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Towards a UNESCO Recommendation on Open Science

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Open Science for the People, Planet & Prosperity



Open Science has the potential of making the scientific process more transparent, inclusive and democratic.

Open Science is increasingly recognized as a critical **SDGs** accelerator.

Open Science can be a true game changer in **bridging the science, technology and innovation gaps** between and within countries and fulfilling the **human right to science**.



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Setting the norms for Open Science



At the UNESCO 40th General Conference, 193 Members States tasked UNESCO with the **development of an international standard-setting instrument on Open Science in the form of a UNESCO Recommendation on Open Science.**



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Future UNESCO Recommendation on Open Science



The process towards the Recommendation

- **Consultative, inclusive, transparent and multi-stakeholder,**
- **guided by an international Open Science Advisory Committee,**
- **supported by a global comprehensive Open Science Partnership.**



Global multistakeholder consultation – online survey with 2900 inputs received from 133 countries

Regional Consultations – Africa, Arab States, LAC, Asia and Pacific, Eastern Europe, Western Europe and North America

Thematic/stakeholder consultations and inputs
Young scientists, Citizen science, Academies, Science unions and organizations, Libraries and open access platforms, Data organizations, UN system, Indigenous peoples



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Draft text of the Recommendation on Open Science



September 2020 - The first draft of the Recommendation was developed

- based on the inputs received through the global, regional and thematic consultations
- under the guidance of the UNESCO International Advisory Committee

March 2021- A revised draft, based on the comments received from 40 Member States and other concerned stakeholders on the first draft, was submitted to the Member States on 30 March 2021

May 2021- The revised draft negotiated and adopted with amendments at the intergovernmental special committee meeting of experts on 6-7 and 10-12 May with a view to its adoption by the General Conference at its 41st session.



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Highlights of the OSR

- ❖ It is the first **international normative instrument** on Open Science;
- ❖ it contains the first **internationally agreed definition** of Open Science;
- ❖ it spells out the consensus **core values and guiding principles** of Open Science;
- ❖ it recognizes the multitude of **Open Science actors and stakeholders** beyond the traditional scientific community;
- ❖ it calls on Member States to make an effort to contribute at **least 1% of their national GDP to R&D**, to set up **regional and international funding mechanisms for Open Science** and to **ensure that all publicly funded research is in line with the core values and principles of Open Science**;
- ❖ it calls for **removing the barriers for Open Science**, particularly those relating to **research and career evaluation systems** in order to align them with the principles of Open Science;



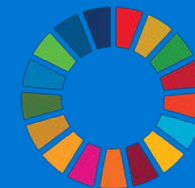
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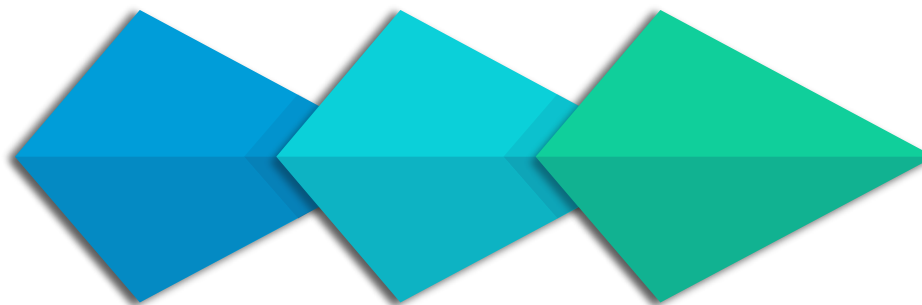
Highlights of the OSR

- ❖ it recommends **investment in capacity building** for Open Science and the development of **a framework of Open Science skills and competencies** aligned with specific disciplines for researchers at different career stages;
- ❖ it proposes **innovative approaches for Open Science at different stages** of the scientific cycle;
- ❖ it calls on UNESCO to work with Member States and other stakeholders to develop a **comprehensive Open Science monitoring framework**;
- ❖ it reaffirms the centrality of **international scientific collaboration and solidarity** in the context of Open Science;
- ❖ calls on UNESCO to work with Member States and other stakeholders to develop a set of **Open Science Goals** to guide the implementation of the Recommendation and stimulate international cooperation to advance Open Science for the benefit of humankind and planetary sustainability.



Definition of Open Science

Open Science is defined as an inclusive construct that combines various movements and practices aiming:

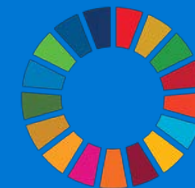


to make multilingual scientific knowledge openly available, accessible and reusable for everyone;

to increase scientific collaborations and sharing of information for the benefits of science and society;

to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.

It includes all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and it builds on four key pillars.



Key Pillars of Open Science

Open scientific knowledge

open access to scientific publications, research data, metadata, open educational resources, software, source code and hardware available in the public domain or under copyright that has been released under an open license
access to scientific knowledge should be as open as possible

Open Science infrastructures

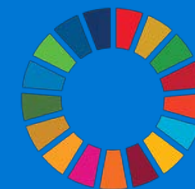
scientific equipment or sets of instruments, knowledge-based resources such as collections, repositories, archives and scientific data, open computational and digital infrastructures, needed to support Open Science and serve the needs of different communities

Open engagement of societal actors

citizen and participatory science and other extended collaboration between scientists and societal actors beyond the scientific community, opening up practices and tools that are part of the research cycle and by making the scientific process more inclusive and accessible to the broader inquiring society

Open dialogue with other knowledge systems

recognition of complementarities between diverse epistemologies, including indigenous knowledge systems



Core values of Open Science

Quality and Integrity

Respect for academic freedom and human rights, support high quality research.

Diversity and Inclusiveness

diversity of knowledge, practices, workflows, languages, research outputs and topics; inclusion of scientific community as a whole and scholars and other knowledge holders.



Collective Benefit

As a global public good, Open Science should belong to humanity in common and benefit humanity as a whole.

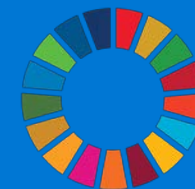
Equity and Fairness

Between and within countries, enabling fair, flexible and reciprocal sharing of scientific inputs and outputs and equal access to scientific knowledge.



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Guiding principles for Open Science



**Transparency, scrutiny, critique, and
reproducibility**

Sustainability

**Equality of
opportunities**

Flexibility

**Responsibility, respect,
accountability**



**Collaboration, participation
and inclusion**



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Seven Areas of Action

Promoting a common understanding of Open Science, associated benefits and challenges, as well as diverse paths to Open Science

Developing an enabling policy environment for Open Science

Investing in Open Science infrastructures and services

Investing in human resources, education, digital literacy and capacity building for Open Science



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Areas of Action

Fostering a culture of Open Science and align incentives for Open Science

Promoting innovative approaches for Open Science at different stages of the scientific process

Promoting international and multistakeholder cooperation for Open Science and in view of reducing digital and knowledge gaps



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Monitoring of policies and mechanisms related to Open Science



through a combination of quantitative and qualitative approaches

Evaluation mechanisms to measure the effectiveness and efficiency of Open Science policies and incentives against defined objectives.

Collection and dissemination of progress, good practices, innovations and research reports on Open Science and its implications.



Development of framework with qualitative and quantitative indicators for short, medium and long term implementation actions of the present Recommendation.

Development and monitoring strategies for multistakeholder participatory approach for Open Science.

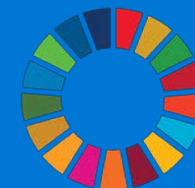


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Roadmap to UNESCO Recommendation on Open Science



- Establishment of the **Open Science Partnership**
- Establishment of the **Open Science Advisory Committee**
- **Electronic consultation** on the elements of the Recommendation

Thematic and regional consultation with stakeholders on the contents of the Recommendation

Further consultations and inputs on the final draft

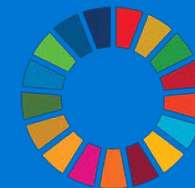
Meeting of the **special committee consisting of technical and legal experts** appointed by Member States (category II meeting)





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Thank you



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