Replacing academic journals

with repositories and peer communities

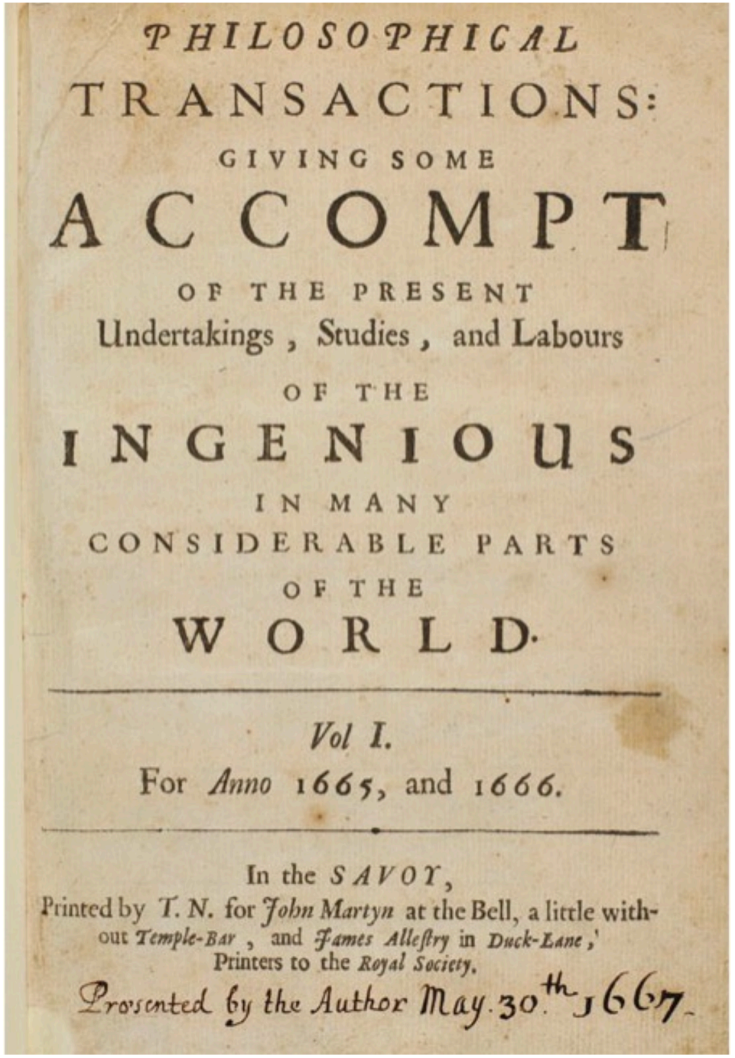
Pandelis Perakakis · pperakakis@ucm.es
BrainHack Donostia, 4 November 2026





A solution to a problem we no longer have

1665: the journal is invented



PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD.

Vol I.
For Anno 1665, and 1666.

In the SAVOY,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane,
Printers to the Royal Society.

Presented by the Author May. 30th 1667.

Philosophical Transactions solved two problems of its time: **registering** who found what first, and **distributing** findings to scholars in other cities, on paper.

The web solved both.

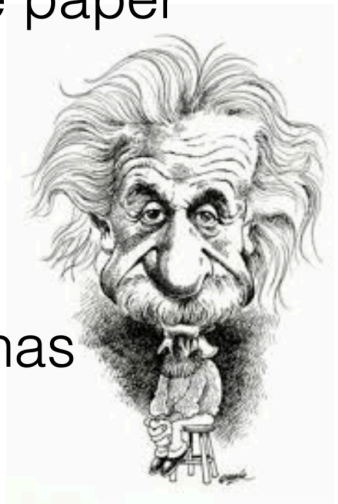
Peer review came much later

Dear Sir,

We (Mr. Rosen and I) had sent you our manuscript for publication and had not authorized you to show it to specialists before it is printed. I see no reason to address the in any case erroneous comments of your anonymous expert. On the basis of this incident I prefer to publish the paper elsewhere.

Respectfully,

P.S. Mr. Rosen, who has left for the Soviet Union, has authorized me to represent him in this matter.



Einstein to the editor of *Physical Review*, 1936, after his paper was sent to a referee without his consent.

Three fundamental processes in science

	All three controlled by journals
Validation	2–3 anonymous reviewers reviews not available
Evaluation	The impact factor and the journal's prestige stand in for the quality of the work
Dissemination	Private servers restrictive licences, subscriptions or APCs

Validation

2–3 anonymous reviewers; reviews not available

Does peer review work?

The peer review drugs don't work

A process at the heart of science is based on faith rather than evidence, says Richard Smith, and vested interests keep it in place

Peer review is supposed to be the quality assurance system for science, weeding out the scientifically unreliable and reassuring readers of journals that they can trust what they are reading. In reality, however, it is ineffective, largely a lottery, anti-innovatory, slow, expensive, wasteful of scientific time, inefficient, easily abused, prone to bias, unable to detect fraud and irrelevant.

Perhaps the biggest argument against the peer review of completed studies is that it simply isn't needed. With the World Wide Web everything can be published, and the world can decide what's important and what isn't. This proposition strikes terror into many hearts, but with so much poor-quality science published what do we have to lose?

Richard Smith, former *British Medical Journal* editor

May 28, 2015

Effects of Editorial Peer Review

A Systematic Review

Tom Jefferson, MD
Philip Alderson, MBChB
Elizabeth Wager, MA
Frank Davidoff, MD

Conclusions Editorial peer review, although widely used, is largely untested and its effects are uncertain.

JAMA. 2002;287:2784-2786 www.jama.com

Cochrane

Trusted evidence.
Informed decisions.
Better health.

Editorial peer review for improving the quality of reports of biomedical studies

Published:
18 April 2007

Authors:
Jefferson T, Rudin M, Brodney Folse S, Davidoff F

Authors' conclusions:

At present, little empirical evidence is available to support the use of editorial peer review as a mechanism to ensure quality of biomedical research.

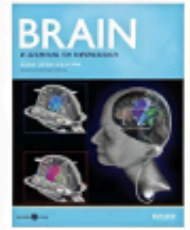
Smith, *Times Higher Education*, 2015 · Jefferson et al., *JAMA* 287:2784, 2002 · Jefferson et al., Cochrane Review, 2007

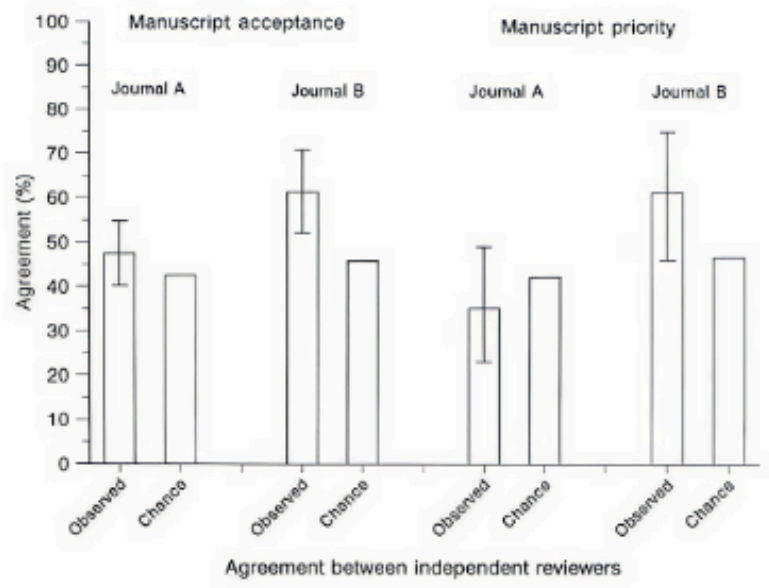
Reviewers agree little more than chance

Reproducibility of peer review in clinical neuroscience: Is agreement between reviewers any greater than would be expected by chance alone?

Peter M. Rothwell, Christopher N. Martyn

DOI: http://dx.doi.org/10.1093/brain/123.9.1964 1964-1969 First published online: 1 September 2000





Rothwell & Martyn (2000). *Brain* 123:1964–1969

Retractions

Published online 5 October 2011 | *Nature* **478**, 26-28 (2011) |
doi:10.1038/478026a

nature International weekly journal of science

News Feature

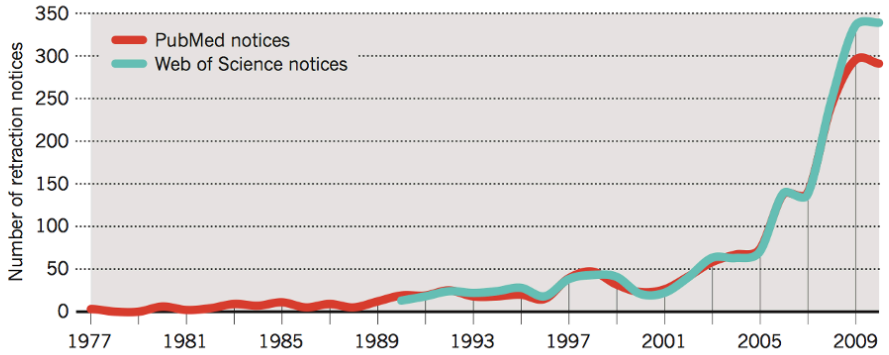
Science publishing: The trouble with retractions

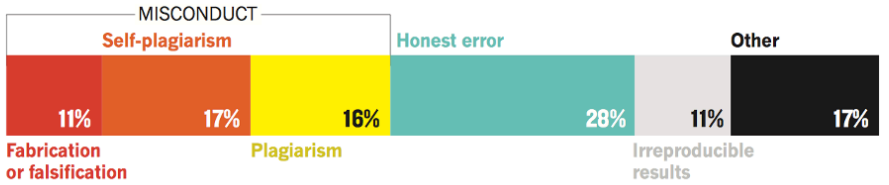
A surge in withdrawn papers is highlighting weaknesses in the system for handling them.

Richard Van Noorden

RISE OF THE RETRACTIONS

In the past decade, the number of retraction notices has shot up 10-fold (**top**), even as the literature has expanded by only 44%. It is likely that only about half of all retractions are for researcher misconduct (**middle**). Higher-impact journals have logged more retraction notices over the past decade, but much of the increase during 2006–10 came from lower-impact journals (**bottom**).





Van Noorden (2011). *Nature* 478:26–28

The reviewing is done by us, unpaid

In 2020 researchers spent **more than 100 million hours** on peer review: over 15,000 years of work. The time of US reviewers alone was worth more than US$1.5 billion.

Aczel, Szaszi & Holcombe (2021). *Research Integrity and Peer Review* 6:14

Evaluation

The impact factor and the journal’s prestige stand in for the quality of the work

A number for sale

Science. 1955 Jul 15;122(3159):108-11. doi: 10.1126/science.122.3159.108.

Citation indexes for science; a new dimension in documentation through association of ideas

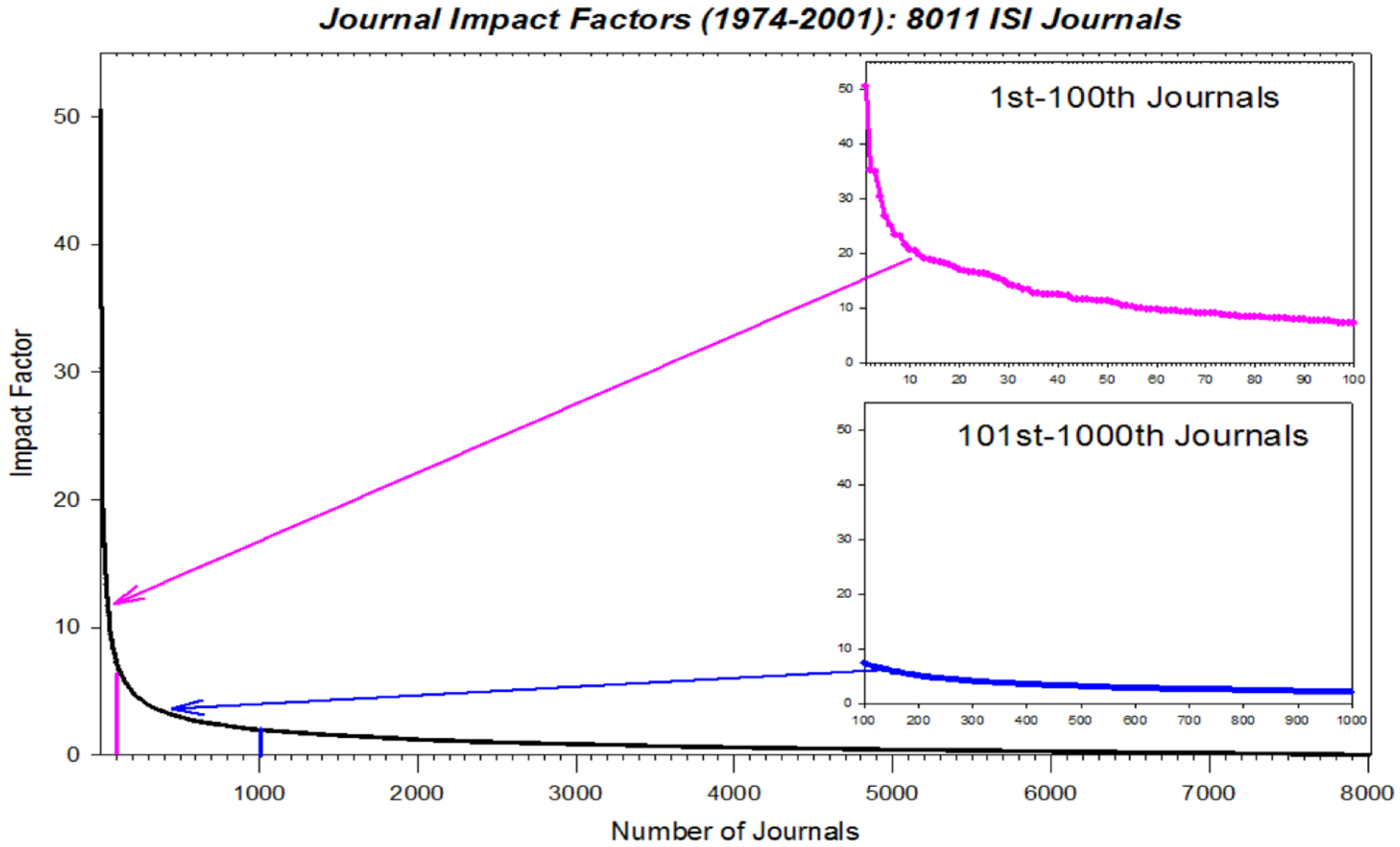
E GARFIELD

1958 · Institute for Scientific Information founded
1992 · bought by Thomson for **US$210 million**
2016 · sold to private equity, now Clarivate, for **US$3.55 billion**

"Journal impact factors are only used, and with caution, to measure and compare the influence of entire journals, but not for the assessment of single papers, and certainly not for the assessment of researchers."

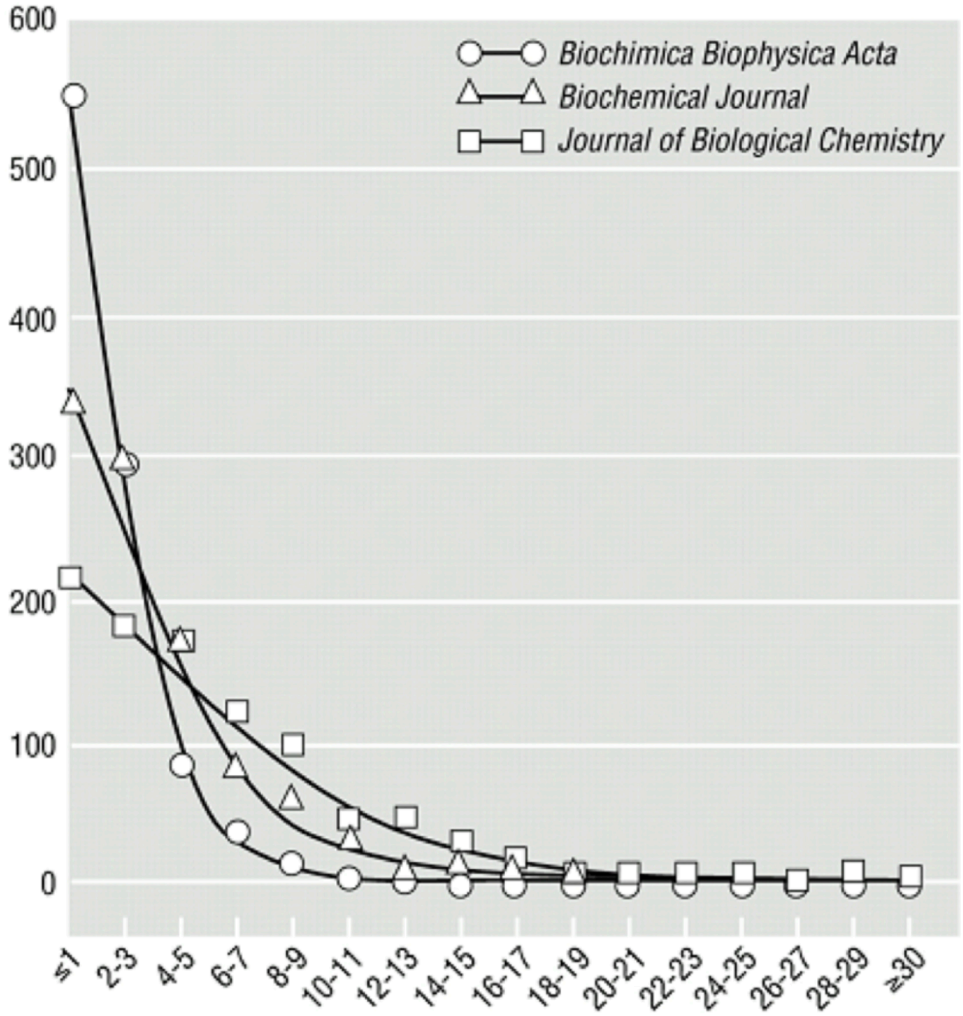
Garfield (2006). *JAMA* 295:90–93

A journal oligopoly



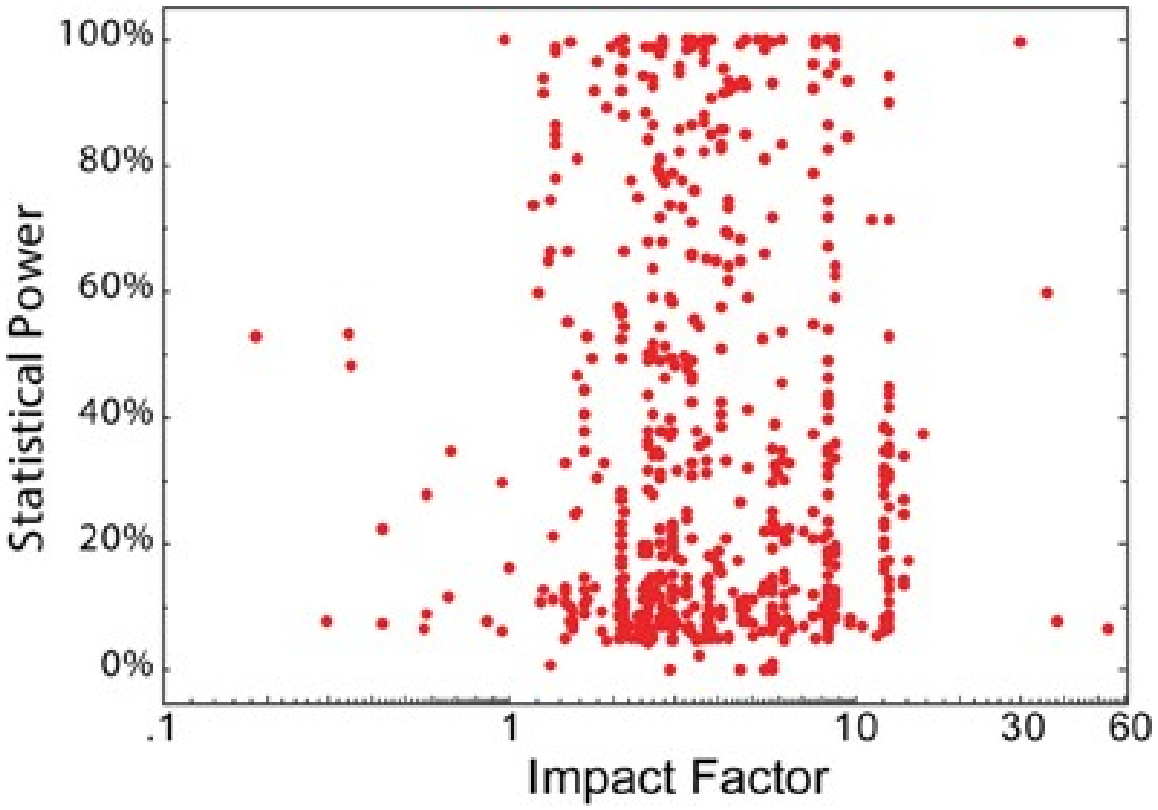
Impact factors of 8,011 ISI journals, 1974–2001 · Taylor, Perakakis & Trachana (2008). The siege of science. *Ethics in Science and Environmental Politics* 8:17–40

The impact factor is not yours



Articles by citations received in a year, three biochemistry journals · Seglen (1997). *BMJ* 314:497, reproduced in Taylor, Perakakis & Trachana (2008)

High impact, not higher standards



RESEARCH ARTICLE

High Impact = High Statistical Standards? Not Necessarily So

Patrizio E. Tressoldi, David Giofré, Francesco Sella, Geoff Cumming

Published: February 13, 2013 • http://dx.doi.org/10.1371/journal.pone.0056180

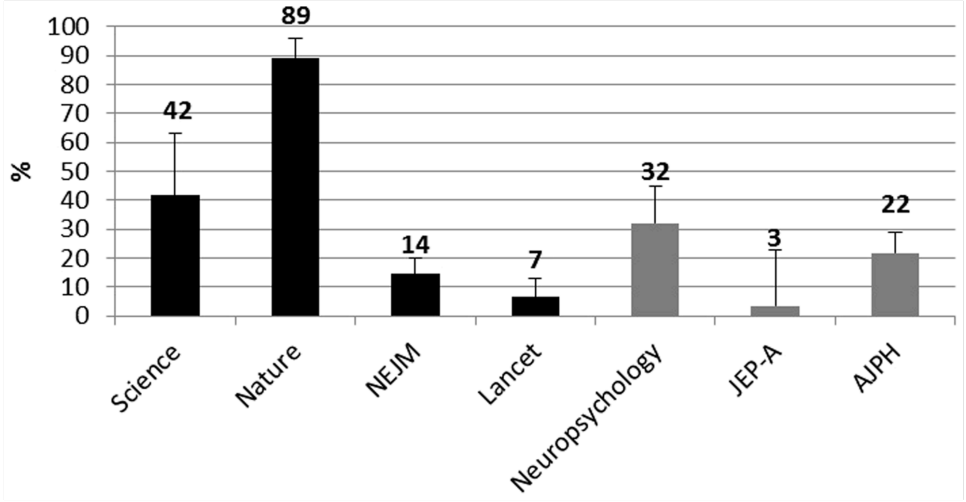
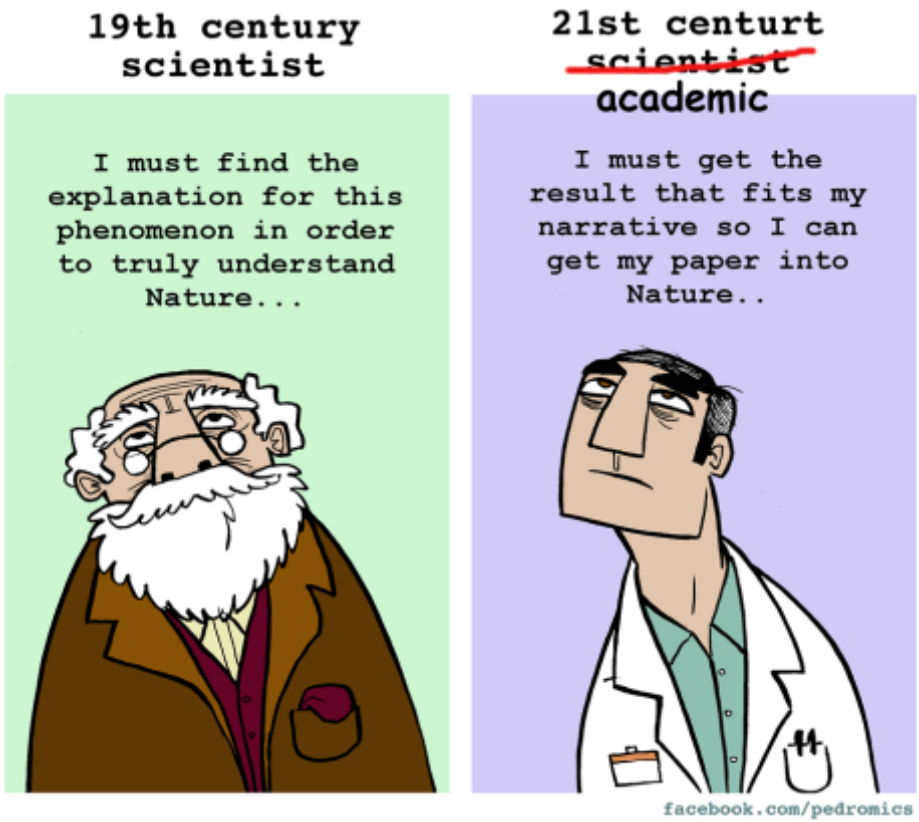


Figure 6. Percentages of selected articles in each journal that used NHST without CI, ES or Model and Power estimation.

Statistical power against impact factor: Brembs, Button & Munafò (2013). *Frontiers in Human Neuroscience* 7:291 · Tressoldi et al. (2013). *PLOS ONE* 8:e56180

Scientists, or academics?



"Most researchers today, especially those at the beginning of their careers, want to be scientists, but are forced to become academics."

Perakakis (2017). Open scientists in the shoes of frustrated academics. *Euroscientist*

Dissemination

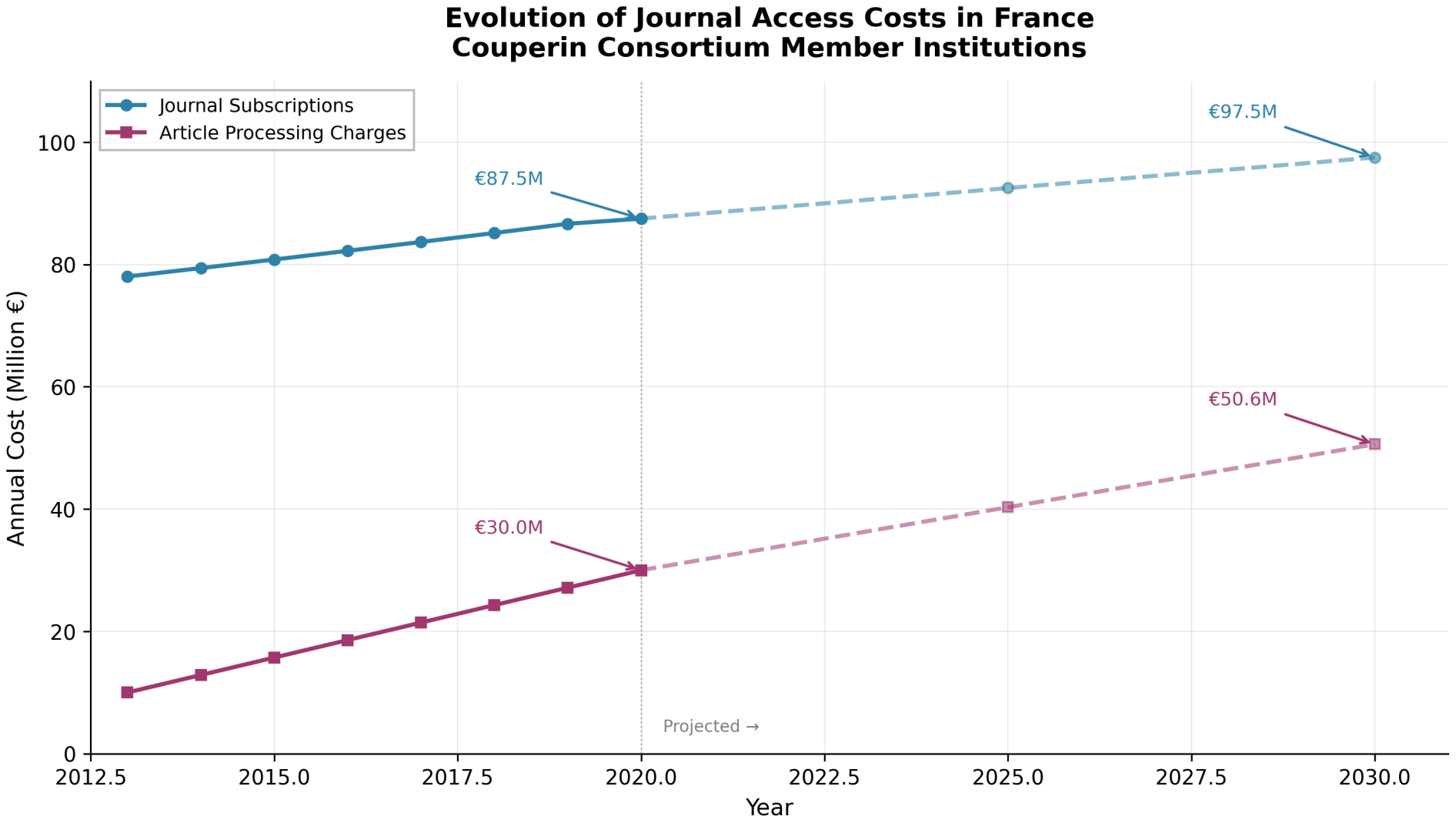
Private servers, restrictive licences, subscriptions or APCs

What two Spanish universities pay for subscriptions

	2020	2024
Universidad Complutense de Madrid	2,846,040.62 €	2,972,520.85 €
Universidad de Granada	1,045,250.00 €	2,250,000.00 €

Budgets for journal subscriptions · ucm.es/portaldetransparencia · gerencia.ugr.es

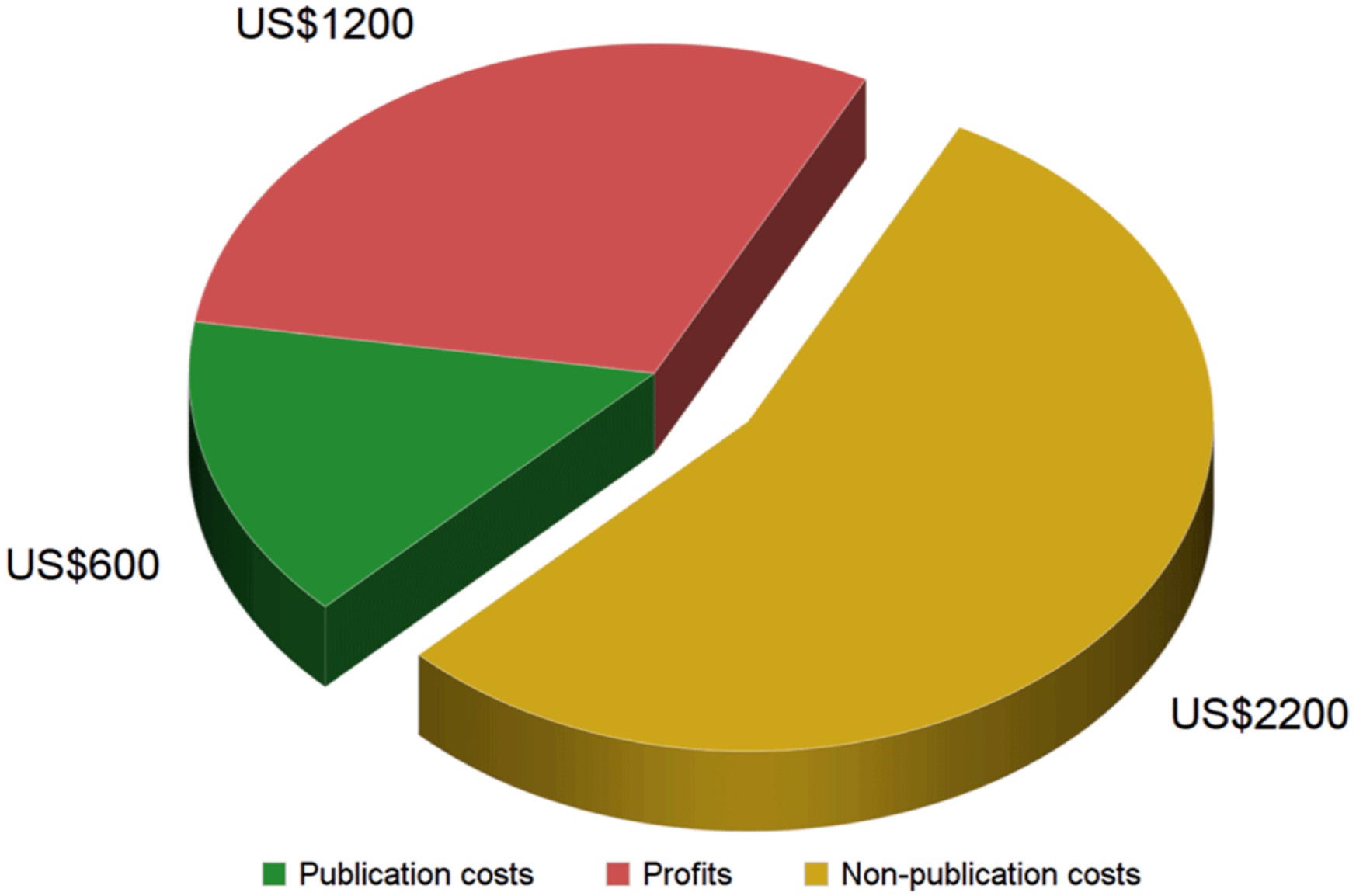
The bill keeps rising



Source: Couperin ERE surveys (2014–2021); French Open Science studies.

Couperin consortium, France: subscriptions and APCs, 2013–2030

What we pay for an article, and what it costs



Grossmann & Brembs (2021). Current market rates for scholarly publishing services. *F1000Research* 10:20

Open access: from a right to a business



Free availability on the public internet, to read, download, copy, distribute, print, search or link to the full texts, without financial, legal or technical barriers.

Two complementary strategies: **self-archiving** in repositories (green) and **open access journals**.

"Gold OA represents a business opportunity, whereas Green OA represents a business problem."

Joseph Esposito, publishing consultant, *The Scholarly Kitchen*, 2013 · budapestopenaccessinitiative.org

Transformative agreements: a service for the authors!

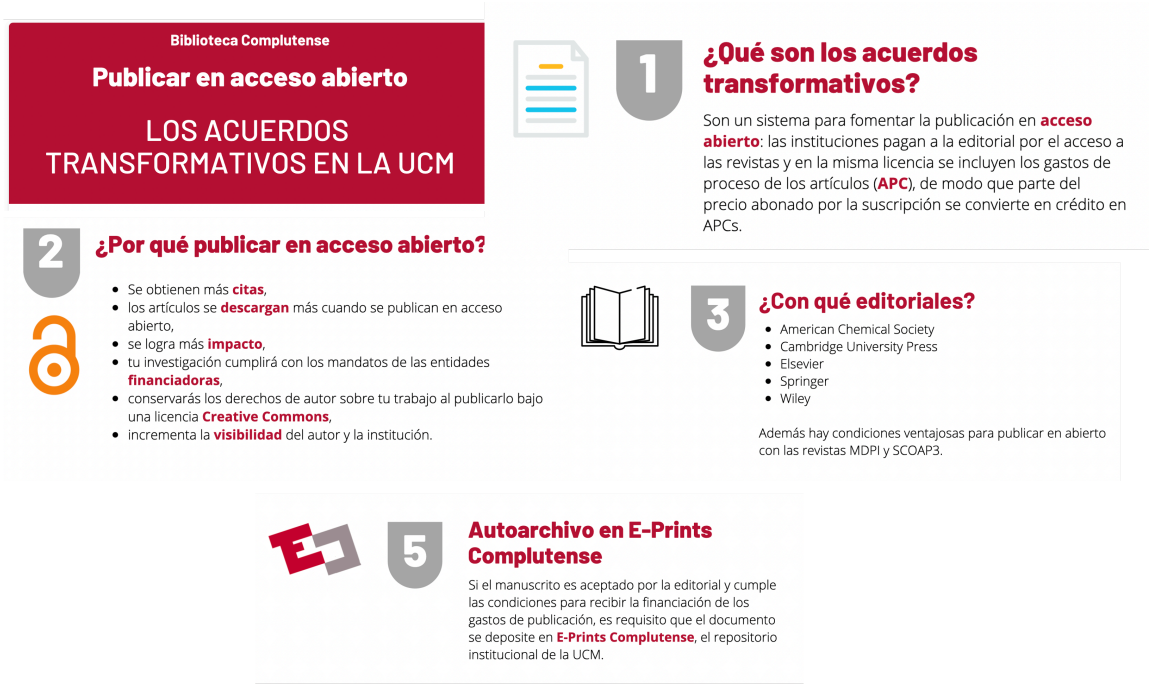


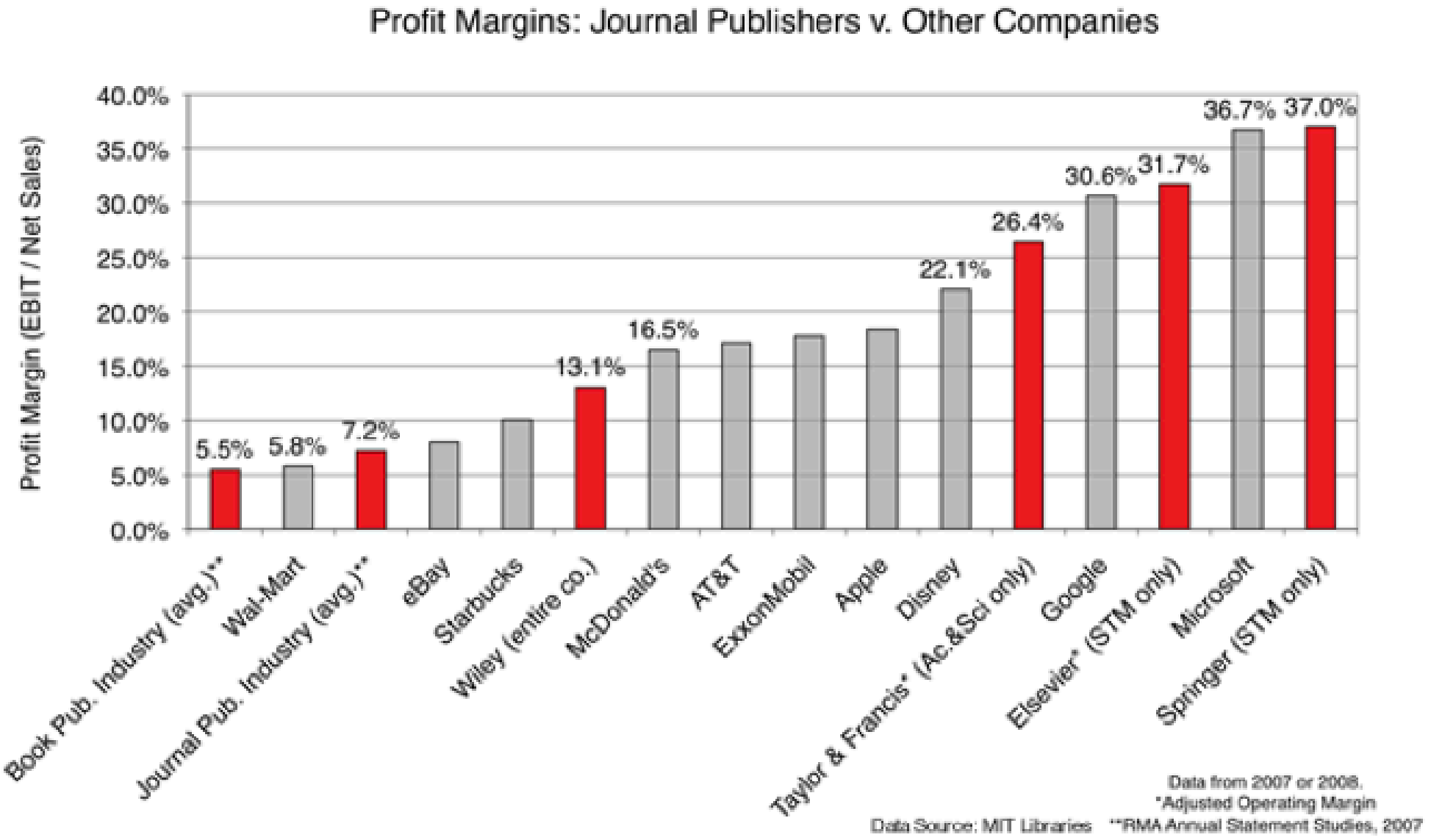
Tabla 1. Coste de los Acuerdos Transformativos, desglosados por editorial y concepto. Datos aproximados estimados de la información limitada disponible en las referencias [10-14]. Los datos de la ACS no son en euros sino en dólares.

Editorial	Coste total (millones de €)	Número de APCs	Gasto en APCs (millones de €)	Coste por APC (en €)
Elsevier	101.721	26.436	65.058	2.461
Springer	24.943	8.757	21.346	2.438
Wiley	24.000	9.178	-	2.600
ACS	12.415	2.665	-	3.750
Total	**163.078**	**47.118**		

UCM library guide to the CRUE–CSIC agreements · González MacDowell (2023). El verdadero coste de los acuerdos transformativos. *Anales de Química*

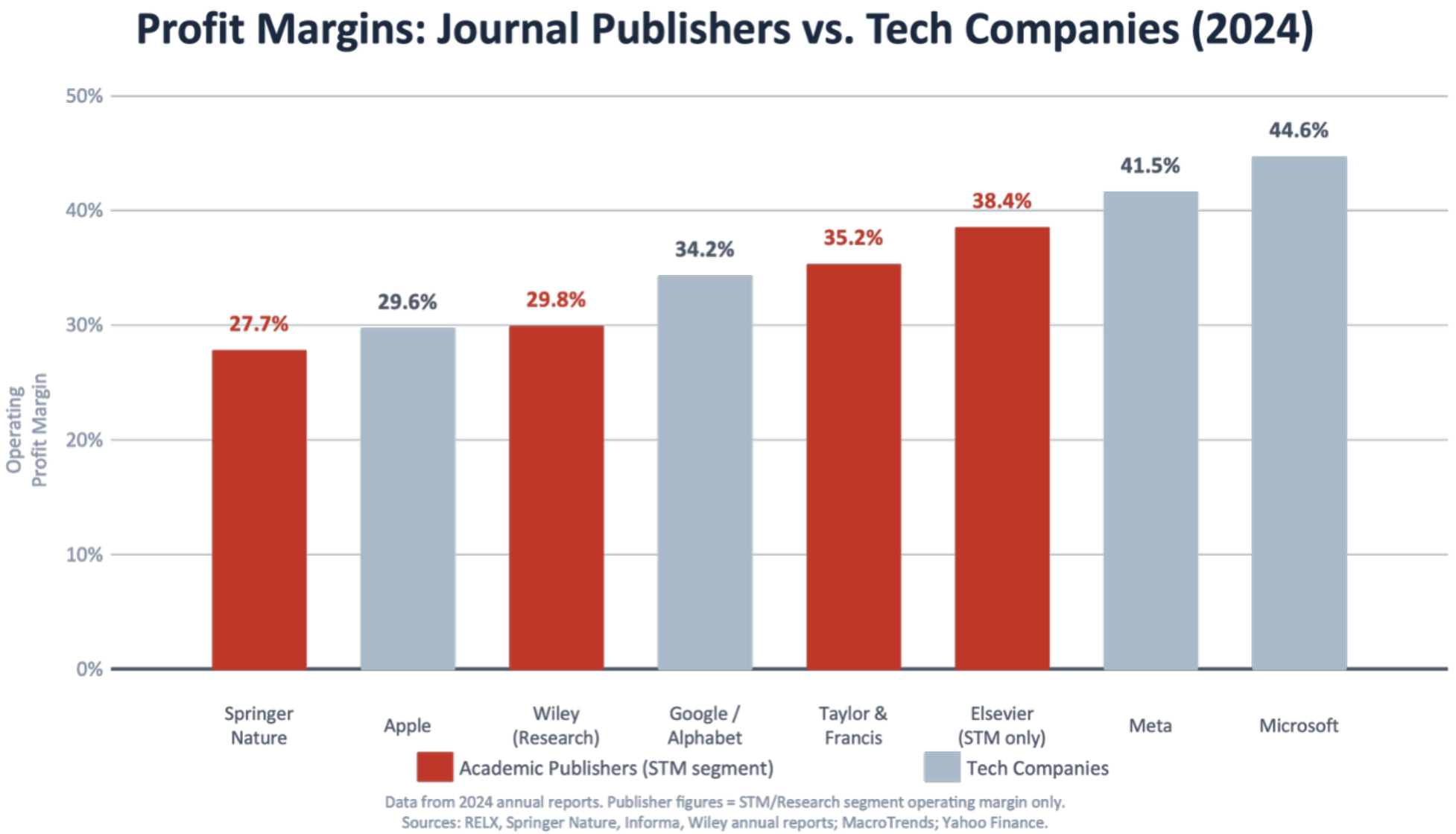
A business, not a service

Profit margins, 2007/2008



MIT Libraries; RMA Annual Statement Studies, 2007 (data from 2007 or 2008)

Profit margins, 2024



Company annual reports, 2024 (STM segments for publishers)

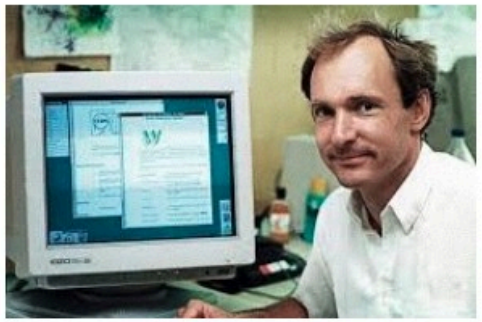
Build by scientists, for scientists

2012	Elsevier	**Pure**	research information system
2013	Elsevier	**Mendeley**	reference manager
2016	Elsevier	**SSRN**	preprint server
2016	Wiley	**Atypon**	publishing platform, US$120 million
2017	Elsevier	**bepress**	repository software
2017	Elsevier	**Plum Analytics**	altmetrics
2017	Clarivate	**Publons**	records of peer review
2018	Elsevier	**Aries Systems**	Editorial Manager
2018	Clarivate	**Kopernio**	access to papers
2020	Taylor & Francis	**F1000 Research**	open publishing platform
2021	Wiley	**Hindawi**	open access publisher, US$298 million
2021	Clarivate	**ProQuest**	US$5.3 billion
2022	Elsevier	**Interfolio**	faculty evaluation
2022	Springer Nature	**Research Square**	preprint server

Company press releases and SEC filings; Library Technology Guides, mergers timeline

The tools for the revolution are here

The infrastructure has existed since 1991



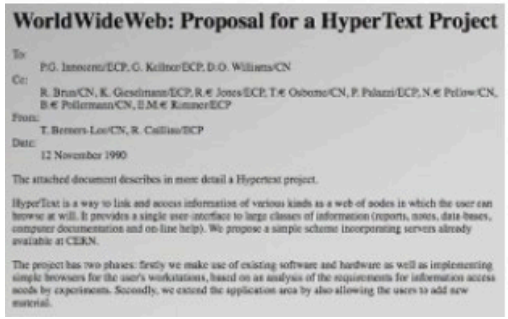
Tim Berners Lee



Paul Ginsparg



arXiv.org



WorldWideWeb: Proposal for a HyperText Project

To:
P.G. Innocenti/ECP, G. Kellner/ECP, D.O. Williams/CN

Cc:
R. Brun/CN, K. Gieselmann/ECP, R.€ Jones/ECP, T.€ Osborne/CN, P. Palazzi/ECP, N.€ Pellow/CN, B.€ Pollermann/CN, I.M.€ Rimmer/ECP

From:
T. Berners-Lee/CN, R. Cailliau/ECP

Date:
12 November 1990

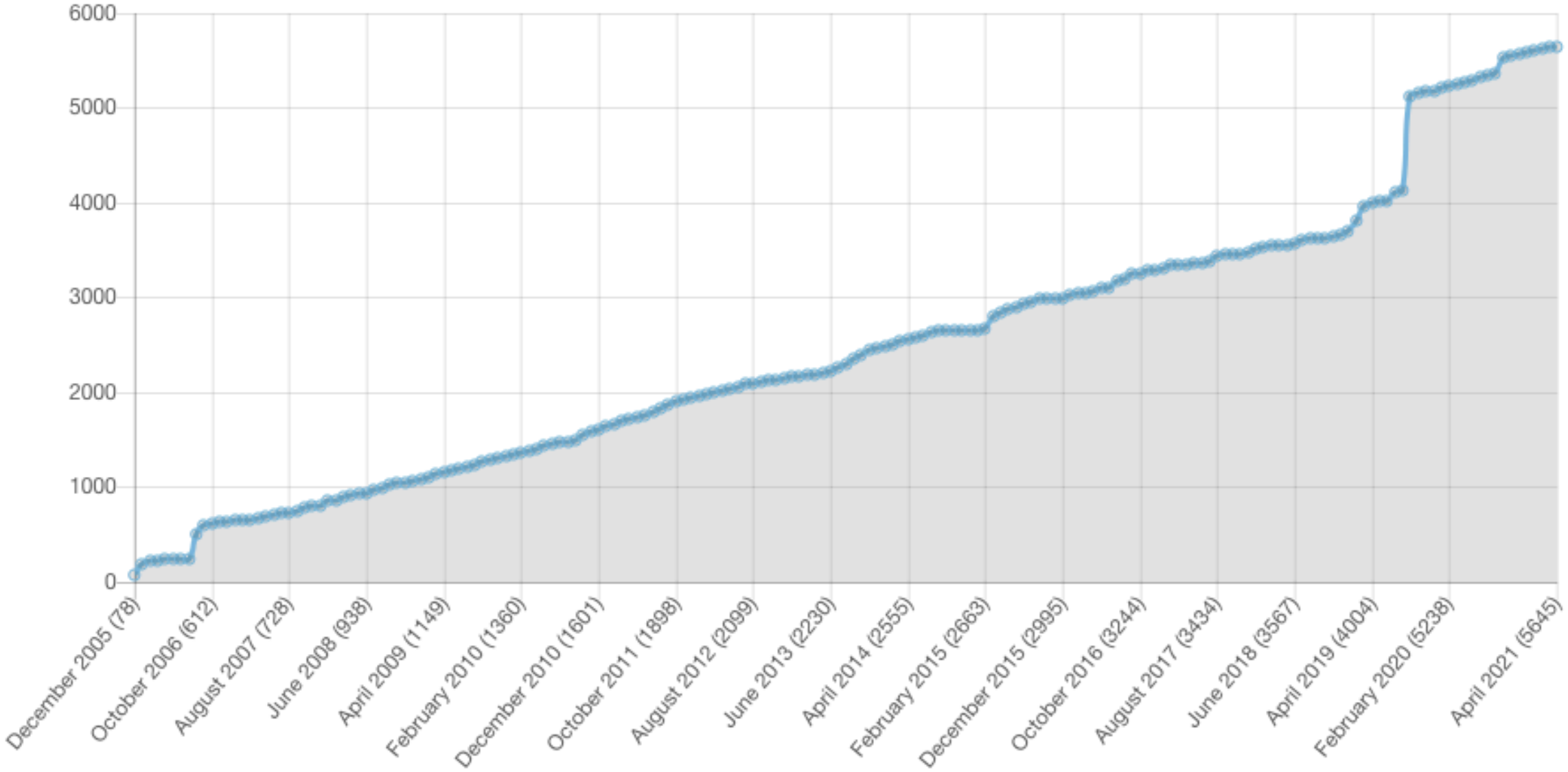
The attached document describes in more detail a Hypertext project.

HyperText is a way to link and access information of various kinds as a web of nodes in which the user can browse at will. It provides a single user-interface to large classes of information (reports, notes, data-bases, computer documentation and on-line help). We propose a simple scheme incorporating servers already available at CERN.

The project has two phases: firstly we make use of existing software and hardware as well as implementing simple browsers for the user's workstations, based on an analysis of the requirements for information access needs by experiments. Secondly, we extend the application area by also allowing the users to add new material.

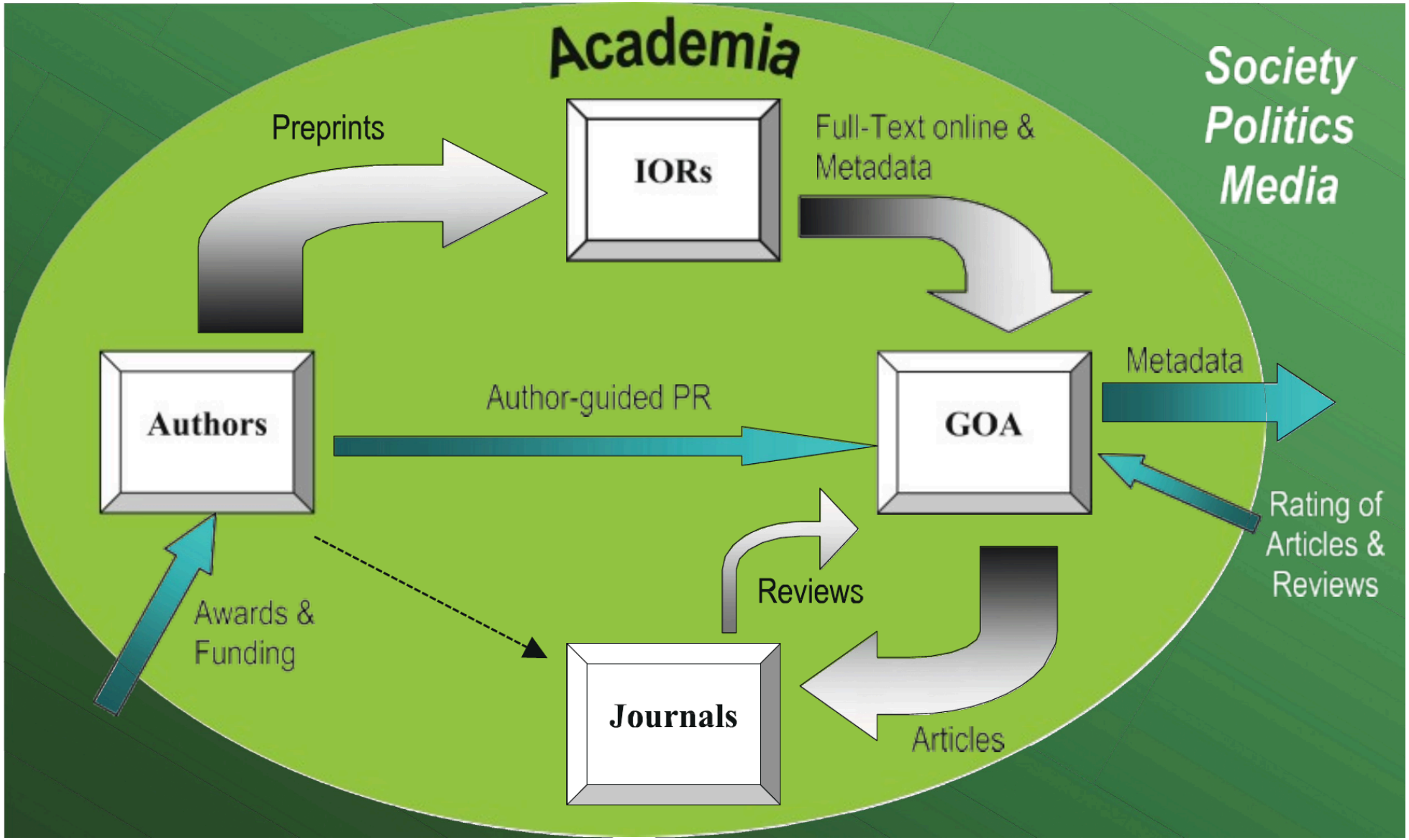
Tim Berners-Lee and the World Wide Web · Paul Ginsparg and arXiv

Repositories everywhere



OpenDOAR, number of open access repositories · v2.sherpa.ac.uk

Our model unchanged since 2010



Perakakis, Taylor & Trachana (2010). Natural selection of academic papers. *Scientometrics* 85:553–559

Replacing academic journals

ROYAL SOCIETY OPEN SCIENCE

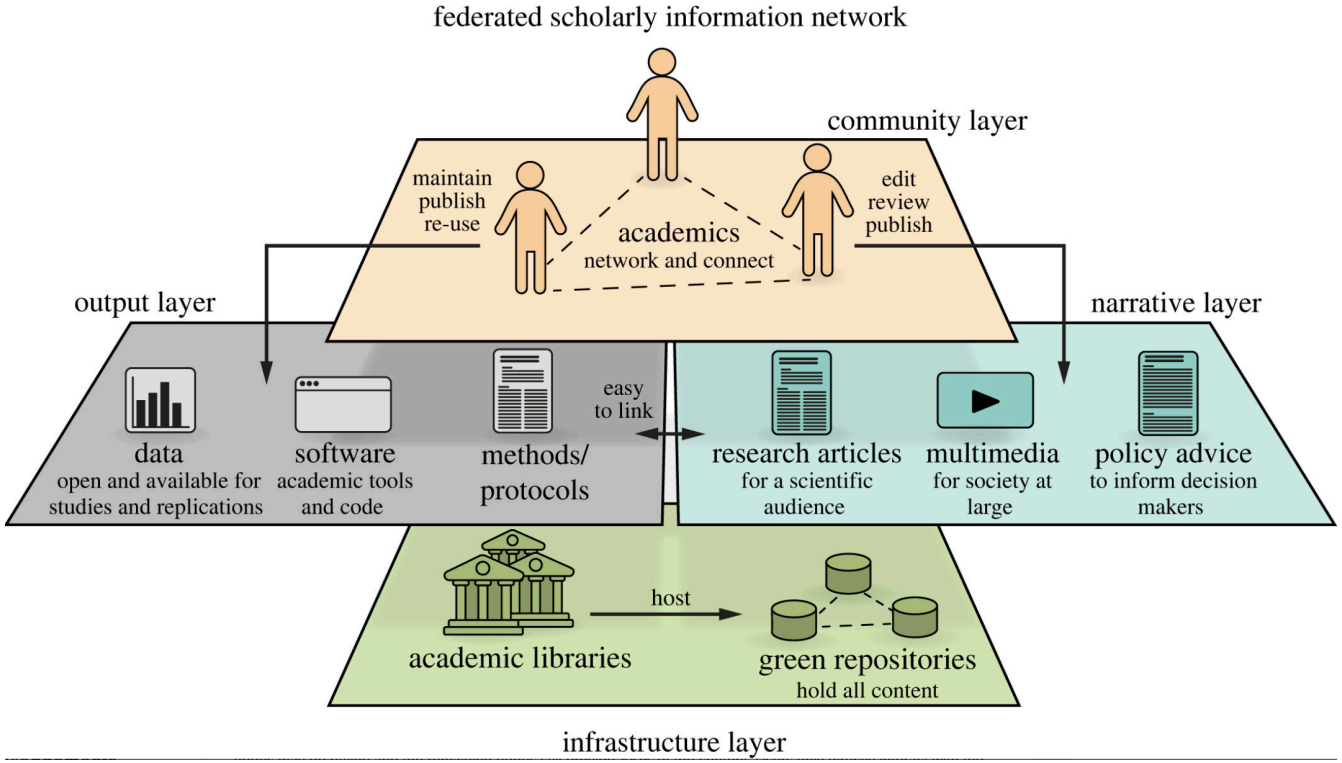
royalsocietypublishing.org/journal/rsos

Perspective

Replacing academic journals

Björn Brembs[1], Philippe Huneman[2], Felix Schönbrodt[3], Gustav Nilsonne[4], Toma Susi[5], Renke Siems[6], Pandelis Perakakis[7], Varvara Trachana[8], Lai Ma[9] and Sara Rodriguez-Cuadrado[10]

A federated network of interoperable research objects, governed by the scholarly community and connected by open standards.



Brembs et al. (2023). Replacing academic journals. *Royal Society Open Science* 10:230206

The three processes decoupled

	Each done by those who should do it
Validation	Peer communities open reviews, published and citable: PCI, scientific societies
Evaluation	Assessment of the work itself, not of the journal's name DORA, CoARA, funders and evaluation committees
Dissemination	Repositories public, open, permanent: institutional repositories, Zenodo, arXiv, PsyArXiv

Peer communities review preprints



Repositories and review services talk to each other

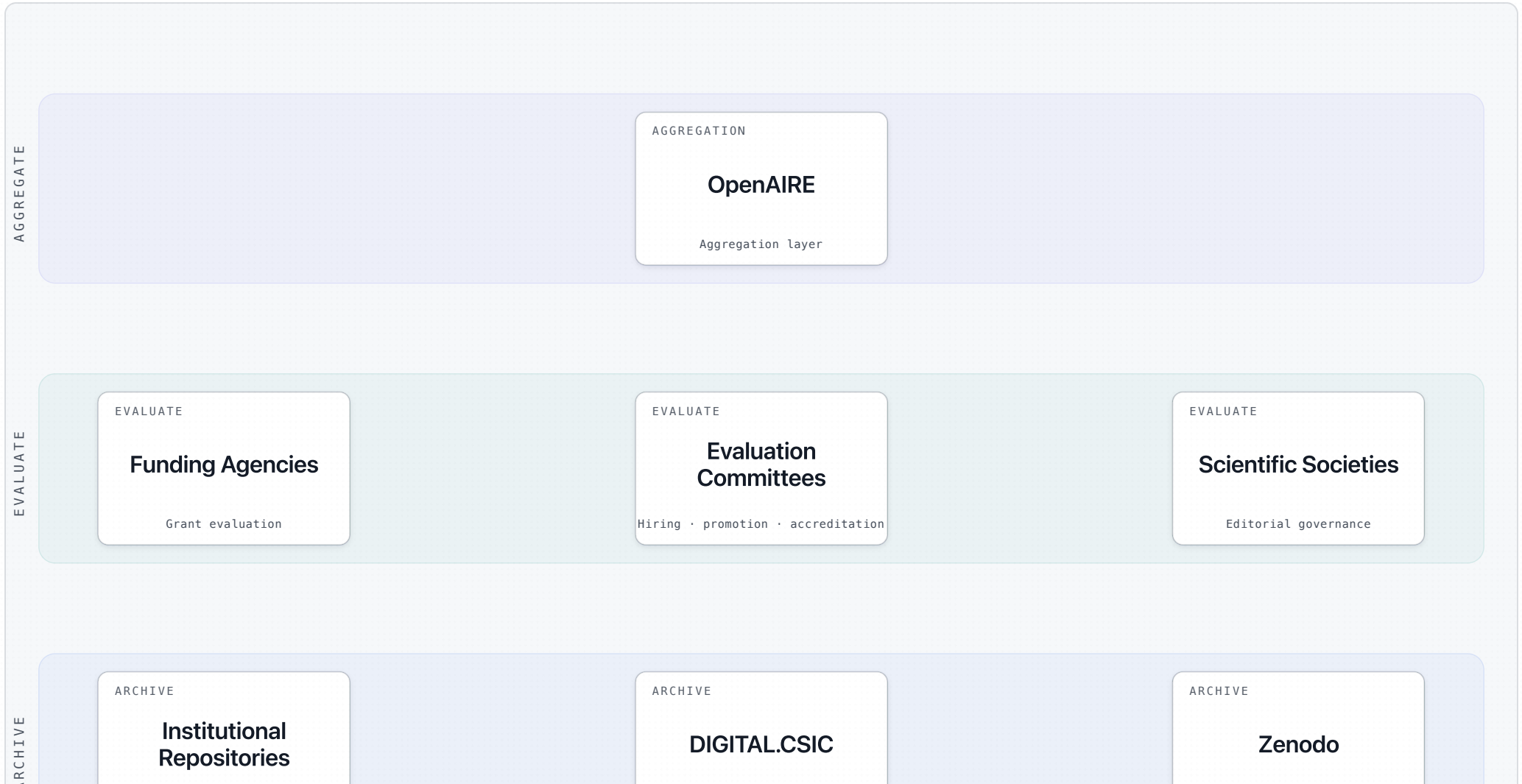


With COAR Notify, a reviewer's report travels back to the repository and is shown next to the preprint.

coar-repositories.org/notify

The pieces of an efficient research assessment system al

Here is how they fit together:



NARRATIVE

- Infrastructure

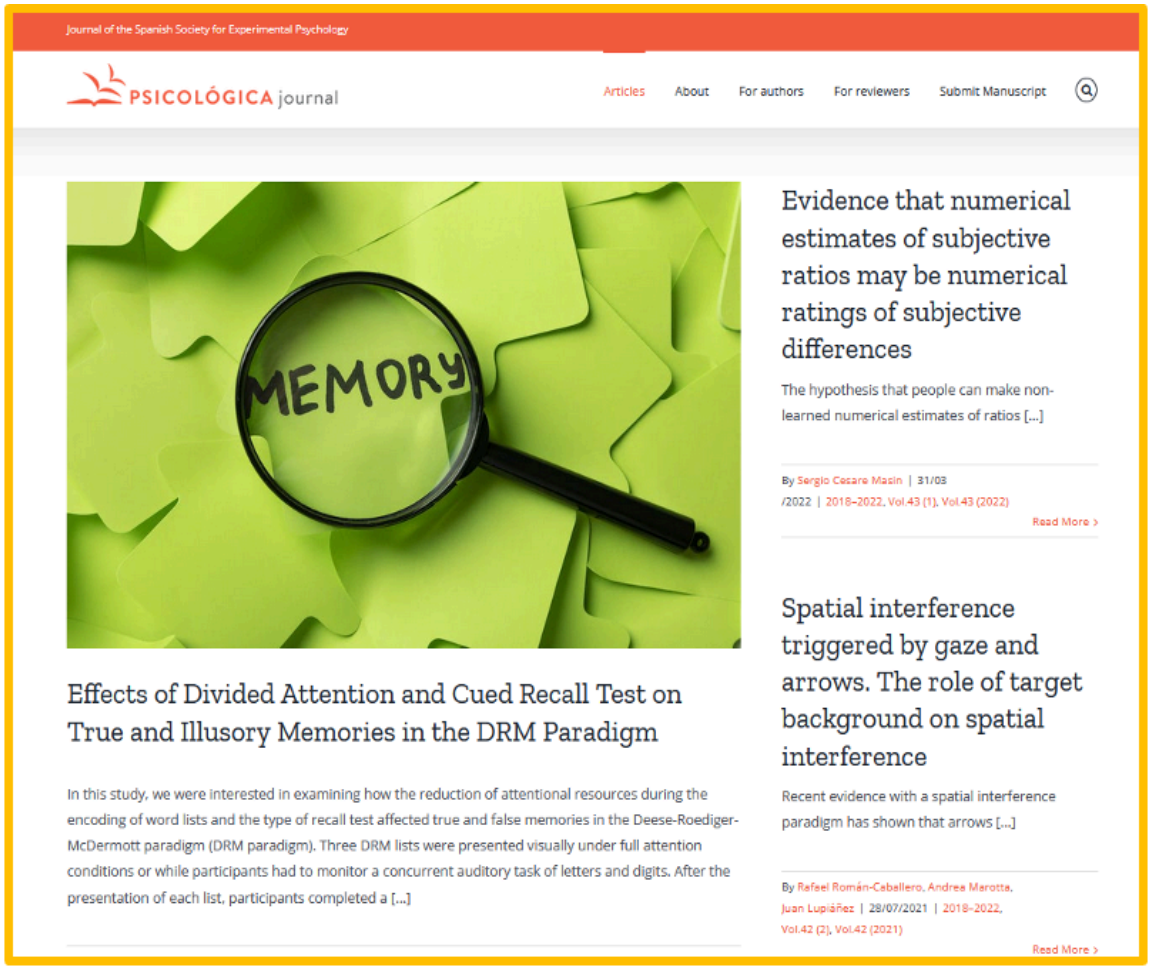
- A Archive
- B Evaluate
- C Aggregate

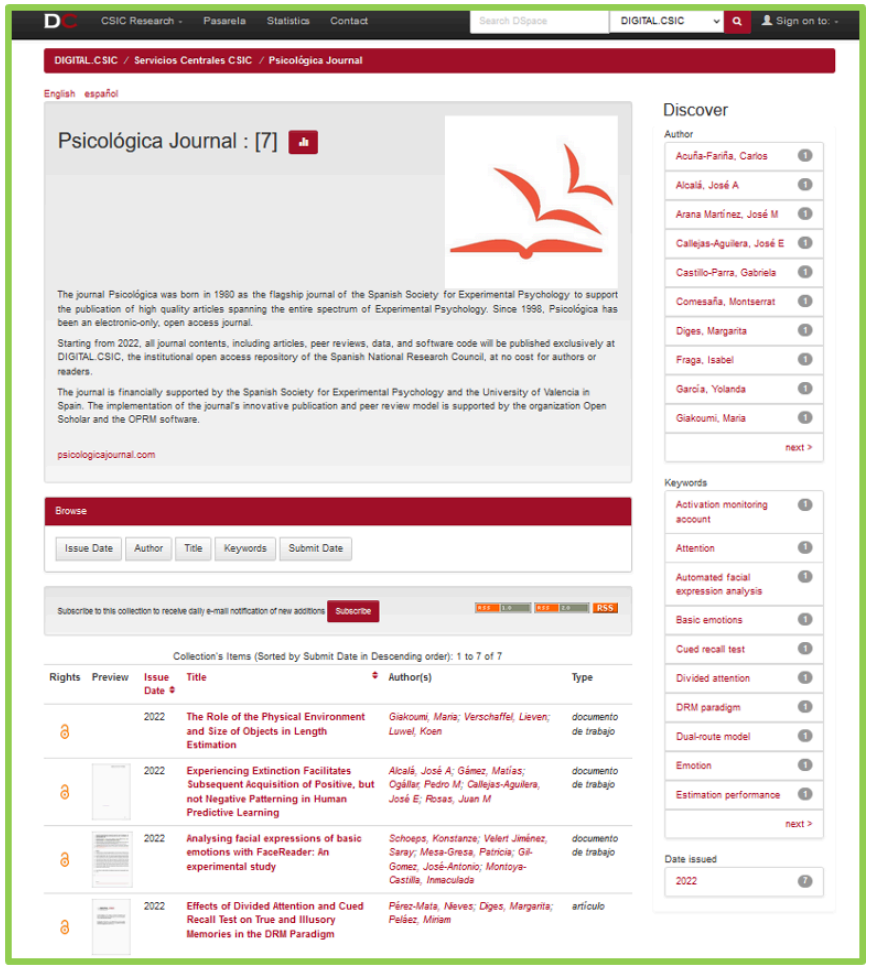
- 1 OA-only evaluat
- 2 Open peer revie

- Open Science w trust

Psicológica: a journal without a publisher

2022: a society journal moves into a public repository





psicologicajournal.com · digital.csic.es/handle/10261/228593

About €30 an article



"At an estimated cost of €30 (US$34) per publication, Psicológica can increase its output without incurring substantial extra costs."

Bernal & Perakakis (2023). *Nature* 619:698

The three jobs, at Psicológica

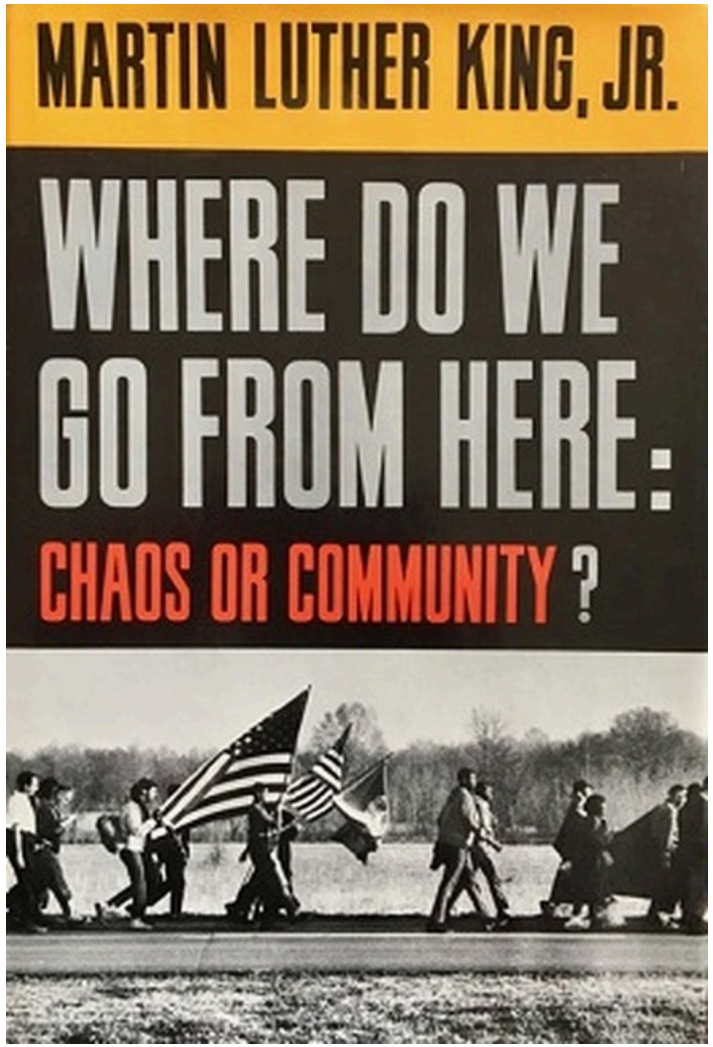
	Collaboration of academics and librarians
Validation	The society's editors and reviewers reviews deposited next to the article, each with its own identifier
Evaluation	The open record preprint, reviews, comments and the published article, all readable and citable
Dissemination	DIGITAL.CSIC the public repository of the Spanish National Research Council; no publisher

Example: an article with its reviews and comments · hdl.handle.net/10261/264625

Remove the profit, remove the obstacles

Publishers had the money to do all of this and never did. Communities that care for science rather than profit can do it now:

- open reviews as research objects, deposited and citable
- registration, perservation, metadata curation and discoverability in institutional repositories
- certified reproducibility (trust in science) by *reprocheck*, this week at #BrainHackDonostia2026



Where do we go from here?

CHAOS OR COMMUNITY?

Martin Luther King, Jr. (1967)

Thank you

Pandelis Perakakis · pperakakis@ucm.es

pandelisperakakis.info · openscholar.info · psicologicajournal.com