Towards the UNESCO Recommendation on Open Science

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Why Open Science in UNESCO?

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**.

Open Science in UNESCO

On the operational level

- UNESCO's Open Solutions Programme
- UNESCO's intergovernmental and international scientific programmes
- UNESCO's ethics of science programmes

On the normative level

- UNESCO Strategy on Open Access to scientific information and research (2011)
- UNESCO Recommendation on Science and Scientific Researchers (2017)
- UNESCO Recommendation on Open Educational Resources (2019)
- Preliminary study of the technical, financial and legal aspects on the desirability of a UNESCO Recommendation on Open Science (EXB 206, 207, 2019)

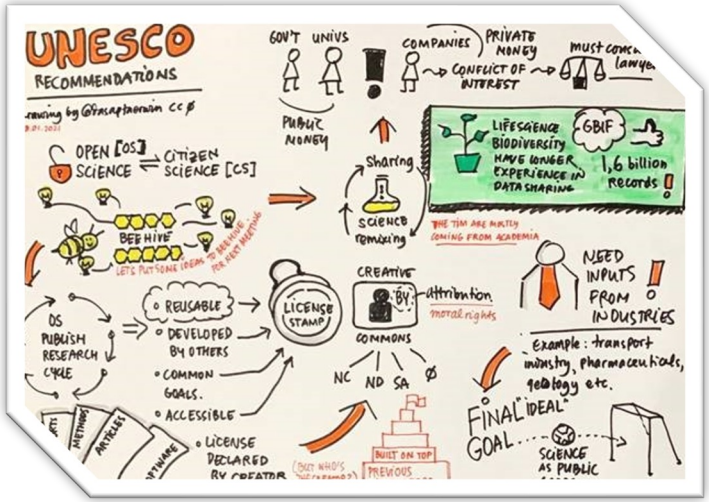
In 2019, at the UNESCO 40th General Conference, 193 Members States tasked UNESCO with the development of an international standard-setting instrument on Open Science in the form of a UNESCO Recommendation on Open Science.

Open Science in UNESCO

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”.

Draft text of the Recommendation

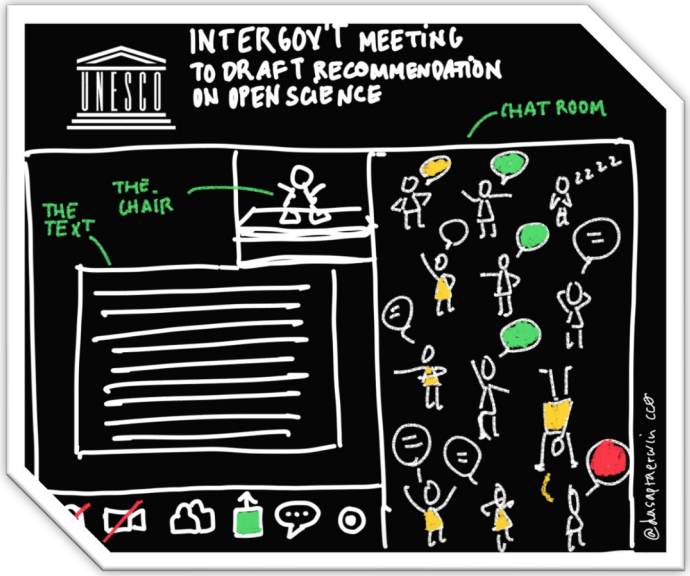


September 2020 - The first draft of the Recommendation was developed

- based on the inputs received through the global, regional and thematic consultations
- under the guidance of the UNESCO Open Science Advisory Committee
- with support of the Open Science Partnership

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 technical and legal experts on 6-11 May with a view to its adoption by the General Conference at its 41st session in November 2021.

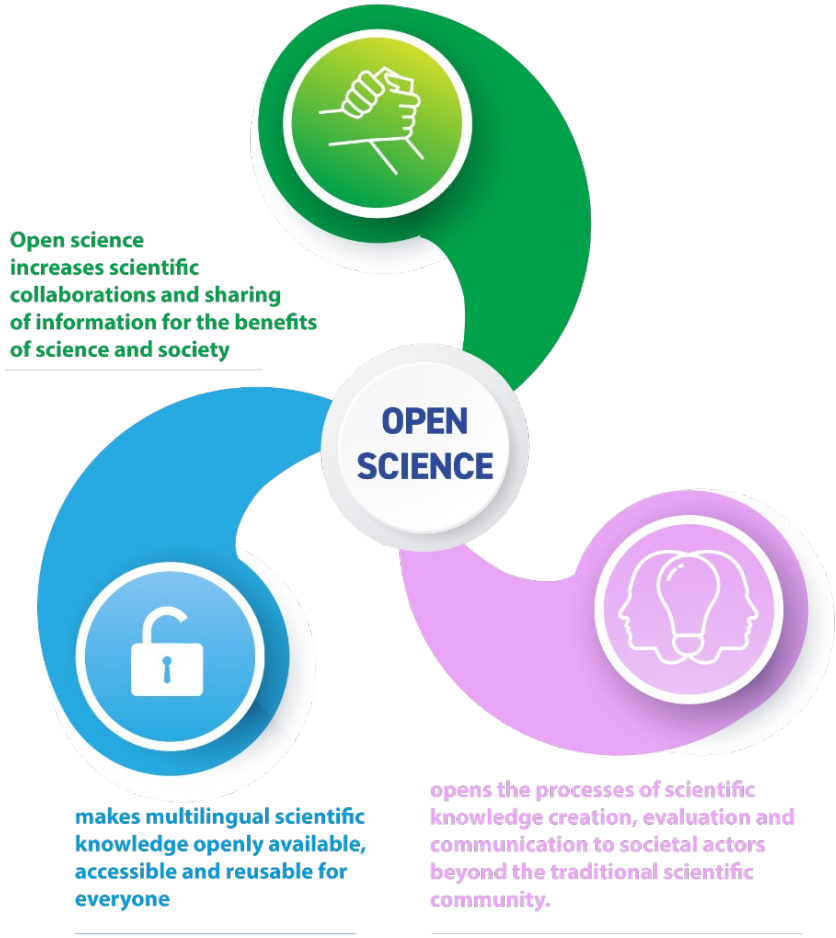


Draft text of the Recommendation

The aim of the Recommendation is to provide an international framework for open science policy and practice that recognizes disciplinary and regional differences in open science perspectives…and contributes to reducing the digital, technological and knowledge divides between and within countries.

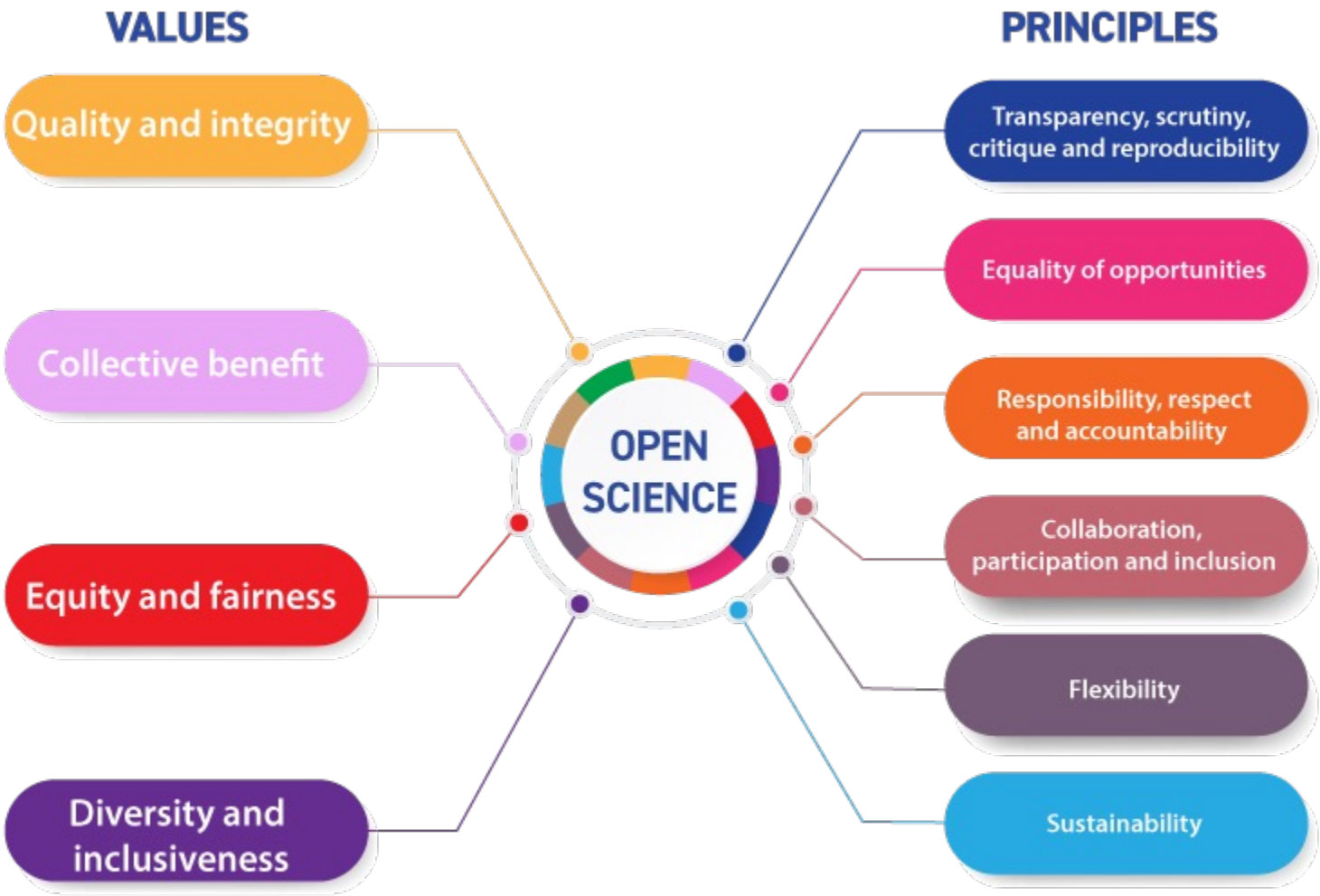
The Recommendation outlines a **common definition, a set of shared values and principles and a set of actions conducive to a fair and equitable operationalization of open science for all.**

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



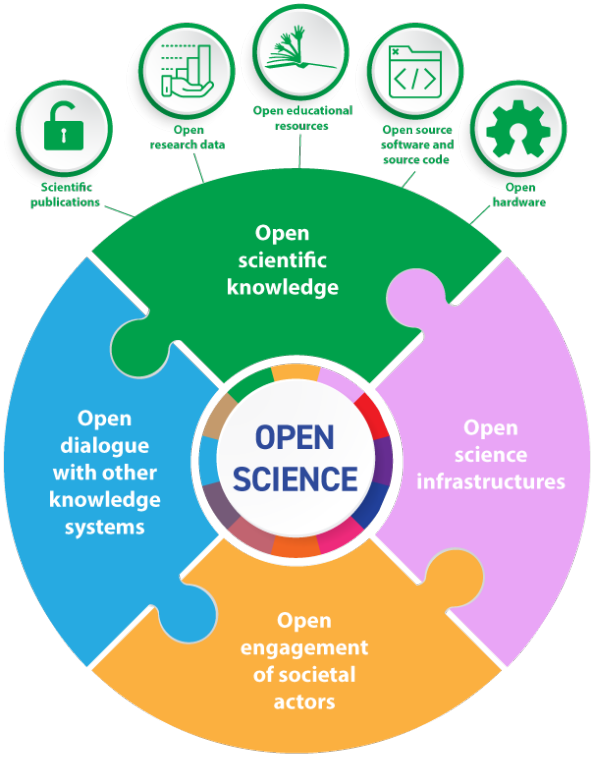
Key Pillars of Open Science

Values and Principles



Areas of Action

Open scientific knowledge



Open scientific knowledge refers to open access to scientific publications, research data, metadata, open educational resources, software, and source code and hardware that are **available in the public domain or under copyright and licensed under an open license that allows access, reuse, repurpose, adaptation and distribution under specific conditions**, provided to all actors immediately or as quickly as possible regardless of location, nationality, race, age, gender, income, socio-economic circumstances, career stage, discipline, language, religion, disability, ethnicity or migratory status or any other grounds, and free of charge.

Open research data

Open research data that include, among others, digital and analogue data, both raw and processed, and the accompanying metadata, as well as numerical scores, textual records, images and sounds, protocols, analysis code and workflows **that can be openly used, reused, retained and redistributed by anyone, subject to acknowledgement**.

FAIR (Findable, Accessible, Interoperable, and Reusable) and **CARE** (Collective benefit, Authority to control, Responsibility, Ethics) principles.

8. Access to scientific knowledge should be as open as possible. Access restrictions need to be proportionate and justified. They are only justifiable on the basis of the protection of human rights, national security, confidentiality, the right to privacy and respect for human subjects of study, legal process and public order, the protection of intellectual property rights, personal information, sacred and secret indigenous knowledge, and rare, threatened or endangered species. **Some data or code that is not openly available, accessible and reusable may nonetheless be shared among specific users according to defined access criteria made by local, national or regional pertinent governing instances**.

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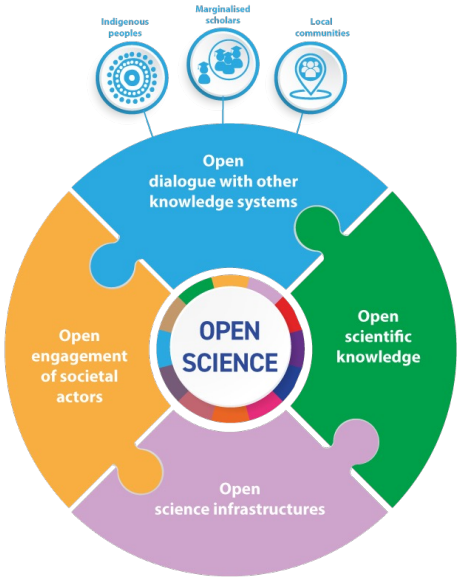
The need for justified **restrictions may also change aver time, allowing the data to be made accessible or restricting access to data at a later point**.

Open dialogue with other knowledge systems



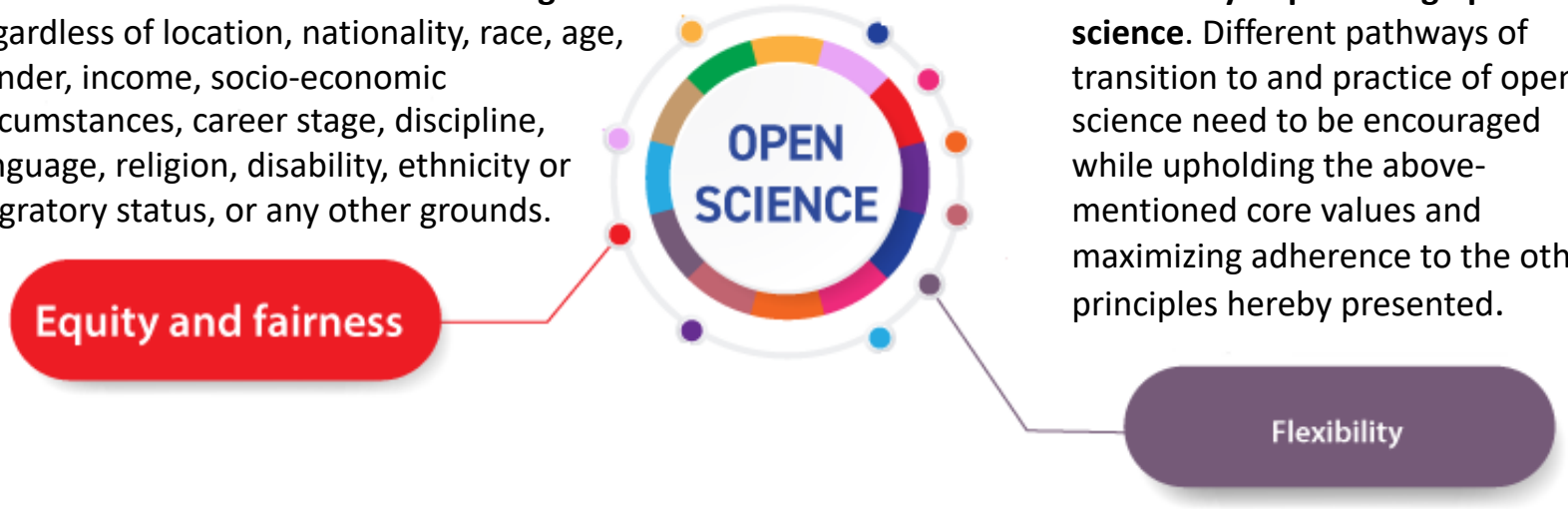
Open dialogue with other knowledge systems refers to the dialogue between different knowledge holders, that recognizes the richness of diverse knowledge systems and epistemologies and diversity of knowledge producers in line with the 2001 UNESCO Universal Declaration on Cultural Diversity.

It aims to promote the inclusion of knowledge from traditionally marginalized scholars and enhance inter-relationships and complementarities between diverse epistemologies, **adherence to international human rights norms and standards, respect for knowledge sovereignty and governance, and the recognition of rights of knowledge holders to receive a fair and equitable share of benefits that may arise from the utilization of their knowledge**.

Equity and Flexibility

VALUES

Open science should play a significant role in ensuring equity among researchers from developed and developing countries, enabling fair and reciprocal sharing of scientific inputs and outputs and equal access to scientific knowledge to both producers and consumers of knowledge regardless of location, nationality, race, age, gender, income, socio-economic circumstances, career stage, discipline, language, religion, disability, ethnicity or migratory status, or any other grounds.



PRINCIPLES

Due to the **diversity of science systems, actors and capacities across the world, as well as the evolving nature of supporting information and communication technologies, there is no one-size-fits-all way of practicing open science**. Different pathways of transition to and practice of open science need to be encouraged while upholding the above-mentioned core values and maximizing adherence to the other principles hereby presented.

Addressing challenges

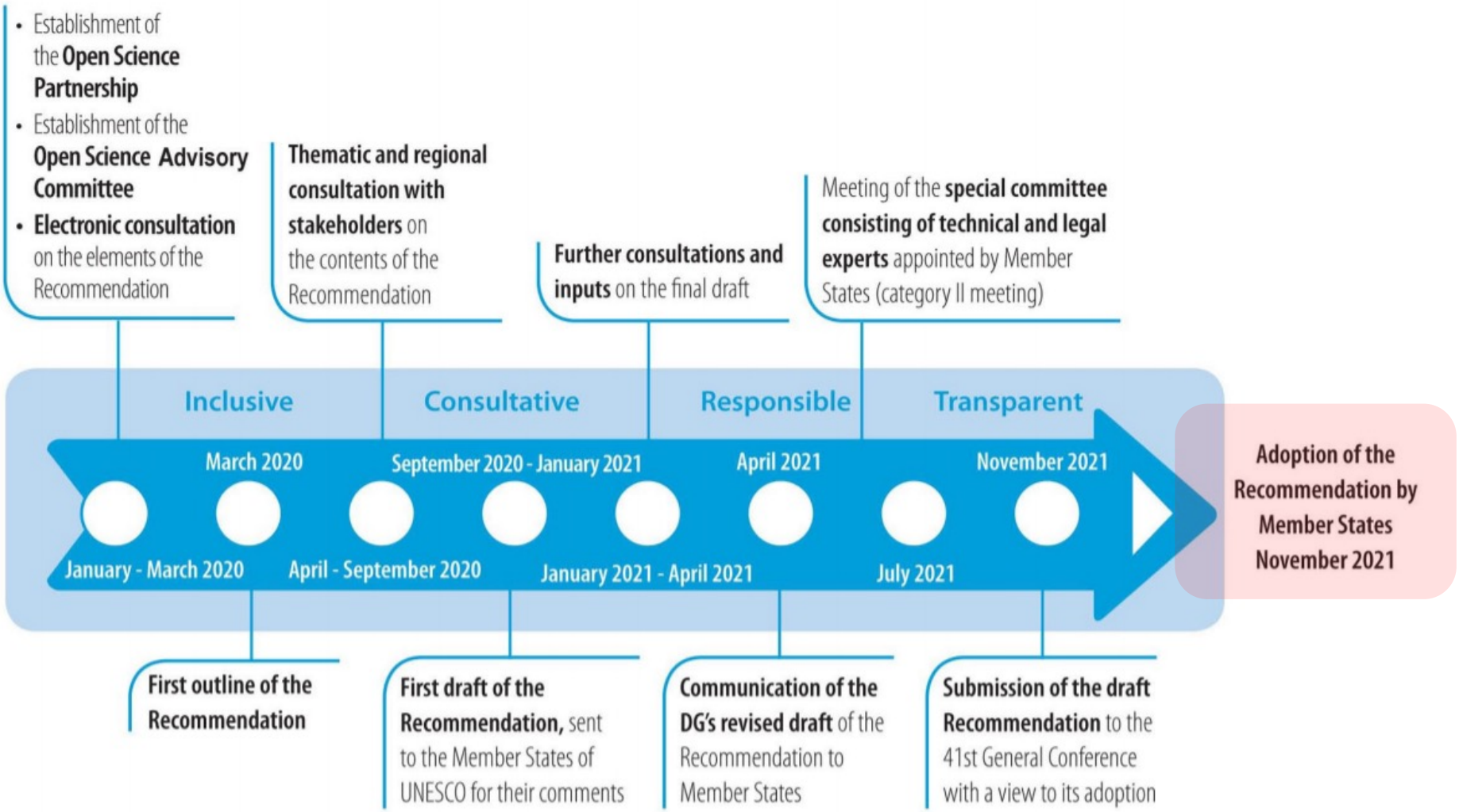
Addressing the unintended negative consequences of open science practices, such as predatory behaviors, data migration, exploitation and privatization of research data, increased costs for scientists and high article processing charges associated with certain business models in scientific publishing that may be causes of inequality for the scientific communities around the world and, in some cases, the loss of intellectual property and knowledge. (20)

Ensuring that open science incorporates the values and principles as outlined in this Recommendation to ensure that the benefits of open science are shared and reciprocal, and do not involve unfair and/or inequitable extraction of data and knowledge. (16a)

Enabling open multi-stakeholder discussions on open science benefits and its real and apparent challenges as regards, for example, competition, extraction and exploitation of data by more advanced technologies, links to intellectual property rights, privacy, security and inequalities between publicly and privately funded research… (16h)

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 behavior and unfair and/or inequitable extraction of profit from publicly funded scientific activities. (17i)

Enforcing effective governance measures and proper legislation in order to address inequality and prevent related predatory behaviors as well as to protect the intellectual creation of open science methods, products and data. (20g)


• 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)
Inclusive
Consultative
Responsible
Transparent
March 2020
September 2020 - January 2021
April 2021
November 2021
January - March 2020
April - September 2020
January 2021 - April 2021
July 2021
Adoption of the Recommendation by Member States November 2021
First outline of the Recommendation
First draft of the Recommendation, sent to the Member States of UNESCO for their comments
Communication of the DG's revised draft of the Recommendation to Member States
Submission of the draft Recommendation to the 41st General Conference with a view to its adoption

Thank you

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