



# The Barcelona Declaration: Building an Open Research Information System

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# Centre for Science and Technology Studies (CWTS) Leiden University

- Centre on “Research on Research”
- Focus on evaluation and S&T indicators, developing indicators yet critical about bibliometric assessment. Leiden Manifesto.
- Evaluation perceived as a major barrier against OS
- My involvement with OS:
  - EC Expert Group on Indicators for Researchers' Engagement with Open Science (2017-19)
  - UNESCO working group on Monitoring OS (2022- present) part of UNESCO Chair
- Transformative Innovation Policies
  - Previous work, still affiliated with SPRU (Sussex)
  - INGENIO (CSIC-UPV), València. Molas-Gallart



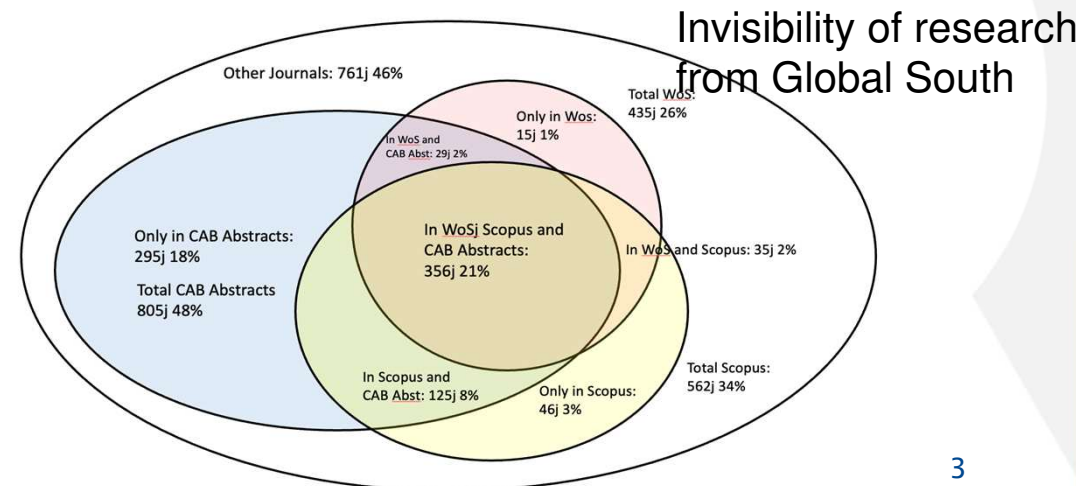
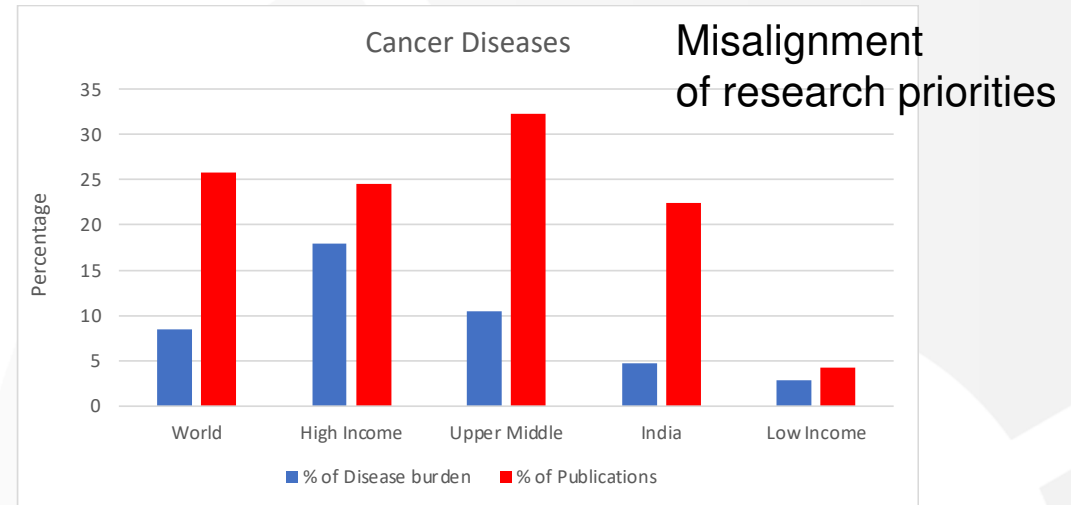
*Leiden Manifesto for Research Metrics  
Nature (2015)*

# UNESCO Chair on Diversity and Inclusion in Global Science

With Rodrigo Costa, Louise Bezuidenhout and André Brasil (CWTS, Leiden)

**Three main lines** (with a focus on research evaluation):

- Investigate epistemic/topic diversity: e.g. health priorities
- Studies on (in)visibility of scientific research from Global South
- Supporting UNESCO in developing monitoring for (countries) commitments to science (e.g. OS)

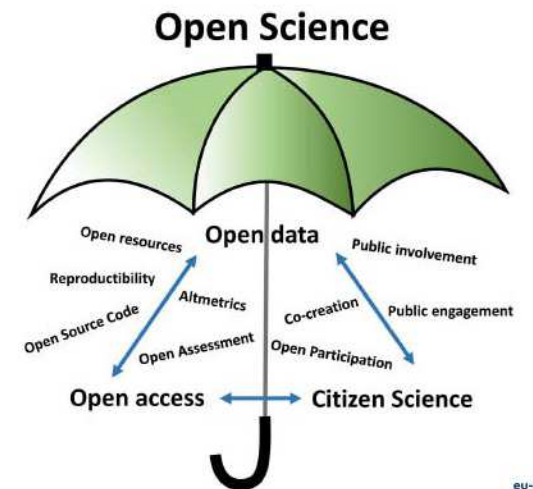
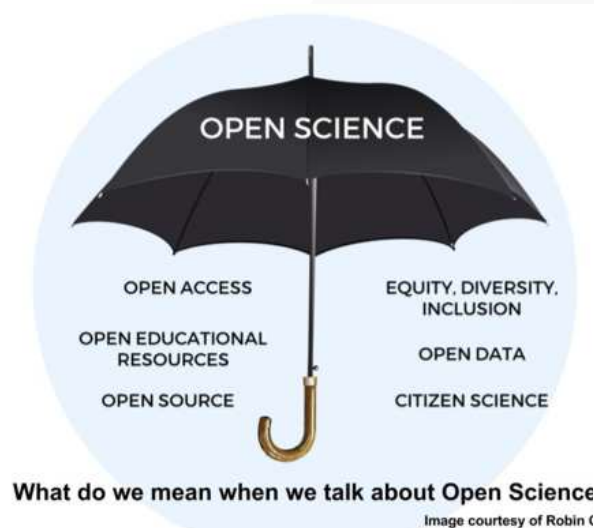
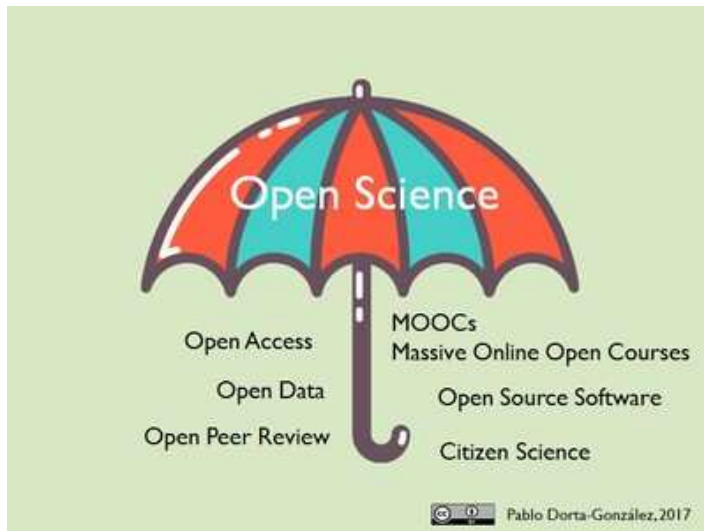




# What “is” Open Science?



# Umbrella term... multiple concepts ...and many umbrellas



# Perspectives on Open Science: Euro. Comm.

- European Com. (2016) *Open Innovation, Open Science Open to the World.*

‘Open Science represents a new approach to the scientific process based on **cooperative work and new ways of diffusing knowledge** by using **digital technologies** and new **collaborative tools**.’

- EC Open Science Webpage (2023)

Open science is a policy priority for the European Commission and the standard method of working under its research and innovation funding programmes **as it improves the quality, efficiency and responsiveness of research**.

When researchers **share knowledge and data** as early as possible in the research process with all relevant actors it helps diffuse the latest knowledge.

And when partners from across **academia, industry, public authorities and citizen groups are invited to participate** in the research and innovation process, creativity and trust in science increases.

# Perspectives on Open Science: UNESCO

UNESCO Recommendation 2021:

‘...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.**’

# Problems with epistemic diversity and injustice in current OS

Sabina Leonelli (2023):

“...the interpretation of openness as the sharing of resources, so often encountered in OS initiatives and policies, may have the unwanted effect of **constraining epistemic diversity and worsening epistemic injustice**, resulting in **unreliable and unethical scientific knowledge**. “

“...some OS policies – despite their good intentions and progressive slant – [are] acting as a **reactionary force which reinforces conservatism, discrimination, commodification and inequality in research**, thus ultimately closing down opportunities for inquiry in a disastrous reversal of what they set out to achieve.”



# What is Open Science?

According to 2021 UNESCO Recommendation

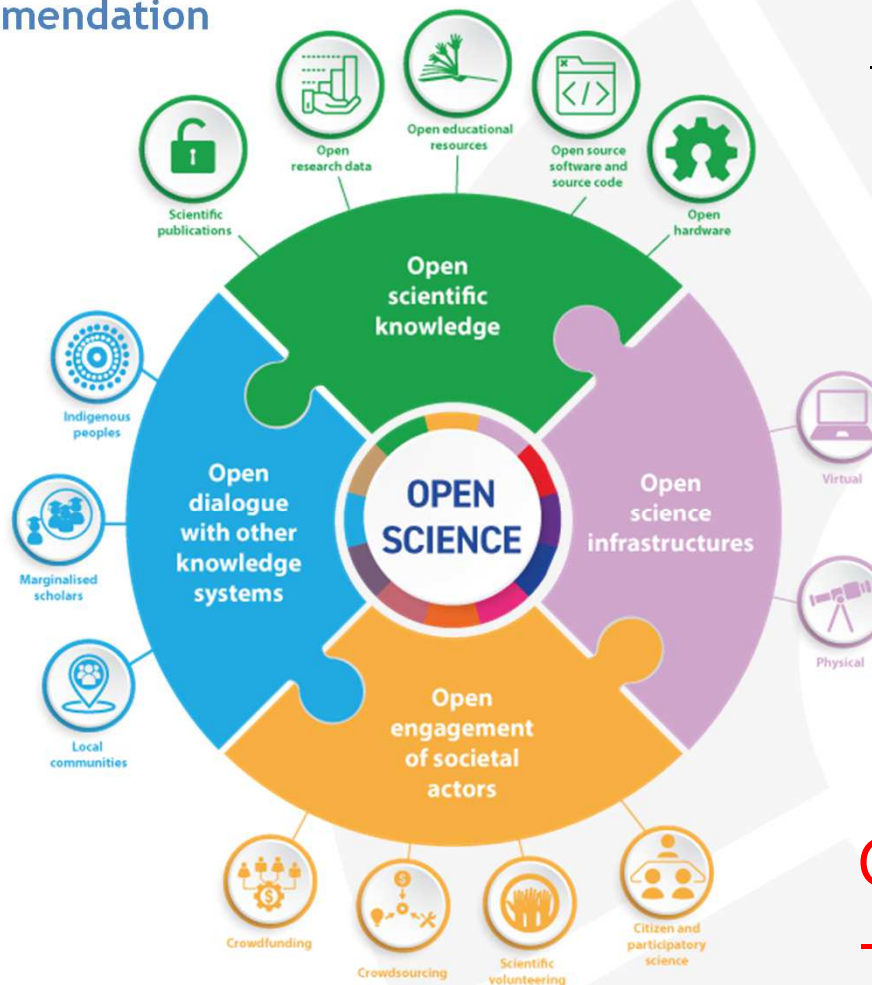
...and counting is not enough

**QUALITIES of the outputs matter for values**

**Open Research Datasets:** FAIR:  
Findable, Accessible, Interoperable, Re-usable?

CARE: Collective Benefit, Authority to Control, Responsibility and Ethics

**Educational Resources:**  
how appropriate for specific audience?  
which language, which gender, etc.?



## 1. Open Scientific Knowledge

- OA Publications
- Op Research Data
- Op Educational Resources
- Op Source Software
- Open Hardware

## 2. Open Science Infrastructure

- Physical
- Virtual

**Outputs  
-object oriented**

# What is Open Science?

According to 2021 UNESCO Recommendation

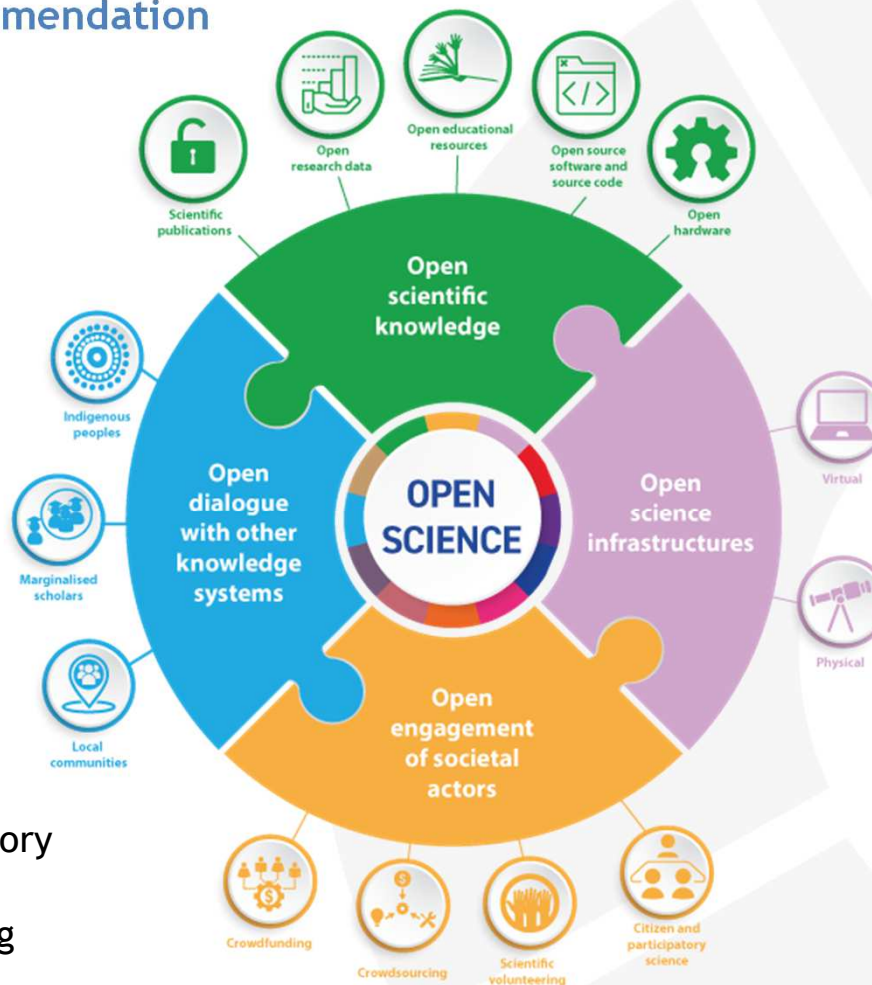
## Dialogue with other knowledge systems

- Local communities
- Indigenous peoples
- Marginalised scholars

Processes,  
subject-oriented

## Engagement of Societal Actors

- Citizen and Participatory Science
- Scientific Volunteering
- Crowdsourcing
- Crowdfunding



## PROCESSES (over time):

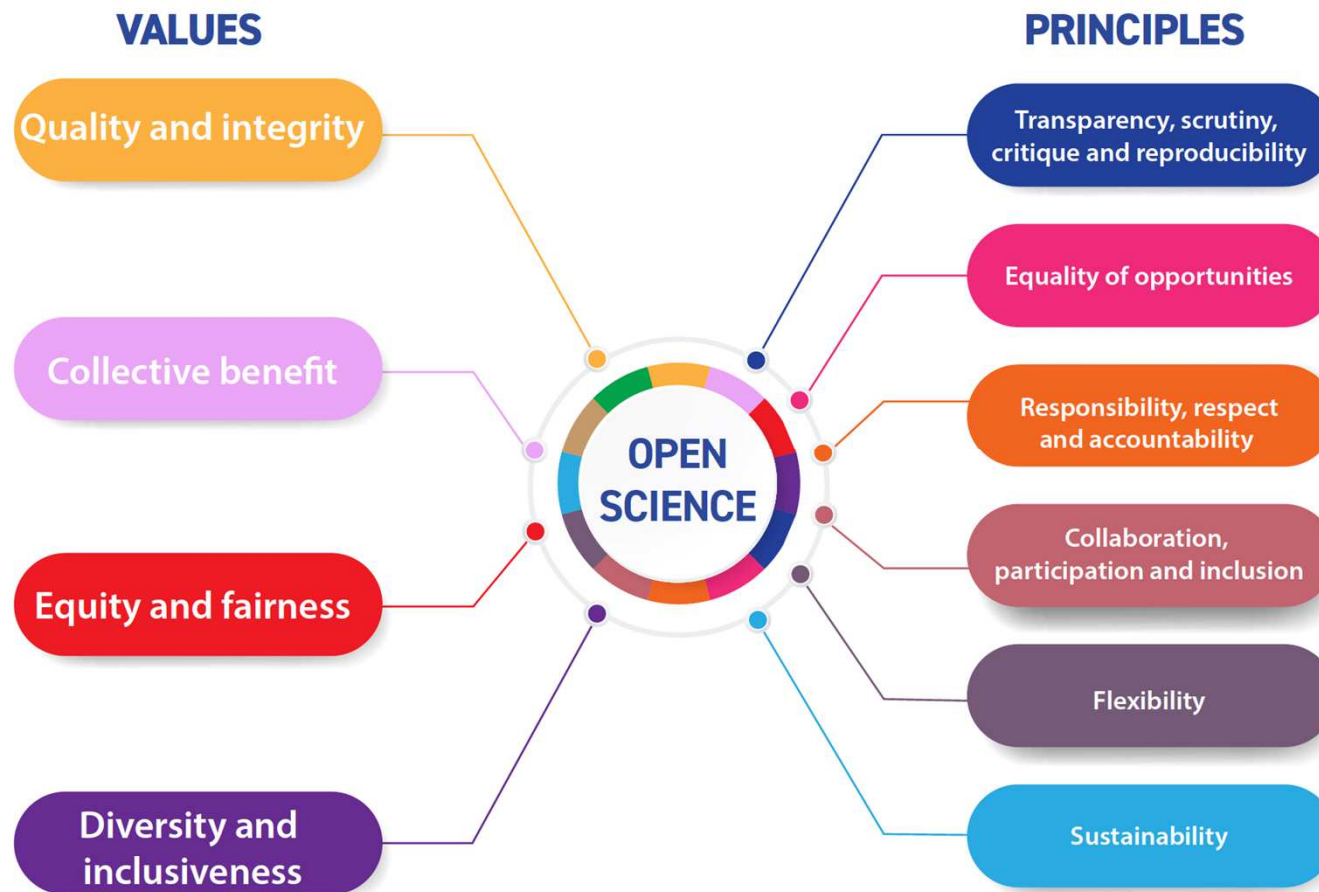
### Communications and interactions

between researchers,  
with stakeholders are  
often **iterative**.

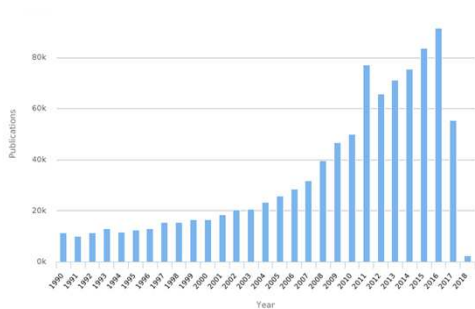
### Diverse contexts of use

Very different  
missions and  
unequal access to  
resources

# OS @UNESCO: Core Values and Guiding Principles

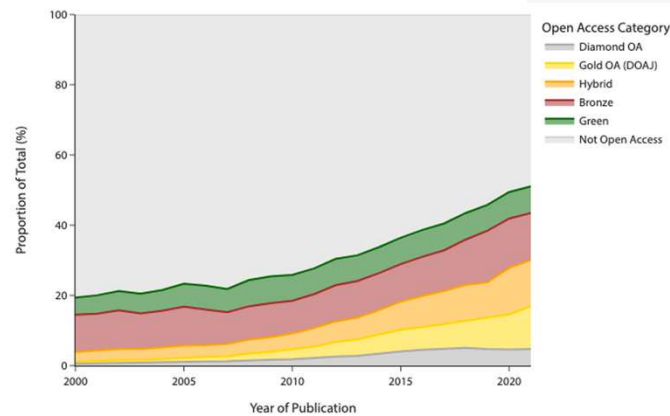


# There are multiple trajectories within OS...



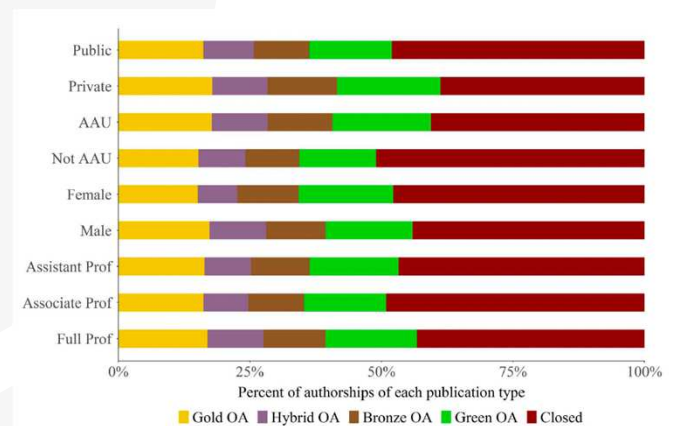
Trends in OA appear to be positive

... but they have different implications in terms of equity and diversity.



Plural dimensions  
Trends in OA by type

Effects or Outcomes:  
OA pubs by demography



# Values and normative commitments of OS

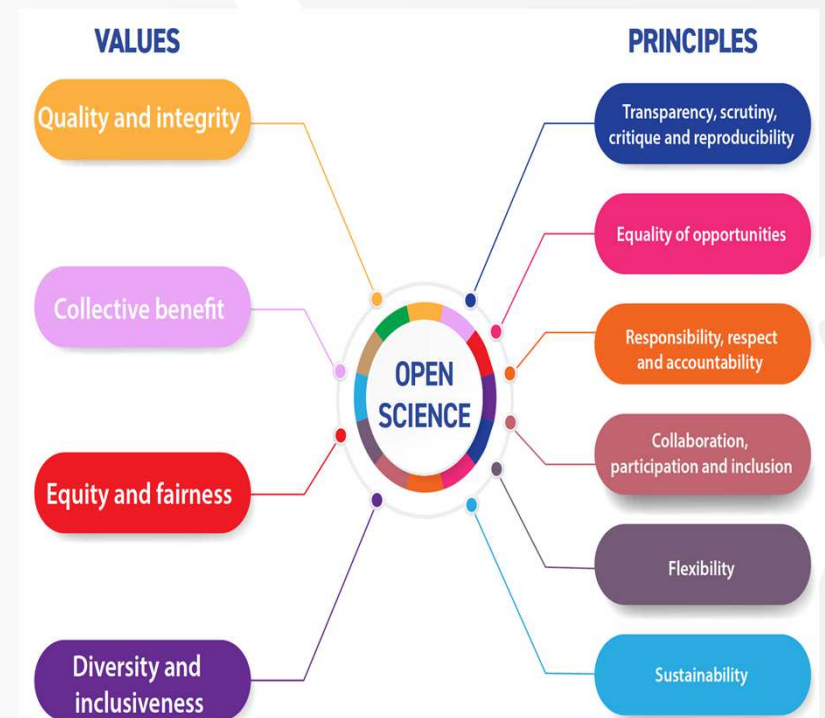
For a given transformative innovation, there are normative commitments associated to values.

In the case of UNESCO OS Recommendation – they are explicit:

Open Access publications in Gold Open Access may increase number of publicly accessible pubs...

BUT some OA:

- barriers to equity and fairness (as seen in demography)
- problems of quality and integrity (lack of rigorous reviewing: MDPI & Frontiers)
- challenge to collective benefit (more visibility to topics of the rich countries?)
- lack of transparency ('soft' peer review given incentives to publish in some journals)



## Summary of argument:

- Open Science is (part of) a **change of the model** of how STI works
- It is useful to think of OS in terms of ‘**transformation of the research system**’.
- But what type of transformation? There are multiple choices
- Key battle in Open Science: what type of data infrastructure?
- Let us care about values.
- **Barcelona Declaration:** for Science as a global public good, open research infrastructures are needed.