

Introduction to Open Science

Silvio Peroni

silvio.peroni@unibo.it – <https://orcid.org/0000-0003-0530-4305> – [@essepuntato](#)

Open Science (A.Y. 2020/2021)

Second Cycle Degree in Digital Humanities and Digital Knowledge

Alma Mater Studiorum - Università di Bologna



For starting

Using at most two words, describe what the concept **Open Science** evoke to you

(Please use the chat for answering and I will update this slide with your answers)

movement - knowledge (4) - rights - research (2)

free - communication - open - share

What do we mean with “science”

From Latin *scientia* = knowledge

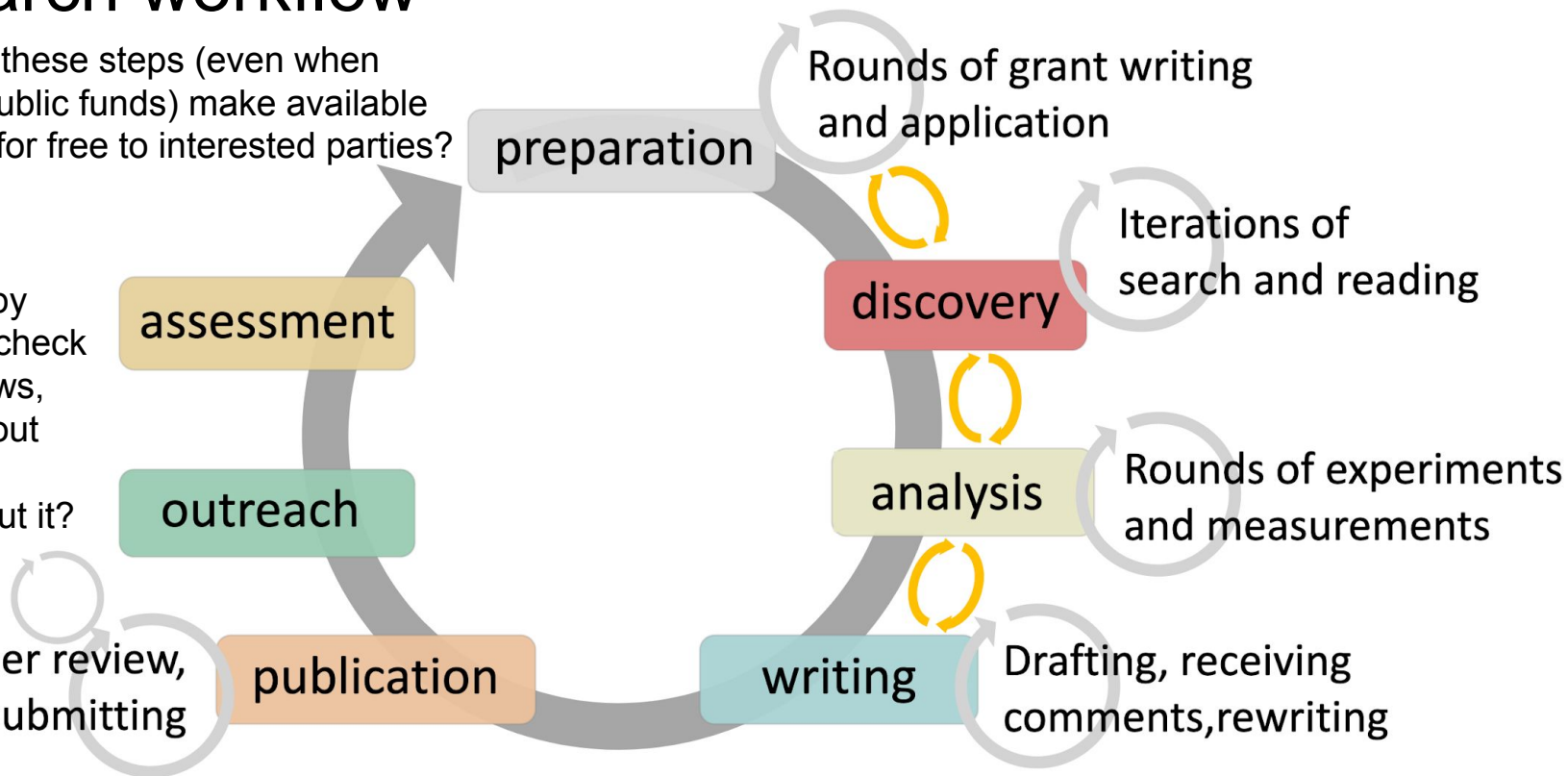
Archaic definition: “Knowledge gained through study or practice; mastery of a particular discipline or area.” – <https://en.wiktionary.org/wiki/science>

Research workflow

What if **none** of these steps (even when supported via public funds) make available their outcomes for free to interested parties?

How can we understand a research done by someone else, check if it is free of flaws, improve it, without having crucial information about it?

Submit, peer review, rejection, resubmitting



Open Science: your definition

Could you please provide me a definition?

(Please use the chat for answering and I will update this slide with your answers)

Open Science is a movement with the aim of making the results of each phase of the workflow of a scientific research available for free to anyone, anywhere and for any reason

A research project/movement aiming at making research and knowledge as free and accessible as possible (at each step of the process)

Open science tries to make research outcomes and processes accessible for the public (or at least a community of other researchers), in order to improve the overall quality of research by the means of interactivity and evaluation

It means accessing scientific information-research for free, unlimited, unrestricted etc. (copyrights)

Ways of doing and communicating research aimed to guarantee public access to the work of other scientists in order to boost discovery and knowledge

A method for or idea of conceiving scientific works, in order to provide free access to everybody for every reason

Informal definition (a slogan)



Open Science schools of thought

Democratic

access to knowledge is unequally distributed → making knowledge freely available for everyone

Pragmatic

knowledge-creation could be more efficient if scientists worked together → opening up the process of knowledge creation

Infrastructure

efficient research depends on the available tools and applications → creating openly available platforms for scientists

Public

science needs to be made accessible to the public → making science accessible for citizens

Measurement

scientific contributions today need alternative impact measurements → Developing an alternative metric system for scientific impact

Advantages

Faster: “experts identified themselves, and spontaneously contributed based on what was being posted online”

Transparent: “public can be assured that funding for science, arising from their taxes, is being used responsibly and [...] no suggestion of political interference”

Available: “available on the web [...] need not cease with the graduation of students, the termination of a grant or the demise of a principal investigator”

Reliable: “review process never ends [...] commenting function on results, and a mechanism for the community to police those comments”

Definition by UNESCO

‘Open Science’ is an **umbrella concept** that combines various **movements and practices** which aim at

- making scientific knowledge, methods, data and evidence **freely available and accessible for everyone**
- increasing scientific collaborations and sharing of information for the **benefits of science and society**
- **opening the process** of scientific knowledge creation and circulation **to societal actors** beyond the institutionalized scientific community

Key objectives of adhering to Open Science

Maintaining and promoting **good practice** and **scientific rigour**

Accelerating discovery by maximizing access to robustly described data, software, including source code and methods underpinning scientific conclusions

Maximizing **access to scientific knowledge**

Enabling the reuse and combination of data and software, including source code

Maximizing the **common good achieved through public investment** in scientific resources and infrastructures

Maximizing the **engagement and participation of all people and cultures** in the scientific process

Fostering the **democratization of the scientific process and the increased societal impact** of the scientific endeavor for the greater common good

Values and principles

Core values

Collective Benefit

Equity and Fairness

Quality and Integrity

Diversity

Inclusiveness

Guiding principles

Transparency, scrutiny, critique and verifiability

Equal opportunities and access

Respect, responsibility and accountability

Collaboration, participation and inclusion

Flexibility

Sustainability

Something missing?

Recently, the French Steering Committee for Open Science, that is supported by the French Ministry of Higher Education, Research and Innovation, has released a document in which asks UNESCO some extensions to its recommendation:

- Give a more prominent role to issues specific to **open access to scientific publications**, being them an essential vector for the expression and dissemination of scientific knowledge and an indispensable channel for the validation, recognition and dissemination of scientific advances in society
- Emphasise more strongly the notion of **bibliodiversity** (see the [Jussieu Call](#) for more info)
- Allow for greater recognition of the **diversity of cultures and practices** according to scientific disciplines
- Provide more emphasis on public research **policies** at the **international** (groups of countries such as EU), **national** (a particular country, such as Italy) and **local** levels (a university such as the University of Bologna)

Some other Open Science stakeholders



<https://ec.europa.eu/research/openscience/>



<http://www.orfg.org>



<http://scoss.org>

European Open Science Cloud (EOSC)

This is a cloud for research data in Europe. Background, policy information, events and publications related to the EOSC

Open Science Policy Platform

Group that advises the Commission on how to develop open science policy. Meeting reports, member details and background

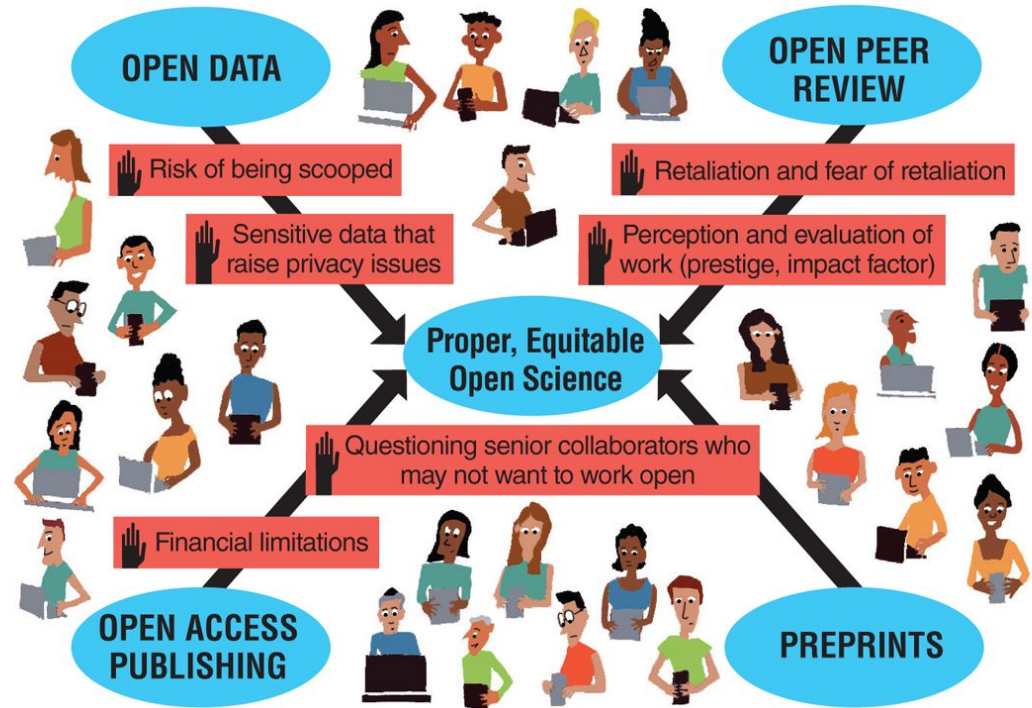
Open science monitor

Tracking trends for open access, collaborative and transparent research across countries and disciplines.

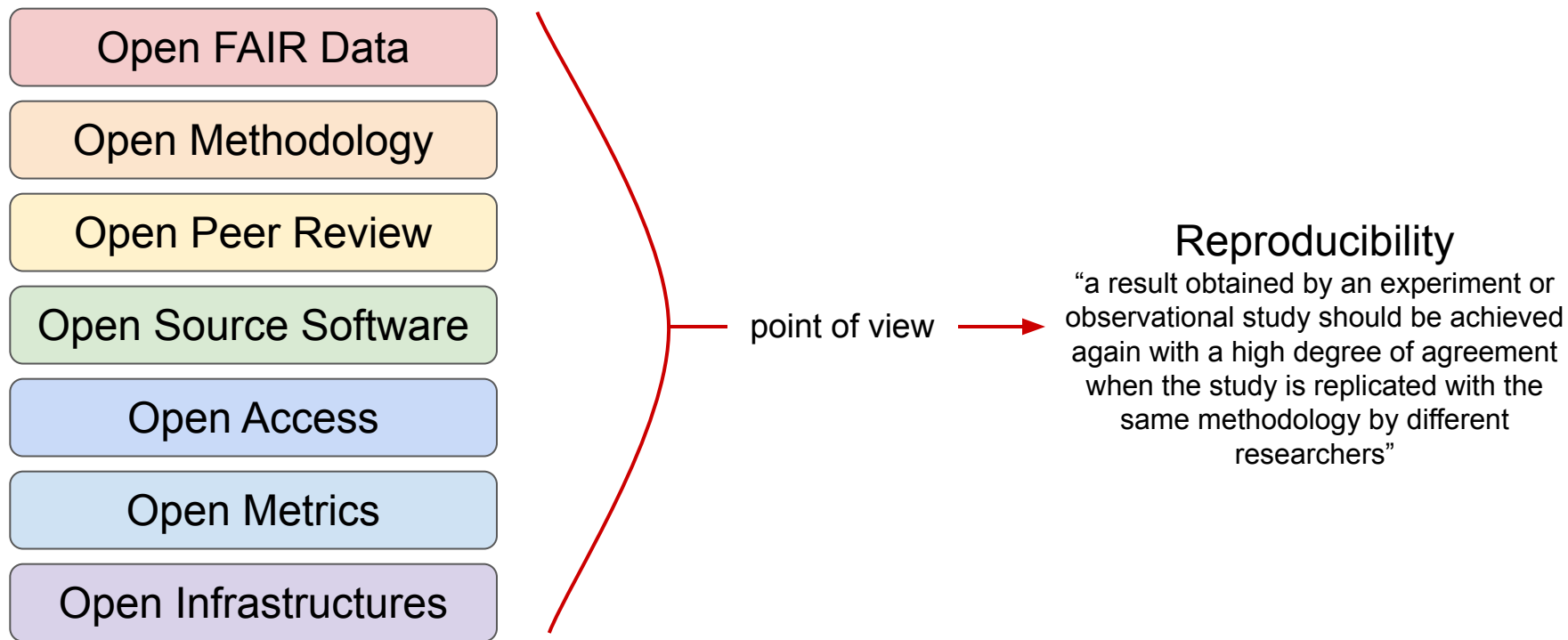


Do all support Open Science?

“Factors such as a scientist’s career stage, employment stability, financial circumstances, country of origin or residence, and cultural context (including their race, gender identity, and ethnicity) may all create barriers to specific aspects of open science”



Which Open Science facets we will see



End

Introduction to Open Science

Silvio Peroni

silvio.peroni@unibo.it – <https://orcid.org/0000-0003-0530-4305> – [@essepuntato](https://twitter.com/essepuntato)

Open Science (A.Y. 2020/2021)

Second Cycle Degree in Digital Humanities and Digital Knowledge

Alma Mater Studiorum - Università di Bologna

