



WHATEVER WORKS - A PRACTICAL APPROACH TO OPEN SCIENCE

A CHAPTER XLII (45TH) OF FOCUS
ON OPEN SCIENCE

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21/11/2024 14:45 - 15:15

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Profile (Highlights)

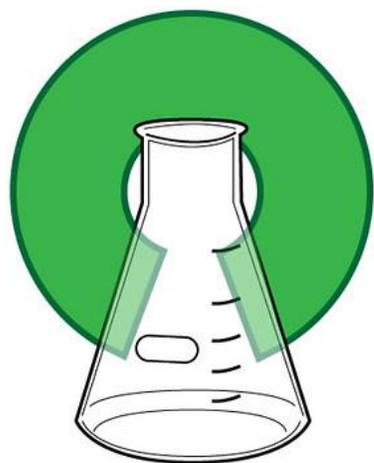
- **Since 2018** Self employed European research policy analyst & open science expert
- **Since 2021** EU Grants and Policy Officer, Boltzmann Gesellschaft (part time)
- **2012 - 2018** European Commission, DG Research and Innovation, Senior Policy and Project Officer
- **2008 - 2011** RTDS Group, EU Dissemination & Project Consultant

Recent projects

- The Role of Repositories in Horizon 2020 and Horizon Europe (Data Management Handbook)
- Open Science and COVID (for Frontiers)
- An Assessment of European Open Science Cloud readiness in three European countries (for RFII)
- An analysis of Horizon 2020 Data Management Plans (for OpenAIRE/the University of Vienna)

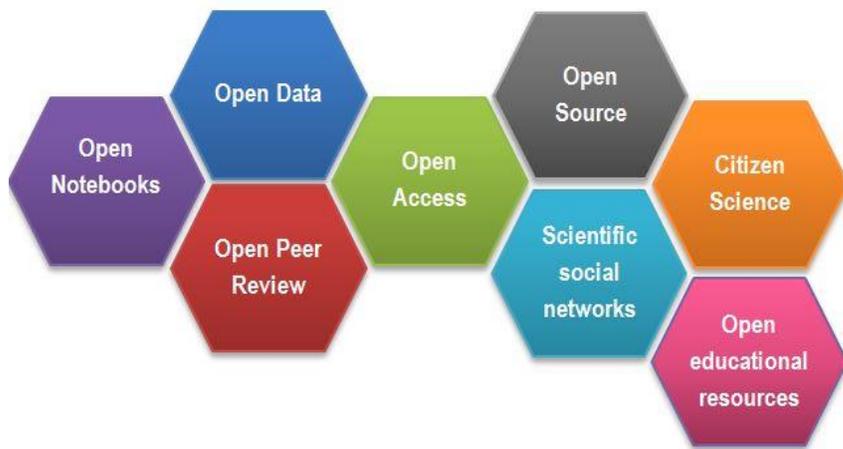


WHAT IS OPEN SCIENCE?



open science

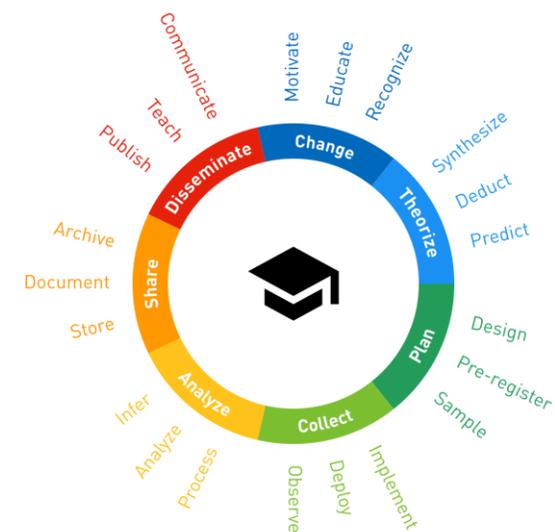
- “Open Science is frequently defined as an **umbrella term** that involves various movements aiming to remove the barriers for sharing any kind of output, resources, methods or tools, at any stage of the research process”. (Foster Open Science)



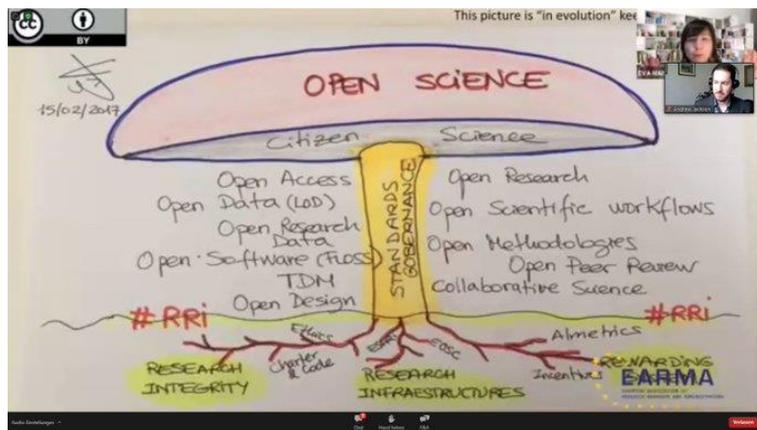
FOSTER Open Science



OANA



Open Science Knowledge Base



Eva Mendez

WHAT IS CONSIDERED PART OF OPEN SCIENCE?

IT DEPENDS ON WHO YOU ASK ...

8 AMBITIONS OF THE EU'S OPEN SCIENCE POLICY (CA2022)

Open Access

Open Data –
FAIR Data

European Open
Science Cloud
(EOSC)

Next generation
metrics

Rewards

Research integrity
& reproducibility
of scientific
results

(Open) Education
and skills

Citizen science

Source: Still available on <https://euraxess.ec.europa.eu/worldwide/asean/eus-open-science-policy>

THE EU'S OPEN SCIENCE POLICY (2024)

- **Open Science Practices**

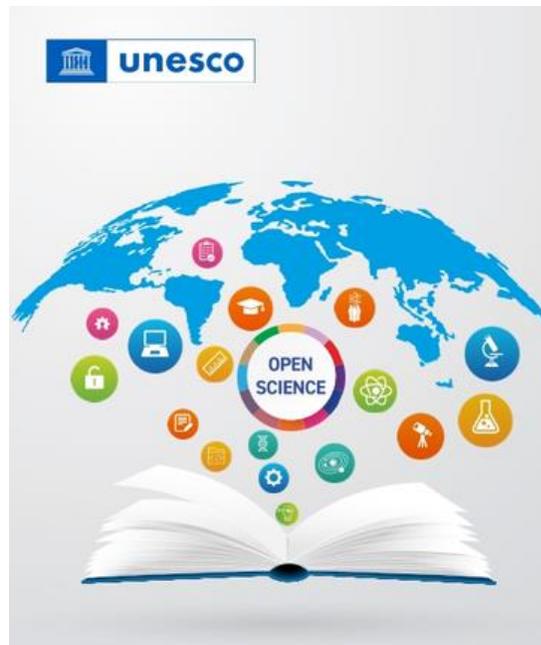
- early and open sharing of research (pre-registration, registered reports, pre-prints, data deposition in shared repositories, open collaboration within science and with other knowledge producers/users)
- immediate and unrestricted open access to scientific publications, research data, models, algorithms, software, protocols, notebooks, workflows, and all other research outputs
- ensuring verifiability and reproducibility of research outputs
- practicing responsible research output management (publications, data, and other outputs) in line with the FAIR (Findable, Accessible, Interoperable, and Reusable) principles
- promoting public engagement in research and innovation, bolstering citizen science and enhancing public trust in science

- **Open Science Enablers**

- incentives and rewards to adopt Open Science practices (CoARA)
- legislative and regulatory environment (EU data, copyright and digital legislative framework fit for research)
- Horizon Europe provisions on Open Science
- Open Science infrastructures and skills (EOSC, Open Research Europe), support for OS skills and education

https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en

UNESCO OPEN SCIENCE RECOMMENDATION (2021)



**UNESCO Recommendation
on Open Science**

<https://www.unesco.org/en/natural-sciences/open-science>

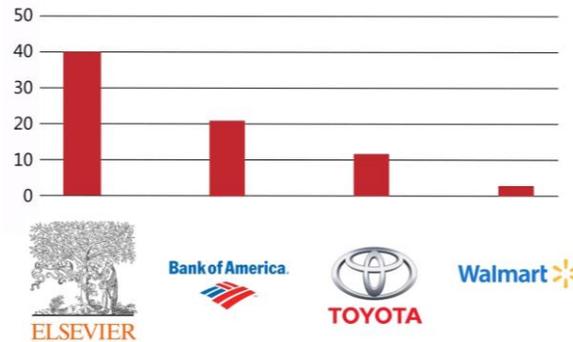
- Open science is a set of principles and practices that aim to make scientific research from all fields accessible to everyone for the benefits of scientists and society as a whole.
 - Open science is about making sure not only that scientific knowledge is accessible but also that the production of that knowledge itself is inclusive, equitable and sustainable.
- Strongly values based definition
- Some even see open science as a „right“ (part of the „Right to Science“ - Bishop 2021)

TENSIONS WITHIN „OPEN SCIENCE“



The Hanging by Jacques Callot (1632)

CORPORATE PROFIT MARGINS



Source: Paywall: The Business of Scholarship (Full Movie) (2018)

Article

Where Does Open Science Lead Us During a Pandemic? A Public Good Argument to Prioritize Rights in the Open Commons

BENJAMIN CAPPS

Abstract: During the 2020 COVID-19 pandemic, open science has become central to experimental, public health, and clinical responses across the globe. Open science (OS) is described as an open commons, in which a right to science renders all possible scientific data for everyone to access and use. In this common space, capitalist platforms now provide many essential services and are taking the lead in public health activities. These neoliberal businesses, however, have a problematic role in the capture of public goods. This paper argues that the open commons is a community of rights, consisting of people and institutions whose interests mutually support the public good. If OS is a cornerstone of public health, then reaffirming the public good is its overriding purpose, and unethical platforms ought to be excluded from the commons and its benefits.

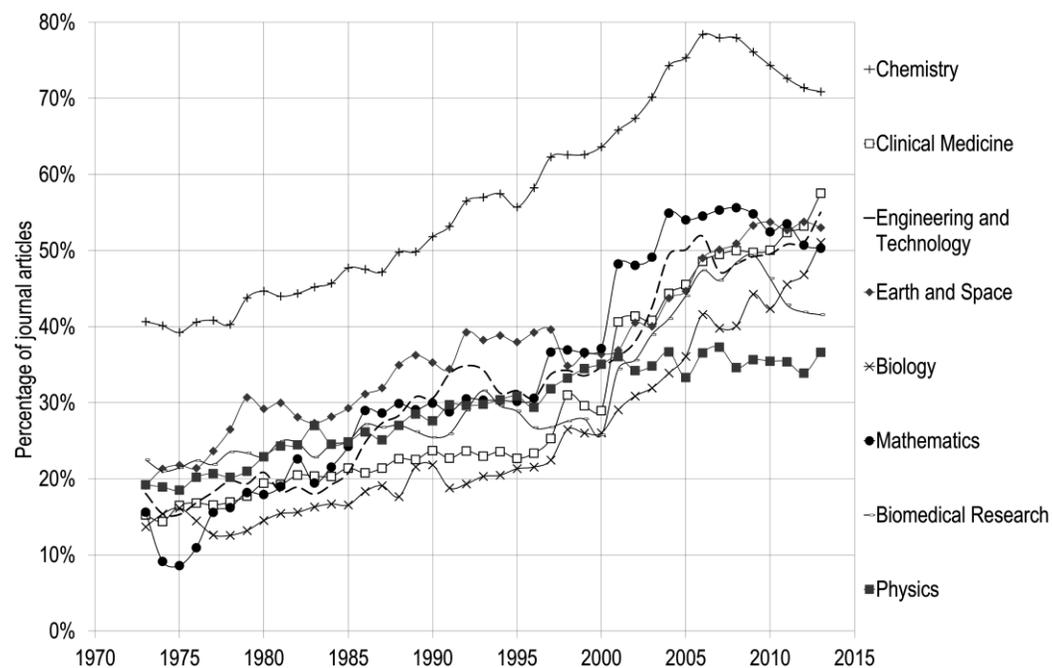
Keywords: COVID-19; open science; open commons; community of rights; capitalist platforms; neoliberalism; public good

Capps B. Where Does Open Science Lead Us During a Pandemic? A Public Good Argument to Prioritize Rights in the Open Commons. *Camb Q Healthc Ethics*. 2021 Jan;30(1):11-24. doi: 10.1017/S0963180120000456. Epub 2020 Jun 5. PMID: 32498725; PMCID: PMC7378370.

- Open Science as a bottom-up movement, often with an „anti-capitalist“ ethos
- vs.
- Open Science as (just) another business model

OPEN ACCESS AS A BUSINESS MODEL

Percentage of papers published by the five major publishers, by discipline in the Natural and Medical Sciences, 1973–2013.*



- Globally around 2.5 million scholarly articles are published annually by 35,000 journals (source: STM report).
- The top 5 publishers hold more than 50% of the market. Increased in their share of the published output, especially since the advent of the digital era (mid-1990s)* – sometimes referred to as an oligopoly
- Shift from “pay to read” to “pay to publish (gold OA – APC based)
- globally authors paid the 5 main academic publishers \$1.06 billion in publication fees in the period analyzed
- This is why some argue for other forms of open access (green OA, diamond OA)

*Larivière V, et al (2015), Butler et al (2023)

OPEN SCIENCE: RADICAL OR INCREMENTAL?



Benner (2016)*

- **radical technical change** is a discontinuous shift in the base of scientific or technical knowledge underlying the products in an industry or product class, whereas
- **incremental technical change** is continuous refinement along an existing technological trajectory.

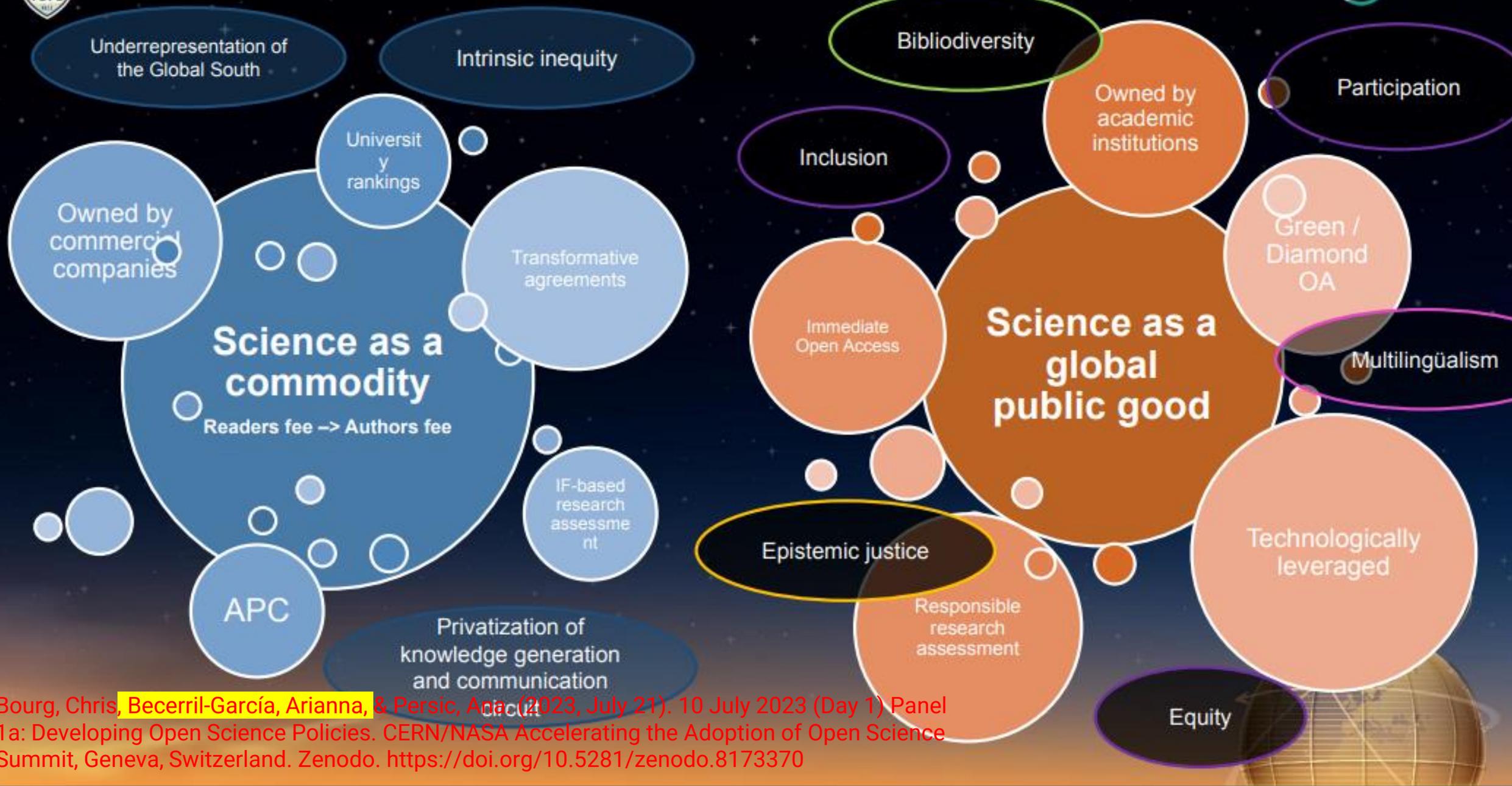
*Benner, M.J. (2016). Radical and Incremental Technical Change. In: Augier, M., Teece, D. (eds) The Palgrave Encyclopedia of Strategic Management. Palgrave Macmillan, London.
https://doi.org/10.1057/978-1-349-94848-2_703-1

OPEN SCIENCE NARRATIVES

- Scientific results as a public good vs scientific results as a commodity, radical vs incremental change – different “narratives”
- “Master narratives serve simultaneously as prior framing, starting-point, justification, and mode of sense-making for the policy domain...” “Each narrative offers its own heroes, villains and victims, and its own lasting moral prescriptions for confronting other crises (Felt et al., 2007 p. 74, 76)
- In other words, master narratives do not just describe a situation in purportedly objective terms, but they also normatively perform it by asserting how it is to be interpreted

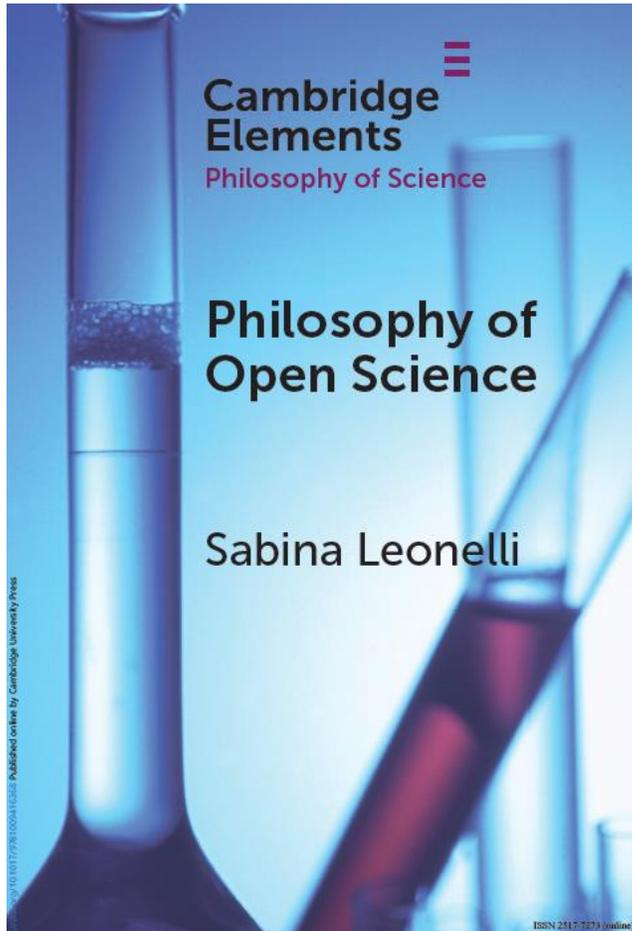
Šimukovič, E. (2023). *Of hopes, villains, and Trojan horses : Open Access academic publishing and its battlefields* [Doctoral dissertation, Universität Wien].

<https://doi.org/10.25365/thesis.73661>



Bourg, Chris, Becerril-García, Arianna, & Persic, Ana (2023, July 21). 10 July 2023 (Day 1) Panel 1a: Developing Open Science Policies. CERN/NASA Accelerating the Adoption of Open Science Summit, Geneva, Switzerland. Zenodo. <https://doi.org/10.5281/zenodo.8173370>

PHILOSOPHY OF OPEN SCIENCE?



PHIL_OS ERC Grant <https://opensciencestudies.eu/project/>

■ Problem 1 - Epistemic diversity



- One size does not fit all.
- Open science practices need to adapt to different research methods settings and questions.

■ Problem 2 - Epistemic injustice

- Open science tools produced by well-resourced institutions are not necessarily usable by researchers working under different conditions.
- Resources developed and circulated by low-resourced institutions can easily be exploited without recognition and with unknown consequences.

WE ARE STARTING TO RUN INTO PROBLEMS HERE...

Inequalities and exclusionary practices impact OS, particularly regarding accessibility:

a. Deeply rooted economic, cultural, and political differences exist globally as well as in Europe. As the transition to OS is costly, lack of resources and political support may deepen inequalities. OS also brings the risk of strengthening already existing inequalities such as data exploitation by privileged actors, mostly from high income countries (HICs) to the disadvantage of low- and middle-income countries (LMICs). In addition, what could be implemented in one context might not be adaptable to another one (due to, e.g., differences in legislation, culture, values, or practices). Therefore, the definition, understanding, and implementation of responsible OS can vary depending on the context.

ROSiE (Responsible Open Science in Europe) (2023) **D5.2: Strategic Policy**
Paperon Responsible Open Science, similarly Ross-Hellauer (2022)

- Whether the transition to OA is costly, depends on the model (implicit: gold, APC based)
- Evidence that OA risks strengthens inequalities tenuous at best.

WE DON'T LIVE IN UTOPIA



- We live in an unequal, capitalist world
- Inequalities exist independent of open science
- So far: evidence that open science makes things worse than (“could have, should have, would have” wording)

AN IDEOLOGY OF OPEN SCIENCE?

“If open science is a means to an end, what is the end”?

Risk: open science becoming a part of the “culture wars”

(see: DEI in the US)



<https://opensciencestudies.eu/>
(ERC)

Alabama Republicans Pass Expansive Legislation Targeting D.E.I.

The measure would not only cut funding to diversity programs at public colleges, but also limit the teaching of “divisive concepts” surrounding race and gender.

University of Florida Eliminates All D.E.I.-Related Positions

The move complies with a state law that barred public universities from using government funds for initiatives that promote diversity, equity and inclusion.

Source for all headlines: NY times

What to Know About the University of Michigan's D.E.I. Experiment

A Times investigation found that the school built one of the most ambitious diversity programs in the country — only to see increased discord and division on campus.

OPINION
GUEST ESSAY

D.E.I. Is Not Working on College Campuses. We Need a New Approach.

Aug. 30, 2024

Utah Bans D.E.I. Programs, Joining Other States

ATTEMPTS TO DEFUND OPEN SCIENCE IN THE US (NELSON MEMORANDUM)

- the Appropriations Committee of the US House of Representatives Fiscal Year 2024 bill for the Commerce, Justice, Science, and Related Agencies Subcommittee. Proposal for Section 552:

None of the funds made available by this or any other Act may be used to implement, administer, apply, enforce, or carry out the Office of Science and Technology Policy's August 25, 2022, Memorandum to Executive Departments and Agencies entitled, "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research."

→ ultimately not successful but demonstrates danger to open science

“COLONIALISM”

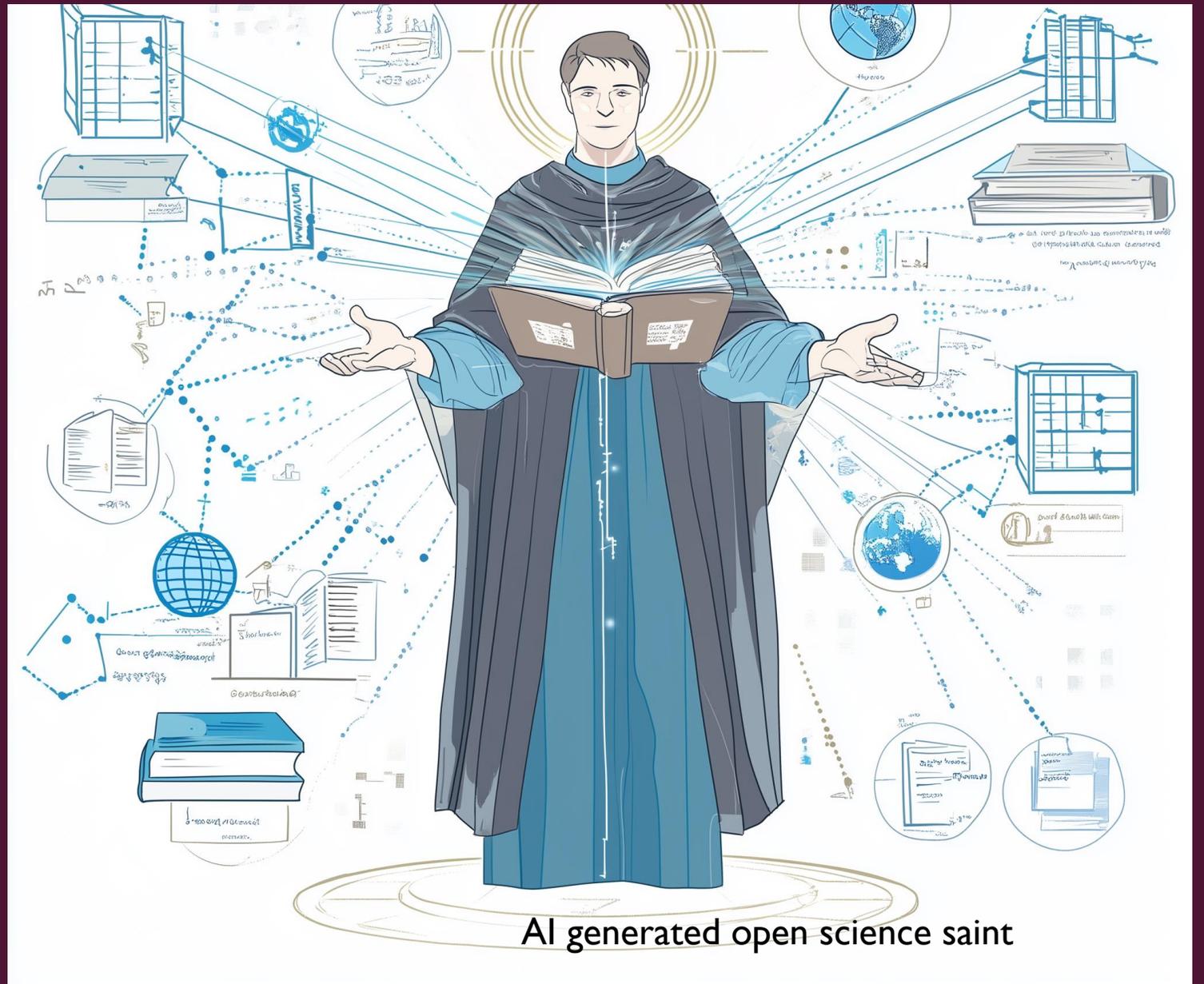


Source: wikipedia

“The second characteristic of the object-oriented view of science that strongly affects current understandings of openness is the centrality of the idea of ownership. Just as early modern scientific institutions thrived on the colonial appropriation of objects from around the world, which were collected and stored by Western museums and scholarly societies in the hope of informing scientific investigations, contemporary OS infrastructures collect, manage and distribute objects viewed as relevant to knowledge generation.” (Leonelli 2023: 47, own highlight)

- Colonialism seen as a uniquely Western phenomenon (ignores e.g. Japanese, Russian, Chinese “colonialism”)
- Talks to – rather than with – the Global South (ERC staff)
- Global South good, global North bad?

WE DON'T NEED OPEN SCIENCE SAINTS



AI generated open science saint

ALTERNATIVE: A DISTRUST OF GRAND NARRATIVE

To make mankind just and happy and creative and harmonious for ever – what could be too high a price to pay for that? To make such an omelette, there is surely no limit to the number of eggs that should be broken

[...] The one thing that we may be sure of is the reality of the sacrifice, the dying and the dead. But the ideal for the sake of which they die remains unrealised. The eggs are broken, and the habit of breaking them grows, but the omelette remains invisible.

‘What is to be done?’ How do we choose between possibilities? What and how much must we sacrifice to what? There is, it seems to me, no clear reply. But the collisions, even if they cannot be avoided, can be softened. Claims can be balanced, compromises can be reached.

The search for perfection does seem to me a recipe for bloodshed, no better even if it is demanded by the sincerest of idealists, the purest of heart. No more rigorous moralist than Immanuel Kant has ever lived, but even he said, in a moment of illumination, ‘Out of the crooked timber of humanity no straight thing was ever made.’ To force people into the neat uniforms demanded by dogmatically believed-in schemes is almost always the road to inhumanity. We can do only what we can: but that we must do, against difficulties.

Isiah Berlin (1988) “the pursuit of the ideal” https://isaiah-berlin.wolfson.ox.ac.uk/sites/default/files/2018-09/Bib.196%20-%20Pursuit%20of%20the%20Ideal%20by%20Isaiah%20Berlin__1.pdf

LET A DIVERSITY OF OPEN SCIENCE NARRATIVES BLOOM



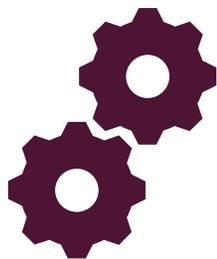
optimise the impact of publicly-funded scientific research paid by the public

- Better and more efficient science
- Economic benefits (SMEs access to knowledge)
- Broader, faster, more transparent and equal access for the benefit of researchers, industry and citizens

...and that's enough

- “the perfect is the enemy of the good”

A RATIONALE FOR OPEN SCIENCE THAT IS



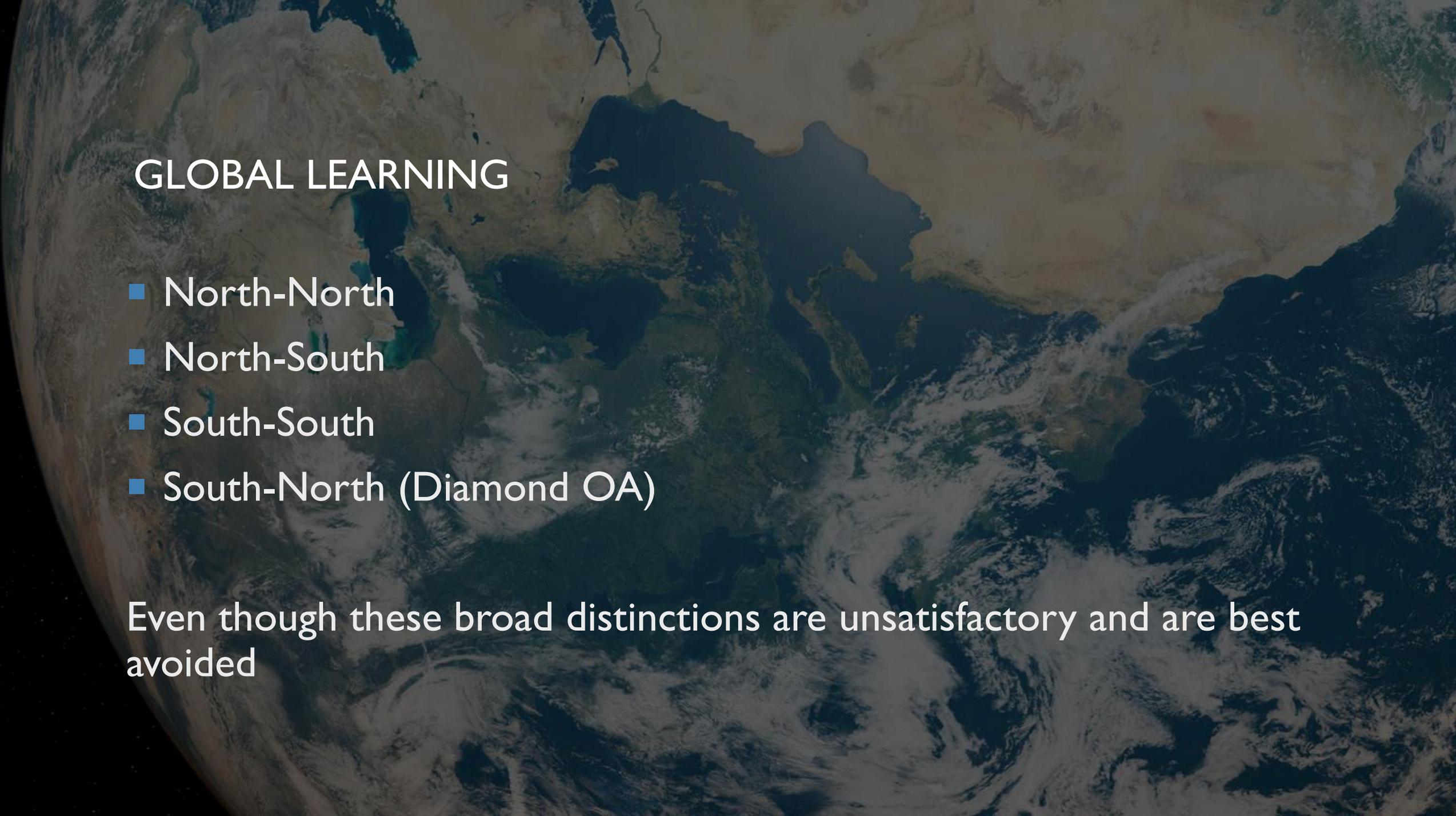
Pragmatic



Enlightened (RRI)



Self-Interest

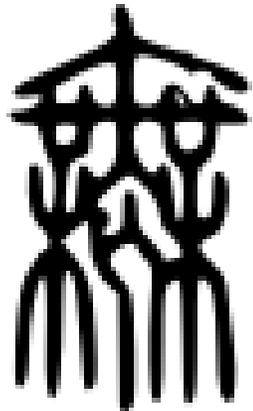
A satellite view of Earth from space, showing the curvature of the planet and the intricate patterns of clouds over the oceans. The landmasses are visible in shades of brown and green, contrasting with the deep blue of the water. The overall image has a dark, slightly desaturated tone.

GLOBAL LEARNING

- North-North
- North-South
- South-South
- South-North (Diamond OA)

Even though these broad distinctions are unsatisfactory and are best avoided

WHICH FORM OF OPEN ACCESS IS THE BEST?



Mu (negative)

The term is often used or translated to mean that the question itself must be "unasked": no answer can exist in the terms provided (Wikipedia)



"Chess" by Steve Johnson

A BETTER QUESTION...

Which form of open access is the most appropriate for me?

- **It depends on...**

- Scientific field
- National/Institutional policy, including funding for gold/hybrid OA
- Type of grant (if any)
- Attitudes of supervisors
- Personal preferences

MY 5 ACTION AREAS FOR AN OPEN SCIENCE WORLD



(i) continuous awareness raising and training activities among researchers,



(ii) ensuring we have robust mechanisms for monitoring the state of play in place,



(iii) having effective policies, compliance mechanisms and sanctions from funders and policy makers



(iv) incentives



(v) support mechanisms.

EU COUNCIL CONCLUSIONS JUNE 22, 2022



“The COVID-19 crisis has highlighted the need for **immediate open access** to scientific publications, as rapid access to the latest research results has proved essential in order to deliver rapid responses to the epidemiological crisis. **Open** and **more accessible** science has a crucial role to play in enhancing the quality, efficiency, transparency and integrity of research and innovation”

“In its conclusions on open science, the Council proposes joint action throughout the European Research Area in three areas: **the reform of research assessment systems**, developing capacities for academic publishing and scientific communication and promoting **multilingualism** to **raise the profile** of EU research results. Improvements in these three areas will make research careers **more attractive**, facilitate scientific exchanges and bring **science** and **society closer together.**”

<https://www.consilium.europa.eu/en/press/press-releases/2022/06/10/council-provides-political-orientations-on-international-cooperation-open-science-and-european-missions/#:~:text=In%20its%20conclusions%20on%20open,profile%20of%20EU%20research%20results.>

EU COUNCIL CONCLUSIONS MAY 22-23, 2023



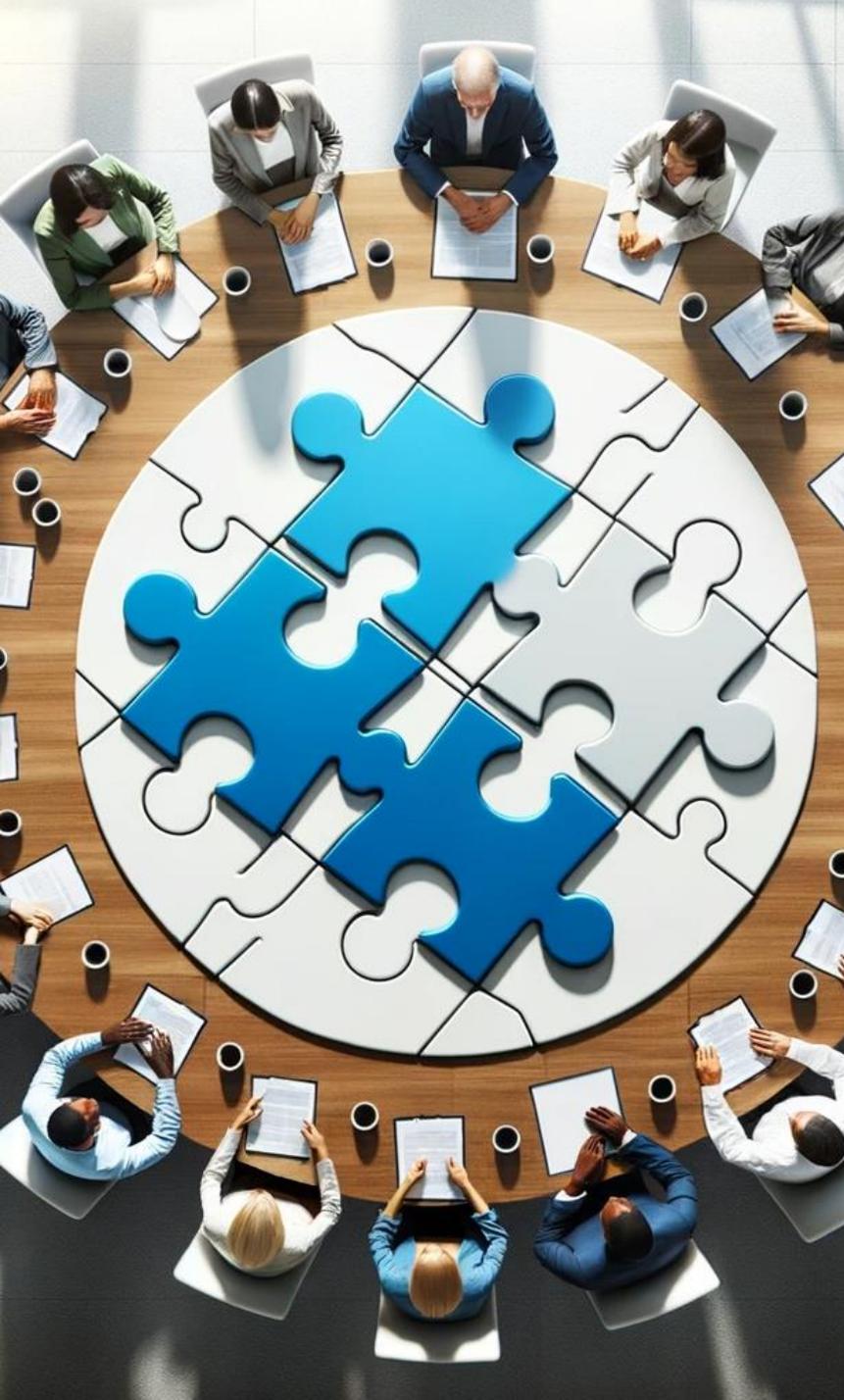
sweden
2023.eu

- the Council calls on the Commission and the member states to **support policies towards a scholarly publishing model that is not-for-profit, open access and multi-format, with no costs for authors or readers.**
- Some Member States have introduced **secondary publication rights** into their national copyright legislation, enabling open access to scholarly publications which involve public funds.
- The Council encourages national open access policies and guidelines to **make scholarly publications immediately openly accessible under open licences.**
- The conclusions acknowledge positive developments in terms of **monitoring progress, like within the framework of the European Open Science Cloud (EOSC), and suggest including open science monitoring in the European Research Area monitoring mechanism.**
- The Council conclusions also **encourage Member States to support the pilot programme Open Research Europe** (to create a large-scale open access research publishing service), the use of open-source software and standards, to recognise and reward peer review activities in the assessment of researchers as well as to support the training of researchers on peer-review skills and on intellectual property rights.

BUT: HOW IS ALL OF THIS GOING TO BE IMPLEMENTED?

- In the European Research Area (=Member States Driven)
 - ERA Action I and follow ups
- In the next Framework Programme (FP 10)
- In the context of EU Data Policies (AI Act, Data Spaces etc)
- Globally: UNESCO Working Groups





BRINGING THE STAKEHOLDERS TOGETHER – CHALLENGE AND OPPORTUNITY



THE SCIENCE SYSTEM IS A SUPER TANKER...



IT TAKES A WHILE TO TURN...



RECAP

- Open Science is different things to different people – different narratives due to different (vested) interests
 - Public good or commodity
 - Incremental or revolutionary change
 - DEI above everything?
- Pragmatic enlightened self interest as a key driver for open science (importance of CoARA)
- Lots of activities on open science issues (diamond OA, data spaces, research assessment) but..
- No one silver bullet activity – open science is a marathon, not a sprint



LET'S STAY IN
TOUCH



Thank you for your attention

I offer expertise and Training on

- Open access policies
- FAIR data policies, including Data Management Plans
- Open Science Requirements in Horizon Europe
- Horizon Europe proposal development



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