

What is *Open Science* and why should you care

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THOR Bootcamp Budapest
2017. 09. 29



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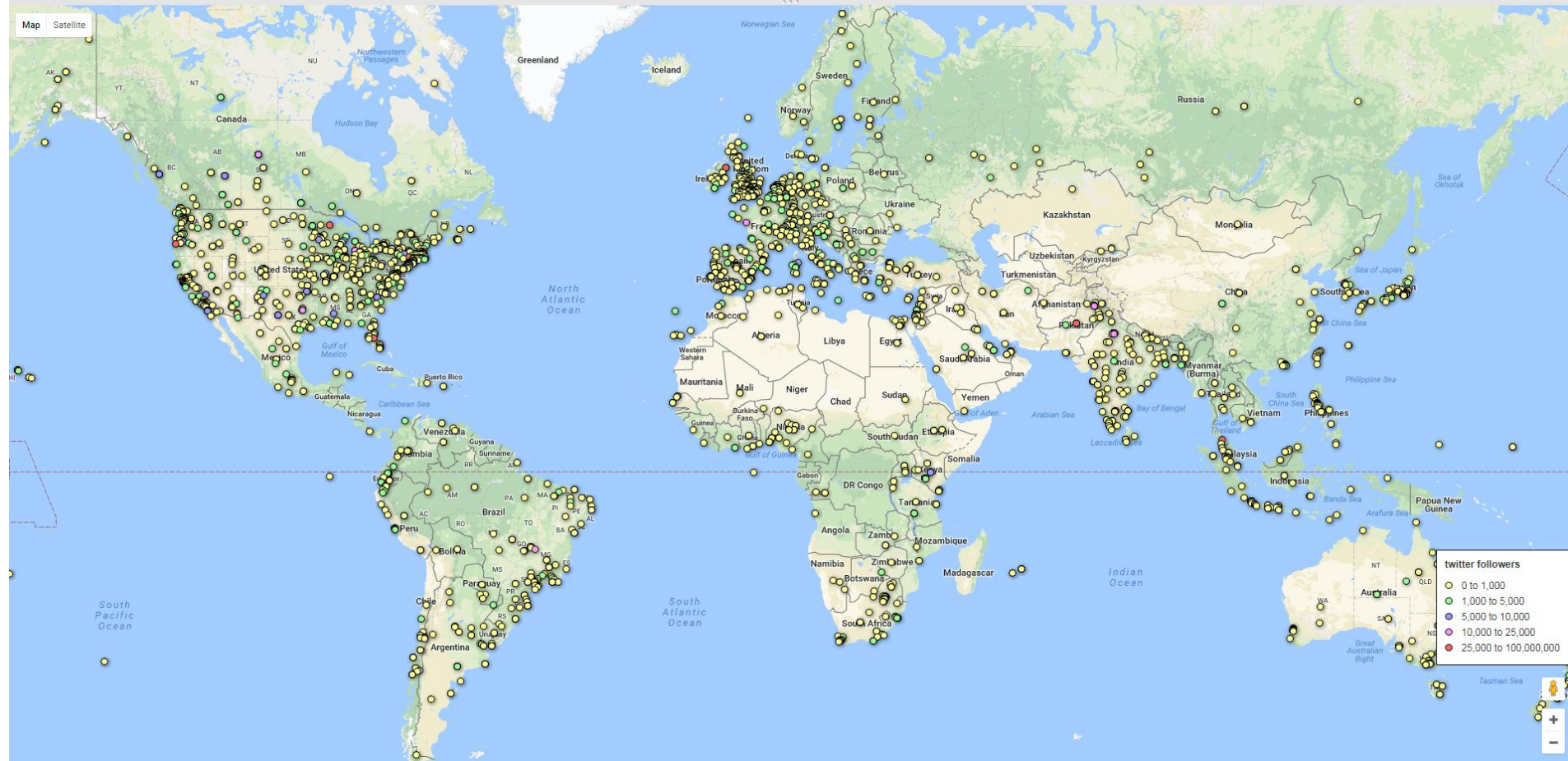


Filter

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What's happening?

- Traditional scientific publishing is no good
- Opaque research process breeds irreproducible research
- Omission of research data and software in the excellence metrics
- Solution - Open Science

Scientific publishing





Open access scientific publishing

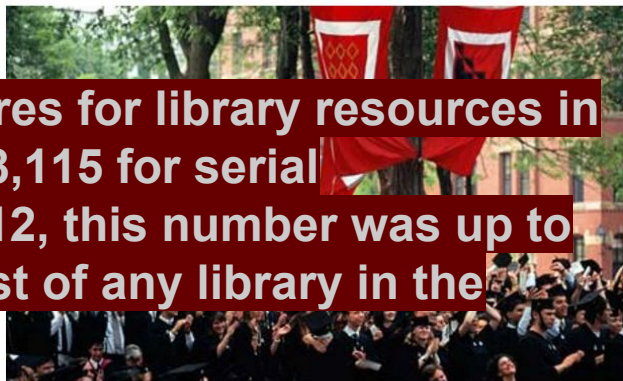
Harvard University says it can't afford journal publishers' prices

University wants scientists to make their research open access and resign from publications that keep articles behind paywalls



This article is 5 years old

Harvard's expenditures for library resources in 2008 included \$9,248,115 for serial subscriptions. In 2012, this number was up to \$16,391,638 (the most of any library in the survey).



A memo from Harvard's faculty advisory council said major scientific publishers had made scholarly communication 'fiscally unsustainable'. Photograph: Corbis

Exasperated by rising subscription costs charged by academic publishers, [Harvard University](#) has encouraged its faculty members to make their research freely available through open access journals and to resign from publications that keep articles behind paywalls.

A [memo from Harvard Library](#) to the university's 2,100 teaching and research staff called for action after warning it could no longer afford the price hikes imposed by many large journal publishers, which bill the library around \$3.5m a year.

Most popular



North Korea's foreign minister: Trump has declared war on our country



Arsenal 2-0 West Bromwich Albion: Premier League - as it happened



Deloitte hit by cyber-attack revealing clients' secret emails



Sex addicts see a familiar story in Anthony Weiner's path to ruin



The shorter your sleep, the shorter your life: the new sleep science

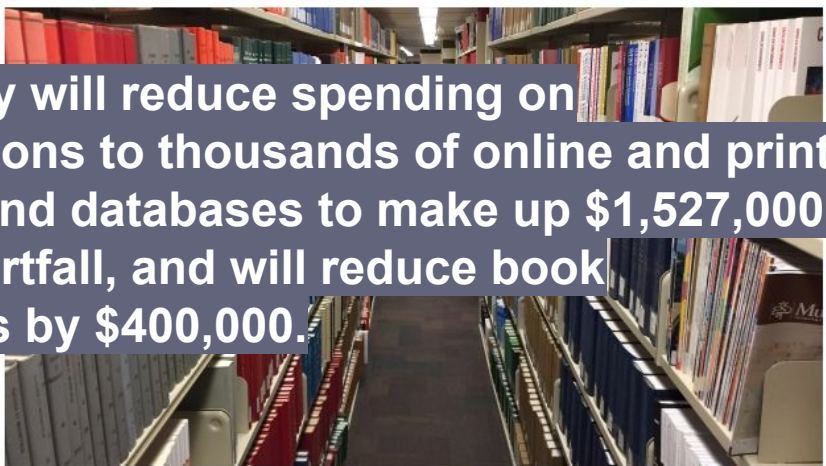


University of Ottawa puts thousands of journals on the chopping block

'All the researchers that I've spoken to are very upset about this,' says petition starter

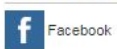
By Stu Mills, CBC News Posted: Oct 21, 2016 6:51 AM ET | Last Updated: Oct 21, 2016 9:10 PM ET

The library will reduce spending on subscriptions to thousands of online and print journals and databases to make up \$1,527,000 of the shortfall, and will reduce book purchases by \$400,000.



The University of Ottawa library was ranked fifth in expenditures among Canadian university libraries in 2014-15. A librarian estimates the cuts will drop the ranking to about eighth. (Stu Mills/CBC)

999 shares



The University of Ottawa's library is moving to cancel subscriptions to thousands of academic journals to make up for a budget shortfall, but the academic community has started an online petition calling on the school to rethink the plan.

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Weather

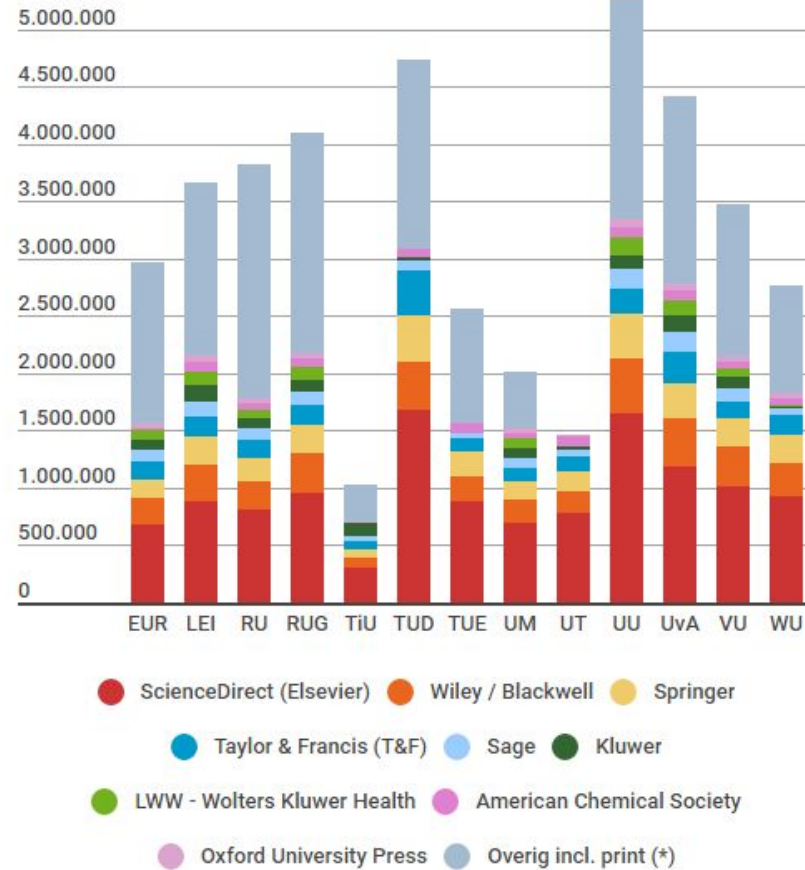
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			n/a	
33°C	33°C	33°C	32°C	25°C

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In 2010, Elsevier's scientific publishing arm reported profits of £724m on just over £2bn in revenue. It was a 36% margin – higher than Apple, Google, or Amazon posted that year.

The long read

Is the staggeringly profitable business of scientific publishing bad for science?

It is an industry like no other, with profit margins to rival Google – and it was created by one of Britain's most notorious tycoons: Robert Maxwell. By Stephen Buranyi



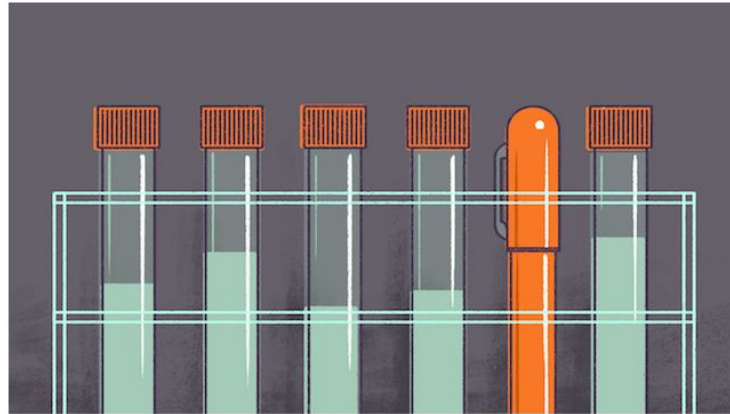


The Scientist » News & Opinion » News Analysis

Major German Universities Cancel Elsevier Contracts

These institutions join around 60 others that hope to put increasing pressure on the publishing giant in ongoing negotiations for a new nationwide licensing agreement.

By Diana Kwon | July 17, 2017



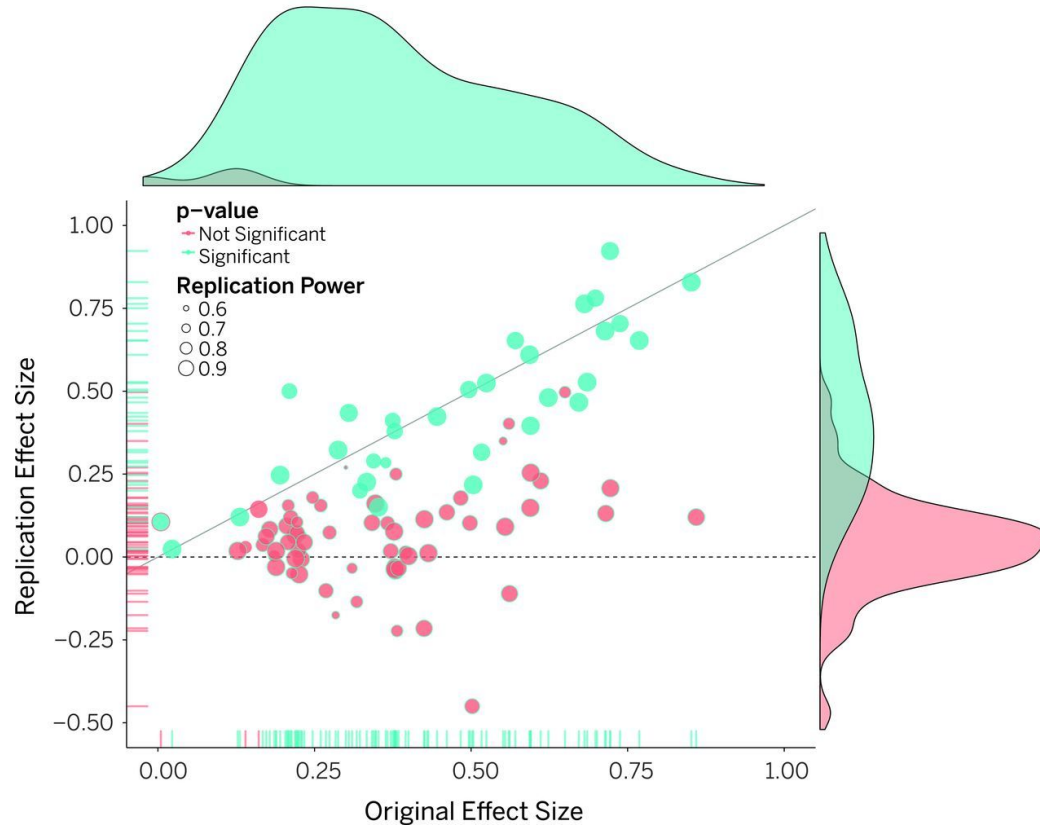
BRYAN SATALINO

In Germany, the fight for open access and favorable pricing for journals is getting heated. At the end of last month (June 30), four major academic institutions in Berlin announced that they would not renew their subscriptions with the Dutch publishing giant Elsevier once they end this December. Then on July 7, nine universities in Baden-Württemberg, another large German state, also declared their intention to cancel their contracts with the publisher at the end of 2017.

<http://www.the-scientist.com/?articles.view/articleNo/49906/title/Major-German-Universities-Cancel-Elsevier-Contracts/>

Reproducibility





Estimating the reproducibility of psychological science

- Diagonal line represents replication effect size equal to original effect size.
- Dotted line represents replication effect size of 0.
- Points below the dotted line were effects in the opposite direction of the original.
- Density plots are separated by significant (blue) and nonsignificant (red) effects.

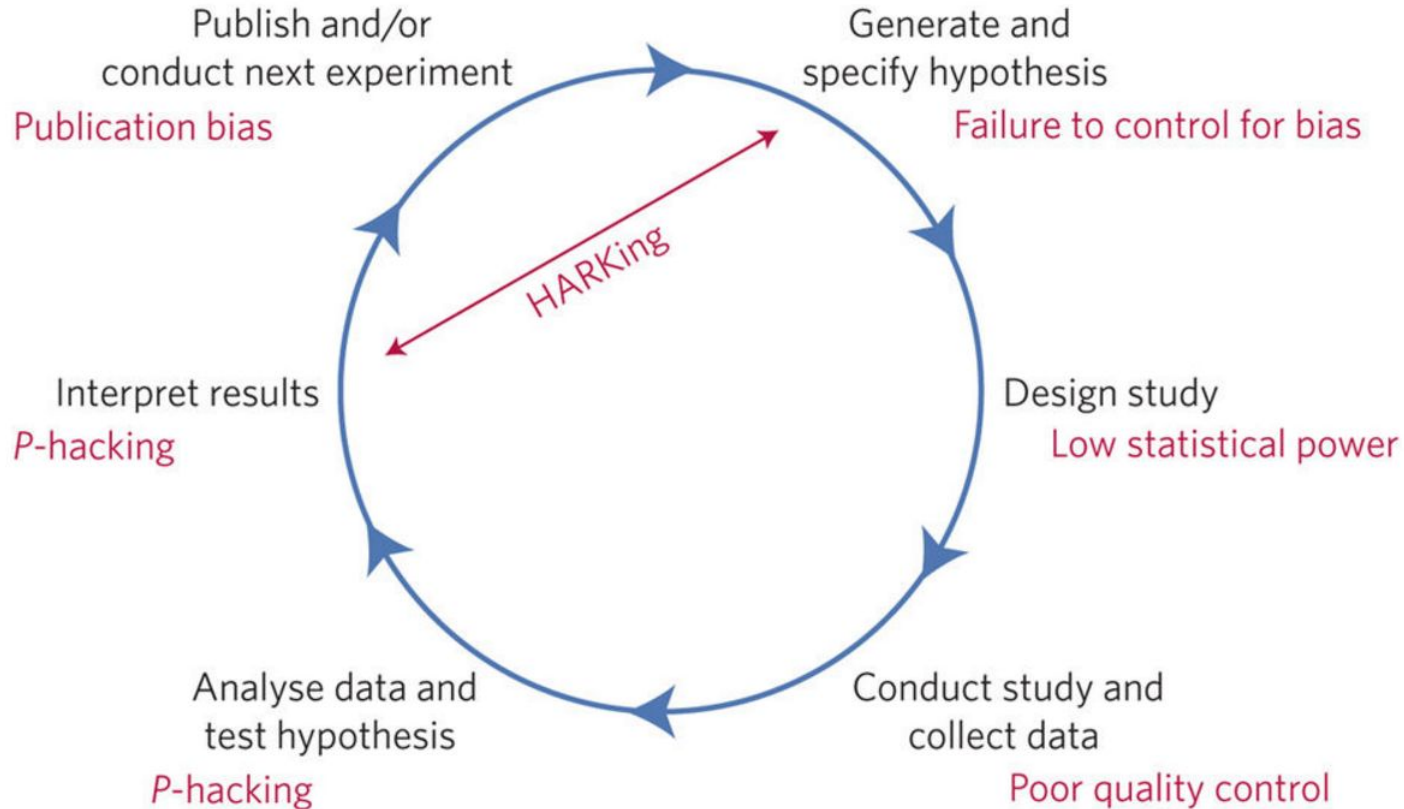


IS THERE A REPRODUCIBILITY CRISIS?



Figure 1: Threats to reproducible science.

From: [A manifesto for reproducible science](#)



Metrics





عربي

Time to remodel the journal impact factor

Nature and the Nature journals are diversifying their presentation of performance indicators.

27 July 2016

the impact factor is crude and also misleading. It effectively undervalues papers in disciplines that are slow-burning or have lower characteristic citation rates.

emissions

Being an arithmetic mean, it gives disproportionate significance to a few very highly cited papers, and it falsely implies that papers with only a few citations are relatively unimportant.

Most metrics used to assess the impact of research, can be dangerous. Relying on them as a yardstick to judge achievements and challenges, usually leads to a distorted view of the value of research. It is just such a metric.



The elephant in the room: multi-authorship and the assessment of individual researchers

George A. Lozano

(Submitted on 4 Jul 2013 (v1), last revised 29 Jul 2013 (this version, v4))

When a group of individuals creates something, credit is usually divided among them. Oddly, that does not apply to scientific papers. The most commonly used performance measure for individual researchers is the h-index, which does not correct for multi-authorship. Each author claims full credit for each paper and each ensuing citation. This mismeasure of achievement is fuelling a flagrant increase in multi-authorship. Several alternatives to the h-index have been devised, and one of them, the individual h-index (hi), is logical, intuitive and easily calculated. Correcting for multi-authorship would end gratuitous authorship and allow proper attribution and unbiased comparisons.



Open Science!



Open Science is an umbrella term that refers to the opening of scholarly knowledge **creation** and **dissemination** towards a multitude of stakeholders. It comprises, for instance, **forms collaboration** among researchers through online tools, emerging **publication formats**, the involvement of **non-experts** in the research or the **alternative assessment** of impact.



The Open Science stakeholders

- Policy maker
- Funding agency
- Higher education institution
- Scholarly publisher
- Research library
- Service provider

- **Researcher**



Open Access

Free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.

The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.





How to OA

Gold OA

- Through OA journals
- APC upfront, freely accessible once published

How to publish Gold

- Identify OA journal at DOAJ
- Choose OA mode:
 - Full
 - Hybrid
 - Delayed
- Identify funding options

Green OA

- Through self-archiving on publicly accessible platform
- Consider journal policies

How to publish Green

- Choose open repository OpenDOAR
 - Institutional repository
 - Disciplinary repository
- Choose OA mode
 - Preprint
 - Post-print
 - Publisher's version
- Check journal policies on Green OA
 - Embargo period?



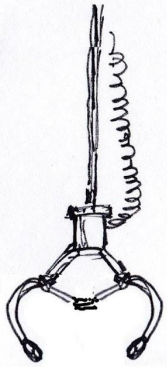


Image credit: John R. McKiernan (CC BY) See more at [Why Open Research](#)

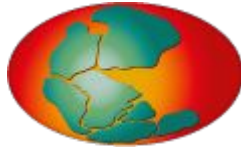


Research data management

Data Management Plans cover collection, organisation, use, storage, contextualisation, preservation and sharing of research data.

- Data summary
- FAIR data
 - Findable
 - Accessible
 - Interoperable
 - Reusable
- Specify resource needs
- Data security
- Ethics

Open Data, open source software



Open Science Framework

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HOW TO ENGAGE WITH MDC?

UNDERSTANDING THE
PROBLEM

<https://makedatacount.org/>



Takeaway message

1. Open Science has a wide scope (and it's fascinating)
2. Researchers can participate in Open Science in various ways
 - a. Publish literature OA
 - b. Deposit and share research data
 - c. Use PID whenever possible to boost the potential of research objects and enable altmetrics
 - d. Give feedback to the service providers
3. Join the Open Science movement, contribute to the future of science

Any question?