



Why Open Science?

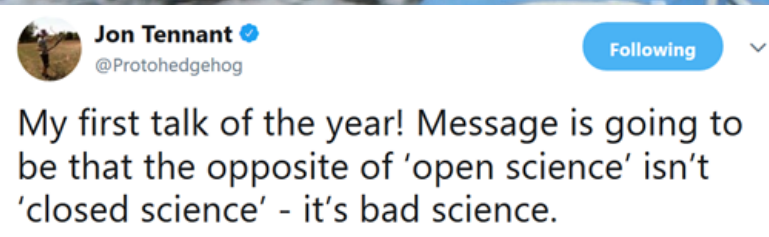
Elena Giglia

Elena Giglia
Messina, Nov. 7, 2019
elena.giglia@unito.it



Take away messages

Open Access/Open Science are opportunities, not threats



...the opposite of Open Science is «Bad Science», not «Closed Science»

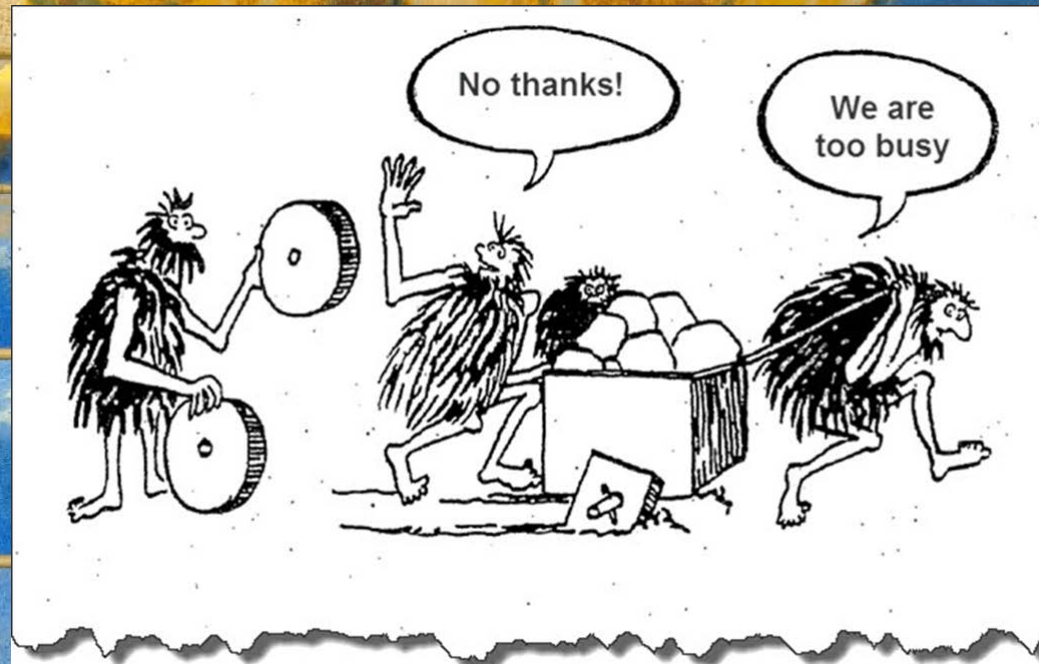
Open Science: a different way to do science, not a set of rules

...barriers are social and cultural not technical...

...take Open Science «one step at a time»

Open Science and Open Innovation are connected

Open Science?



...OPEN SCIENCE HOLDS A HUGE
TRANSFORMATIVE POTENTIAL... IF YOU DON'T
FOCUS ON ITS REAL VALUE, IT WILL BE SEEN AS
THE UNPTEENTH ADMINISTRATIVE BURDEN



... Open Science in practice?

Vague for teaching ...

CERN DD/OC Tim Berners-Lee, CERN/DD
Information Management: A Proposal March 1989

Information Management: A Proposal

Abstract

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

Keywords: Hypertext, Computer conferencing, Document retrieval, Information management, Project control

```
graph TD
    A[Hyper Card] --> ENQUIRE
    ENQUIRE --> A_Proposal[A Proposal X]
    A_Proposal --> Computer[Computer conferencing]
    A_Proposal --> IBM[IBM GroupTalk]
    A_Proposal --> YAK[YAK/NOTES]
    A_Proposal --> Hierarchical[Hierarchical systems]
    A_Proposal --> CERNDOC[CERNDOC]
    A_Proposal --> CERN[C.E.R.N.]
    A_Proposal --> Hypermedia[Hypermedia]
    A_Proposal --> ThisDoc[This document]
    ThisDoc --> HyperCard
    ThisDoc --> ENQUIRE
    ThisDoc --> Computer
    ThisDoc --> IBM
    ThisDoc --> YAK
    ThisDoc --> Hierarchical
    ThisDoc --> CERNDOC
    ThisDoc --> CERN
    ThisDoc --> Hypermedia
    ThisDoc --> Tim[Tim Berners-Lee]
    CERN --> DD[DD division]
    DD --> OC[OC group]
    OC --> RA[RA section]
```

Open Science

Valid reasons not to participate in open science practices

Casper J. Albers*



Casper Albers

@CaAl

New preprint. Comments welcome

Valid reasons not to participate in open science practices

Casper J. Albers*

Abstract

The past years have seen a sharp increase in the attention for open science practices. Such practices include pre-registration and registered reports, sharing of materials, open access publishing and attention to reproducibility of research. Despite the overwhelming amount of evidence highlighting the benefits of open science, some researchers remain reluctant. In this paper, I will outline valid reasons for researchers not to participate in open science practices.

Discussion

There are no valid reasons.

*Heymans Institute for Psychological Research, Grote Kruisstraat 2/1, 9712 Groningen, The Netherlands. c.j.albers@rug.nl

03:54 - 21 feb 2018

<https://twitter.com/CaAl/status/9662799360>

471 Retweet 990 Mi piace



Abstract

The past years have seen a sharp increase in the attention for open science practices. Such practices include pre-registration and registered reports, sharing of materials, open access publishing and attention to reproducibility of research. Despite the overwhelming amount of evidence highlighting the benefits of open science, some researchers remain reluctant. In this paper, I will outline valid reasons for researchers not to participate in open science practices.

Discussion

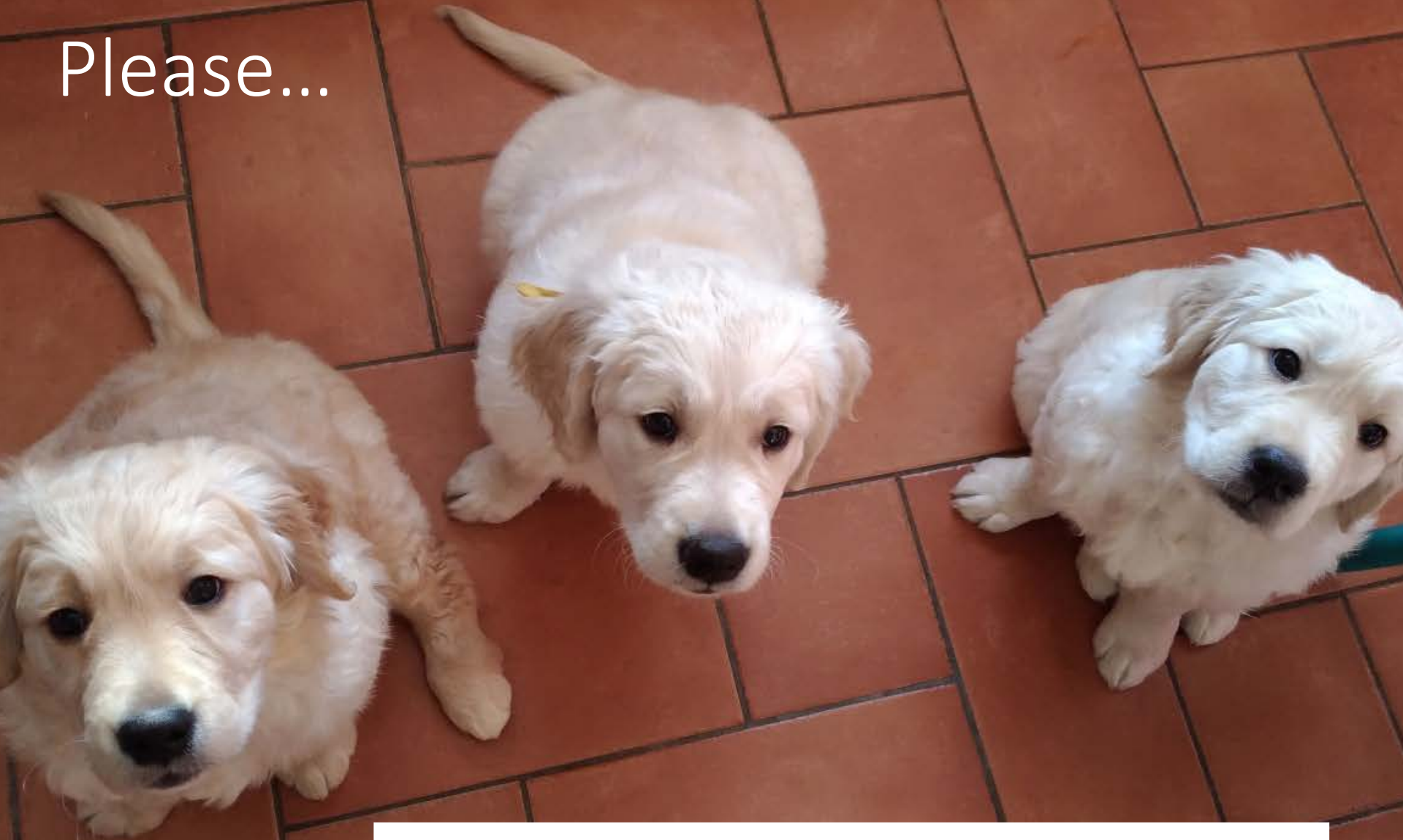
There are no valid reasons.

*Heymans Institute for Psychological Research, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands. c.j.albers@rug.nl



...thank you for your undivided attention!

Please...



...today let's look at scholarly communication with fresh eyes...



3 QUESTIONS

WHY DO YOU DO
RESEARCH?

DOES IT SUIT YOU,
THE WAY IT IS?

WHAT'S YOUR SHADE
OF «OPEN»?

Scholarly communication is complex...

Access

RIGHTS
MANAGEMENT
(authors,
readers,
publishers...)

PRESERVATION

Production

Economy
(and profits)

Costs

(real costs – «anelastic market»)

Tecnology

New models
(sustainability)

Disciplines and their tools
(books, journals...)

RESEARCH
EVALUATION

Scholarly communication: functions

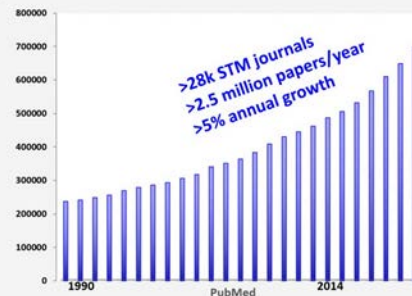
REGISTRATION

[Impact Factor]

CERTIFICATION

REWARD

Publishing Feb. 22, 2018



*most papers have more authors than readers
half the literature is never cited*

<https://twitter.com/eggernsf/status/966650401088000002>

AWARENESS

ARCHIVING

Scholarly communication: processes

Submission

Peer review

Acceptance/
rejection

Publication

No economic return

...expected
return:
citations,
prestige

101 INNOVATIONS IN SCHOLARLY COMMUNICATION

innscholar.com.au



Jeroen Bosman @jeroenbosman
Utrecht University Library

THE CHANGING RESEARCH WORKFLOW



Bianca Kramer @MsPhelps
Utrecht University Library

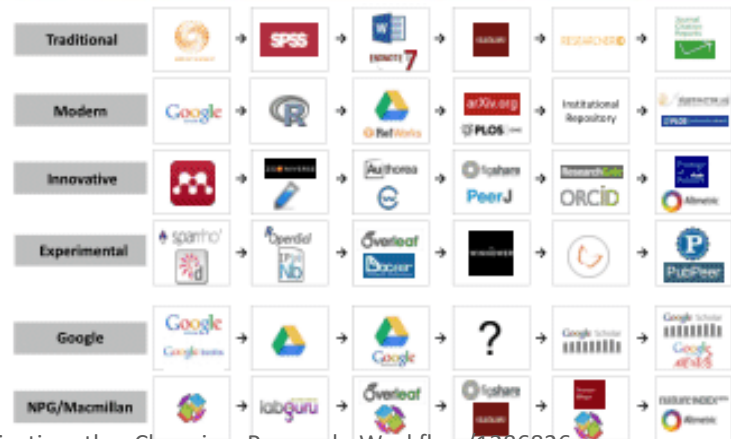
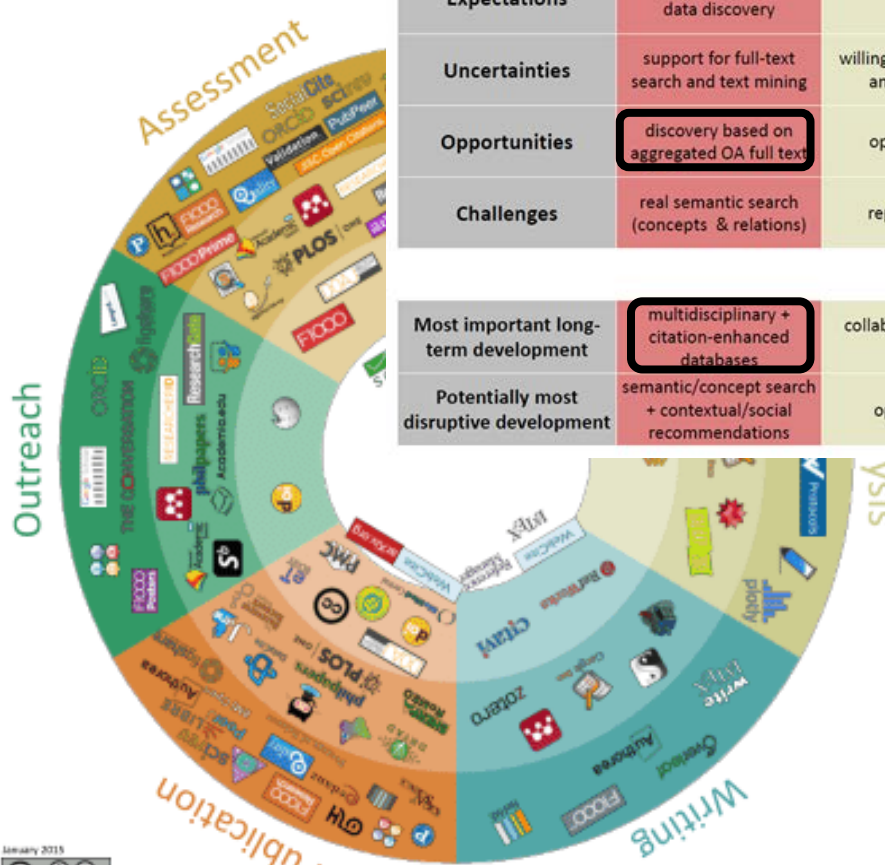
Science is in transition. This poster phase of a project aiming to char communication flows from evolu

Most important developments in 6 research workflow phases

600 innovative tools and si (< 2

	Discovery	Analysis	Writing	Publication	Outreach	Assessment
Trends	social discovery tools	datadriven & crowdsourced science	collaborative online writing	Open Access & data publication	scholarly social media	article level (alt)metrics
Expectations	growing importance of data discovery	more online analysis tools	more integration with publication & assessment tools	more use of "publish first, judge later"	use of altmetrics for monitoring outreach	more open and post-publication peer review
Uncertainties	support for full-text search and text mining	willingness to share in analysis phase	acceptance of collaborative online writing	effect of journal/publisher status	requirements of funders & institutions	who pays for costly qualitative assessment?
Opportunities	discovery based on aggregated OA full text	open labnotes	semantic tagging while writing/citing	reader-side paper formatting	using repositories for institutional visibility	using author-, publication- and affiliation-IDs
Challenges	real semantic search (concepts & relations)	reproducibility	safety/privacy of online writing	globalization of publishing/access standards	making outreach a two-way discussion	quality of measuring tools

Most important long-term development	multidisciplinary + citation-enhanced databases	collaboration + data-driven	online writing platforms	Open Access	more & better connected researcher profiles	importance of societal relevance + non-publication contributions
Potentially most disruptive development	semantic/concept search + contextual/social recommendations	open science	collaborative writing + integration with publishing	circumventing traditional publishers	public access to research findings, also for agenda setting	moving away from simple quantitative indicators



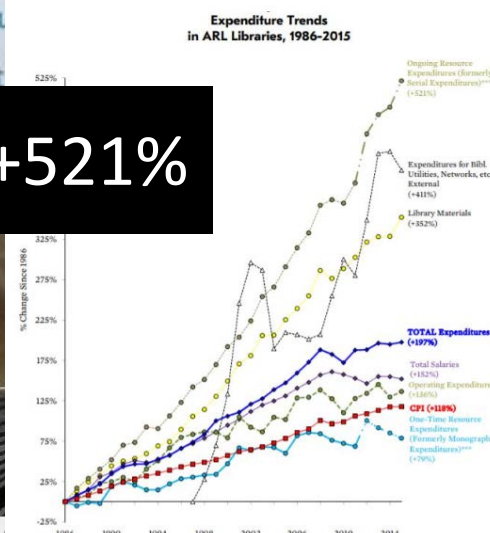
... scholarly communication,

IN EUROPE 726 MEuro (underestimated)
GLOBAL 7,6 billion (2016)

Key figures on Big Deals costs:

- At least 1.025 billion euros are spent overall, every year in electronic resources (including periodicals and e-books) by 31 consortia surveyed in 30 European countries.
- Periodicals alone account for 726 million euros per year across all consortia. 72% of these costs are borne from university budgets.
- 475 million euros per year are spent in periodical Big Deal contracts with five of the largest publishers (Elsevier, Springer Nature, Wiley, Taylor & Francis, Royal Society of Chemistry).
- Contracts with these publishers led to an average annual cost increase of 3.6%.

+521%



KEY MESSAGE / 1
TODAY READING IS
NOT FOR FREE

THE MONEY ALREADY IS IN THE SYSTEM – AND WE CAN SPEND -50%

Disrupting the subscription journals business model for the necessary large-scale transformation to open access
A Max Planck Digital Library Open Access Policy White Paper



... we are paying commercial publishers to lock up our content ...



Jon Tennant ✓
@Protohedgehog

Following

The smartest business model ever. Have all of your products and services performed for free by researchers, and then sell it back to them with an unholy markup. Try describing the model to a non-researcher, and they mock us for falling for it.

<https://twitter.com/Protohedgehog/status/985439318897410048>

Steven Salzberg @StevenSalzberg1

Nature and other Springer journals make all of their money from free labor provided by scientists, who write all the papers and do all of the peer review. And now they are cashing in: "Springer Nature aims to raise 1.2 billion euros in new money in IPO" reut.rs/2qqhp93

For researchers, it's 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.
Jon Tennant, *Open Science: just science done right*, Sept.

2018

Profit	Company	Industry
10%	BMW	automobiles
23%	Rio Tinto	mining
25%	Google	search
29%	Apple	premium computing
35%	Springer	scholarly publishing
37%	Elsevier	scholarly publishing

A. Holcombe, Aug. 2018
http://wp.me/p1hJf-km CC-BY Alex Holcombe



Alexis Verger @Alexis_Verger · 5 nov

Elsevier 2018 profit margin: a whopping 37%

"In other words, every time we pay a \$3000 article processing charge, only \$1800 supports the publishing process, while the remaining \$1200 goes directly to Elsevier shareholders." @MullinsLab



From symbiont to parasite: the evolution of for-profit science publishing | Molecular Biology of...

molbiolcell.org

Nov.5, 2019

12

435


467



www.plos.org

KEY MESSAGE / 2
THERE ARE HUGE COMMERCIAL INTERESTS (AND A HUGE WASTE OF PUBLIC MONEY)

...and a bit of monopoly

 Sarah de Rijcke
@sarahderijcke

"Elsevier offers 100% open access. In exchange for (meta)data." This deal may effectively transfer crucial means to influence Dutch science policy to private enterprise. @deVSNU @NFU_kwaliteit @ScienceguideNL

 Johan Rooryck
@JohanRooryck

Open access
R In risposta a @sarahderijcke, @deVSNU e altri 2

Working together, we can accelerate open science can benefit researchers. One has to wonder whether a proposal to tie a contract about Open Access for articles to contracts for data projects is not an example of the profoundly anticompetitive practice of 'tying', which requires products that aren't naturally related to be purchased together...



Traduci il Tweet
8:08 PM · 3 nov 2019 · Twitter Web App

Nov.3, 2019

Open Science

Empower

Elsevier partners collaborative and performance. Hei

-  Open Access
Broadening access to research outputs
-  CHORUS
Partnering to create public access

There are more options for outputs than ever before research experience t

Black hole of dark knowledge



Control User Data Governance Innovation

ELSEVIER

«Access»?



March 12: Thomson Reuters, Elsevier, Nature open for free all the articles dealing with nuclear pollution

...the same and the ones that until March 10 were closed behind subscriptions so expensive that Harvard can no longer afford...



Joanne Kamens ✓
@JKamens

Segui

In risposta a @jasonpriem e @unpaywall

and btw the "everyone who needs it has access" is completely wrong. I have worked in small biotechs for the last 10 years and hit frustrating paywalls EVERY DAY trying to do good science.

Traduci dalla lingua originale: inglese

15:14 - 4 gen 2018

<https://twitter.com/JKamens/status/948920680590004224>

A screenshot of the Harvard University website. At the top is the Harvard University crest and name. Below that is a red banner with the text "THE HARVARD LIBRARY". The main content area is titled "Faculty Advisory Council Memorandum on Journal Pricing". To the left is a "News Archive" sidebar with several items. The main text of the memorandum discusses the unsustainable situation of journal pricing and the impact on the library's budget.

HARVARD UNIVERSITY

login Hi, Guest

THE HARVARD LIBRARY

News

Faculty Advisory Council Memorandum on Journal Pricing

Major Periodical Subscriptions Cannot Be Sustained

To: Faculty Members in all Schools, Faculties, and Units
From: The Faculty Advisory Council
Date: April 17, 2012
RE: Periodical Subscriptions

We write to communicate an untenable situation facing the Harvard Library. Many large journal publishers have made the scholarly communication environment fiscally unsustainable and academically restrictive. This situation is exacerbated by efforts of certain publishers (called "providers") to acquire, bundle, and increase the pricing on journals.

Harvard's annual cost for journals from these providers now approaches \$3.75M. In 2010, the comparable amount accounted for more than 20% of all periodical subscription costs and just under 10% of all collection costs for everything the Library acquires. Some journals cost as much as \$40,000 per year, others in the tens of thousands. Prices for online content from two providers have increased by about 145% over the past six years, which far exceeds not only the consumer price index, but also the higher education and the library price indices. These journals therefore

News Archive

- Draft Harvard Library Mission Statement
- Happy Holidays from the Harvard Library
- Photos: Pop-Up Innovation Space Showcases Projects Exploring and Celebrating Libraries
- Photos: Microsoft Surfaces Tables Installed, Tested in Three Harvard Libraries
- Photos: Students, Faculty Design Space Envisioning the Library of the Future

... if not, Sci-Hub would not exist



Science Home News

Who's downloading pirated papers?

EVERYONE

In rich and poor countries, researchers turn to the Sci-Hub website.

<http://www.sciencemag.org/news/2016/04/whos-downloading>

The Guardian



Higher Education Network

Scientists should be solving problems, not struggling to access journals

It takes an average of 15 clicks for a researcher to find and access a journal article. This time could be much better spent

Benjamin Kaube

Mon 21 May 2018 07:30 BST

May 21, 2018



Bernard Rentier

@bernardrentier

Following

The single fact that providing free information on universal Science is illegal tells us a lot about how absurd it has become, in the Internet era, to rely on the old research publication model. #FreeOpenAccessNow

Jon Tennant @Protohedgehog

Oh wow. Looks like anyone can now create their own @sci_hub mirror github.com/bsidio/sci-hub You can use this to help accelerate research and society by providing free access to millions of research articles. But it's probably illegal, so don't do it.

Traduci il Tweet

08:37 - 10 mag 2018

March 10, 2018

[alternative ways to get a pdf]

HOW TO GET THE PDF?

Alternatives to the publisher version of full-text journal articles

updated: February 20, 2018

1 UNPAYWALL

Get full-text of research papers as you browse, using Unpaywall's index of 10 million legal, open access articles. For CHROME | Firefox <http://unpaywall.org/>



2 GOOGLE SCHOLAR BUTTON

Easy access to Google Scholar from any web page. Find full-text on the web or in your university library. Select the title of the paper on the page you're reading, and click the Scholar button to find it. for CHROME | Firefox <https://addons.mozilla.org/en-US/firefox/addon/google-scholar-button/>



3 KOPERNIO

Get instant notifications of available versions from your library or otherwise. Promising features like a personal Locker, saved articles and more. <https://kopernio.com/>



4 OPEN ACCESS BUTTON

Free, legal research articles and data delivered instantly or automatically requested from authors. You can do this from the website, or install a browser extension/API. <https://openaccessbutton.org/>



5 HASHTAG #ICANHAZPDF

Use the hashtag #icanhazpdf together with a link to the requested publication; if somebody has access, they can send you the PDF. <https://twitter.com/search?q=%23icanhazpdf>



HOW TO GET THE PDF?

Alternatives to the publisher version of full-text journal articles

8 NARCIS

NARCIS provides access to scientific information, including open access publications from the repositories of all the Dutch universities, KNAW, NWO and a number of research institutes, datasets from some data archives as well as descriptions of research projects, researchers and research institutes. <http://www.narcis.nl/>

9 OSF PREPRINTS

OSF offers access to over 2 million open access preprints. <https://osf.io/preprints/>

10 DIRECTORY OF OPEN ACCESS JOURNALS

DOAJ offers access to over 10,000 open access journals. <https://doaj.org/>

11 SCIENCE OPEN

Science Open contains over 37 million articles, a large part in open access. <http://www.scienceopen.com/>

12 SCI-HUB

If all else fails, you may be tempted to use Sci-Hub. Do realize, however, that in many countries, including The Netherlands, the use of Sci-Hub is considered as an illegal act, as it involves content protected by copyright laws and licensing contracts.

open access.nl

News and events

What is open access? In the Netherlands You

Alternative ways to access journal articles

Feb. 27, 2018

unpaywall

Unpaywall ... but it works only IF authors self-archive

An open database of 17.025.907 free scholarly articles.

We harvest Open Access content from over 50,000 publishers and repositories, and make it easy to find, track, and use.

LEARN MORE

GET THE EXTENSION

scien

...does it work?

...huge delay

Paola Masuzzo @pcmasuzzo
 Today I witnessed the celebration of a research article published in a (famous & glam) journal after 2 and a half years of revisions. I do feel happy for the authors, of course, but I cannot help wondering what's there to celebrate in such a slow scientific dissemination process.

6:58 PM - May 9, 2019 · Twitter for Android P.Masuzzo, Sept. 2019

...average publication time: 9-18 months



The Retraction Watch Leaderboard

...growing number of retractions due to falsified/fabricated data

1. Yoshitaka Fujii (total retractions: 183) See also: [Final report of investigating committee, our reporting, additional coverage](#)
2. Joachim Boldt (96) See also: [Editors-in-chief statement, our](#)

nature

International weekly journal of science

Home | News & Comment | Research | Careers & Jobs | Current Issue | Archive | Au

Archive | Volume 533 | Issue 7604 | News Feature | Article

NATURE | NEWS FEATURE

1,500 scientists lift the lid on reproducibility

Survey sheds light

Monya Baker

25 May 2016 | Cor

...reproducibility crisis



← Tweet March 2018

Jelte Wicherts @jelteWicherts

Gaming the system: When in 2010 Italian universities incorporated citations in promotion decisions, self-citation rates among social scientists went up by 81-179% sciencedirect.com/science/articl...

...self-citations +179%



PLOS ONE

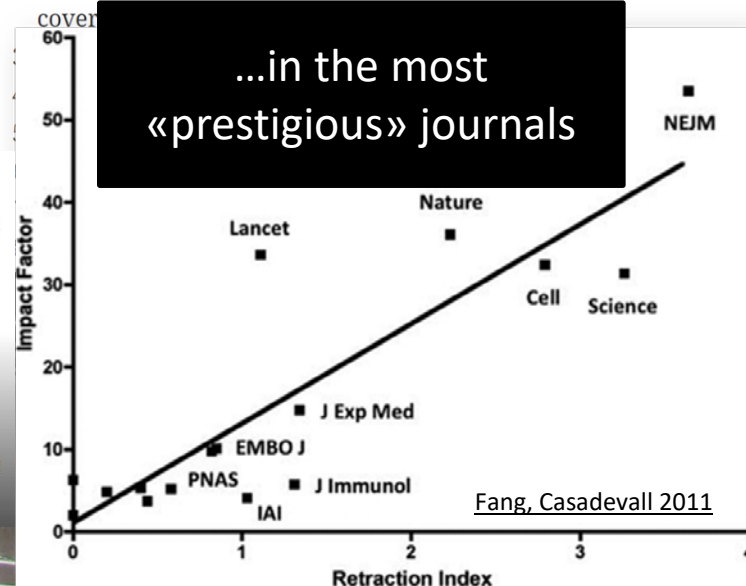
Citation gaming induced by bibliometric evaluation: A country-level comparative analysis

Alberto Barconi | Giuseppe De Nicolao, Eugenio Petrovich

Sept. 11, 2019



...in the most «prestigious» journals



... the system is broken

RESEARCH CULTURE IS BROKEN,
OPEN SCIENCE CAN FIX IT

YouTube

June 2019

Cerca



Research Culture is Broken; Open Science can Fix It | Rachael Ainsworth | TEDxMacclesfield

[retractions]

The Retraction Watch Leaderboard

Who has the most retractions on methodology, which we brought to light:

1. Yoshitaka Fujii (total retractions: 10) See also: our coverage of the investigating committee, [here](#).
2. Joachim Boldt (96) See also: our coverage of the investigating committee, [here](#).
3. Diederik Stapel (58) See also: our coverage of the investigating committee, [here](#).

No academic post for fraudster Diederik Stapel, after all

Recently, we reported that social psychologist and renowned data faker Diederik Stapel had found himself a [new gig supporting research at](#)



Diederik Stapel

...detected by a PhD candidate told to «shut up and write»

[De Telegraaf](#). Continue reading →

Stem cell researchers investigated for misconduct recommended for roles at Italy's NIH

March 14, 2018

Two stem cell scientists who left Harvard University in the aftermath of a messy misconduct investigation may have found



Harvard chiede il ritiro di 31 pubblicazioni del noto cardiologo Piero Anversa

Oct. 16, 2018



Foto: Brigham and Women's Hospital. Piero Anversa, M.D.

Contengono dati falsificati e/o inventati, come riferiscono la Harvard Medical School e il Brigham and Women's Hospital di Boston. Gli studi sotto accusa riguardano la possibilità – dimostrata falsa – di utilizzare le staminali per rigenerare il cuore

Does scientific misconduct cause patient harm? The case of Joachim Boldt

If you wanted to know the impact of misconduct on patient care, retractions were not the answer. A meta-analysis of 10 journals had to be conducted to find analysis and e

97 retractions. If you cut them off, the systematic reviews shows increased risk of mortality and renal failure



2013
After a re-evaluation of the studies by Boldt et al, Zarychanski et al, and others, it was found that hydroxyethyl starch was associated with a significantly increased risk of mortality (risk ratio [RR], 1.02-1.17) and renal failure (RR, 1.27; 95% CI

findings, there was an increased risk of death and kidney failure among those given HES:

The study by Zarychanski et al highlights the potentially important and adverse effect of scientific misconduct.

... what about Impact Factor?



Causes for the Persistence of Impact Factor Mania

Arturo Casadevall^a, Ferric C. Fang^b

Author Affiliations

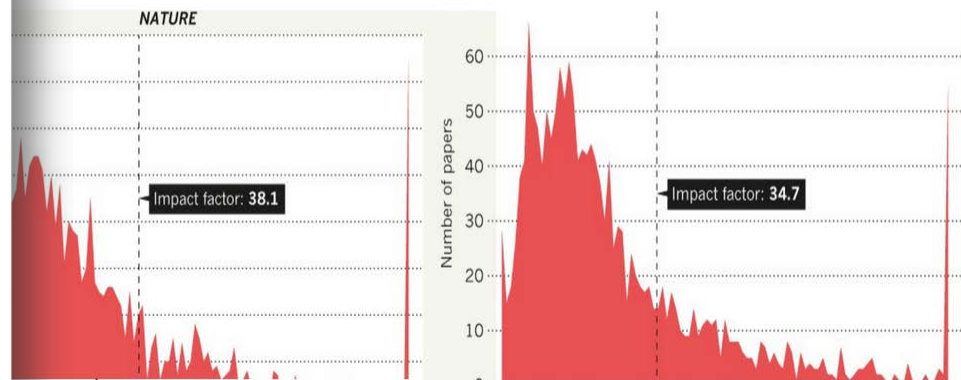
Address correspondence to Arturo Casadevall, arturo.casadevall@einstein.yu.edu.

ABSTRACT

Numerous essays have addressed the misuse of the journal impact factor for judging the value of science, but the practice continues, primarily as a result of the actions of scientists themselves. This seemingly irrational behavior is referred to as "impact factor mania." Although the literature on the impact factor is extensive, *Journal Impact Factor*

The Impact Factor is a bullshit statistic

J.Tennant *Barriers for young researchers*, 7 Sept 2017



is imposed by a very small number of highly cited papers

Cites in 2002 to items published in: 2001 = 3314
 2000 = 3917
 Sum: 7231
 Calculation: Cites to recent items 7231 = 7.007
 Number of recent items 1032

Number of items published in: 2001 = 528
 2000 = 504
 Sum: 1032

ISI Web of Knowledge™

Journal Citation Reports®

Journal: CURRENT BIOLOGY

Mark	Journal Title	ISSN	Total Cites	Impact Factor	Immediacy Index	Citable Items	Cited Half-life	Citing Half-life
<input type="checkbox"/>	CURR BIOL	0960-9822	22589	11.910	2.683	331	3.8	4.0

Journal Impact Factor

Cites in 2003 to items published in: 2002 = 3628
 2001 = 3923
 Sum: 7551
 Calculation: Cites to recent items 7551 = 11.910
 Number of recent items 634

Number of items published in: 2002 = 334
 2001 = 300
 Sum: 634

jadranka stojanovski @jaca99

Everyone using impact factor is statistically illiterate, @Protohedgehog at #osfair17

00:59 - 7 set 2017

10 Retweet 16 Mi piace

ions in year X
 published in X-1 X-2

«citable» articles
 shed in X-1 X-2

... evaluation? «Obsession»

“Not only are we failing to provide the right incentives, we are actually providing perverse ones.”

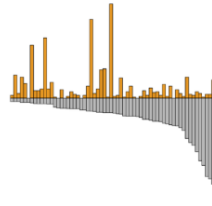
As long as journal impact factors retain some role in the career development, journals should publish the distribution of their citations. The participants strongly supported the adoption of the San Francisco Declaration on Research Assessment (DORA) by publishers, funders and universities. There was a call for open citation data (rather than having to rely on proprietary sources).

Goodhart's Law: “when a measure becomes a target, it ceases to be a good measure.”

Metrics are subject to manipulation, so we should look carefully not only at the number, but what it is that number purports to measure

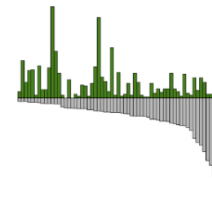
“People game the system at every level and this risks the loss of valuable research in favour of fashionable research.”

Times Chosen in Survey Shared Widely



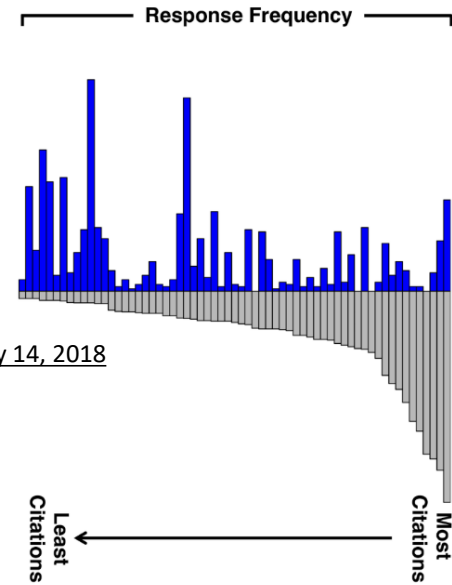
Citations (2013)

Times Chosen in Survey Most Significant



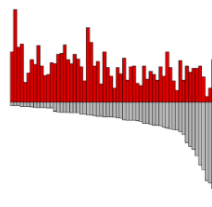
Citations (2013)

Times Chosen in Survey Most Cited



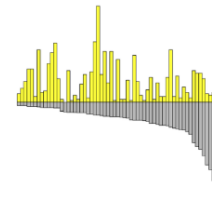
Citations (2013)

Times Chosen in Survey h-index

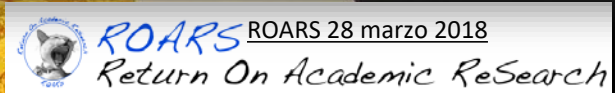


Citations (2013)

Times Chosen in Survey May 14, 2018 Shared: Chemists



Citations (2013)



Impact or perish. L'ossessione per l'impatto delle pubblicazioni scientifiche genera frodi e condotte abusive



Jean-Sebastien Caux

@jscaux

Following

The prospectus for the IPO of Springer Nature

[proxy.dbagproject.de/mediacenter/re ...](https://proxy.dbagproject.de/mediacenter/re...)

should be compulsory reading for any funder/university/agency representative negotiating with publishers. You can then question whether you should support #SciPost and similar initiatives, or can afford not to.

Traduci il Tweet

13:38 - 5 mag 2018

22 Retweet 28 Mi piace



<https://twitter.com/jscaux/status/92...>

Prospectus dated April 25, 2018

SPRINGER NATURE

Prospectus

for the public offering

...rch, with a High-Quality Brand Portfolio, Global Scale
...ong Growth in the Open Access Publishing Market.

...tant, as market participants increasingly differentiate in
...to a journal's impact factor. Our open access portfolio
...uch as Nature Communications, Scientific Reports and
...positioning us well to command premium APCs from

Springer Prospectus Apr. 25

your choice
the game, as



PROFESSIONAL JOBS SUMMITS RANKINGS

Linking impact factor to 'open access' charges creates more inequality in academic publishing

10.2.5 Increasing Share in Revenues from

Springer Nature was one of the
by open access, which provides us addi

funded by authors and/or their funders of the relevant research institutions, not libraries. Accordingly, revenues stemming from APCs are in the short- to medium-term supplementary to the subscription business, not cannibalistic. Some of our journals are among the open access journals with the highest impact factor, providing us with the ability to charge higher APCs for these journals than for journals with average impact factors.

needed to fulfil our obligations. This has seen us stop using journal impact factors in isolation in our marketing (note: a prospectus is a legal document aimed at potential investors, not a marketing tool for authors or librarians). In fact, for more than 10 years, long before DORA, Nature editorials have expressed concerns about the overuse

...a deadly embrace



But let's not ignore the facts: the science system is in landslide transition from data-sparse to data-saturated. Meanwhile, scholarly communication, data management methodologies, reward systems and training curricula do not adapt quickly enough if at all to this revolution. **Researchers, funders and publishers (I always thought that meant making things public) keep each other hostage in a deadly embrace by continuing to conduct, publish, fund and judge science in the same way as in the past century.**

So far, no-one seems to be able to break this deadlock. Open Access articles are solve only a fraction of the problem. Neither 'open research data' alone will do. W



[WE ARE ON THE WRONG ROAD]

cord injury. First, there is increasing methodology. These range from neurological diseases, the lack of contamination of neural cell lines, poor reliability of published research (participant numbers are low), published research findings are commonly low in the biomedical field. Surprisingly then, the rate of publication is slow and problematic [3]. Second, the number of papers retracted from the peer-reviewed literature is also increasing [4]. Third, there is an over-reliance on a scientist's publication metrics (numbers, journal impact factors, citation numbers) for progression, prizes, and research grants. Indeed, gaming the metrics of science is an occupational requirement for scientists, journal staff and university administrators. Publications now contain more spin (reliance on findings which are not justified by the statistics) and a more liberal use of words such as 'novel' [5]. These trends are driven by an unhealthy culture in which it can be more important to publish a result than publish a correct result [6, 7]. The trends also expose deep flaws in the current systems of peer review.

This research culture can lead to cost- and corner-cutting, with hasty publication of irreproducible results and poor-quality work—it's an era in which scientists can fall prey to the temptation to do whatever they can get away with in order to publish. This leads to scientific misconduct, commonly defined as 'fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results'. A well-known recent case is Professor

- PUBLISHING «A RESULT» HAS BECOME MORE IMPORTANT THAN PUBLISHING A CORRECT RESULT
- GAMING METRICS IS AN OCCUPATIONAL REQUIREMENTS FOR SCIENTISTS



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

CN
COLLECTION

©Tom Toro, <http://tomtoro.com/cartoons/#jp-carousel-135>



...what about a different landscape?

...a bit of inspiration...

The best thing about **Internet** is that it's **open**. In every field **it let us share and innovate**.

In science, **OPENNESS IS ESSENTIAL**.

Open science doesn't mean ignoring economic reality.

Of course **we need business models to be sustainable**. But that **doesn't mean we have to carry on doing things the way they have always been done**.

So, wherever you sit in the value chain, whether you're a researcher or an investor or a policy maker, my message is clear:

let's invest in collaborative tools that let us progress...

Let's tear down the walls that keep learning sealed off.

And let's make science open.



...another world is possible

PLATFORM 9³/₄



OPEN SCIENCE:
A SHIFT IN THE CONVERSATION

@pcmasuzzo

P.Masuzzo, 17 Sept. 2019

OPEN
SCIENCE
MOOC

IGDORE
The Globally Distributed Institute for
Open Research and Education



Alternative title for this talk:

Stuff I have learned this year from
smart and interesting people on Twitter

The "appeal to culture"



"You cannot change culture without
changing everything else first"

aka

I believe we need to stop talking about **culture**
shift if we are going to use it as an excuse to
leave things as they are (and leave it up to the
new generation, whatever that means)



Open Science

Open Definition

"Open data and content can be freely used, modified, and shared by anyone for any purpose"

<http://opendefinition.org/>



Jeff Rouder

@JeffRouder

What is Open Science? It is endeavoring to preserve the rights of others to reach independent conclusions about your data and work.

Traduci il Tweet

21:47 - 5 dic

Open Science Depends on Open Minds



Neelie Kroes ✓

Iscriviti 851

sci Open Science @openscience

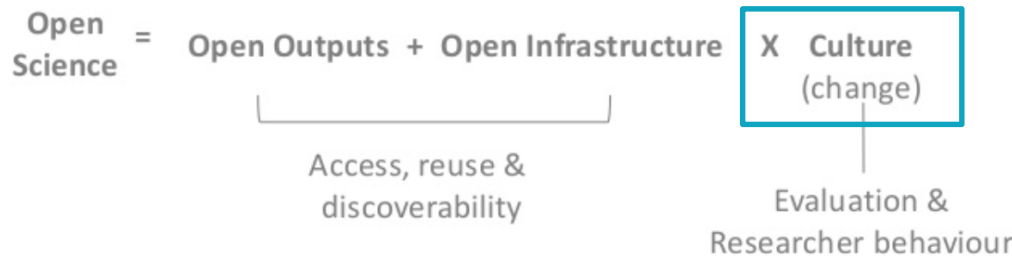
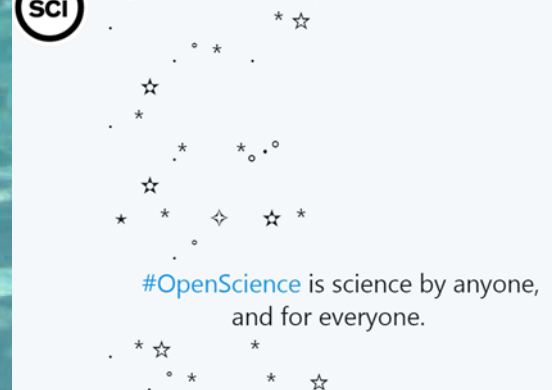
"Being open and transparent is an ongoing practice and not a check box at the end." - @biocrusoe #openscience

13 8



di conoscenza a partire dai dati

sci Open Science @openscience **Sept. 19 | 2019**



Open Science



The future of science is Open

START YOUR RESEARCH
TRAINING NOW

USE FOSTER TO:



Access Free Courses



Get Badges



Earn Socialisation



Attend the events



Participate in the community

FOSTER taxonomy

Click to download taxonomies

Open Science

Research Data Management

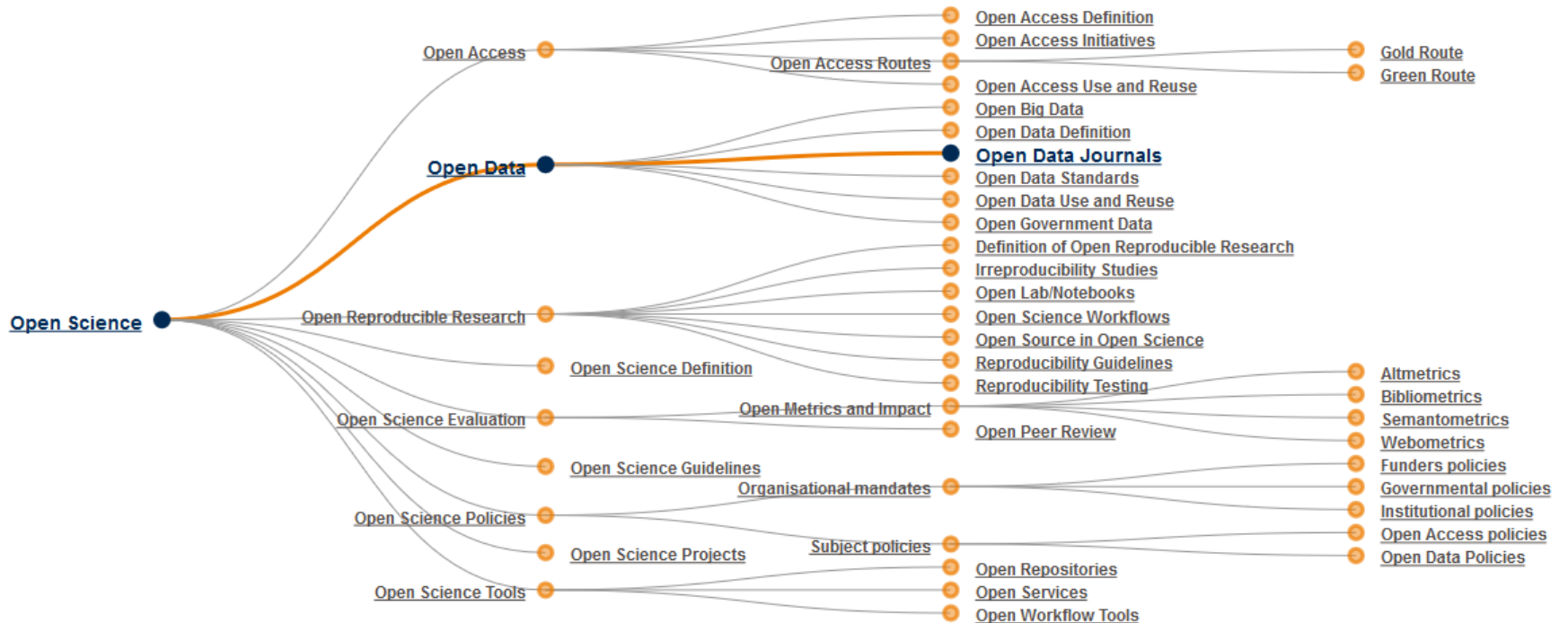
Legal Issues

Text And Data Mining

TDM Methods

Research Workflow

RRI



Principles of Open Scholarship

Clip st

Tony Ross-Hellauer, 2017

Transparency	Accountability	Inclusivity
Responsibility	Community & Collaboration	Visibility
Rigour	Equality	Public good
Reproducibility	Findability	Accessibility



Jon Tennant ✓
@Protohedgehog

Following

What is the difference between open science and good science? If research papers are inaccessible, with no code or data, cherry picked results, inability to even attempt to reproduce, is that really even science? Science without openness is more anecdote and faith than science.

Tennant Sept.2018

**OPEN SCIENCE:
JUST
SCIENCE
DONE RIGHT**

Open Science

Jon Tennant ✓

107.241 Tweet

Following

[Open] Science is a Human Right

Article 27

- | | |
|--|--|
| <p>1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.</p> <p>2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.</p> | <p>1) Toda persona <u>tiene derecho a participar libremente en la vida cultural de la comunidad</u>, a <u>gozar de las artes</u> y a <u>participar en el progreso científico y en los beneficios que de él resulten.</u></p> <p>2) Toda persona tiene derecho a la <u>protección de los intereses morales y materiales que le correspondan por razón de las producciones científicas, literarias o artísticas</u> de que sea autora.</p> |
|--|--|

<https://www.un.org/en/universal-declaration-human-rights/>

Sept. 21, 2019

[@protohedgehog](#)

Open Science and SDG

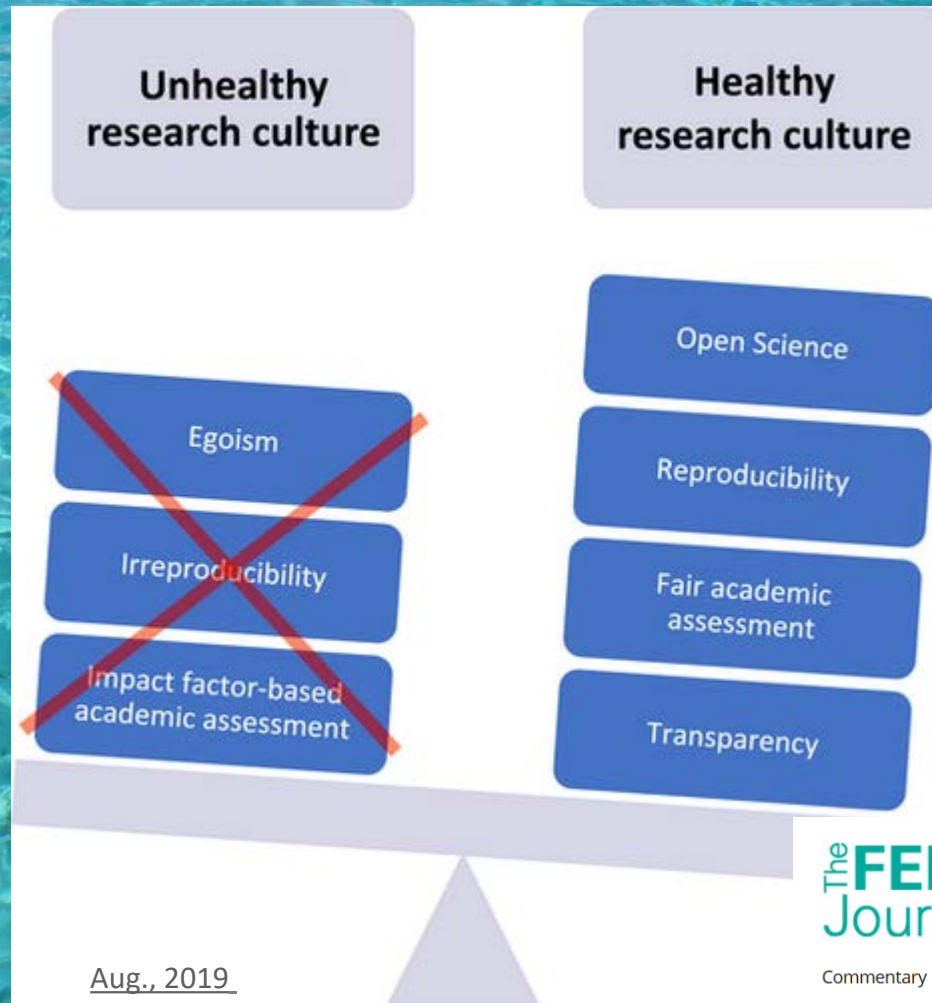


SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



Open Science



The **FEBS**
Journal

Commentary | [Free Access](#)

Scientific impact and the quest for visibility

Ralitsa R. Madsen ✉

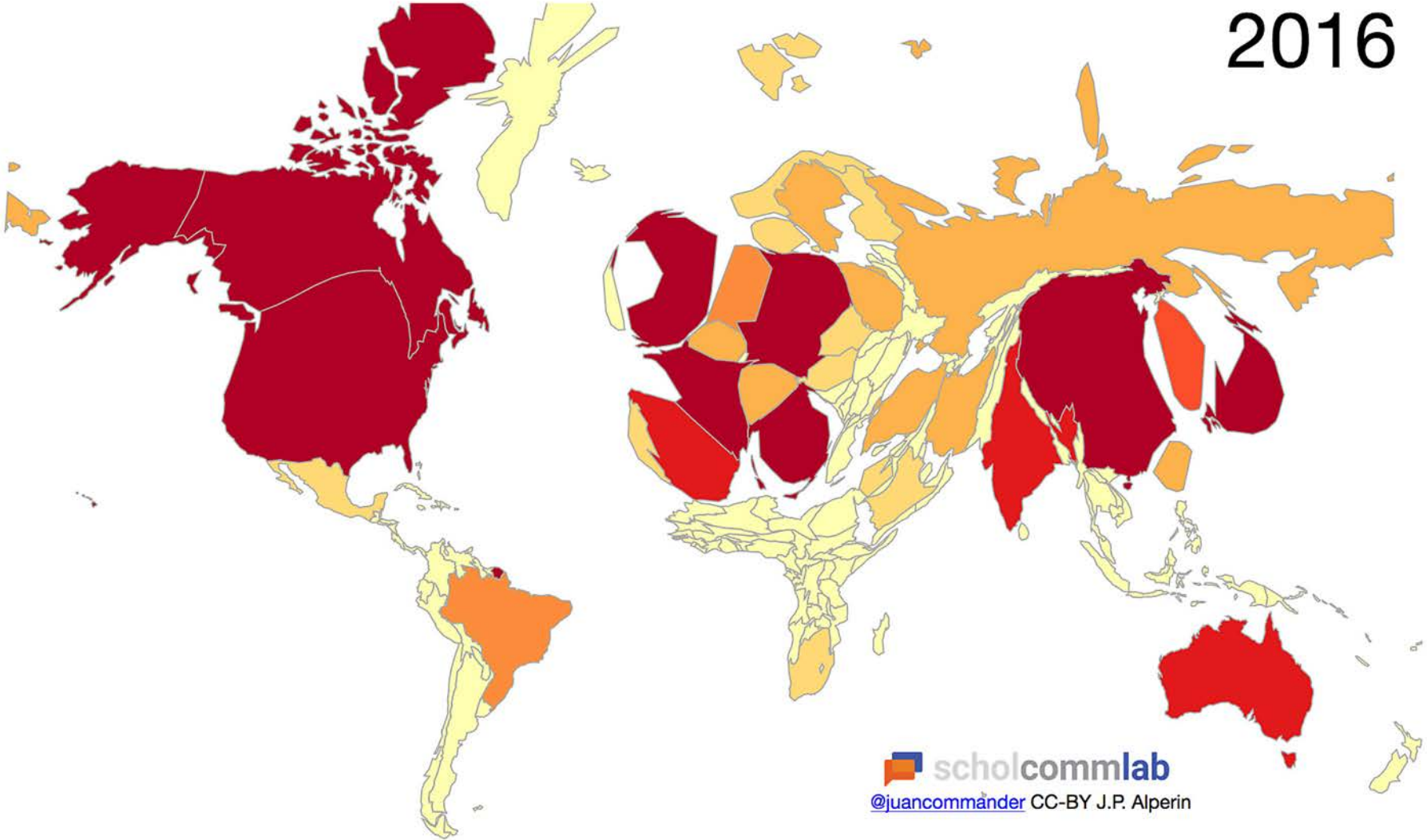
First published: 29 August 2019 | <https://doi.org/10.1111/febs.15043>

... a non-dialogue



World scaled by number of documents with authors from each country in Web of Science

2016



Open [collaborative] Science

It's time to talk explicitly about inclusiveness

We have talked enough about diversity in an **implicit** way but we have not focused on it in an **explicit** way and we may therefore have missed the real point: **equity, diversity and inclusiveness are non-negotiable** and they must be built into the foundation of what we do.



Cameron Neylon, Twitter thread; Image by Cyle De Guzman on Unsplash Photos

Stephen Curry ✓

Sept. 19, 2019

Following

64.823 Tweet

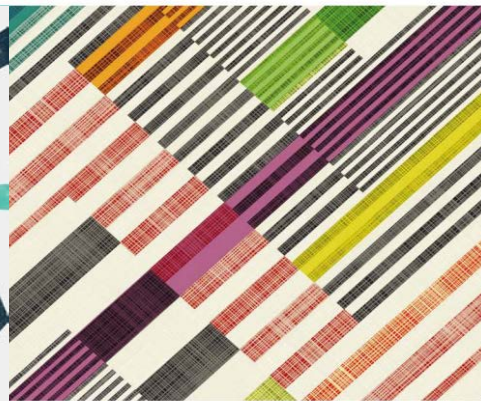
LERU @LERUnews · 19 set

Important message to bring to university leadership is that we miss out on talent by not making equality and diversity a priority. Mixed teams work better. Addressing diversity issues is a win-win-win situation for students, staff and institutions, says @Stephen_Curry



Contextualizing Openness

Situating Open Science



Edited by Leslie Chan

Angela Okune, Rebecca Hillyer, Denisse Albornoz, and Alejandro Posada
University of Ottawa Press

@JFSmith434

Seguei

"If we are not careful, we will have an open science that perpetuates the inequalities in academia and science." @mendulla #osfair2017

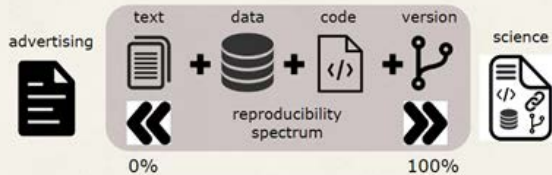


Oct. 19, 2019
46.24 Inclusive Open Science, 7 Sept. 2017



Open Science

Let's please stop living in the past



research outputs now encompass far more than can be expressed in the 17th century construct of a research paper
 scholars deserve to be given credit for the many contributions they make above and beyond articles (peer-reviews, data, code, protocols...)

Image from <https://www.teepublic.com>, Eric the clown, Seinfeld

The normative system of Science

Norm

- Communality
- Open Sharing
- Universalism
- Evaluate research on own merit
- Disinterestedness
- Motivated by knowledge & discovery
- Organized skepticism
- Consider all new evidence, even against one's prior work

Counternorm

- Secrecy
- Closed
- Particularism
- Evaluate research on reputation
- Self-interestedness
- Treat science as a competition
- Organized dogmatism
- Invest career promoting one's own theories, findings

Hugely inspired by Brian Nosek



We need to hear more #failtales



But it's more than just the way science is presented in talks.
 It's also about how we write about it: stories to promote the results we got in a few pages that hide the biggest truth of them all:
 #failtales are everywhere.
 And that's absolutely OK.
 When we reject failure, we create a culture of **punishment, artificial rewards, and scientific bias**. When we embrace failure, we cultivate a culture of **acceptance, tolerance, and learning**. Which one would you prefer?

re as an Intrinsic Part of Science #Failtales - Jon Tennant



OPEN SCIENCE:
 A SHIFT IN THE CONVERSATION
 @pcmasuzzo

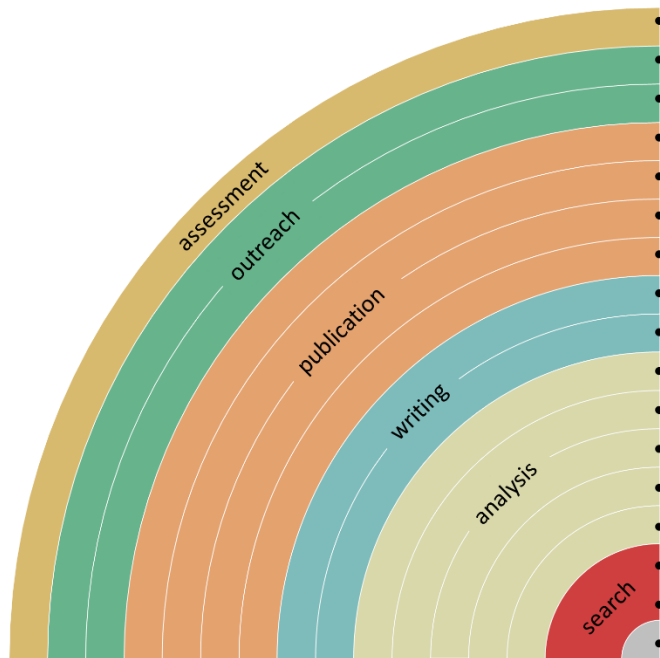


P.Masuzzo, 17 Sept. 2019

Alternative title for this talk:
 Stuff I have learned this year from


Open science rainbow...

You can make your workflow more open by ...



- adding alternative evaluation, e.g. with altmetrics
- communicating through social media, e.g. Twitter
- sharing posters & presentations, e.g. at FigShare
- using open licenses, e.g. CC0 or CC-BY
- publishing open access, 'green' or 'gold'
- using open peer review, e.g. at journals or PubPeer
- sharing preprints, e.g. at OSF, arXiv or bioRxiv
- using actionable formats, e.g. with Jupyter or CoCalc
- open XML-drafting, e.g. at Overleaf or Authorea
- sharing protocols & workfl., e.g. at Protocols.io
- sharing notebooks, e.g. at OpenNotebookScience
- sharing code, e.g. at GitHub with GNU/MIT license
- sharing data, e.g. at Dryad, Zenodo or Dataverse
- pre-registering, e.g. at OSF or AsPredicted
- commenting openly, e.g. with Hypothes.is
- using shared reference libraries, e.g. with Zotero
- sharing (grant) proposals, e.g. at RIO



 Bianca Kramer & Jeroen Bosman <https://101innovations.wordpress.com>

DOI: 10.5281/zenodo.1147025



Open science: roadmap

Open Science and
its role in universities:

May 29 2018

A roadmap for cultural change

Open Science: Opportunities, challenges and cultural change in universities

Open Science is not about dogma; it is about greater efficiency and productivity, more transparency and a better response to interdisciplinary research needs

the importance of Open Science where “new knowledge created through global collaborations involving thousands of people from across the world and from all walks of life”. The Commissioner therefore called for drawing up a roadmap for Open Science.

t. A transition to Open Science is a process, not a single event. Such a transition at the institutional level, we suggest universities should develop

transition will take years to effect, not months or days. To achieve this, a programme of cultural change, which is necessary to

Another world is possible?

BERNARD RENTIER

OPEN SCIENCE,
THE CHALLENGE
OF TRANSPARENCY

Preface by Philippe Busquin



ACADÉMIE ROYALE DE BELGIQUE
Collection **L'ACADÉMIE EN POCHE**

B. Rentier, 2019

... [Italy / new players: MIUR]



«COORDINATION-STRATEGY»

**NATIONAL PLAN OPEN SCIENCE
WORKING GROUP OPEN SCIENCE (RECTORS, RESEARCHERS, PUBLISHERS, LIBRARIANS,
RESEARCH INFRASTRUCTURES)**

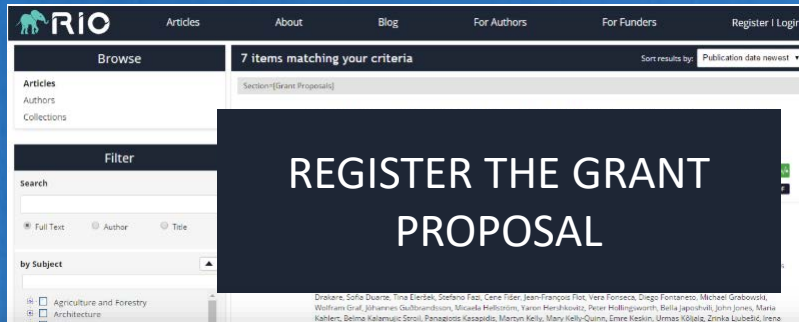
...another way of doing research

Box 1. Some Research Practices that May Help Increase the Proportion of True Research Findings

- Large-scale collaborative research
- Adoption of replication culture
- Registration (of studies, protocols, analysis codes, datasets, raw data, and results)
- Sharing (of data, protocols, materials, software, and other tools)
- Reproducibility practices
- Containment of conflicted sponsors and authors
- More appropriate statistical methods
- Standardization of definitions and analyses
- More stringent thresholds for claiming discoveries or “successes”
- Improvement of study design standards
- Improvements in peer review, reporting, and dissemination of research
- Better training of scientific workforce in methods and statistical literacy



...another way of opening up



<https://aspredicted.org/>

Create a new AsPredicted pre-registration

See your existing AsPredicteds (e.g. approve, make public)

PRE-REGISTER YOUR
STUDY

Your email address (used in AsPredicted)

SEE OWN

What's an AsPredicted?

It is a standardized pre-registration that requires only what's necessary to separate exploratory from confirmatory analyses. You will easily generate a pre-registration document that takes less effort to evaluate than it takes to evaluate the published study itself.

[About](#)

[Terms of use](#)

How does it work?

- One author briefly answers 9 questions.
- All participating authors receive an email asking for approval.
- If everyone approves, it is saved and stays private until an author acts to make it public, or it remains private forever. ([Why?](#))
- Authors may share anonymous .pdf with reviewers.
- If made public, a single-page .pdf is generated. That document can be used as a supplement. ([See sample](#))
- The .pdf contains a unique URL that allows for one-click verification. That URL can be included in the paper.
- The .pdf is automatically stored in the web-archive. ([See sample](#))
- There are no accounts, users, or passwords.

What if things don't go "as predicted"

You can just say so in the paper:

- "Contrary to expectations, we found that..."
- "Unexpectedly, we also found that..."
- "In addition to the analyses we pre-registered we also ran..."
- "We encountered an unexpected situation, and followed our Standard Operating Procedure" ([.pdf](#))

...another way of being reproducible

R.Ainsworth, Sept. 2019

The Turing Way: A handbook for reproducible data science

Dr Rachael Ainsworth, Research Software Community Manager
Software Sustainability Institute, University of Manchester

Open Science Fair 2019 Demo
Link to slides: <https://doi.org/10.5281/zenodo.2402181>



Dr Rachael Ainsworth, University of Manchester • @rachael_ajyn #TuringWay #OSFair2019 • <https://doi.org/10.5281/zenodo.2402181>

The Turing Way

1. Introduction
2. Reproducibility
3. Open Research
4. Version Control
5. Collaborating on GitHub/GitLab
6. Credit for reproducible research
7. Research Data Management
8. Reproducible Environments
9. Testing
10. Reviewing
11. Continuous Integration
12. Reproducible Research with Make
13. Risk Assessment

Welcome to the Turing Way

The Turing Way is a lightly opinionated guide to reproducibility.

Our goal is to provide all the information that researchers need at the start of their projects to ensure that they are easy to reproduce at the end.

This also means making sure PhD students, postdocs, PIs, and funding teams know which parts of the "responsibility of reproducibility" they can affect, and what they should do to nudge data science to being more efficient, effective, and understandable.

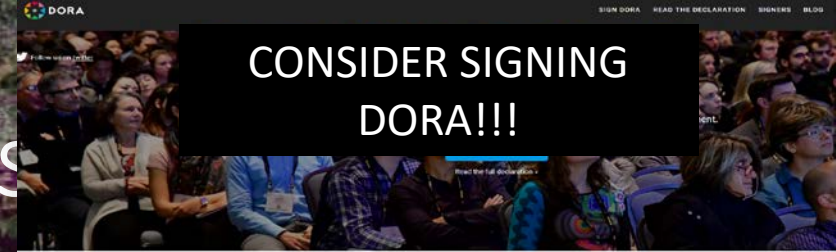
A bit more background

Reproducible research is necessary to ensure that scientific work can be trusted. Funders and publishers are beginning to require that publications include access to the underlying data and the analysis code. The goal is to ensure that all results can be independently verified and built upon in future work. This is sometimes easier said than done. Sharing these research outputs means understanding data management, library sciences, software development, and continuous integration techniques: skills that are not widely taught or expected of academic researchers and data scientists.

The Turing Way is a handbook to support students, their supervisors, funders, and journal editors in ensuring that reproducible data science is "too easy not to do". It will include training material on version control, analysis testing, open and transparent communication with future users, and build on Turing Institute case studies and workshops. This project is openly developed and any and all questions, comments and recommendations are welcome at our GitHub repository:

<https://github.com/alan-turing-institute/the-turing-way>.

...another way of assess



CONSIDER SIGNING DORA!!!



- 1. Research output**
 - Research activity
 - Publications
 - Datasets
 - Open source
 - Funding
- 2. Research Process**
 - Stakeholder engagement/citizen science
 - Collaboration & interdisciplinarité
 - Research integrity
 - Risk management
- 3. Service & Leadership**
 - Leadership
 - Academic standing
 - Peer review
 - Networking
- 4. Research Impact**
 - Communication & dissemination
 - IP (patents, licenses)
 - Societal impact
 - Knowledge exchange
- 5. Teaching and supervision**
 - Teaching
 - Mentoring
 - Supervision
- 6. Professional Experience**
 - Continuing professional development
 - Project management
 - Personal qualities

B. Rentier, June 2019

« MATRIX, NOT METRICS »

MULTIPLE CRITERIA

OS-CAM, the Career Assessment Matrix

	R1	R2	R3	R4
Research output	+	++	+++	++++
Research Process	+	+++	++++	++++
Service & Leadership		+	+++	++++
Research Impact	+	++	+++	++++
Teaching and supervision	(++)	+	++	++++
Professional Experience		+	+++	++++

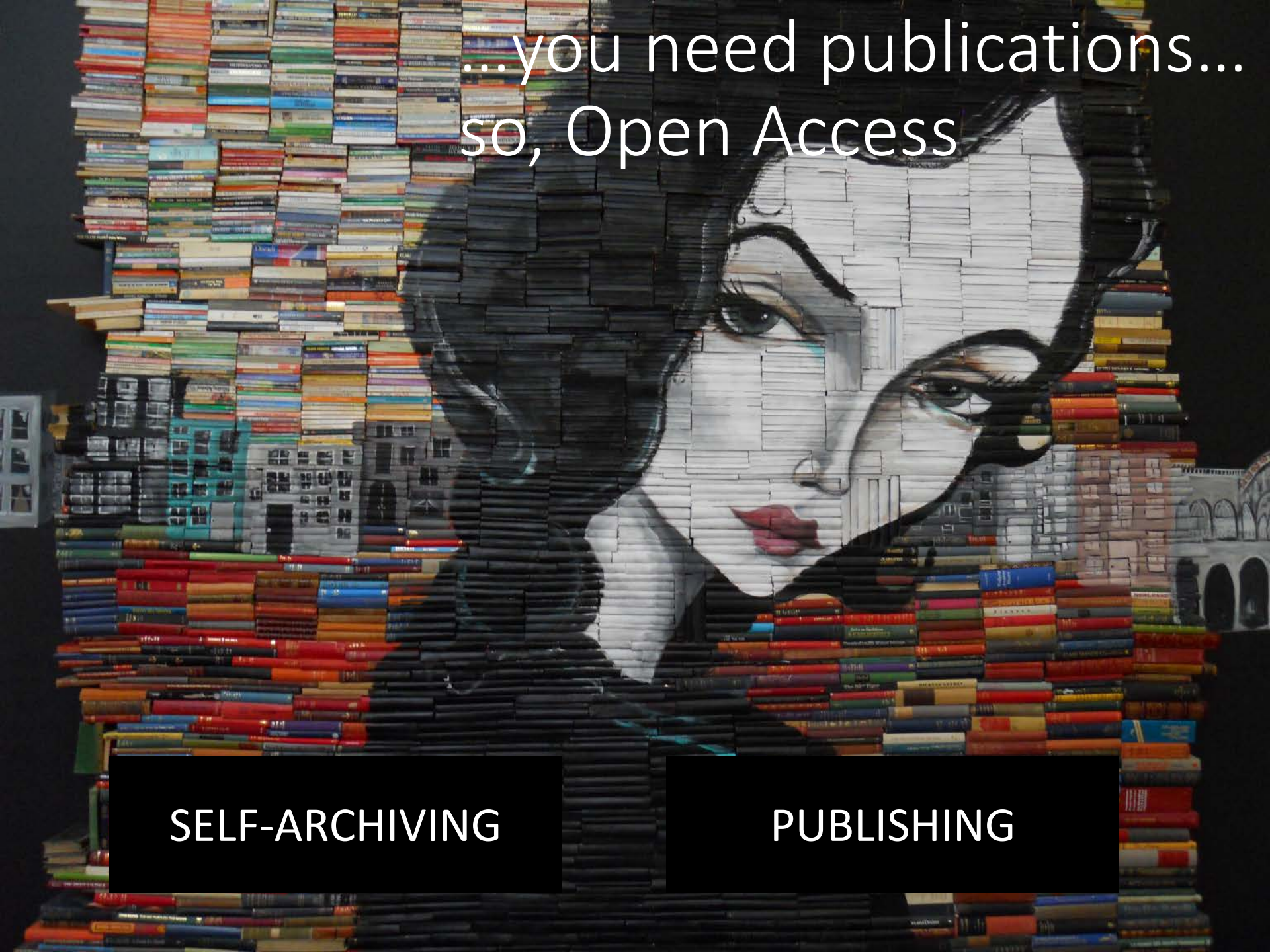
Open Science will never prevail without a thorough revisiting of the way evaluations of researchers are conducted

Bernard Rentier

...you need publications...
so, Open Access

SELF-ARCHIVING

PUBLISHING



[Houston, we have a problem]

10 Myths around Open Scholarly Publishing March 11, 2019

Myth 1 Preprints will get your research 'scooped' Preprints typically provide a time-stamp and a DOI, therefore establishing priority of discovery	Myth 6 Copyright transfer is required to publish and protect authors Copyright transfer procedures do not protect authors nor contribute to the advancement of scientific progress
Myth 2 JIF and journal branding are measures of quality for researchers The JIF is a flawed metrics that was never meant to be used for evaluation of research and researchers	Myth 7 Gold Open Access is synonymous with the APC business model Most DOAJ-indexed journals do not have APCs and are funded from other sources, such as research institutes and grants
Myth 3 Approval by peer review proves that you can trust a research article The current peer review system is prone to a number of flaws including corruption, human bias and ghostwriting	Myth 8 Embargo periods on 'green' OA are needed to sustain publishers Traditional journals can peacefully coexist with zero-embargo self-archiving policies on author manuscripts
Myth 4 Without journal peer review, the quality of science suffers Researchers are more than responsible and competent enough to ensure their own quality control as part of intrinsic scientific integrity	Myth 9 Web of Science and Scopus are global databases of knowledge Neither represent the sum of current global research knowledge including Africa, Latin America and Southeast Asia
Myth 5 Open Access has created predatory publishers Predatory journals have been around for a long time before the recent push towards Open Access publishing	Myth 10 Publishers add no value to the scholarly communication process Publishers are responsible for quite some key functions, from peer-review management to production and archiving of final version articles

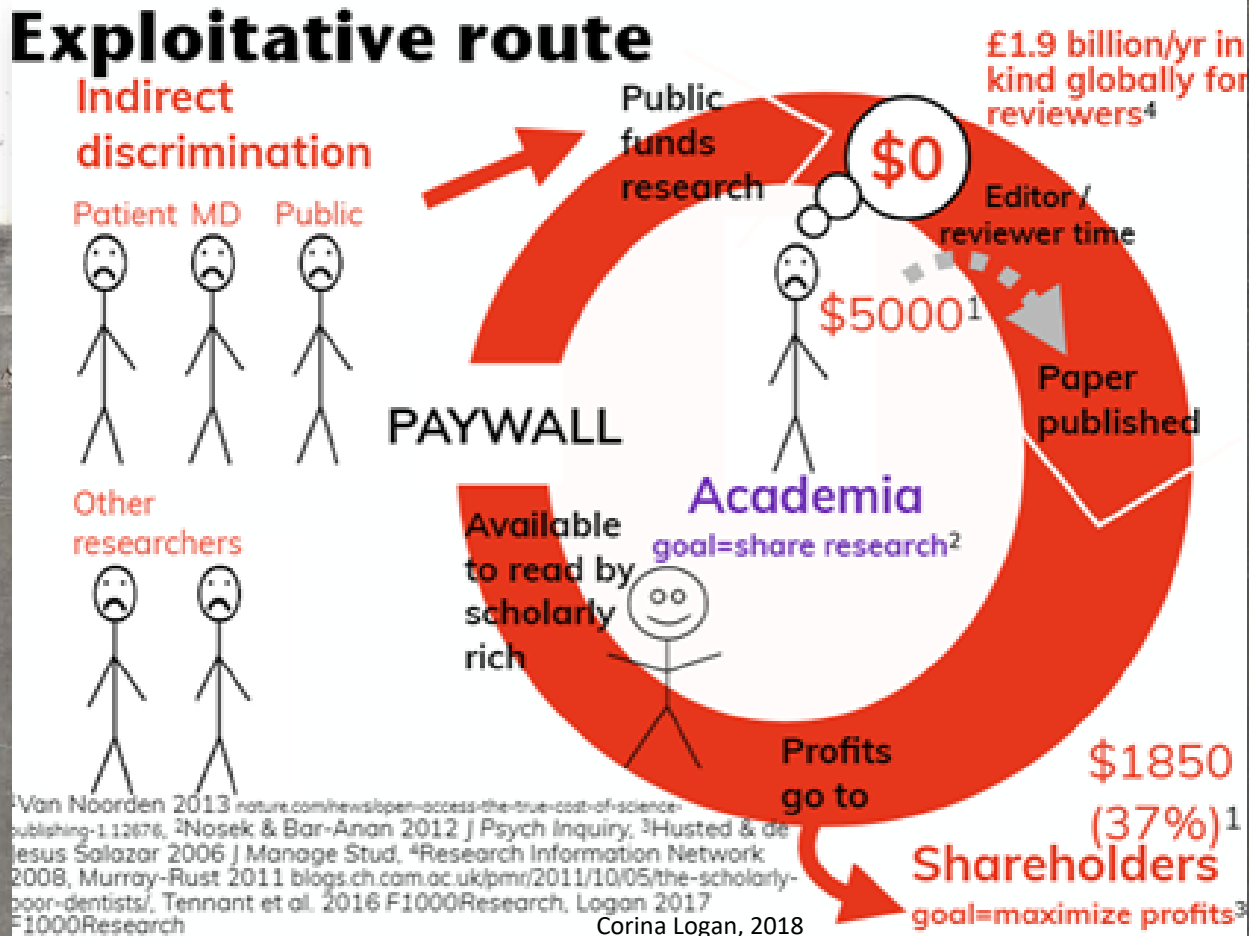
NOT PEER-REVIEWED
Check if your article has been peer-reviewed or feedback before you submit. Click here to learn more about journals or browse peer-reviewed articles instead.

Ten myths around open scholarly publishing

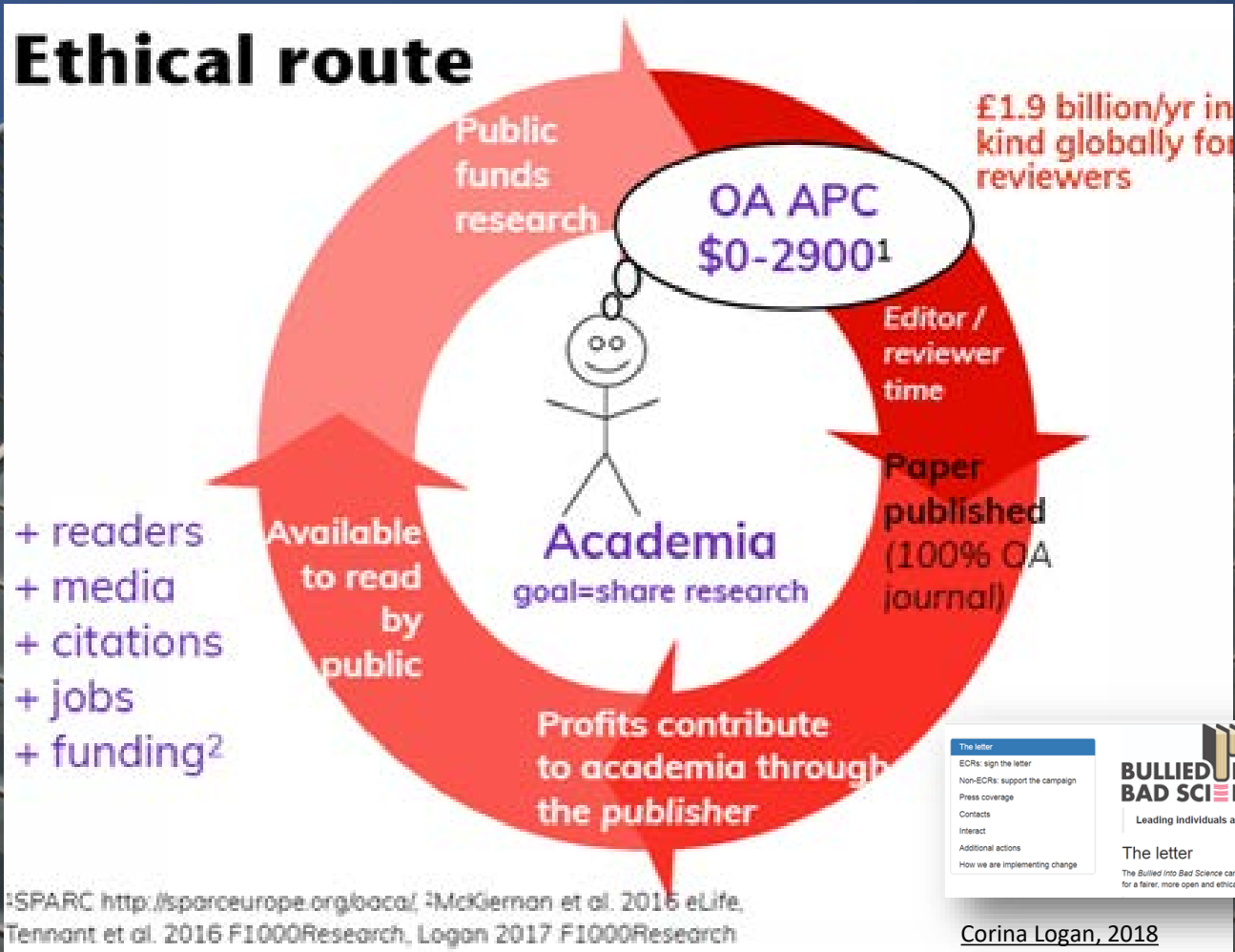
[Browse myths](#) [Home and Medical Education](#) [Submit Paper](#)

- OPEN ACCESS IN ITALY (PERCEPTION)
- JOURNALS ONLY
- ALWAYS PAYING FOR PUBLISHING
- ALWAYS PREDATORY PUBLISHERS

Why do we need Open Access? [or: where does the money go?]



Why do we need Open Access?



[a call: PlanS]



...A TRANSITION
LASTING 15 YEARS
IS STILL A
TRANSITION? OR
IS IT MORE A
«FURTHER
EXPLOITATION»?

WE NEED RADICAL
AND ROBUST
ACTIONS



Lenny Teytelman

@lteytelman

Following

Reminder - you can't criticize Plan S for "not being flexible enough so that all of today's journals are deemed compliant." As [@ashleydfarley](#) said - the whole point of Plan S is to force the current system/journals to change.

PLAN S IS A WAY TO FORCE THE SYSTEM TO CHANGE

Ashley Farley [@ashleydfarley](#)

Plan S isn't meant to fit into the traditional publishing system. It's meant to drive systemic change in a broken system. Hybrids were meant as a way to transition. Now it's become the ugly norm. I would love to see more conversation around solutions that #PlanS is pushing for

[PlanS]

cOAlitionS

Making
Open Access
a reality
by 2020

A DECLARATION OF COMMITMENT
BY PUBLIC RESEARCH FUNDERS

<http://scieur.org/coalition-s>

Plan S Sept. 4, 2018

Accelerating the transition to
full and immediate Open Access to
scientific publications

DOAJ DIRECTORY OF
OPEN ACCESS
JOURNALS

3300 OUT OF 12514
JOURNALS WITH APCs
26%

REVISED IN FEB. 2019
POSTPONED TO JAN 2021

- NO MORE HYBRID JOURNALS
 - TOPPED APCs
 - **WHEN [AND ONLY WHEN]**
APCs ARE DUE, INSTITUTION PAYS
- AUTHORS RETAIN COPYRIGHT VIA CC BY

ADDITION:

Authors retain copyright of their publication with no restrictions. All publications must be published under an open license, preferably the Creative Commons Attribution Licence CC BY. In all cases, the license applied should fulfil the requirements defined by the Berlin Declaration;

- The Funders will ensure jointly the establishment of mechanisms for the services of Open Access journals and provide;

Open Access journals or the Funders will, in a incentives to establish and appropriate; support will also infrastructures where

Open Access publication fees for universities, not by individual researchers, it is acknowledged that all scientists should be able to publish their work Open Access even if their institutions have limited means;

- When Open Access publication fees are applied, their funding is standardised and capped (across Europe);
- The Funders will ask universities, research organisations, and libraries to align their policies and strategies, notably to ensure transparency;
- The above principles shall apply to all types of scholarly publications, but it is understood that the timeline to achieve Open Access for monographs and books may be longer than 1 January 2020;
- The importance of open archives and repositories for hosting research outputs is acknowledged because of their long-term archiving function and their potential for editorial innovation;
- The 'hybrid' model of publishing is not compliant with the above principles;
- The Funders will monitor compliance and sanction non-compliance;

- REACTIONS
- DEBATE

[the biggest inhibitor is the system itself...]

*Research

Advertise

Company

N

March 4th, 2019

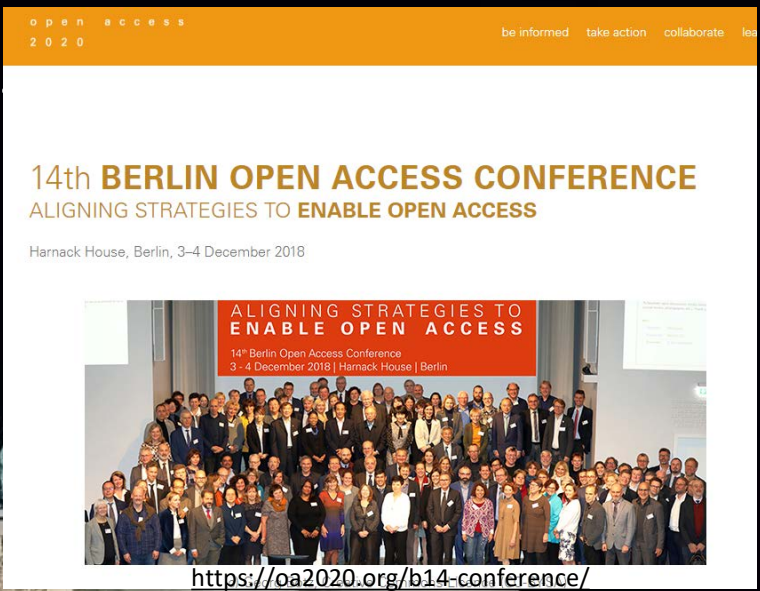
Robert-Jan Smits: the future for Plan S

Smits said he had not been surprised by the pushback Plan S has received from some researchers. He quoted two pieces of advice he received as envoy. First: universities and researchers are "coin-driven", and mainly motivated by winning funding. Second: "The biggest inhibitor to change and modernisation in the academic system is the academic system itself."

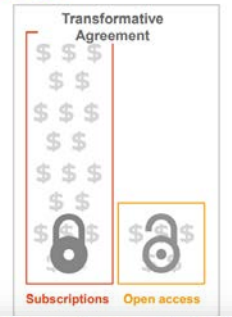
But he said he thinks some of the arguments against Plan S have been "unfair". He reserved his greatest ire for accusations that Plan S will prevent Coalition S-funded researchers from collaborating with people who do not face restrictions on where and how they can publish.

"I thought that scientists work together across borders to extend the frontiers of knowledge and solve problems for society," he said. "If now scientists tell me that they will not cooperate anymore if they are not allowed to publish behind a paywall, I think we have a serious problem with the role of science in our society and we probably have got to have a more fundamental debate."

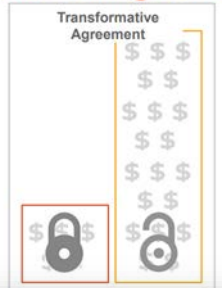
[transformative agreements



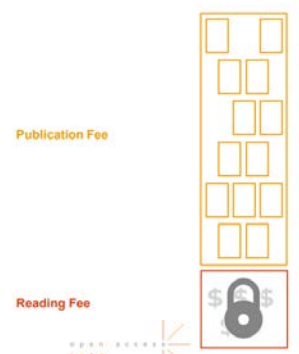
Transformative agreements get control over hybrid costs



Subscription funds are converted to open access publishing funds



Costs and workflows shift from package level to the individual article level



Rome, Feb. 21 2019

Transformative Agreements: Come e perché

Transformative agreements e PlanS, verso l'Open Access globale
21 febbraio 2019 | Biblioteca Centrale CNR
Colleen Campbell
Open Access 2020 Initiative | Max Planck Digital Library | @oa2020it

FINAL CONFERENCE STATEMENT
14th Berlin Open Access Conference

Participants from 37 nations and five continents, representing research performing and research funding institutions, libraries and government higher education associations and rectors' conferences, associations of researchers and other open access initiatives gathered at the *14th Berlin Open Access Conference* held 3-4 December 2018 in Berlin. They affirmed that there is a strong alignment among the approaches taken by *OA2020*, *Plan S*, the *Jussieu Call* and others to facilitate a full and complete transition to open access. The statement that follows represents the strong consensus of all of those represented at the meeting.

We are all committed to authors retaining their copyrights,
We are all committed to complete and immediate open access,
We are all committed to accelerating the progress of open access through transformative agreements that are temporary and transitional, with a shift to full open access within a very few years. These agreements should, at least initially, be cost-neutral, with the expectation that economic adjustments will follow as the markets transform.

Publishers are expected to work with all members of the global research community to effect complete and immediate open access according to this statement.

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Creating and Managing Projects

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CHAPTER 4

A visual proof that neural nets can compute any function

One of the most striking facts about neural networks is that they can compute any function at all. That is, suppose someone hands you some complicated, wiggly function, $f(x)$:

<http://neuralnetworksanddeeplearning.com/chap4.html>

Neural Networks and Deep Learning

What this book is about

On the exercises and problems

Using neural nets to recognize

handwritten digits

How the backpropagation

algorithm works

Improving the way neural

networks learn

A visual proof that neural nets can

compute any function

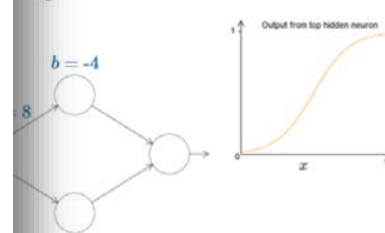
How deep neural networks

learn?

Learning

Index: Is there a simple

feel for how components in the network work, let's focus on a single hidden neuron. In the diagram below, click on the weight, drag the mouse a little ways to the right to increase w . You immediately see how the function computed by the top hidden neuron changes:



learn earlier in the book, what's being computed by the hidden neuron is $\sigma(wx + b)$, where $\sigma(z) \equiv 1/(1 + e^{-z})$ is the sigmoid function. Up to now, we've made frequent use of this

<http://thepundit.it/>



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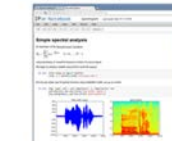
Michael Nielsen e il «deep learning»

IP[y]: IPython Interactive Computing

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The IPython Notebook <http://ipython.org/notebook.html>

The IPython Notebook is an interactive computational environment, in which you can combine code execution, rich text, mathematics, plots and rich media, as shown in this example session:



It aims to be an agile tool for both exploratory computation and data analysis, and provides a platform to support reproducible research, since all inputs and outputs may be stored in a one-to-one way in notebook documents.

There are two components:

- The IPython Notebook web application, for interactive authoring of literate computations, in which explanatory text, mathematics, computations and rich media output may be combined.
- Plain text documents, called notebooks, for recording and distributing the results of the rich computations.

...another writing /

congestion that was significantly associated with NBP use (multivariable OR = 0.24, exact 95% CI 0.10 to 0.57 for cases vs. controls, p = 0.0006).

Conclusions: Use of NBP does not produce specific histological alveolar bone alterations in the absence of overt BRONJ disease.

Introduction

Bisphosphonate-related osteonecrosis of the jaw (BRONJ) is the first and most studied^[1] of a number of bone disorders that have been linked to the use of different classes of medications, including antiresorptive drugs. These osteonecrotic processes have been recently gathered under the term of Medication-related osteonecrosis of the jaw.^[2]

Although the pathogenesis of BRONJ is likely to be multifactorial,^{[3][4][5]} prolonged therapy with antiresorptives and NBP in particular seems to influence predispose to development of clinical signs of BRONJ.^[6] To use of corticosteroids are additional risk factors.^{[7][8][9]}

These antiresorptive agents are worldwide administered in m

Definition Rating

★★★★★ 5.00 | 1 Votes

Definition Jul 25, 2018

Qeios No. 548771

<https://doi.org/10.32388/548771>

Bisphosphonate related osteonecrosis of the jaw (BRONJ)

Reference

A Bedogni, V Fusco, A Agrillo, G Camplisi (2012). Learning from experience. Proposal of a refined definition and staging system for bisphosphonate-related osteonecrosis of the jaw (BRONJ) doi:10.1111/j.1601-0825.2012.01903.x

Bisphosphonate related osteonecrosis of the jaw (BRONJ) is an adverse drug reaction described as the progressive destruction and death of bone that affects the mandible or maxilla of patients exposed to the treatment with nitrogen-containing bisphosphonates, in the absence of a previous radiation treatment

Article Rating

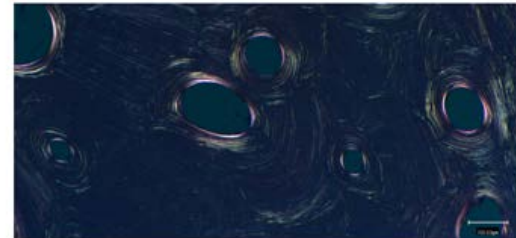
★★★★★ 0 Votes

Article Jul 25, 2018

Qeios No. 19184

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<https://doi.org/10.32388/19184>



Definitions

Bisphosphonate related osteonecrosis of the jaw (BRONJ)
Defined by Alberto Bedogni et al.

Osteomyelitis

Defined by Daniel P'Law et al.

Medication related osteonecrosis of the jaw (MRONJ)
Defined by Alberto Bedogni et al.

Neuralgia-inducing cavitation osteonecrosis (NICO)
Defined by Bouquet, James E et al.

Exposure to antiresorptive therapy with bisphosphonates does not induce histological changes in human alveolar jawbone

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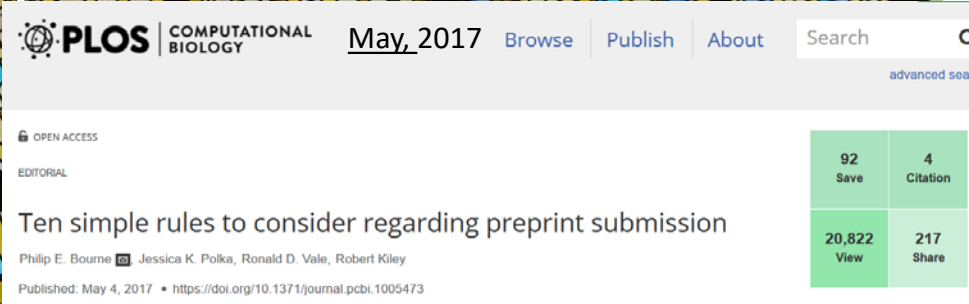
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PREPRINT AND OPEN NOTEBOOK



What is an Open Notebook?

Open Notebooks are documents that contain equations, visualisations, narrative text and live code that can be executed independently and interactively, with output visible immediately beneath the input.

They bring together analysis descriptions and results, which can be executed to perform the data analysis in real time.

Preprints added value:

- immediate publication
- scientific priority
- no post submission uncertainty
- **FOCUS ON THE CONTENT, NOT ON THE VENUE**

Rule 1: Preprints speed up dissemination

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Rule 3: Preprints provide a record of priority

Rule 4: Preprints do not need to be scooped

Rule 5: Preprints provide access to scholarly content that would otherwise be lost

Rule 6: Preprints do not imply low quality

Rule 7: Preprints support rapid evaluation of controversial results

Rule 8: Preprints do not typically preclude publication

Rule 9: Preprints can further inform grant review and academic advancement

Rule 10: Preprints—one shoe does not fit all

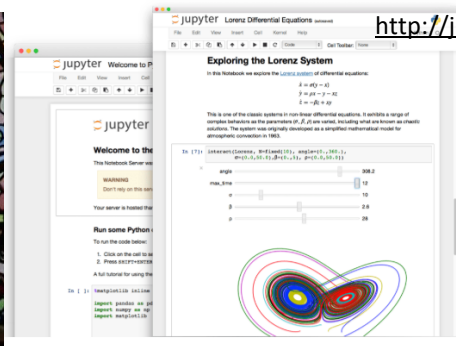
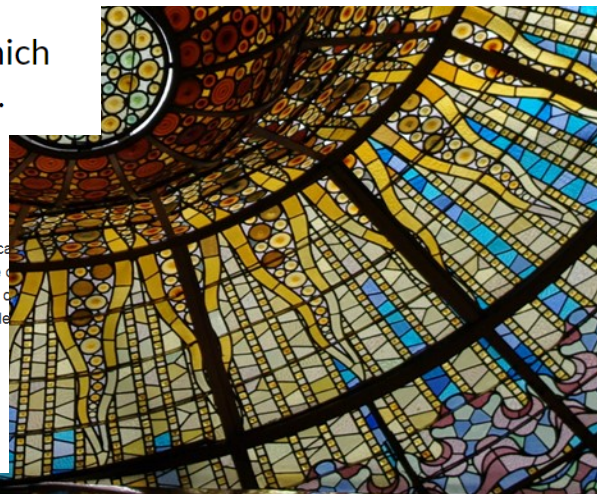
<http://jupyter.org/index.html>

The Jupyter Notebook

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

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... another peer review



METRICS

4555



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Version 2		read	read	read

SYSTEMATIC REVIEW

What is open peer review? A systematic review [version 1; referees: 1 approved, 3 approved with reservations]

Tony Ross-Hellauer

Author details

- REVIEWS ARE «PIECES OF KNOWLEDGE»
- THEY GET A DOI
- THEY ARE CITABLE
- THEY SHOULD BE EVALUATED AS RESEARCH OUTPUTS



METRICS

9143

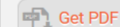


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Version 3 published 29 nov 2017		
REVISIED	✓	✓
Version 2 published 01 nov 2017	read report	read report
Version 1 published 20 lug 2017	? read report	? read report

NEW

REVISIED A multi-disciplinary perspective on emergent and future innovations in peer review [version 3; referees: 2 approved]

Jonathan P. Tennant ^{1,2}, Jonathan M. Dugan ³, Daniel Graziotin ⁴, Mien C. Jacques ⁵, François Waldner ⁵, Daniel Mietchen ⁶, Yehia Elkhatib ⁷, Iren B. Collister ⁸, Christina K. Pikas ⁹, Tom Crick ¹⁰, Paola Masuzzo ^{11,12}, Anthony Caravaggi ¹³, Devin R. Berg ¹⁴, Kyle E. Niemeyer ¹⁵, Tony Ross-Hellauer ¹⁶, Lea Mannheim ¹⁷, Lillian Rigling ¹⁸, Daniel S. Katz ¹⁹⁻²², Christian Greshake Tzovaras ²³, Josmel Pacheco-Mendoza ²⁴, Nazeefa Fatima ²⁵, Marta Poblet ²⁶, Marios Isaakidis ²⁷, Dasapta Erwin Irawan ²⁸, Sébastien Renaut ²⁹, Christopher R. Madan ³⁰, Lisa Matthias ³¹, Jesper Nørgaard Kjær ³², Daniel Paul O'Donnell ³³, Cameron Neylon ³⁴, Sarah Kearns ³⁵, Manojkumar Selvaraju ³⁶, Julien Colomb ³⁸

Author details

Grant information

Abstract

1 David Moher , Ottawa Hospital Research Institute, Canada

OPR In practice

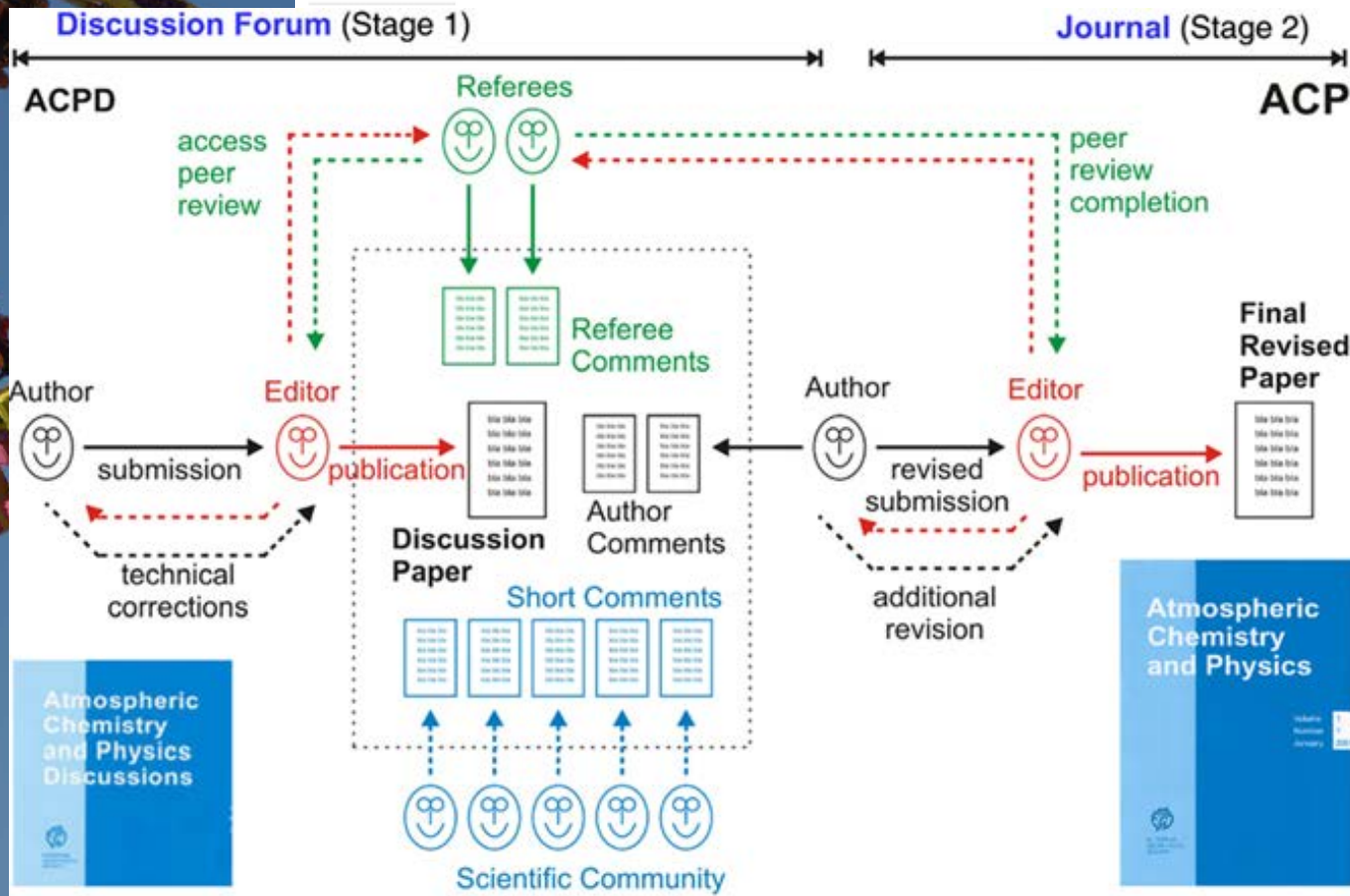
REVIEW ARTICLE

Front. Comput. Neurosci., 05 July 2012 | <https://doi.org/10.3389/fncom.2012.00033>

Poschl 2012

Multi-stage open peer review: scientific evaluation integrating the strengths of traditional peer review with the virtues of transparency and self-regulation

Ulrich Pöschl*



...not only texts...

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<https://zenodo.org/>

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15 September 2015

Dataset Open access

Data set 1 for CARBON AND GENE FLOW MEDIATED BY VIRUS LIFE

Wilson, Willie; Martínez Martínez, Joaquín; Archer, Steve; Fields, David; Gilg, Ilana; Flöge, Sheri

(show affiliations)

Experimental data sets used for manuscripts associated with coccolithovirus infection of *Emiliania huxleyi*. Flow cytometry data; expression data of genes associated with photophysiology, fatty acid metabolism and sulphur cycling.

Please contact Willie Wilson (wilwil@sahfos.ac.uk) for further information.

Name	Date	Size	Download
Dddd_Diff_Expression_Rep_1.xlsx	15 Sep 2015	99.8 kB	Download
Ehux_Probe_and_Primer_list.xlsx	15 Sep 2015	20.1 kB	Download
Multiplex_3_photophys_and_DddA443_Expression_Rep_1.xlsx	15 Sep 2015	141.2 kB	Download

Publication date:
15 September 2015
DOI
DOI: 10.5281/zenodo.31006
Keyword(s):
Virus, *Emiliania huxleyi*, photophysiology, sulphur cycling, fatty acid metabolism
Collections:
Communities
Datasets
Open Access
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Uploaded by:
Willie (on 15 September 2015)

GitHub repository for 'zimeon/signposting' with 18 commits, 2 branches, and 0 releases. The repository is for 'Signposting for the scholarly web'.

protocols.io logo and URL: <https://www.protocols.io/>

Figshare workflow for 'Fixation of yeast cells'. The workflow includes steps: 1. Around 10am, start a cell culture in a 50ml tube... 2. Grow for 9-10 hours in a shaker at 30 °C... 3. Measure OD in the evening and dilute into 250ml... 4. Transfer to 50ml falcon tubes... The workflow also includes a 'TIMER' section with a 45-second interval.

A grid of research posters and publications:

- Effects of agriculture on evolution of native species (04/08/2012)
- Integrative modelling of higher order chromatin (Benjamin Moore, 29/04/2015)
- IBM day poster (Joe Cheri Ross, 07/02/2017)
- Constraining the structure of the proton with proton-nucleus collisions (David Zaslavsky, 17/10/2013)
- Understanding floral pattern formation in yeast budlings
- Integrative modelling of higher order chromatin (Benjamin Moore, 29/04/2015)
- IBM day poster (Joe Cheri Ross, 07/02/2017)
- Constraining the structure of the proton with proton-nucleus collisions (David Zaslavsky, 17/10/2013)

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I ONTOLOGIES, STANDARDS

R LICENSES AND DOCUMENTATION

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The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier [...] Barend Mons

Abstract

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders—representing academia, industry, funding agencies, and scholarly publishers—have come together to design and jointly endorse a concise and measurable set of principles that we refer to as the FAIR Data Principles. The intent is that these may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles put specific emphasis

TO KNOW HOW

Module 1: Introduction Module 2: FAIR principles Module 3: Data Management Plans



Reference: Vlachos, E., Larsen, A.V., Zürcher, S., Hansen, A.F. (2019). Introduction. In Holmstrand, K.F., den Boer, S.P.A., Vlachos, E., Martínez-Lavanchy, P.M., Hansen, K.K. (Eds.), Research Data Management (eLearning course). doi: 10.11581/dtu.00000048

Reference: Martínez-Lavanchy, P.M., Hüser, F.J., Buss, M.C.H., Andersen, J.J., Begtrup, J.W. (2019). FAIR Principles. In Holmstrand, K.F., den Boer, S.P.A., Vlachos, E., Martínez-Lavanchy, P.M., Hansen, K.K. (Eds.), Research Data Management (eLearning course). doi:

Reference: den Boer, S.P.A., Buss, M.C.H., Hüser, F.J., Smeed, U. (2019). Data Management Plans. In Holmstrand, K.F., den Boer, S.P.A., Vlachos, E., Martínez-Lavanchy, P.M., Hansen, K.K. (Eds.), Research Data Management (eLearning course). doi:

<https://vidensportal.deic.dk/RDMeLearn>

[shades of FAIR]



<https://www.and-s-nectar-rds.org.au/fair-tool>

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FAIR self-assessment tool

Findable

Does the dataset have any identifiers assigned?

No identifier

Is the dataset identifier included in all metadata records/files describing the data?

No

How is the data described with metadata?

The data is not described

What type of repository or

Evaluating FAIR maturity through a scalable, automated, community-governed framework

Mark D. Wilkinson, Michel Dumontier, Susanna-Assunta Sansone, Luiz Olavo Bonino da Silva Santos, Mario Prieto, Dominique Batista, Peter McQuilton, Tobias Kuhn, Philippe Rocca-Serra, Mercè Crosas & Enk Schultes

Scientific Data 6, Article number: 174 (2019) | Download PDF
13 Altmetric | Metrics >>

Sept. 20, 2019

Accessible

How accessible is the data

Is the data available via protocols or tools?

Will the metadata be available?

FAIR METRICS GEN2 - IDENTIFIER PERSISTENCE

Status: Failure

Principle tested: F1

Description: Metric to test if the unique identifier of the metadata resource is likely to be persistent. Known schema are registered in FAIRSharing (https://fairsharing.org/standards/?q=&selected_facets=type_exactidentifier%20schema). For URLs that don't follow a schema in FAIRSharing we test known URL persistence schemas (purl, oclc, fdlp, purlz, w3id, ark).

Created on: Feb 18, 2019 by [Mark D Wilkinson](#) (updated on Feb 20, 2019).

Test results

INFO: The metadata GUID appears to be a URL. Testing known URL persistence schemas (purl, oclc, fdlp, purlz, w3id, ark).

FAILURE: The metadata GUID does not conform with any known permanent-URL system.



Training

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Working with data

The FAIR data principles

FAIR webinar series (Aug/Sep 2017)

FAIR data training

Findable

Accessible

Interoperable

Reusable

FAIR data training

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ANDS | Working with data | The FAIR data principles

FAIR data training

f t i n d p s x

If you intend to run workshops on FAIR data, or include FAIR in training that you are already running here are some ideas and resources.

- A basic checklist (or more comprehensive breakdown) as a tool for discussing the components of FAIR
- Use the FAIR data self-assessment tool in training or consultation
- Discussing the components via a process of transforming a dataset to be more FAIR
- Case studies of domain specific consideration of the principles

FAIR Evaluation Services

Resources and guidelines to assess the FAIRness of digital resources.

Import MI Tests

Import Maturity Indicators Tests as YAML smartAPI interface annotation

Get started

Create collections

Assemble Maturity Indicators Tests into community centered collections

Get started

Evaluate resources

Evaluate resources FAIRness against Collections of Maturity Indicator Tests

Get started

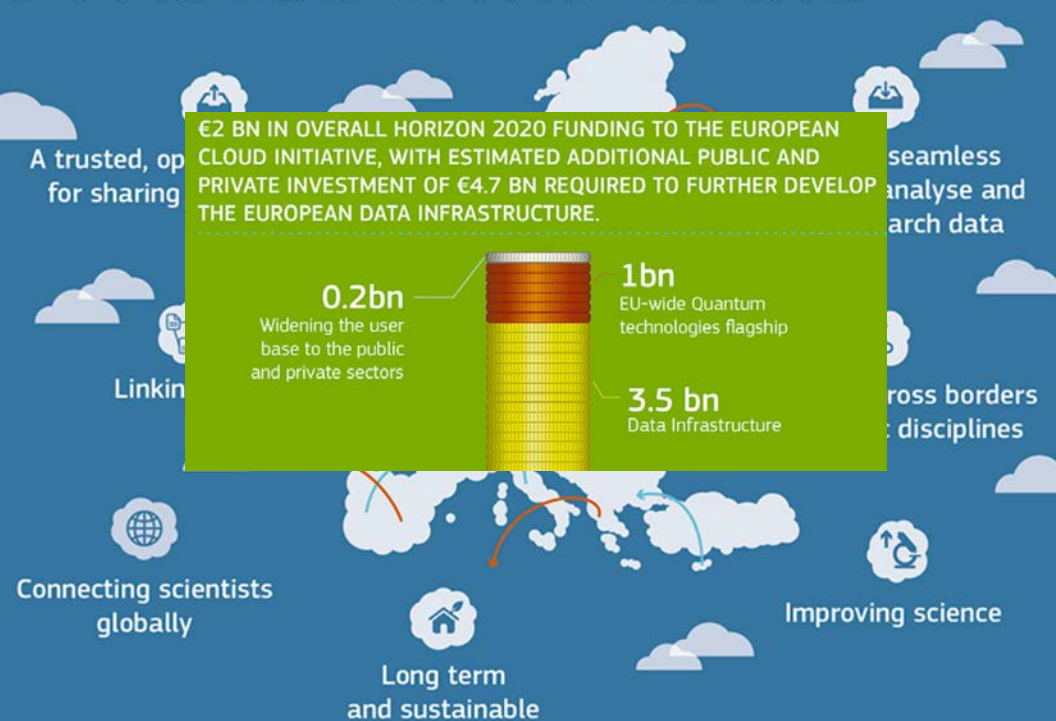
FAIR maturity

[AS NOW WE HAVE THE EOSC!]

The Vienna

Vienna, 23 Novem

BRINGING TOGETHER CURRENT AND FUTURE DATA INFRASTRUCTURES



e 2 0
u 1 8
- a t

Vienna, Nov.23, 2018

We, Ministers of the European Open Science Cloud


1. **Recall** the challenge identified in the Declaration signed in Brussels on 10 July 2016.
2. **Reaffirm** the political commitment of the European Union and its Member States, sustainable and open to the world.
3. **Recognise** that the European Open Science Cloud is an iterative and based on consensus among researchers and stakeholders.
4. **Highlight** that the European Open Science Cloud provides services for Science. Reaching out over time to all researchers and stakeholders.
5. **Recall** that the Council of Ministers of the European Union, in its Declaration of 10 July 2016, called for the creation of a European Open Science Cloud, which should be open to the world, and open to the world, and open to the world.

SEAMLESS ACCESS TO OPEN BY DEFAULT FAIR DATA

9. Call for the European Open Science Cloud to provide all researchers in Europe with seamless access to an open-by-default, efficient and cross-disciplinary environment for storing, accessing, reusing and processing research data supported by FAIR data principles.

6. Note that the 2016 EOSC Summit (held on 11 June 2016) called for acceleration towards making the European Open Science Cloud a reality, hinting at the need to further strengthen the ongoing dialogue across institutions and with stakeholders, for a new governance framework to be launched in Vienna, on 23 November 2018.

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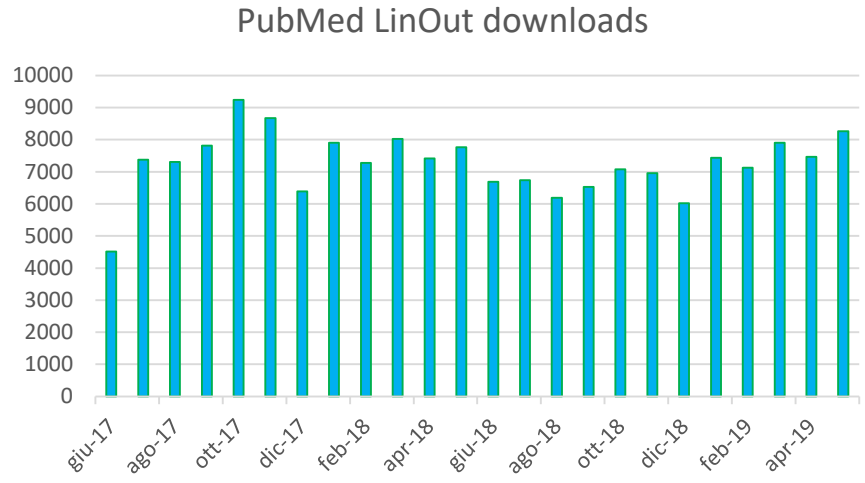
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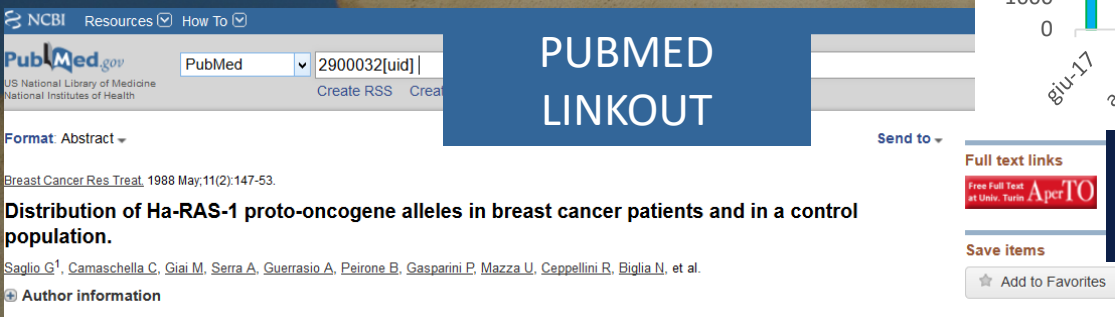
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Format Abstract

Breast Cancer Res Treat, 1988 May;11(2):147-53.

Distribution of Ha-RAS-1 proto-oncogene alleles in breast cancer patients and in a control population.

Saglio G¹, Camaschella C, Giai M, Serra A, Guerrasio A, Peirone B, Gasparini P, Mazza U, Ceppellini R, Biglia N, et al.

Author information

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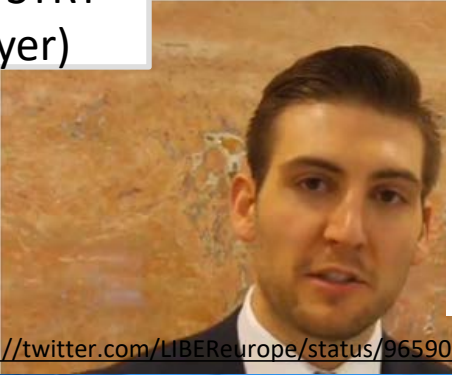
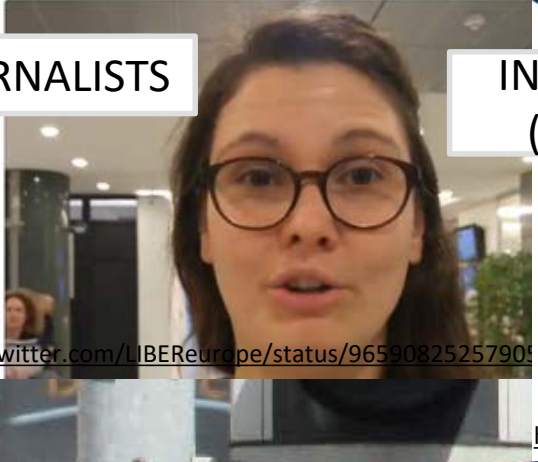
 **LIBERurope** @LIBERurope - 20 feb
#data journalist @naberacka explained at a @Europarl_EN breakfast today the freedom to use #tdm is crucial for her work #copyrightreform #fixcop

Hai ritwittato
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#tdm certainty is critical for the #research process says @ - one of the speakers at our @Europarl_EN breakfast this #copyrightreform

Hai ritwittato
LIBERurope @LIBERurope - 20 feb
Modern science doesn't work in silos and you can't separate commercial and non-commercial research says @Researchkuster of @ScienceEurope #tdm #copyrightreform
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JOURNALISTS

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(Bayer)



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Equatorial atmosphere, I(t) ?-open set

Ncia aberta, Open science

Open government partnership, Open data, Open research data

Open science framework, Information resources, Open data

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open access Open Science: A New "Trust Technology"?
A Grand, C Wilkinson, K Bultitude, AFT Winfield in *Science Communication*, 34 (5) 679 - 689, (2012) (2012)

The emerging practice of open science, which makes the entire process of a scientific investigation available, could extend membership of the research community to new, public audiences, who do not have access to science's long-established...

Area: Open science, Science commons, Data science

open access Open Sesame: R for Data Science is Open Science
Christopher J. Lortie in *Ideas in Ecology and Evolution: Vol 10 No 1* (2017); 1918-3178 (2017-03-03)

A review of a recent book on data science is framed within the context of open science. I propose that R is a natural bridge between data and open science and a powerful ally in promoting transparent, reproducible science.

Area: Open science, Science commons, Data science

open access From Science 2.0 To Open Science - Turning Rhetoric into Action?
Katja Mayer (2016)

Abstract: Open Science is enjoying great popularity at the moment. The European Union has recently adopted the term Open Science in its research framework programme. However, at the same time being mainstreamed into policy and administration it runs...

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Allow adaptations of your work to be shared?
 Yes No Yes, as long as others share alike

Allow commercial uses of your work?

<https://creativecommons.org/choose/?lang=en>

	1. Attribution – allows any use and re-use of the work, so long as the copyright owner is identified. ¹ Attribution is the staple requirement of all of CC licenses.
	2. Attribution, sharelike – allows any use and re-use of the work, so long as the copyright owner is identified and any derivative works adopt the same CC licence.
	3. Attribution, non-commercial – allows use and re-use of the work, so long as the copyright owner is identified and any use or derivative works are not intended for commercial gain.
	4. Attribution, no derivatives – allows the work to be freely shared, so long as the copyright owner is identified and the work remains unchanged as a whole.
	5. Attribution, non-commercial, sharelike – allows use and re-use of the work, so long as the copyright owner is identified, any derivative works adopt the same CC licence, and any use or derivative works are not intended for commercial gain.
	6. Attribution, non-commercial, no derivatives – the most restrictive of all the CC licenses, allowing the work to be freely shared, so long as the copyright owner is identified, the work remains unchanged as a whole, and any use or derivative works are not intended for commercial gain.

Open Science???

<https://www.fosteropenscience.eu/toolkit>

FOSTER About Resources Events Courses News

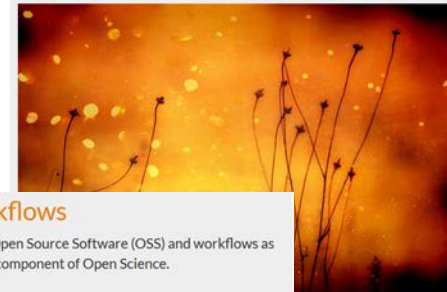
Open Science Training Courses

What is Open Science?

This introductory course will help you to understand what open science is and why it is something you should care about.

Best Practices

This course introduces funding body policies and other environmental factors that influence good practice in opening up research practice.

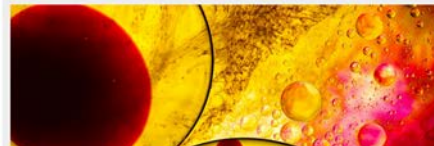


Managing and Sharing Research Data

In this course, you'll focus on which data you can share and how you can go about doing this most effectively.

OSS and Workflows

This course introduces Open Source Software (OSS) and workflows as an emerging but critical component of Open Science.



Ethics

... with responsible data sharing.

Licensing

This course helps you to find the best license for your open research outputs.



<http://openscienceguide.tudelft.nl/>

Open Science: 2 messages



The way we do research has
changed for good

We now have new expectations

Transparency

Not secrecy

Collaborative

Not solo

Continuous

Not discretised

@OpenScienceMOOC

**OPEN
SCIENCE
MOOC**
FREE | OPEN | LEARNING

Science was founded on openness.

We closed it down.

It's time to open it up again.

**OPEN
SCIENCE
MOOC**
FREE | OPEN | LEARNING

J. Tennant Oct. 16, 2019

...whose side are you on?

DOVEVANO
Le NUVOLE
REGIA MASSIMO FERRARI

[when the wind of changes blows, some people build walls, some people build windmills]

Quando soffia il VENTO del CAMBIAMENTO

c'è chi costruisce MURI

e chi MULINI A VENTO



...WHAT ABOUT YOU?
Thank you!