The UNESCO Recommendation on Open Science

International law as policy basis

Dr Lutz Möller, Deputy Secretary-General

@ 66th Helmholtz OS Seminar 17 January 2023

unesco

German Commission for UNESCO

Bravo, Helmholtz!

Helmholtz Open Science Policy

The present Helmholtz Open Science Policy is organized into three sections. In the section "A. Strategic Positioning," the Helmholtz Association formulates a commitment to open science in accordance with the principle "as open as possible and as closed as necessary." In the section "B. Monitoring," Helmholtz makes a commitment to open science on the basis of the three current focus areas (open access, open research data, and open research software) through specific and verifiable objectives. In the section "C. Implementation and Common Requirements," in line with the funding policy of the European Commission, open science practices are formulated for implementation purposes.

A. Strategic Positioning

In line with the UNESCO Recommendation on Open Science[1] and the enshrining of open science in national, European, and international science policy, Helmholtz commits itself to open science.

unesco
German Commission for UNESCO

Essentials on the UNESCO Recommendation

- Recommendation = proper type of international law
- UNESCO proper organization
  - Relevant mandate; previous action has well legitimized UNESCO
- Proper timing
  - including insights from Covid-19 pandemic
- Proper process
  - very participatory, in particular with wide inclusion of scientific practitioners

➢ Strong legitimacy of a strong, state-of-the-art text on science as a global public good

➢ Has already had far-reaching policy impacts

What is a “Recommendation”?

- “Medium level” of commitment / binding character, in comparison with other forms of international law
  - “Declaration” = low formal legal commitment (may become customary law); mainly serves to establish common language / consensus
  - “Convention” = full legal commitment; to be ratified and translated into binding national law
- Recommendation establishes legal reporting requirements for Member States
- More importantly, a Recommendation establishes legal *consensus* on *concepts* + their technical operationalization
  - Every single word of the text has been negotiated among 193 governments

Global Consensus has strong value for itself

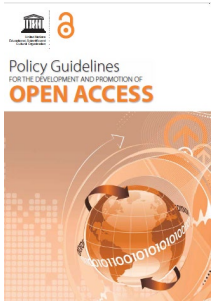
unesco
German Commission for UNESCO

UNESCO mandate

- United Nations' specialized agency, mandated for education, science, culture, media policies, press freedom/freedom of expression, ethics, ….
- Particularly strong portfolio in environmental / earth sciences
- But also strong *science policy* action across disciplines

Previous relevant action of UNESCO

- Budapest World Conference on Science 1999
- Long history of engagement with *Open Access* to scientific publications (in line with Berlin Declaration)
- Since 2013: All UNESCO publications themselves are Open Access, as decided by its Member States and under IGO CC license
- 2017 UNESCO Recommendation on Science
- Open Educational Resources (OER): learning materials in any medium in the public domain (or under an open license) that permits no-cost access, use, adaptation and redistribution – UNESCO “invention”
- 2019 UNESCO Recommendation on OER



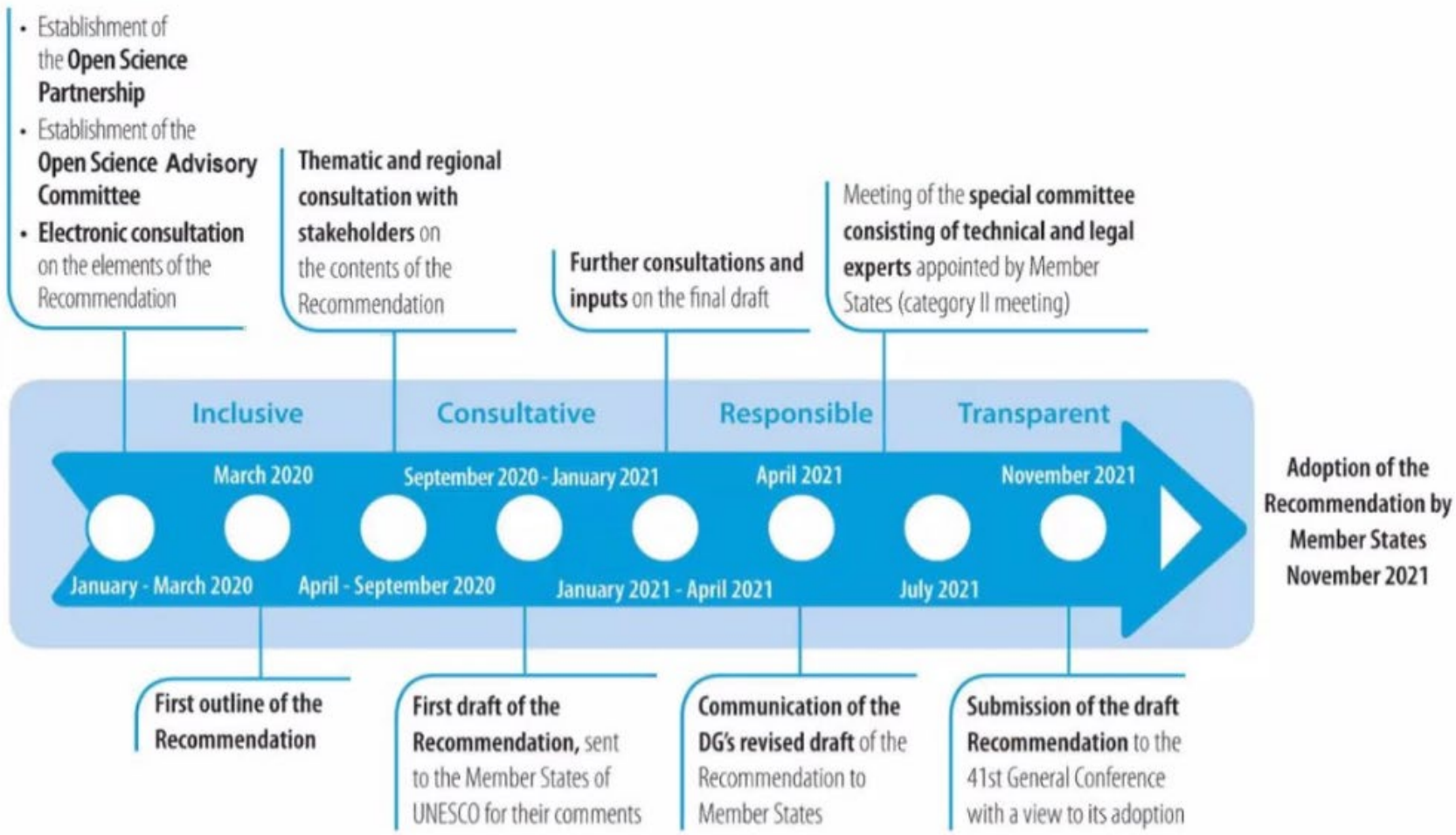
Strong field of action as well by German Commission for UNESCO.

unesco
German Commission for UNESCO

Timing

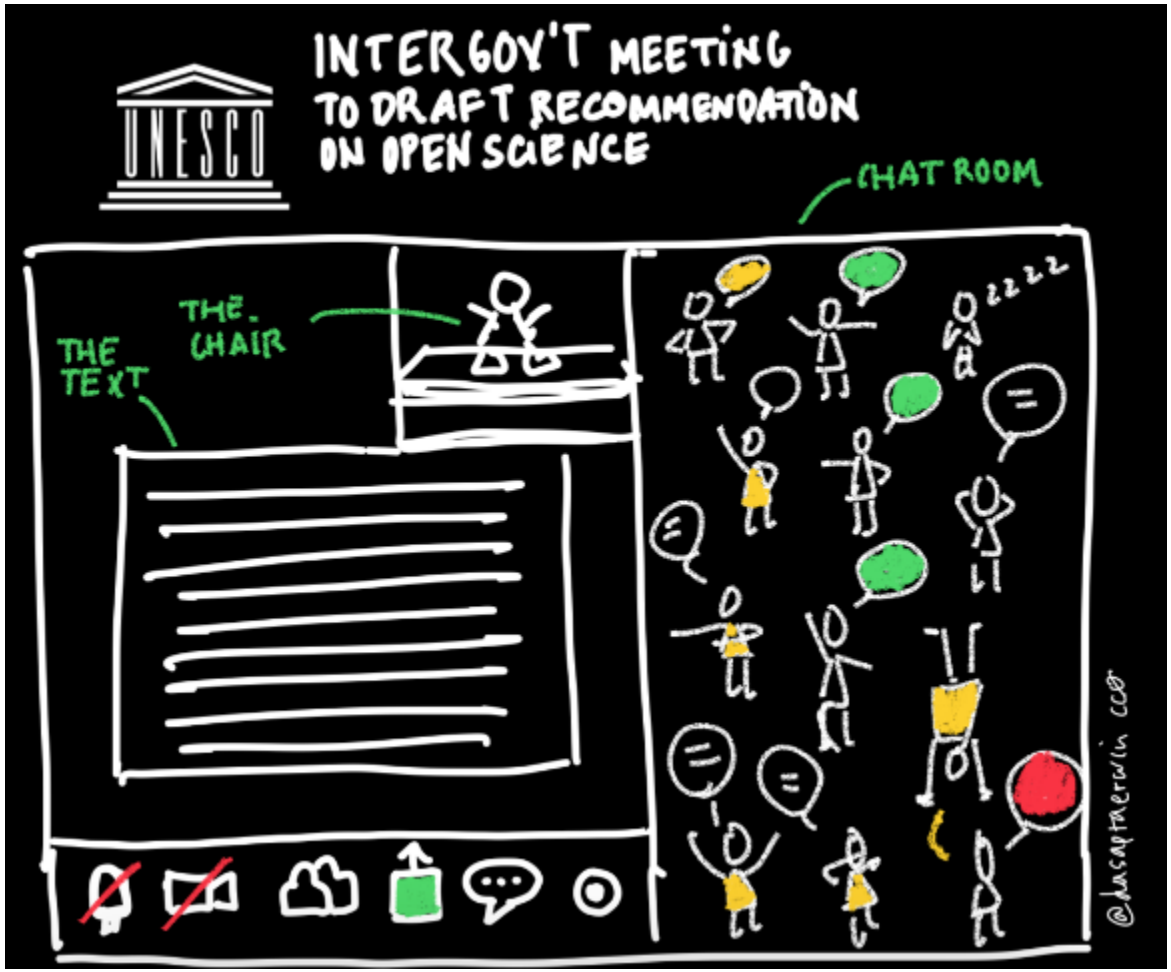
- Covid-19 pandemic demonstrated the full potential of OS
- “Preprint culture” has expanded beyond expectations
- *Result*: Rapid development of vaccines and medical treatments based on various technologies (first test kit by Drosten team already in January 2020)
- *In addition*: strong engagement of society; in many countries increased public understanding of science
- UNESCO was able to create high political momentum for OS, starting with ministers’ conference in March 2020

History of elaboration



unesco
German Commission for UNESCO

History of elaboration



Very constructive engagement of expert observers

unesco
German Commission for UNESCO

THE TEXT: Aim of the Recommendation

"The aim of this Recommendation is to provide **an international framework for open science policy and practice**

that recognizes *disciplinary and regional differences* in open science perspectives,

takes into account *academic freedom*, *gender-transformative approaches* and the specific challenges of scientists and other open science actors in different countries and in particular in *developing countries*,

and contributes to reducing the *digital, technological and knowledge divides* existing between and within countries." (Article 1)

THE TEXT: Objectives and 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;

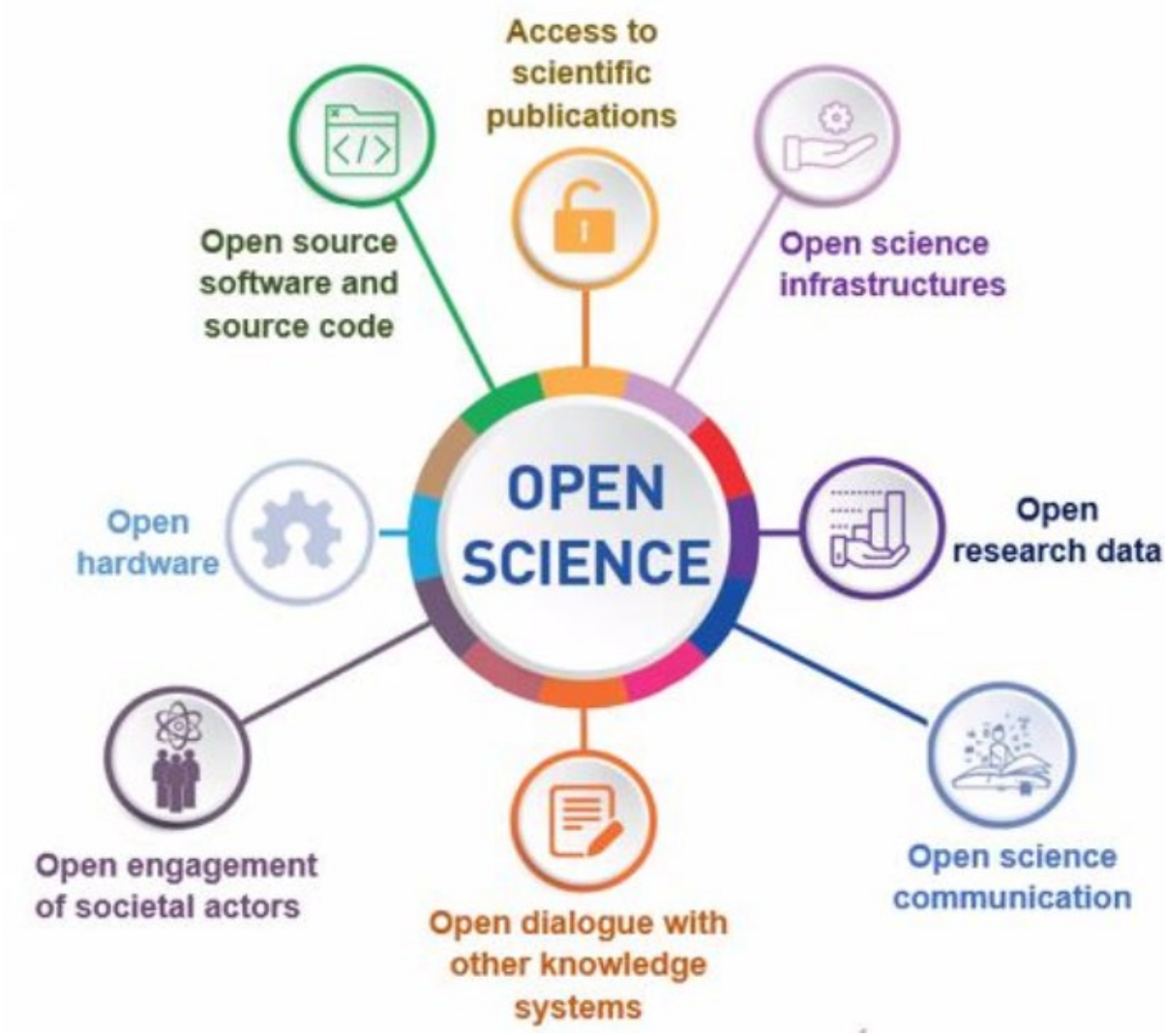
— **investing** in human resources, training, education, digital literacy and capacity building for open science;

— fostering a **culture of open science** and aligning **incentives** for open science;

— promoting **innovative approaches** for open science at different stages of the scientific process;

— promoting **international and multi-stakeholder cooperation** in the context of open science and with view to reducing digital, technological and knowledge gaps”. (Article 3)

THE TEXT: Open Science as umbrella concept



unesco
German Commission for UNESCO

THE TEXT: Definition of Open Science

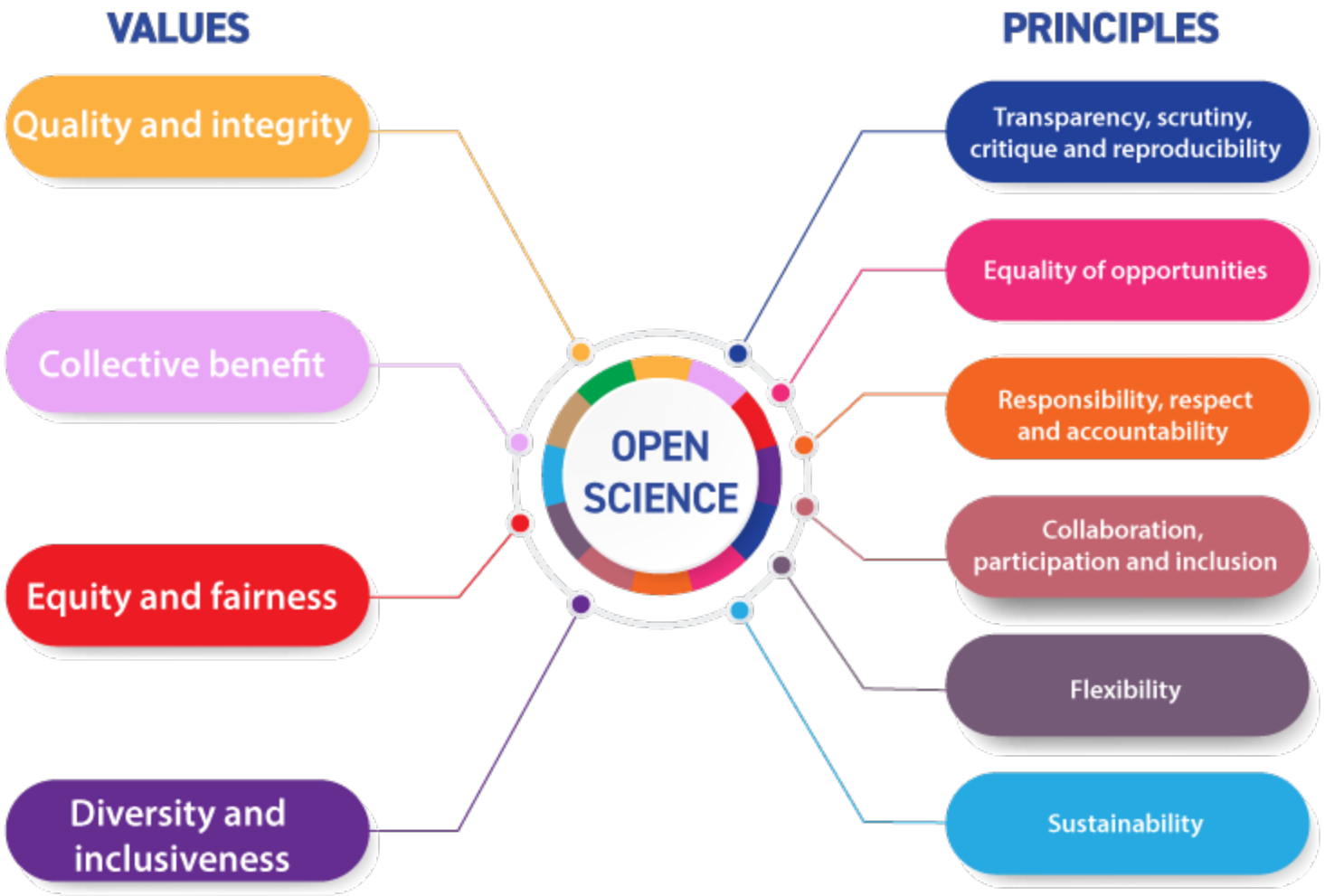
"Inclusive construct that combines various movements and practices aiming

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

It comprises **all scientific disciplines** and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and

it builds on the following key pillars: **open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems**." (Art. 5)

THE TEXT: Values and Principles



unesco
German Commission for UNESCO

THE TEXT: Open Science policies

Article 18: "**Member States**, according to their specific conditions, governing structures and constitutional provisions, should **develop or encourage policy environments**, including those at the **institutional, national, regional and international levels** that support operationalization of open science and effective implementation of open science practices, including policies to incentivize open science practices among researchers.

Through a **transparent participatory**, **multi-stakeholder process** that includes dialogue with the scientific community, especially early-career researchers, and other open science actors, Member States are encouraged to consider the following:

a. Developing effective *institutional and national open science policies and legal frameworks* that are consistent with existing international and regional law and are in line with the definition, values and principles as well as actions outlined in this Recommendation.

b. *Aligning open science policies*, strategies and actions from individual institutions to local and international levels, while *respecting the diversity* of open science approaches.

THE TEXT: Open Science policies

c. Mainstreaming *gender equality* aspects into open sciences policies, strategies and practices.

d. Encouraging research-performing institutions, particularly those in receipt of public funds, to *implement* policies and strategies for open science.

e. Encouraging research-performing institutions, universities, scientific unions and associations, and learned societies to *adopt statements of principle* in line with this Recommendation to encourage open science practice in coordination with national science academies, associations of early-career researchers such as young academies and the International Science Council (ISC).

f. Enhancing the *inclusion of citizen and participatory science* as integral parts of open science policies and practices at the national, institutional and funder levels.

g. Designing models that allow *co-production of knowledge* with multiple actors and establishing guidelines to ensure the recognition of nonscientific collaborations.

THE TEXT: Open Science policies

h. Encouraging responsible *research and researcher evaluation and assessment* practices, which incentivize quality science, recognizing the diversity of research outputs, activities and missions.

i. Fostering equitable *public-private partnerships* for open science and engaging the private sector in open science, provided that there is appropriate certification and regulation to *prevent vendor lock-in, predatory behaviour and unfair and/or inequitable extraction of profit* from publicly funded scientific activities. Given the public interest in open science and the role of public funding, Member States should ensure that the *market for services, relating to science and open science, functions in the global and public interest and without market dominance on the part of any commercial entity*.

j. Designing, implementing and monitoring funding and investment policies and strategies for science based on the core values and principles of open science. The costs associated with operationalization of open science relate to the support of open science research, publishing, data and coding practices, the development and adoption of open science infrastructures and services, capacity building of all actors and innovative, highly collaborative and participatory approaches to the scientific enterprise.

Thank you for your attention.

German Commission for UNESCO
Martin-Luther-Allee 42, 53175 Bonn
E-Mail: moeller@unesco.de
www.unesco.de

unesco
German Commission for UNESCO