OPEN SCIENCE

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The EU's open science policy

Open Science is at the centre of European research policy. Policies, initiatives and structures are developed and implemented to open up European science and research to make them more efficient and productive, seamless, transparent and robust as well as responsive to policy and society needs and expectations.
The objective is to bring Europe to the best position to reap the benefits of Open Science by opening up the research system between scientists and between disciplines, as well as towards society as a whole. Open Science facilitates sharing and collaboration, thereby accelerating the discovery process, improving research quality, and making science more impactful and central to human and societal development.
This requires bringing down barriers, developing incentives, and enabling data-intensive science and massive knowledge sharing, as well as promoting a scientific approach in public debate. Embracing Open Science as the modus operandi of research requires improving the wide range of practices that comprise Open Science and developing the enablers for it.

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Open Science practices

Notable Open Science practices include:

- early and open sharing of research:
  - pre-registration, registered reports, data deposition in shared repositories, pre-prints
  - open collaboration within science and with other knowledge producers/users
- providing immediate and unrestricted open access to scientific publications, research data, models, algorithms, software, protocols, notebooks, workflows, and all other research outputs
- ensuring verifiability and reproducibility of research outputs
- practicing responsible research output management (publications, data, and other outputs) in line with the FAIR (Findable, Accessible, Interoperable, and Reusable) principles
- promoting public engagement in research and innovation, bolstering citizen science and enhancing public trust in science

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GOLD OPEN ACCESS – IMMEDIATE & FREE FOR READERS

KEY PRINCIPLES

- The final published version is freely available on the publisher's website.
- May involve Article Processing Charges (APCs), which can be covered by project funding.
- Journals offering this model include fully open-access journals (e.g., PLOS, BioMed Central, MDPI) or hybrid journals where authors pay to make specific articles open.
- To find eligible Gold OA journals, check the Directory of Open Access Journals (DOAJ) or consult the European OpenAIRE platform.

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GREEN OPEN ACCESS (REPOSITORY-BASED & FREE FOR READERS, BUT MAY HAVE EMBARGO PERIODS)

KEY PRINCIPLES

- The author deposits a preprint or accepted manuscript in an institutional or subject-specific repository (e.g., Zenodo, arXiv, Europe PMC).
- The publisher may impose an embargo period (e.g., 6-12 months) before the article becomes openly accessible.
- Researchers must ensure compliance with Horizon Europe's Open Access mandate by selecting repositories that meet FAIR principles (Findable, Accessible, Interoperable, Reusable).

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KEY PRINCIPLES

FAIR Data & Research Transparency

- Research data must follow FAIR principles, ensuring they are well-documented, structured, and reusable.
- A Data Management Plan (DMP) is mandatory, outlining data storage, sharing, and licensing.
- Preference is given to repositories that support FAIR data, such as Zenodo, Dryad, or institutional repositories.

- Citizen Science & Public Engagement (if applicable)
  - If relevant, projects should involve non-academic stakeholders, citizens, or policymakers in data collection, interpretation, or decision-making.

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Open Science

Check support video in the portal!

Open Science

Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process, including active engagement of society.

Open science practices include:

- Early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing). Research output management including
- research data management (RDM).
- Measures to ensure reproducibility of research outputs.
- Providing open access to research outputs (e.g. publications, data, software, models, algorithms, and workflows) through deposition in trusted repositories.
- Participation in open peer review.
- Involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).

MandatoryOS practices

- **Mandatory in all calls** : Open access to publications; RDM in line with the FAIR principles including data management plans; open access to research data unless exceptions apply (‘as open as possible as closed as necessary’); access and/or information to research outputs and tools/instruments for validating conclusions of scientific publications and validating/re-using data.
- Additional obligations specific to certain work programme topics.

Reflect both in lower score when not sufficiently addressed

Recommended OS practices

- All open science practices beyond mandatory

Evaluate positively when sufficiently addressed

When OS practices (mandatory and recommended)are duly justified as not appropriate for the project, do not lower score for not addressing those practices

Detailed guidance for proposers and evaluators in the HE ProgrammeGuide

OPEN ACCESS TO PEER - REVIEWED PUBLICATIONS:

- Immediate and full open access to peer -reviewed scientific publications.
- Publications must be under an open license (CC BY for journal articles, CC BY -NC or CC BY -ND for monographs).
- Deposit a copy in a trusted open access repository at the time of publication.

OPEN ACCESS TO RESEARCH DATA:

- Following the principle "as open as possible, as closed as necessary"
- Responsible management of research data in line with FAIR principles (Findable, Accessible, Interoperable, Reusable)

RESEARCH DATA MANAGEMENT:

- Creation and implementation of a Data Management Plan (DMP)
- Providing information about research outputs, tools, and instruments needed to validate conclusions or reuse data
- Immediate open access to all research outputs in cases of public emergency, if requested by the granting authority

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- **Immediate open access to all research outputs in cases of public emergency, if requested by the granting authority**

MEASURES TO ENSURE REPRODUCIBILITY OF RESEARCH OUTPUTS:

Providing information about research outputs, tools, and instruments needed to validate conclusions or reuse data.

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WHERE?

1.Address Open Science practices in the methodology section under "Excellence"

- Clearly describe how you will comply with mandatory practices like open access to publications and FAIR data management
- Explain adoption of recommended practices where applicable
- Outline your Data Management Plan (up to 1 page)

2. In the "Impact" section:

- List target journals for publishing research
- Consider mentioning the Open Research Europe platform

3. Under "Quality and efficiency of the implementation":

- Include a Data Management Plan as a deliverable

4. In Part A of the application form:

- List relevant open access publications and datasets

5. Demonstrate understanding of Open Science principles:

- Show how open practices will benefit your project and the scientific community
- Describe specific measures for compliance, such as data repositories or open-source tools

6. Highlight consortium expertise in Open Science practices.

7.Check call conditions for any specific Open Science requirements

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Open Access Challenge – The Road to FAIR Research

- There are groups of 3 –4 teams (3 –4 people per team).
- Each team will get a set of challenge cards with different Open Access related scenarios.
- Teams discuss and decide on the best response within 5 minutes per round.
- Points are awarded based on accuracy and reasoning.

1.Decide between:

🟡 Gold Open Access (published in an OA journal)
✅ Green Open Access (self -archived in a repository)
❌ Closed Access (paywalled, restricted access)

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From Science to Services: Aligning Research with EU Priorities

Links to impact pathways, Horizon Europe's policy alignment, and funding objectives.

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From Science to Services: What Does It Mean?

The phrase "From Science to Services" reflects Horizon Europe's focus on transforming scientific discoveries into practical solutions that address societal challenges and contribute to EU goals. This involves:

- Science : Conducting cutting -edge research to generate new knowledge.
- Services : Translating research outcomes into products, tools, platforms, or processes that benefit society (e.g., healthcare innovations, sustainable technologies, policy recommendations).

This transition ensures that research has a real -world impact , aligning with Horizon Europe's mission to drive innovation, inclusivity, and sustainability.

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Links to Impact Pathways

An **impact pathway** is a structured plan that outlines how a project's activities will lead to measurable outcomes and long-term impacts . The "From Science to Services" concept is closely tied to impact pathways because it emphasizes :

- **Activities →Outputs →Outcomes →Impacts :**
  - **Activities :** Research and development, prototyping, data collection.
  - **Outputs :** Tangible results like prototypes, datasets, publications.
  - **Outcomes :** Adoption of outputs by stakeholders (e.g., industries, policymakers, citizens).
  - **Impacts :** Long-term benefits such as improved public health, reduced carbon emissions, or economic growth.

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Example : Circular Economy Platform

- **Activities** : Develop a digital platform for waste tracking and recycling .
- **Outputs** : Functional platform, user guides, data reports .
- **Outcomes** : Increased recycling rates and adoption of circular economy practices .
- **Impacts** : Reduced urban waste, promotion of sustainable consumption, contribution to the EU Green Deal .

By following an impact pathway, projects ensure that their research is translated into actionable services that align with EU priorities .

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Horizon Europe's Policy Alignment

Horizon Europe's funding is deeply aligned with **EU policies** and **global challenges** .

Projects must demonstrate how they contribute to key EU initiatives, such as:

- **European Green Deal:** Achieving climate neutrality by 2050 , promoting clean energy, and protecting biodiversity .
- **Digital Transformation :** Advancing AI, cybersecurity, and digital infrastructure .
- **UN Sustainable Development Goals (SDGs):** Addressing poverty, inequality, and environmental degradation .

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How "From Science to Services" Aligns with Policies

- Projects should identify how their outputs (e.g., technologies, methodologies) support specific EU policies .

- For example :
  - A project developing renewable energy solutions directly supports the European Green Deal.
  - A project creating AI-powered diagnostic tools contributes to both digital transformation and improved public health.

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4. Funding Objectives of Horizon Europe

Horizon Europe's funding objectives emphasize **mission-oriented research** and **innovation** that deliver measurable impacts. The "From Science to Services" approach aligns with these objectives by ensuring that funded projects:

- **Address Societal Challenges:** Focus on areas like health, climate, energy, and mobility.
- **Foster Innovation:** Translate research into marketable products or scalable solutions.
- **Engage Stakeholders:** Involve industries, policymakers, and citizens to ensure uptake and impact.

Examples of Funding Objectives:

- **Cluster 1: Health**
  - Objective: Improve early detection and treatment of diseases.
  - Example: Developing AI tools for cancer diagnosis translates scientific research into healthcare services.
- **Cluster 5: Climate, Energy, and Mobility**
  - Objective: Accelerate the transition to climate-neutral cities.
  - Example: Piloting smart energy grids transforms research into sustainable urban services.

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To align research with EU priorities and achieve the "From Science to Services" vision, projects should follow these steps:

Step 1: Identify Societal Challenges

- Clearly define the societal challenge your project addresses (e.g., climate change, public health crises).
- Ensure the challenge aligns with Horizon Europe's missions or clusters.

Step 2: Define Clear Objectives

- Set SMART objectives (Specific, Measurable, Achievable, Relevant, Time-bound) that link research activities to EU priorities.
- Example: "Reduce urban carbon emissions by 30% through smart energy grids by 2027."

Step 3: Map the Impact Pathway

- Outline how your project's activities will lead to outputs, outcomes, and impacts.
- Use visual tools like flowcharts to map the pathway.

Step 4: Engage Stakeholders

- Identify key stakeholders (e.g., industries, policymakers, citizens) who will use or benefit from your services.
- Develop strategies for stakeholder engagement, such as workshops, co-creation, and dissemination events.

Step 5: Measure and Communicate Impact

- Define Key Performance Indicators (KPIs) to measure progress toward impacts.
- Communicate results effectively through publications, conferences, and policy briefs.

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Long -Term Vision: Contributing to EU Goals

Horizon Europe's funding objectives are ultimately tied to achieving long -term EU goals, such as:

- European Green Deal: Achieving climate neutrality by 2050.
- Digital Transformation: Advancing AI, cybersecurity, and digital infrastructure.
- UN Sustainable Development Goals (SDGs): Addressing poverty, inequality, and environmental degradation.

Example of Alignment:

- A project developing AI -powered diagnostic tools aligns with:
  - SDG 3 (Good Health and Well-being).
  - The European Green Deal (improved public health reduces healthcare system burdens).

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Cross -Cutting Priorities

In addition to the thematic clusters, Horizon Europe supports several cross -cutting priorities that apply across all areas of research and innovation. These priorities ensure that projects contribute to broader EU goals.

Examples of Cross -Cutting Priorities:

- Open Science: Promoting open access to research data and publications.
- Gender Equality: Ensuring balanced participation of women and men in research.
- Ethics: Addressing ethical considerations in project design and implementation.
- International Cooperation: Collaborating with non -EU countries to tackle global challenges.

Why It Matters:

- Projects must consider these priorities when designing their activities.
- For example, a project involving human data must comply with GDPR and address ethical risks.

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Research often leads to new ideas, technologies, and innovations, but turning these into real -world services or products involves various steps.

Service creation from research requires collaboration between scientists, engineers, policymakers, and business leaders.

The Horizon Europe framework offers various calls that aim to facilitate this transformation, from basic research to the marketplace.

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Group Formation & Scenario Assignment

CBE JU 2025 Call for Project Proposals: The Circular Bio -based Europe Joint Undertaking (CBE JU) is launching its 2025 call with a budget of €165 million.

The call includes topics such as:

- Urban -industrial symbiosis for bio -waste valorisation (€18 million)
- Bio-based drop -ins/smart drop -in platform chemicals, via cost -effective, sustainable, and resource -efficient conversion of biomass (€20 million)
- Circular -by-design fibre -based packaging with improved properties (€18 million)
- Retrofitting of (bio)refineries industrial plants towards higher -value bio-based products (€20 million)

These topics aim to bridge the gap between scientific advancements in bio-based technologies and their industrial applications, transforming research into viable services and products.

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OSC Coordination and Sustainability Call:

The call titled "Supporting the EOSC Partnership in further consolidating the coordination and sustainability of the EOSC ecosystem" (HORIZON-INFRA-2024-EOSC-01-02) aims to enhance the European Open Science Cloud (EOSC) by:

- Strengthening coordination among national and European initiatives.
- Developing sustainable business models for EOSC services.
- Promoting collaboration across various stakeholders to ensure widespread adoption of EOSC services.

This initiative focuses on transforming scientific research outputs into accessible and sustainable services for the research community.

https://horizoneuropeproject.ng/call-for-proposalssupporting-the-eosc-partnership-in-further-consolidating-the-coordination-and-sustainability-of-the-eosc-ecosystem/?utm_source=chatgpt.com

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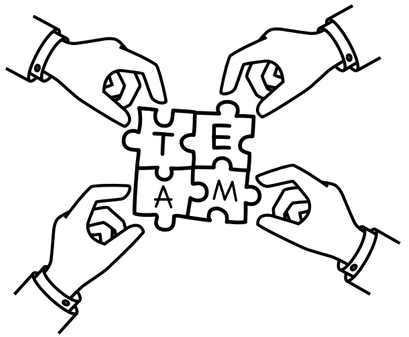

Each group will answer the following questions based on your assigned topic:

1. Research Foundation: What scientific research or innovation is at the heart of your topic? (e.g., bio -based chemicals, social service models, open science ecosystems)
2. Application to Services : How can this research be transformed into a service or product? What steps are needed to go from research to practical implementation?
3. Challenges : What are the potential barriers in transforming science into services in your field? (e.g., technical challenges, funding, regulation, market acceptance)
4. Stakeholders : Who are the key stakeholders involved in this transformation process? (e.g., researchers, policymakers, businesses, end -users)
5. Impact: What positive societal or economic impacts could arise from successfully turning this research into a service?

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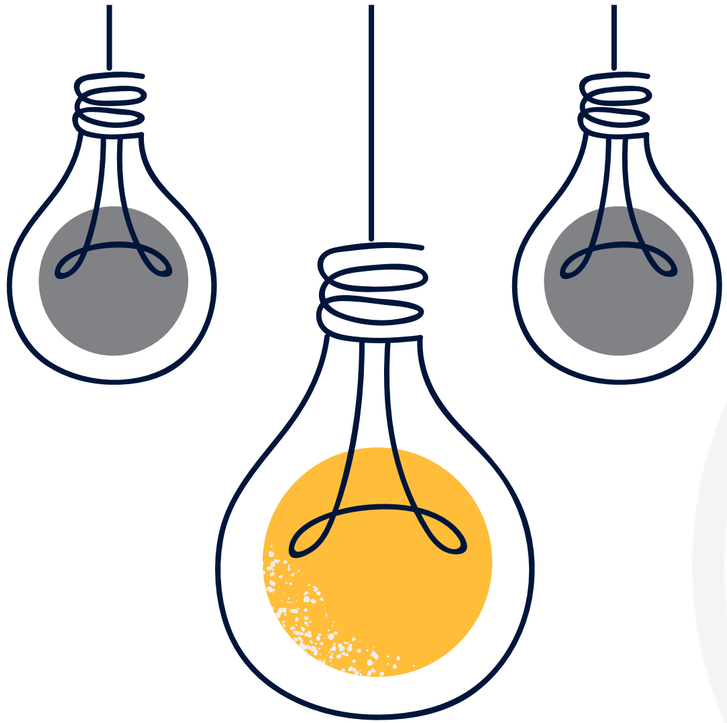

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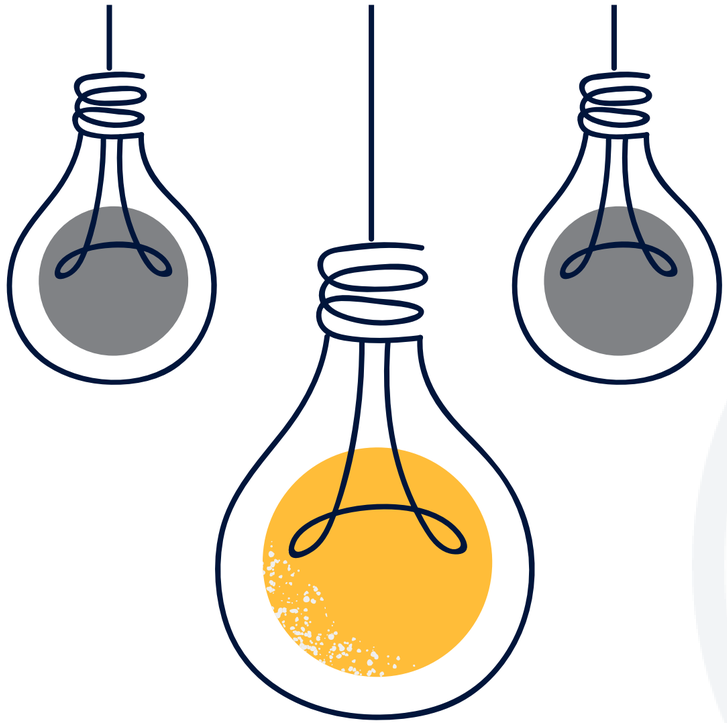

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