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First meeting of the UNESCO Working Group on Open Science Infrastructures



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**UNESCO Recommendation
on Open Science**

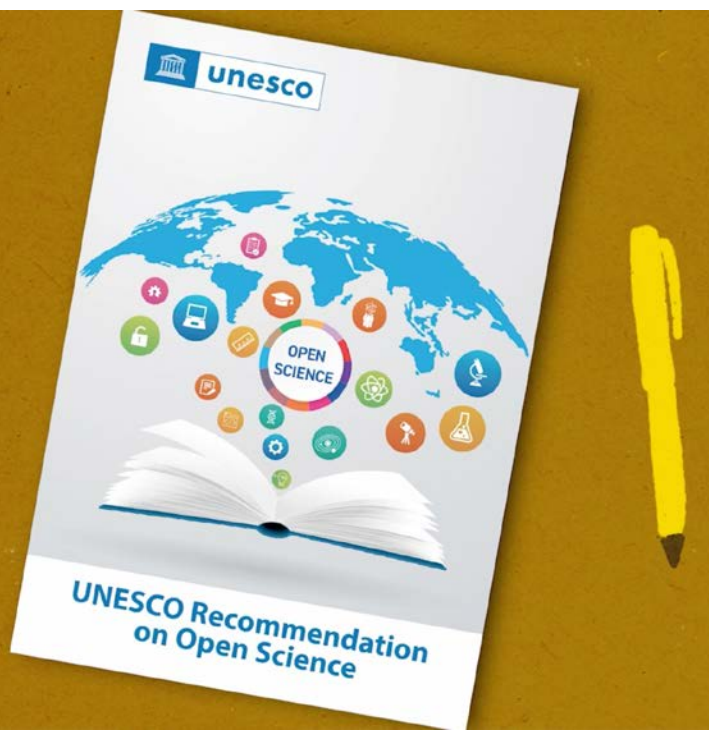


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Please **mute your microphone** and keep your **camera off** when not speaking.

Please share your **questions and inputs** in the chat box...

or **ask for the floor by raising the hand** during the open discussion.



The session will be recorded.

UNESCO Recommendation on Open Science

In 2021, at the UNESCO 41st General Conference, 193 Members States adopted the first international standard-setting instrument on Open Science in the form of a UNESCO Recommendation on Open Science.



UNESCO Recommendations

Legal instruments in which “the General Conference formulates principles and norms for the international regulation of any particular question and invites Member States to take whatever legislative or other steps may be required in conformity with the constitutional practice of each State and the nature of the question under consideration to apply the principles and norms aforesaid within their respective territories”.

Highlights of the Recommendation

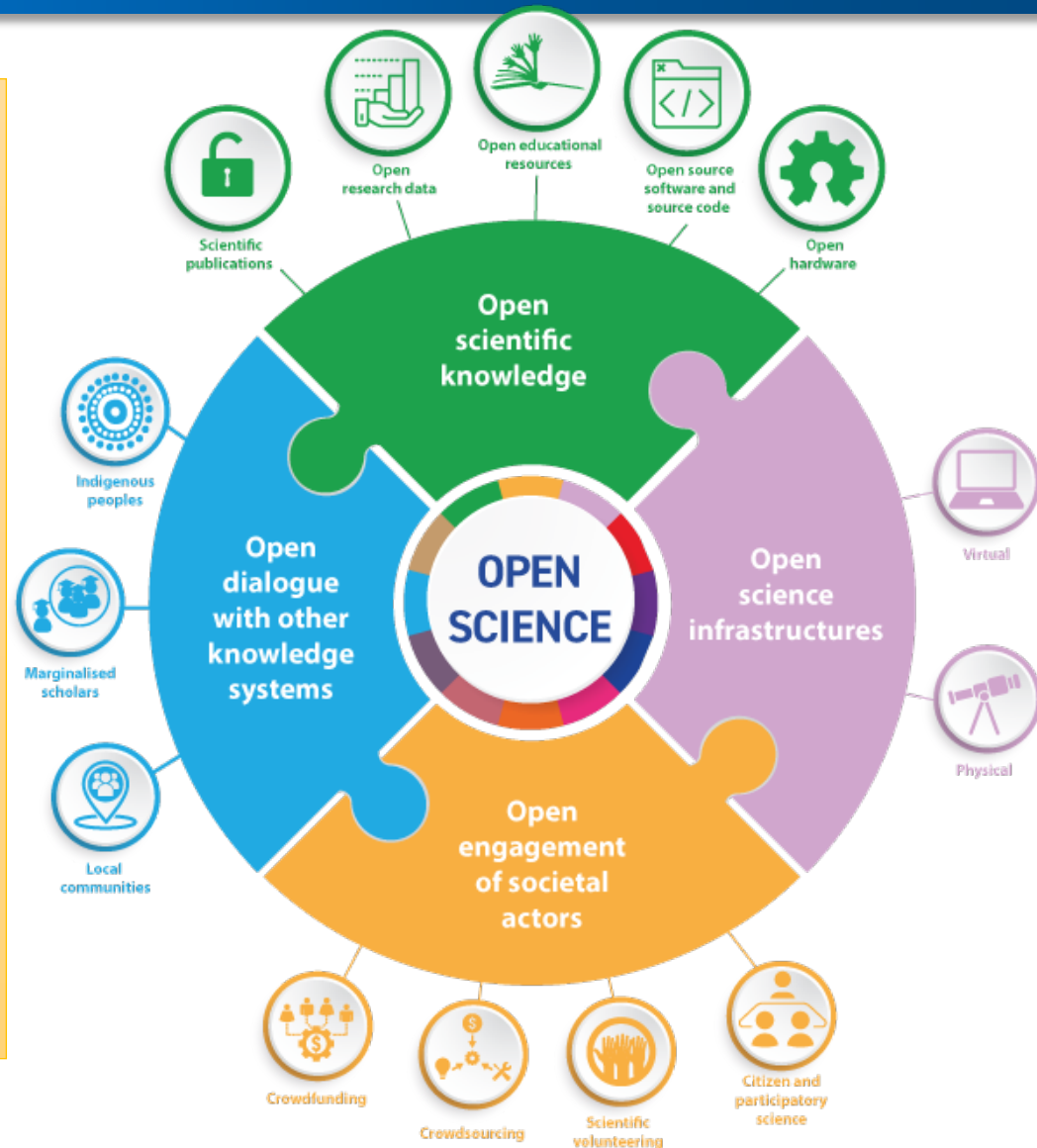
- ❖ It is the first **international normative instrument** on Open Science;
- ❖ it contains the first **internationally agreed definition** of Open Science;
- ❖ it spells out the consensus **core values and guiding principles** of Open Science;
- ❖ it addresses **multiple actors and stakeholders** of Open Science;
- ❖ It recommends **actions on different levels** to operationalize the principles of Open Science;
- ❖ it proposes **innovative approaches for Open Science at different stages** of the scientific cycle;
- ❖ it calls for development of a **comprehensive Open Science monitoring framework**.



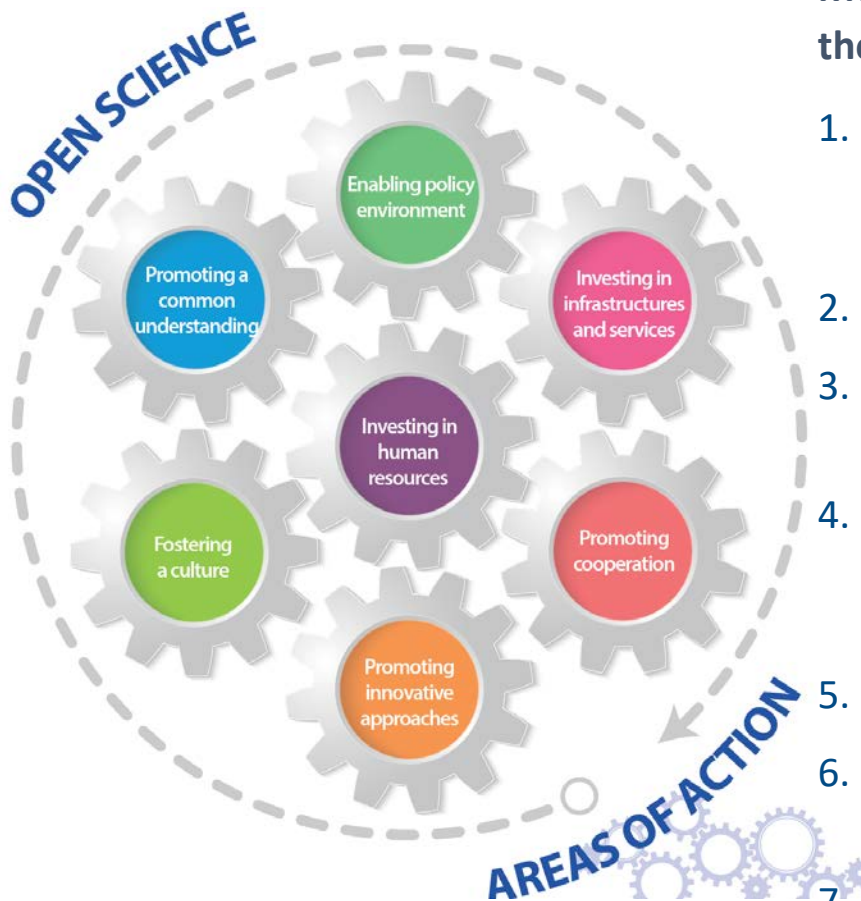
Definition of Open Science

Open Science:

- ❖ makes scientific knowledge openly available, accessible and reusable for everyone,
- ❖ increases scientific collaborations and sharing of information for the benefits of science and society,
- ❖ opens the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.



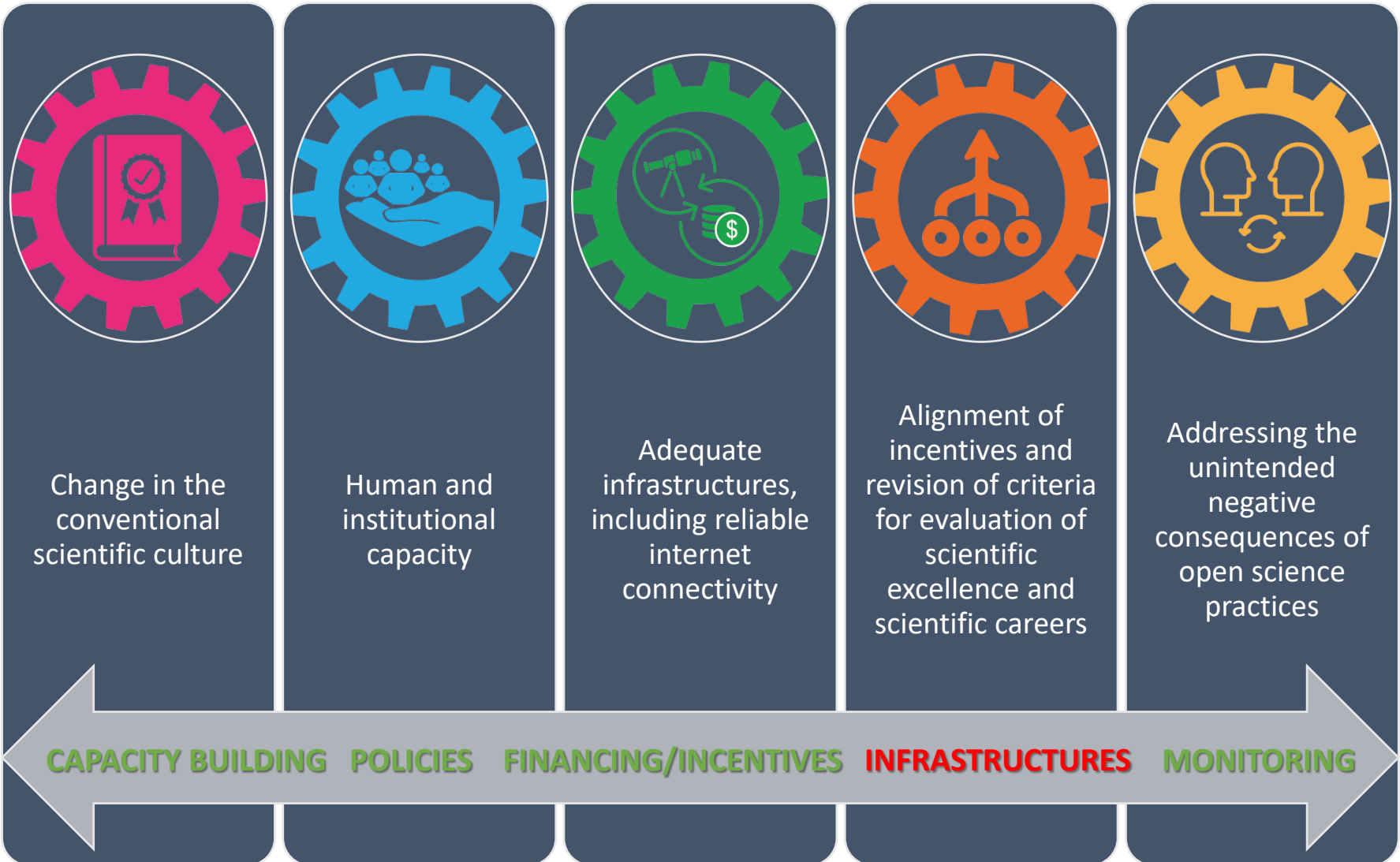
Key Objectives – Key Areas of Action



Member States are encouraged to prioritise seven areas in their implementation of the *Recommendation*:

1. Promoting a common understanding of OS and its associated benefits and challenges, as well as the diverse paths to OS
2. Developing an enabling policy environment for OS
3. Investing in infrastructure and services which contribute to OS
4. Investing in training, education, digital literacy and capacity-building, to enable researchers and other stakeholders to participate in OS
5. Fostering a culture of OS and aligning incentives for OS
6. Promoting innovative approaches to OS at different stages of the scientific process
7. Promoting international and multistakeholder co-operation in the context of OS with a view to reducing digital, technological and knowledge gaps.

Key challenges and high impact areas for the implementation of the UNESCO OSR



Addressing the challenges for OSR Implementation

Working Groups	Deliverables
OS capacity building	<ul style="list-style-type: none">• Compilation/index of the existing Open Science training modules and materials• Creation and delivery of new and additional necessary training modules on open science for different open science actors
OS policies and strategies	<ul style="list-style-type: none">• Global repository of open science policy instruments• Development of Open Science Policy Guide
OS financing and incentives	Proposals for regional and thematic open science funding mechanisms and recommendations for revision of the current research careers assessments and evaluation criteria
OS infrastructures	Support for /development of international, regional and thematic open science platforms for sharing of knowledge and best practices. Specific focus will be on thematic platforms in UNESCO's priority areas, including biodiversity, water, disaster risk reduction, geosciences, ocean sciences, climate change...
OS monitoring framework	Global monitoring framework for open science





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13:10 - 13:30	Objectives of the Working Group
13:40- 14:10	Presentation of international, regional and thematic open science infrastructures
14:10- 14:50	Open discussion on the opportunities and challenges in development and maintenance of infrastructures for open science, and considerations for future actions and investments
14:50- 15:00	Next steps



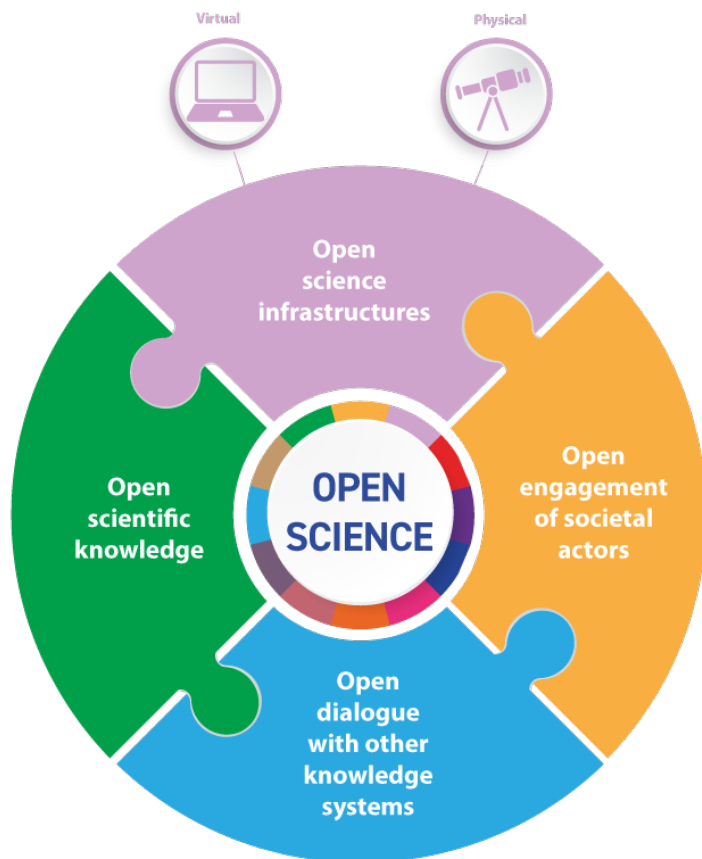
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Objectives of the Working Group

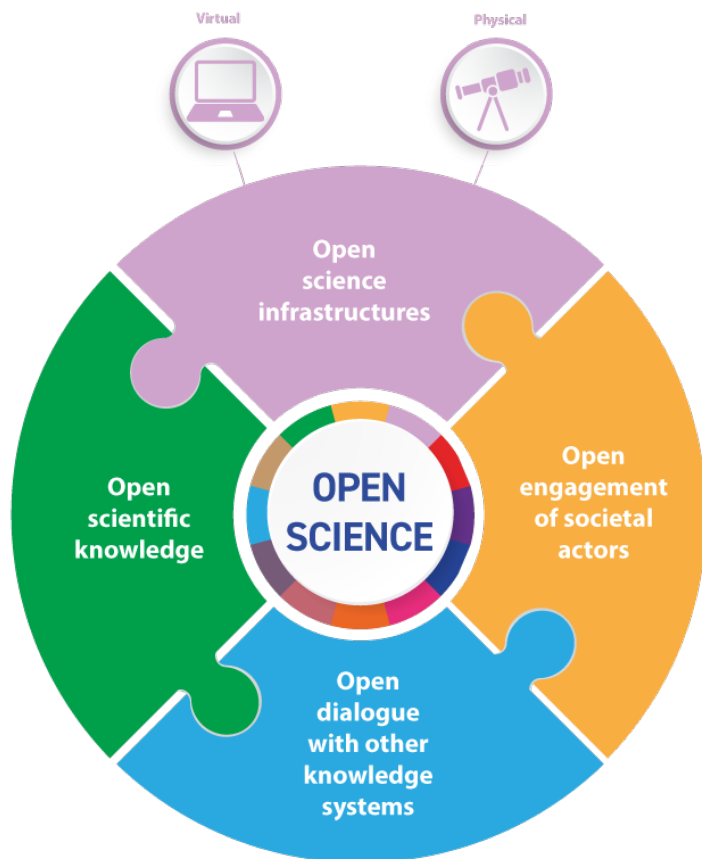


Open Science Infrastructures in the OSR



- ❖ **Shared research infrastructures** that are needed to support open science and **serve the needs of different communities.**
- ❖ Provide essential **open and standardized services to manage and provide access, portability, analysis and federation** of data, scientific literature, thematic science priorities or community engagement.
- ❖ **Major scientific equipment or sets of instruments, collections, journals and open access publication platforms, repositories, archives..., open computational and data manipulation service infrastructures** that enable collaborative and multidisciplinary data analysis...

Open Science Infrastructures in the OSR



- ❖ **Different repositories** are adapted to the specificity of the objects they contain (publications, data or code), to local circumstances, user needs and the requirements of research communities, yet should adopt **interoperable standards** and best practices to ensure the content in repositories is appropriately vetted, discoverable and reusable by humans and machines.
- ❖ **Community-building efforts**, which are crucial for their **long-term sustainability** and therefore should be **not-for-profit** and **guarantee permanent and unrestricted access to all public to the largest extent possible**.

Investing in open science infrastructures and services



AREAS OF ACTION:

(iii) Investing in open science infrastructures and services

- STI
- Internet connectivity
- NRENs
- **Non-commercial computing facilities and digital public infrastructure and services supporting the open science approach** (long-term preservation, stewardship and community control of research products)
- **Community managed** infrastructures, protocols and standards to support bibliodiversity and engagement with society

Investing in open science infrastructures and services



AREAS OF ACTION:

(iii) Investing in open science infrastructures and services

- **FAIR and CARE** principles and **community agreements**
- **ICTs that automate** searching and analyzing linked publications and data
- Infrastructure for **non-digital materials** (e.g. reagents).
- Platforms for exchanges and **co-creation of knowledge**
- **Community-based monitoring** and information systems

Open Science Infrastructures Working Group – Who are its members?

Open-ended, technical, multidisciplinary and multistakeholder group

(more than 100 registered – from 35 countries)

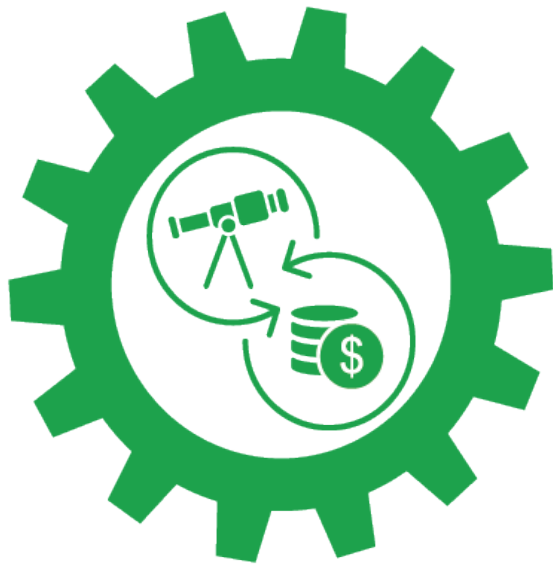
All the regions represented with representatives from :

- ❖ Universities and Research institutes, from PhD candidates to research directors,
- ❖ International, Regional and thematic open science infrastructures
- ❖ Research Funders
- ❖ National Academies of Science
- ❖ Associations of Universities and Scientific Unions
- ❖ Librarians
- ❖ Data organizations
- ❖ Citizen science experts
- ❖ OA Publishers
- ❖ Permanent Delegations to UNESCO
- ❖ Other national , regional and international organizations and Institutions



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Open Science Infrastructures Working Group – What are the objectives?



Checklist/guide for Open Science Infrastructures in line with the UNESCO Recommendation on Open Science

Index of open science infrastructures supporting sharing of knowledge and information in UNESCO SC priority areas – biodiversity, water, DRR, geology, oceans

September (inputs)

November (first draft)

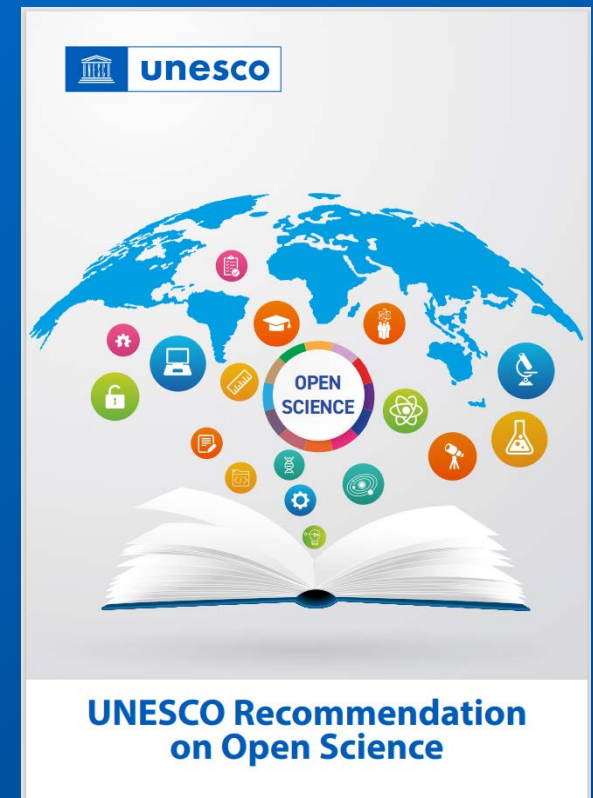
December (final)



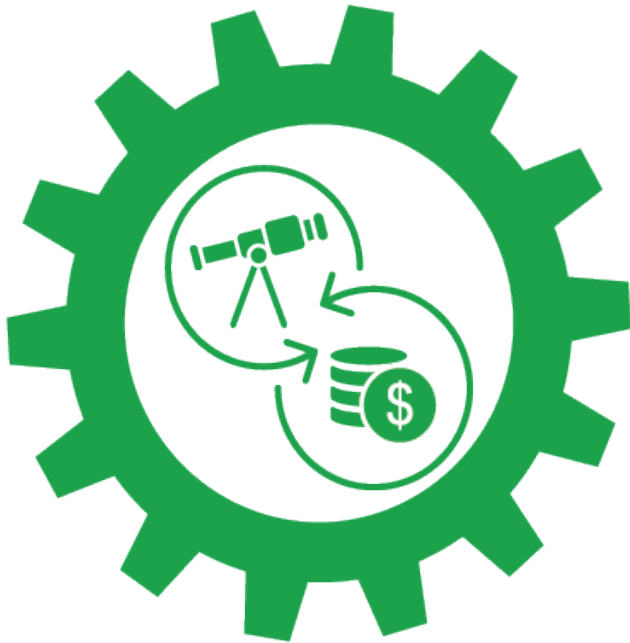
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Landscape of international, regional and thematic open science infrastructures



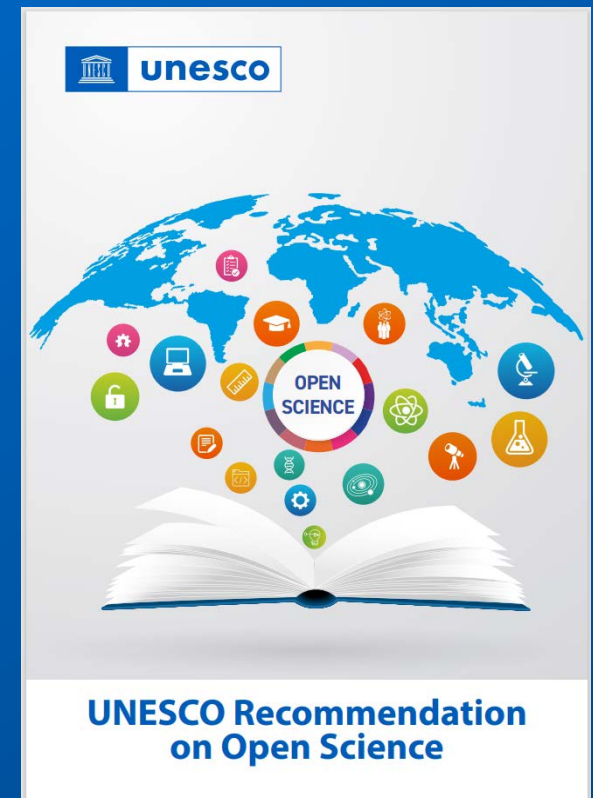
Landscape of international, regional and thematic open science infrastructures



- ❖ **Ms Fiona Bradley**, The Global Sustainability Coalition for Open Science Services (SCOSS)
- ❖ **Ms Kaitlin Thaney**, Executive Director, Invest in Open Infrastructure (IOI)
- ❖ **Ms Katheline Shrearer**, Confederation of Open Access Repositories (COAR)
- ❖ **Mr Thomas Hervé Mboa Nkoudou**, Africa Open Science Hardware (OSH)

First meeting of the UNESCO Working Group on Open Science Infrastructures

Discussion on the opportunities and challenges in development and maintenance of infrastructures for open science, and considerations for future actions and investments



Key questions

- ❖ Main international, regional and thematic open science platforms for sharing of knowledge and best practices, specifically in UNESCO's priority areas, including biodiversity, water, disaster risk reduction, geosciences, ocean sciences, climate change...
- ❖ Gaps in open science infrastructures;
- ❖ Barriers to the interoperability of research infrastructures, as well as collaborative and multilingual infrastructures;
- ❖ Challenges and opportunities of cross-border multi-stakeholder collaboration on development and use of shared open science infrastructures;
- ❖ Existing approaches for efficiently and effectively funding and maintaining open science infrastructures and key actors (e.g. National research and education networks, research institutions, private sector
- ❖ ????





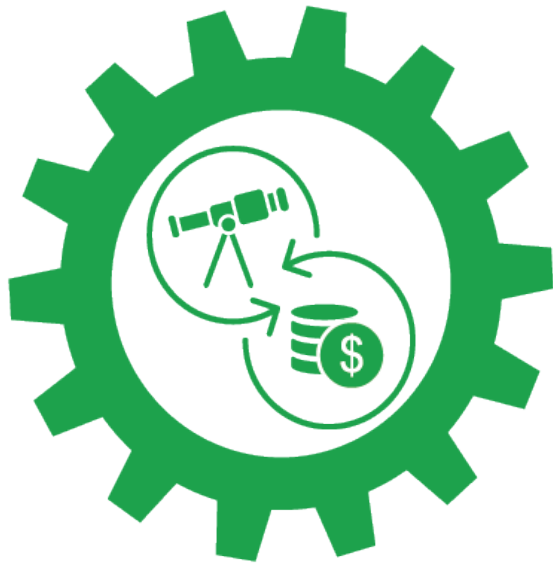
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Next Steps



Open Science Infrastructures Working Group – What are the objectives?



Checklist/guide for Open Science Infrastructures in line with the UNESCO Recommendation on Open Science

Index of open science infrastructures supporting sharing of knowledge and information in UNESCO SC priority areas – biodiversity, water, DRR, geology, oceans

September 15 (inputs) to openscience@unesco.org



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Implementation of the UNESCO Recommendation on Open Science

Five Open Science Working Groups

Calendar for Working Groups

Date (2022)	Title
12 May	Open Science Capacity Building
23 May	Open Science Policies and Policy Instruments
9 June	Open Science Funding and Incentives
7 July	Open Science Infrastructures
15 September	Open Science Monitoring Framework



Keep in touch



UNESCO Open science website:
<https://on.unesco.org/openscience>



Contact: openscience@unesco.org



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