Publisher's Perspective on Open Access

March 2, 2023

Moderator: Kristin West, *Director, Research Ethics & Compliance, COGR*

Speakers:

Jennifer Griffiths, *Head of Academic Affairs, North America Springer Nature*

Alfredo Morabia, *Professor of Clinical Epidemiology, Columbia University, Editor in Chief, AJHP*

Lara Urban, *Principal Investigator, Helmholtz Pioneer Campus, Helmholtz AI, Technical University of Munich*

David Weinreich, *Director of Public Affairs, Americans STM*

COGR

How publishers can support the research community in a fully open world

Dr. Jennifer Griffiths
Head of Academic Affairs, North America

March 2, 2023

SPRINGER NATURE GROUP

Springer Nature is a leading global research publisher

OUR DIVISIONS

RESEARCH
Advancing Discovery

EDUCATION
Advancing Learning

PROFESSIONAL
Advancing Achievement

IN RESEARCH ALONE:

Handling
1m+
submissions a year

Publishing
350,000+
articles a year
and
13,000+
books

1 billion
downloads a year

Coordinating a team of
90,000+
academic editors

750,000+
peer reviewers

Research represents
c75% of revenue

SPRINGER NATURE GROUP

Opening up research increases its use and re-use, speeds up scientific advances and can deliver financial efficiencies for research

WHAT ARE WE DOING

OPENING UP ALL ASPECTS OF RESEARCH

DATA | CODE | PROTOCOLS AND METHODS | PREPRINTS | FINAL PUBLISHED VERSION OF RECORD

MAKING RESEARCH MORE ACCESSIBLE

SharedIt — First publisher to enable sharing of subscription articles via SharedIt

ResearchGate — First publisher to enable content to be accessed on ResearchGate

2021 published over **1 million articles** OA

Helping countries flip their research to OA- **have 17 national agreements in place**

AND WHY

FOR AUTHORS

A SIGNIFICANT ADVANTAGE FOR OA ARTICLES / On average:

6x MORE DOWNLOADS of OA articles than non-OA articles

1.6x MORE CITATIONS of OA articles than non-OA articles across all subjects

4.9x MORE ALTMETRIC ATTENTION OA articles attracted 1.9x more news mentions and 1.2x more policy mentions

FOR SCIENCE

NECESSARY FOR OPEN SCIENCE: POTENTIAL TO DELIVER EFFICIENCIES

In Europe alone, €26 billion is wasted due to research not being FAIR

FINDABLE | ACCESSIBLE | INTEROPERABLE | REUSABLE

That's double the annual Horizon Europe research budget, over 10 times the annual spend in the EU on combined journal subscriptions and OA APCs.

FOR SOCIETY

SPEED UP SCIENTIFIC DISCOVERIES

Society benefits more quickly e.g COVID vaccine

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2022 Update to the OSTP Public Access memo ("Nelson memo")

OSTP removes 12-month embargo to publications and requires immediate data sharing

- **Previous** US public access policies based on 2013 OSTP memo requiring federally-funded articles to be accessible no later than **12 months** from publication
- **New** memo issued August 2022 instructs agencies to update policies to make federally-funded research publicly available **immediately** on publication
- Underlying research data must also be shared upon publication of an article
- Agencies in process of updating their plans (NASA final plan released; NIH plan RFI in progress)

BRIEFING ROOM

OSTP Issues Guidance to Make Federally Funded Research Freely Available Without Delay

AUGUST 25, 2022 • PRESS RELEASES

- Press release
- Blogpost
- Memorandum
- Economic report

The transition needs to be to be sustainable for publishers

Publishers are key, trusted sources of information for the public

Nature published more than 550 articles on the pandemic from Jan 2020- August 2021.

Impact data shows that Nature is a trusted, authoritative source on COVID-19

- > 57 million page views
- > 1 million mentions on social media
- >3400 citations
- 16 awards and nominations
- Policy impact - Face masks feature cited in Scottish and EU policy documents
- Media impact - Feature pointed to by *New York Times*, *Washington Post*, *TIME* and global media outlets
- Educational impact - Health inequality feature used in public health course curricula


NEWS FEATURE · 06 OCTOBER 2020

Face masks: what the data say

The science supports that face coverings are saving lives during the coronavirus pandemic, and yet the debate trundles on. How much evidence is enough?

Lynne Peeples

Publishing is a key part of the scientific process

Publishers ensure the integrity of the scientific record

Quality assurance	1	Peer review is the centerpiece of research quality assurance and certification. We also screen for plagiarism and other integrity checks during the process and handle any post-publication integrity violations.
Permanence & Accountability	2	Most trustworthy information is presented in perpetuity and you can easily find us if there's a problem.
Findability	3	Providing excellent metadata and permanent identifiers, with wide indexing and highly-accessed platforms
Connectivity	4	Cross-linking references and data forward and backwards across all research content

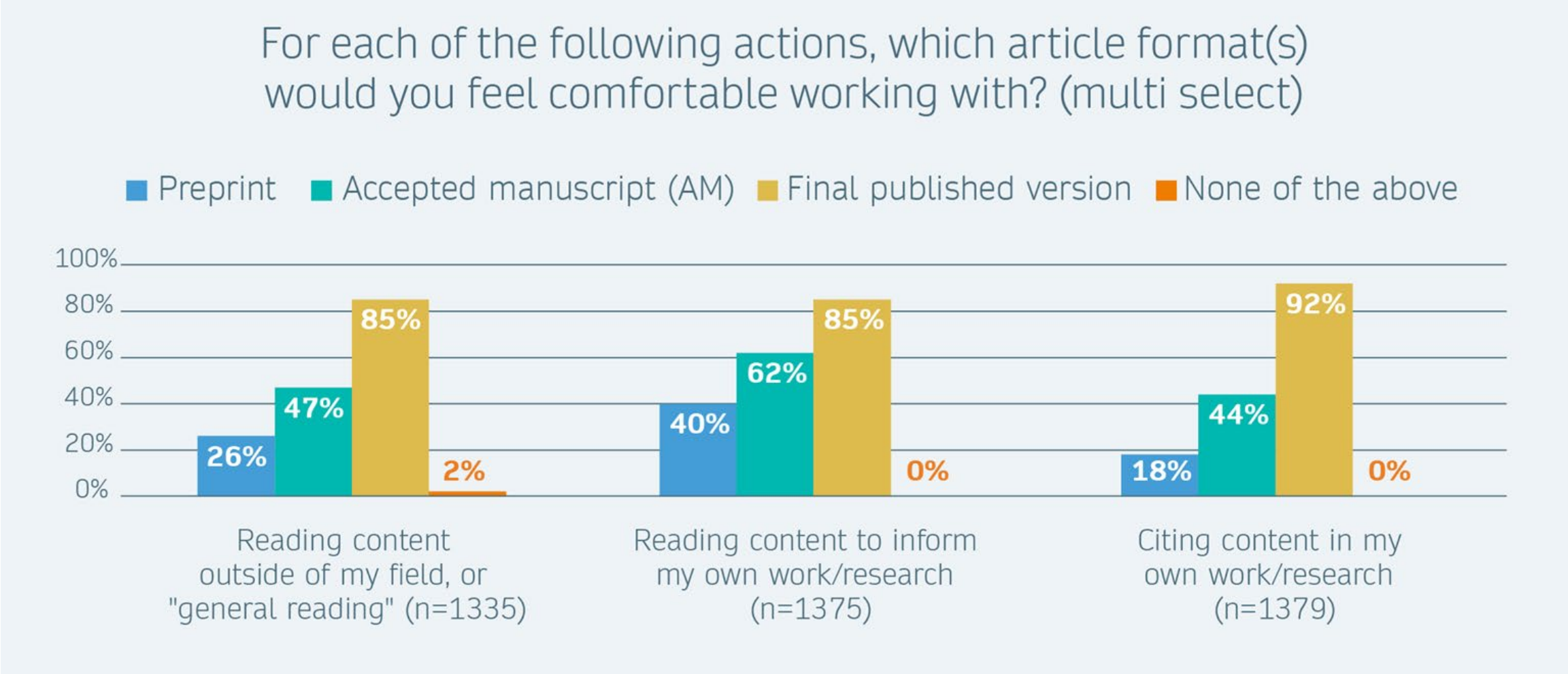
Gold Open Access is the best long-term solution

Gold OA publishing offers the simplest, most open, and most sustainable route to OA and open science

FACTOR	GOLD OA	GREEN OA
Version	✓ Final published version of record (VOR), after any copyediting and typesetting	* Usually incomplete author's accepted manuscript (AAM) after peer review but before copyediting and typesetting
Location and discover -ability	✓ Article freely available and easily discoverable on publisher's platform, alongside other relevant content	* Article made available somewhere other than publisher's website, e.g. repository, or author's homepage – less discoverable
Research integrity	✓ Publisher ensures VOR is up-to-date, and linked to any post-publication corrections	* Version may not be updated in sync with VOR
Licensing	✓ Open licence (e.g. CC BY) allows users to build on, adapt, and share onwards	* Rights/re-use may be limited
Open research ecosystem	✓ Can be bi-directionally linked to and from other open outputs, e.g. data	* Less easily integrated into OR ecosystem due to multiplicity of versions
Viability of full OA transition	✓ Publishing infrastructure funded via APCs/ transformative agreements – transition to full OA is possible	* Reliant on existence of subscriptions to fund publishing infrastructure – transition to fully OA system not possible

Researchers want access to the article version of record (VOR)

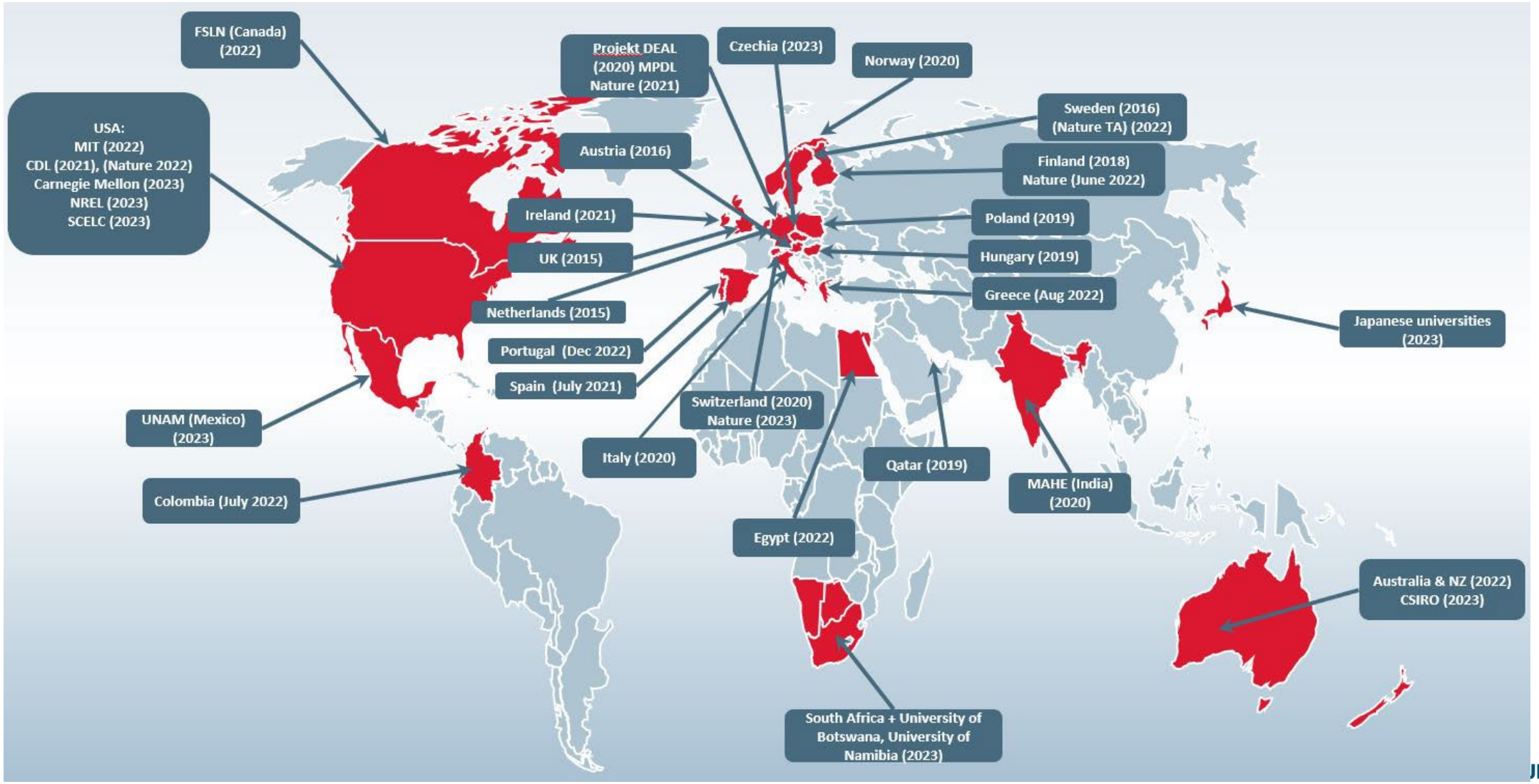
Our white paper shows that researchers overwhelmingly prefer the article VOR, both for general reading and for citing.



Read more in our press release and white paper:
https://group.springernature.com/fr/group/media/press-releases/new-research-on-version-of-articles-researchers-prefer/18866902

Transformative Agreements streamline the funding process

Springer Nature is a leader in implementation at the national and consortia/institutional levels



Publishers are catalysts of Open Science

Going beyond publications

Authors rely on publishers to provide **support for the sharing of research objects**. Integrated solutions to deposit preprints, data and code as part of the manuscript submission system have demonstrated that facilitating the process for authors **increases uptake** of open science practices

SN aims to provide **policies and services** that support authors follow **open research practices**. We do this via **partnerships** (Figshare, Code Ocean and Protocol Exchange/RSQ) that facilitate and promote the sharing of research objects as part of the article publication experience.

Growing focus on improving data sharing

Growing requirements for authors

Open Access | Published: 15 March 2016

The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier, ... Barend Mons + Show authors

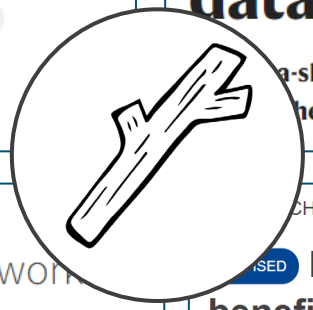
Scientific Data **3**, Article number: 160018 (2016) | Cite this article

451k Accesses | **3993** Citations | **1958** Altmetric | Metrics

NEWS | 16 February 2022 | Correction 16 February 2022

NIH issues a seismic mandate: share data publicly

-sharing policy could set a global standard for biomedical research, scientists ey have questions about logistics and equity.



Practice Papers

Developing a Research Data Policy Framewo
All Journals and Publishers

Authors: Iain Hrynaszkiewicz, Natasha Simons, Azhar Hussain, Rebecca Grant, Simon Goudie

CH ARTICLE

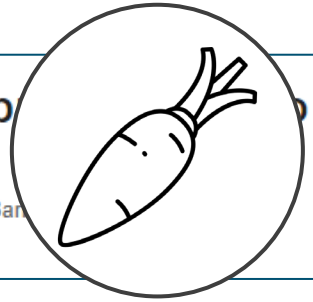
Data Management Plans in Horizon 2020: what beneficiaries think and what we can learn from their experience [version 2; peer review: 2 approved, 1 approved with reservations]

Daniel Spichtinger

The citation advantage of linking p research data

Giovanni Colavizza, Iain Hrynaszkiewicz, Isla Staden, Kirstie Whitaker, Bar

Published: April 22, 2020 • https://doi.org/10.1371/journal.pone.0230416



↑25% more citations

Integrating with the figshare data repository

Lowering the barrier of effort for best practice

Springer Nature is partnering with **figshare** at seven Nature Portfolio and Academic Journals, providing authors with a simple solution to share their data into a repository.

- **Ease of use:** facilitating deposition during manuscript submission encourages data sharing by authors who haven't yet used a repository.
- **Automation:** integrated deposition is quick, easy and allows coordination of manuscript and data progress.
- **Integrity:** data are made available to reviewers and editors prior to being made publicly available.
- **Control:** data are stored privately until publication of the related article.
- **Expert support:** data specialists check all submissions and provide feedback to authors.
- **Flexibility:** submissions can be handled up to 50GB, covering a wide range of disciplines and data types

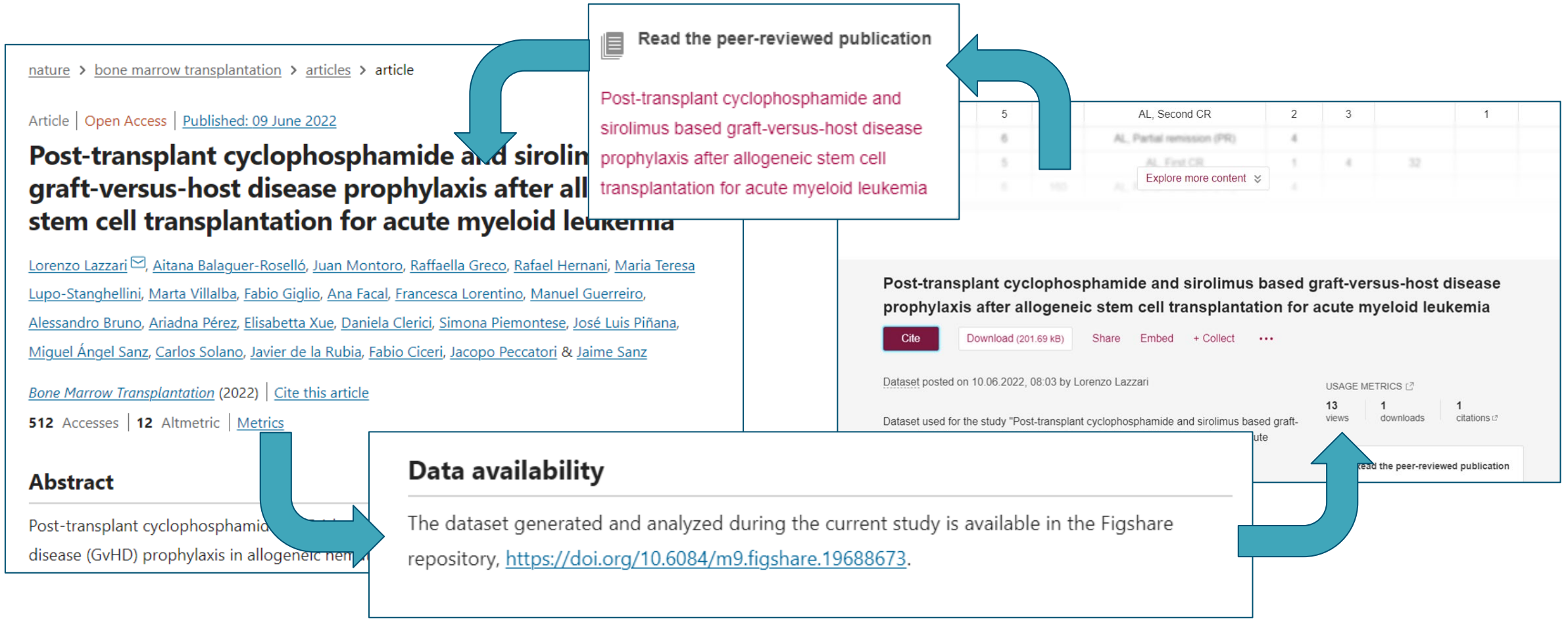
nature portfolio

figshare

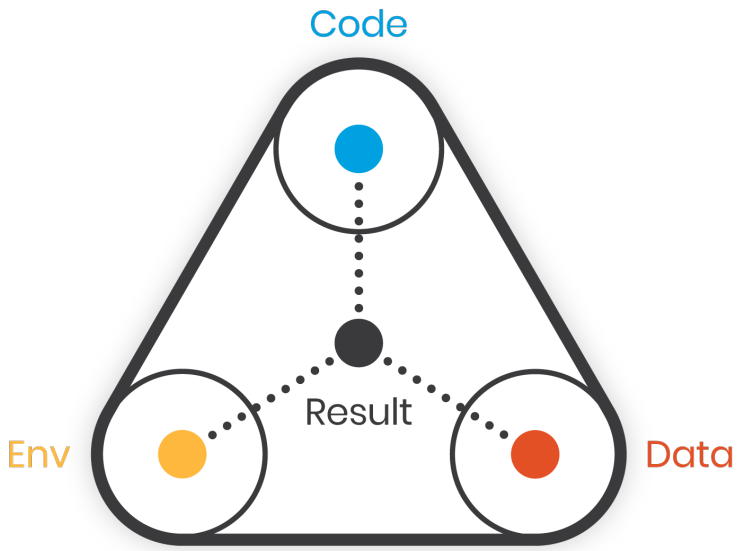
ACADEMIC JOURNALS ON NATURE.COM

The published output

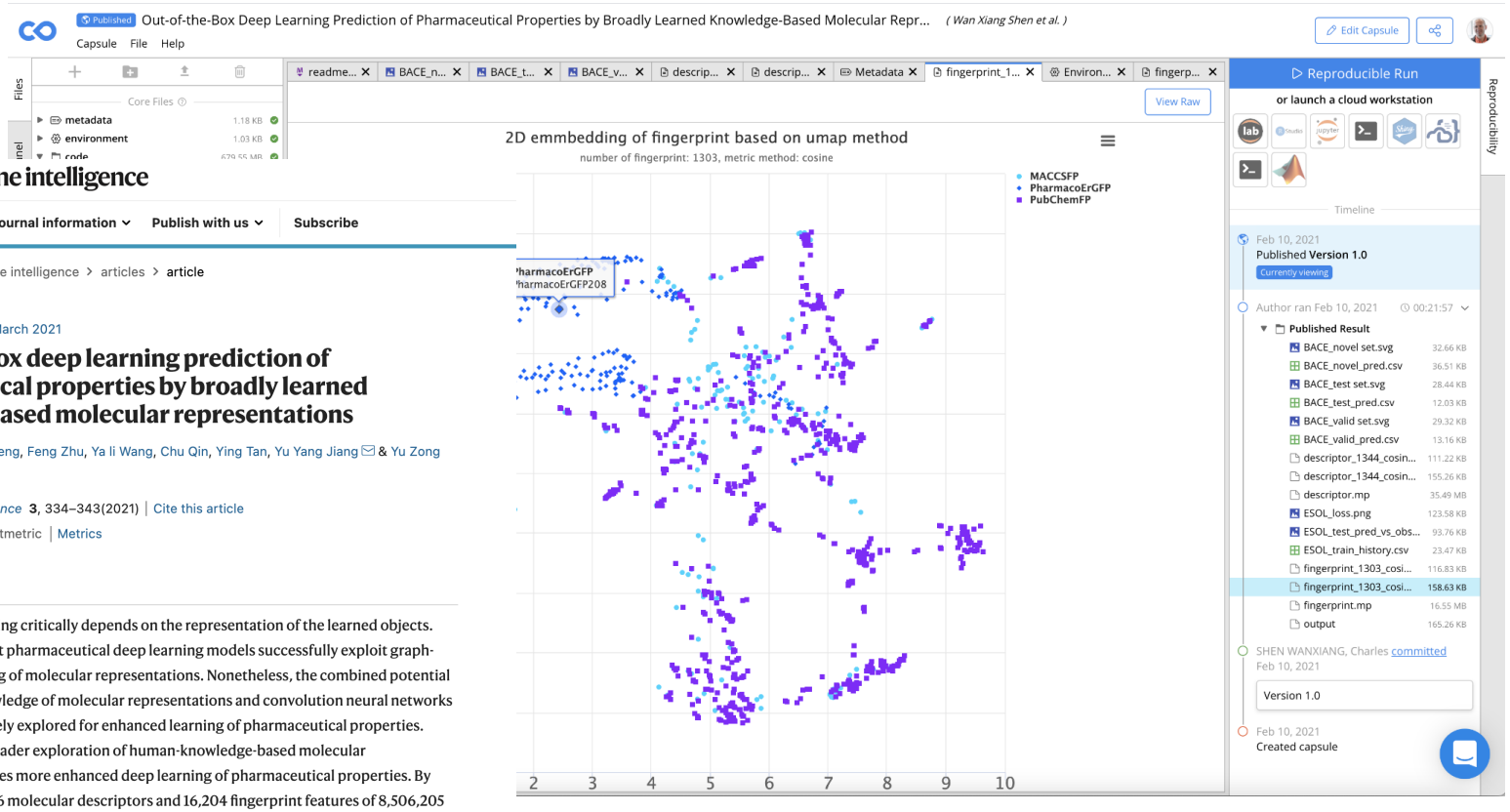
Linked article and data

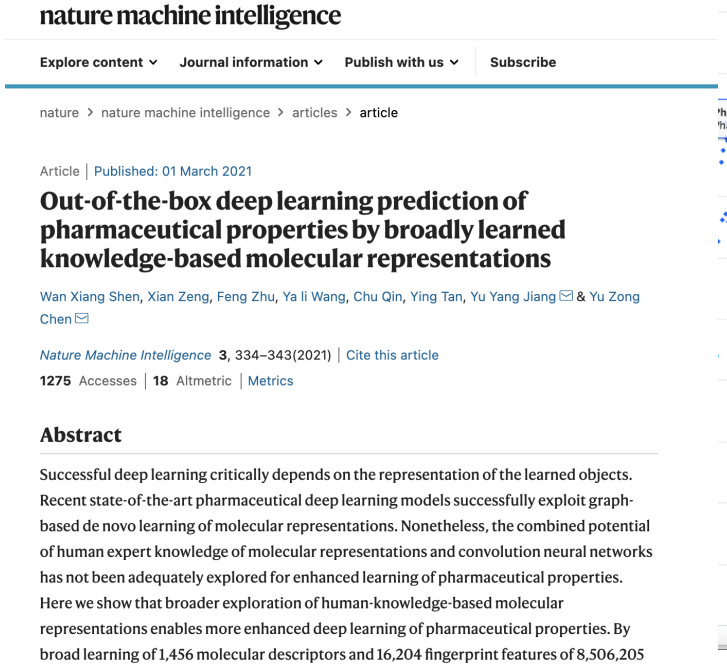


Partnership with Code Ocean to support sharing of open executable code



CODE OCEAN





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nature > nature machine intelligence > articles > article

Article | Published: 01 March 2021

Out-of-the-box deep learning prediction of pharmaceutical properties by broadly learned knowledge-based molecular representations

Wan Xiang Shen, Xian Zeng, Feng Zhu, Ya li Wang, Chu Qin, Ying Tan, Yu Yang Jiang & Yu Zong Chen

Nature Machine Intelligence **3**, 334–343(2021) | Cite this article

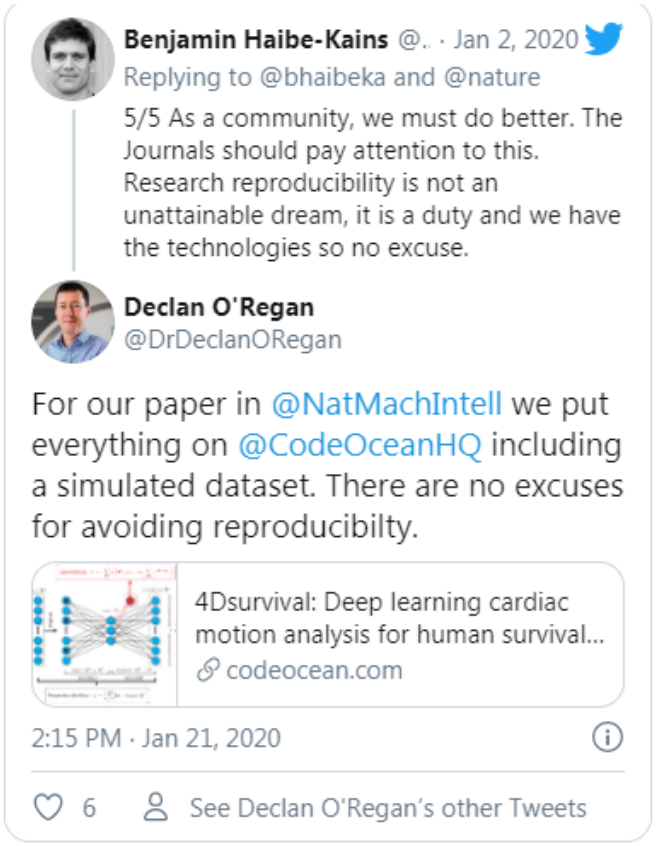
1275 Accesses | **18** Altmetric | Metrics

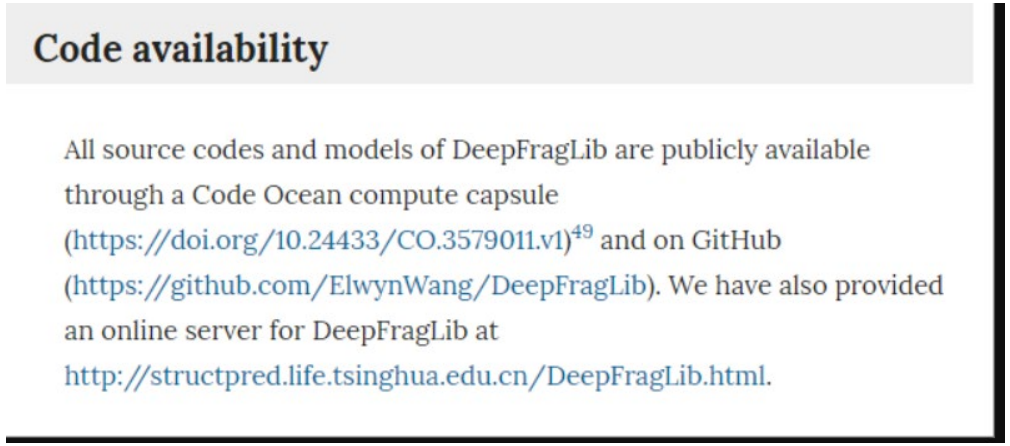
Abstract

Successful deep learning critically depends on the representation of the learned objects. Recent state-of-the-art pharmaceutical deep learning models successfully exploit graph-based de novo learning of molecular representations. Nonetheless, the combined potential of human expert knowledge of molecular representations and convolution neural networks has not been adequately explored for enhanced learning of pharmaceutical properties. Here we show that broader exploration of human-knowledge-based molecular representations enables more enhanced deep learning of pharmaceutical properties. By broad learning of 1,456 molecular descriptors and 16,204 fingerprint features of 8,506,205 molecules, a new feature-generation method MolMap was developed for mapping these molecular descriptors and fingerprint features into robust two-dimensional feature maps. Convolution-neural-network-based MolMapNet models were constructed for out-of-the-box deep learning of pharmaceutical properties, which outperformed the graph-based and other established models on most of the 26 pharmaceutically relevant benchmark datasets and a novel dataset. The MolMapNet learned important features that are consistent with the literature-reported molecular features.

Positive engagement and response from the community

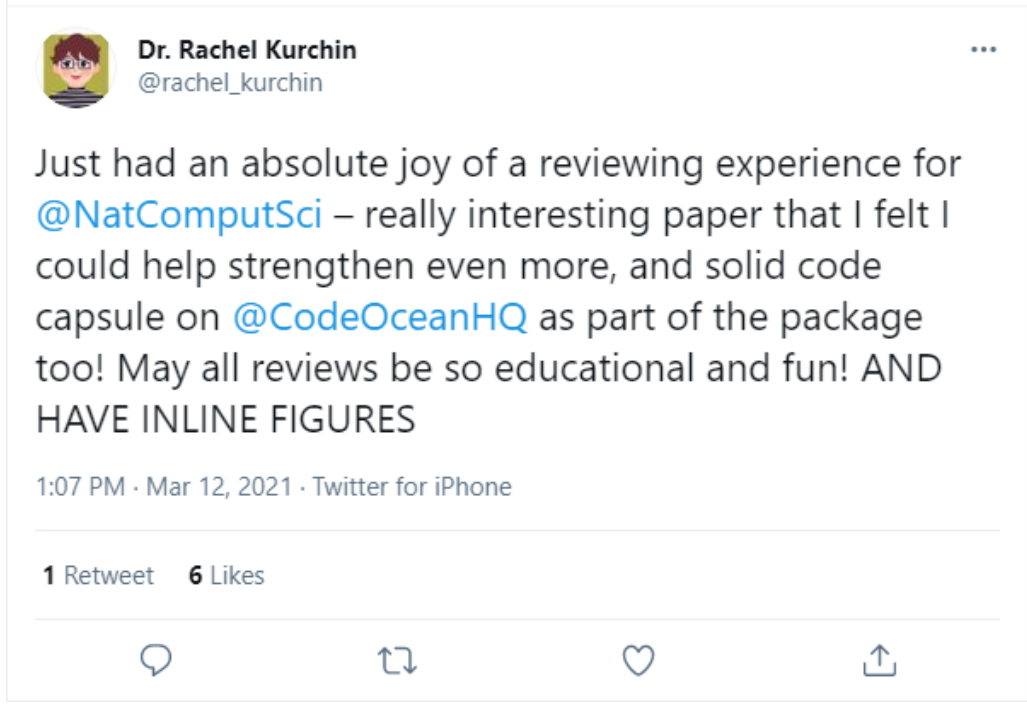
- Average 54% uptake from authors of offered service
- High engagement by reviewers (24 views per capsule; 1.3 runs per capsule)
- Positive feedback from the community





Code availability

All source codes and models of DeepFragLib are publicly available through a Code Ocean compute capsule (https://doi.org/10.24433/CO.3579011.v1)[49] and on GitHub (https://github.com/ElwynWang/DeepFragLib). We have also provided an online server for DeepFragLib at http://structpred.life.tsinghua.edu.cn/DeepFragLib.html.



THANK YOU

"If rapidly and openly sharing research data and papers is critical to understanding and combating coronavirus, doesn't the same hold true for Cancer? Heart disease? Climate change? The scientific community—moving with great speed and clarity of purpose—has clearly signaled that open science is the most efficient way to tackle issues that have a significant and direct effect on the lives of the general public. The unambiguous conclusion is that open is better for science."

Scientific American

Publishers as partners in open science

David Weinreich
Director, Public Affairs
STM
(International Association of Scientific, Technical, and Medical Publishers)

2nd March 2023

STM

Contact me:
weinreich@stm-assoc.org
202-599-0639

Open Science is the Future

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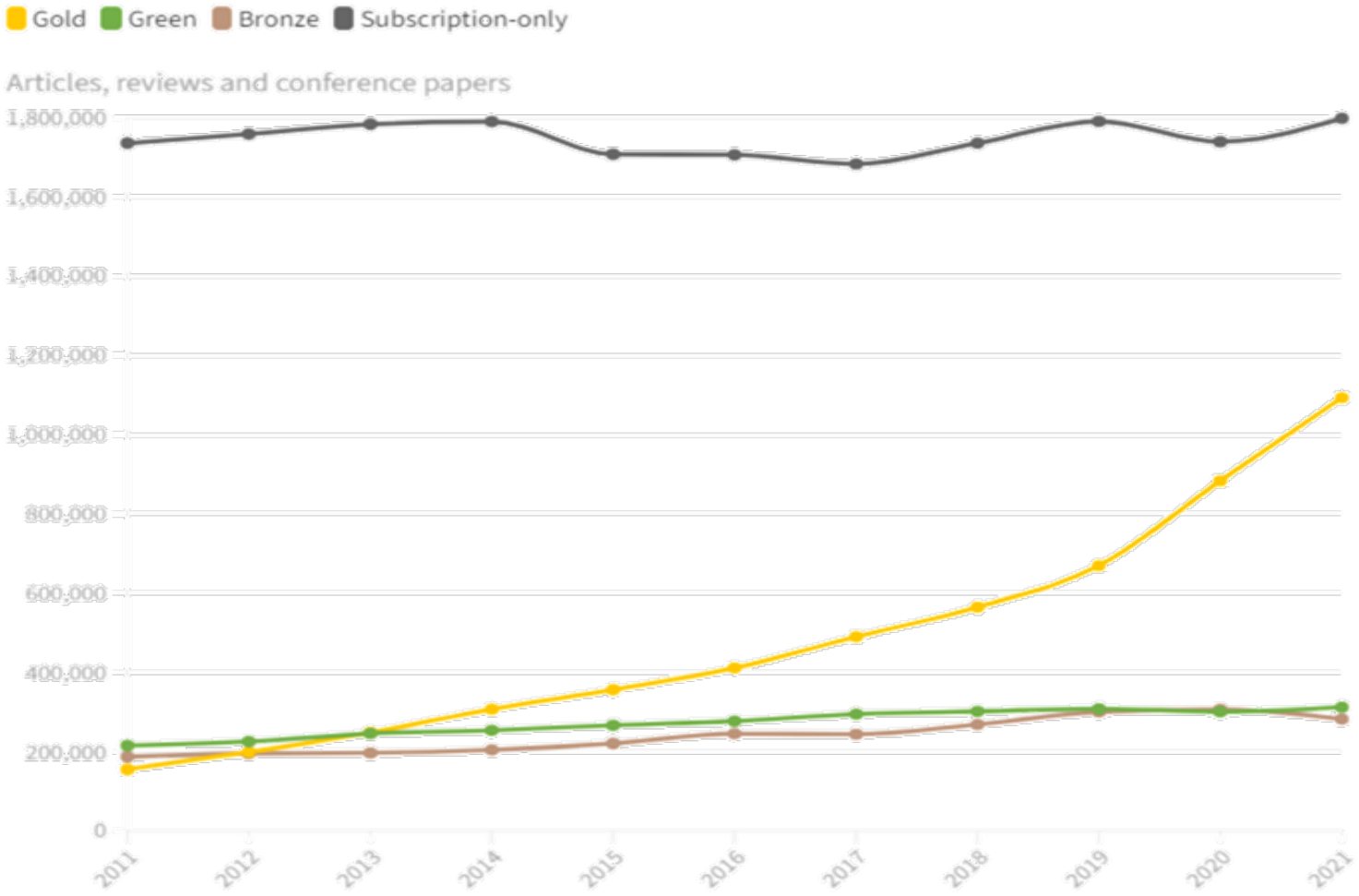
Open Science is Now



Article growth overall:

- Historically 3-4%
- Accelerating 7-8%
- (# of journals slowing)

Open Access

- ~10% growth

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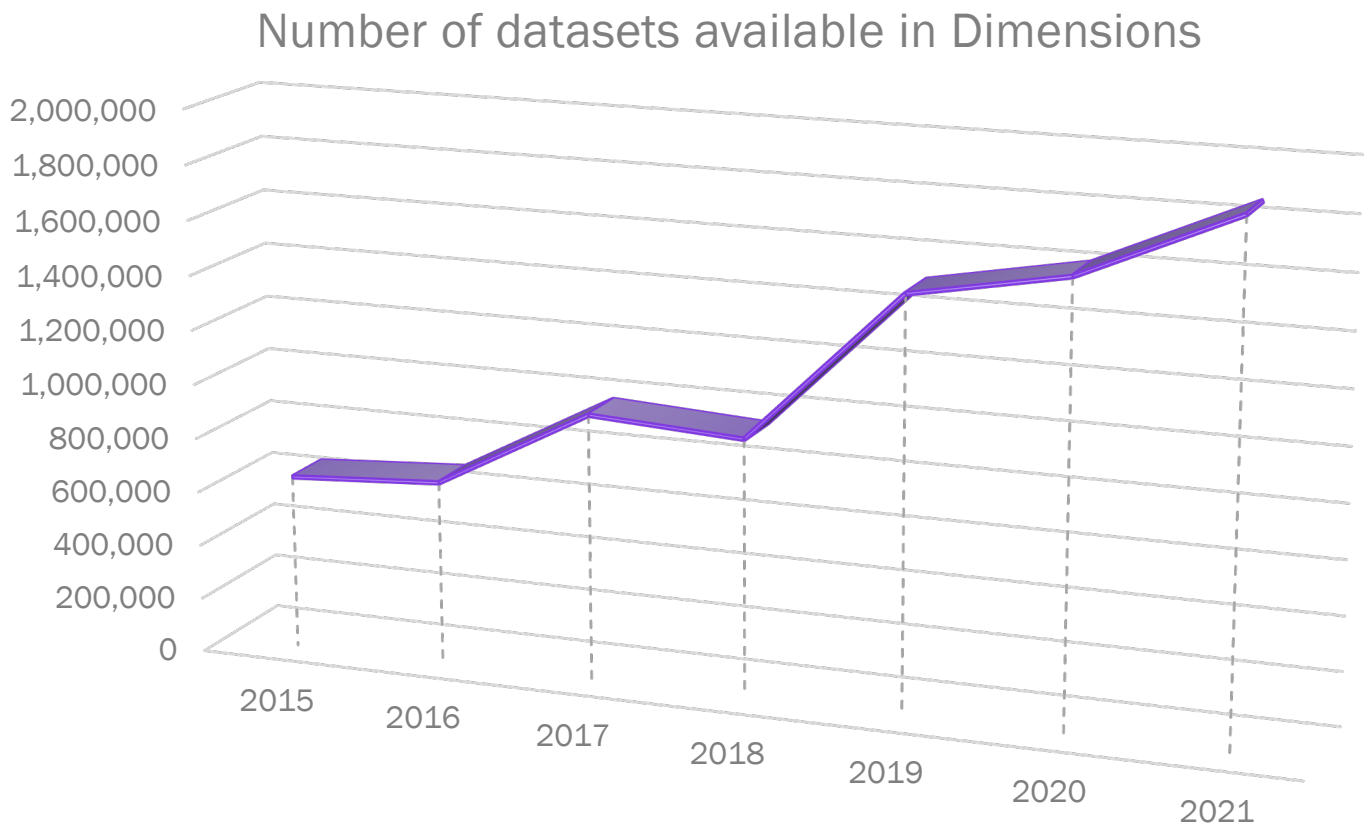
Based on Scopus data, Feb 2023

Open Science is Now



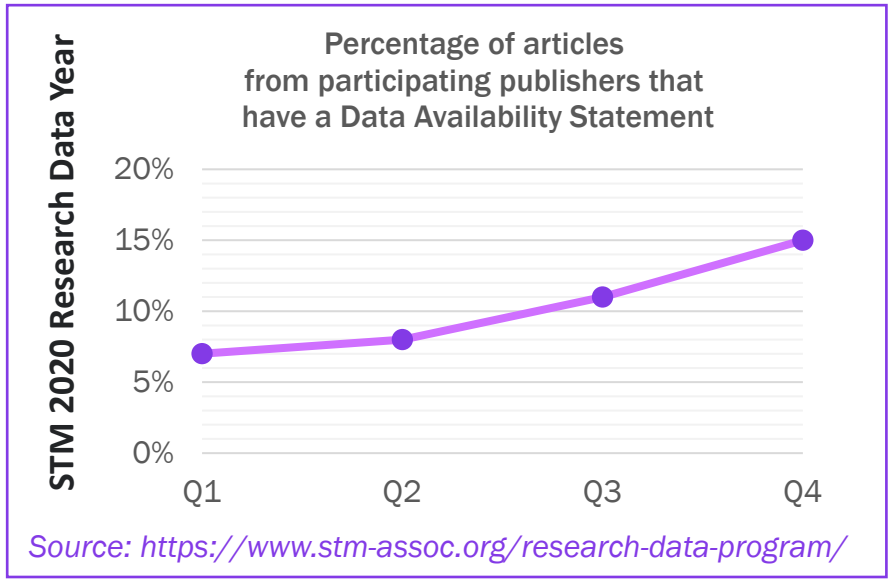
Source: Dimensions https://app.dimensions.ai/discover/data_set

Dataset availability

- # datasets tripled over last 6 years

Focused attention makes difference

- % articles with data availability stmt tripled in 1 yr with STM data initiative



Source: https://www.stm-assoc.org/research-data-program/

What is driving growth?

Publishers

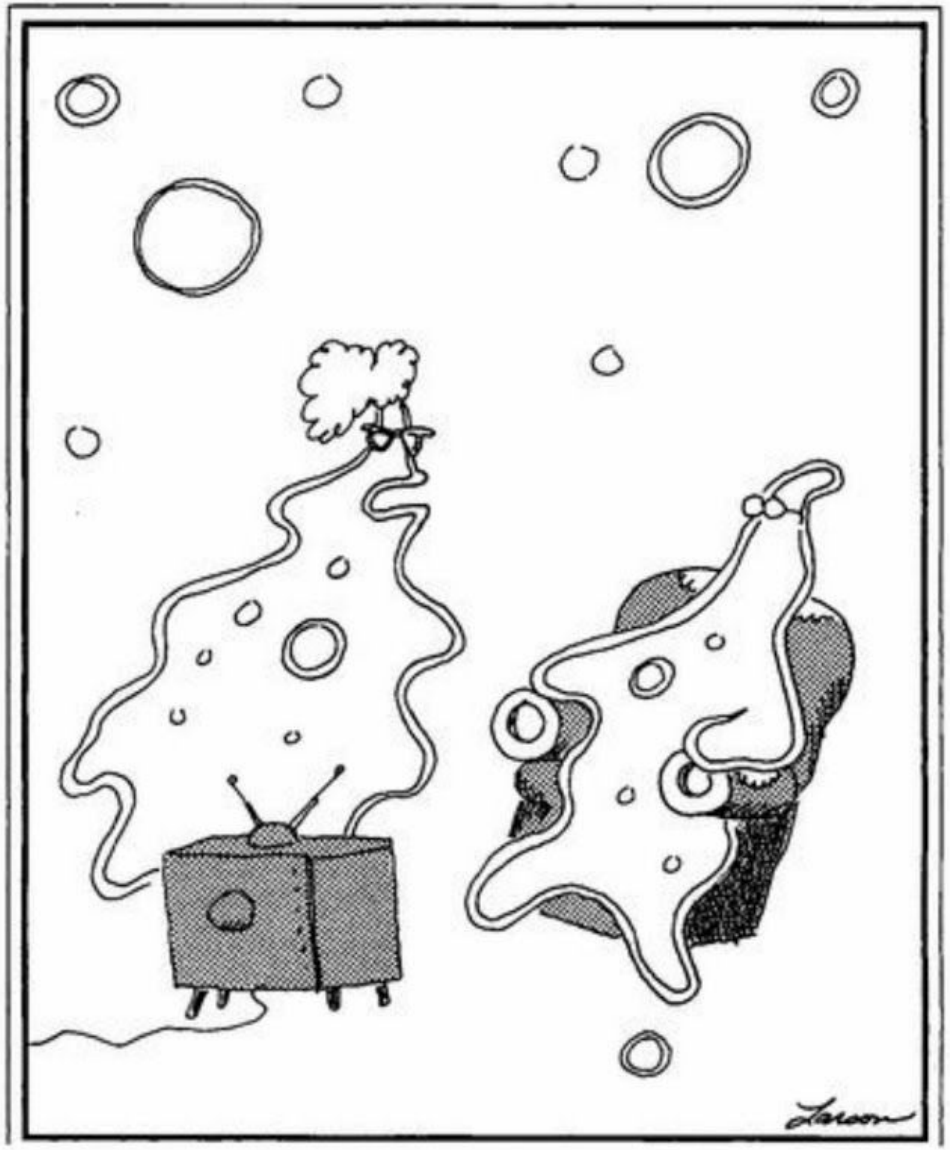
Institutions

Funders

Other policymakers

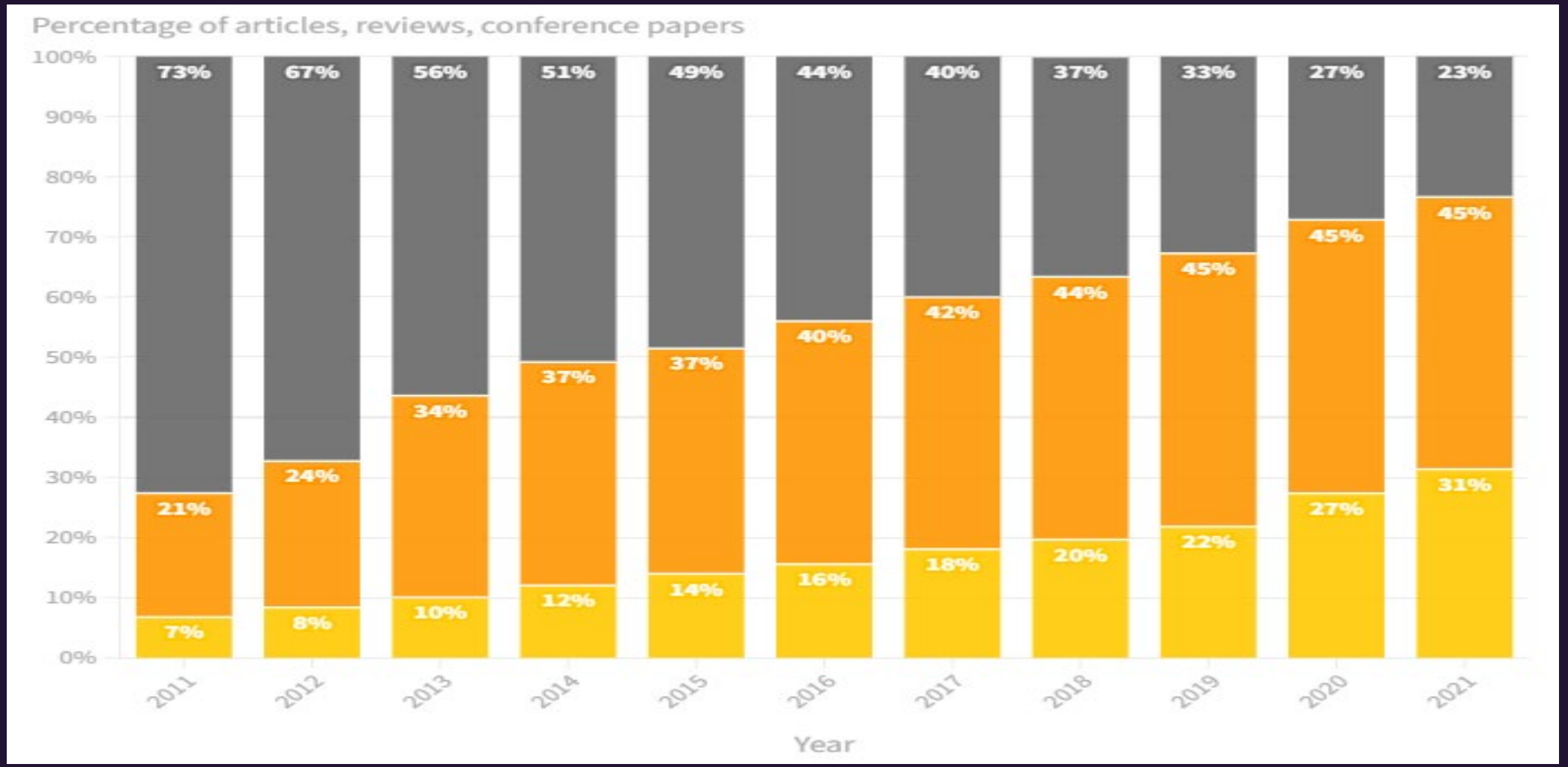
Research communities

Others?



"Stimulus, response! Stimulus, response! Don't you ever *think*?"

Publishers increasing options



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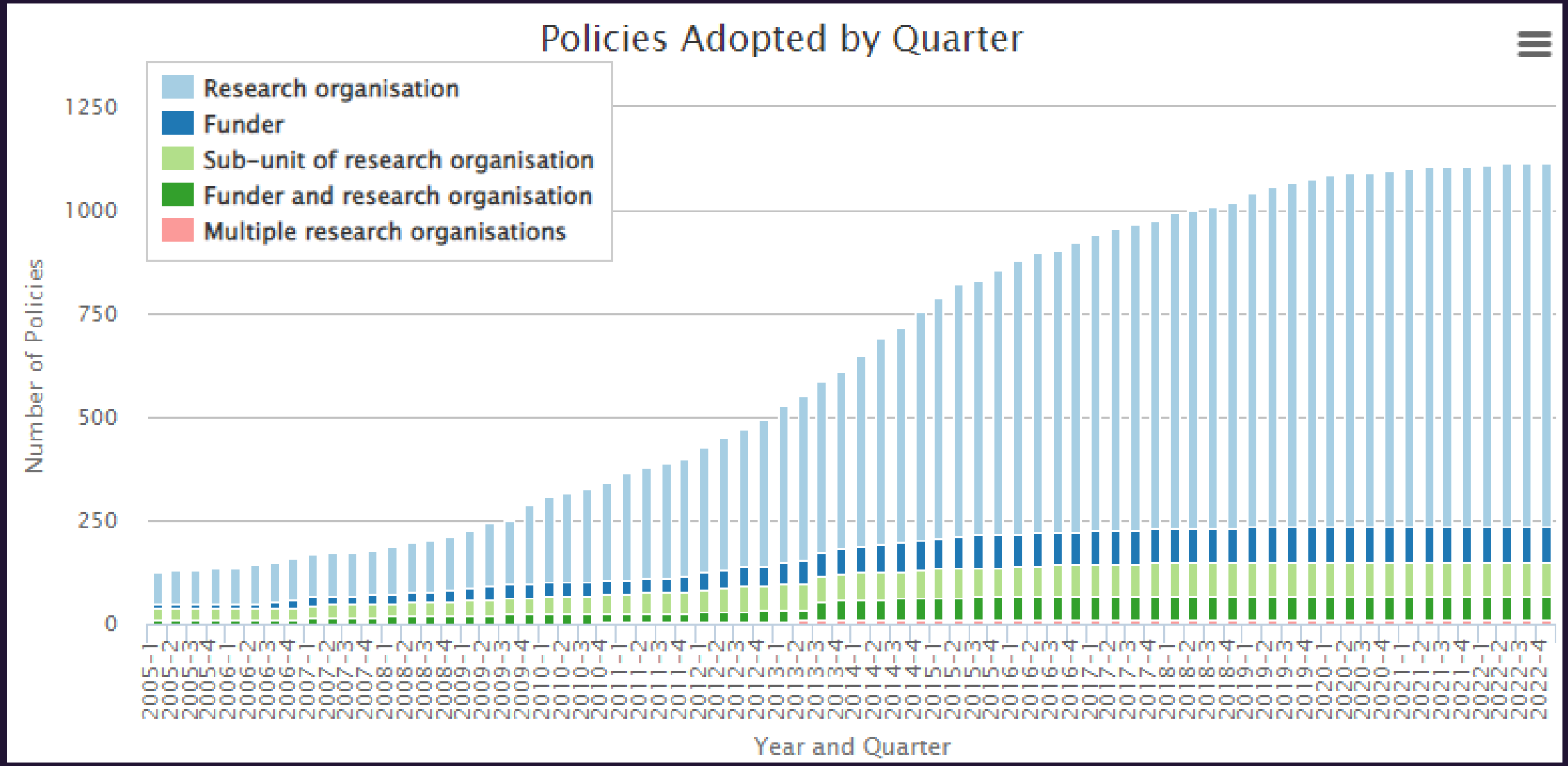
Authors: offered and published OA | offered but did not select OA | not offered option for OA

Based on Scopus data, Feb 2023

Funders/institutions increasing mandates



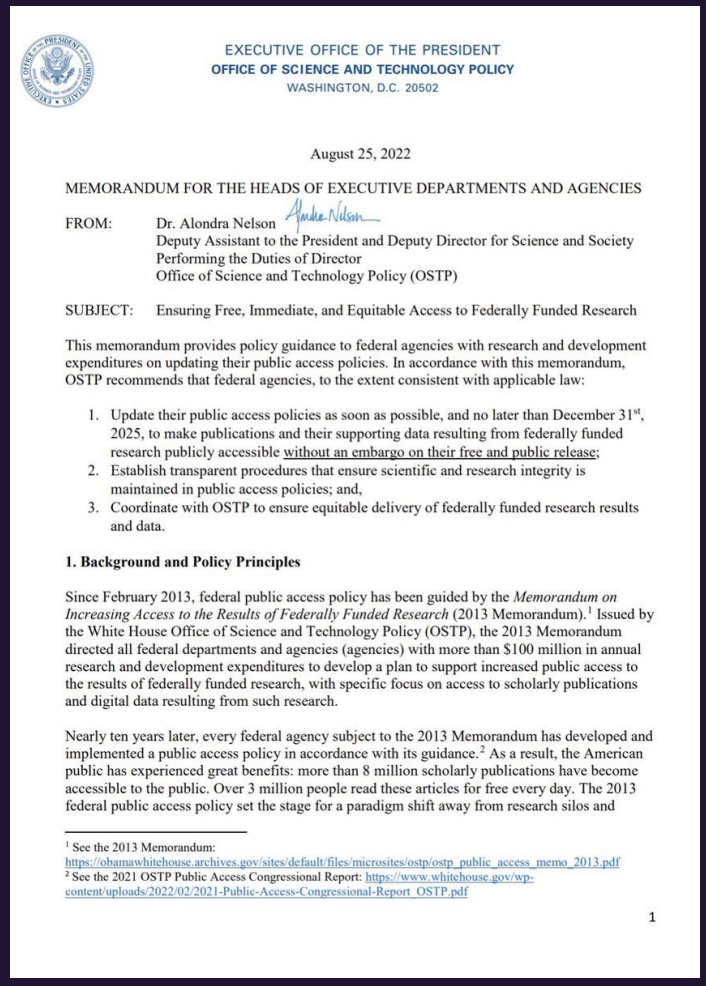
https://roarmap.eprints.org/ accessed 24 Feb 2023 chart generated by highcharts.com

OSTP Nelson Memo on Ensuring Immediate Public Access to Federally Funded Research Results

Requires all federal agencies to:

"Update their public access policies as soon as possible, and not later than December 31, 2025, to make publications and their supporting data resulting from federally funded research publicly accessible without an embargo on their free and public release."

- August 25, 2022



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

August 25, 2022

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Dr. Alondra Nelson
Deputy Assistant to the President and Deputy Director for Science and Society
Performing the Duties of Director
Office of Science and Technology Policy (OSTP)

SUBJECT: Ensuring Free, Immediate, and Equitable Access to Federally Funded Research

This memorandum provides policy guidance to federal agencies with research and development expenditures on updating their public access policies. In accordance with this memorandum, OSTP recommends that federal agencies, to the extent consistent with applicable law:

1. Update their public access policies as soon as possible, and no later than December 31st, 2025, to make publications and their supporting data resulting from federally funded research publicly accessible without an embargo on their free and public release;
2. Establish transparent procedures that ensure scientific and research integrity is maintained in public access policies; and,
3. Coordinate with OSTP to ensure equitable delivery of federally funded research results and data.

1. Background and Policy Principles

Since February 2013, federal public access policy has been guided by the *Memorandum on Increasing Access to the Results of Federally Funded Research* (2013 Memorandum).[1] Issued by the White House Office of Science and Technology Policy (OSTP), the 2013 Memorandum directed all federal departments and agencies (agencies) with more than $100 million in annual research and development expenditures to develop a plan to support increased public access to the results of federally funded research, with specific focus on access to scholarly publications and digital data resulting from such research.

Nearly ten years later, every federal agency subject to the 2013 Memorandum has developed and implemented a public access policy in accordance with its guidance.[2] As a result, the American public has experienced great benefits: more than 8 million scholarly publications have become accessible to the public. Over 3 million people read these articles for free every day. The 2013 federal public access policy set the stage for a paradigm shift away from research silos and

[1] See the 2013 Memorandum: https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf
[2] See the 2021 OSTP Public Access Congressional Report: https://www.whitehouse.gov/wp-content/uploads/2022/02/2021-Public-Access-Congressional-Report_OSTP.pdf

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Publishing is valued, necessary

Publishers ensure the integrity, availability, interoperability, discoverability of the scholarly record

- Quality assurance
- Permanence & accountability
- Findability
- Connectivity

Federal policy requires sharing of manuscripts after peer-review

Researchers prefer the version of record

> A piece of research is not completed until it is published.
>
> -- *Robert Kiley, Wellcome Trust*

How can publishing continue to be supported?

DIRECT FUNDING (E.G. GOLD)

TRANSFORMATIVE AGREEMENTS

SUBSCRIPTIONS

DIAMOND

COMMUNITY-BASED

OTHERS

Fully-funded open access (gold OA) is the best way forward.

Mechanisms needed to support quality publishing

Experimentation happening:

- New models, approaches
- Bundling, micropayments

Some efficiencies may be available, but costs are real

Need to help researchers embrace and budget for open science

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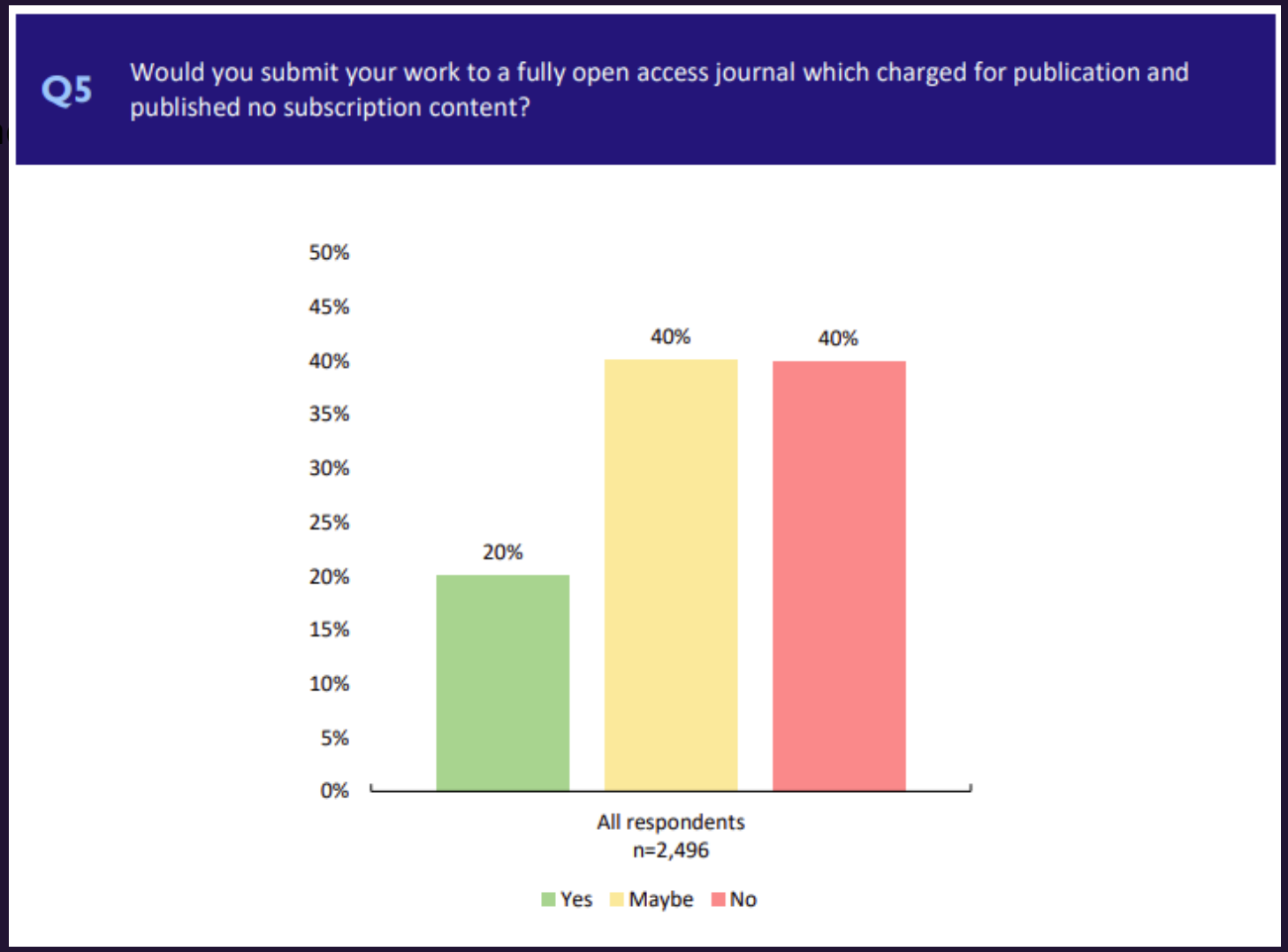
Researchers not embracing funded open access

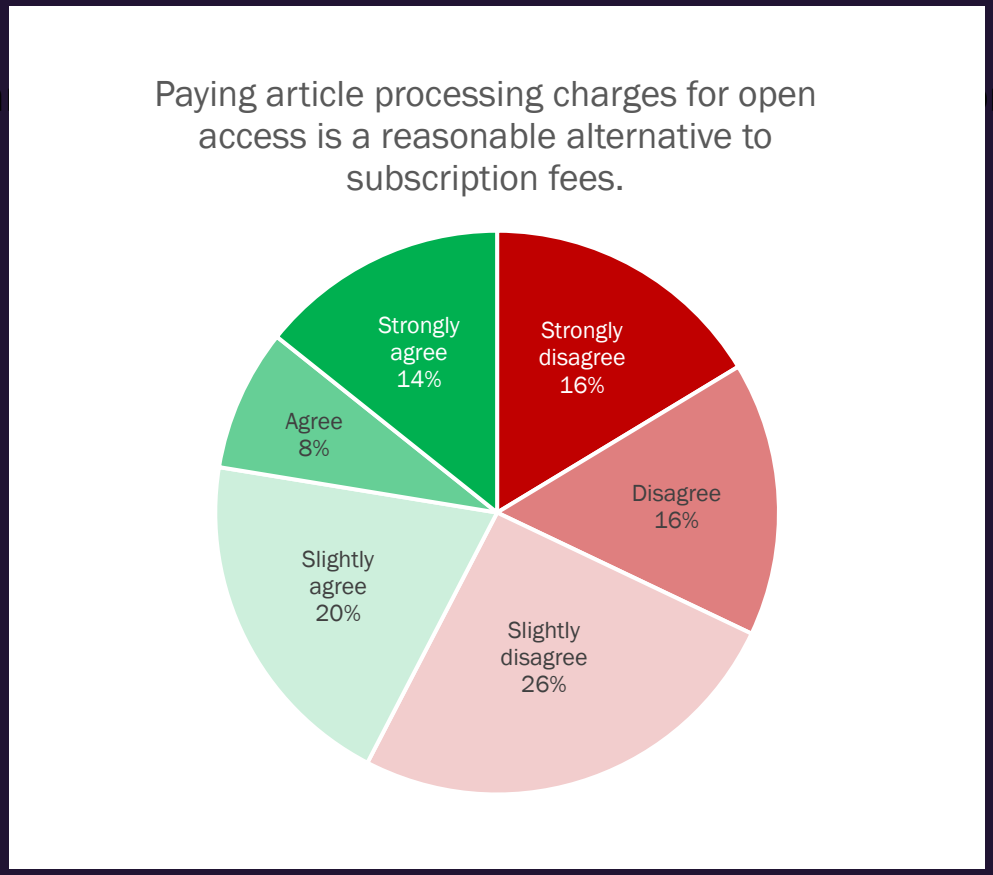
Paying article processing charges for open a

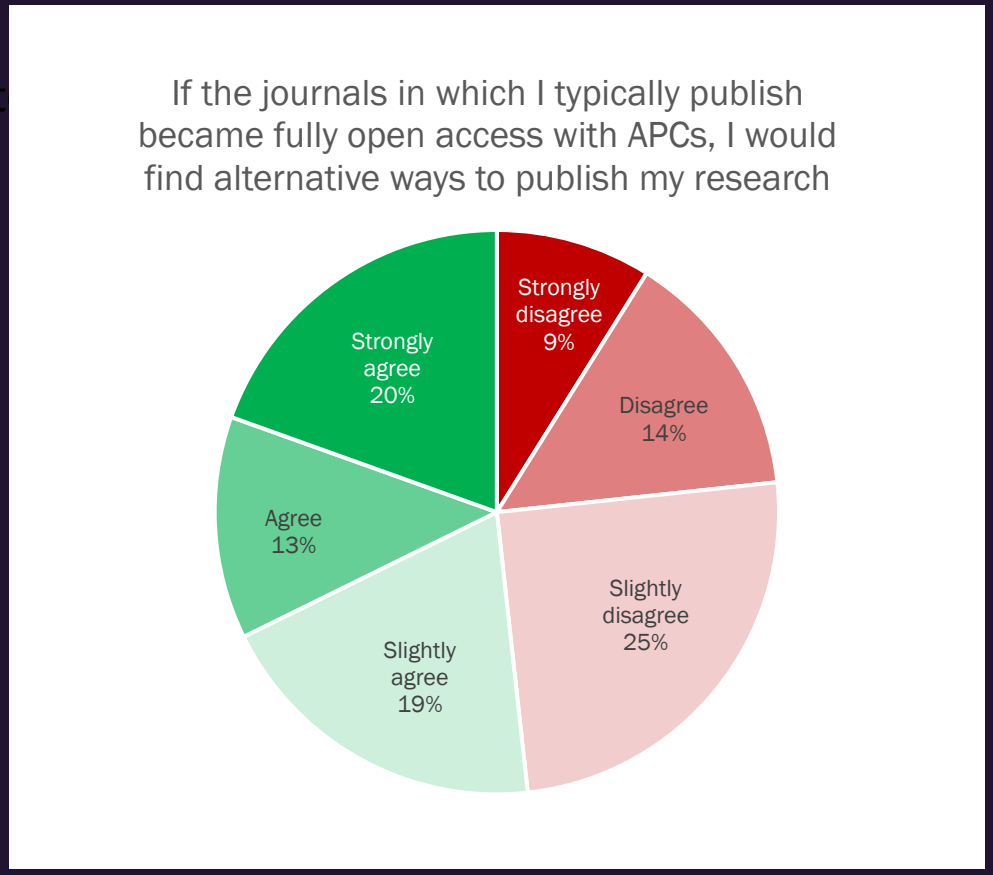


2019 T&F Researcher Survey
https://authorservices.taylorandfrancis.com/wp-content/uploads/2019/10/Taylor-and-Francis-researcher-survey-2019.pdf

Researchers not embracing funded open access

Paying a … nable alt



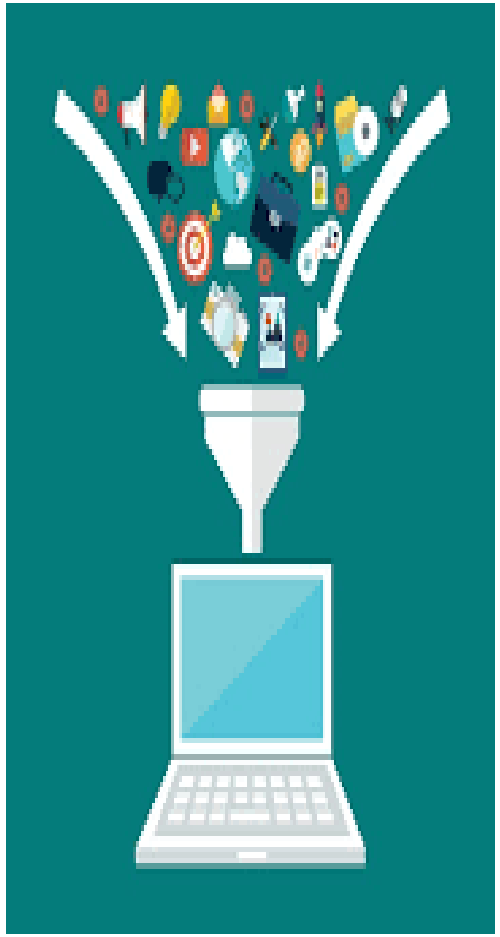


UC Davis' Pay it Forward researcher survey (conducted 2015). Survey data: https://datadryad.org/stash/dataset/doi:10.5060/d8z59f Report: https://library.ucdavis.edu/wp-content/uploads/2022/07/ICIS-UC-Pay-It-Forward-Final-Report.rev_.7.18.16.pdf

How to work together to ensure quality, integrity, availability?

- Support researcher understanding of requirements, options
- Addressing administrative burdens (budgeting, planning, funding)
- Working through issues that affect compliance, funding flows
- Ensure versions are linked, updated, technically useful
- Address equity concerns for less-well-funded researchers
- Support all publishers, funding models

How to work together on data sharing



Publishers support “share, cite, link”

Institutions address costs, curation

- How can we ensure, assess quality of data?
- How will researchers be encouraged/required to budget for costs?
- Can we work on education/signposting together?
- Can we share information for allegations of misconduct?

The future is open; we need to get there together

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DIVERSITY, EQUITY, & INCLUSION IN SCIENTIFIC PUBLICATION

The American Journal of Public Health Perspective

Alfredo Morabia, MD, PhD

Editor in Chief, AJPH

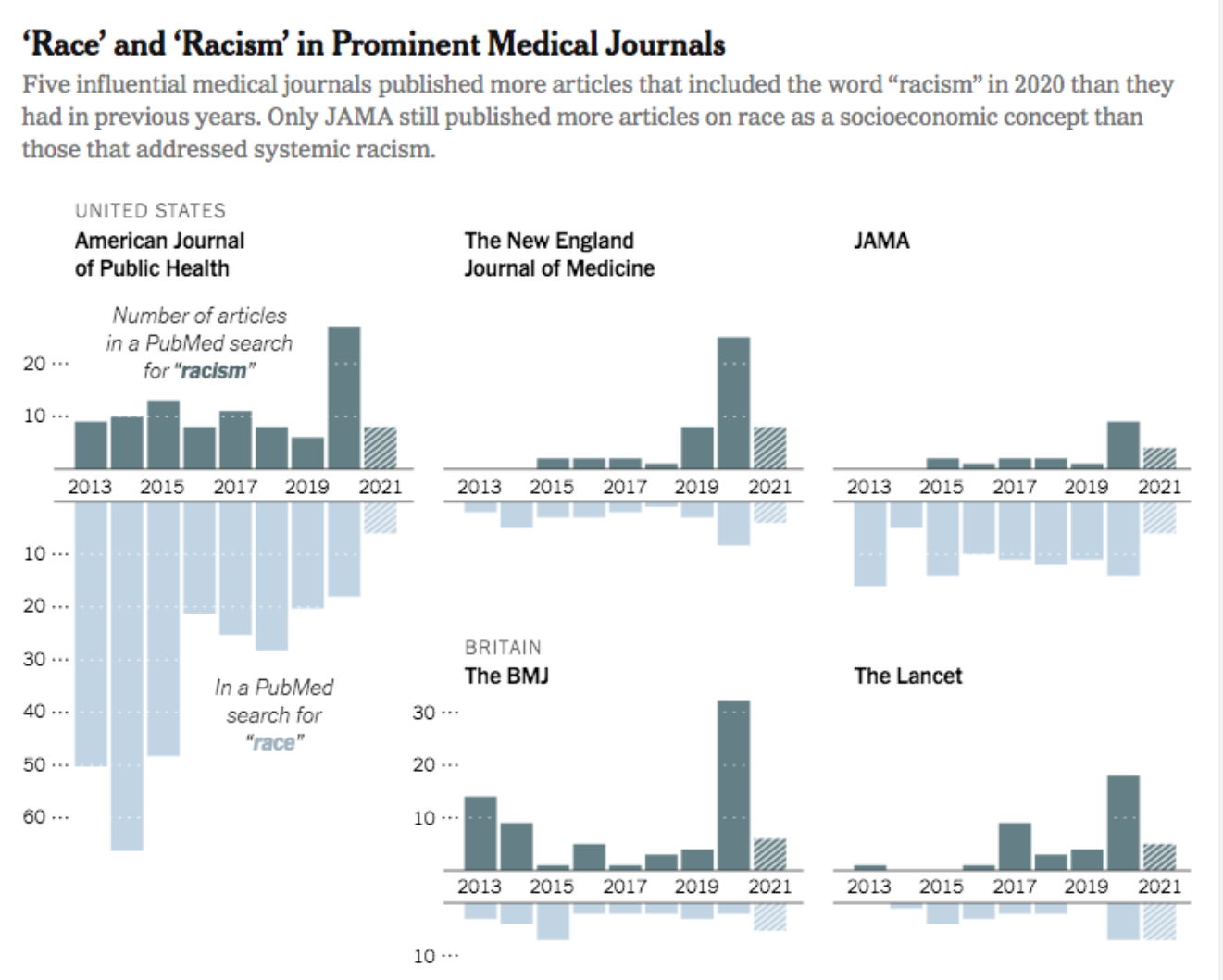
AJPH
A PUBLICATION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

OUTLINE

- How it all started
- What AJPH is working on
- The Open Access dilemma

AJPH
A PUBLICATION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

HOW IT ALL STARTED



(Mandavilli, NYT, 2021)

DIVERSITY, EQUITY, AND INCLUSION IN SCHOLARLY PUBLICATION

FUNDED BY THE ROBERT WOOD JOHNSON FOUNDATION

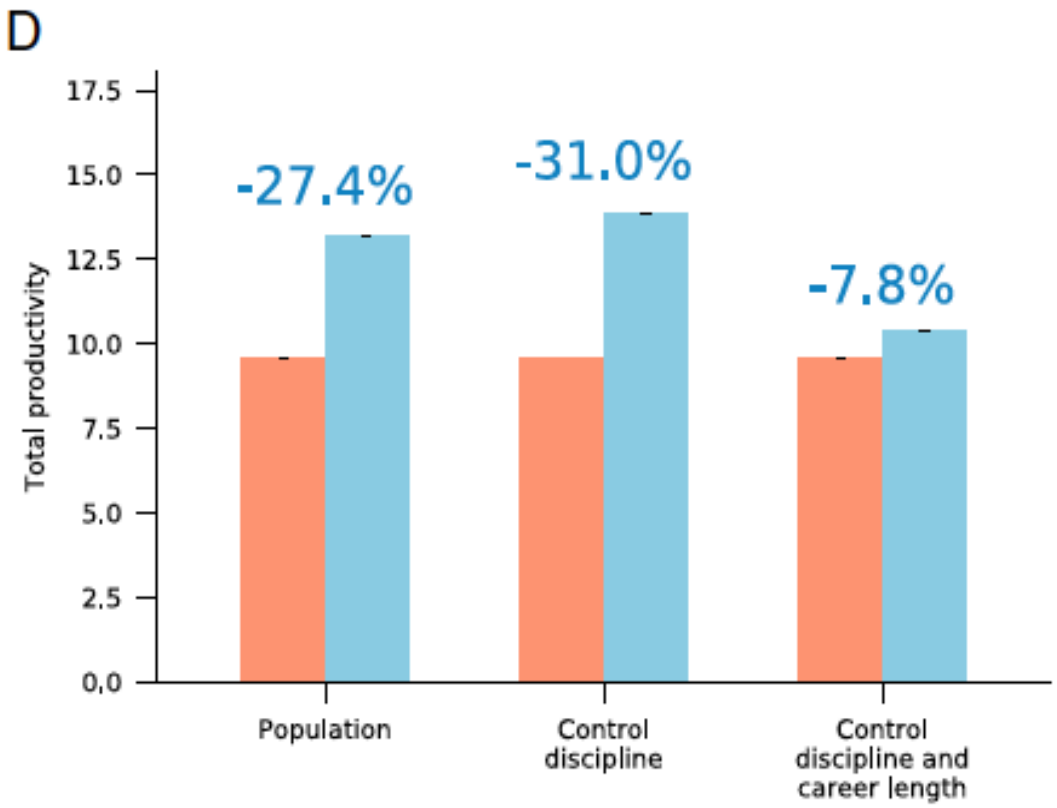
QUESTION 1:

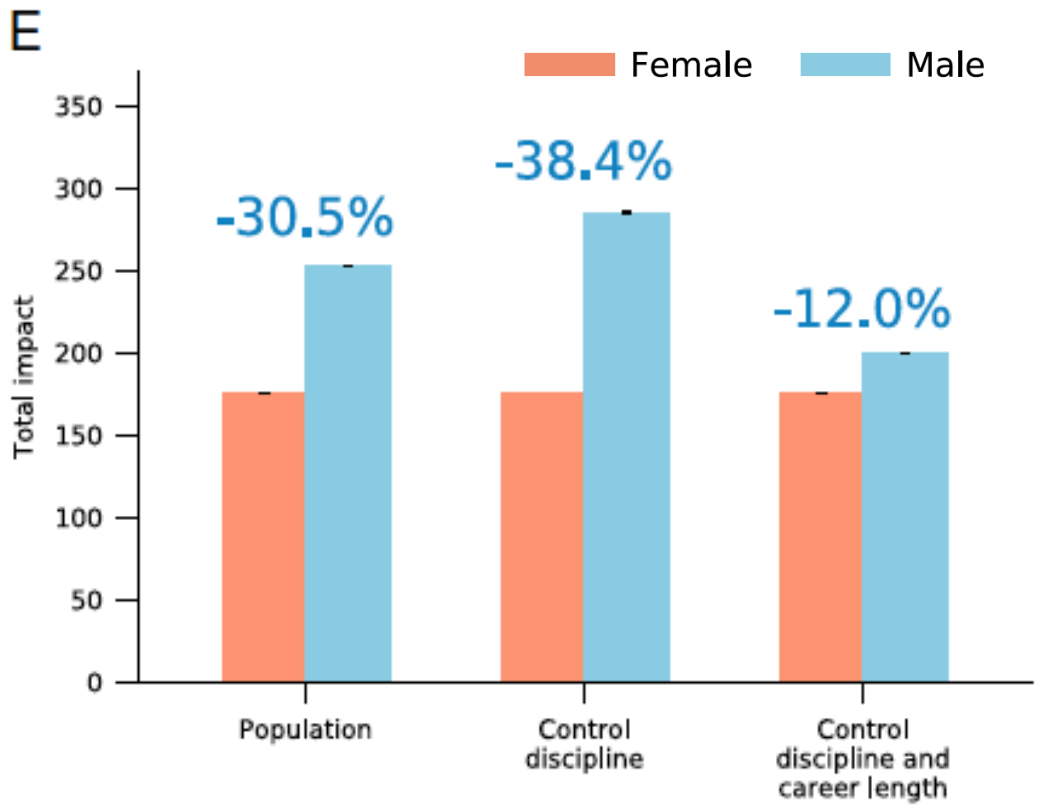
What is the prevalence of diversity and inclusion within scholarly publication and how pervasive is the magnitude of its effect within the field?

AJPH
A PUBLICATION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Historical comparison of gender inequality in scientific careers across countries and disciplines

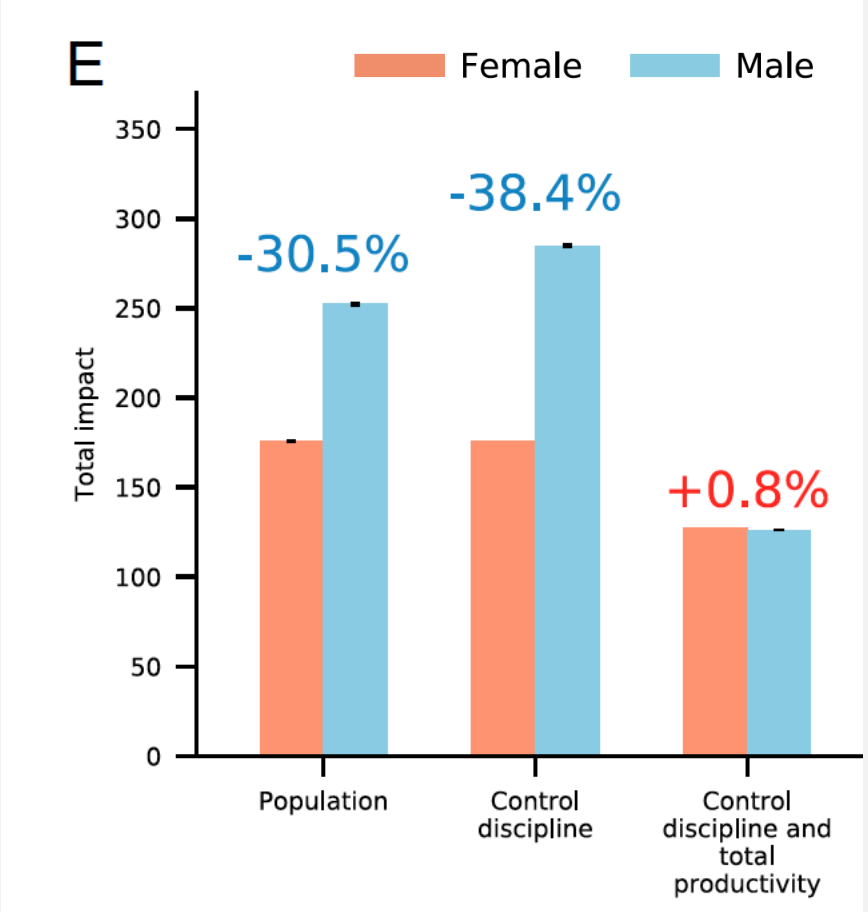
Junming Huang[a,b,c,1], Alexander J. Gates[a,1], Roberta Sinatra[d,e], and Albert-László Barabási[a,f,g,h,2]





Historical comparison of gender inequality in scientific careers across countries and disciplines

Junming Huang[a,b,c,1], Alexander J. Gates[a,1], Roberta Sinatra[d,e], and Albert-László Barabási[a,f,g,h,2]



DIVERSITY, EQUITY, AND INCLUSION IN SCHOLARLY PUBLICATION

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QUESTION 2:

What are the causes and mechanisms that continue to facilitate a lack of diversity within scholarly publication?

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nature COMMUNICATIONS

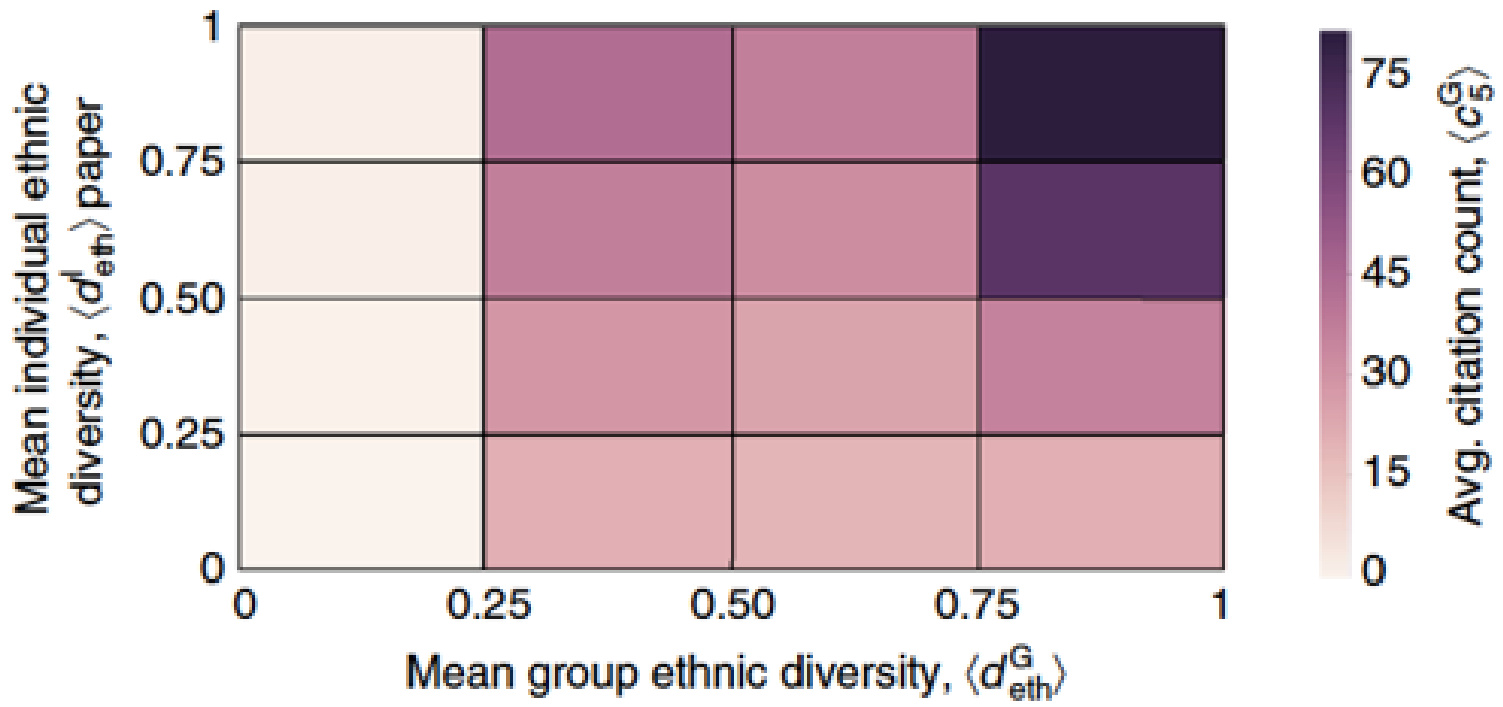
ARTICLE

DOI: 10.1038/s41467-018-07634-8 OPEN

The preeminence of ethnic diversity in scientific collaboration

Bedoor K. AlShebli [1], Talal Rahwan[1,2] & Wei Lee Woon [1,3]

Average Citation Count Based on Diversity of Authorship, Alshebli et al., 2018



(Alshelbi, 2018)

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DIVERSITY, EQUITY, AND INCLUSION IN SCHOLARLY PUBLICATION

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QUESTION 3:

- What are practices and interventions to generate a more diverse, equitable, and inclusive science?
- How can we all learn from these initiatives?

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THE OPEN ACCESS DILEMMA

- The case of non-profit journals
- Subscriptions (institutional) vs open access fees
- Funding research vs funding publication

eLife and its impact on science communication

Lara Urban · March 2nd 2023

eLife

- **a non-profit to drive reform in science communication** & a peer-reviewed, open-access scientific journal for the biomedical and life sciences
- established at the end of 2012 by the Howard Hughes Medical Institute, Max Planck Society, and Wellcome Trust

eLife Early-Career Advisory Group (ECAG)

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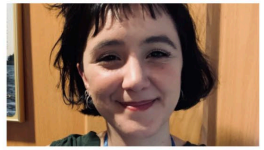

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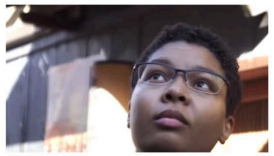

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eLife ECAG

Aim: to establish standards for diversity, equity, and inclusion

- across eLife
  - discuss next steps to revolutionise the **scientific peer review and publishing system**
  - increase involvement of early-career researchers and underrepresented scientists in the **editorial board** and **reviewer pool**

- beyond eLife
  - create peer networks and the **eLife Ambassadors program**
  - award **grants to early-career and underrepresented authors**
  - showcase early-career talents and perspectives through **interviews**, **podcasts** and **webinars**

AUGUST 25, 2022

OSTP Issues Guidance to Make Federally Funded Research Freely Available Without Delay

Today, the White House Office of Science and Technology Policy (OSTP) updated U.S. policy guidance to make the results of taxpayer-supported research immediately available to the American public at no cost. In a memorandum ↗ to federal departments and agencies, Dr. Alondra Nelson, the head of OSTP, delivered guidance for agencies to update their public access policies as soon as possible to make publications and research funded by taxpayers publicly accessible, without an embargo or cost. All agencies will fully implement updated policies, including ending the optional 12-month embargo, no later than December 31, 2025.

The advent of preprints

Peer Review: Implementing a "publish, then review" model of publishing

From July 2021 eLife will only review manuscripts already published as preprints, and will focus its editorial process on producing public reviews to be posted alongside the preprints.

Dec 1, 2020 · https://doi.org/10.7554/eLife.64910

Michael B Eisen, Anna Akhmanova, Timothy E Behrens, Diane M Harper, Detlef Weigel, Mone Zaidi
eLife, United Kingdom

eLife's 10th anniversary

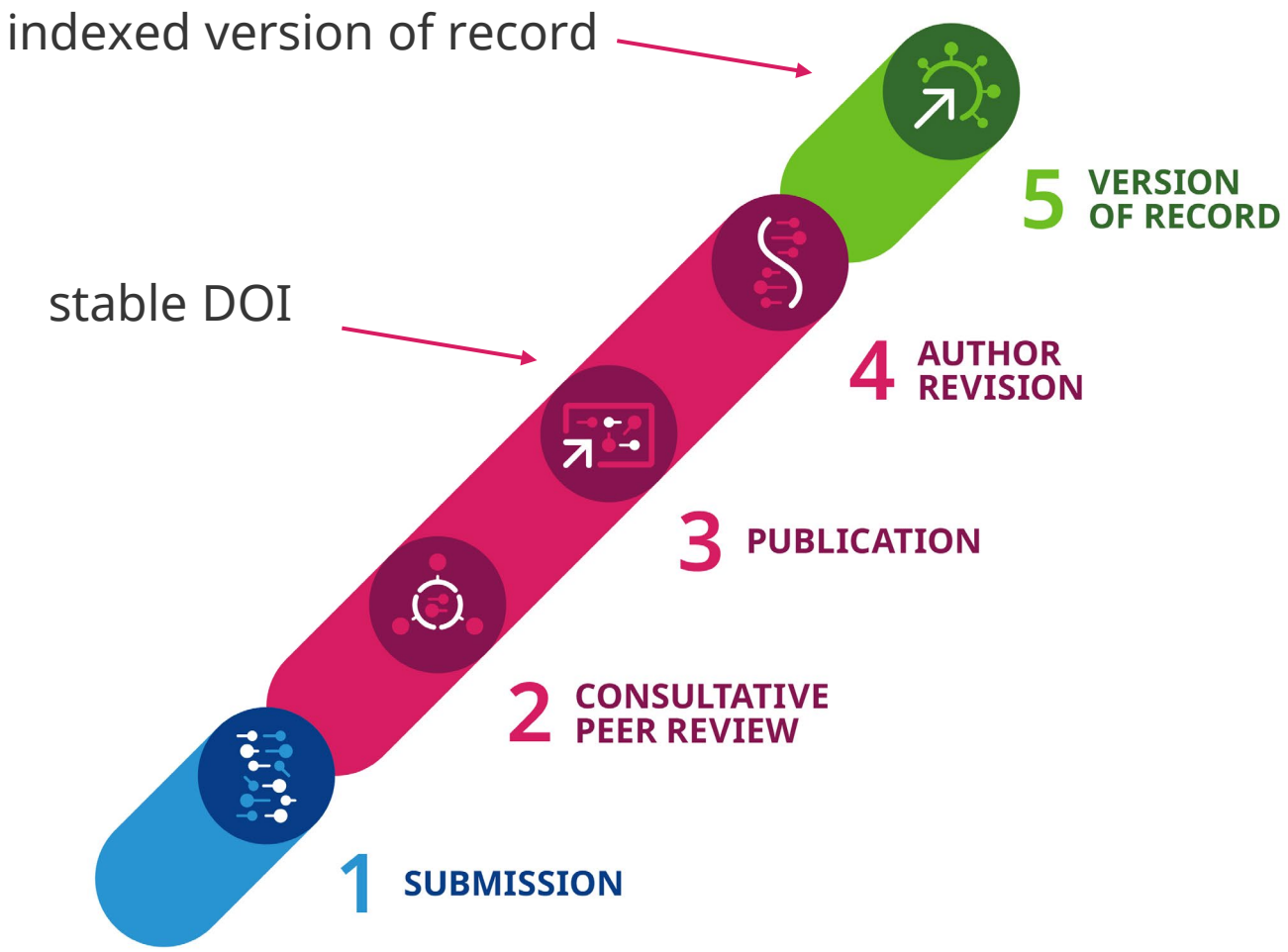
Scientific Publishing: Peer review without gatekeeping

eLife is changing its editorial process to emphasize public reviews and assessments of preprints by eliminating accept/reject decisions after peer review.

Oct 20, 2022 · https://doi.org/10.7554/eLife.83889

Michael B Eisen, Anna Akhmanova, Timothy E Behrens, Jörn Diedrichsen, Diane M Harper, Mihaela D Iordanova, Detlef Weigel, Mone Zaidi
eLife, United Kingdom

eLife's new model



- eLife will no longer accept/reject decisions after review
- eLife will publish all manuscripts with reviews and eLife assessment
- The **reviewed preprint** is a citable object
- Authors will control decision if/when to revise and if/when to publish a version of record
- Upfront APC of $2,000 with fee waiver option

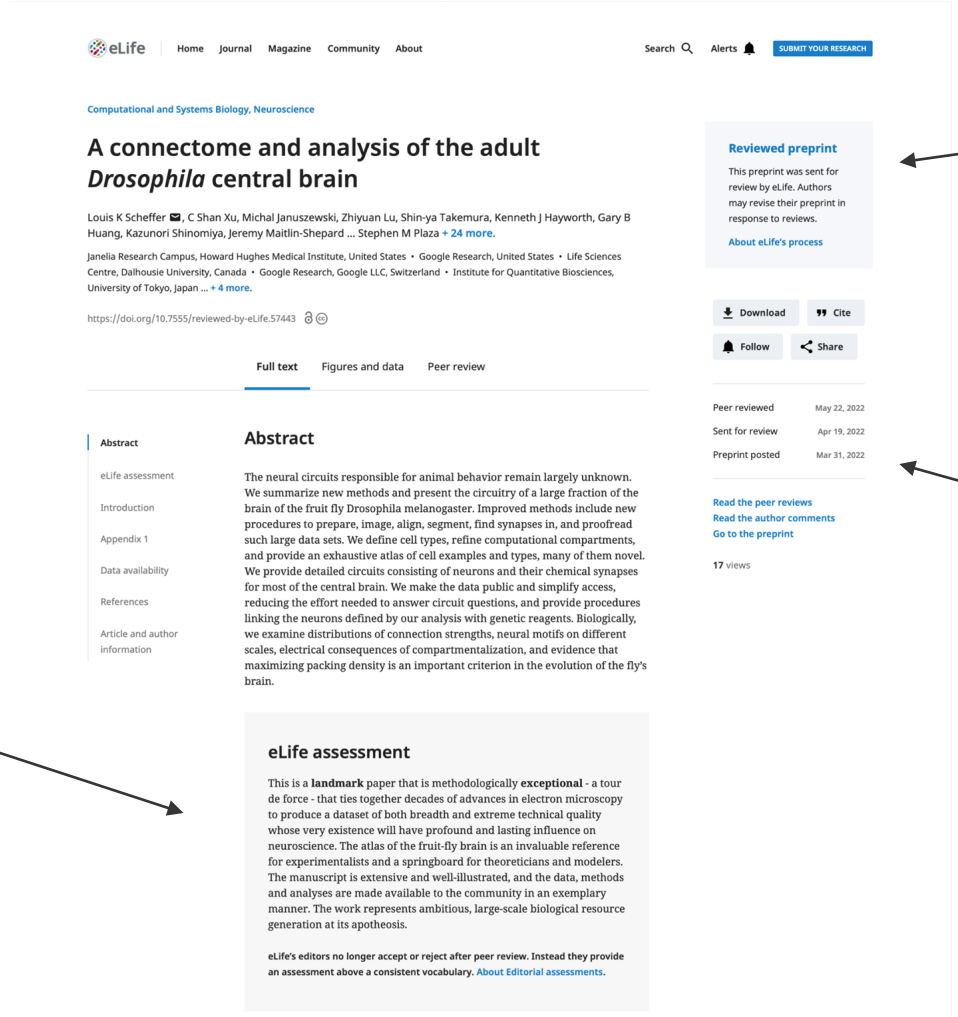
eLife assessments

- Capture the **major conclusions of the review**
- Aim for more consistency by drawing on shared vocabulary
- Written for a **general audience**

Significance of Findings	Strength of Evidence
Landmark: findings with profound implications that are expected to have widespread influence	**Exceptional:** exemplary use of existing approaches that establish new standards for a field
Fundamental: findings that substantially advance our understanding of major research questions	**Compelling:** evidence based on methods, data and analyses more rigorous than the current state-of-the-art
Important: findings that have theoretical or practical implications beyond a single subfield	**Convincing:** appropriate and validated methodology in line with current state-of-the-art
Valuable: findings that have theoretical or practical implications for a subfield	**Solid:** methods, data and analyses broadly support the claims with only minor weaknesses
Useful: findings that have focused importance and scope	**Incomplete:** main claims are only partially supported
None: for findings with no anticipated impact	**Inadequate:** methods, data and analyses do not support the primary claims

A reviewed preprint

Curation that communicates the editors' and reviewers' assessment of the impact and quality of the science with controlled vocabulary



Indication that the work was made available as a preprint and reviewed by eLife

Full peer reviews available within the eLife website

Advantages of new eLife model

Restores control of publishing to authors

Focuses attention on what authors have published

Streamlines the process of peer review and publication, and gives certainty of process outcome

Provides richer and more nuanced, yet still compact, assessments for readers and for use in hiring and funding

Promote hiring and funding of scientists based on what, not where, they publish

External support

Strong support from eLife's funders as well as other funding bodies and research institutions

hhmi Howard Hughes Medical Institute

CHEN TIANQIAO & CHRISSY INSTITUTE

wellcome

MAX PLANCK GESELLSCHAFT

RLUK Research Libraries UK

BILL & MELINDA GATES foundation

Knut and Alice Wallenberg Foundation

UKRI UK Research and Innovation

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