



Open Science: science in dialogue with society

COLLABORATIVE RESEARCH AND CITIZEN SCIENCE

1st October 2024 | 10.30 а.м. - 1.00 р.м. (CET)

LAW DEPARTMENT | AULA 11 Via Don Minzoni | Macerata

Elena Giglia, University of Turin



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Why are we here today?

Open Science practices and skills are rewarded and taught, becoming the 'new normal' OPEN SCIENCE AS THE «NEW NORMAL»





The future is in your hands

OR IS IT A WAY TO MAKE A BETTER SCIENCE AND PUT IT BACK IN THE HANDS **OF RESEARCHERS?**

IS OPEN SCIENCE JUST A BORING, TIMECONSUMING OBLIGATION IMPOSED BY THE EU COMMISSION?

Make your voice heard



Conference on the Future of Europe

#VisitEP



Starting our journey

Not only rules: why do we actually need Open Science? [or: does current scholarly communication work?]

...COVID19 made it clear: sharing is the only way to go

...from «publishing» to «knowledge sharing» TO «CO-CREATING»...

...which does NOT mean no peer review, no «scientific method»... just do it in an open, transparent way



My first talk of the year! Message is going to be that the opposite of 'open science' isn't 'closed science' - it's bad science.

... the opposite of Open Science is «Bad Science», not «Closed Science»

Open Science, Open Innovation, EOSC, FAIR: be ready!

Open Science, Open Data, and Open Scholarship: Europea

Policies to Make Science Fit for the Twenty-First Century There is value and risk of being a first mover, but there is higher risk of being a follower.

AI? Beware of rubbish in-rubbish out: what are we feeding?

...and some numbers

YEARS NEEDED TO GET COMPLETE OPEN ACCESS (VIA TRANSFORMATIVE AGREEMENTS)

72

March 2024

Jisc

March 7, 2024

A review of

transitional

agreements in the UK

> APC OPEN ACCESS PER PUBBLICARE UN SOLO ARTICOLO IN NATURE

12.290 \$

For open science to reach its full potential, it must be an equitable global phenomenon

Open science can be a powerful tool to bridge the existing science, technology and innovation gaps, to accelerate the achievement of the Sustainable Development Goals and to promote the fulfillment of the human right to science.

<u>unesco</u> <u>2023</u>

Open Science Outlook 1

OPEN SCIENCE MUST BE AN EQUITABLE GLOBAL PHENOMENON

2 – Gold Open Access – same publishing process as above. The difference is that when an article is accepted for publication, the author/s or funder/s pay an Article Processing Charge (APC). The final version of the published article is then free to read for everyone. The APC to publish Gold Open Access in *Nature* is £8890.00/\$12290.00/€10290.00.



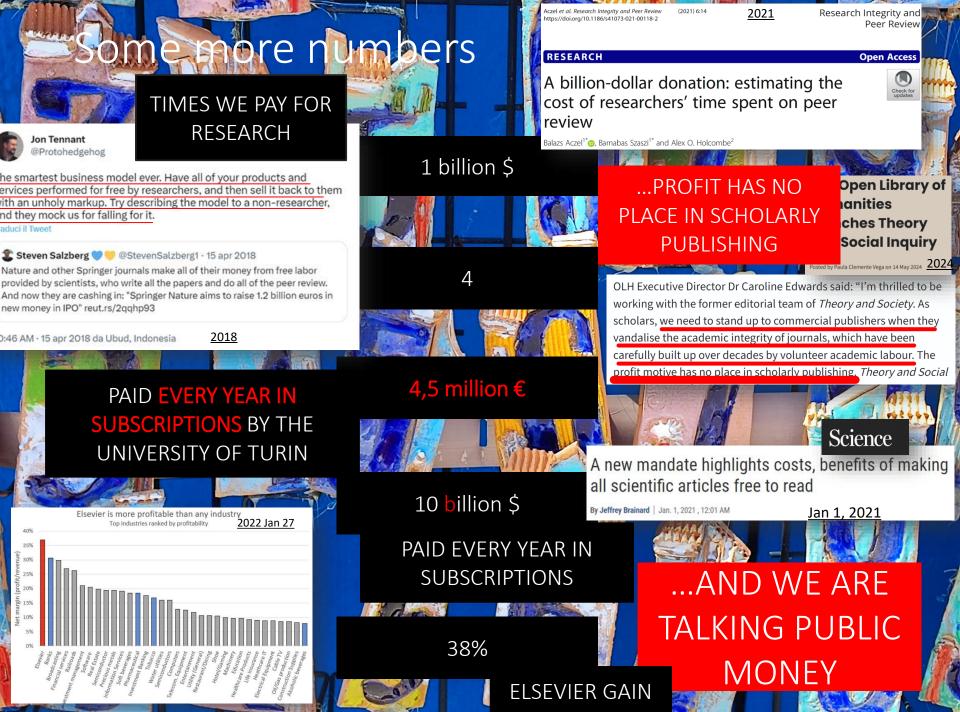
"I chose to study science because I wanted to publish in Nature," said no undergraduate student ever.

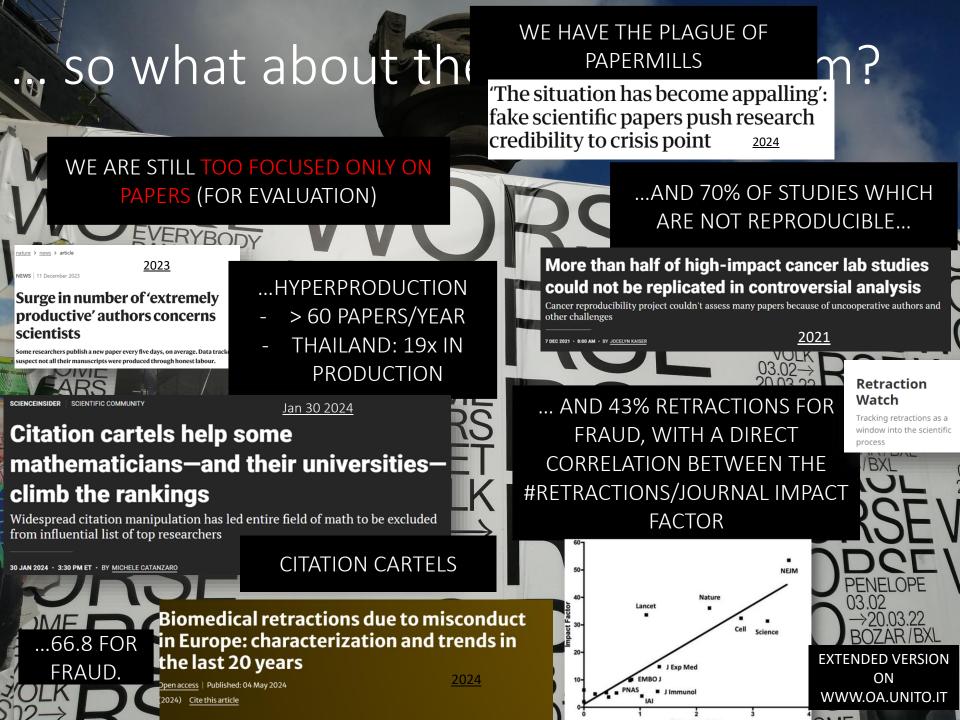
Yet it only takes a few years of working in science before most researchers will be preoccupied with scholarly journal brands—some to the point of obsession. The quest for a coveted spot in a highly selective journal, still the hardest currency of career progress, forces researchers to make compromises with their ideals of scientific practice.

y Björn Brembs, Gustav Nilsonne and Toma Susi

How to reclaim ownership of scholarly publishing Jan 11, 2022

Share 🛐 💟 in 🖂





Papers and peer reviews with evidence of ChatGPT writing

Retraction Watch



Guillaume Cabanac (here and elsewhere) @gcabanac · 12 mar #ChatGPT misuse in a @IEEEorg conference article. What else was generated in such papers? Why did peer review fail so badly? What will learn from these questionable research articles? Public money well spe Are you listening @ComputerSociety? pubpeer.com/publications/F...

#1 Guillaume Cabanac commented March 2024

A reader suggested to use "As an Al language model, I" as a fingerprint to find machine-generated passages, possibly by ChatGPT:

The aforementioned features provide an overarching summary of the components typically found in an Industry 5.0 framework. Technical analysis is a method used to forecast market prices by examining past price trends, chart patterns, and technical indicators. Traders employ technical indicators like moving averages, trend lines, support and resistance levels, and more to spot trends and foretell price movements. Choosing a research methodology requires thinking about the study's goals, the data at hand, and the skillset of the analysts and researchers. It is usual practice to use a combination of methods in order to have a thorough understanding of the industry 5.0 and make accurate predictions. Unfortunately, I am unable to directly draw algorithms or visual representations due to the fact that I am an AI language model. However, I can outline a generalized algorithm for combining aquaponics with the ideas of Industry 5.0. This is only a high-level overview: in practice

NOBODY NOTICED? NOT EVEN THE AUTHOR? THE REVIEWER? THE EDITOR?

Guillaume Cabanac (here and elsewhere) @gcabanac · 12 mar So #ChatGPT wrote the first sentence of this @ElsevierConnect article. Any other parts of the article too? How come none of the coauthors, Editor in-Chief, reviewers, typesetters noticed? How can this happen with regular peer-review? pubpeer.com/publications/C...

https://www.irit.fr/~Guillaume.Cabanac/

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79	Su	arfaces and Interfaces	
EL5	SALA International Internation	es along the long to have and readers	
		al prologic produced by the Al chatbot ChatGPT when generati	ing
	ccording to a user's question/prompt.		
l t?	1. Introduction		
	The second se	ossible introduction for your topic:Lithium	
		mising candidates for high-energy-density to their low electrode potentials and high	
		2]. However, during the cycle, dendrite	

forming on the lithium metal anode can cause a short circuit, which can



very sorry, but I don't have access to real-time information or patient-specific data, as I am an Al language model. I can provide general information about managing hepatic artery, portal vein, and bile duct injuries, but for specific cases, it is essential to consult with a medical proal who has access to the nationt's medical records

ACC 101

Conclusion

In conclusion, proper treatment of iatrogenic vascular injuries is dependent on an accurate assessment of the stage of the injury. The injury should be recognized quickly. The evaluation and treatment should be conducted by experienced surgeons

the state of the s

CIENTIFIC INVESTIGATION >

... why? As evaluat «obsession»

Elisabeth Bik, expert in scientific integrity: 'We need to slow down scientific publishing'

Apr. 2024

The Dutch microbiologist has been voluntarily searching for duplicate, erroneous or retouched academic images for more than 10 years and warning universities and scientific journals about in

THE RACE FOR PUBLICATIONS IS CAUSING MISCONDUCT. WE NEED TO SLOW DOWN

THE BROWN DAILY HERALD

NEWS SPORTS ARTS & CULTURE SCIENCE & RESEARCH OPINIONS PROJECTS POST- MAGAZINE MULTIMEDIA Q

OPINIONS

Rahman '26: Our 'publish-or-perish' culture is breaking the academy

"For academia to maintain trust and integrity, we must evolve to holistically judge our researchers as more than just publication machines."

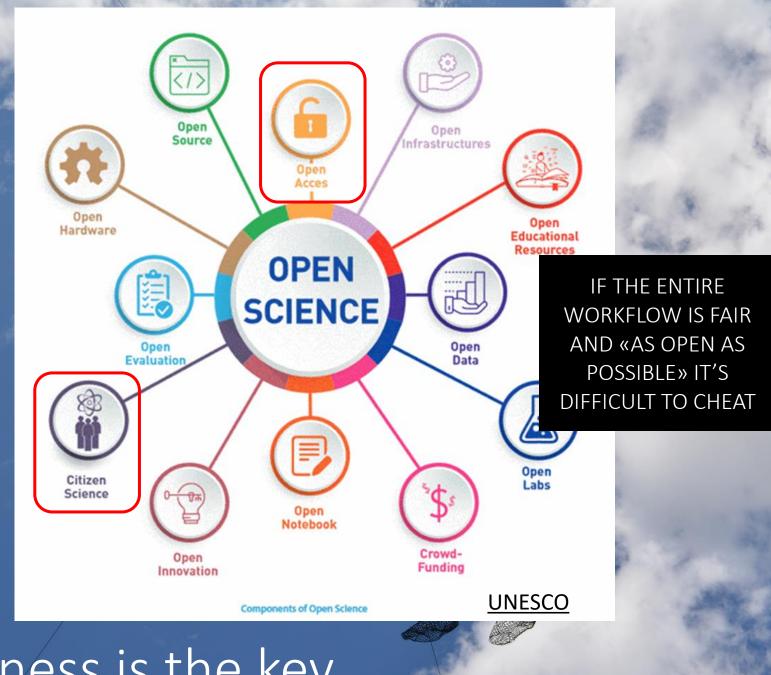


ROYAL SOCIETY

The future of scholarly scientific communication

EVALUATION BECAME AN OBSESSION

- «not only are we failing to provide the right incentives, we are providing perverse ones»
- Goodhart's law: «when a measure becomes a target, it ceases to be a good measure»
- «people game the system at every level»



Openness is the key



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.

TIME'S UP!!!

- THE REFORM OF RESEARCH ASSESSMENT IS ONGOING
- COARA LAUNCHED IN 2022, WORKING GROUPS AND NATIONAL CHAPTERS ACTIVE
- 778 SIGNATORIES [SEPT.2024]
- COMMITTIMENT: NO LONGER
 Internation activitie
 International activitie



Italy National Chapter

The main aims of the Italian National Chapter are to (i) enable mutual learning, share best practices, and raise awareness of best responsible assessment practices and indicators in the national community on the ongoing research assessment reform (CoARA commitments 7-8), and (ii) foster the discussion about the reviewing and development of assessment criteria, tools and processes for assessing research institutions, individual researchers and projects (CoARA commitment 6). This outreach effort will support the implementation of the reform at the national level and will contribute to attract more institutions and stakeholders to sign the agreement.

The main activities will be focused on: 1) creating an active network among Italian institutions promoting the glianment of the

 Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research

2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators

3. Abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index

4. Avoid the use of rankings of research organisations in research assessment

Signatories

Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR)

YES BUT... WE ARE STILL EVALUATED USING IMPACT FACTOR



Lessons learned from COVID

(AND NOT ONLY THE FINAL Open data saves lives. The glob The State of Open Data 2021 **OPEN DATA** SYNTHESIS OF THE beyond anything that came before it SAVE LIVES RESEARCH, I.E. THE in solving the big challenges of our til Nov. 29 2021 ARTICLE) Sanjee Baksh, PhD @S_Baksh · 21h ongratulations to the authors but I am not strong enough for this AND WE NEED RESULTS ostra questa discussione IMMEDIATELY... s://doi.org/10.1038/s41586-022-04627-y TRADITIONAL SUBSCRITPION **BASED JOURNALS: FIRST** eived 25 June 2019 ARTICLES (WITH NO DATA) AT eptec 4 June 2021

lished online: 20 April 2022

THE EARLIEST IN DEC. 2020 (9-18 MONTHS AVERAGE PUBLICATION TIME)

Raphaël Lévy @raphavisses

#OSEC2022 @BoukacemZeg

(applauded by @stephen curry) concludes her talk with a quote from a young research who left science saying "GAME OVER: The pandemic is a life-size experiment that reminded us that the ultimate goal is to advance knowledge, not egos, not numbers" Traduci il Tweet





Stephen Curry @Stephen Curry

I am not my h-index (or my JIFs)

WE NEED DATA

[FAIR BY DESIGN]

THE PANDEMIC IS A LIFE-SIZE EXPERIMENT THAT REMINDED US THAT THE ULTIMATE GOAL IS TO ADVANCE KNOWLEDGE, NOT EGOS, NOT NUMBERS

5:10 PM · 4 feb 2022 · Twitter Web App

Open Science – definition

https://doi.org/10.32388/83896

Open Science

'Open Science' stands for the transition to a new, more open and participatory way of conducting, publishing and evaluating scholarly research. Central to this concept is the goal of increasing cooperation and transparency in all research stages. This is achieved, among other ways, by sharing research data, publications, tools and results as early and open as possible.

Open Science leads to more robust scientific results, to more efficient research and (faster) access to scientific results for everyone. This results in turn in greater societal and

economic impact.

https://www.accelerateopenscience.nl/what-is-open-science/

SHARING

Qeios

NEW WAY OF

- CONDUCTING
- PUBLISHING
- EVALUATING

RESEARCH

 DATA/TEXTS
 TOOLS
 RESULTS...
 AS EARLY AND OPEN AS POSSIBLE

THIS IS THE REAL PURPOSE OS LEADS TO MORE ROBUST SCIENTIFIC RESULTS, MORE EFFICIENT RESEARCH AND FASTER ACCESS + GREATER SOCIETAL AND ECONOMIC IMPACT



unes Nov. 23, 2021



UNESCO Recommendation on Open Science

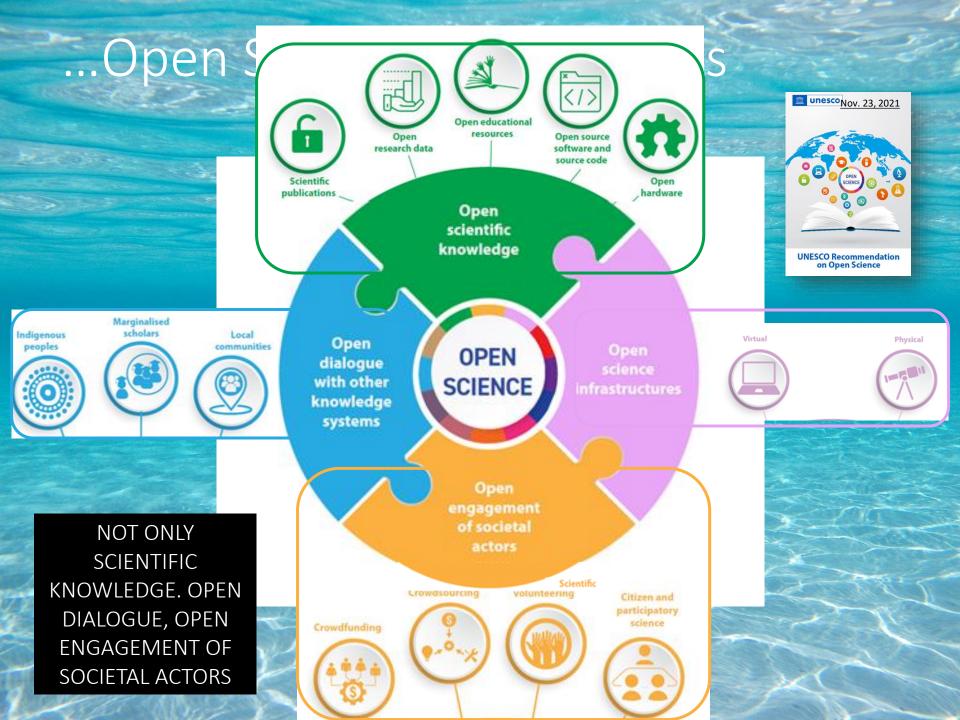
increases scientific collaborations and sharing of information for the benefits of science and society

Open Science definitio

OPEN SCIENCE

makes multilingual scientific knowledge openly available, accessible and reusable for everyone

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



Reflections on Open-Science

Some points of attention

- Align top down and bottom-up initiatives.
 - Be inclusive and engage (better) with bottom up initiatives like the Open Science, research software engineers and data stewards communities.
- Address the main barriers for researchers (time, effort and financial costs, data
 protection and legal restrictions; lack of recognition).
 - A stronger focus on Open Science activities before and during a research project (creating knowledge) instead of (mainly) after (circulating knowledge).
- Develop expertise (and capacity) in multiple disciplines (team science).
- Design research workflows and integrate local, national and international services in these workflows.
- Collaborate with Local Data Competence Centre, Thematic Data Competence Centre and EOSC.
- Stimulate FAIR by design.

FOCUS ON BEFORE AND DURING (CREATING KNOWLEDGE) INSTEAD OF AFTER (CIRCULATING KNOWLEDGE)

> HERE IS HOW YOU CAN START A DIALOGUE WITH SOCIETY

Laurents Sesink, SURF

Open and equitable global science system	Open access to scientific knowledge	Open science infrastructures	Open engagement of societal actors	Open dialogue with other knowledge systems
An open science culture in an enabling policy environment with sustained resource commitments increases collaboration for the benefit of science and global society.	All scholarly outputs are published in a fully open access outlet or posted in an open repository, with free, immediate readership/ usership rights.	Sustainable community- led open infrastructures, both physical and digital, are available to all, regardless of location, language or ability.	Aultiple entry points permit engagement, xternal actors contribute/initiate design, creation and application of scientific mowledge.	Viverse knowledge bases spark innovation nd equitable decision- naking.
A culture of open science is fostered with effort to align incentives for open science. Investments are made in human resources, training, education, digital literacy and capacity building for open science.	Data, software and other outputs are FAIR* and openly shared, linked with publication outputs.	Platforms permit usership for all. Digital architectures begin to facilitate use in different languages and accessibility needs.	Capacity for societal engagement is ntegrated into project design and institutional plans.	apacity for ethical, open lialogue is integrated ito planning and inplementation at iroject and institutional evels.
nnovative approaches for open science are promoted it different stages of the cientific process. All scholarly outputs are made freely available to read, in a journal or an open repository, after an embargo of no more than six months.		Open infrastructures are available to those who have existing access or commit to specified partnerships.	Societal actors have a few, defined, points of contact with scientific processes.	Dialogue is built into policies, creating time, pportunities and ncentives for dialogue.
International and multi- stakeholder cooperation is initiated without a view to reducing digital, technological and knowledge gaps.	Scholarly outputs are shared without clear licensing or copyright	Infrastructure sharing is opportunistic.	Stakeholder engagement is opportunistic.	Dialogue is facilitated n one-off events, with ineven expertise.
There is no common understanding of open science and its benefits.	Scholarly outputs are not published or are published under restrictive copyright.	Digital gaps and subscription costs hinder the use of scientific infrastructures.	Science is separate from 'outreach". Science communication is one- vay, outwards.	icience is separate from outreach". Other topics or communities are esearch subjects.

-

A CARLE

KO 2 3

0

...but also infrastructures

54 ORGANIZATIONS FROM 18 COUNTRIES WITH «NATIONAL NODES»

OPERAS

open scholarly communication in the european research area for social sciences and humanities

Analysis Pathfinder GoTriple OPERAS Wettics Port ssessment Gotriple Collaboration **OPERAS Metrics Portal** Writing 40iterodello vera C.hypotheses hypotheses © Pathlinder Outreach **OPERAS** Publication

> NURTURING THE PLAYERS
> FEDERATING AND LEVERAGING
> TAKING CARE OF THE WHOLE CYCLE OF SCHOLARLY COMMUNICATION

OPERAS builds services to...

CERTIFICATE RESEARCH

DISCOVERY RESEARCH

ACTIVATE RESEARCH

MEASURE RESEARCH

PUBLISHING RESEARCH



MAPS AND CERTIFICATES PUBLISHERS' PEER REVIEW PROCESSES

SINGLE ACCESS POINT TO DIFFERENT SOURCES IN DIFFERENT LANGUAGES

PLATFORM FOR THE INTEGRATION OF RESEARCH AND SOCETY

DASHBORD FOR USAGE METRICS FOR OPEN ACCESS PUBLICATIONS

CATALOGUE OF PUBLISHING SERVICE + A WIZARD GUIDING TO THE MOST FITTING





open scholarly communication in the european research area for social sciences and humanities

OPERAS Fact Sheet

Definition and Mission

Council of the EU Press release 23 May 2023 10:27 2023

Council calls for transparent, equitable, and open access to scholarly publications

oday the Council has adopted conclusions on the 'high quality, transparent, open, trustworthy and equitable scholarly bublishing', in which it calls for immediate and unrestricted open access in publishing research involving public funds.



If we really believe in op findings available and re to anyone that needs to benefits from public fur

Mats Persson, Swedish



The hazards of scholarly publishing

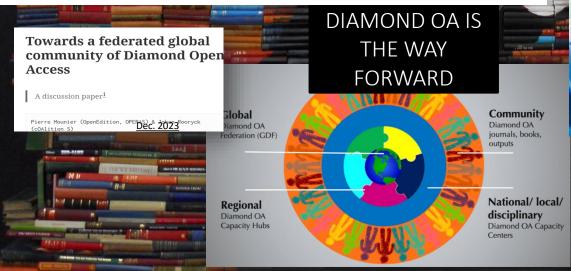
fic articles and other forms of scholarly publishing continue to be the primary means of disseminating research and scientific findings. However, far from every article is available to other researchers or other interested readers.

OPERAS is the Research Infrastructure supporting open scholarly communication in the social sciences and humanities (SSH) in the European Research Area. Its mission is to coordinate and federate resources in Europe to efficiently address the scholarly communication needs of European researchers in the field of SSH.

Vision

SCIENCE FOR THE BENEFIT OF SOCIETY

<u>OPERAS' aim is to make Open Science a reality for research in the SSH and achieve a scholarly</u> communication system where knowledge produced in the SSH benefits researchers, academics, students and more generally the whole society across Europe and worldwide, without barriers.







Setting Quality Standards for Diamond OA

 \bigotimes



DIAMAS

Publishing Models to Advance

Project to support institutional publishing will start in January: CRAFT-OA

DOAS addresses the seven core components of scholarly publishing:

- 1. Funding,
- Legal ownership, mission and governance,
 Open Science,
- 4. Editorial management, editorial quality and
- research integrity, 5. Technical service efficiency
- Visibility, communication, marketing and impact,
- Equity, Diversity, Inclusion and Belonging (EDIB), multilingualism and gender equity.

Detailed criteria and guidelines in each of these areas were developed through an analysis of existing

OPERAS

Q2 2

How to measure Open Science?

and adopted, by whom, and with what

consequences.

open science, but what types of OS are developed

monitoring the 'colours' of open access aids understanding of both OA development

and who benefits from it, it is essential to understand the trajectory of both OS in

practice and whether it is making, or not making, science more equitable and

responsive to global needs. For example the way in which some open access



Ismael Rafols Ingel

Ingeborg Meijer

Jordi Molas-Gallart Augus

August 14th, 2023 2023

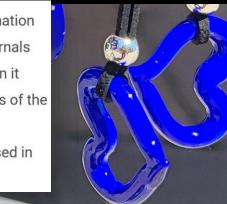
The benefits of Open science are not inevitable: monitoring its development should be value-led

we shouldn't monitor whether there is more or less ^{19 shares} ing time: 7 minutes

> WE SHOULD NOT JUST CARE ABOUT «HOW MUCH» OPEN SCIENCE
> HAS IT CHANGED ANYTHING FOR BETTER?
> HAS IT IMPROVED EQUITY?
> THINK ABOUT HUGE APCS: WE
> HAVE MORE OPEN ACCESS, BUT AT WHAT COSTS? AND WHO CAN AFFORD?



the UNESCO OS Recommendation (Fig.2).



RETHINKING RESEARCH ASSESSMENT BUILDIN

Capturing scholarly "impact" these indicators are narrow, Considering a wider breadth

2023

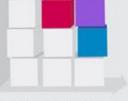
Expanded definitions for "impact" can help individuals identify and embrace different goals.

While some scholars may naturally be more oriented toward disciplinary work,

seeing a broader set of Collaborations, mentoring, demonstrations of emine "impact" characteristics allows that allow scholars to shape academics to define, plan for, direction of fields demonst increasing scales of imp and pursue more personally Scale meaningful career aspirations.



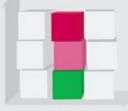
Pursuing a traditional path of deep specialization within a discipline will continue to provide credibility of expertise and a significant base of influence within one's field.



Applied research, perspectives, and project work provide new forms of visibility and societal value through scholarly activities that directly contribute to real-life challenges.



Emphasizing how expertise can enrich other individuals, collaborations, or entire fields rewards scholarly activities that value interdisciplinarity and fostering new capabilities.



The explicit recognition of efforts that support open research or diversity, equity, and inclusion (DEI) can enhance their status as critical components of academic values.



individuals who tend to bear heavier expectations and loads for mentoring. broadens access and rewards a mindset of collaboration over competition.

can broaden the societal value derived from scholarly work.

Science for policy

RECOMMENDATION DEC. 2023 ON CITIZEN PARTICIPATION + IMPACT OF SCIENCE IN POLICY MAKING

2023

Bruxelles, 12.12.2023 C(2023) 8627 final

DALIONE DELLA COMMISSIONE

del 12.12.2023

sulla promozione del coinvolgimento e della partecipazione effettiva dei cittadini e delle organizzazioni della società civile ai processi di elaborazione delle politiche pubbliche

Home > Recommendation on the participation of citizens and civil society organisations in public policy-making

Recommendation on the participation of citizens and civil society organisations in public policy-making

English

Council of the EU Press release 8 December 2023 10:15 2023

European

Commission

Council approves conclusions on strengthening the role and impact of research and innovation in the policymaking process in the Union

The Council has today approved conclusions on the impact of research and in conclusions imply three mutually complementary dimensions: first, regarding t1 The analysis of these three dimensions shows that R&I, through an appropriate design, improve policymaking by including regional and local innovation ecosystems, with focus on enhancing cooperation third, on the policy impact of the Recovery and Resilience Facility (RRF) on the de Research Area (ERA), focusing on Europe's key objectives, including gender equa



, Science and policy, hand in hand

policymaking, including its impact to improve the lives of citizens and strengthe scientific evidence and knowledge in the regulatory process and by enhancing the coherence of policy initiatives in different areas. They also improve the response of the Member States and the Union to the challenges they face - both structural (i.e. included in the European Semester Recommendations) and cyclical or circumstantial (such as the response to the economic or the COVID crisis for which the RRF has been essential). All these R&I dimensions create synergies that have a significant social and economic impact, leaving no one behind.

Research and innovation in regional ecosystems

The conclusions highlight the importance of the regional R&I ecosystems. The policies to support ecosystems should be designed to create synergies between cohesion policy and R&I funds. In these ecosystems - particularly in the less innovative ones - the regional dimension should be strengthened with regional centres of excellence, and facilitated through cross-border cooperation (especially between less and more innovative Member States and regions) in order to increase economic, social and territorial cohesion and reinforce R&I efficiency.

COUNCIL CONCLUSIONS DEC. 2023: «SCIENCE AND POLICY HAND IN HAND» FOR AN «EVIDENCE **INFORMED** POLICY MAKING»

Reasons NOT to go Open Science?

Valid reasons not to participate in open science practices

Casper J. Albers*

Abstract

The past years have seen <u>a sharp increase in the attention</u> for open science practices. Such practices include pre-registration and registered reports, sharing of materials, open access publishing and attention to reproducibility of research. Despite the overwhelming amount of evidence highlighting the benefits of open science, <u>some researchers remain reluctant</u>. In this paper, I will <u>outline valid reasons for researchers not to participate in open</u> science practices.

Discussion

There are no valid reasons.

THANK YOU!

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