Centre on Cancer

The Knowledge Centre provides information, guidelines and data tools for cancer prevention, screening, diagnosis and care. It fosters independent scientific alignment, coordination and support to European Commission cancer-related policies and activities, and promotes collaboration to raise disease prevention and care standards. As the 1st Flagship initiative of the Europe's Beating Cancer Plan, it supports EU cancer-related initiatives and actions with up to date, evidence-based science, and follows up the Commission-funded projects and Joint Actions.

Learn more about the **European Knowledge Centre on Cancer** (https://knowledge4policy.ec.europa.eu/cancer)

Portfolio 13

Synergies for a stronger EU in space, security and defence

Harnessing synergies between space, security and defence has become a crucial imperative. By leveraging the complementary strengths and capabilities of these interconnected domains, the EU can unlock new opportunities for innovation and growth. Tapping into these synergies will also enhance the EU's strategic autonomy and resilience.

This portfolio focuses on exploring space, security and defence, including in view of the EU's economic security. It includes three thematic areas: identifying threats of a geopolitical nature, fostering the development of capabilities and enablers to address such threats, and supporting industrial development in this area.

Scan the QR code to visit:

Space, security, defence

https://joint-research-centre.ec.europa.eu/scientific-portfolios/space-security-defence_en

Portfolio objectives

Enhance deterrence against (hybrid) threats

Focus on threats targeting strategic assets and critical infrastructures, including critical energy infrastructure.

Promote, protect and support strategic technologies

Support the development and control of technological capabilities in space, including connectivity, quantum and dual-use technologies. Promote innovation in strategic space services and technologies, including Galileo, the European Geostationary Navigation Overlay Service (EGNOS) and Copernicus.

Help to develop the EU industrial base

Support the development of the EU industrial base that will increase the EU's strategic autonomy.

Conduct economic analysis on space economy and defence

Undertake economic analysis, including macro-economic evaluation of the European Defence Fund and define the space economy thematic account.

KEY PORTFOLIO ASPECT

Launch of the joint JRC laboratory facility on technologies for space, connectivity and quantum lab

The joint lab will leverage the existing facilities and activities in the European Microwave Signature Laboratory and the Radio Spectrum Laboratory and will include the new lab on quantum. It will be directly connected to the Italian quantum backbone network for receiving quantum and timing signals. This ecosystem of facilities offers testing opportunities for positioning, navigation and timing, radio communications and quantum key distribution.

Learn more about **JRC laboratories** (https://joint-research-centre.ec.europa.eu/laboratories)

Portfolio 14

Societal resilience, systemic disruptive events and risks: enhancing anticipation, preparedness and response

Systemic and emerging risks bring new challenges and require innovative responses to tackle future crises and develop sustainable and effective strategies to adapt and enhance resilience. Advancing science is essential for addressing these needs.

This portfolio will contribute to shaping the EU's path towards a resilient future, increase its security, cohesion and stability, and develop the future EU approach to crisis management. It will bring together, in an integrated way, the different socio-economic sectors and systems to address all phases of risk management: from prevention and preparedness to response and recovery.

Scan the QR code to visit:

Anticipation, risks, resilience

https://joint-research-centre.ec.europa.eu/scientific-portfolios/anticipation-risks-resilience_en

Portfolio objectives

Identify present and future risks

Define all the main risks that EU citizens face, looking specifically at coexisting factors that can amplify impacts and lead to cascading effects and shocks.

Improve early warning and monitoring

Develop innovative, integrated early warning and monitoring systems that can complement Member States' capabilities, including the Copernicus Emergency Management Service.

Analyse the societal impact of risk

Assess how shocks impact healthcare, finance, energy, environment and infrastructure, raw materials supply chains and food security. Recommend strategies to reduce risk and improve societal resilience.

Contribute to advanced risk management

Contribute to improving cutting-edge solutions for specific risks, such as financial, geopolitical and security risks, as well as health, natural, climate and technological risks, in line with the One Health approach.

Build relationships with stakeholders

Interact with stakeholders and partners: from global institutions, EU and countries' institutions to local authorities and citizens.

Help to improve trust and collaboration

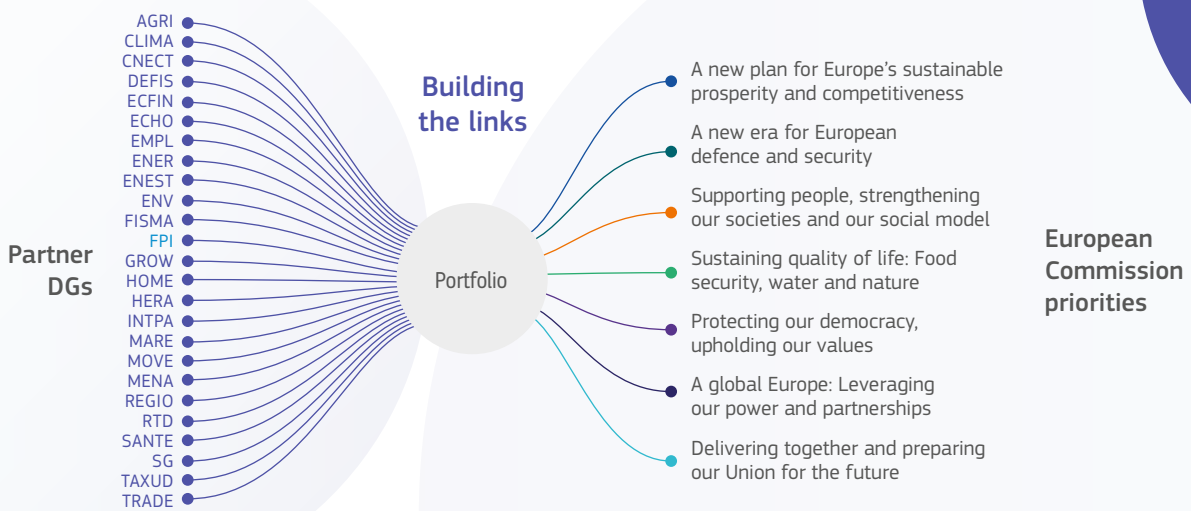
Provide clearer guidance to Member States based on shared evidence, improve cooperation and trust, reduce the reporting burden and increase policy engagement.

KEY PORTFOLIO ASPECT

European Crisis Management Laboratory

The European Crisis Management Laboratory (ECML) is a focal point within the JRC for the design, testing and application of analytical approaches and ICT solutions for effective crisis management. It merges knowledge domains, data and applications. The ECML has been instrumental in helping EU and national authorities to assess and respond to various crises, from both natural and human-induced threats (intentional and unintentional, including conflicts).

Learn more about the **European Crisis Management Laboratory** (https://joint-research-centre.ec.europa.eu/laboratories-z/european-crisis-management-laboratory)



Portfolio 15

Science for security and law enforcement

Security has emerged as a complex challenge. Emerging threats, including those related to digital technologies, chemical, biological, radiological, nuclear and explosive agents, are challenging the very foundations of democratic institutions and the European way of life. There is a critical need to anticipate and manage risks of conventional, unconventional and hybrid threats through timely and integrated policy response.

This portfolio aims to provide science- and evidence-based support to EU policymakers and law enforcement agencies, based on a comprehensive view of security. It will provide key integrated research efforts embracing the full spectrum of security.

Scan the QR code to visit:

Security and law enforcement

https://joint-research-centre.ec.europa.eu/scientific-portfolios/security-and-law-enforcement_en

Portfolio objectives

Aim to improve the European Security Union

Foster better coherence and integration across all policy initiatives relevant to security.

Support security policy

Provide support in areas such as border security, law enforcement in a digital age, crime, resilience of critical entities and protection of public spaces, terrorism, radicalisation, mitigation of Chemical, Biological, Radiological, Nuclear, and Explosive materials (CBRNE) risks, crime involving nuclear or other radioactive material.

Build networks of key stakeholders

Combine security capabilities by building strong professional networks in Member States concerned with nuclear security/forensics, transport security, border management, fight against cybercrime, law enforcement, digital forensics and CBRNE threats.

Contribute to borders management

Support effective EU border management and help to restore the Schengen area without border controls, through research in modern technologies, in close cooperation with Frontex, eu-LISA and Europol.

Anticipate security risks and opportunities

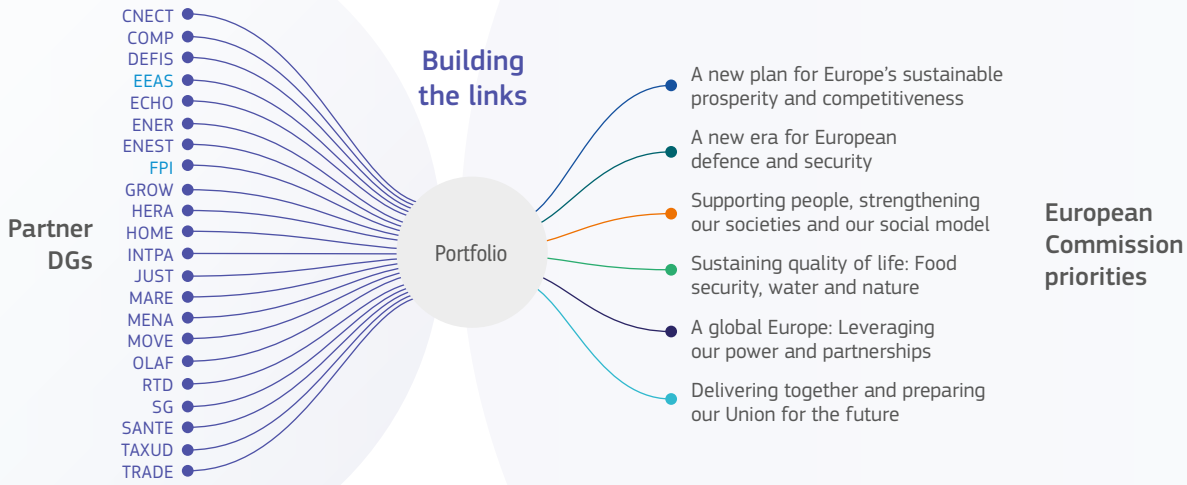
Anticipate risks and opportunities driven by geopolitical, social and technological developments, with relevant security and law enforcement authorities.

KEY PORTFOLIO ASPECT

Explosives Trace Detection Laboratory

The Explosives Trace Detection Laboratory is equipped with a selection of explosive trace detection equipment which is currently used in EU airports. It helps Member States to implement EU policies by enhancing testing capabilities, promoting best practice and facilitating the testing and verification of threat detection equipment. This equipment has become a key technology in civil aviation security screening processes in Europe, playing a frontline role in the detection of explosives at airports

Learn more about the **Explosives Trace Detection Laboratory** (https://joint-research-centre.ec.europa.eu/laboratories-z/explosives-trace-detection-laboratory)



Portfolio 16

Nuclear safeguards

Comprehensive and effective safeguards are crucial in the global effort to prevent nuclear proliferation and to ensure that nuclear materials are used exclusively for their intended peaceful purposes.

This portfolio aims to advance the necessary research and development to address the new nuclear challenges. It will promote international cooperation on nuclear safeguards, blending traditional approaches with innovations such as digital innovation, artificial intelligence applications and foresight. It also aims to oversee the responsible and peaceful use of nuclear energy as part of a clean, sustainable and competitive transition.

Scan the QR code to visit:

Nuclear safeguards

https://joint-research-centre.ec.europa.eu/scientific-portfolios/nuclear-safeguards_en

Portfolio objectives

Contribute to implementing the Euratom Safeguards Regulation

Enhance the efficient and effective implementation of the (revised) Regulation jointly with the Directorate-General for Energy (DG ENER).

Develop innovative digital inspection tools by:

- operating the Euratom Safeguards on-site laboratory;
- providing analytical support and in-field assistance;
- providing certified reference materials and standards;
- conducting proficiency testing;
- promoting education, training and foresight.

Help to introduce safeguards in the design of nuclear facilities

Apply safeguards, safety and security principles in the design of existing and future nuclear fuel cycle facilities, including innovative nuclear reactor systems.

Support nuclear as a low-carbon electricity source

Contribute to the responsible use of nuclear power as a source of low-carbon electricity production, and to other non-power nuclear applications and waste management.

Help to prepare for implementing safeguards in potential EU countries

Support the potential future implementation of safeguards in candidate countries (such as Ukraine), as a geopolitical imperative.

Provide support with material accountancy and control

Support Member States, industry, regulators and research institutes in terms of material accountancy and control.

KEY PORTFOLIO ASPECT

Laboratories supporting nuclear safeguards

The JRC operates several laboratories with unique facilities, dedicated to nuclear safeguards and related research, which help to provide independent scientific and technical expertise in the field of nuclear safeguards. They play an important role in supporting the EU's commitment to nuclear non-proliferation and safeguards. Their focus is to develop and provide advanced analytical techniques, tools, and standards for verifying the peaceful use of nuclear materials and detecting potential nuclear weapons-related activities.

Learn more about **JRC work supporting nuclear safeguards** (https://data.europa.eu/doi/10.2760/673611)

Portfolio 17

Demographic resilience and effective migration strategies

Migration and demography affect several aspects of society. These include the economy, competitiveness, productivity, employment, the green and digital transformation, the sustainability of fiscal and health systems, and territorial cohesion.

This portfolio uses a multidisciplinary approach to anticipate demographic and migration trends, and analyse their potential impact on various policy areas. Building on data and analysis, this will help to support the design, implementation and monitoring of important EU policies in this field, including the Pact on Migration and Asylum.

Scan the QR code to visit:

Demography and migration

https://joint-research-centre.ec.europa.eu/scientific-portfolios/demography-and-migration_en

Portfolio objectives

Analyse the impact of demographic trends

Analyse global and regional demographic trends and their implications for the labour force, healthcare, competitiveness, regional development and intergenerational fairness. This work will feed into the Atlas of Demography+, a flagship deliverable of the portfolio which plays a key role in the European Commission's Demography Toolbox.

Examine drivers of migration

A flagship project on the drivers of migration will unpack the complexities of migration dynamics, for example in Africa, and analyse how policy impacts them. Key deliverables in this area include a foresight study on the implications of geopolitics for migration, research on climate displacement and a study on attitudes towards migration in non-EU countries.

Support to the Pact on Migration and Asylum

Develop a migration anticipation and preparedness toolbox, built on our work on situational awareness, early warning and forecasting of migration. Investigate return practices, migratory pressure on Member States and public perceptions, and support the Commission in implementation of the solidarity and responsibility mechanism.

Analyse public opinion on migration

Analyse people's attitudes and perceptions on migration, integration and demographic change and the public discourse and narratives on these issues, to understand their impact on social cohesion and facilitate communication and framing of policy initiatives linked to migration and demography.

KEY PORTFOLIO ASPECT

Knowledge Centre on Migration and Demography

The Knowledge Centre provides independent scientific evidence related to demographic change and migration. This includes a data portal and access to interactive tools, such as the Atlas of Demography and the Atlas of Migration, for analysis and visualisation of maps and charts. The Knowledge Centre, co-chaired by the Directorate-General for Migration and Home Affairs (DG HOME) and the JRC, plays a crucial role in supporting the EU's response to demographic change and migration with reliable data.

Learn more about the **Knowledge Centre on Migration and Demography** (https://knowledge4policy.ec.europa.eu/migration-demography)

Portfolio 18

Economic, social and territorial intelligence and impact

The green, digital and demographic transitions are affecting the social and economic developments of European territories in a range of ways. In this context, policymakers must contend with new and larger geopolitical developments which will also have an impact.

This portfolio aims to deliver robust analysis to support informed decision-making for EU economic governance. This will be crucial for the design, evaluation and implementation of major funding initiatives under the new EU budget. This work integrates macro- and microeconomic models, along with territorial analysis to better support the economic, social and territorial policy agenda in the EU.

Scan the QR code to visit:

Socio-economic and territorial impact

https://joint-research-centre.ec.europa.eu/scientific-portfolios/socio-economic-and-territorial-impact_en

Portfolio objectives

Provide evidence to support economic growth policies

Produce scientific quantitative evidence for the formulation, monitoring and evaluation of major EU policies and investments, in the context of the current and future multiannual financial frameworks to promote sustainable and inclusive growth in the EU.

Assess the impact of economic shocks

Carry out real-time assessments of the impact of shocks on European economic forecasts and economic policies, including projections and scenarios for macroeconomic and fiscal variables.

Help to tackle economic, social and territorial inequalities

Provide policy support to address factors such as gender; employment; education; access to health, housing, and energy or digital services across territories, including deprived urban and remote rural areas.

Analyse geospatial data in support of key policies

Provide expertise in geospatial data analysis to support implementation of rural and regional policies, and initiatives such as the EU Climate-Neutral and Smart Cities Mission, and the Covenant of Mayors for Climate and Energy.

Create indicators for sustainable territorial development

Use territorial data, analysis and modelling tools to create indicators and narratives related to sustainable territorial development.

KEY PORTFOLIO ASPECT

EUROMOD tax-benefit simulation model

The EUROMOD model enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and social benefits on individuals and on households. These fiscal policy simulations can be done for individual Member State and for the EU as a whole. EUROMOD is crucial for the EU to assess the budgetary, distributional and work incentive consequences of policy reforms, for example in the context of the European Semester or key initiatives of the European Pillar of Social Rights.

Learn more about **EUROMOD** (https://euromod-web.jrc.ec.europa.eu)

Portfolio 19

Zero pollution, biodiversity restoration and natural capital accounting

Our society and our economies depend on nature, but the health of our planet is under threat. Urgent action is needed to preserve biodiversity and reduce pollution. Healthy and diverse ecosystems can serve as our best ally in combatting climate change.

This portfolio will provide a comprehensive set of tools, methodologies and data to support scientific innovation for reducing pollution and preserving biodiversity. Strategies involve collaborating across sectors, reducing reporting obligations, supporting policy implementation and addressing policy gaps and policy coherence — from the initial design phase to the end-of-life of products and processes.

Scan the QR code to visit:

Zero pollution and biodiversity

https://joint-research-centre.ec.europa.eu/scientific-portfolios/zero-pollution-and-biodiversity_en

Portfolio objectives

Identify and define pollution and its impacts

Characterise pollution and its impact on ecosystems and human health.

Provide policy performance metrics

Provide quantified metrics to track policy performance.

Assess ecosystems and their services

Assess ecosystems and their services in biophysical and monetary terms.

Improve chemical safety assessment and reduce animal testing

Improve pre-marketing chemical safety assessment methodologies and reduce reliance on animal testing.

Support sustainability and circularity in the economy

Help to implement the framework for 'safe and sustainable by design' for chemicals and materials, and sustainable circular economy approaches.

Align warning mechanisms

Identify options to align warning mechanisms across air, soil and water.

Inspire behavioural change

Raise awareness of nature's impact on society and the economy, as well as the risks of pollution, to inspire behavioural change.

Enhance biosecurity policy

Improve cohesion across different policy areas to manage non-native organisms.

Support global initiatives

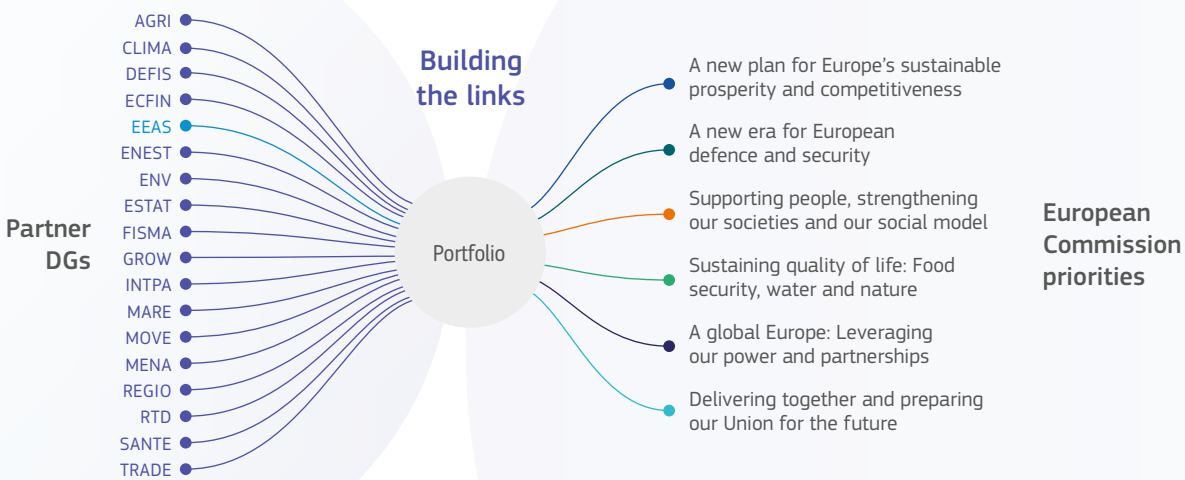
Sustain EU contributions to global initiatives such as the Global Biodiversity Framework.

KEY PORTFOLIO ASPECT

European Reference Laboratory for Air Pollution

This lab provides scientific and technical support on air quality policy. It develops and validates innovative measurement techniques, analyses the chemical composition in air pollution, and oversees the European quality assurance programmes for air pollution measurements. This highly specialised lab also organises inter-laboratory comparisons on a range of atmospheric pollutants. This work is crucial to the development and correct implementation of Air Quality Directives in Europe.

Learn more about the **European Reference Laboratory for Air Pollution** (https://joint-research-centre.ec.europa.eu/laboratories-z/european-reference-laboratory-air-pollution)



Portfolio 20

Transition to more resilient and sustainable food systems in an EU and global context

Food systems in the EU and beyond are striving to become more sustainable and resilient. Food systems encompass all actors and activities from production to consumption and waste, and they impact the economy, employment, environment, climate, health and wellbeing of citizens.

This portfolio will provide the data and analysis needed to support dynamic, innovative, sustainable and competitive food chains. This is crucial to sustaining livelihoods in rural and coastal areas, but also to tackle global food security risks. It will also address environmental and climate impacts, as well as food safety, integrity and nutrition, to advance key EU initiatives, including the common fisheries policy, the common agricultural policy and the Vision for Agriculture and Food.

Scan the QR code to visit:

Sustainable food systems

https://joint-research-centre.ec.europa.eu/scientific-portfolios/sustainable-food-systems_en

Portfolio objectives

Support transition to sustainable food systems

Provide science-based analysis and evidence to support the complex transition towards more resilient and sustainable food systems, while ensuring access to affordable, socio-culturally acceptable, safe and healthy diets.

Identify requirements for sustainable food systems

Identify behaviours and policies for sustainable EU food systems, exploring new data sources, and extending EU datasets to accession/candidate countries.

Develop monitoring and evaluation tools

Develop quantitative and qualitative analytical frameworks and tools to draft, monitor and evaluate food system policies.

Provide science for food-systems legislationsupport

Provide scientific support for agricultural, aquaculture, fisheries and food systems-related legislation throughout the policy cycle.

Advise on food systems sustainability

Advise on enhancing the sustainability of EU food systems, integrating environmental, health and competitiveness considerations.

Support EU accession countries to comply with food laws

Support countries wishing to join the EU with their obligations related to food, particularly within the single market.

Contribute to food security knowledge

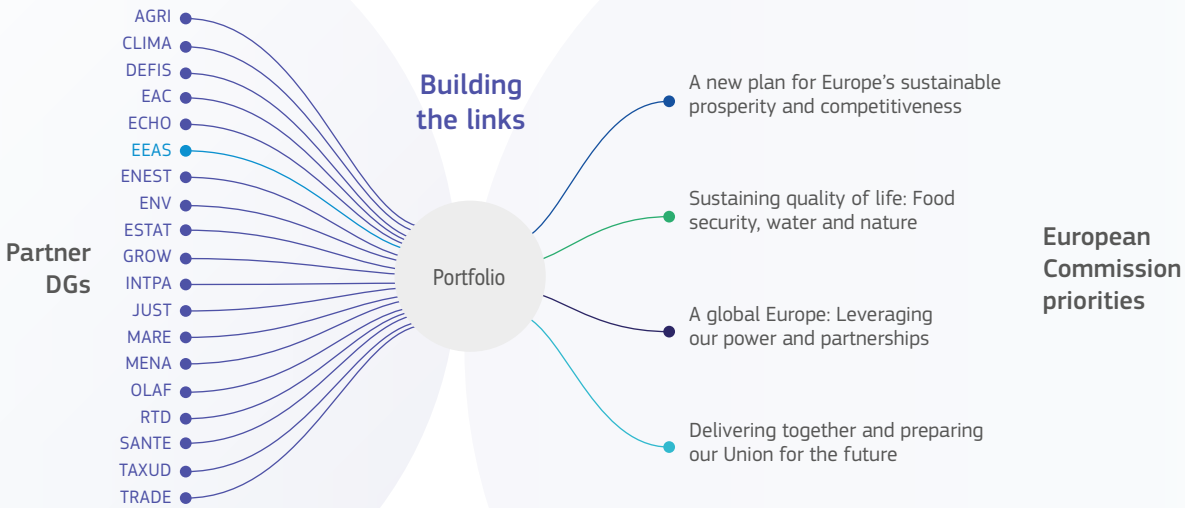
Contribute to the global understanding of food security complexities in relation to humanitarian aid and the worsening situation resulting from climate change.

KEY PORTFOLIO ASPECT

EU Food System Monitoring Dashboard

The Dashboard monitors the sustainability of the EU food system from an environmental, economic and social perspective. It addresses all aspects of the food supply chain, from food production to food processing, distribution and consumption. This dashboard helps to provide a comprehensive and cross-sectoral overview of the food system, and to assess the state of play and ongoing trends. It serves to highlight the inextricable links between healthy people, healthy societies and a healthy planet.

Learn more about the **EU Food System Monitoring Dashboard** (https://datam.jrc.ec.europa.eu/datam/mashup/EU_FOOD_SYSTEM_MONITORING)



Portfolio 21

Coherent policies through Earth observation intelligence

Earth observation is key to understanding the state of the Earth. Copernicus, the EU's Earth observation programme, produces one of the largest digital data repositories, allowing scientists to monitor air quality, pollution, and land and sea resources. This data also helps to predict and manage natural crises.

This portfolio will explore how Earth observation can help the monitoring and assessment of land and water-based policies, and reduce the reporting burden by enabling more harmonised official statistics across many policy areas. It offers a mature toolbox impacting the full policy cycle, from anticipation to formulation, implementation and evaluation.

Scan the QR code to visit:

Earth intelligence

https://joint-research-centre.ec.europa.eu/scientific-portfolios/earth-intelligence_en

Portfolio objectives

Generate Earth intelligence

Integrate Earth observation with socio-economic data into models for forecasting and scenario-analysis, leveraging AI to show the link between human behaviour and natural resources.

Support policies and global conventions

Develop harmonised earth observation-based indicators to support policies, benefiting global UN conventions.

Facilitate efficient reporting and certification of data

Use pertinent information on Earth observation to reduce the reporting and certification burden on Member States.

Analyse the impact on competitiveness

Assess how policy needs and requirements drive commercial downstream Earth observation services to explore the impact of Earth observation on competitiveness.

Provide support to Copernicus services

Review gaps to improve the Copernicus value chain and support the development of Copernicus services, including by leveraging Destination Earth digital capabilities.

KEY PORTFOLIO ASPECT

Global Human Settlement Layer

The Global Human Settlement Layer (GHSL) provides open and free data and tools for assessing the human planet. It produces and analyses global built-up surface, population density and human settlement thematic maps to understand human presence on planet Earth. These thematic maps are used to address urbanisation, disaster risk reduction and sustainable development issue at different scales. GHSL data is used extensively by scientists, decision-makers and practitioners.

Learn more about the **Global Human Settlement Layer Scientific Tool** (https://joint-research-centre.ec.europa.eu/scientific-tools-and-databases/global-human-settlement-layer-scientific-tool)

Portfolio 22

Climate adaptation and water resilience

Water is a precious and scarce resource. When polluted, it can be toxic to the environment, to animals and to humans. The need for action to support water resilience is becoming increasingly urgent, in particular as all economic activities are dependent on it, one way or another.

This portfolio tackles the challenge of adapting to a rapidly changing climate while optimising the conservation, management and distribution of available water resources. It will provide forward-looking scientific advice to support the design and implementation of the European Climate Adaptation Plan, the European Water Resilience Strategy and the new European Oceans Pact.

Scan the QR code to visit:

Climate and water resilience

https://joint-research-centre.ec.europa.eu/scientific-portfolios/climate-and-water-resilience_en

Portfolio objectives

Support climate resilience and preparedness

Provide support and input on climate resilience and preparedness, contribute to the next European Climate Risk Assessment and to the preparation of the European Climate Adaptation Plan.

Analyse the Water-Energy-Food-Ecosystem Nexus

Characterise the state and trends, from source to sea, and the challenges posed to European society and the economy by climate change and competition for resources.

Investigate water scarcity and other needs and challenges

Assess management options and measures, including nature-based solutions, land use and nature conservation, funding, water infrastructure design and operation, water use practices.

Support climate adaptation and water resilience policies

Evaluate alternative policy options for a cost-effective Climate Adaptation Plan and Water Resilience Strategy.

Reinforce the EU water reuse policy

Provide support for the development of the EU water reuse policy in sectors beyond agriculture, with a view to increasing water resilience and adaptation to climate change, and contribute to the zero pollution ambition and the conservation and restoration of nature.

KEY PORTFOLIO ASPECT

Water Laboratory

The Water Laboratory assesses the chemical status of water bodies. JRC scientists analyse different types of water from lakes, rivers, groundwater, treated wastewater and bathing water to examine if it contains chemicals released by human activities. The Water Laboratory hosts specialised analytical equipment for environmental chemical analysis of priority pollutants and compounds of emerging concern. Working closely with Member States' laboratories, this can then evaluate the quality of the water or assess the efficiency of water treatment processes.

Learn more about the **Water Laboratory** (https://joint-research-centre.ec.europa.eu/laboratories-z/water-laboratory)

Portfolio 23

Innovation for democracy and public governance

Democratic values are under attack, and democratic bodies are gradually being eroded as citizens feel disconnected from policy and decision-making processes. At the same time, the complexity of today's significant challenges demand new policy solutions and public governance models.

This portfolio addresses these challenges and aims to inform policy to rebuild trust in democracy. Different research streams collaborate to better understand how to enhance resilience of public governance systems at EU level, in Member States and beyond. This includes the design and testing of participatory, transdisciplinary and place-based approaches, to more closely align with the realities for citizens.

Scan the QR code to visit:

Democracy and public governance

https://joint-research-centre.ec.europa.eu/scientific-portfolios/democracy-and-public-governance_en

Portfolio objectives

Help public administrations tackle complex challenges

Tackle challenges to democracy, security, digital transformation and sustainability, in line with EU and global policy goals.

Develop strategies to evaluate policy efficacy

Collect evidence on effective innovative policies. Assess the barriers to achieving long-term system change.

Define approaches for evidence-based innovation strategies

Use evidence to support social, green and digital transitions. Identify innovation projects and policies through participatory approaches.

Provide guidance on data and digital technologies

Advise on digital technologies and data for trustworthy governance, protect European values and rights, and tackle digital threats.

Help to build resilient democracies

Identify and promote capacities within society and government needed for resilient democracies. Promote citizen engagement in policy and their digital and sustainability competencies.

Use evidence to fight disinformation

Develop a strategy to tackle mis- and disinformation in the EU, and a political intelligence service built on text mining capacities, behavioural insights and citizens' views.

Better understand societal resilience

Develop indicator-based models of societal resilience to enable policymakers formulate more effective measures.

KEY PORTFOLIO ASPECT

Competence Centre on Participatory and Deliberative Democracy

Demand is increasing for participatory and deliberative projects. Public administrations are seeking new tools and methodologies to better engage with citizens. The JRC Competence Centre provides a space for sharing experiences and for researching participatory and deliberative methods across different levels of governance. It delivers recommendations on the different methodologies to help innovate and achieve a more inclusive and shared vision of policymaking.

Learn more about the **Competence Centre on Participatory and Deliberative Democracy** (https://cop-demos.jrc.ec.europa.eu)

Portfolio 24

Science for Global Gateway and neighbourhood policy, including enlargement

Science plays a crucial role in supporting the external dimension of EU action, contributing to the effectiveness and coherence of cross-sectoral policies.

This portfolio supports the many initiatives under the Global Gateway and contributes to the EU's green diplomacy. It promotes sustainable development in partner countries, provides analytical support to the EU accession process, and informs trade strategies and investment decisions in science, technology and innovation. It also analyses the impact of the EU carbon border adjustment mechanism on non-EU countries, with the goal of creating a sustainable trade environment for the EU.

Scan the QR code to visit:

Global Gateway and neighbourhood

https://joint-research-centre.ec.europa.eu/scientific-portfolios/global-gateway-and-neighbourhood_en

Portfolio objectives

Promote the external dimension of EU action

Provide 'science for policy' support and help improve the effectiveness and coherence of cross-sectoral policies.

Offer guidance for a green transition

Provide technical and scientific guidance for the design and implementation of green shipping corridors, and for Sustainable Development Goals roadmaps.

Support EU neighbourhood and enlargement, and the Arctic

Support the renewable energy production and export initiative, EU accession innovation policies, and candidate countries' alignment on sustainable use of marine resources.

Support sustainable development and fight climate change

Offer technical insights for EU climate diplomacy to boost global efforts for sustainable development, climate change mitigation and adaptation.

KEY PORTFOLIO ASPECT

Knowledge Hub on smart specialisation

Smart specialisation supports regions in their innovation strategies, boosting growth and prosperity. The JRC Knowledge Hub is a dedicated space with region-wide and country-specific analysis, online tools and methodological guidelines. It supports the design and implementation of smart specialisation strategies, and strengths innovation ecosystems beyond EU borders, including in the EU enlargement and neighbourhood region.

Learn more about the **Knowledge Hub on smart specialisation** (https://joint-research-centre.ec.europa.eu/scientific-activities-z/innovation-eu-enlargement-and-neighbourhood-region/s3-knowledge-hub)

Portfolio 25

Foresight, support to science and innovative policymaking

Innovative policymaking can boost the EU's capacity to respond to emerging (geo)political, technological, social, economic and ecological challenges. This requires a systemic view, cutting across all policy areas and supporting the full policy cycle, combined with strong evidence-based approaches.

The primary goal of this portfolio is to support the EU to make better-informed decisions. It provides tailored processes and evidence-based methods to anticipate, design, monitor and evaluate policies. It introduces innovative approaches to collaboration, while injecting novel strands of research into the in-house scientific service of the Commission.

Scan the QR code to visit:

Foresight and innovative policymaking

https://joint-research-centre.ec.europa.eu/scientific-portfolios/foresight-and-innovative-policymaking_en

Portfolio objectives

Support EU policymakers along the policy cycle

Help to build awareness of emerging issues and blind spots, develop a broader decision-making framework, and overcome institutional and disciplinary biases.

Catalyse future-preparedness and informed decision-making

Provide methodological support, science-informed analysis and insights, and practical recommendations on collaborative policymaking.

Facilitate knowledge management and synthesis capabilities

Design and implement a new knowledge management strategy to improve flow of knowledge between the JRC and the European Commission's policy services.

KEY PORTFOLIO ASPECT

EU Policy Lab: foresight, behavioural insights and design for policy

The EU Policy Lab is a space for cross-disciplinary exploration and innovation in policymaking. It applies collaborative, systemic and forward-looking approaches. By combining stories and data, anticipation and analysis, imagination and action, the Policy Lab provides new perspectives to tackle complex problems. This innovative and collaborative way of working and thinking helps to create better EU policies.

Learn more about the **EU Policy Lab** (https://policy-lab.ec.europa.eu)

Selected partners

ACER (Agency for the Cooperation of Energy Regulators)
AfDB (African Development Bank)
ASEAN (Association of Southeast Asian Nations)
ATP-CoI (Assessing Transition Plans Collective)
BADEA (Arab Bank for Economic Development in Africa)
BIPM/CIPM (Bureau International des Poids et des Mesures/ International Committee for Weights and Measures)
Cedefop (European Centre for the Development of Vocational Training)
CBD (Convention on Biological Diversity)
CEA (French Alternative Energies and Atomic Energy Commission)
CEN (European Committee for Standardization)
CENELEC (European Committee for Electrotechnical Standardization)
CEPOL (European Union Agency for Law Enforcement Training)
CEPT (European Conference of Postal and Telecommunications Administrations)
CERT-EU (Computer Emergency Response Team for the EU)
CINEA (Climate, Infrastructure and Environment Executive Agency)
CoR (Committee of the Regions)
ECCC (European Climate Change Council)
ECB (European Central Bank)
ECHA (European Chemicals Agency)
ECDC (European Centre for Disease Prevention and Control)
ECMWF (European Centre for Medium-Range Weather Forecasts)
ECO (European Cancer Organisation)
ECL (European Cancer Leagues)
EDA (European Defence Agency)
EDQM (European Directorate for the Quality of Medicines)
EEAS (European External Action Service)
EEA (European Environment Agency)
EFRAG (European Financial Reporting Advisory Group)
EFSA (European Food Safety Authority)
EGE (European Group on Ethics in Science and New Technologies)
EIB (European Investment Bank)
EIF (European Investment Fund)
EIT (European Institute of Innovation and Technology)
EMA (European Medicines Agency)
EMSA (European Maritime Safety Agency)
ENCR (European Network of Cancer Registries)
ENISA (European Network and Information Security Agency)
ENRD (European Network on Rural Development)
ENTSOE (European Network of Transmission System Operators for Electricity)
ENTSOG (European Network of Transmission System Operators for Gas)
EP (European Parliament)
ERIC (European Research Infrastructure Consortium)
ERRIN (European Regions Research and Innovation Network)
ESA (European Space Agency)
ESMO (European Society for Medical Oncology)
ESRA (European Synchrotron Radiation Facility)
ESREDA (European Safety, Reliability and Data Association)
ESRO (European Society for Radio-Oncology)
ESRP (European Society for Radiotherapy and Oncology)
ETSA (European Technical Safety Authority)
ETSI (European Telecommunications Standards Institute)
ETF (European Training Foundation)
EUI (European University Institute)
EU-Lisa (European Agency for the Operational Management of Large-Scale IT Systems)
EUMSS (European Maritime Safety Services)
EU-OSHA (European Agency for Safety and Health at Work)
EUAA (European Union Agency for Asylum)
EUSPA (European Union Agency for the Space Programme)
EUSOMA (European Society of Surgical Oncology)
FAO (Food and Agriculture Organization)
FDA (U.S. Food and Drug Administration)
FED (Federal Reserve Economic Data)

FPI (Foreign Policy Instruments)
FRA (Fundamental Rights Agency)
FRONTEX (European Border and Coast Guard Agency)
GCOS (Global Climate Observing System)
GEO (Group on Earth Observations)
GIF (Generation IV International Forum)
GFCM (General Fisheries Commission for the Mediterranean)
GOOS (Global Ocean Observing System)
HCoE (European Centre of Excellence for Countering Hybrid Threats)
HADEA (European Health and Digital Executive Agency)
IAEA (International Atomic Energy Agency)
IARC-WHO (International Agency for Research on Cancer - World Health Organization)
ICAO (International Civil Aviation Organization)
ICAO-CORSIA (International Civil Aviation Organization - Carbon Offset and Reduction Scheme for International Aviation)
ICES (International Council for the Exploration of the Sea)
ICOS (Integrated Carbon Observation System)
IEC (International Electrotechnical Commission)
IEA (International Energy Agency)
IES (Institute of Electrical and Electronics Engineers)
IFCC (International Federation of Clinical Chemistry and Laboratory Medicine)
ILO (International Labour Organization)
IMF (International Monetary Fund)
IMO (International Maritime Organization)
INGSA (International Network for Government Science Advice)
IPCC (Intergovernmental Panel on Climate Change)
IPHE (International Partnership for Hydrogen and Fuel Cells in the Economy)
IRENA (International Renewable Energy Agency)
ISO (International Organization for Standardization)
ITU (International Telecommunication Union)
IUCN (International Union for Conservation of Nature)
IUE (International Union of Elevator Constructors)
NIST (National Institute of Standards and Technology)
OECD (Organisation for Economic Co-operation and Development)
OECD/NEA (Organisation for Economic Co-operation and Development/ Nuclear Energy Agency)
PANAP (Pacific Alliance on Nuclear and Radiological Protection and Safety)
RUFORUM (Regional Universities Forum for Capacity Building in Agriculture)
SatCen (European Union Satellite Centre)
SIOPE (European Society for Paediatric Oncology)
SNETP (Sustainable Nuclear Energy Technology Platform)
SMR IA (European Industrial Alliance on Small Modular Reactors)
UIC (International Union of Railways)
UICC (Union for International Cancer Control)
UNECE (United Nations Economic Commission for Europe)
UNEP (United Nations Environment Programme)
UNESCO (United Nations Educational, Scientific and Cultural Organization)
UNFCCC (United Nations Framework Convention on Climate Change)
UNHCR (United Nations High Commissioner for Refugees)
UNICEF (United Nations Children's Fund)
UNIDO (United Nations Industrial Development Organization)
UNRWA (United Nations Relief and Works Agency for Palestine Refugees in the Near East)
DOE (U.S. Department of Energy)
WB (World Bank)
WCO (World Customs Organization)
WEF (World Economic Forum)
WHO (World Health Organization)
WMO (World Meteorological Organization)
WOAH (World Organisation for Animal Health)

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EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
WORK PROGRAMME 2025-2027

The JRC Work Programme 2025-2027 focuses on prioritisation, scientific excellence, and the core strengths of the JRC – anticipation, integration and impact of EU policies. It integrates the JRC's work across scientific and policy domains, and builds links between the different scientific and policy areas inside the Commission and beyond, since the challenges we face are so complex that one single area of science can rarely provide all the necessary answers. Through the work of its 25 portfolios, the JRC Work Programme 2025-2027 supports the political priorities of the new Commission and multiple legislative and non-legislative initiatives included in the European Commission Work Programme 2025.

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The Joint Research Centre at a glance

>50
large-scale research infrastructures located in five Member States of the European Union.

The **Joint Research Centre (JRC)** provides independent, evidence-based knowledge and science, supporting European Union (EU) policies to positively impact society.

The Joint Research Centre (JRC) is the in-house research centre of the European Commission. Established in 1957 under the Euratom Treaty, this Directorate-General's focus has expanded significantly over time to include a wide range of scientific disciplines in support of almost all EU policy areas.

The JRC's research facilities are spread across five EU countries: Belgium (Geel), Germany (Karlsruhe), Italy (Ispra), The Netherlands (Petten) and Spain (Seville). The JRC's headquarters are located in Brussels, Belgium.


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