Open Science Policy in Horizon Europe

What is meant by Open Science?

Open Science is the practice of scientific research in a manner that maximises opportunities for contribution and collaboration and removes barriers to reusing, redistributing and reproducing research and its underlying data and methods. Open Science policy is based on the principle that the results of publicly funded research should be publicly available, and that this can be achieved by creating an open and transparent process for generating, evaluating and sharing research results. In practice, Open Science can make science more:

- Credible (addressing scientific integrity);
- Reliable (better and more transparent verification of data);
- Efficient (avoiding duplication of resources); and
- Responsive to societal challenges.

Open Science itself is an umbrella term encompassing various initiatives aimed at removing barriers to open and transparent research processes. This includes; Open access to publications; Open research data; Open source software; Open collaboration; Open peer review; Open notebooks; Open educational resources; open monographs; citizen science; or research crowdfunding.

Open Science Policy in Europe

Open Science is an important policy in Europe, featuring as one of the "Three Os" (Open Science, Open Innovation and Open to the World), which were goals of the European Commission introduced in 2015 by Commissioner Moedas. Open Access to publications, research data and other forms of research output, has been the leading policy driver in Europe with funders at the European and national levels implementing policies requiring research outputs to be unrestricted and available without barriers or access costs. Open Access is also a key component of Responsible Research and Innovation, a cross-cutting priority of Horizon 2020 and now Horizon Europe, which connect different aspects of the relationship between research and innovation, and society. Since 2016, the Commission has organised its Open Science policy according to eight 'ambitions:

Open Data • Open data sharing as default for the results of EU-funded scientific research.	**European Open Science Cloud** • To allow the scientific community to share and process research results and data.	**New Generation Metrics** • New indicators for research quality and impact.	**Future of Scholarly Communication** • Freely accessible publications • Early sharing of outputs.
Rewards • Research career evaluation systems acknowleding open science.	**Research Integrity & Reproducibility of Results** • Commonly agreed standards of research integrity.	**Education and Skills** • All researchers have the skills and support to apply open science practices.	**Citizen Science** • General public involved and recognised as European science knowledge producers.

Beneficiaries of Horizon Europe awards have specific obligations when it comes to Open Access of publications and data, in particular the consideration of the FAIR data principles.

Under Horizon Europe. research data will be "as open as necessary, as closed as required" by default and respect the FAIR principles (with exceptions notably for commercial purposes), as well as actively promoting the adoption of open science practices, from sharing research outputs as early and widely as possible, to citizen science, and developing new indicators for evaluation research and rewarding researchers. Horizon Europe will also engage and involve citizens, civil society organisations and end-users in co-design and co-creation processes and promote responsible research and innovation.

Reforming of Research Assessment

In 2020, the Commission set out as a strategic objective the improvement of the research assessment system, which was endorsed by the Council of the EU that encouraged the Commission, Member States and stakeholders to support and implement OS practices in research assessment systems and is one of the new European Research Areas (ERA) actions.

The Commission consulted with European stakeholders in 2021 and published a **scoping report on research assessment**. The report presented the findings of the consultation and also proposed a coordinated approach based on principles and actions that could be agreed upon by a coalition of research funding and research-performing organisations.

At the beginning of 2022, the drafting team composed of the European University Association, Science Europe and Dr Karen Stroobants, with the Commission acting as a facilitator agreed on a draft agreement on reforming research assessment. Member States inputted into the process via the ERA Forum and the European Research Area Committee (ERAC) and the Council of the EU agreed on the reform of research assessment systems in June 2022. **The final Agreement** was published in July 2022 and sets a common direction for changes in assessment practices for research, researchers and research organisations, intending to maximise the quality and impact of research. The Agreement also focuses on diversity, inclusiveness and collaboration to recognise the diversity of research activities and practices, diversity in research roles and careers, and to ensure gender equality, equal opportunities and inclusiveness.

The Commission invited organisations to sign up for the Agreement and become part of the **Coalition for Advancing Research Assessment** (CoARA). As part of the coalition, signatories will work together to facilitate exchanges of information and mutual learning between all signatories to improve and reform research assessment practices.

CoARA was officially launched in November 2022 with more than 400 signatories from over 30 countries of the Agreement.

Open Science Policy Platform

The Open Science Policy Platform (OSPP) was a high-level advisory group set up by the Directorate-General for Research and Innovation (DG RTD) for four years to advise the Commission on how to further develop and practically implement Open Science policy. OSPP published recommendations to address the eight ambitions of the European Commission on Open Science and published a final report in 2020 to develop a "Research System based on shared knowledge" by 2030, with the following five attributes:

1. An academic career structure that fosters outputs, practices and behaviours to maximise contributions to a shared research knowledge system
2. A research system that is reliable, transparent and trustworthy
3. A research system that enables innovation
4. A research culture that facilitates diversity and equity of opportunity
5. A research system that is built on evidence-based policy and practice

Expert Group on Indicators for Researchers' Engagement with Open Science and its Impact

This expert group was set up by the European Commission to contribute to the European vision of Open Science by providing the frameworks for understanding and applying science and technology indicators to enable the transition towards a more open and inclusive configuration of knowledge practices and infrastructures. The group's final report lists four recommendations to support the EU Open Science policy:

1. Create novel infrastructures to enable effective and efficient knowledge sharing at all points of the research cycle

2. Building open knowledge practice capabilities in all scholarly communities

3. Investing in best practices and exemplary initiatives in knowledge sharing which are transformative in their field

4. Including open knowledge practices in the reward and incentive systems at national and European levels and removing performance indicators that act as barriers to engagement

Open Science Monitor

The Open Science Monitor observes the development of Open Science in Europe and other global partner countries. It was created to get some quantitative and qualitative insights into the ongoing development of Open Science practices. It provides trends, data and indicators to help understand the development of Open Science in Europe.

Plan S

Plan S is an initiative for Open Access publishing that was launched in September 2018 and is supported by "cOAlition S" - an international consortium of research funders, including UKRI and the Wellcome Trust. cOAlition S works with researcher groups, funders, libraries and research organisations to determine how best to support and promote a switch from the current subscription-based publishing service to an Open Access-based publishing service.

Plan S requires that, from 2021, all scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms or made immediately available through Open Access repositories without embargo.

Plan S has 10 principles:

1. Authors or their institutions retain copyright to their publications. All publications must be published under an open license, preferably the Creative Commons Attribution license (CC BY)

2. Funders will develop robust criteria and requirements for the services that high-quality Open Access journals, Open Access platforms, and Open Access repositories must provide

3. In cases where high-quality Open Access journals or platforms do not yet exist, the Funders will, in a coordinated way, provide incentives to establish and support them when appropriate; support will also be provided for Open Access infrastructures where necessary

4. Where applicable, Open Access publication fees are covered by the Funders or research institutions, not by individual researchers; it is acknowledged that all researchers should be able to publish their work Open Access

5. Funders support the diversity of business models for Open Access journals and platforms

6. Funders encourage governments, universities, research organisations, libraries, academies, and learned societies to align their strategies, policies, and practices, notably to ensure transparency

7. The above principles shall apply to all types of scholarly publications, but it is understood that the timeline to achieve Open Access for monographs and book chapters will be longer and requires a separate and due process

8. Funders do not support the 'hybrid' model of publishing. However, as a transitional pathway towards full Open Access within a clearly defined timeframe, and only as part of transformative arrangements, Funders may contribute to financially supporting such arrangements

9. Funders will monitor compliance and sanction non-compliant beneficiaries/grantees

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10. Funders commit that when assessing research outputs during funding decisions they will value the intrinsic merit of the work and not consider the publication channel, its impact factor (or other journal metrics), or the publisher

Other Policy Initiatives

Other developments relevant to the Open Science Policy area include the Directive on open data and the re-use of public sector information and the modernisation of the EU copyright rules. The Directive aims to overcome the remaining and emerging barriers that prevent the full re-use of publicly funded information across the EU.

The modernisation of the EU copyright rules will enable museums, libraries and archives to digitize their collections through mandatory exceptions to the Directive on Copyright related to teaching activities, text and data mining and preservation of cultural heritage.

More information

Useful websites and resources

- **Open Science**
- **Open Science Policy Platform**
- **Open Science Policy Platform Final Report**
- **Expert Group on Indicators for Researchers' Engagement with Open Science Final Report**
- **Open Science Monitor**
- **Plan S and cOAlition S**
- **Directive on Open Data and the Re-use of Public Sector Information**
- **Modernisation of EU Copyright Rules**

UKRO Portal

- **UKRO Portal** (subscriber accss required)

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