

Who should own public science?

Preprints, Power, and Publishers

Dr. Jon Tennant

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[Munin Conference on Scholarly Publishing](#)

Thirteenth Annual Conference – 2018,

Tromsø, Norway



What gets me out of bed in the morning

- The vast majority of scholarly research and knowledge is held hostage by private corporations.
- This disadvantages everyone on this planet, except for those in the wealthiest, elite research institutes.
- These commercial giants are ruthless racketeers that have profit margins that exceed Apple and even 'big oil' (>35%).
- We are not communicating research effectively, and our world is suffering as a result.



A global research 'crisis'



<https://paywallthemovie.com/>

There are four major 'crises':

- Access – Most research still paywalled to most people
- Reproducibility – Much research fails basic reproducibility tests
- Serials – The ridiculous price increases of journals
- Evaluation – The metric that shall not be named

Why Open Research?

BOYCOTT ELSEVIER

**Science is not
working as well
as it could be**

- Slow and wasteful
- Ruled by commercial interests
- Copyright is broken
- The four crises
- Illusion of academic freedom
- Questionable research practices
- Closed science means people suffer



SUSTAINABLE DEVELOPMENT GOALS



Do you believe that scientific research can help us solve these problems?

YES!

But then you also *must* acknowledge that by preventing access to research, we are acting against meeting these goals.

And this is what many in the present scholarly publishing industry are doing. In exchange for our money.

It's not a bug. It's a feature.



**For researchers, getting published
is like going to a restaurant,
bringing all of your own
ingredients, cooking the meal
yourself, and then being charged
\$40 for a waiter to bring it out on a
plate for you.**

You are the provider, the product, and the consumer.

Why Open Research *now*?

Things are getting worse

- Co-option of Open Science
- Private interests strengthening
- Ownership of scholarly infrastructure

We have to act **now**, as a global community and take control of [Open] Research.



"Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders."

I feel like often we talk about “Open Science” as a different entity to [good] “science”.



Comment | [Open Access](#)

When will 'open science' become simply 'science'?

Mick Watson

Genome Biology 2015 16:101

<https://doi.org/10.1186/s13059-015-0669-2> | © Watson; licensee BioMed Central. 2015

Published: 19 May 2015

Open Science now: A systematic literature review for an integrated definition

Ruben Vicente-Saez , Clara Martinez-Fuentes

“Open Science is transparent and accessible knowledge that is shared and developed through collaborative networks.”

THIS IS VERY BAD

“Open science describes the practice of carrying out scientific research in a completely transparent manner, and making the results of that research available to everyone. Isn't that just 'science'?”

THIS IS VERY GOOD

[https://genomebiology.biomedcentral.com/articles/10.1186/s13059-015-0669-](https://genomebiology.biomedcentral.com/articles/10.1186/s13059-015-0669-2)

<https://www.sciencedirect.com/science/article/abs/pii/S0148296317305441>

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What's the fuss?

- Because OS has become a poorly-defined **process-based** concept
 - Divorced from any human, **value-based** element
 - Treated as distinct from principles of 'good' science
- This makes it very easy AGAIN for commercial interests to co-opt
 - (which they are)*
 - Or to be used as a political slogan to gain brownie points
 - (which it also is)*

Principles of Open Scholarship



- ✓ Freedom
- ✓ Fairness
- ✓ Justice
- ✓ Truth
- ✓ Liberty



FAIR principles
TOP guidelines

- Transparency
- Reproducibility
- Accountability

Principles



**OPEN
SCHOLARSHIP**



- Open Access
- Open Methods
- Pre-registration

Practices



Values

- Equity
- Freedom
- Fairness

Ask the audience

For you, is Open Science:

A process? An ideal? A vision? A principle? A club? A political agenda? A fad? A distraction? Exclusive?

People have called it all of these at one point or another...

Is Open Science a 'movement'?

- *"..a group of people working together to advance their shared political, social, or artistic ideas."*
 - Movements have a **direction**.
 - Movements have **shared goals**.
 - Movements are defined by **commonality**.
- **Who** is defining these for Open Science?
- **Who** is leading this movement?
- **What** happens if you're 'outside' this movement?
- **What** happens when a 'movement' can't answer these questions..?

Open Science and power



ASK THE POWERFUL FIVE QUESTIONS

What power have you got?

Where did you get it from?

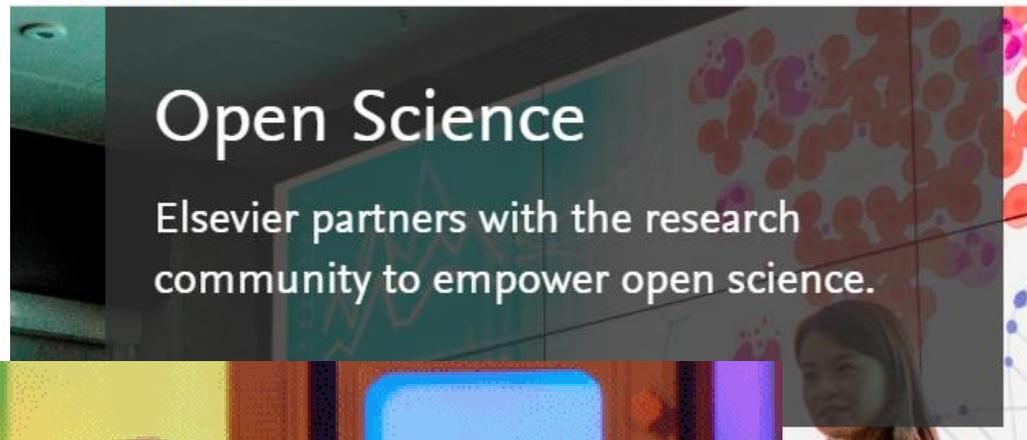
In whose interests do you exercise it?

To whom are you accountable?

How can we get rid of you?

Only democracy gives us that right. That is why no-one with power likes democracy and that is why every generation must struggle to win it and keep it; including you and me, here and now.

Mega-publishers are corrupting Open Science



Organisations stuck in a pre-digital mindset with a key product developed in the 17th Century.

Basically the reason why the Open Science 'movement' began.

Business models based on exclusion, exploitation of privilege, discrimination, extortion..

Who pay lip service to Open Science, while simultaneously subverting it to meet their own intentions.

We DO NOT share the same values and principles.

Springer Nature abusing power for profits

Page 99 of the Springer Nature IPO* prospectus:

"We also aim at increasing APCs by increasing the value we offer to authors through improving the impact factor and reputation of our existing journals."



<https://www.timeshighereducation.com/blog/linking-impact-factor-open-access-charges-creates-more-inequality-academic-publishing>

*failed, lol

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Recent events have been a bit odd...

Elsevier are corrupting open science in Europe

Elsevier - one of the largest and most notorious scholarly publishers - are monitoring Open Science in the EU on behalf of the European Commission. **Jon Tennant** argues that they cannot be trusted.

Now with 1100 supporting signatures!!

Elsevier and the Lisbon Council get miffed and respond..

This is twice now, including the response by Elsevier, that I have had assaults made on my character over this matter, which look like strategic attempts to discredit me, rather than the substance of the posts. Terms like 'misleading' and 'misinformation' have been used repeatedly, without any substantial evidence, and detracting from addressing the numerous issues that I have raised. These issues have been co-signed by more than 600 members of the global research community in a formal complaint to the EU



Cough



Dear Mr. Tennant,

Dated 28th August

I refer to your email of 26 July 2018 in which you make a number of requests for information regarding the open call for tenders 'Open science: monitoring trends and drivers' (ref. PP-05622-2017) and the implementation of the service contract subsequently awarded.

In view of the complexity of the issues you have raised, an in-depth analysis by my services is required. Therefore, you can normally expect a reply to your email within one month of receiving this letter.

I apologise in advance for this delay and for any inconvenience this may cause.

Yours sincerely,

For the Director General absent
W. BURTSCHEK
Deputy Director General

Jean-Eric PAQUET

They responded! And exactly as expected.



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR RESEARCH & INNOVATION
The Director-General

Brussels,
[rtd.a.2\(2018\)5045414](mailto:rtd.a.2(2018)5045414)

Jon Tennant
Email: jon.tennant.2@gmail.com

SENT BY EMAIL WITH ACKNOWLEDGEMENT OF RECEIPT

Subject: Your complaint regarding Elsevier and the Open Science Monitor

Reference: Your email of 26 July 2018 (internal reference [Ares\(2018\)3970686](#)) and my letter of 28 August 2018 (internal reference [Ares\(2018\)4420518](#))

Dear Mr. Tennant,

I would like to thank you for your email of 26 July 2018 in which you have made a number of requests for information regarding the open call for tenders 'Open science: monitoring trends and drivers' (ref. PP-05622-2017) and the implementation of the subsequently awarded service contract.

I would like to emphasise that the contract between European Commission and the consortium composed of the Lisbon Council (leader), the [Fundacion ESADE](#) and the University of Leiden was awarded according to the rules in force concerning open calls for tenders. The above-mentioned consortium provided the best offer in accordance with the price/quality ratio as set out in the tender specifications published in [ctendering](#)¹. The

But they failed to adequately address the explicit role of Elsevier, the inherent COIs, the incredible data biases

But now at least there is an 'advisory group' overseeing the whole process
#WIN

Their response is being annotated here for a counter-reply:

<https://docdrop.org/pdf/Annex-to-letter-to-Jon-Tennant-1--BbPfR.pdf/>

<https://zenodo.org/record/1443395?#.W724P2j7RPY>

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And while they were busy dealing with that..

RELX referral to EU competition authority

 Jonathan Tennant;  Björn Brembs

Formal complaint made on 26/10/2018 regarding RELX and the wider scholarly publishing market to the [EU competition authority](#).

Preview

Page: 1 of 22 Automatic Zoom+

Dear Directorate General for Competition,

We are writing to you in the capacity of a group of researchers who benefit from the production of scholarly research articles, and also as authors of scientific articles that fall under the scholarly publishing market.

We write to notify you of what we believe to be the anti-competitive practices of RELX Group in the scholarly publishing and analytics industry, based on the following two articles of the Treaty of the Functioning of the European Union (TFEU):

Edit

New version

9,861 views

5,685 downloads

See more details...

404 Altmetric score not found

See more details

- Blogged by 3
- Tweeted by 575
- On 2 Facebook pages
- Mentioned in 3 Google+ posts
- 3 readers on Mendeley

Indexed in

Then the EUA got involved

Scholarly publishing: EUA asks European Commission to investigate lack of competition

06 November 2018

The [EUA Council adopted a statement on 26 October 2018](#) expressing its concern about the lack of transparency and competition in the scholarly publishing business sector in Europe. The statement, addressed to the European Commission, asks for an investigation to clarify if competition rules guarantee fair competition market conditions.

EUA sent the statement as an informal complaint to the Directorate-General for Competition. It was drafted by Universities Denmark, the Danish Rectors' Conference, and subsequently reviewed and validated by all the national rectors' conferences that make up [the FIA Council](#)

<https://www.eua.eu/news/188:scholarly-publishing-eua-asks-european-commission-to-investigate-lack-of-competition.html>

'Abusive' practices of scholarly publishers

1. High degree of concentration of ownership
2. A sector with oligopolistic structures
3. No transparency in pricing
4. Large profits based on public funds
5. Calls for open access without positive effect on pricing
6. Asymmetry in negotiating power
7. Trend towards vendor lock-in
8. No sign of improvement in competition

And now the unions too



1880



2018

Freddie 2018

<https://www.ei-ie.org/en/detail/16061/elsevier-putting-a-price-on-knowledge>

David Edwards, General Secretary of EI: *“Higher education and research are fundamental social rights, and as such must be exempt from commercialization by third parties which are interested only in making profit, not in promoting access to knowledge. We have to democratize knowledge if we want to achieve social justice through quality education for all. EI and its more than 32 million members are fighting to that end day in and day out.”*

#democratiseknowledge

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Germany versus Elsevier

"One big publisher stated: if your country stops subscribing to our journals, science in your country will be set back significantly. I responded [...] it is interesting to hear such a threat from a producer of envelopes who does not have any idea of the contents."

€£\$€¥|€R

#villain



Martin Grötschel, President of the Berlin-Brandenburg Academy of Sciences and Humanities

#HERO

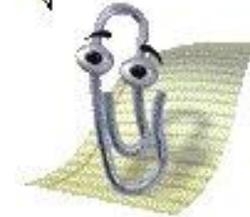
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Power and culture change

- The mantra '**publish or perish**' is dead, replaced by '**publish and perish**' due to under-funding and competitiveness in climbing the academic career ladder.
- A mentality drilled into students as soon as they start, with the view that anything beyond attaining a professorship is failure.
- And then we wonder why mental health problems are so rampant for researchers...

It looks like you're formatting that paper for Nature.
Would you like me to

- Save you the trouble with a form rejection letter?
- Re-format for the 5th journal down the list?
- Remind you of the many times you bad-mouthed papers in Nature?



Have you ever met an average academic?

- **50% of academics are less intelligent than the average academic.**
- A system defined by **cultural inertia.**
- Slow to adapt to new technologies and practices.
- What happened to doing **good** science? What are the incentives for that?



We are all penguins.

But academics are also generally terrible at making predictions...

“Open Access will never catch on.”

“Preprints will never be a thing.”

“Sharing our data won’t ever be mandatory.”

“Open peer review is fake news.”

“It doesn’t matter if research isn’t reproducible.”

“Open Science is just a fad.”



I wonder if they ever get tired being wrong all the time...

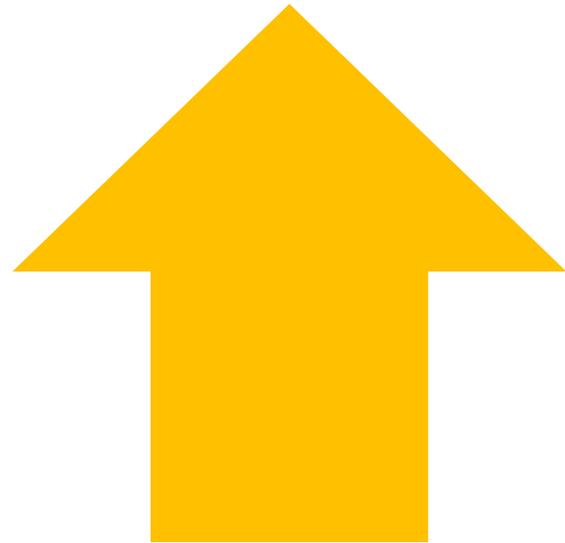
Principles in Open Research

Drivers

- ✓ Reduce publication bias.
- ✓ Increase replicability.
- ✓ Increase reliability of scientific record.
- ✓ Make publicly funded research publicly accessible.
- ✓ Make research more efficient.
- ✓ Increase public trust.
- ✓ Foster collaboration.
- ✓ Sustainable research.

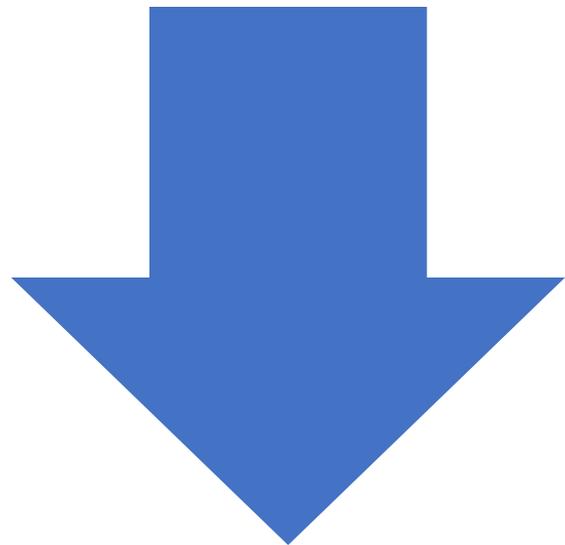
Barriers

- **Fear** of scooping or ideas being stolen.
- **Fear** of not being credited for ideas.
- **Fear** of errors and public humiliation.
- **Fear** of risk to reputation.
- **Fear** of reduced scientific quality.
- **Fear** of information overload.
- **Fear** of career compromise.
- **Fear** of backlash from senior figures.
- **Fear** of being different.



Your
career

----- SOCIAL AND TECHNICAL BARRIERS



Open
Science

BULLIED INTO BAD SCIENCE

*The Bullied Into Bad Science campaign is an initiative by early career researchers (ECRs) for early career researchers who aim for a **fairer**, more **open** and **ethical** research and publication environment.*

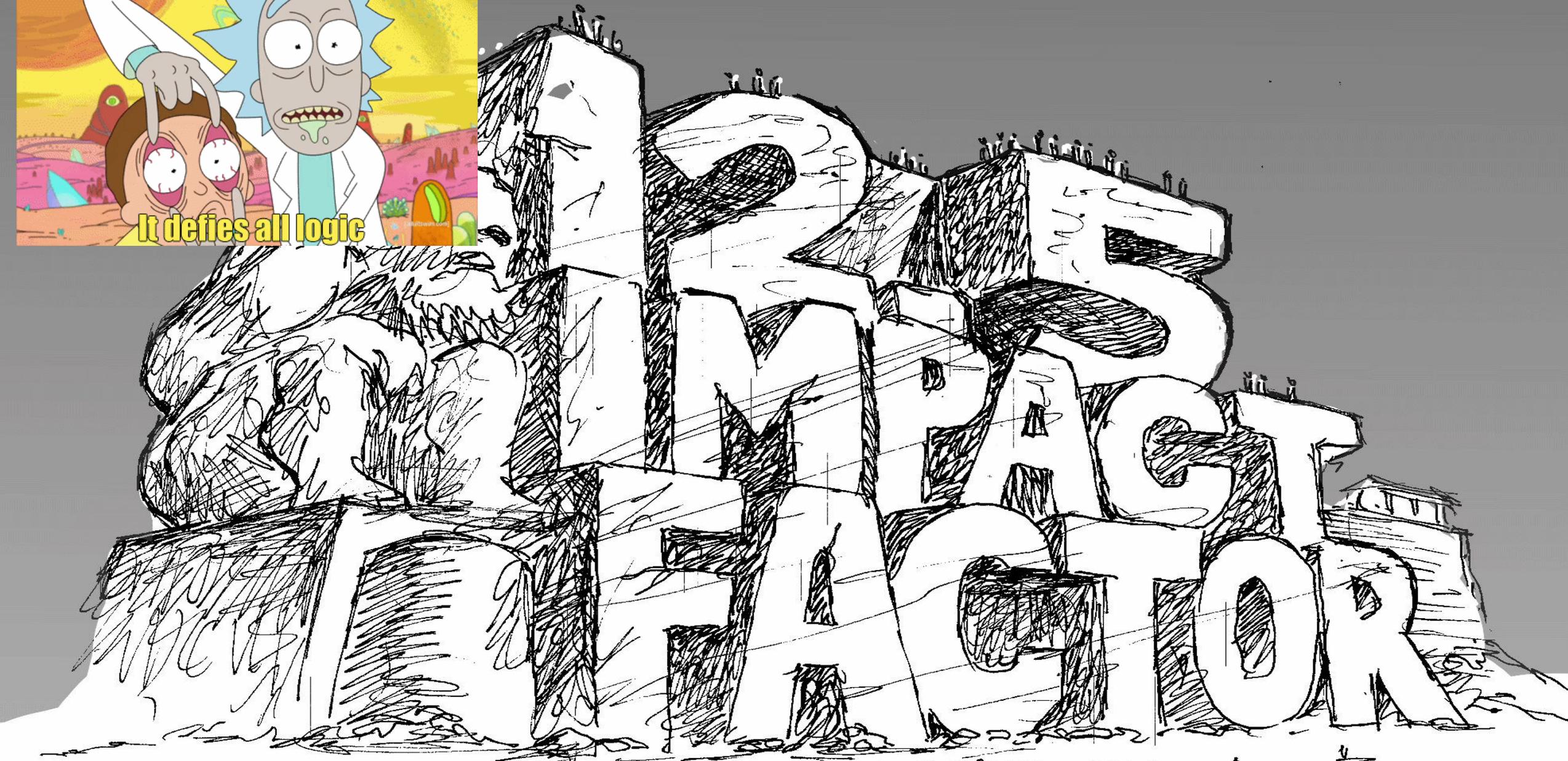
<http://bulliedintobadscience.org/>



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It defies all logic



Goodhart's Law: "*When a measure becomes a target, it ceases to be a good measure.*"



But **all** players should still be **accountable** for the game.
Something *shockingly absent* at the present.



AN OPEN SCIENCE EDUCATION CRISIS

Can we break the cycle through training, support, and communication?

Attitudes versus practice

“60.8% of researchers do not self-archive their work even when it is free and in keeping with journal policy.”

“In a field where OA seems of practical and **ethical importance for the sharing of knowledge promoting health equity**, it is surprising that researchers do not make their papers available when they are legally able to do so **without any cost.**”



“OPEN ACCESS
IS TOO EXPENSIVE.”



Common view about high costs is due to a combination of monopolisation and political broadsiding and sabotage by commercial publishers.

Being open doesn't have to break the bank!

~70% of OA journals do not charge.

Many OA journals have low-cost fees.

Most OA journals have fee waivers.

Some institutions have OA publisher memberships.

Some institutions have OA publishing funds.

Some funders provide OA publishing fee support.

Self-archiving openly costs nothing.



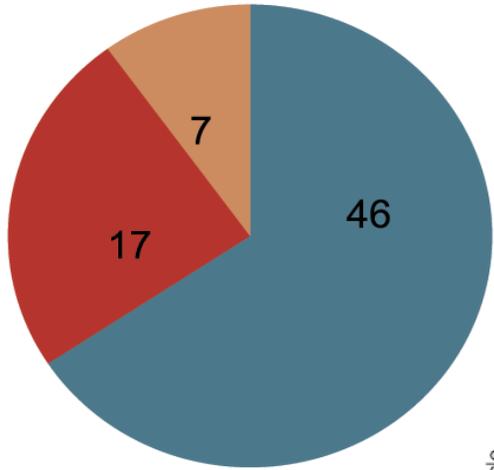
eLIFE



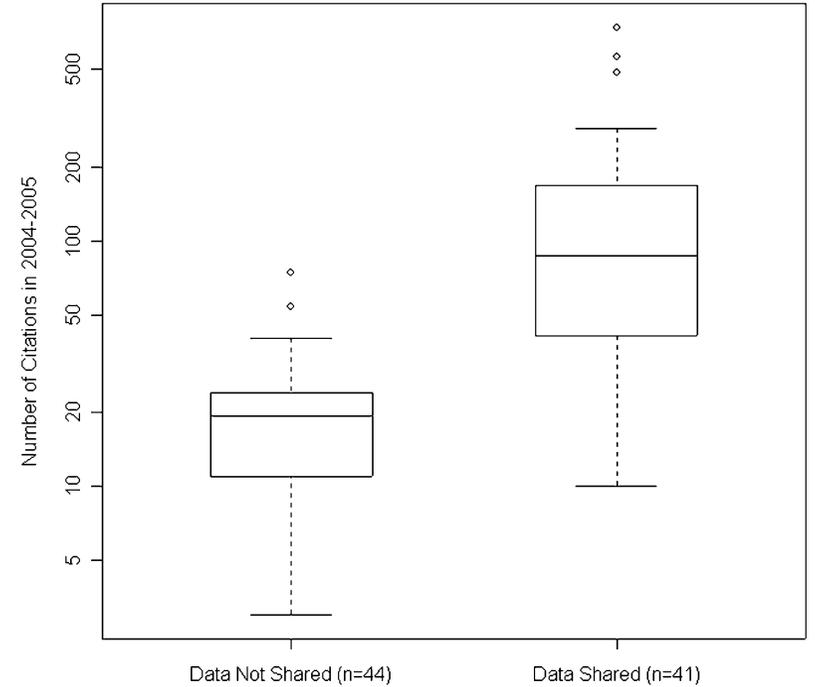
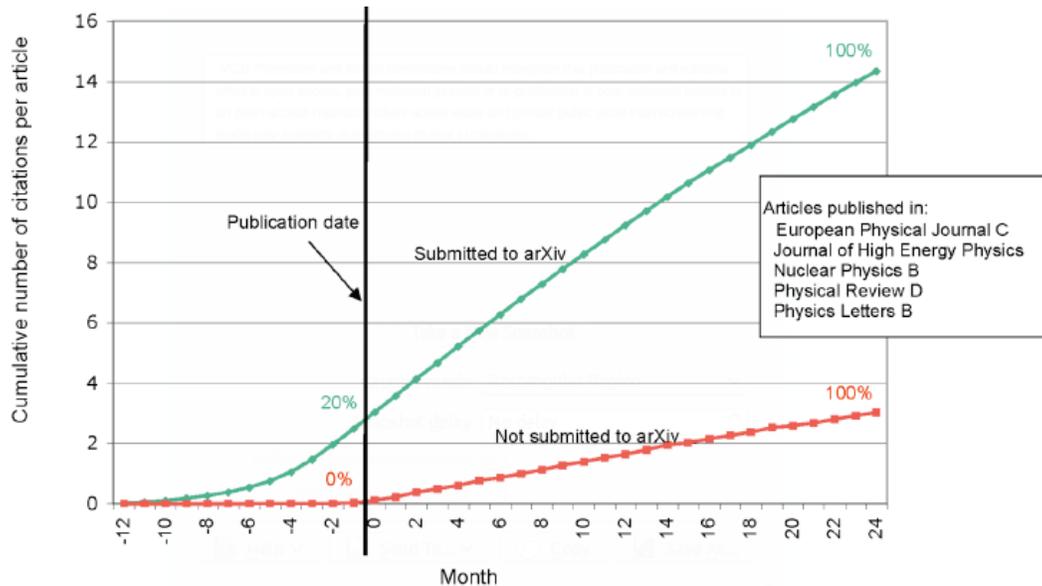
wellcome trust



Openness is good for your work and career



■ Studies that found a citation advantage
■ Studies that were inconclusive, found non-significant advantage, etc.
■ Studies that found no citation advantage



- ✓ Rapid communication
- ✓ Greater exposure
- ✓ More citations, faster

<http://whyopenresearch.org>

<https://peerj.com/articles/175>

Data from The Open Access Citation Advantage Service, SPARC Europe, accessed March 2016.

<http://f1000research.com/articles/5-632/v3>

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Openness is better for EVERYONE

How open science helps researchers succeed

Abstract Open access, open data, open source and other open scholarship practices are growing in popularity and necessity. However, widespread adoption of these practices has not yet been achieved. One reason is that researchers are uncertain about how sharing their work will affect their careers. We review literature demonstrating that open research is associated with increases in citations, media attention, potential collaborators, job opportunities and funding opportunities. These findings are evidence that open research practices bring significant benefits to researchers relative to more traditional closed practices.

DOI: [10.7554/eLife.16800.001](https://doi.org/10.7554/eLife.16800.001)

ERIN C MCKIERNAN*, PHILIP E BOURNE, C TITUS BROWN, STUART BUCK, AMYE KENALL, JENNIFER LIN, DAMON MCDUGALL, BRIAN A NOSEK, KARTHIK RAM, COURTNEY K SODERBERG, JEFFREY R SPIES, KAITLIN THANAY, ANDREW UPDEGROVE, KARA H WOO AND TAL YARKONI



We should be in a position where we are able to influence our academic system, not be stifled by the current actors in it.



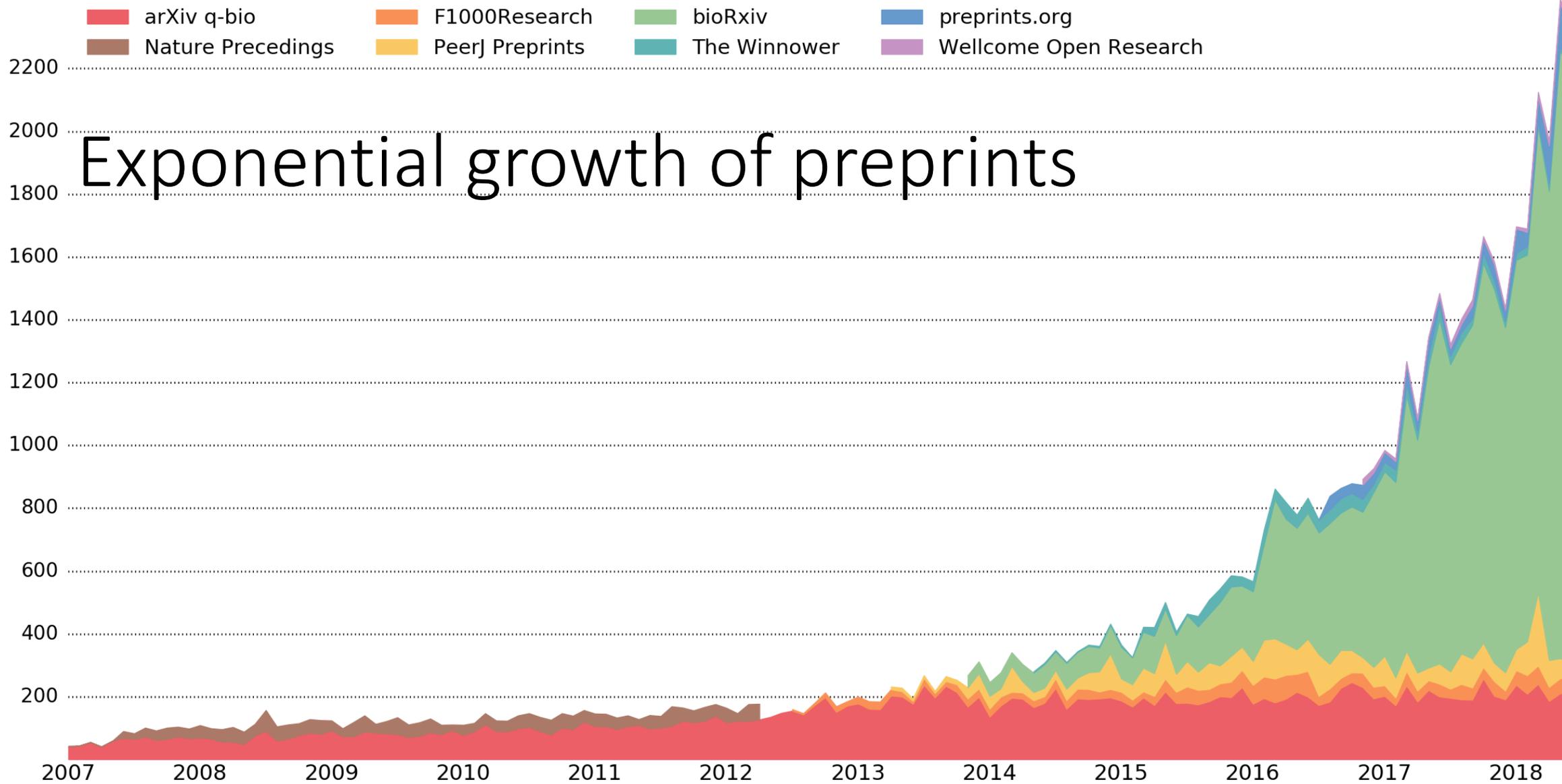
Tim Berners-Lee: *"We are not talking to Facebook and Google about whether or not to introduce a complete change where all their business models are completely upended overnight. We are not asking their permission."*

(cc Robert-Jan Smits and co...)

<https://www.fastcompany.com/90243936/exclusive-tim-berners-lee-tells-us-his-radical-new-plan-to-upend-the-world-wide-web>

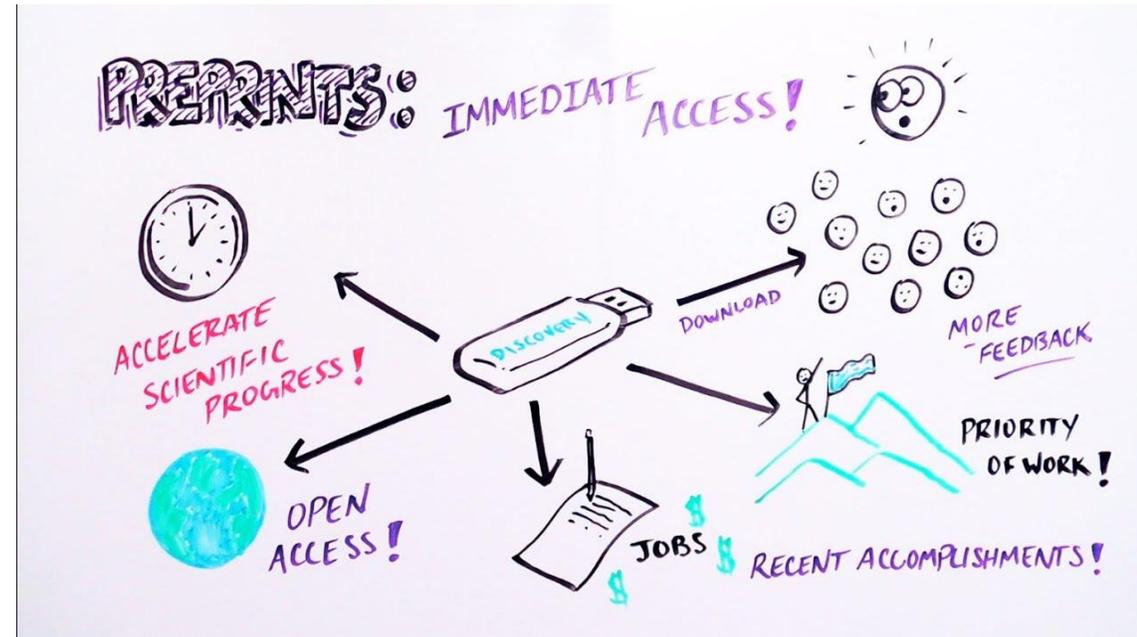
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Preprints per Month



Implications of preprints

- Journal-independent
- Force you to read and judge based on the actual content
- All power is retained by researchers
- Justification of journals to prove their value once science communication is decoupled from them
- What happens when peer review is finally decoupled from journals?



<https://www.youtube.com/watch?v=2zMgY8Dx9co>

What about 'green' OA and 'postprints'?

- Many publishers seem to be TERRIFIED of them
 - Restrictive licensing
 - Lengthy embargo periods
 - Make it as complicated as possible to 'comply'
- I do not understand why we let publishers impose these things
- A bittersweet irony
 - **Embargoes are explicit statements about how little value publishers add to the whole process, with respect to how much they charge**
 - **If a peer reviewed Word document is so threatening to their business model, they have big problems**





R Ainsworth - @rachaelevelyn

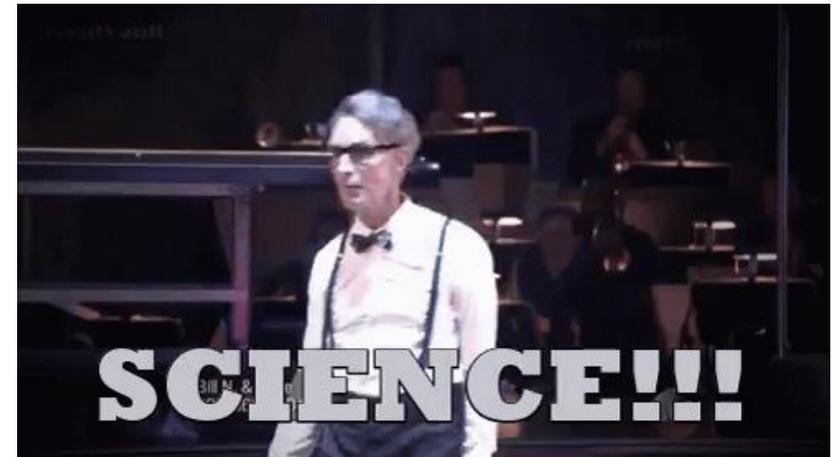
It's your work. Publish where you want. But don't lock it up.

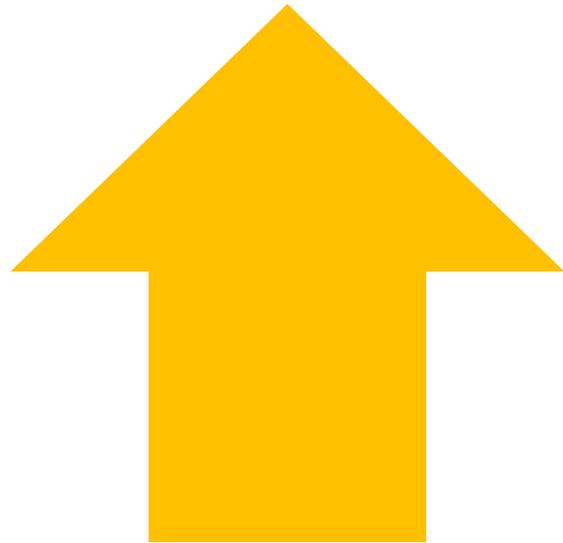
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The message we *should* be communicating?

Being more open helps YOU so much

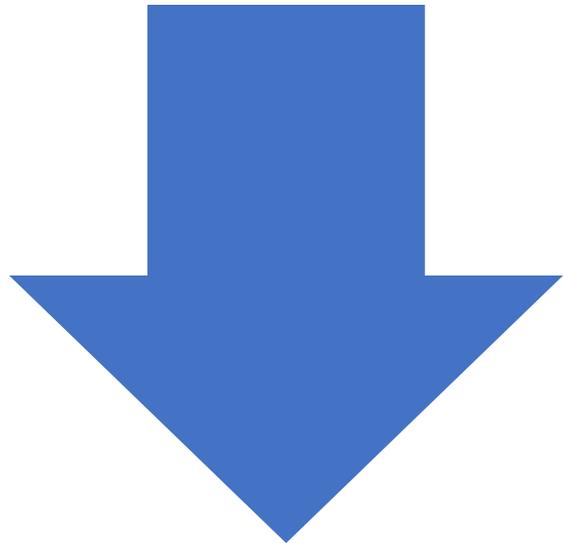
- ✓ Increases **dissemination** of your research.
- ✓ Increases your academic **profile**.
- ✓ Emphasises your **core values**.
- ✓ Increases your **collaborations**.
- ✓ Makes you a more **effective** researcher.
- ✓ Gives you more **control** over your research.





Your
career

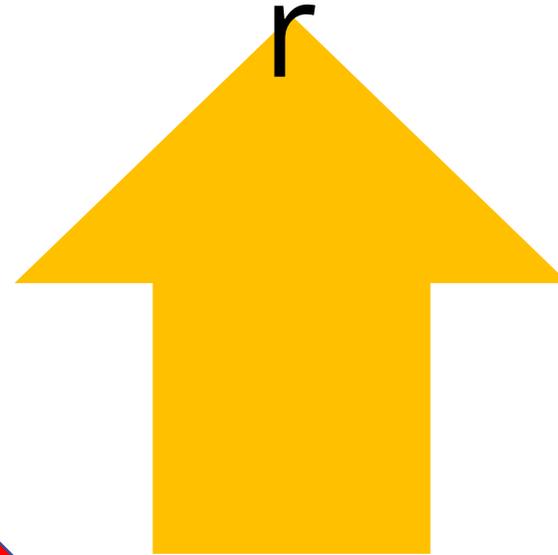
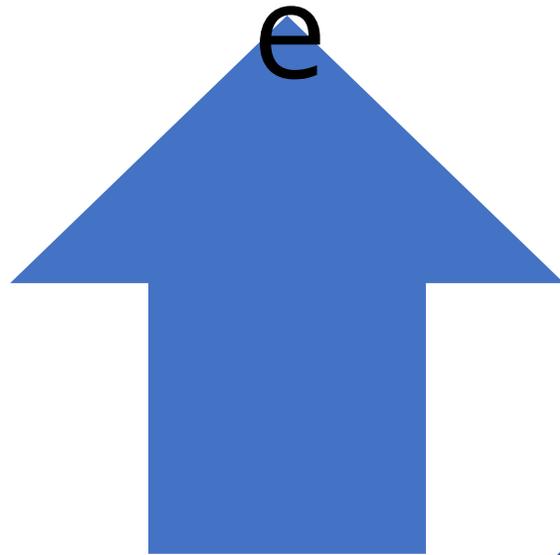
----- SOCIAL AND TECHNICAL BARRIERS



Open
Science

Open
Scienc

Your
caree



TECHNICAL BARRIERS



EDUCATION

SOCIAL BARRIERS



What can we all achieve if we stand together?

We need to stand together as a unified global community to make sure that we are acting in the best interests of the public, not corporate gains.

#PeopleNotProfits

What do we need to change cultures?

1. **Education, training, support.**
2. Empowerment and leadership for the next generation.
3. Shifting power dynamics to reduce bias and abuse.
4. Building a global community based on strong values, sharing and collaboration.
5. Massive-scale engagement to re-align Open Science with current incentive structures.



Our vision of the future

To help make 'Open' the default setting for all global research.

We want to help create a welcoming and supporting community, with good tools, teachers, and role-models, and built upon a solid values-based foundation of freedom and equitable access to research.

The way we do research has changed for good

We now have new expectations

- **Transparency**

- Not secrecy

- **Collaborative**

- Not solo

- **Continuous**

- Not discretised

We should be training ourselves

- Sustained community engagement across disciplines
- Being active both politically and at a community level
 - Rethinking our mindset (academic vs scientist)
 - Changing the defective incentive system

Open for re-use

[Open Research Software and Open Source](#)

Open Research Software and Open Source

STATUS: The first release for this module is now ready, and has been published on Zenodo:

DOI [10.5281/zenodo.1325081](https://doi.org/10.5281/zenodo.1325081)

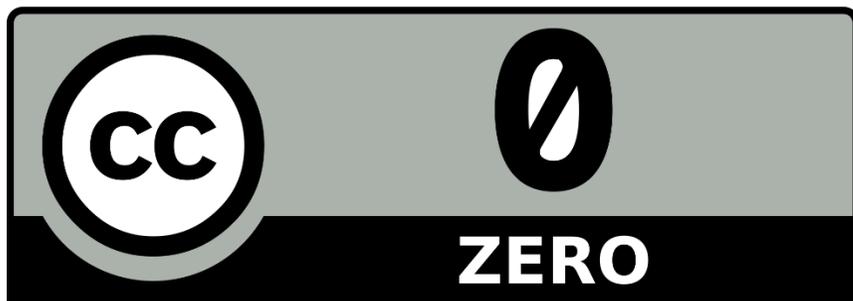
To cite this work, please use the following:

Tennant, J. et al. (01/08/2018) Open Science MOOC: Module 5, Open Research Software and Open Source

Rationale Software and technology underpin modern science. There is an increasing demand for more tools. These developments come with a specific ethical, legal and economic challenges that impact up that can be openly accessed and re-used by others.

Learning outcomes

- The researcher will be able to define the characteristics of open source research software, and to
- Based on community standards, researchers will be able to describe the quality requirements of
- The researcher will be able to use a range of research tools that utilise open source software.
- Individual researchers will be able to transform code designed for their personal use into code that



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In markdown format

- [MAIN CONTENT](#) - The main content for this Module.
- [TASK 1](#) - How to set up your first repository on GitHub.
- [TASK 2](#) - How to make your code citable using GitHub and Zenodo.
- [TASK 3](#) - How to integrate Git with RStudio.

In iPython notebook format

Note: These are best viewed in Jupyter for full functionality, as opposed to the GitHub viewer.

- [MAIN CONTENT](#) (click [here](#) to view)
- [TASK 1](#) (click [here](#) to view)
- [TASK 2](#) (click [here](#) to view)
- [TASK 3](#) (click [here](#) to view)

In PDF format

- [MAIN CONTENT](#)
- [TASK 1](#)
- [TASK 2](#)
- [TASK 3](#)

In HTML format

- [MAIN CONTENT](#)
- [TASK 1](#)
- [TASK 2](#)

OPEN
SCIENCE
MOOC
FREE | OPEN | LEARNING



Jon Tennant
Founder

14



Module 5: Open Research Software and Open Source

Content Webinars Tasks Gradebook Discussions Participants Certificate Settings

Overview

Introduction

Main 1: Open Research Software and Open Source



Main 2: Open Research Software and Open Source



Main 3: Open Research Software and Open Source



+ New Topic

Overview

Edit

Rationale:

Software and technology underpin modern science. There is an increasing demand for more sophisticated open source software, matched by an increasing willingness for researchers to openly collaborate on new tools. These developments come with a specific ethical, legal and economic challenges that impact upon research workflows. This module will introduce the necessary tools required for transforming software into something that can be openly accessed and re-used by others.

Learning outcomes:

1. The researcher will be able to define the characteristics of open source research software, and the ethical, legal, economic and research impact arguments for and against it.
2. Based on community standards, researchers will be able to describe the quality requirements of sharing and re-using open source code.
3. The researcher will be able to use a range of research tools that utilise open source software.
4. Individual researchers will be able to transform code designed for their personal use into code that is accessible and re-used by others.

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<https://eliademy.com/app/a/courses/02d7338a7e>

OPEN
SCIENCE
MOOC
FREE | OPEN | LEARNING

How do we get to where we want?

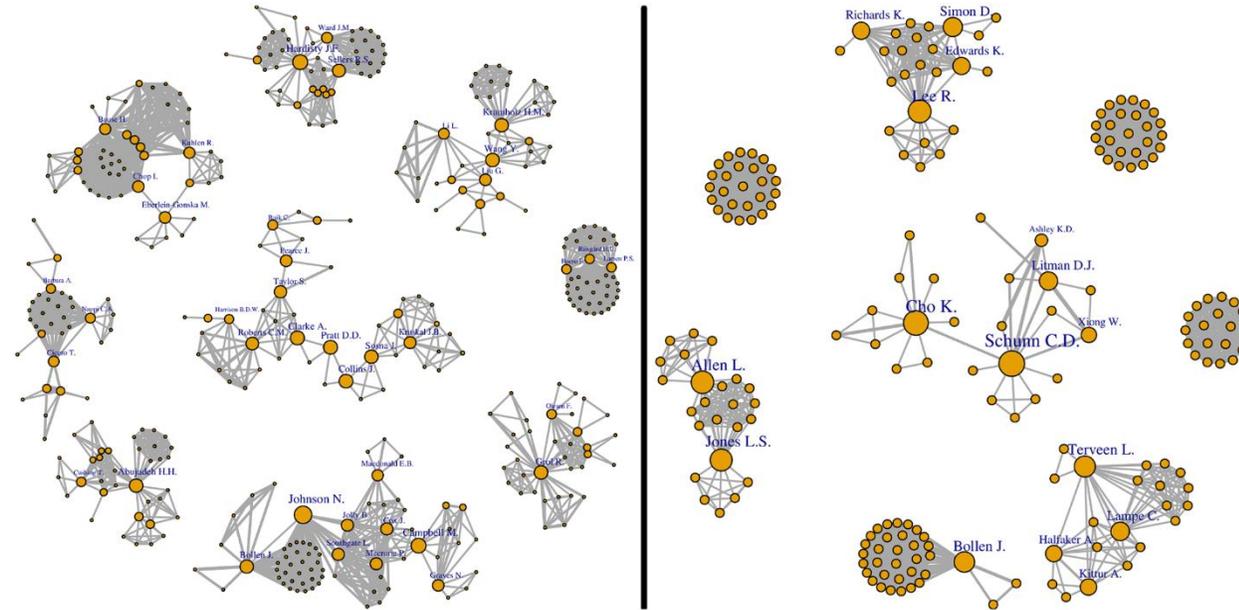
Imagine a future defined by the **values** and **principles** of Open Science:

- **Freely available public good**
- **Rigorous and reproducible**
- **Open to ALL**
- **Isn't that just GOOD science?**

The current state of scholarly communication?

- **A 19th century process applied to a 17th century communication format**
- **Slowly but surely adapting to web technologies from 1995**

Welcome to the networked 21st century



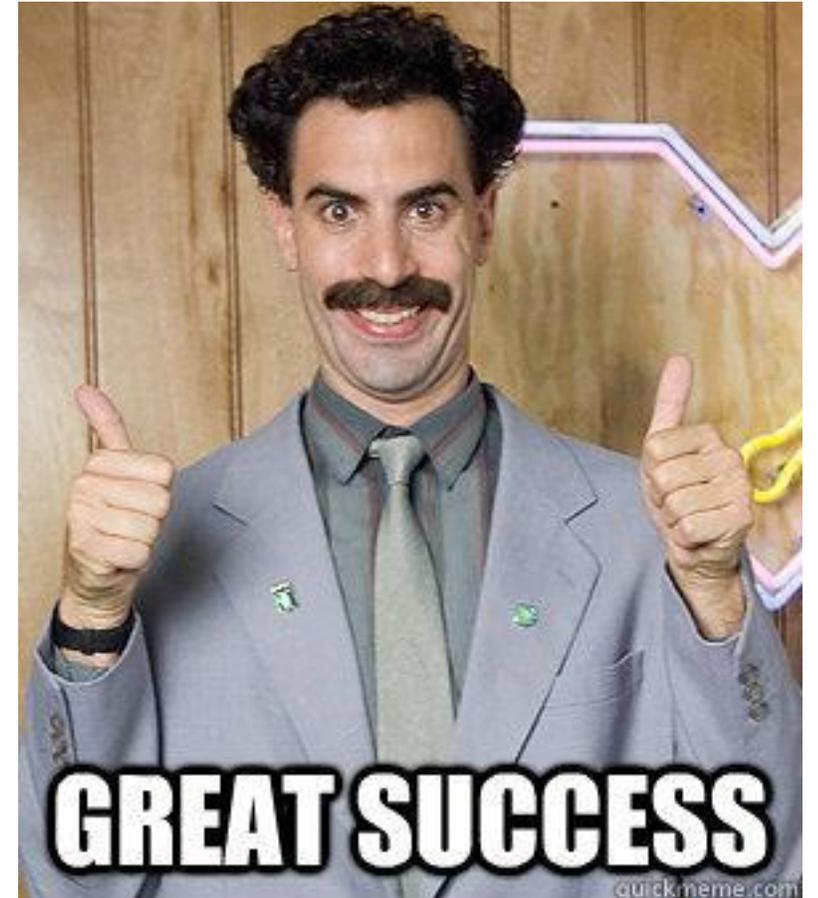
Everywhere we are using networks to evaluate information on the Web. Why not in science? Use the power of professional networks to evaluate scientific results.

Three core aspects for success of any future 'platform'

1. **Quality control/moderation**
2. **Certification/reputation**
3. **Engagement incentives**



So, how..?



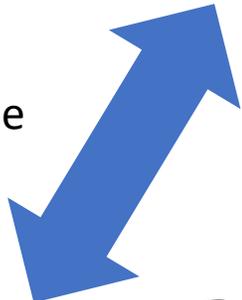
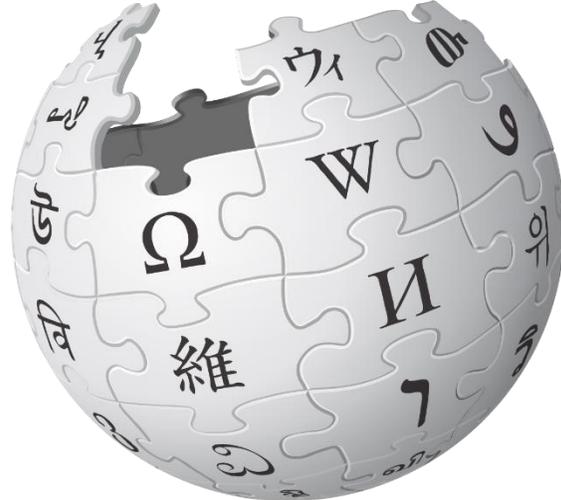
<http://blogs.lse.ac.uk/impactofsocialsciences/2017/09/11/we-have-the-technology-to-save-peer-review-now-it-is-up-to-our-communities-to-implement-it/>

@protohedgehog

We have the tools to blow things wide open

- Low cost
- Creditable
- Collaborative
- Instant
- **Community-owned**
- Inherently reproducible

StackExchange



Promising initiatives in this space

- [Open Scholarship Initiative](#)
- Cross-national initiatives (e.g., [Plan S](#), [SciELO](#), [OCSDnet](#), [DOAJ](#), [OpenAIRE](#))
- [Joint Roadmap for Open Science Tools](#)
- [Open Science MOOC](#) and [Open Scholarship Strategy](#)
- [Scholarly Commons](#) (Force11)



The future

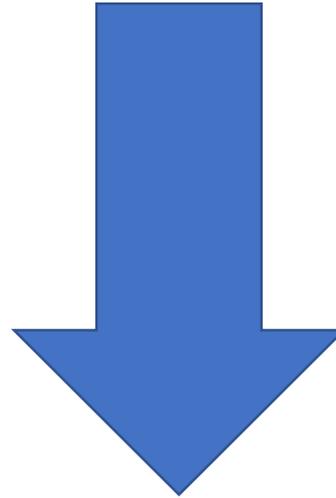
“ Future generations will look on the term "open science" as a tautology - a throwback from an era before science woke up. **Open science will simply become known as science,** and the closed, secretive practices that define our current culture will seem as primitive to them as alchemy is to us.

- Brian Nosek & Chris Chambers (Psychology)

The ultimate goal

Pooling knowledge and resources to create a decentralised scholarly infrastructure, with communities as the focus.

- ✓ Inclusivity
- ✓ Equality
- ✓ Accountability
- ✓ Freedom
- ✓ Fairness



- ✓ Justice
- ✓ Truth
- ✓ Rigour
- ✓ Transparency
- ✓ Reproducibility

SCIENCE AS A PUBLIC GOOD FOR THE BETTERMENT OF SOCIETY

#PeopleNotProfits

Thanks!

- **GitHub:** <https://github.com/OpenScienceMOOC>
- **Website:** <https://opensciencemooc.eu>
- **Twitter:** [@OpenScienceMOOC](https://twitter.com/OpenScienceMOOC)
- **Email:** info@opensciencemooc.eu

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Questions?

