What about *Diamond Open Access* ?

Guillaume Anciaux
LSMS, IIC, ENAC, EPFL

Graphic from PHD Comics

Introduction

Researcher-Reader Needs

- Comprehensive
- Trustworthy
- Searchable
- Reproducible
- Easy access

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- Good/Fair evaluations
- Technical support

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In all cases **O**pen **A**ccess is a plus...

History of academic press

A small history of (Academic) Press...

References:

- S. Buranyi, Is the staggeringly profitable business of scientific publishing bad for science? The Guardian (2017).
- Against Parasite Publishers: Making Journals Free (2022)

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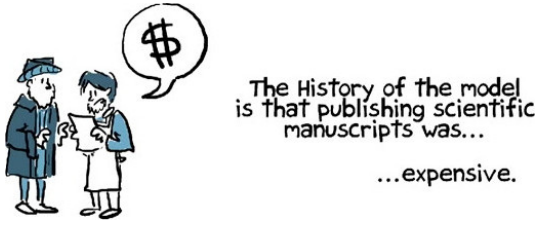
That are highly recommended to read...



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History

First scientific press:

- 1450: Printing Press (in europe)
- 1534: Foundation of Cambridge University Press
- 1665: *Journal des Sçavans* (France), *Philosophical Transactions of the Royal Society* (UK)

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Defined the purpose of scientific journals:

- registration: authorship/priority claim
- certification: usually peer-review
- dissemination: provide (targeted) access
- archiving: permanent access link (citable)

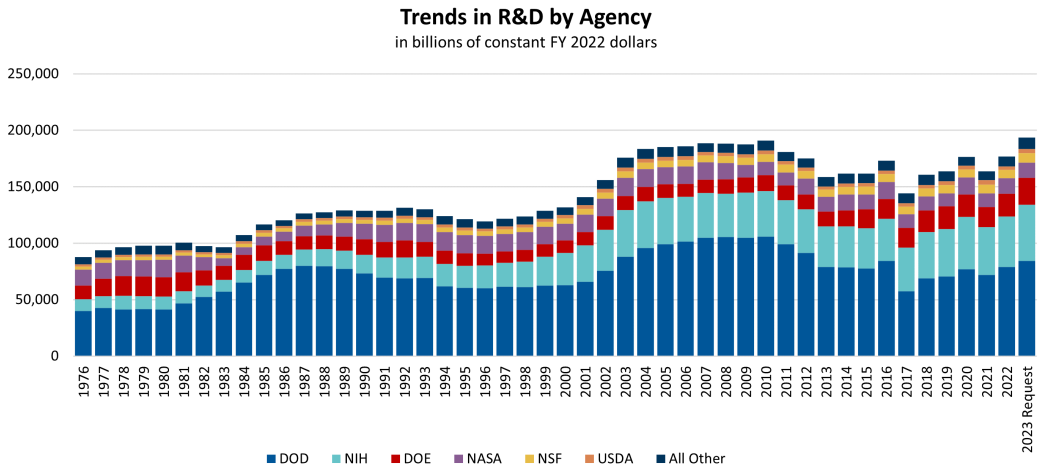
Author and Copy rights

- 1710: *Statute of Anne*: British authors can control the copying of their books
- 1852: articles published (in FR/UK) can be freely reprinted and translated (unless reserved rights are explicitly mentioned)
- Foundation of Nature (1869) and Elsevier (1880)
- 1886: Berne Convention governing copyright: grants a CC BY licence by default.
- 1908: Berlin Act reverses the standards: reproduction implicitly forbidden.
- 1928: Rome Act: author's rights $\neq$ copyright

Post-World War II
Research budgets increase enormously

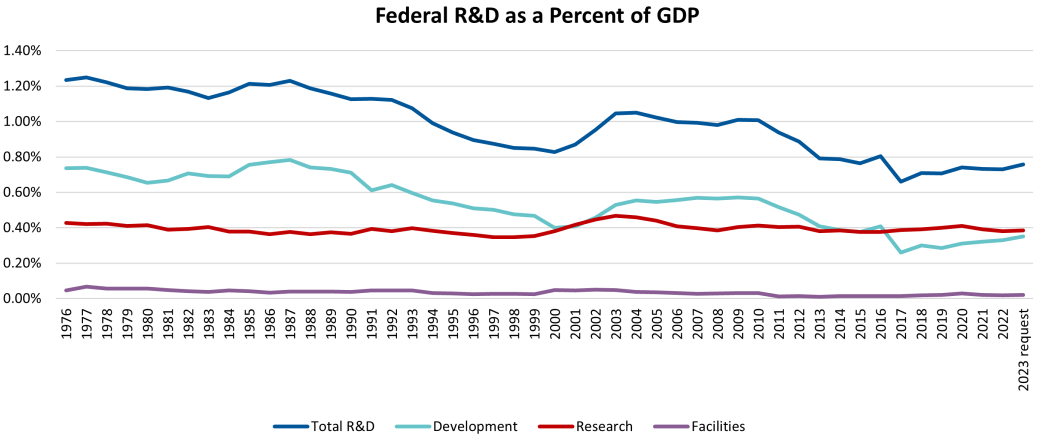
The average yearly growth of the US federal budget dedicated to non-defense R&D between 1953 and 1973 is more than 15%

US Budgets



Source: historical AAAS analyses of OMB and agency R&D budget data and documents. Includes conduct of R&D and R&D facilities| AAAS 2022

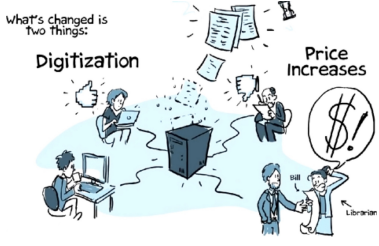
US Budgets

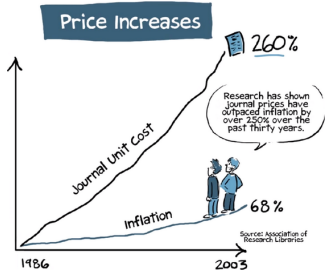


Note: Total R&D figures account for DOD adjustments to rectify differences in total obligational authority and new budget authority.
Source: AAAS R&D report series, based on OMB and agency R&D budget data. Includes conduct of R&D and R&D facilities. | AAA

New scientific publishing mechanisms

- 1951: Pergamon Press (now **Elsevier**) and R. Maxwell: many new thematic journals
- 1955: appearance of **impact factor**
- 1970s: rise of journals subscriptions ⇒ emerging crisis
- 1991: creation free archive *xxx.lanl.gov* at Los Alamos National Laboratory (to become **arXiv.org**).
- By 1994, three years after acquiring Pergamon, Elsevier had raised its prices by 50%. Librarians began cancelling subscriptions to less popular journals.





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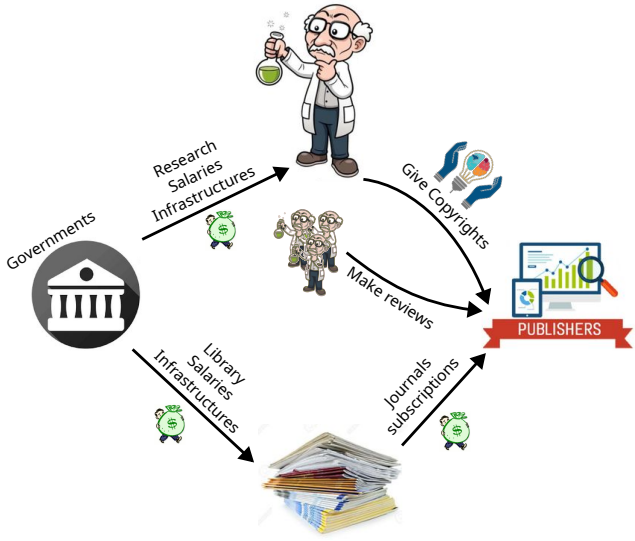
What is the problem?



Open Access

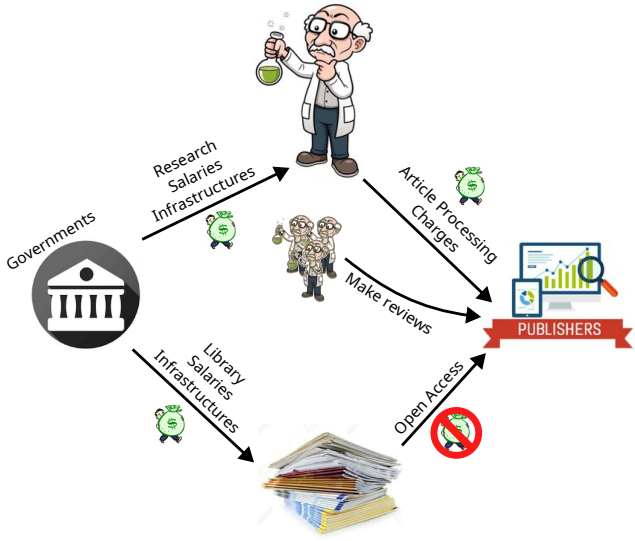
Advent of open access

- 2000: Foundation of **BioMed Central** publisher (now in Springer Nature) and online open-access with **article processing charge (APC)**
- 2000: 34,000 scientists petition:

  "we will publish in, edit and review for, and personally subscribe to only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports."

  Leads to **the Public Library of Science (PLoS)**, with APC
- 2002: **Budapest Open Access Initiative (BOAI)**: promotes open access **but** no recommendation for the costs
- 2005: The Wellcome Trust foundation: **funding requires output open access**
- 2018: SNF allows to budget OA APC
- 2021: The Plan/cOAlition S: requires Open Access journals or platforms. Followed by many institutions

No more problem?



Cost of a publication?

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> *[...] conservative estimates show that the publication cost for a representative scholarly article* ***is around $400****.*

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How to evaluate such a cost?

Editorial cost of a publication?

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Content acquisition

- Authors (re-)submission
- Dealing with reviewers
- Plagiarism/Similarity check
- DOI for paper&reviews
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Dissemination/archiving

- Web OA platform and hosting
- Long-term digital preservation
- Distribution to indexing services (Scopus, PMC, DOAJ, ...)

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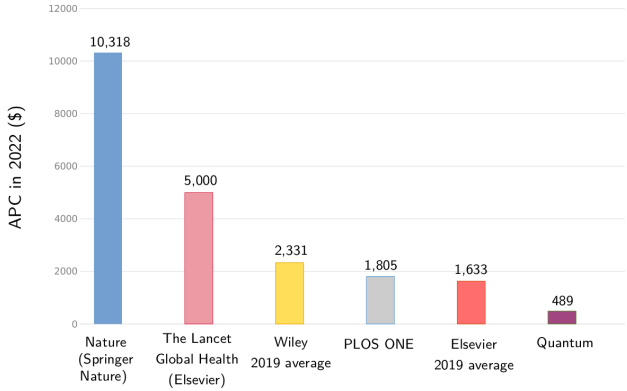
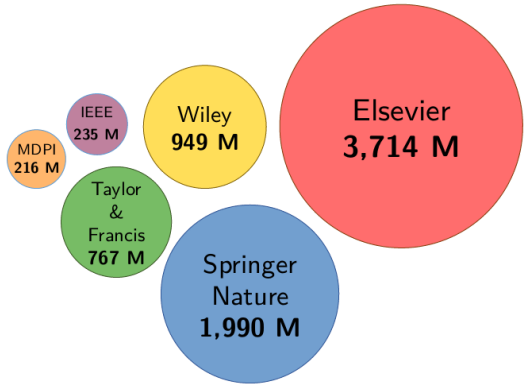
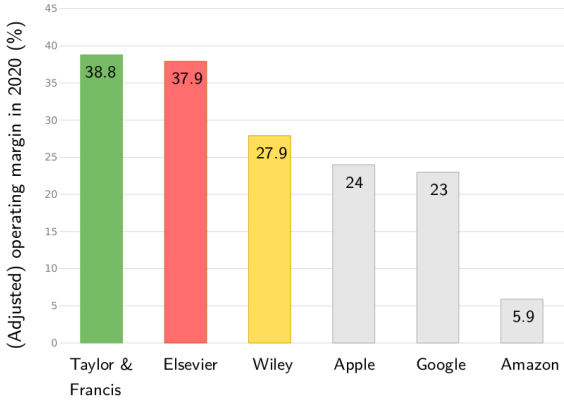


Publisher revenues



Revenues in 2020 of the biggest publishers in $
Against Parasite Publishers: Making Journals Free (2022)

Publisher margins



Declared Operating margins in 2020 in %
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Open Access Models

Credits to oabooks-toolkit

- Gold:
  - Immediate open access publication
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  - **licence allowing reuse (e.g. Creative Commons)**
- Green (self-archiving):
  - Publication archived online in an **Open-access repository** (arXiv, HAL, infoscience).
  - **No publisher work** (copy-editing, proofreading, typesetting, indexing, metadata tagging, marketing or distribution).
  - Not listed by publishers (**no metrics**)

SNF Open access recommendations

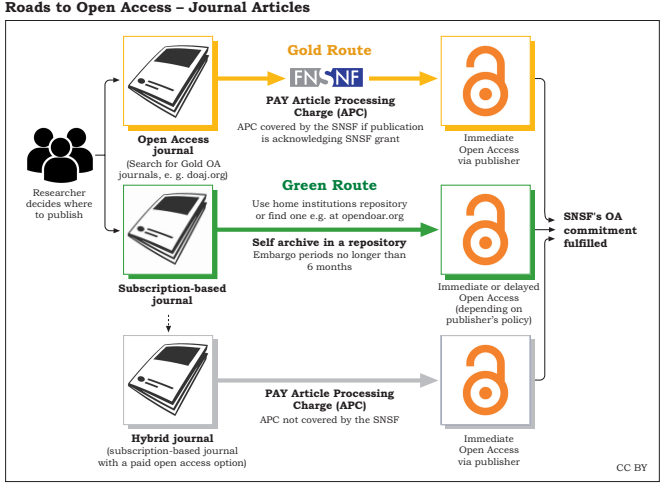

Illustration from www.snf.ch

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OA Diamond Journals Study. Part 1: Findings. (2021)

Landscape

- $\sim$ 29000 DOA journals (30% in DOAJ)
- Fewer articles (356000 per year vs. 453000 APC ones), average $\sim$ 25 articles/year
- Since 2018 $\searrow$ DOA articles while $\nearrow$ of APC-ones
- 45% in Europe, 25% in Latin America, 16% in Asia, **5% in the US/Canada**
- 60% HSS, 22% science, 17% medicine

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Sustainability and funding

- 60% of DOA journals depend on volunteers
- The majority (53%) run with less than 1 FTE
- 70% declared less than \$/€10,000 annual costs.
- Funding mainly by Universities, and much less by Funding agencies

Diamond open in CH

Mapping the Swiss Landscape of Diamond Open Access Journals. The PLATO Study on Scholar-Led Publishing. Report

Projet PLATO: l'Open Access Diamant est en bonne voie en Suisse - Bibliothèque - UNIGE (2023)

Key Findings

- 186 journals (very diverse)
- $<$ 25 articles/year, mostly peer reviewed
- Motivation: visibility, OA policies
- Proofreading: **well above average**
- Editorial tasks: (young) volounteers
- Sustainability (fundraising) is a challenge
- Costs: **average CHF 433/article**

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- Driving force: **opening practices**
- High Quality $\neq$ equity sacrifice
- Needs funding to
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  - outsource services (design, IT, typesetting)
  - give recognition
  - achieve **long-term stability**

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The term Diamond OA is intricately linked to ***a not-for-profit business model*** *based on* ***institutional funding*** *and* ***ownership*** *by the research community, on* ***collaborative work*** *between researchers having shared values of* ***equity and di-***

Overlay Journals

Definition

*An **open access** academic **overlay journal** does not produce its own content, but selects from texts that are **already freely available online**.*

Diamond Open Access, Overlay journal

V. Acary
INRIA Grenoble
France

M. Legrand
McGill Univ
Canada

G. Anciaux
EPFL
Suisse






M. Montagnat
IGE Grenoble, CNRS
France

F. Gibier
U Montpellier
France

V. Yastrebov
MINES Paris, CNRS
France

JTCAM
Journal of Theoretical, Computational and Applied Mechanics

- **Overlay Journal**
  - Always a preprint shared on Open Archives (even for refused papers)
  - Diamond Open Access
  - FAIR open access (**F**indable, **A**ccessible, **I**nteroperable, **R**eusable)

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- **Copy-editing**
  - Very high quality

JTCAM: Research Community

- Solid Mechanics (Not well aware of Open Access good practices)
- Wide spectrum: theoretical, applied, numerical, experimental
- Classical journals and publishers
  - IJP, JMPS, IJSS, CMAME, IJMM, TI, IJES, Wear, ActaMat (Elsevier)
  - IJNME, Adv Mat (Wiley)
  - Comp Mech, Meccanica (Springer)
  - PRS (Cambridge)
  - Mechanics of Adv Mat and Struct (Taylor & Francis)
- Alternate journals (Diamond Open Access)
  - CRAS (Mersenne)
  - Archives of Mechanics (since 1950)
  - Technische Mechanik
  - Mathematics and Mechanics of Complex Systems (half-diamond)
  - JACM
  - ACM

Diamond Open Access Journal in Geomechanics

- WebHost and Funding: Centre Mersenne

  Open Geomechanics is a non-profit, volunteer-run, double blind peer-reviewed scientific journal. As a diamond open access journal, it is free to publish in and free to read. Open Geomechanics started in 2018.
  We believe that the time is right to have a journal for geomechanics research, edited by geomechanics researchers for geomechanics researchers.

JTCAM FAIR principles

Findable by Journal indexation

- *Directory of Open Access Journals* (DOAJ), *Free Journal Network* (FJN), *International Standard Serial Number International Center* (ISSN), Mir@bel

Accessible

- OpenSource Episcience CMS (funded by French CCSD through CNRS, INRIA, INRAE, OpenAIRE, FNSO)
- Overlay Journal: articles stored in open repositories (arXiv, HAL)
- Curated/Reviewed Datasets with DOI @Zenodo (Curation with ETH-ORD)
- CC-BY license

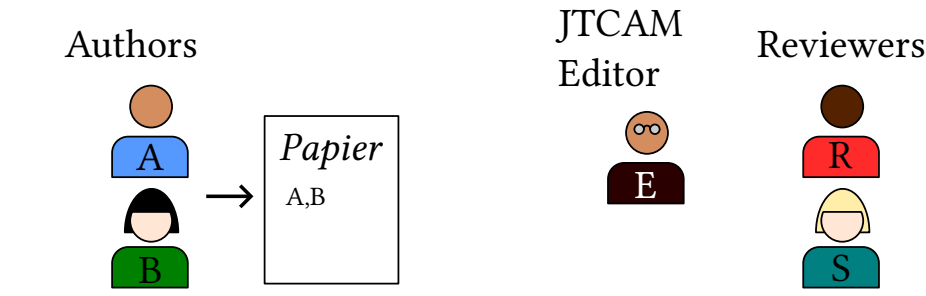
Interoperable

- Provided by the repositories with metadata

Reusable

- Saving Software revision @Software Heritage (SWHID $\sim$ DOI for software) complement datasets

JTCAM: publication process



Open Archive

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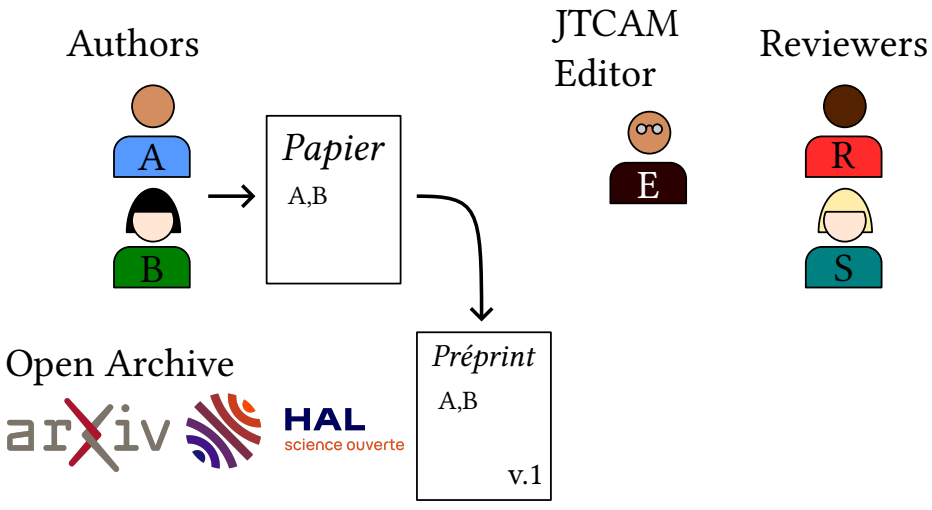

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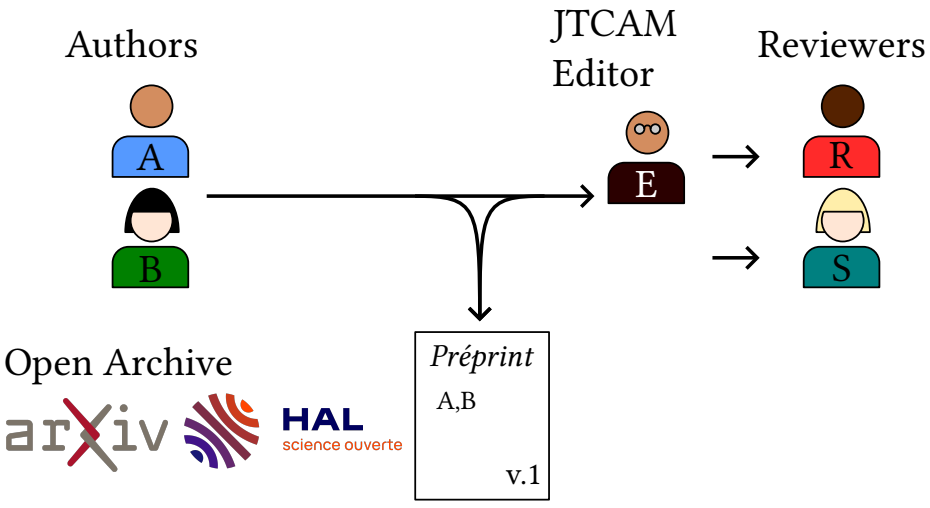

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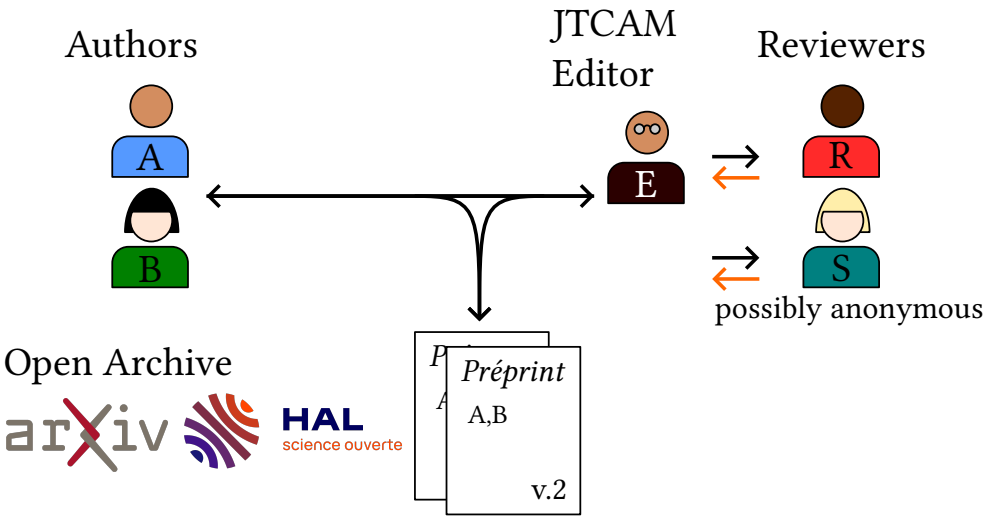

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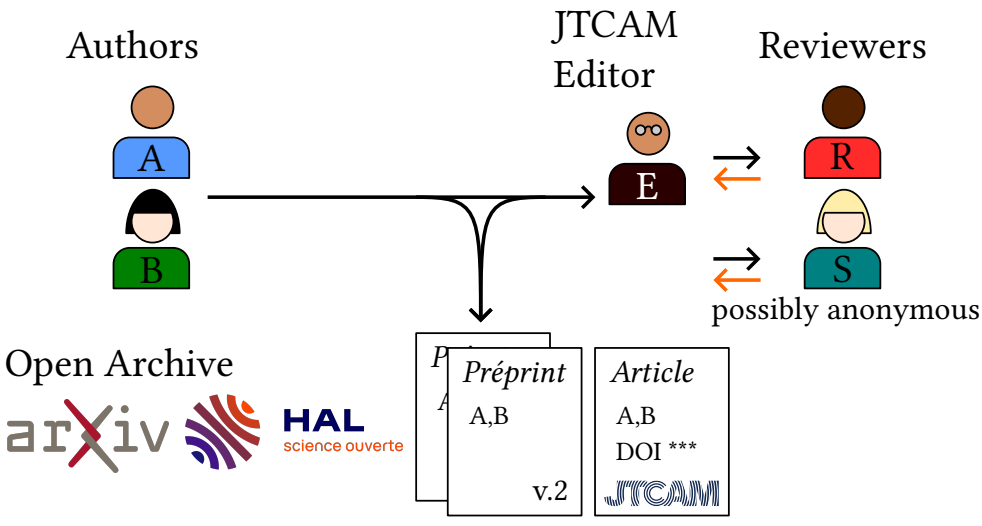

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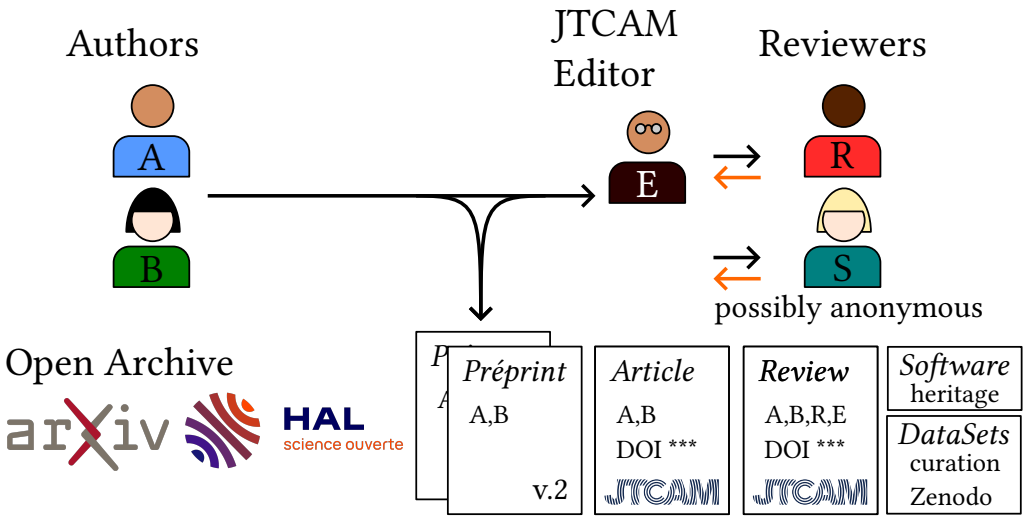
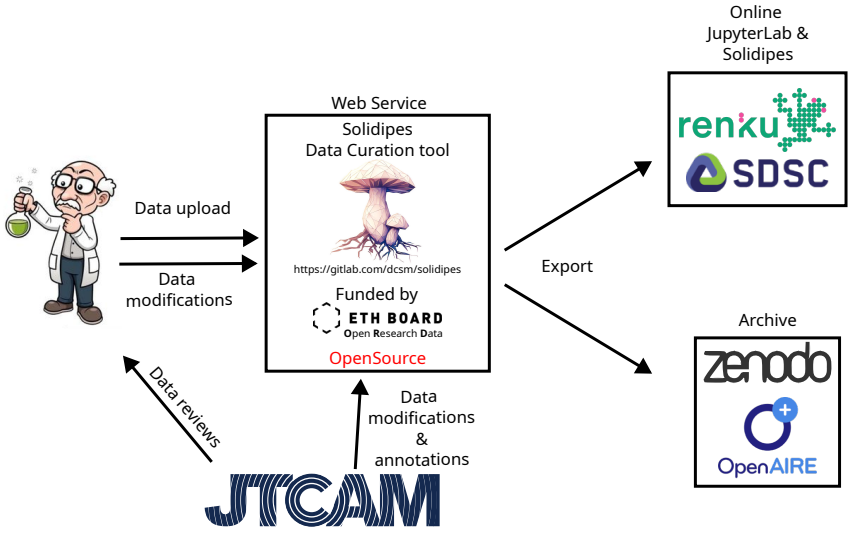


Dataset Curation Management



Time to offer an ethical and open publication model

- 2015/09 First discussion between V. Acary & M. Legrand
- 2017/07 Online discussion with interested contributors
- 2018/05 Steering committee (title, logo, etc)
- 2019/06 Scientific committee (25 members)
- 2020/01 JTCAM accepted by the Episciences plateform
- 2020/05 Editorial committee (10 members)
- 2020/08 Official JTCAM kick-off
- 2020/09 First submission
- 2022/10 Referenced in DOAJ

JTCAM: costs

Content acquisition

- Authors (re-)submission (Episicence)
- Dealing with reviewers (Episicence)
- Plagiarism/Similarity check (Reviewers)
- DOI for paper&reviews (HAL/arXiV)
- APC collection (None)

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Dissemination/archiving

- Web OA platform and hosting (HAL/arXiV)
- Long-term digital preservation (HAL/arXiV)
- Distribution to indexing services (DOAJ) (Free of charge)
- Distribution to indexing services (Scopus) (Not indexed)

JTCAM: Challenges

- 30 articles published (10 refused)
  - Mostly from French community (90%)
  - Difficult to become international
- Copy-editing
  - Low motivation on authors' side
  - Lots of work for technical editors (about 10h of work per paper)
  - Fairly long time between acceptation and publication
- Open Data/Open Software
  - Cultural limitations
  - Development of curation tool (ETH-ORD funding)

Community adhesion challenge

Lack of journal metrics is fearsome for JTCAM authors

- Authors fear for impact (for young investigators carreers)
- Reputation takes time to build
- Imbalance between countries incentives (rich vs. poorer countries)

San Francisco Declaration on Research Assessment (DORA, 2013)

Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.

Conclusion

Where we are

- There is value and costs involved in scientific press

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  - Breaks monopolies
  - “Could” lower prices
  - Breaks un-ideal search for sensational

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- Unlike in the past, digitalization and *Open Source* allows Universities to fund infrastructures and services (arXiV, HAL, ...)
- Saved money can fund repositories (infoscience, research collection, Zenodo), Software development initiatives (ETH-ORD, SNF), or simply research

Final word

Elsevier

We help researchers be more productive and efficient, [...] and that's a win for research institutions, and for research funders like governments

The Guardian

[...] history shows that betting against science publishers is a risky move. After all, ***back in 1988****, Maxwell predicted that in the future there would only be* ***a handful of immensely powerful publishing companies left****, and that they would ply their trade in an electronic age* ***with no printing costs****, leading to almost pure profit.*

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Is the staggeringly profitable business of scientific publishing bad for science?, The Guardian (2017)

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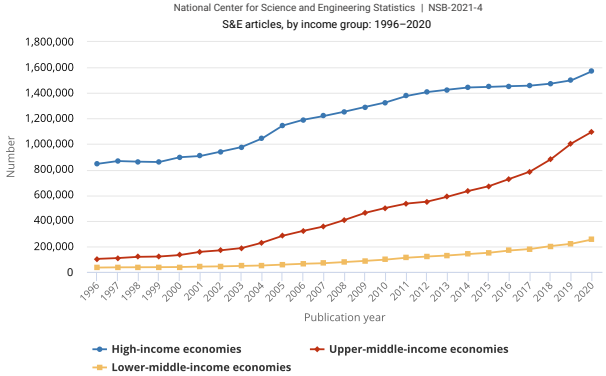

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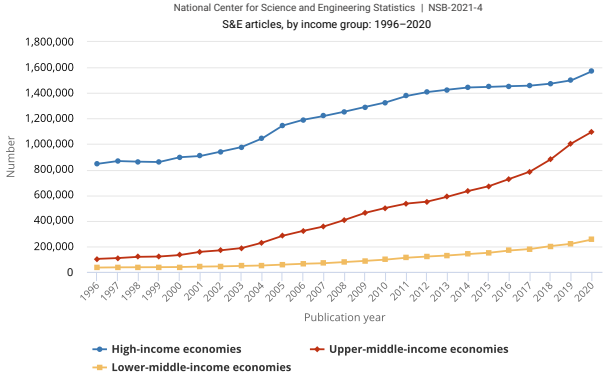

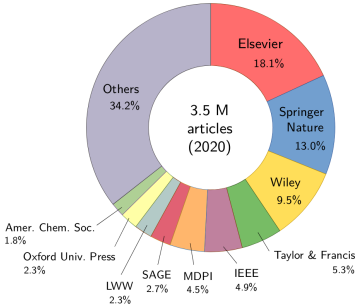

Against Parasite Publishers: Making Journals Free

(2022)