

MAG. DANIEL SPICHTINGER, M.A.

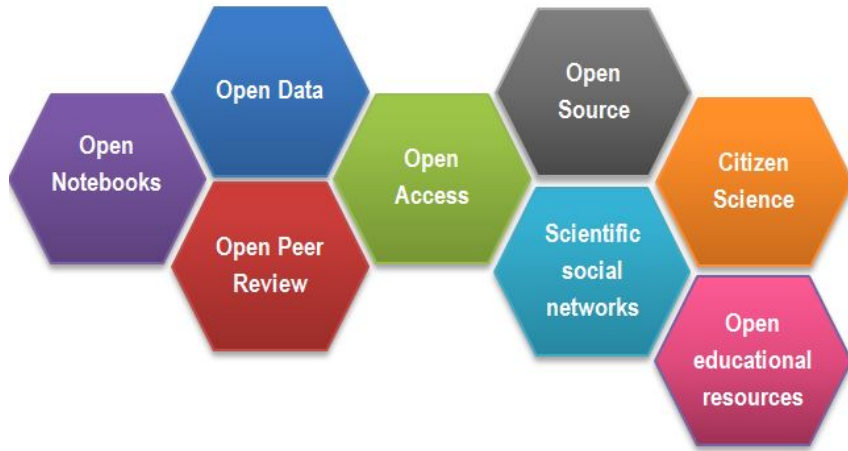
Profile (Highlights)

- **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

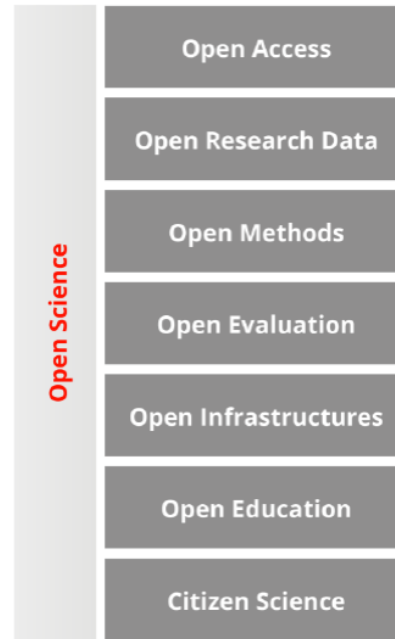
Recent projects

- The Role of Repositories in Horizon 2020 and Horizon Europe (forthcoming)
- 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)
- Open Science Policy Recommendations for Malta (PSF)

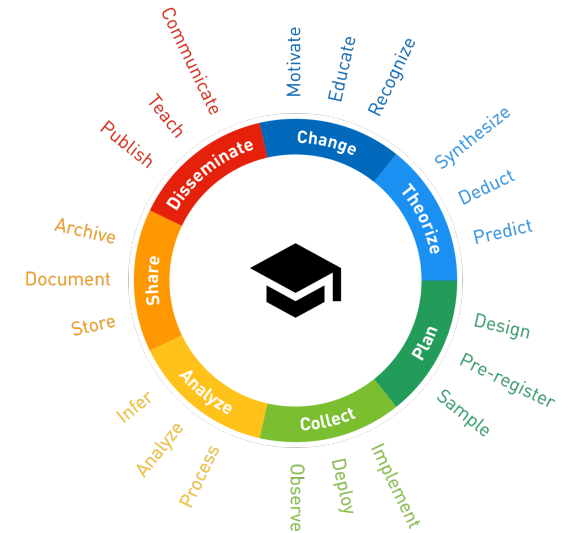




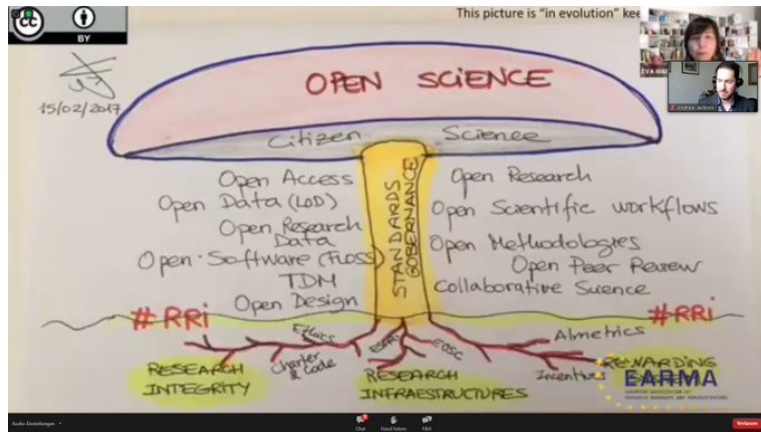
FOSTER Open Science



OANA



Open Science Knowledge Base



Eva Mendez

WHAT IS CONSIDERED PART OF OPEN SCIENCE?

IT DEPENDS ON WHO YOU ASK ...

OPEN ACCESS AS A CORE – BUT NOT THE ONLY PART OF – OPEN SCIENCE

OVERVIEW / RATIONALE

Open science, in particular open access scientific publications and data sharing, have sometimes been depicted as key assets in combatting the COVID-19 pandemic, in particular regarding the unprecedented speed at which vaccines have been developed. This report provides empirical evidence to explore whether and to what extent open science practices, most notably open access to publications and open research data have influenced the speed of COVID research.

This study was commissioned and funded by Frontiers. However, it reflects the view only of the author.

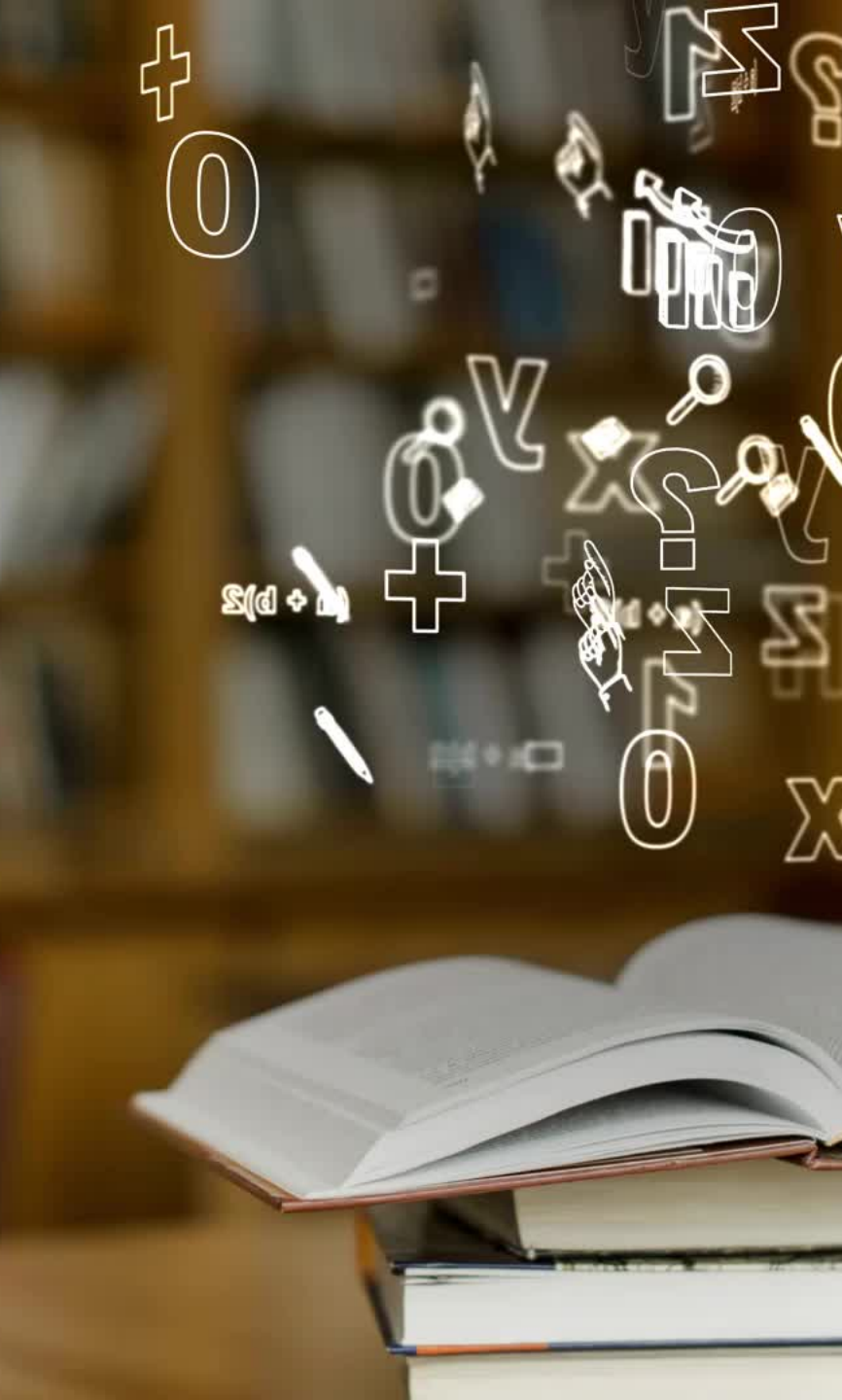
Two phases:

- Phase 1 – literature review (n112) and survey of COVID researchers (n208)
- Phase 2- qualitative interviews with six scientists

Providing different perspectives on the subject

1. LITERATURE REVIEW





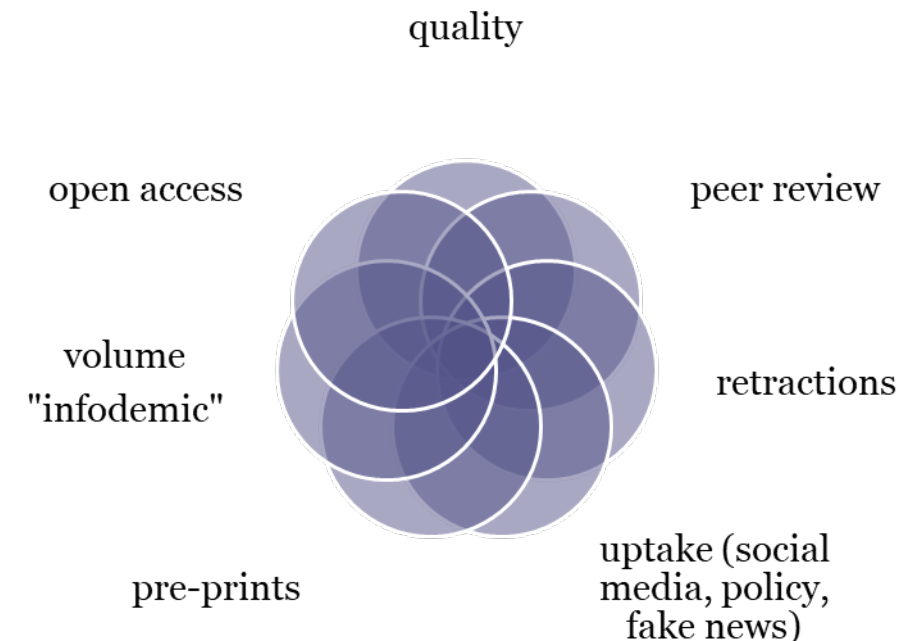
LITERATURE REVIEW OVERVIEW

- A google *scholar* search of scientific publications (N=112) with search terms related to “speed” and open science practices (open access / data sharing) provided interesting insights how “speed” sits at the nexus of a heated debate within the scientific community concerning the (potentially) systemic changes the production and dissemination of scientific knowledge in times of COVID has brought.
- Keywords: The Google Scholar search query was run with the key words “open science covid”, “open science covid speed”, “open access covid”, “open access covid speed”, “open data covid”, open data covid speed” “FAIR data covid”, and “FAIR data covid speed”

LITERATURE REVIEW KEY FINDINGS: SCIENTIFIC PUBLICATIONS

- Consensus that “there was a noticeably higher proportion of open-access articles on COVID-19 than during the past 5 years and on non-COVID-publications during the same period” (but some concerns regarding licencing).
- When discussing the speed of and to publication there is a consensus in the literature that this has increased tremendously.
- However, concerns about retractions (as an indication of poor quality), ability of peer review to cope and uptake in media reporting social media and policy. Problem of “infodemic”
- Co-dependence of OA/OD with other systemic issues, cannot be seen in isolation

Figure
speeding up scientific publications in
COVID times – key concepts in the
scientific literature



LITERATURE REVIEW QUOTES OPEN ACCESS PUBLICATIONS

“[t]he high-quality scientific journals were the last bastion to guide credible knowledge and strengthen decision-making. In other words, these high-quality journals were useful for distinguishing wheat from chaff. Nevertheless, with “publication fever”, authors, editors and reviewers all lose the control of their function”

“[p]olicymakers and the media were left to sift through these preprints and arbitrate which scientific results to disseminate and promote rather than relying on the normally robust system of peer review. Erroneous and potentially dangerous research was posted to preprint servers and promulgated by the media, resulting in many preprint papers being retracted”

“I believe that the retractions by the Lancet and the New England Journal of Medicine are symptomatic of subtle changes that have crept into the field of academic publishing over the past 60 years.”



LITERATURE REVIEW KEY FINDINGS: OPEN DATA & DATA SHARING

- Many critical of COVID-19 data sharing practices, with a low number of articles sharing underlying data. The quality of the data that is shared is considered by some to be “not always good and rarely FAIR”.
- However, several authors also offer recommendation on improving peer-review and/or data sharing as well as positive examples of such initiatives.
- Some authors also see the need to go beyond data sharing and open access to publications and embrace other components of open science, such as research assessment. This chimes in well with recent EU efforts in this regard.
- **Overall Conclusions:** some argue for traditional gatekeepers, some argue for more open science
- Input into survey

OPEN DATA & DATA SHARING – QUOTES DATA SHARING

“[t]he analysis of supplementary material showed that three-quarters of the documents were PDF and DOC, containing mostly textual or graphic materials complementary to the research, and a percentage that barely reached 10% (73 papers) were files with reusable data formats (xls and csv), which is equivalent to 1.2% of the 5,905 records published and analysed in this work.”

“[i]t has been observed that 19 out of the 24 journals contained in the emergency medicine category of Journal Citation Reports are also located in PubMed Central (PMC), yielding a total of 5983 articles. Out of these, only 9.4% of the articles contain supplemental material.”

“the most frequent problems encountered were unrepresentative data samples, high likelihood of model overfitting, and imprecise reporting of study populations and intended model use. There is an urgent need to balance the rapid dissemination of evidence to guide clinical decision-making with unbiased, high-quality models that truly benefit all populations in the COVID-19 era.”

II. SURVEY





SURVEY SAMPLE

- Sample mostly from a list of Frontiers authors dealing with COVID,
- 208 responses
- Overall response rate 3.59% by August 8, 2022.
- 34% of the respondents are from the medical sciences, 30% from social sciences and humanities and 29% from public health (7% other).

SURVEY RESULTS: PUBLICATIONS

Q5: In your research, how important was access to scientific publications as a contributing factor to the unparalleled speed of COVID research? (1 star not at all, 5 star very much so)

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
☆	0.48% 1	6.28% 13	13.53% 28	32.85% 68	46.86% 97	207	4.19

Answered: 207 Skipped: 1

- Importance of access to scientific publications for the speed of COVID research: 4,19 out of 5 stars (89% provided 4 or 5 star rating)
 - Percentage of COVID publications that respondents said were open to them: 72% (average)
 - Percentage of respondents satisfied with access to scientific publications: 82%
- = literature review and survey agree on success of OA to publications

SURVEY RESULTS – PUBLICATION SYSTEM

- In the survey, results related to peer review tended to be on the more positive side than in the literature review
 - 62% considered the effect of the increased speed of COVID publications on peer review as positive or very positive.
 - 73% strongly agreed or agreed that light of their experience with COVID research, there is a need to reform peer review
- Mixed attitudes emerged concerning the question on whether speeding up speeding up of COVID research has had a negative effect on the quality of research
 - 40% strongly agreed or agreed with this statement but 35% are undecided (“neither agree or disagree”) with 25% disagreeing strongly or disagreeing.

SURVEY RESULTS – DATA SHARING

Answered: 203 Skipped: 5

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
☆	2.46%	7.39%	22.17%	35.47%	32.51%	203	3.88
	5	15	45	72	66		

Q12: In your research, how important is access to scientific data as a contributing factor to the unparalleled speed of COVID research? (1 star not at all, 5 star very much so)

- Importance of access to data for the speed of COVID research: 3,88 out of 5 stars (68% provided 4 or 5 star rating)
 - Percentage of datasets that respondents said were open to them : 58%
 - Percentage of respondents satisfied with access to data: 64%
 - Percentage of respondents satisfied with data quality: 53%
- = A significantly lower satisfaction rating than for OA to publications, but more positive views than in the literature review
- 67% strongly agree or agree that the COVID pandemic has improved data sharing practices. However, a big majority (90%) also sees the need to further improve data sharing practices.

SURVEY RESULTS – OTHER OPEN SCIENCE

- A “super majority” of 93% strongly agrees or agrees that scientific information (publications/data) produced by public funding are a common good and should therefore be available as open as possible.
- 71% strongly agree or agree that open science practices beyond open access to publications and data sharing are necessary.
- Specifically, 79% strongly agree or agree that changing the way we assess researchers and research projects is important.
- When asked whether the scientific system has worked well addressing the COVID pandemic (Scale 1: not at all, 5 very much so) the weighted average from the respondents is 3,63%.
- 68% agree with the statement that we need more open practices to ensure the quality of research and only 18% agree with the statement that we need traditional gatekeepers to ensure the quality of research – shows an overall progressive mindset of respondents (Frontiers’ authors)

CONCLUSION SURVEY

- The survey shows that a large majority of the respondents was satisfied with access to COVID relevant literature and in this regard the activities by funders and policy makers can be considered a success (although this may be undermined by publishers removing open access in the post pandemic era).
- The measures taken to speed up peer review were controversially discussed in the literature; in the survey speeding up peer review of COVID related literature was seen in a positive light and the survey participants saw a need to continue reforming peer review. Respondents were rather split on the question whether speeding up the production of knowledge had negative effects on the quality of research, another issue hotly debated in the literature.
- As concerns access to COVID data respondents were by and large also satisfied, although the percentage of those very satisfied and satisfied is significantly lower than for access to publications. While two thirds of respondents agreed that the COVID pandemic has improved data sharing practices, an even larger percentage (91%) see the need to further improve data sharing practices.

CONCLUSIONS

Importance of OS for speed of COVID research

Open Science element	weighted average	Respondents allocating 4 or 5 stars
OA publications	4,19	80%
Open data	3,88	68%

- Concerning the importance of open science as a contributing factor to the unparalleled speed of COVID research respondents ranked the importance of open access to publications significantly higher than open access to research data
- Generally, the results of the survey provide an important corrective to the literature review, in which many authors were more sceptical about open science practices in tackling COVID.
- Since the majority of survey respondents were drawn from Frontiers authors, this may indicate that this group in itself has a more open science attitude. Conversely, authors writing medical editorials (as covered in the literature review) may be of a conservative nature.

INTERVIEW



- Interview 1: male, United States Associate Professor, Neuroscience & Cell
- Interview 2: male, Indonesia Universitas Gadjah Mada, Genomic Surveillance of SARS-CoV-2
- Interview 3: male, Germany Director General, European research infrastructure
- Interview 4: female, United States, Independent Nurse Researcher
- Interview 5 male, Serbian Associate Research Professor (Senior Research Associate) Immunology and Immunoparasitology, COVID project on cellular immune response
- Interview 6 male, Norway Professor Faculty of Health and Social Sciences, responsible for microbiology, epidemiology, and infectious disease control

QUALITATIVE INTERVIEWS – KEY RESULTS

- While open access publications have been critical for the development of knowledge around COVID-19 during the pandemic, there are still limitations in accessing scientific literature in some contexts, which can create inequities in the dissemination of knowledge.
- The interviewees had quite different opinions on the value of pre-prints, the peer-review process, and the role of speed versus quality in scientific research during the COVID-19 pandemic. However, they all acknowledge the importance of ensuring that scientific research during the pandemic is reliable and properly vetted.
- Most interviewees agreed that data sharing was crucial for COVID-related research, but almost all also pointed out that there was room for improvement in terms of accessibility, quality, and legal frameworks for sharing across borders.

QUALITATIVE INTERVIEWS – KEY RESULTS

- Interviewees agreed with the need to change the culture around acknowledging data sharing and the traditional system of assessing scientific work based on the number of publications or the prestige of the journal, and two of them criticised high article processing charges.
- As regards the effectiveness of the scientific system in tackling COVID, reactions were mixed: some interviewees expressed negative opinions on the handling of data and one flagged censorship during the pandemic, while others highlighted successful collaboration and sharing of data.
- As regards their final thoughts on open science and the speed of COVID research some of the interviewees provided a range of reflections, including the need to apply efforts made for COVID-19 to other diseases, the importance of speeding up funding processes, and the likelihood of pre-print services and platforms to become more popular.

IV. CONCLUSIONS AND POLICY IMPLICATIONS



CONCLUSIONS AND POLICY IMPLICATIONS

- Results confirm some key findings from similar studies (e.g. RoRI, OECD, Wellcome)
- Study shows a **science system that is still in transition**: while there is some consensus on open access to publications (COVID actions a success) and data sharing (and the need to improve it), other aspects (e.g. pre-prints) are more controversial
- While the actions to open knowledge taken during the pandemic (such as the Joint Statement) have given open science a boost, it is too early to declare the open science mission as accomplished.
- We need to ensure that the progress that was made is “built to last”: vigilance against backsliding (e.g. closing publications that were made open during COVID) will also be required.
- We face new barriers (geopolitics) but also new initiatives in creating a fairer open access world (EU, US-Nelson Memorandum, UNESCO Recommendation, COARA etc)
- Implementing open science is a marathon, not a sprint.

CHANGING THE CULTURE

- new initiatives: [coalition to reform research assessment](#). - key to properly incentivizing open science practices but needs to go global (e.g. US “year of open science”).)
- New focus “Beyond gold and green OA”. e.g. cOAlition S [projects on diamond open access](#), Open Research Europe etc.
- Making Culture Change Happen: make open science required, make it rewarding, make it normative, make it easy and make it possible .



<https://www.csescienceeditor.org/article/toward-open-science-contributing-to-research-culture-change/>

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.>

COALITION FOR ADVANCING RESEARCH ASSESSMENT

- Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.
- The process of drafting an Agreement on reforming research assessment was initiated in January 2022. More than 350 organisations from over 40 countries were involved (find the current count of member organisations [here](#)). Organisations involved included public and private research funders, universities, research centres, institutes and infrastructures, associations and alliances thereof, national and regional authorities, accreditation and evaluation agencies, learned societies and associations of researchers, and other relevant organisations, representing a broad diversity of views and perspectives.
- <https://coara.eu/>



EU COUNCIL CONCLUSIONS MAY 22-23, 2023

The logo for Sweden 2023.eu, featuring the word "sweden" in yellow and "2023.eu" in white on a dark blue background.

sweden
2023.eu

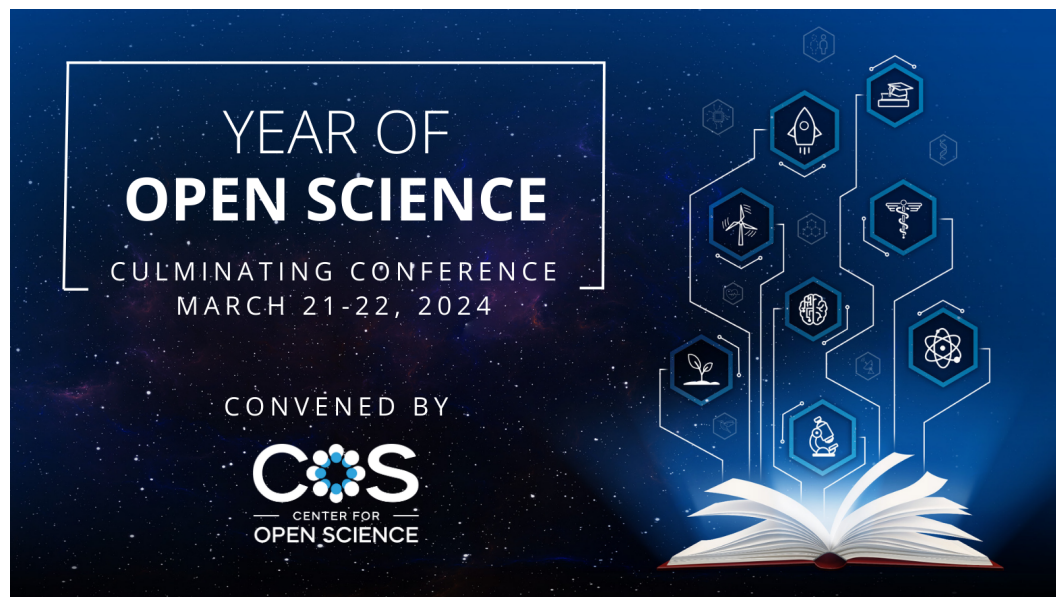
- the Council calls on the Commission and the member states to **support policies towards a scholarly publishing model that is not-for-profit, open access and multi-format, with no costs for authors or readers.**
- Some Member States have introduced **secondary publication rights** into their national 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.

<https://www.consilium.europa.eu/en/press/press-releases/2023/05/23/council-calls-for-transparent-equitable-and-open-access-to-scholarly->

THE OPEN SCIENCE FUTURE IS ALREADY HERE – OR: POCKETS OF OPEN SCIENCE EXCELLENCE


“The future is already here – it's just not evenly distributed.”

William Gibson, *The Economist*, December 4, 2003”



YEAR OF
OPEN SCIENCE
CULMINATING CONFERENCE
MARCH 21-22, 2024

CONVENED BY



COS
CENTER FOR
OPEN SCIENCE

The banner features a dark blue background with a glowing circuit-like pattern of hexagons containing various scientific icons (rocket, microscope, atom, etc.) rising from an open book at the bottom.

<https://www.cos.io/yos-conference>



GLOBAL SUMMIT ON
DIAMOND OPEN ACCESS

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EQUIDADE
SOSTENIBILIDAD
USABILITY
QUALITÉ

23-27
OCT 2023
TOLUCA, MEXICO

Registration now available
<https://globaldiamanttoa.org>

The banner has an orange background with a decorative floral pattern. It includes logos for various organizations and the text 'EQUIDADE SOSTENIBILIDAD USABILITY QUALITÉ'.

<https://globaldiamanttoa.org/>



BRINGING THE STAKEHOLDERS TOGETHER – CHALLENGE AND OPPORTUNITY

Researchers and Scientists

Research Performing Organisations (RPO)

Publishers

Research Funding Organisations (RFO)

Policy Makers

Libraries

Technology Providers (IT)

Industry and Private Sector

Media

Research Managers and Administrators

Civil Society and General Public



(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 compliance mechanisms and sanctions from funders



(iv) incentives



(v) support mechanisms.

5 ACTION AREAS FOR AN OPEN SCIENCE WORLD

THE SCIENCE SYSTEM IS A SUPER TANKER...



IT TAKES A WHILE TO TURN...



QUESTIONS
AND
DISCUSSION



KEY MESSAGES IN A NUTSHELL

- i. Access to scientific publications was a very important factor contributing to the speed of COVID research. Although the majority was satisfied with the level of open access to COVID publications, some limitations remain.
- ii. Open data and data sharing was also considered important for the speed of COVID-related research but less so than open access to publications. Only a narrow majority was satisfied with the quality of available COVID data, and many pointed out that there was room for improvement in terms of accessibility, quality, and legal frameworks for data sharing across borders.
- iii. The value of pre-prints, the current state of peer-review, and the role of speed versus quality in scientific research were seen as closely connected to open access and the speed of COVID research and were controversially discussed. The lack of overall consensus shows a scientific system still in transition towards open science.
- iv. The actions to open up knowledge taken during the pandemic (such as the Joint Statement) have delivered a boost towards achieving open science but should not be considered a silver bullet. In the post COVID era we need to guard against backsliding and continue to make progress by addressing remaining challenges. In the end, implementing open science is a marathon, not a sprint.
- v. Download at <https://zenodo.org/records/10550343>



LET'S STAY IN
TOUCH



Thank you for your attention

I offer expertise and training on

- EU Open Science Policies & their implementation
- EU Research Policy & links to digitalisation
- Horizon Europe proposal development