

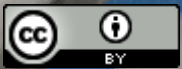
University of Turin, Dec. 5 2023

Open Science why and how

Elena Giglia

elena.giglia@unito.it

 [@egiglia](https://twitter.com/egiglia)



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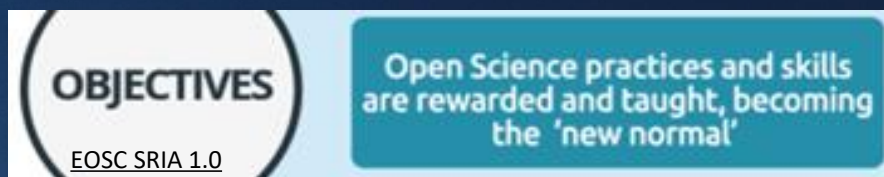
Housekeeping

SLIDES ARE AVAILABLE ON ZENODO

QUESTIONS WILL BE TAKEN AT THE END,
BUT OF COURSE YOU CAN NOTE THEM
DOWN WHILE I'LL BE SPEAKING

...PHOTOS ARE MINE
SO NO RIGHTS
ISSUES. FEEL FREE TO
REUSE FROM FLICKR!

Why are we here today?



OBJECTIVES
EOSC SRIA 1.0

Open Science practices and skills are rewarded and taught, becoming the 'new normal'

OPEN SCIENCE IS THE
«NEW NORMAL»



#VisitEP

The future is
in your hands

OR IS IT A WAY TO
MAKE A BETTER
SCIENCE AND PUT IT
BACK IN THE HANDS
OF RESEARCHERS?

IS IT JUST A BORING,
TIMECONSUMING OBLIGATION
IMPOSED BY THE EU
COMMISSION?

Make your voice heard



Conference
on the Future
of Europe



What are we going to see?

Why should we care about Open Science

What is Open Science / and what is not

Focus on FAIR principles

Some starting points

Not only rules: why do we actually need Open Science?
[or: does current scholarly communication work?]

...COVID19 made it clear: sharing is the only way to go

...from «publishing» to «knowledge sharing» **TO «CO-CREATING»**...

 **Jon Tennant** 
@Protohedgehog

Following

My first talk of the year! Message is going to be that the opposite of 'open science' isn't 'closed science' - it's bad science.

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

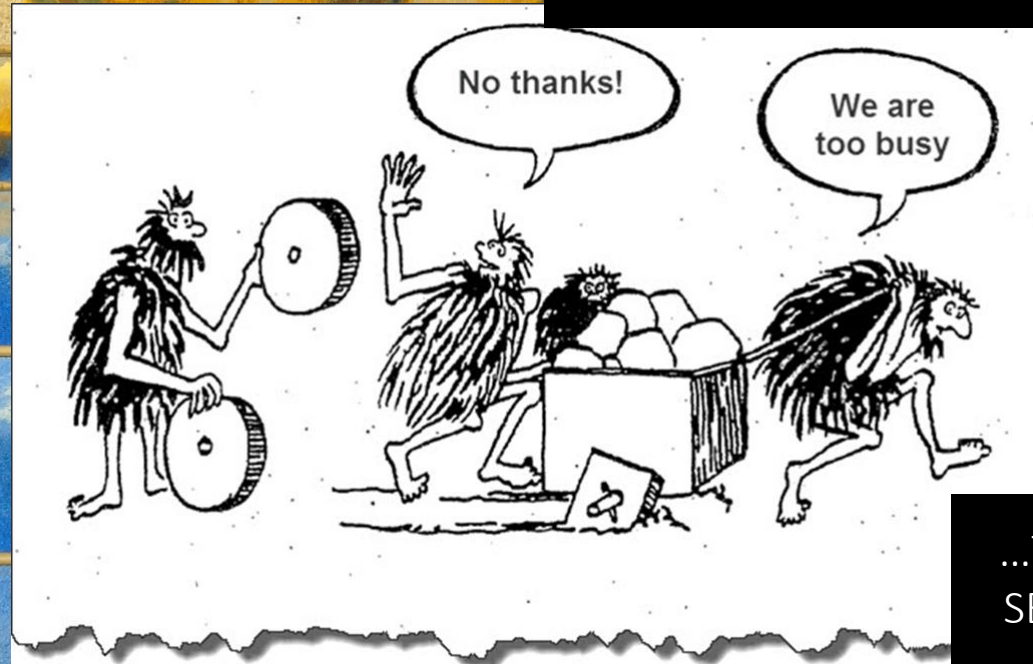
Open Science, Open Innovation, EOSC, FAIR: be ready!

Open Science, Open Data, and Open Scholarship: European Policies to Make Science Fit for the Twenty-First Century

There is value and risk of being a first mover, but there is higher risk of being a follower.

Open Science?

OPEN SCIENCE IS NOT A TARGET PER SE.
IT IS A TOOL FOR A SCIENCE WHICH IS
MORE TRANSPARENT, SOUNDER, MORE
RESPONSIVE TO SOCIETAL NEEDS



...THAT'S WHY WE'LL
SEE MORE REASONS
THAN RULES

...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

Reasons NOT to go Open Science?

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.

THANK YOU FOR YOUR
UNDIVIDED ATTENTION,
THAT'S ALL FOR TODAY



...JUST KIDDING!
LET'S START

WHY DO YOU DO RESEARCH?

...but first, a question

SEI CIÒ CHE
VOLEVI ESSERE
OGGI?

TE.SOLOOGGI

"I chose to study science because I wanted to publish in Nature," said no undergraduate student ever.

Yet it only takes a few years of working in science before most researchers will be preoccupied with scholarly journal brands—some to the point of obsession. The quest for a coveted spot in a highly selective journal, still the hardest currency of career progress, forces researchers to make compromises with their ideals of scientific practice.

OPINION 11 JAN 2022

How to reclaim ownership of scholarly publishing [Jan 11, 2022](#)

By Björn Brembs, Gustav Nilsson and Toma Susi

Share [f](#) [t](#) [in](#) [e](#)

...and the mechanism...

ISSUE: RESEARCHERS ARE EVALUATED ON THEIR PUBLICATIONS («PRESTIGE» OF THE JOURNAL, IMPACT FACTOR...)

Submission

AUTHORS/REVIEWERS ARE NOT PAID
RETURN:
PRESTIGE/CITATIONS

Peer review

OFTEN BECAUSE NOT MAINSTREAM,
THEN RESUBMIT-
...AS TIMES GOES BY

Acceptance/
rejection

Publication

UPON SUBSCRIPTION OR
OPEN ACCESS

- PUBLICATION IS NEEDED
- RESEARCH IS AN INCREMENTAL PROCESS
 - NOT TO REINVENT THE WHEEL
 - NOT TO FUND IT TWICE

Let's start with a video...

<https://www.youtube.com/watch?v=8F9gzQz1Pms>

Academic Journals Doing Crime



Impostazioni

1:08 / 1:49

Scorri per i dettagli



It says it all...

Universal Declaration of Human Rights

Article 27

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.
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.

RIGHT. IT'S RESEARCH FUNDED BY PUBLIC MONEY SO IT SHOULD BE AVAILABLE FOR ANYONE

«FREE TO THE PUBLIC SO THAT ANYONE CAN APPRECIATE THE LATEST SCIENTIFIC ADVANCEMENTS»



4-6

It says it all / 2

«AUTHORS WILL HAVE TO PAY A PUBLISHING FEE... SAY 11.000 DOLLARS FOR AN ARTICLE IN NATURE»



WRONG. HERE YOU ARE PAYING FOR PRESTIGE, NOT FOR SERVICES

WRONG. AUTHORS ARE NOT PAID, REVIEWERS ARE NOT PAID. WHAT DO THEY GET IN RETURN? PRESTIGE, VISIBILITY, CITATIONS



«YOU KNOW, THE COSTS» «REVIEWING THE ARTICLE»

«THE COST OF FORMATTING?»

WRONG. IT'S A PDF ONLINE [IN 2023!!!]

It says it all / 3

«WHO IS GOING TO AFFORD IT?» «PEOPLE WILL PAY BECAUSE THEY HAVE TO»



EVALUATION IS THE KEY. BUT RESEARCHERS ARE EVALUATED ON THE SAME TOOL THEY USE TO DISSEMINATE SCIENCE [WITH AWFUL SIDE EFFECTS]

«PRESTIGIOUS JOURNALS» = HIGHER SUBSCRIPTION RATES. EVERY YEAR IN UNITS 4.4 MILLION EUROS IN SUBSCRIPTIONS

1) TODAY READING IS NOT FOR FREE [CALCULATED 3800/5000 \$ PER ARTICLE IN 2017]

2) BUT WE PAY TO CLOSE: ONCE GRADUATED, YOU WILL NO LONGER HAVE ACCESS (ALSO YOUR MD, YOUR NURSE...)

[reminder #1]



**Open science needs no martyrs,
but we must recognize the need
for reform**

Oct. 28 2021 28 October 2021

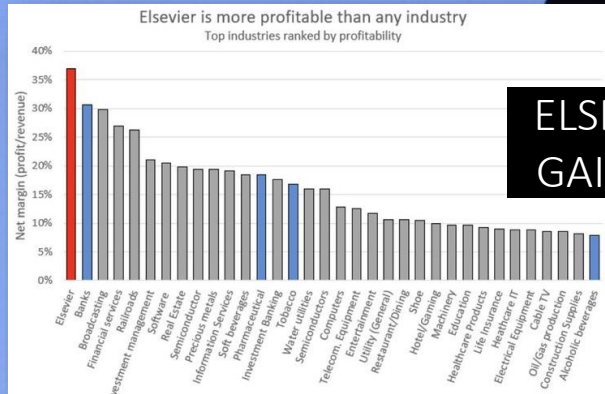


“

“...the result is also that good, solid science stays behind paywalls, while lots of misinformation is openly accessible.”

”

It says it all / 4



ELSEVIER NET
GAIN 36/38%



in order to keep their jobs or get promoted

«IN ORDER TO GET
PROMOTED RESEARCHERS
HAVE TO PUBLISH, AND WE
ARE ONE OF THE MOST
PRESTIGIOUS JOURNALS.
PEOPLE WILL PAY»



So it's extortion

«SO, IT'S
EXTORTION»

[reminder #2]



PUBLISHING SHOULD SERVE
SCIENCE, BUT IT DOESN'T.
SCIENCE SEEMS TO SERVE
PUBLISHERS



Ivo Grigorov
@OAforClimate

In risposta a [@EvaHnatkova](#), [@Eurodoc](#) e altri 8

Challenges for [#OpenScience](#): “Publishing should serve Science, but it doesn't! Science seems to serve publishers”, Kostas Glinos [@KGlinos](#) [@EU_Commission](#) [#KRECon2021](#)

[Traduci il Tweet](#)

1:32 PM · 11 nov 2021 · Twitter for iPhone [Nov. 11, 2021](#)

It says it all / 4



«SO LET ME GET THIS STRAIGHT. YOU WANT TO CHARGE 11.000 \$ TO PUBLISH OA, THEREBY ENSURING THAT ONLY RESEARCHERS WITH THE MOST MONEY GET TO PUBLISH THE ARTICLE, WHICH **DEFEATS THE PURPOSE OF HAVING OA IN THE FIRST PLACE**»



2022

AISA

Associazione italiana per la promozione della scienza aperta

L'open access ad ogni costo non può essere una opzione.

**OPEN ACCESS AT ANY COST
IS NOT AN OPTION
...WHO CAN AFFORD IT?**

[Opening, not patronizing]

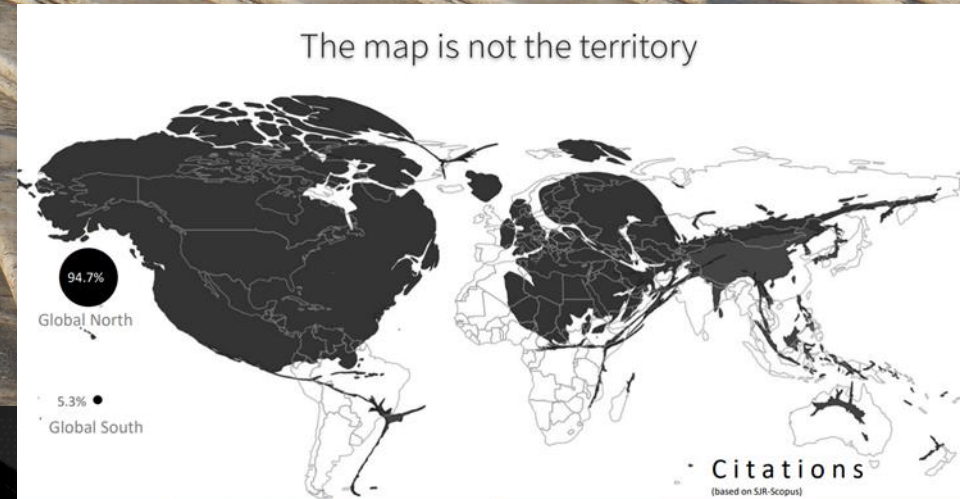
The unique opportunity to advance
Science as a Global Public Good:
Open Science in a world of contrasts



Arianna Becerril García

Autonomous University of the State of Mexico

Arianna Becerril, Feb. 2023



On what data is the industry of prestige founded?

Which regions, countries, science fields, journals, institutions or authors are privileged by current strategies? Which ones are excluded?

Which inequalities the current system will continue to perpetuate?

Is openness structural and sustainable?

Who owns and control the knowledge? The research community interests prevail?

The future restrictions on knowledge generation depend on the ownership.

How to achieve systematic participation in science (not patronizing strategies) that enables a global conversation?

WHICH REGIONS ARE EXCLUDED?
WHO OWNS AND CONTROL THE KNOWLEDGE?
HOW TO ACHIEVE SYSTEMIC PARTICIPATION IN SCIENCE?

It says it all / 5



«AND THIS IS GUARANTEED TO BE PROFITABLE
BECAUSE RESEARCHERS LIVELIHOODS ARE
DEPENDENT ON A PREDATORY SYSTEM THAT
VALUES PUBLISHING IN
HIGH IMPACT JOURNALS»

«THIS, OF COURSE, IS INSANE»



Jon Tennant
@Protohedgehog

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.

[Traduci il Tweet](#)



Steven Salzberg ❤️👍 @StevenSalzberg1 · 15 apr 2018

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

10:46 AM · 15 apr 2018 da Ubud, Indonesia

2018

IT'S ACADEMICS,
BABY

It's academics, baby.

Let's talk money

RESEARCH

Open Access

A billion-dollar donation: estimating the cost of researchers' time spent on peer review



Balazs Aczél*, Barnabas Szaszó* and Alex O.

1 billion \$

TIMES ANY INSTITUTION
PAYS FOR RESEARCH

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.

4

WAGES

RES. FUNDING

You are the provider, the product, and the consumer.
J. Tennant, 2018

RES. OUTPUTS PUBLISHED

SUBSCRIPTIONS

4,4 million €

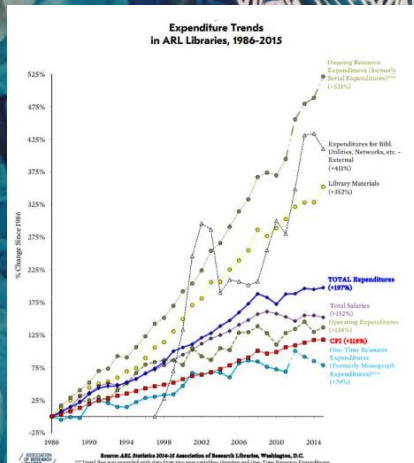
REUSE RIGHTS

521%

INCREASE IN SERIALS
EXPENDITURES 1986-2015

GUESS: LIBRARY BUDGET
INCREASED BY 521%?

CUTS, CUTS, CUTS



...shameless...

«OUT OF TOUCH AND OUTDATED» POSITION TO PREVENT RIGHT RETENTION

ACS Publications Information for: Open Access Read and F

Home / Open Access / Zero-Embargo Green Open Access ACS ADS

Zero-Embargo Green Open Access

An alternative option for authors required to publish their peer-reviewed manuscript in a repository immediately after acceptance

Supporting zero-embargo green OA

An [article development charge \(ADC\)](#) will be applied if the zero-embargo green OA route is requested by authors, and the manuscript is recommended to be sent out for peer review. The ADC covers the cost of ACS' publishing services through the final editorial decision

The article development charge (ADC) is a flat fee of \$2,500 USD and is payable once the manuscript is sent for peer review. The ADC covers the cost of ACS' pre-acceptance publishing services, from initiation

2.500 \$ TO MAINTAIN THE RIGHT TO DEPOSIT WITH ZERO EMBARGO!!!
«SUPPORTING»? «OPTION»?
OUTRAGEOUS!!!

Plan S Making full & immediate Open Access a reality

Oct. 21, 2023

Plan S Princip

Go back

American Chemical Society (ACS) and authors' rights retention

17/10/2023

In this post I shall describe how the American Chemical Society's (ACS) [new zero embargo policy](#) perpetuates an increasingly out-of-touch and outdated position taken by some publishers, who aim to prevent researchers from retaining their rights to use their own work as they choose.

Oct. 27 2023

COAR Confederation of Open Access Repositories

Oct. 24, 2023

Home New

COAR's response to the American new fee for repository

COAR strongly objects to this charge for the following reasons:

- **Authors own their manuscripts and should retain their rights.** Authors typically hold the copyright to their research, but too often transfer those rights to publishers when publishing their manuscript. When authors retain the copyright to their manuscript, they have the right to disseminate and use their own manuscript as they choose. If authors' rights are retained, publishers do not own an article accepted manuscript (AAM) and researchers should not be duped into paying a fee to exercise a right they already have.
 - **This fee is in direct contravention with the ethos of open science, scholarship and equity.** Science is about sharing and advancing knowledge and open access policies are being designed very carefully to ensure that all researchers are able to do so, even if they do not have funding to pay to publish their articles.
 - **ACS is charging \$2,500 while providing no added value.** There is not a fee for an extra service offered. It requires no extra work on the side of the publisher, but rather is an attempt to develop a new revenue stream, while at the same time they will be receiving funds from subscriptions and pay-to-access for this same article.
- ACS is creating a false impression about compliance with funder policies.** There is no charge for complying with funder OA policies. Nor is there any charge for depositing manuscripts in OA repositories. A fee is only required if you want to publish in an ACS journal and sign over your rights.

Eloy Rodrigues 2 g

COAR's response to the American Chemical Society's new fee for repository deposit.

This move by ACS is simply outrageous, and should be strongly repudiated, by the research community and its institutions. Shame on ACS!

OUTRAGEOUS!
BOYCOTT!

REPORT
JUN 22, 2020

2020 Update: SPARC Landscape Analysis & Roadmap for Action

This report takes a look at the events of the past year—particularly the global COVID health crisis and its resulting economic impact—and provides updates on the academic publishing market landscape and the status of the key companies involved.

1. A significant deepening in the shift of major companies away from research publishing and towards research assessment;
2. A shift away from individual research distribution to more communal, consolidated models; and
3. The emergence of a “Bigger Deal,” where institutional content licensing is directly linked to the purchase of analytics services.

2020

SURVEILLANCE PUBLISHING: WE ARE THE PRODUCT (AND WE ALSO PAY!)

Surveillance Publishing

Nov. 2021

Jefferson D. Pooley
Muhlenberg College
pooley@muhlenberg.edu
jeffpooley.com

sts

About



ELSEVIER

Elsevier is a leader in information and analytics for customers across the global research and health ecosystems

NO LONGER «PUBLISHERS» EVEN ON THEIR HOMEPAGE

FROM PUBLICATIONS TO DATA ANALYTICS



BIG PUBLISHERS ARE EVERYWHERE



ha OAI13 Day 1 P3 Claudio Aspesi 2023

cebook, Google, and Bytedance ng services to attract data-producing users. if you're not paying for it, the Silicon Valley adage has it, then you're the product. For Elsevier and its peers, we're the product and we're paying (a lot) for it. Indeed, it's likely that windfall subscription-and-APC profits in Elsevier's "legacy" publishing business have financed its decade-long acquisition binge in analytics.³ This is insult piled on injury: Fleece us once only to fleece us all over again, first in the library and then in the assessment office.

Beware: privacy issues

UNTHINKABLE TRACKING PRACTICES IN PHYSICAL LIBRARIES NOW ROUTINEARY IN ONLINE PLATFORMS – TO BE THEN SOLD TO 3RD PARTIES

2023

SPARC*

NAVIGATING RISK IN VENDOR DATA PRIVACY PRACTICES

An Analysis of Elsevier's ScienceDirect

November 2023

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Navigating Risk in Vendor Data Privacy Practices: An Analysis of Elsevier's ScienceDirect documents a variety of data privacy practices that directly conflict with library privacy standards, and **raises important questions regarding the potential for personal data collected from academic products to be used in the data brokering and surveillance products of RELX's LexisNexis subsidiary.**

By analyzing the privacy practices of the world's largest publisher, the report **describes how user tracking that would be unthinkable in a physical library setting now happens routinely through publisher platforms. The analysis underlines the concerns this tracking should raise, particularly when the same company is involved in surveillance and data brokering activities.** Elsevier is a subsidiary of RELX, a leading data broker and provider of "risk" products that **offer expansive databases of personal information to corporations, governments, and law enforcement agencies.**

As much of the research lifecycle shifts to online platforms owned by a small number of companies, the report highlights why users and institutions should actively evaluate and address the potential privacy risks *as this transition occurs* rather than after it is complete.

[reminder #3]

SPARC*

2021
UPDATE

SPARC Landscape Analysis
and Roadmap for Action

SPARC update 2021

The fact that Elsevier (and, potentially, other companies) would pursue interests that put them at odds with the interests of the academic community and tolerate internal conflicts of interest should not come as a surprise. The business of publishers is to make money; the “business” of academic institutions is to advance knowledge, not to enable publishers to achieve their commercial goals. Unfortunately, the responsibility for highlighting and resolving conflicts of interest falls squarely onto the academic community.

THE BUSINESS OF PUBLISHERS IS TO MAKE MONEY;
THE «BUSINESS» OF ACADEMIA IS TO ADVANCE KNOWLEDGE

... so what about the current system?

WE ARE STILL **TOO FOCUSED ONLY ON PAPERS** (FOR EVALUATION)

WE PAY 10 BN \$ TO LOCK UP BEHIND PAYWALLS A CONTENT PRODUCED WITH PUBLIC MONEY AND GIVEN FOR FREE

...WITH AN AVERAGE PUBLICATION TIME OF 9-18 MONTHS...

...AND 179% INCREASE IN SELF-CITATIONS...

...AND 70% OF STUDIES WHICH ARE NOT REPRODUCIBLE...

... AND 43% RETRACTIONS FOR FRAUD, WITH A DIRECT CORRELATION BETWEEN THE #RETRACTIONS/JOURNAL IMPACT FACTOR

Retraction Watch

Tracking retractions as a window into the scientific process

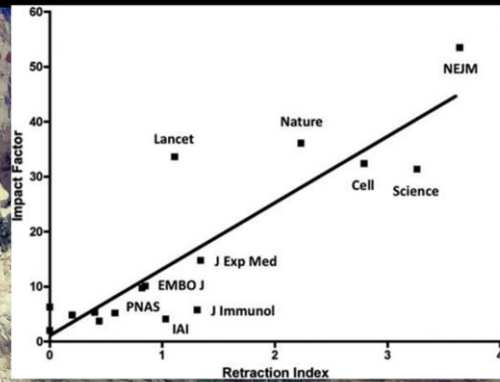
More than half of high-impact cancer lab studies could not be replicated in controversial analysis

Cancer reproducibility project couldn't assess many papers because of uncooperative authors and other challenges

2021

7 DEC 2021 • 8:00 AM • BY JOCELYN KAISER

WHY? BECAUSE EVALUATION BECAME AN OBSESSION, AND PEOPLE GAMED THE SYSTEM AT EVERY LEVEL



Webinar – Scholarly Communication in Crisis: Research Integrity and Open Scholarship

April 25, 2023 by Bernie Folan

2023



How papermills work – Authorship and citations for sale

<https://retractionwatch.com/2022/10/25/meet-a-sleuth-whose-work-has-resulted-in-more-than-850-retractions/>



Nick Wise

“There’s this entire economy, ecosystem of Facebook groups, Whatsapp groups, Telegram channels selling authorship for papers, selling citations, selling book chapters, selling authorship of patents.”

Dorothy Bishop

See also: talk by Bernhard Sabel at <https://osf.io/47utb/>

<https://forbetterscience.com/2022/10/19/the-incredible-collaborations-of-renaissance-men-and-women/>

A moment for recalibration

NEWS FEATURE | 23 March 2021

The fight against fake-paper factories that churn out sham science

Some publishers say they are battling industrialized cheating. A *Nature* analysis examines the ‘paper mill’ problem – and how editors are trying to cope.

Holly Elise & Richard Van Noorden

July 2022: Hearing at US House Committee on Science, Space and Technology. Paper mills and research misconduct

Exclusive: Hindawi and Wiley to retract over 500 papers linked to peer review rings

After months of investigation that identified networks of reviewers and editors manipulating the peer review process, Hindawi plans to retract 511 papers across 16 journals, Retraction Watch has learned.



Physics publisher retracting nearly 500 likely paper mill papers

<https://retractionwatch.com/2022/09/09/physics-publisher-retr>

<https://retractionwatch.com/2022/09/28/exclusive-hindawi-and-wiley-to-retract-over-500-papers-linked-to-peer-review-rings/>



Philip Stark

SELLING AUTHORSHIP? HERE IS WHERE THE CURRENT ASSESSMENT CRITERIA BROUGHT US + SCIENCE SHOULD BE «SHOW ME»: OPEN UP THE PROCESS!

Test and Trace

Tracking down papermills – importance of open data/code sharing

“Science should be ‘show me’, not ‘trust me’;

If I publish an advertisement for my work (that is, a paper long on results but short on methods) and it’s wrong, that makes me untrustworthy.

If I say: “here’s my work” and it’s wrong, I might have erred, but at least I am honest.”

If open data/scripts routinely required, then would make a great deal of work for paper mills

It does not work, the way it is

Kostas Glinos based on Danny Kingsley, May 30, 2022

Some of the challenges for science today

- Skewed perceptions of quality; reproducibility, replicability
- Focus on 'stars' rather than collaboration
- Publishing in a market where client is not the king; closed access
- Obsession with rankings
- Risk-averse research
- Hyper-publishing and hyper-authorship
- Fight for funding
- Wasting (data) resources, repeating doomed research
- Gaming the system

Is this the culture we want?

Slide adapted from a presentation by Danny Kingsley, Flinders University



IS THIS THE RESEARCH CULTURE WE WANT?

Open Science
might help?



Lessons learned from COVID

OPEN DATA
SAVE LIVES

Digital Science Report
The State of Open Data 2021
The longest-running longitudinal survey and analysis on open data
Foreword by Natasha Simons, Australian Research Data Commons (ARDC)
Nov. 29 2021
November 2021

Open data saves lives. The globe
beyond anything that came before it
in solving the big challenges of our time

WE NEED DATA
[FAIR BY DESIGN]
(AND NOT ONLY
THE FINAL
SYNTHESIS OF THE
RESEARCH, I.E. THE
ARTICLE)

... ..**AND WE NEED RESULTS
IMMEDIATELY...**

TRADITIONAL SUBSCRIPTION
BASED JOURNALS: FIRST
ARTICLES (**WITH NO DATA**) AT
THE EARLIEST IN DEC. 2020
(9-18 MONTHS AVERAGE PUBLICATION TIME)

Sanjee Baksh, PhD @S_Baksh · 21h
Congratulations to the authors but I am not strong enough for this
nostra questa discussione

<https://doi.org/10.1038/s41586-022-04627-y>

Received: 25 June 2019

Accepted: 4 June 2021

Published online: 20 April 2022



Raphaël Lévy
@raphavisses

#OSEC2022 @BoukacemZeg

(applauded by @stephen_curry) concludes her talk with a quote from a young research who left science saying "GAME OVER: The pandemic is a life-size experiment that reminded us that the ultimate goal is to advance knowledge, not egos, not numbers"

Traduci il Tweet

Feb. 4 2022

5:10 PM · 4 feb 2022 · Twitter Web App

THE PANDEMIC IS A LIFE-SIZE
EXPERIMENT THAT REMINDED US THAT
**THE ULTIMATE GOAL IS TO ADVANCE
KNOWLEDGE, NOT EGOS, NOT NUMBERS**

Open Science – definition

Open Access | Lic. Info | Cite

Qeios

<https://doi.org/10.32388/838962>

Open Science

'Open Science' stands for the transition to a new, more open and participatory way of conducting, publishing and evaluating scholarly research. Central to this concept is the goal of increasing cooperation and transparency in all research stages. This is achieved, among other ways, by sharing research data, publications, tools and results as early and open as possible.

Open Science leads to more robust scientific results, to more efficient research and (faster) access to scientific results for everyone. This results in turn in greater societal and economic impact.

<https://www.accelerateopenscience.nl/what-is-open-science/>

WE ARE
TALKING
PUBLIC
MONEY:
PUBLICLY
FUNDED
RESEARCH
SHOULD BE
PUBLICLY
AVAILABLE

NEW WAY OF

- CONDUCTING
 - PUBLISHING
 - EVALUATING
- RESEARCH

SHARING

- DATA/TEXTS
 - TOOLS
 - RESULTS...
- AS EARLY AND OPEN AS
POSSIBLE

OS LEADS TO MORE ROBUST SCIENTIFIC RESULTS, MORE
EFFICIENT RESEARCH AND FASTER ACCESS
+ GREATER SOCIETAL AND ECONOMIC IMPACT

[Houston, we have a problem]

NOT PEER-REVIEWED
*PeerJ Preprints is a venue for early communication or feedback before peer review. Data may be subject to change before publication. Learn more about preprints or browse peer-reviewed articles instead.

Preprint
 View 34 items

Ten myths around open scholarly publishing

[Library review](#) [Science and Medical Education](#) [Science Policy](#)

1/12 Open Science is just a gimmick...	2/12 Open Science is all about publishing Open Access	3/12 Open Science is a plot against publishers	4/12 I already deposit my works on ResearchGate
5/12 An open access dissertation has less chances of being published	6/12 I'm afraid of plagiarism	7/12 There is no open access journal in my discipline	8/12 Open Science is for STEM. As a researcher in SSH this is not important to me
9/12 Science is for researchers only. Citizens cannot improve my research	10/12 A Data Management Plan is useless	11/12 I am not a Data Manager	12/12 Open access to research data is not mandatory

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

Busting myths on Open Science with the YERUN OS Calendar 2021! Dec. 2021

**DIFFUSED MISCONCEPTIONS:
 OPEN SCIENCE=OPEN ACCESS, YOU ALWAYS PAY TO PUBLISH,
 OA= PREDATORY, I CAN'T OPEN MY DATA.....**

Open Science

FOCUS ON THE ENTIRE
PROCESS, NOT ONLY THE
FINAL SYNTHESIS
(ARTICLE)

OPEN
SCIENCE ≠ OPEN
ACCESS



ALL THESE COMPONENTS TO BE EMBEDDED IN THE **PROPOSAL TEMPLATE**, 1.2
EXCELLENCE-METHODOLOGY AND TO BE EVALUATED UNDER «SCIENTIFIC EXCELLENCE»

Open Science definition




Open science increases scientific collaborations and sharing of information for the benefits of science and society




OPEN SCIENCE

UNESCO video



makes multilingual scientific knowledge openly available, accessible and reusable for everyone



opens the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community.

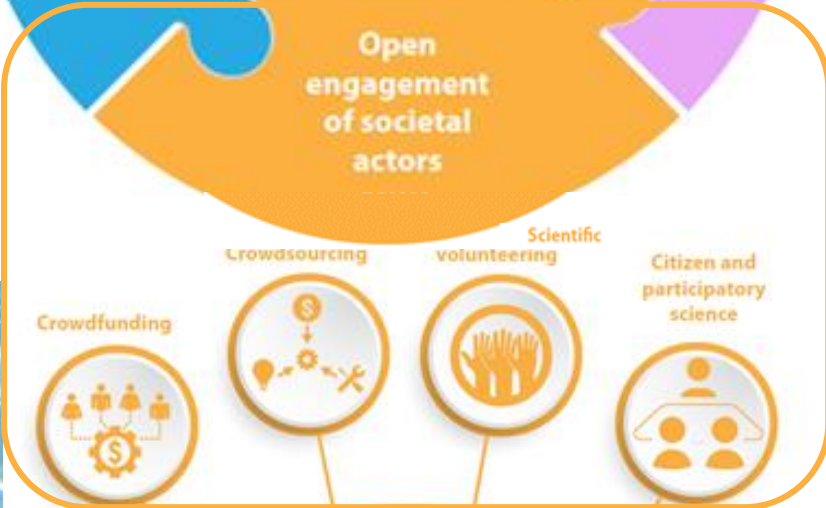
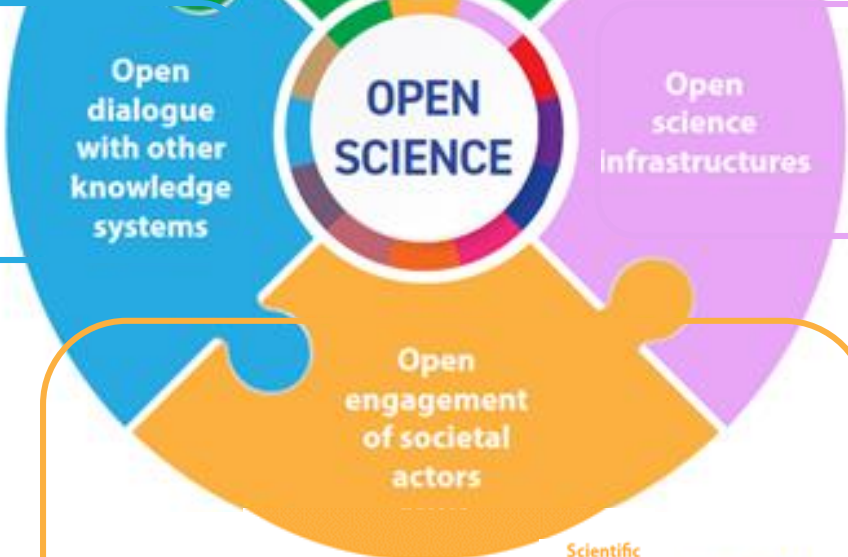
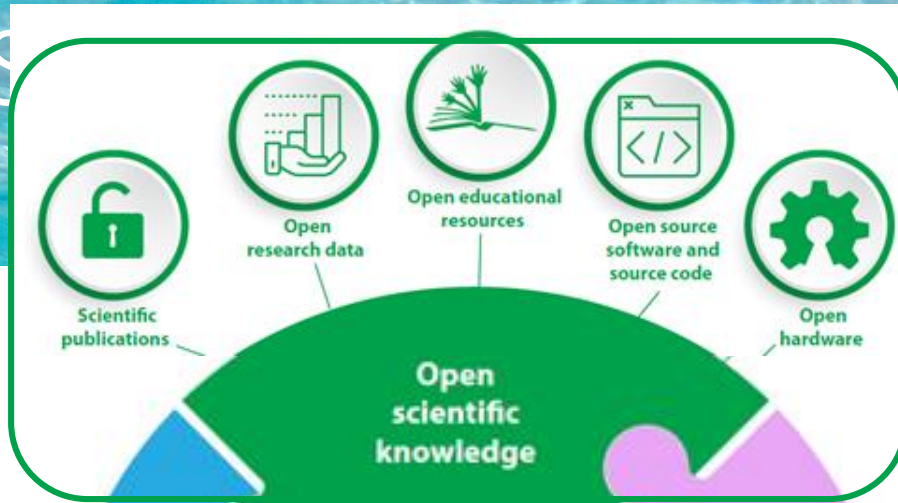
unes Nov. 23, 2021



UNESCO Recommendation on Open Science

...Open S

S



NOT ONLY SCIENTIFIC KNOWLEDGE. OPEN DIALOGUE, OPEN ENGAGEMENT OF SOCIETAL ACTORS

Open Science



Jeff Rouder

@JeffRouder

Segui

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



Open Science @openscience · 5 h

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



13



8



Video

THE REVOLUTION
OF OPEN SCIENCE



BY JONATHAN TENNANT 2020

Open Science = Open Outputs + Open Infrastructure

Access, reuse & discoverability

X Culture (change)

Evaluation & Researcher behaviour

C. Mac Callum, UKSG, April 2018

Open Science Depends on Open Minds




Neelie Kroes ✓



Iscriviti

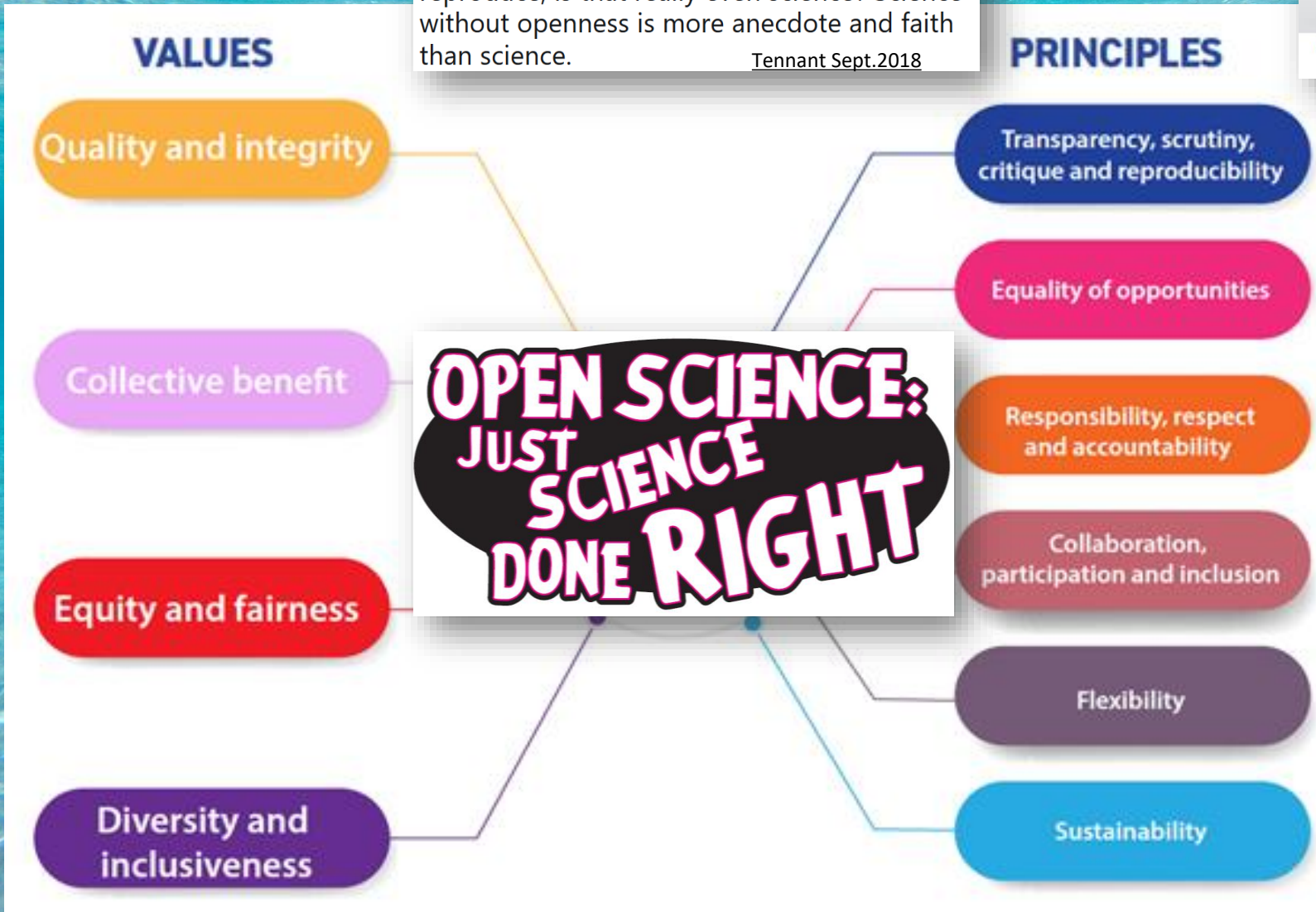
851

...Open Science

Jon Tennant  Following
@Protohedgehog

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



Recommendations (summary)

1. Communicate about Open Science and Research Integrity in a positive way, as two fundamental and complementary pathways towards excellent science and greater social impact of research. Indeed Open Science and Research Integrity both ultimately relate to the need to foster responsibility and trust in research and innovation.
2. Commit to reforming the research assessment system to provide the right recognition, incentives and rewards for methodological rigour, for enabling the wider uptake of open science practices, and to move at the same time towards a system that supports integrity and that rewards the plural characteristics of highquality research.
3. Journals and publishing platforms should be transparent about their editorial processes, including peer reviewing, and promote reproducibility of research through support of FAIR data and, whenever possible, by facilitating open access to data, codes and methodologies.
4. Make sure that researchers (at every stage of their career), as well as other involved stakeholders (like university lawyers or funders), receive adequate training on research integrity and Open Science.

+

OPEN SCIENCE + RESEARCH
INTEGRITY ARE
COMPLEMENTARY TOWARDS
EXCELLENT RESEARCH AND
MORE SOCIETAL IMPACT
KEYWORD: **TRANSPARENCY**

BMC Research Notes 2022

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Commentary | [Open Access](#) | [Published: 20 September 2022](#)

Promoting trust in research and researchers: How open science and research integrity are intertwined

[Tamarinde Haven](#) [✉](#), [Gowri Gopalakrishna](#), [Joeri Tjeldink](#), [Dorien van der Schot](#) & [Lex Bouter](#)

Library Element Report

SWG OSI Guideline Report on Research Integrity and Open Science

2021

Uploaded by [RRI Tools](#) on January 26, 2022

9. Promote cooperation between Open Science and Research Integrity offices at a national and institutional levels. This is essential to develop training and materials that contribute to supporting researchers in practicing open science and ensure that high standards of research integrity are complied with. It would also help ensuring that fast pace developments in the area of Open Science are taken into account and appropriately reflected in codes of conduct for Research Integrity.
10. Publicize information and enhance visibility about main Open Science and Research Integrity policies/documents/guidelines at a national and institutional level, notably through websites that could be considered as general knowledge hubs in this regard.

Open [collaborative] Science

Assoc. Prof. Leslie Chan
University of Toronto at Scarborough

March 31 2022

Why are the "rich" in open science getting richer? Reflections on structural inequities and knowledge production



December 7-9, 2021

Dec. 2021

Beyond Diversity and Inclusion: Challenging Structural Racism and Systemic Biases in Academic Knowledge Production

Leslie Chan
Global Development Studies
Knowledge Equity Lab
University of Toronto Scarborough
@lesliekwchan @knowequitylab

Research must be communicated in multiple languages

Access to research and greater interaction between science and society can only be possible if research is communicated in multiple languages, including those actually used in speech and writing locally.

In the ongoing reform of the research assessment system, the call for multilingualism is the most notable omission.



INCLUSION ALSO MEANS MULTILINGUALISM

Comité pour la science ouv...
@ouvriřascience

#OSEC2022 #PFUE2022
Le multilinguisme, un oublié de la réforme de l'évaluation, Emanuel KULCZYCKI (Adam Mickiewicz University in Poznań) - @ekulczykcki - @ScholarlyCommRG

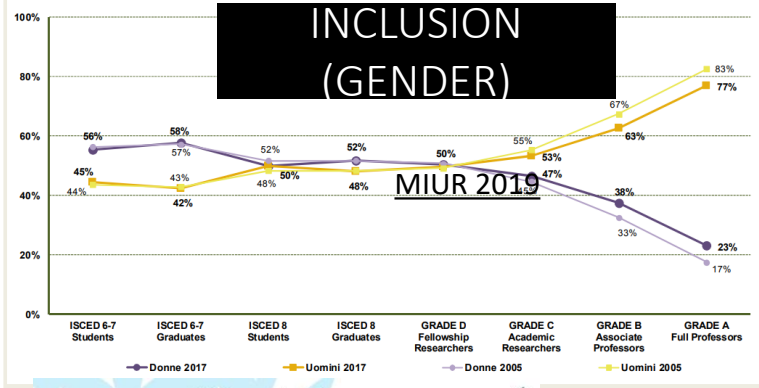
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2 Retweet 1 Mi piace

Twitta la tua Rispondi

Grafico 1: Proporzioni di donne e uomini in una tipica carriera accademica: studenti e personale docente e ricercatore - Anni 2005 e 2017



#WomenInScience

In 2018, women represented **32.8%** of the total population of researchers at the European level.

Women are **under-represented** at the highest level in research. They transition to Principal Investigators at a **20%** lower rate than men.¹

8 March 2023

In 2019, **11.1%** of women researchers in the EU worked part-time and under precarious working contracts compared to **7.2%** of men researchers.¹

In 2021, **66%** of women scientists experienced **gender-based violence**.²

Sources:
1. The European Commission
2. European Commission

Main points

Contemporary inequity in knowledge production has deep historical roots – tracing back to colonialism and the spread of imperial science

Addressing compositional diversity doesn't address the underlying problems of structural racism and systemic biases rooted in whiteness

Structural racism is about the maintenance and reproduction of power

Uncritical acceptance of "openness" risks reproducing and amplifying existing inequities

Design principles based on epistemic justice and knowledge equity are possible – Centering Human Relations and Solidarity

UNCRITICAL ACCEPTANCE OF «OPENNESS» RISKS REPRODUCING AND AMPLIFYING EXISTING INEQUITIES

Open Science

ARTICLES? ALSO DATA,
CODE, PROTOCOLS...

recognize that formal papers and
manuscripts are not the only units of
scientific knowledge



REDEFINE
«EXCELLENCE»...

redefine research excellence towards
values: leadership, diversity work,
mental health support



put science back at
the heart of society

invest in tools, services, and
community-driven initiatives to help
make science better by engaging more
people to participate in the process



tell it like it is: redefine failure, nurture
slower, responsible science, shift the focus
from the outputs to the practice



TAKE BACK CONTROL,
ENGAGE PEOPLE...



@pcmasuzzo
Oct.5, 2020

TELL IT LIKE IT IS: TAKE BACK YOUR
RIGHT TO BE WRONG, REDEFINE
«FAILURE», FOCUS FROM
OUTPUTS TO PRACTICE

...in a nutshell...

It was really helpful to have in mind there is an alternative way [Open Science] that gives us the chance of being treated with dignity and truly focus on the essence of our work

[Petra, PhD, May 2020]



Going Open



Coalition for Advancing Research Assessment

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

TIME IS UP!!!

- THE REFORM OF RESEARCH EVALUATION HAS STARTED
- COARA LAUNCHED IN 2022, 644 SIGNATORIES
- ITALIAN CHAPTER IS ACTIVE
- COMMITMENT: NO LONGER IMPACT FACTOR OR RANKING



Italy National Chapter

The main aims of the Italian National Chapter are to (i) enable mutual learning, share best practices, and raise awareness of best responsible assessment practices and indicators in the national community on the ongoing research assessment reform (CoARA commitments 7-8), and (ii) foster the discussion about the reviewing and development of assessment criteria, tools and processes for assessing research institutions, individual researchers and projects (CoARA commitment 6). This outreach effort will support the implementation of the reform at the national level and will contribute to attract more institutions and stakeholders to sign the agreement.

The main activities will be focused on:
1) creating an active network among Italian institutions, promoting the alignment of the



Signatories



Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR)

I believe in a research culture that recognises a diversity of contributions to science and society; that celebrates high quality and impactful research; and that values sharing, collaboration, integrity and engagement with society, transmitting knowledge from generation to generation.

Mariya Gabriel

Commissioner for Innovation, Research, Culture, Education and Youth

YES, BUT... WE ARE STILL EVALUATED BY IMPACT FACTOR

...start with with a bit of creation

2021



ORION INSPIRING STORIES

Ideas & examples

ORION INSPIRING STORIES INDEX



CITIZEN SCIENCE

Introducing co-creation in fundamental life sciences?

PAGE 8

PAGE 8

CO-CREATION

Encouraging co-creation through a funding call



OPEN SCIENCE

Aligning an entire country to develop an Open Science action plan

PAGE 8

PAGE 10

PUBLIC DIALOGUES

Thinking differently through dialogue



PUBLIC ENGAGEMENT

Using Art as a way to level the playing field when discussing science

PAGE 12

What is Co-creation?

Co-creation has been defined as “purposeful action of associating with strategic customers, partners or employees to ideate, problem solve, improve performance, or create a new product, service or business”. In essence, co-creation experiences are a way in which to connect multiple stakeholders, bringing them together to discover their interests and values and using these opportunities to discuss, develop and implement projects or ideas to achieve new, inclusive, forward-thinking research strategies. As a result, co-creation experiences allow high-quality interactions and unique experiences, with those involved becoming connected, informed and empowered.

Co-creation menu

Co-creation experiences seek to engage multiple stakeholders at all points of the research lifecycle, from conception of a novel research project, through funding selection and resourcing, to dissemination of research findings and use of those findings within society, which in turn informs future funding calls. In this way, the hopes, concerns and aspirations of the end users of research, the public, are integrated from the very beginning of the process right through to the end. This concept maps well with the idea of making science truly open, transparent and responsive to societal needs, a new approach of the European Research Area known as Open Science.

Rathenau Instituut [2022](#)

Themes ▾

Dossiers ▾

Science in figures

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REPORT

INCLUSIVE SCIENCE

23 FEBRUARY 2022

Moving forward together with open science

Towards meaningful public engagement with research

Participants in the National Garden Bird Count (photo: Sabine Jo)

...and a bit of citizen science

CITIZEN SCIENCE IS NOT ONLY ABOUT DATA COLLECTION – IT'S A PARTICIPATORY PROCESS

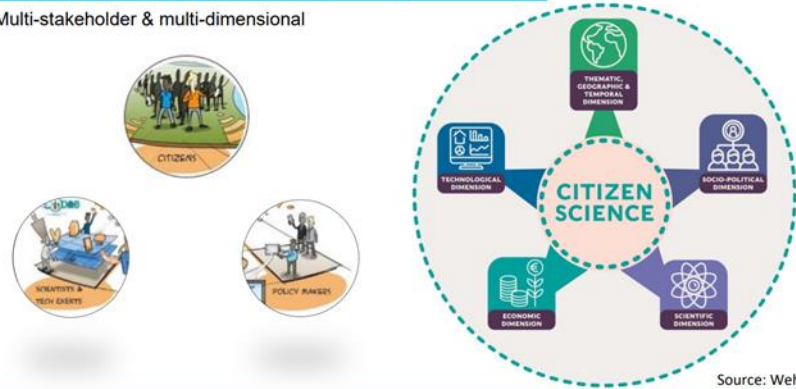
Citizen Science & Open Science Community of Practice

2023



Citizens Science is about process

Multi-stakeholder & multi-dimensional



Source: Wehn (2022)

“Citizen Science is NOT only about data collection - means for *open, holistic and participatory processes of knowledge generation*”

“Citizen Science can be understood as providing meaning to Open Science in a process dimension”



PARTHENOS

HOME TRAINING MODULES FOR TRAINERS FOR LEARNERS

CITIZEN SCIENCE IN THE (DIGITAL) ARTS AND HUMANITIES

Citizen science and the Humanities

This module will look at the variety of practices within 'citizen science', how you as a humanist might get started working with them, what issues you might be wary of along the way and how Research Infrastructures can potentially help you.

UCL Citizen science

Help & contact us About us

UCL Home > Library Services > Research Support > Open Science > Citizen Science

Citizen Science

Citizen Science is members of the public having a greater role within research and recognising the invaluable role they play in providing insights

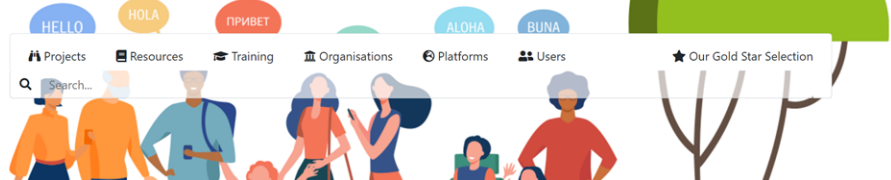
8 Pillars of Open Science

eu-citizen.science Search Blog Events Moocs Forum FAQ About

<https://eu-citizen.science/>

eu-citizen.science

Welcome to the platform for sharing citizen science projects, resources, tools, training and much more



Co-design and ci

Cos4Cloud The Project Citizen Science innovation Cos4Cloud Services Co-design News & Events

<https://cos4cloud-eosc.eu/>

Learn how to use co-design in citizen science:

Download our presentation! It explains **what co-design is, why it is useful and how to apply it in citizen science** in general and in creating technological citizen science services in particular to explain it, we will use the Cos4Cloud* experience.

[DOWNLOAD THE ENGLISH VERSION](#) →

[DOWNLOAD THE SPANISH VERSION](#) →

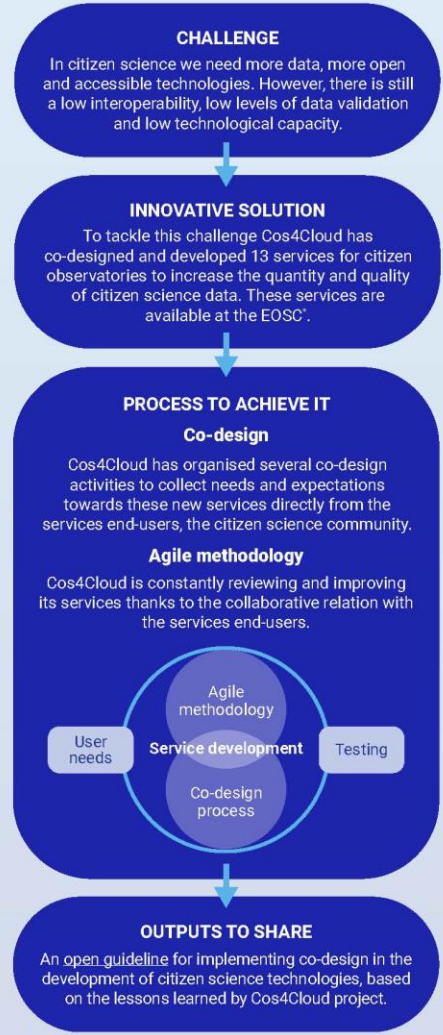


CO-DESIGN AS A SERVICE IN CITIZEN SCIENCE

CO-DESIGN: WHAT IS IT?



A SUCCESS CASE: COS4CLOUD



*European Open Science Cloud



CO-CREATION IN DIALOGUE WITH SOCIETY

COESO

coeso
connecting research and society



Research for



Vera **OPERAS Vera**



vera
activating research

VERA

A space for co-creation that provides a set of tools to discover potential partners, to define and co-design the activities, to co-create new knowledge and solutions, and to deliver them to society.

VERA is an online collaboration platform where a diverse set of actors can build social science and humanities research projects together. It's a virtual gathering place for professionals and practitioners of all kinds and researchers. It's a place where projects can be dreamed and built, where collaborations can take place, and where links to funding can be found.

design
science
participants
are way

co-design the
objectives, the
action and
processes, and
needed in
processes.

The COESO project (Collaborative Engagement on Societal Observatories) is a participatory research project, funded by the European Commission and supported by the OPERAS research infrastructure. It involves several communities: the social sciences and humanities community, the citizen science community, and the citizen science community. It will thus contribute to the development of citizen science in the social sciences and humanities through a service-first approach. The project will

...opening up the entire cycle



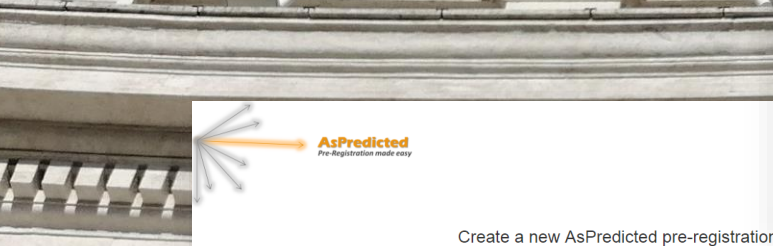
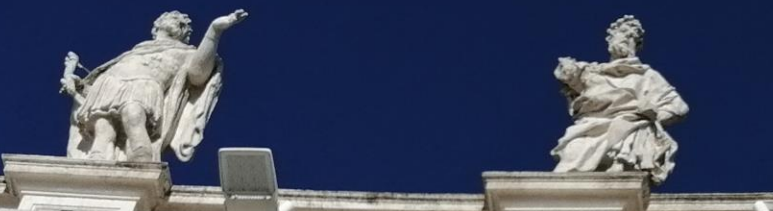
Open Research Leeds
@OpenResLeeds

.@MarcusMunafa on preregistration vs established (post hoc) peer review:

"If we are going to fly an aeroplane, we do our pre-flight checks before we take off, not when we are about to land" #ukrnLeeds #OpenResearch



Dec. 14 2021



PREREGISTRATION
OSF Registries o AsPredicted

- PRIORITY
- HARD TO FALSIFY DATA
- NEGATIVE RESULTS

CONTENT

- Why preregister studies?
- How to preregister your study
- Where to preregister?
- Deviating from preregistered plans
- References

Preregistration Preregistration da PHDontrack

Preregistration involves specifying your hypotheses, study design and data analyses before writing up your final report. Sometimes, preregistration takes place before any data are collected, while in other cases (when using pre-existing data), it takes place before the data are analysed. Preregistration is typically done in a time-stamped, non-editable file, which is then deposited in a secure online archive. While not yet equally relevant in all disciplines or to all types of study, the practice of preregistration is currently expanding.

The open registries network

256,423 searchable registrations as of May 13, 2018

Create a new AsPredicted pre-registration

ing AsPredicteds (e.g. approve, make public)

Your email address (used in AsPredicted)

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, userids, or passwords.

What if things don't go "as predicted"

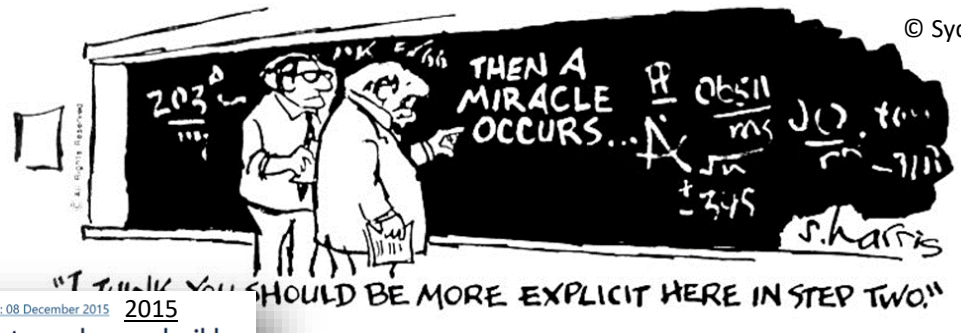
You can just say so in the paper:

- "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)

...being reproducible

Open Access | Published: 10 January 2017 2017
A manifesto for reproducible science
Marcus R. Munafò , Brian A. Nosek, Dorothy V. M. Bishop, Katherine S. Button, Christopher D. Chambers, Nathalie Percie du Sert, Uri Simonsohn, Eric-Jan Wagenmakers, Jennifer J. Ware & John P. A. Ioannidis

Framework for Open and Reproducible Research Training



© Sydney Harris 1977

Comment | Open Access | Published: 08 December 2015 2015
Five selfish reasons to work reproducibly
Florian Markowitz 

- Welcome
- Guide for R
- Overview **18k** Accesses | **38** Citations | **456** Altmetric | [Metrics](#)
- Open Research
- Version Control
- Licensing
- Research Data Management
- Reproducible Environments
- BinderHub
- Code quality
- Code Testing
- Code Reviewing Process
- Reusable Code
- Continuous Integration (CI)
- Reproducible Rese
- Make
- Research Comperv
- Risk Assessment
- Case Studies



Fig. 3 The Turing Way project illustration by Scriberia. Used under a CC-BY 4.0 licence. DOI: 10.5281/zenodo.3332807.

The Turing Way started by defining reproducibility in the context of this handbook. laying out its import resource environment review We wel



SEMINARS ON OPEN SCIENCE

remote educational course open to everyone, focused on Master and PhD Students covering open science topics and practices.

SAVE THE DATE

The first "ReproCoffee" will be held on June 15th, 3:30 pm (CEST), the event will be online, and "A manifesto for reproducible science" by Munafò et al., 2017 will be discussed.



IT Italian Reproducibility Network
<https://www.itrn.org/>
ITRN OPEN RESEARCH SURVEY

ts, tools and putational n written, edited, its in our contributing

We ask you for a few minutes of your time to answer some questions about the use of Open Research practices in your research. This is the link to participate: [RN survey](#)
Your responses will provide a provisional benchmark of where we are, and data will be used to shape future ITRN initiatives around Open Research. Thank you for your valuable



The Turing Way

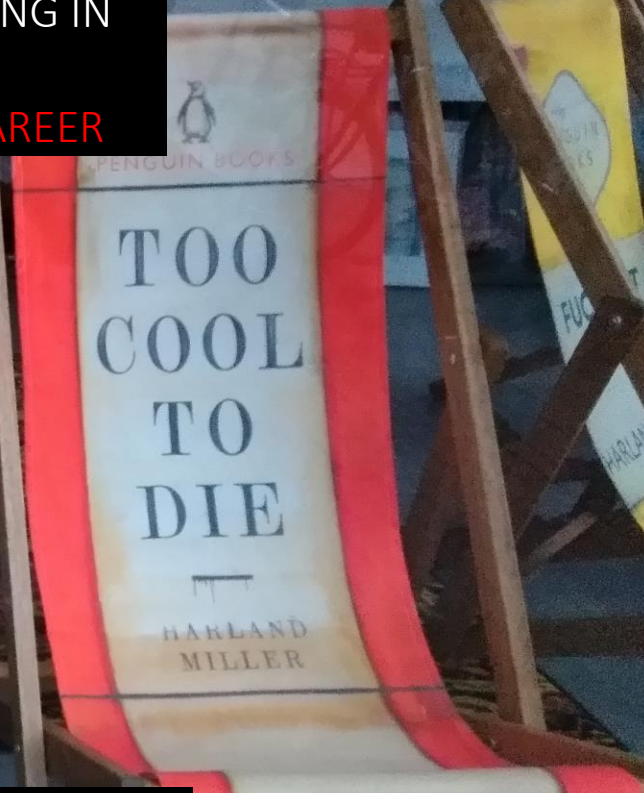
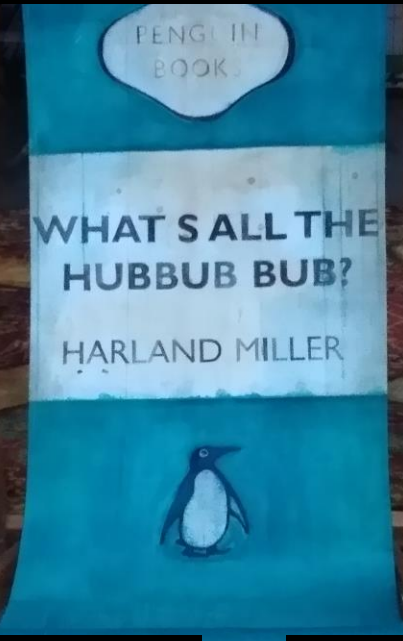
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ITALIAN REPRODUCIBILITY NETWORK

Next >
Reproducible Research

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DEPOSIT

PUBLISH

... being aware of your rights

2023

What is the "open access prior obligation"?
Per the signature of their grant agreement, for peer reviewed scientific publications relating to their results, Horizon Eu...

Is the "open access prior obligation" aligned with the cOAlition S Rights Retention Strategy?
It is. All cOAlition S organisations require that authors (or their organisations) retain sufficient intellectual property righ...

What if the publishing agreement proposed by the publisher does not allow Horizon Europe beneficiaries to provide immediate open access under CC BY or an equivalent license?
Unless the final peer-reviewed manuscript accepted for publication is already available in open access respecting the ...

2022 Plan S Principles & Implementation

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Let's find out! press Enter

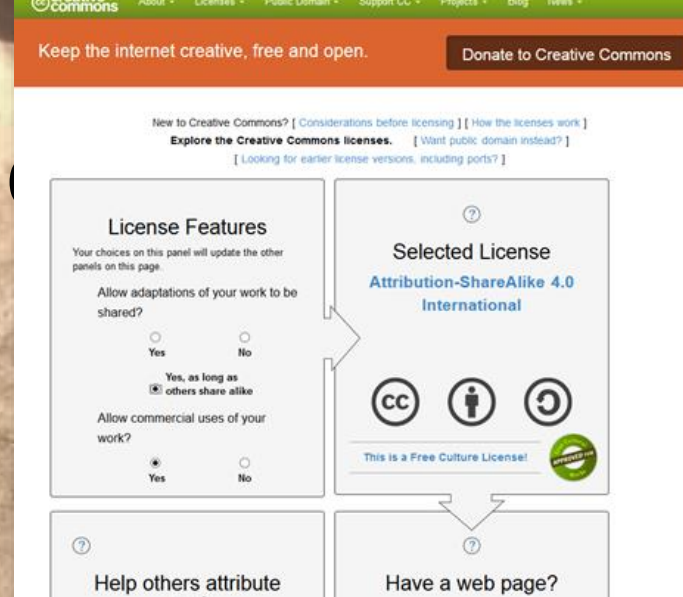
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 <https://graph.openaire.eu/>


Paolo Manghi

POSSIBLE ONLY IF AUTHORS SELF-ARCHIVE TEXTS AND DATA

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US National Library of Medicine National Institutes of Health

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.

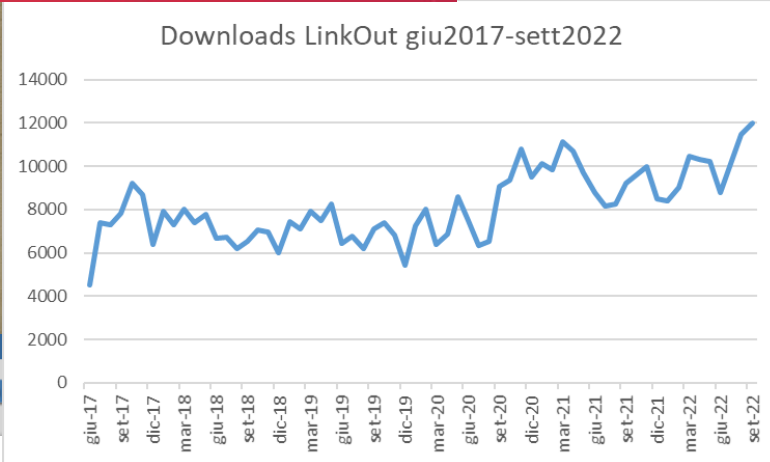
Saglio G¹, Camaschella C, Giai M, Serra A, Guerrasio A, Peirone B, Gasparini P, Mazza U, Ceppellini R, Biglia N, et al.

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521.585 downloads from June 2017 [8.150/month]

...going for a new discoverability

The illustration shows a central network of circles representing research topics. A person is shown discarding a circle labeled 'Irrelevant' and another labeled 'Find open content'. A person is also shown looking through a telescope at a stack of papers, with the text 'It's time to change the way we discover research!' and 'This may be relevant'.

OPEN KNOWLEDGE MAPS
A visual interface to the world's scientific knowledge

Search About Team Community Projects News FAQs Get in touch Support us

Identify relevant concepts

Irrelevant

Find open content

It's time to change the way we discover research!

This may be relevant

The screenshot shows the search interface of Open Knowledge Maps. It includes a search bar, a 'GO' button, and a list of search results. The search term is 'sugar digital education'.

OPEN KNOWLEDGE MAPS
A visual interface to the world's scientific knowledge

Search About Team Community Projects

<https://openknowledgemaps.org/>

Map a research topic

Get an overview - Find papers - Identify relevant concepts

PubMed (life sciences)
BASE (all disciplines)

Refine your search

Enter your search term GO

Try out: sugar digital education

Based on 100+ million

What is Open Knowledge Maps?

The screenshot shows the search interface of GoTriple. It includes a search bar, a 'Search' button, and a list of search tips. The search term is 'feminicide science ouverte open access fair OR open access AND publishing'.

GoTriple

<https://www.gotriple.eu/>

Search Resources and Users in Social Sciences and Humanities

Search publications, data, projects and authors Search


SEARCH TIPS: feminicide science ouverte open access fair OR open access AND publishing

Report an Issue

Museum of Mushrooms - Education Center

...linking research and industry...

FRANCO TOSI

- Identifier Type >
 - Funding >
 - Journal >
 - Conference Name >
 - Publication Type >
 - Publisher >
 - Subject Matter >
 - Open Access >
 - Scholar Structured Search
- Patents 
- Search 127,471,322 Patents
- Applicants >
 - Jurisdictions >
 - Inventors >
 - Owners (US) >
 - Document Types >
 - Biologicals >
 - Cited Works >
 - Classification Explorer

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<https://www.lens.org/>

OPEN PLATFORM SEARCHING FOR PATENTS+SCHOLARLY
LITERATURE+BIO SAMPLES...

...publishing

JOTE's goals

In scientific practice, trial and error is a fundamental process of learning and discovery. Therefore, JOTE aims to make public the lessons of the struggles in research. JOTE is convinced about the productive role of errors, and so we aim to publish answers to the question "what went wrong?" in the form of short communications (empirical articles), and to problematize this question by reflection on those errors (reflection articles). JOTE also welcomes reports of methodological challenges, suggestions, or technical flaws that carry relevant information for the field to which they belong (meta-research articles). Finally, to further open up the black box of academia, we publish rejected grant applications and peer-reviews.

NEGATIVE
RESULTS ARE
CRUCIAL... AS
SCIENCE FAILS.



...publishing not only

WorkflowHub Browse Search here... Search

WorkflowHub is a registry for describing, sharing and publishing scientific computational workflows.

The registry supports any workflow in its native repository.

WorkflowHub aims to facilitate discovery and re-use of workflows in an accessible and interoperable way. This is achieved through extensive use of open standards and tools, including Common Workflow Language (CWL), RO-Crate, BioSchemas and TRS, in accordance with the FAIR principles. <https://workflowhub.eu/>

- Help is available on about.workflowhub.eu.
- Report any issues or suggest new features on [GitHub](https://github.com).
- For comments, questions or feedback, please use the [feedback form](#).

Want to join the WorkflowHub community?
See our current activities and upcoming meetings here.

Click here to see COVID-19 related workflows

WfCommons
Looking for WfCommons? Click here

GitHub This repository Search Explore Features Enterprise Pricing Sign up Sign in

[zimeon / signposting](https://github.com/zimeon/signposting) <https://github.com/>

2 branches 0 releases 1 contributor

Latest commit 4cb45b6 on 8 Mar

simulator with HTML, turtle, PDF, PNG and SVGs 9 months ago

simulator with HTML, turtle, PDF, PNG and SVGs 9 months ago

img in a page per graph/scenario 9 months ago

from meeting 9 months ago

and pyc files 9 months ago

PNG images for use on github pages because github doesn't support... 9 months ago

img in a page per graph/scenario 9 months ago

PNG images for use on github pages because github doesn't support... 9 months ago

Code Issues Pull requests Pulse Graphs

HTTPS clone URL <https://github.com>

You can clone with HTTPS or Subversion

Clone in Desktop Download ZIP

zenodo
<https://zenodo.org/>

Search Communities Browse Upload Get started Sign In Sign Up

15 September 2015 **Dataset** Open access

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

Wilson, Willie; Martínez Martínez, Joaquin; Archer, Steve; Fields, David; Gilg, Ilana; Fløge, 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

Publication date: 15 September 2015
DOI: [10.5281/zenodo.31006](https://doi.org/10.5281/zenodo.31006)
Keyword(s): Virus, *Emiliania huxleyi*, photophysiology, sulphur cycling, fatty acid metabolism
Collections: Communities, Datasets, Open Access
License (for files): Creative Commons CCZero
Uploaded by: Willie (on 15 September 2015)

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A methodology for gathering and annotating the raw-data/characteristics of the documents citing a retracted article

Ivan Heibi¹, Silvio Peroni¹
¹University of Bologna

Ivan Heibi
Dec 09, 2020 • 217 • 83

Keyword appears in: authors

Protocollo di Conformità di Riviste Scientifiche all Open Access

Daniele Cavestri¹, Francesca Mangialardo¹, Sebastian Barzaghi¹, Silvio Peroni¹
¹University of Bologna

Sebastian Barzaghi
Jul 15, 2019 • 243 • 72 • 1

YOU CAN DEPOSIT DATA, SOFTWARE, IMAGES, POSTER, PROTOCOLS, WORKFLOWS... THEY BECOME KNOWLEDGE «BLOCKS» TO BE REUSED

... not only articles

PREPRINTS

- IMMEDIATE PUBLICATION
- SCIENTIFIC PRIORITY
- NO POST SUBMISSION
- «BLACK HOLE»
- FOCUS ON THE CONTENT (AND NOT ON THE BOX)

May 2017 PLOS COMPUTATIONAL BIOLOGY

Browse Publish About Search advanced search

OPEN ACCESS EDITORIAL

Ten simple rules to consider regarding preprint submission

Philip E. Bourne, Jessica K. Polka, Ronald D. Vale, Robert Kiley

Published: May 4, 2017 • <https://doi.org/10.1371/journal.pcbi.1005473>

92 Save	4 Citation
20,822 View	217 Share

How Science Beat the Virus

And what it lost in the process

Story by Ed Yong

Dec.14, 2020

papers, or “preprints,” to freely accessible websites, allowing others to immediately dissect and build upon their results. This practice had been slowly gaining popularity before 2020, but proved so vital for sharing information about COVID-19 that it will likely become a mainstay of modern biomedical research. Preprints accelerate science, and the pandemic accelerated the use of preprints. At

CRUCIAL DURING PANDEMICS

Rule 1: Preprints speed up dissemination

Rule 2: Preprints should be licensed and formatted to facilitate reuse

Rule 3: Preprints provide a record of priority

Rule 4: Preprints do not lead to being 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 the 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



<https://openlabnotebooks.org/>
openlabnotebooks.org

A growing team of groundbreaking scientists around the world are now sharing their lab notebooks online

HOME

Browse notebooks by LABORATORIES

Browse notebooks by PEOPLE

Browse notebooks by DISEASES

Browse notebooks by PROJECTS

THE TEAM

ABOUT

MY RESEARCH IN 2 MIN



F1000Research 2019 Search

BROWSE GATEWAYS & COLLECTIONS HOW TO PUBLISH ABOUT

Home » Browse » Open laboratory notebooks: good for science, good for society, good...

OPINION ARTICLE Check for updates

REVISED Open laboratory notebooks: good for science, good for society, good for scientists [version 2; peer review: 2 approved, 1 approved with reservations]

✉ **Matthieu Schapira** ^{1,2}, The Open Lab Notebook Consortium, ✉ **Rachel J. Harding** ¹

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.



RStudio
 Open source and enterprise professional software for R

jupyter Lorenz Differential Equations

Exploring the Lorenz System

In this notebook we explore the Lorenz system of differential equations:

$$\begin{aligned} \dot{x} &= \rho y - x \\ \dot{y} &= \rho x - y - xz \\ \dot{z} &= x - \beta z \end{aligned}$$

This is one of the classic systems in non-linear differential equations. It exhibits a range of complex behaviors as the parameters ρ, β, γ are varied, including what are known as chaotic solutions. The system was originally developed as a simplified mathematical model for atmospheric convection in 1963.

In [17]: `interact(Lorenz, rho=slider(10, 30), omega=slider(1, 20), beta=slider(0.5, 1), gamma=slider(0.5, 1))`

rho: 10.0
 max_rho: 30.0
 omega: 1.0
 beta: 0.5
 gamma: 0.5

OPEN LAB NOTEBOOK CONTAIN EVERYTHING:
 TEXTS, DATA, EXECUTABLE CODE...DO WE REALLY
 STILL NEED JOURNALS?



Living documents instead of fossils

The big idea: should we get rid of the scientific paper? Apr. 11, 2022

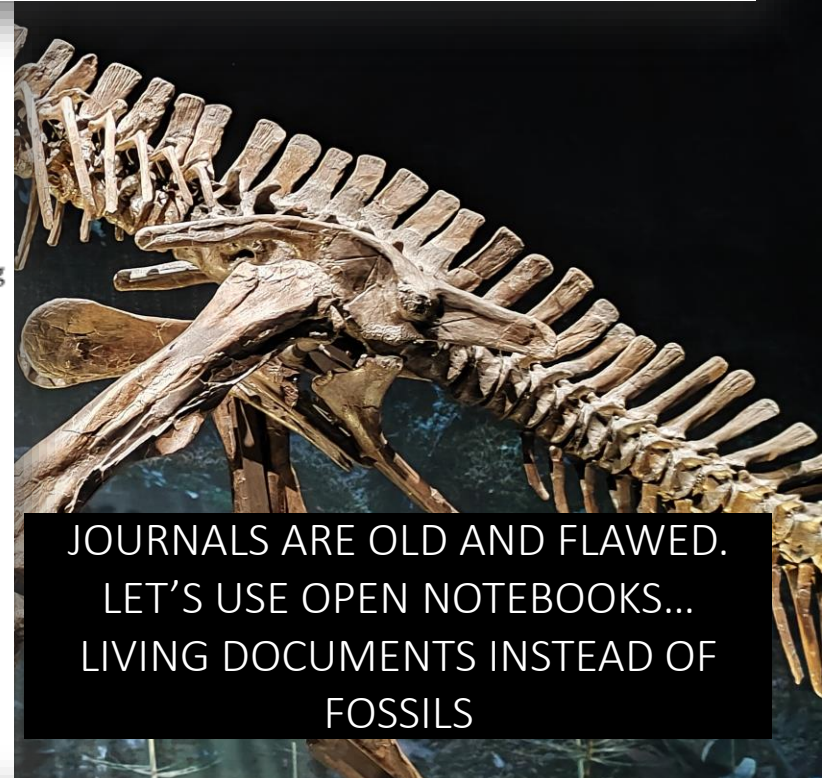
As a format it's slow, encourages hype, and is difficult to correct. A radical overhaul of publishing could make science better

Consider the messy reality of scientific research. Studies almost always throw up weird, unexpected numbers that complicate any simple interpretation. But a traditional paper - word count and all - pretty well forces you to dumb things down. If what you're working towards is a big, milestone goal of a published paper, the temptation is ever-present to file away a few of the jagged edges of your results, to help "tell a better story". Many scientists admit, in surveys, to doing just that - making their results into unambiguous, attractive-looking papers, but distorting the science along the way.

■ ■ Some fields of science are already using online notebooks instead of journals - living documents instead of living fossils

And consider corrections. We know that scientific papers regularly contain errors. One algorithm that ran through thousands of psychology papers found that, at worst, more than 50% had one specific statistical error, and more than 15% had an error serious enough to overturn the results. With papers, correcting this kind of mistake is a slog: you have to write in to the journal, get the attention of the busy editor, and get them to issue a new, short paper that formally details the correction. Many scientists who request corrections find themselves stonewalled or otherwise ignored by journals. Imagine the number of errors that litter the scientific literature that haven't been corrected because to do so is just too much hassle.

We've made astonishing progress in so many areas of science, and yet we're still stuck with the old, flawed model of publishing research. Indeed, even the name "paper" harkens back to a bygone age. Some fields of science are already moving in the direction I've described here, using online notebooks instead of journals - living documents instead of living fossils. It's time for the rest of science to follow suit.



... with FAIR data...

A

TRUSTED
REPOSITORIES,
FORMATS

F

METADATA,
PERSISTENT
IDENTIFIERS...

I

ONTOLOGIES,
STANDARDS

R

LICENSES AND
DOCUMENTATION

TO KNOW MORE

[Comment](#) | [OPEN](#)

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

Data Intelligence

2020

[Issues](#) [Online Early](#) [About](#) [Submit](#)

Volume 2, Issue 1-2
Winter-Spring 2020

January 01 2020

FAIR Principles: Interpretations and Implementation Considerations

[Annika Jacobsen](#), [Ricardo de Miranda Azevedo](#), [Nick Juty](#), [Dominique Batista](#), [Simon Coles](#), [Ronald Cornet](#), [Mélanie Courtot](#), [Meroë Crossas](#), [Michel Dumontier](#), [Chris T. Evelo](#), [Carole Goble](#), [Giancarlo Guzzardi](#), [Karsten Kryger Hansen](#), [Ali Hasnain](#), [Kristina Hettine](#), [Jaap Heringa](#), [Rob W.W. Hooft](#), [Melanie Imming](#), [Keith G. Jeffery](#), [Rajaram Kalyaperumal](#), [Marlijn G. Kerstoot](#), [Christine F. Kirkpatrick](#), [Tobias Kuhn](#), [Ignasi Labastida](#), [Barbara Magagna](#), [Peter McQuilton](#), [Natalie Meyers](#), [Annalisa Montesanti](#), [Mirjam van Reisen](#), [Philippe Rocca-Serra](#), [Robert Persig](#), [Susanna-Assunta Sansone](#), [Luiz Olavo Borino da Silva Santos](#), [Juliane Schneider](#), [George Strawn](#), [Mark Thompson](#), [Andra Waagmeester](#), [Tobias Weigel](#), [Mark D. Wilkinson](#), [Egon L. Willighagen](#), [Peter Wittenburg](#), [Marco Roos](#), [Barend Mons](#) [ORCID](#) [Erik Schultes](#)

[Author and Article Information](#)

[Data Intelligence \(2020\) 2 \(1-2\): 10-29.](#)



[Previous Article](#) [Next Article](#)

[Article Contents](#)

FAIR guide, Nature, March 2016

Because we have

...VIRTUAL ENVIRONMENT TO
UNLOCK THE FULL POTENTIAL OF
RESEARCH DATA TO ACCELERATE
DISCOVERIES AND INNOVATION

eosc EOSC Strategy – Status Current Thinking

What

EOSC is a web of FAIR data and related services for research
Research data that is easy to find, access, interoperate and reuse (FAIR)
Trusted and sustainable research outputs are available within and across scientific disciplines

Why

Unlock the full potential of research data to accelerate discoveries and innovation

How

Access and interoperability of research data and results

- Define ownership, authorship and responsibility of data and research outputs
- Ensure long-term preservation of data throughout its lifecycle
- Enable the creation of standards for all research domains
- Make data machine-actionable
- Enable new scientific discovery methods and science disciplines
- Train researchers on adopting FAIR principles as an integral part in their activity

A sustainable coordinated infrastructure

- Establish and maintain a coordinated federated reference architecture
- Implement an operational infrastructure framework that is long term sustainable
- Ensure high quality of data and services
- Ensure secure access to data and services
- Define clear standards for API and interoperability of data and services
- Apply user friendly practices
- Inspire EOSC ambassadors to assist in on-boarding of researchers

Inspired people and robust governance

- Communicate an inspiring EOSC vision and strategy
- Implement an unambiguous and clearly mandated governance structure
- Establish a framework to engage human capital in institutions, countries and scientific communities
- Enable disciplinary and cross-disciplinary transnational research to find new insights from existing and new research data and outputs

EOSC IS NOT A BIG BOX]

THE EUROPEAN OPEN SCIENCE CLOUD? SOME NUANCES AND DEFINITIONS

Imagine a federated, globally accessible environment where researchers, innovators, companies and citizens can publish, find and re-use each other's data and tools for research, innovation and educational purposes. Imagine that this all operates under well-defined and trusted conditions, supported by a sustainable and just value for money model. This is the environment that must be fostered in Europe and beyond to ensure that European research and innovation contributes in full to knowledge creation, meet global challenges and fuel economic prosperity in Europe. This we

EOSC IS NOT A
REPOSITORY NOR A
«CLOUD»

YOU MAKE YOUR
DATA FAIR SO THAT
EOSC *SERVICES*
CAN «FIND» THEM...

A SUPPORTING
ENVIRONMENT
FOR OPEN SCIENCE
AND NOT AN
«OPEN CLOUD»
FOR SCIENCE

YOU DON'T
«UPLOAD» YOUR
DATA INTO EOSC

AND GIVE SEAMLESS
ACCESS TO 20 M EU
RESEARCHERS

OBJECTIVES

EOSC SRIA 1.0

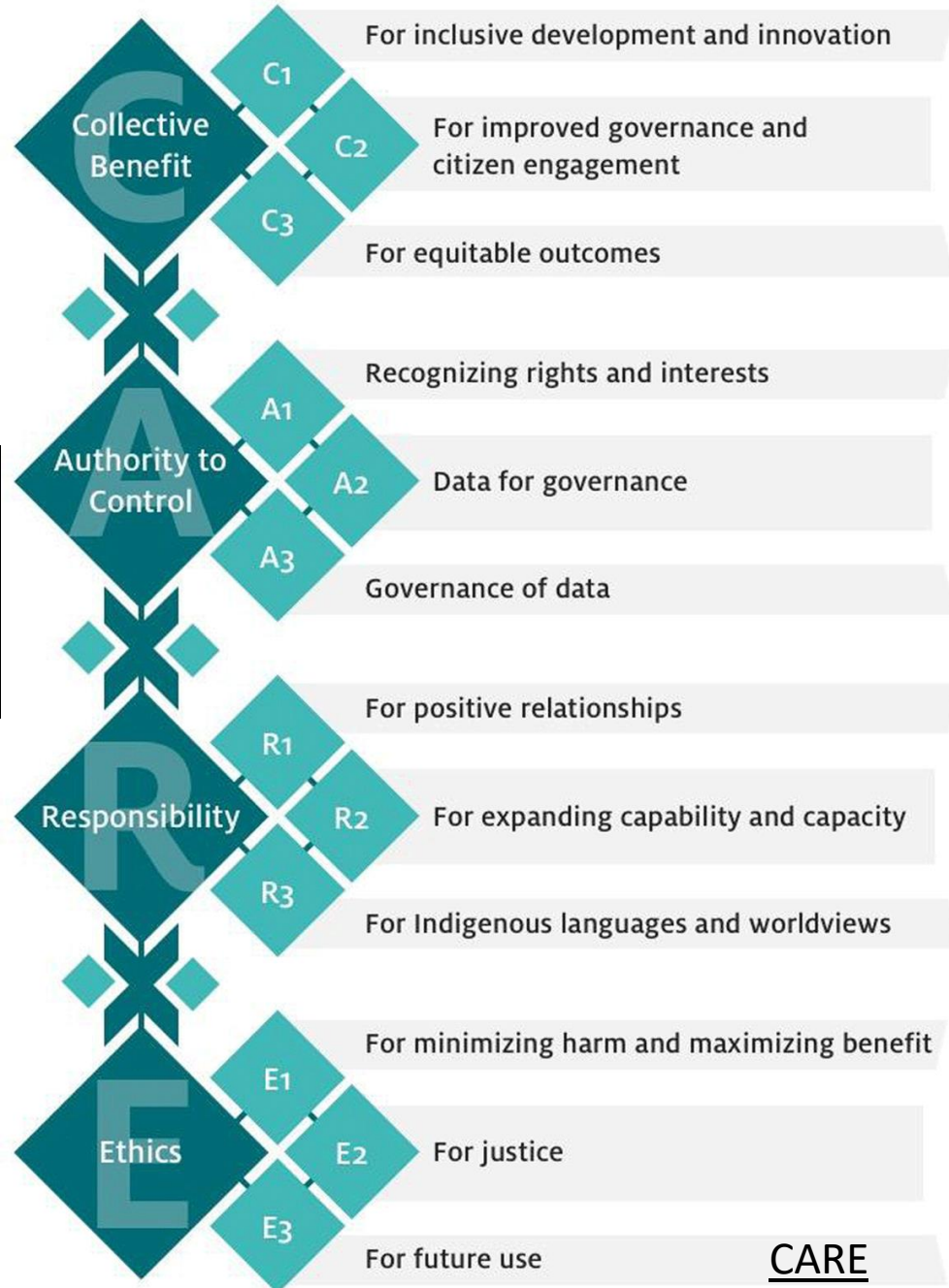
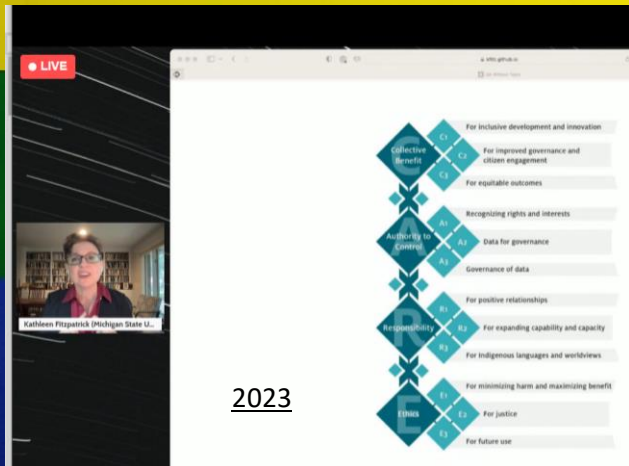
Open Science practices and skills
are rewarded and taught, becoming
the 'new normal'

...coupled with
the CARE principle

Ch
Ande

Sal

- COLLECTIVE BENEFIT
- AUTHORITY TO CONTROL
 - RESPONSIBILITY
 - ETHICS



...writing differently and annotating



<https://www.authorea.com/>

Write Research Together.

Authorea is the collaborative editor for research.
Write and manage your documents in one place, for free.

Name Email Password

Start Writing

A new way to read, write, publish, and interact with scientific content.



Write.

News: Overleaf partners with the RSC

Overleaf

Collaborative Writing and Publishing

The easiest way to create, edit and publish your research.

Start writing

2021 Elsevier	Discovery	Analysis	Writing	Publication	Outreach	Assessment
Digital Science	labguru	Overleaf Peerwith				
Holtzbrinck	Springer Link	Springer Nature				
Springer Nature	Springer Nature	Springer Nature				
Atypon	Atypon reader	Authorea				
Scitrus	Scitrus	Authorea				
Wiley	Wiley	Wiley				
Wiley-IEEE Press	Wiley-IEEE Press	Wiley-IEEE Press				
Taylor & Francis	F1000 Prime	F1000 Research				
F1000 Prime	F1000 Research	F1000 Research				
F1000 Research	F1000 Research	F1000 Research				

BEWARE: NO LONGER OPEN

Pundit Web Annotation

8 iscritti

HOME PAGE

[PundIT video](#)



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Our mission is to bring a new layer to the web. Use Hypothesis to discuss, collaborate, organize your research, or take personal notes.

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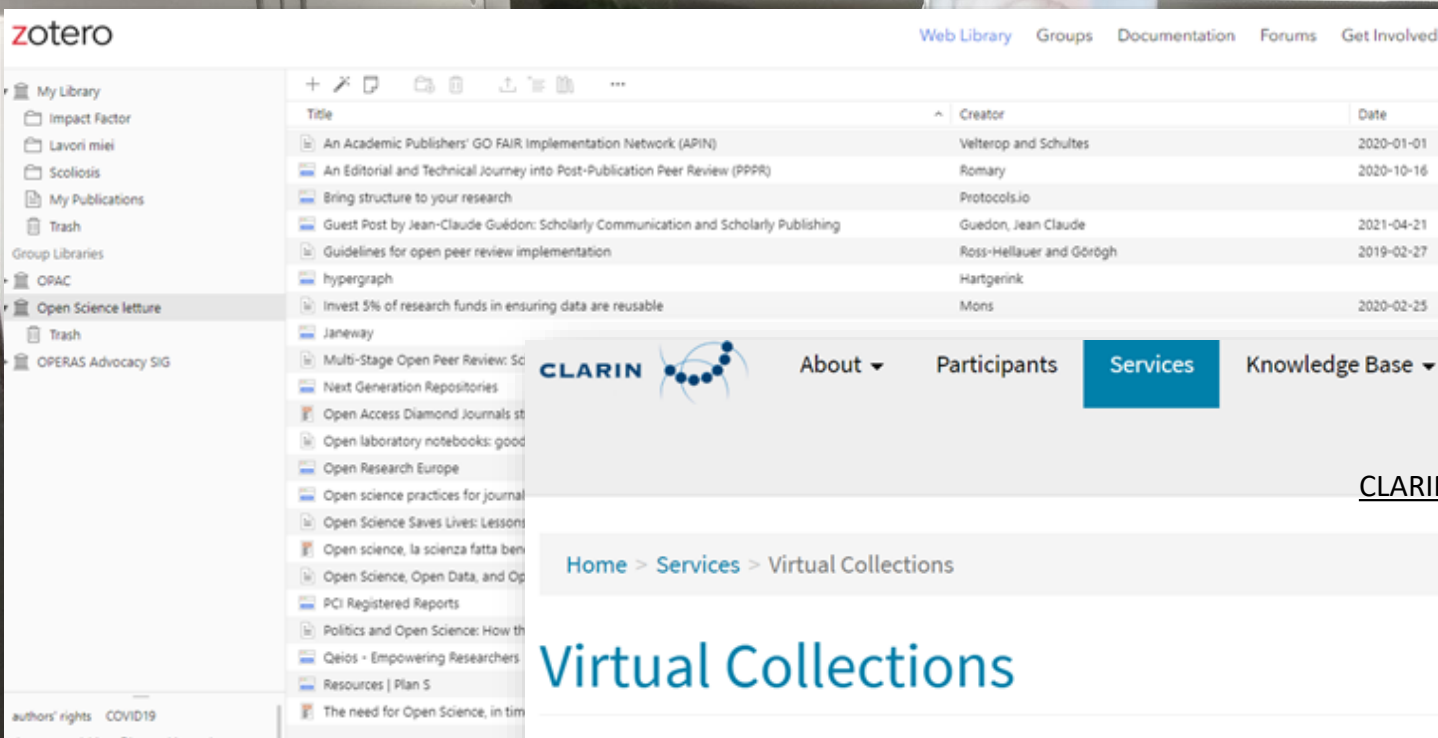
There's also a Chrome extension or you can add it to your website.

COLLABORATIVE WRITING / ANNOTATING

Hypothesis announces a coalition of over 40 scholarly organizations bringing annotation to all knowledge. [Learn more](https://hypothes.is/)

<https://hypothes.is/>

.....sharing bibliographies and



zotero

Web Library Groups Documentation Forums Get Involved

My Library

- Impact Factor
- Lavori miei
- Scoliosis
- My Publications
- Trash

Group Libraries

- OPAC
- Open Science lecture
- Trash
- OPERAS Advocacy SIG

Title	Creator	Date
An Academic Publishers' GO FAIR Implementation Network (APIN)	Velterop and Schultes	2020-01-01
An Editorial and Technical Journey into Post-Publication Peer Review (PPPR)	Romary	2020-10-16
Bring structure to your research	Protocols.io	
Guest Post by Jean-Claude Guédon: Scholarly Communication and Scholarly Publishing	Guedon, Jean Claude	2021-04-21
Guidelines for open peer review implementation	Ross-Hellauer and Görögh	2019-02-27
hypergraph	Hartgenik	
Invest 5% of research funds in ensuring data are reusable	Mons	2020-02-25
Janeway		
Multi-Stage Open Peer Review: Sc		
Next Generation Repositories		
Open Access Diamond Journals st		
Open laboratory notebooks: good		
Open Research Europe		
Open science practices for journal		
Open Science Saves Lives: Lessons		
Open science, la scienza fatta ben		
Open Science, Open Data, and Op		
PCI Registered Reports		
Politics and Open Science: How th		
Qeios - Empowering Researchers		
Resources Plan 5		
The need for Open Science, in tim		

authors' rights COVID19

CLARIN

- About
- Participants
- Services
- Knowledge Base
- Funding
- Events
- New

[CLARIN virtual collections](#)

Home > Services > Virtual Collections

Virtual Collections

A virtual collection is a coherent set of links to digital objects (e.g. annotated text, video) that can be easily created, accessed and cited. The links can originate from different archives, hence the term *virtual*. A virtual collection is suitable for manual access (using a web-browser) as well as automated processing (e.g. by a webservice).

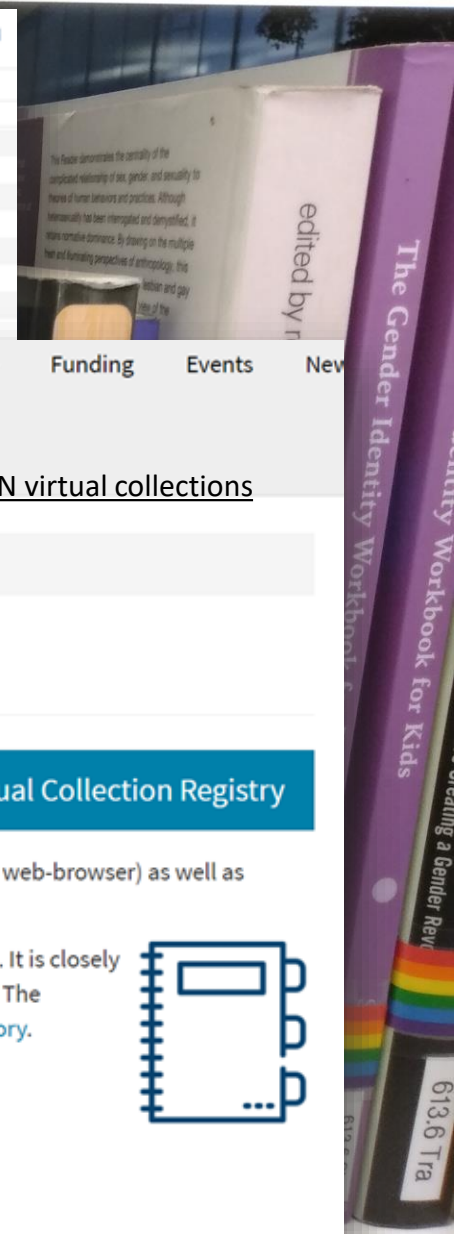
[Go to the Virtual Collection Registry](#)

CLARIN provides a registry where scholars can create and publish their virtual collections. It is closely integrated with the infrastructure and provides persistent identifiers and federated login. The collection metadata is openly available and accessible via the Virtual Language Observatory.

Some examples:

- data as mentioned in an article's footnotes gathered in a single virtual collection
- a virtual collection with links to data illustrating a book (video and sound recordings)

More information is available in the [Virtual Collections shortguide](#)



FOCUS ON [FAIR]
DATA
MANAGEMENT



IMAGE CREATED BY
Noa, Anna, Lilian e Charlotte

Data

We could then define data in the humanities broadly as all materials and assets scholars collect, generate and use during all stages of the research cycle. In this report we focus on digital assets.



DATA=ALL MATERIALS AND ASSETS COLLECTED, GENERATED AND USED DURING THE RESEARCH CYCLE

2022 PLOS ONE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

Seeing oneself as a data reuser: How subjectification activates the drivers of data reuse in science

Marcel LaFlamme, Marion Poetz, Daniel Spichtinger

Published: August 18, 2022 • <https://doi.org/10.1371/journal.pone.0272153>

THINK OF ALL YOUR RESEARCH ASSETS AS RESEARCH DATA THAT COULD POTENTIALLY BE REUSED

RECOMMENDATIONS

» Think of all your research assets as research data that could be potentially reused by other scholars. Consider how useful it would be for your own work if others shared their data.

[the 3 steps]

OPEN FAIR MANAGED

1. DATA SHOULD BE AS OPEN AS POSSIBLE

2. BUT IF DATA ARE NOT «FAIR», OPENING IS RISKY
(MISUSE, MISINTERPRETATION, ...)

3. IF DATA ARE NOT PROPERLY MANAGED FROM THE BEGINNING, IT'S
ALMOST IMPOSSIBLE TO MAKE THEM «FAIR» [WITH EOSC
MANAGED/FAIR INCREASINGLY OVERLAPPING, «FAIR BY DESIGN»]

AND MANAGING DATA PROPERLY IS IN THE PRIMARY INTEREST OF ANY RESEARCHER,
AS THE WHOLE RESEARCH PROCESS RESULTS STREAMLINED AND MORE EFFECTIVE

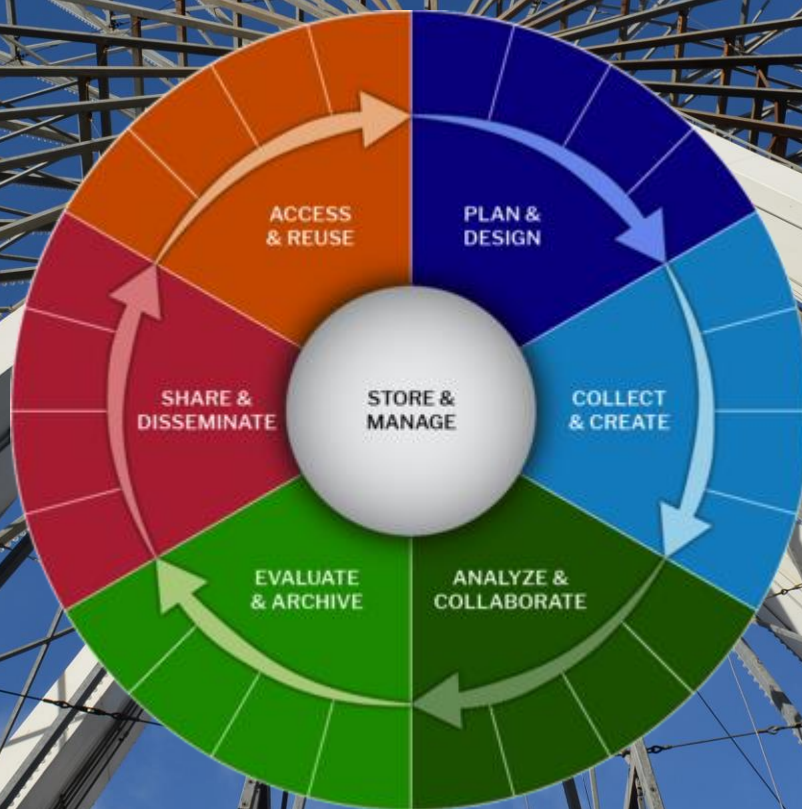
1. Data must be managed

ORGANIZATION
(file naming,
folders,
versioning...)

DESCRIPTION FOR
DISCOVERABILITY
(metadata)

BACKUP AND
STORAGE

LONG TIME
PRESERVATION



LEGAL ASPECTS

ALONG THE ENTIRE LIFE CYCLE

2. Data should be FAIR BY DESIGN

To be Findable:

F1. (meta)data are assigned a globally unique and eternally persistent identifier.

F2. data are described with rich metadata.

F3. (meta)data are registered or indexed in a searchable resource.

F4. metadata specify the data identifier.

TO BE ACCESSIBLE:

A1 (meta)data are retrievable by their identifier using a standardized communications protocol.

A1.1 the protocol is open, free, and universally implementable.

A1.2 the protocol allows for an authentication and authorization procedure, where necessary.

A2 metadata are accessible, even when the data are no longer available.

TO BE INTEROPERABLE:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (meta)data use vocabularies that follow FAIR principles.

I3. (meta)data include qualified references to other (meta)data.

TO BE RE-USABLE:

R1. meta(data) have a plurality of accurate and relevant attributes.

R1.1. (meta)data are released with a clear and accessible data usage li

R1.2. (meta)data are associated with their provenance.

R1.3. (meta)data meet domain-relevant community standards.

**«ACCESSIBLE»
DOES NOT MEAN «OPEN».
DATA CAN BE CLOSED,
PROVIDED YOU – AND
MACHINES - KNOW WHERE TO
FIND THEM AND UNDER
WHAT ACCESS CONDITIONS**

3. [WHENEVER POSSIBLE] Data should be Open

BECAUSE OPEN DATA
SAVE LIVES.

Digital Science Report The State of Open Data 2021

The longest-running longitudinal survey and analysis on open data

Foreword by Natasha Simons, Australian Research Data Commons (ARDC)

Nov. 29, 2021

November 2021

Open data saves lives. The global pandemic has highlighted beyond anything that came before it the importance of data sharing in solving the big challenges of our time. COVID-19 data may be the most visualized data in history and it was made publicly available on a daily basis to people all over the world. The urgent need to better understand and treat the virus in 2020 brought unprecedented collective and collaborative action from all research stakeholders on an international scale to bring down barriers to research and speed up analysis and testing. These efforts, combined with support from governments and industry, resulted in not one but many vaccines made available by the end of the year. This gives us a glimpse of what incredible research outcomes are possible when we start with collaboration to address a common threat. Imagine how much more we could do, how many more lives we could save, if research data was routinely made open and shared. So, why isn't data sharing the norm? The answers lie in the harmony needed between policies, infrastructure, and practices.

Better research

- Demonstrates research integrity, as there is transparency and accountability in the production of the data
- Encourages research enquiry and debate
- Promotes innovation and potential new discoveries
- Encourages the improvement of research methods
- Prevents research fraud

Better impact

- Enables peer scrutiny of the research findings, validating the work carried out
- Increases the visibility of the research
- Provides credit for the creation of the data
- Can lead to new collaborations
- Produces a public record of the research

Better value

- Avoids duplication of effort in data creation
- Provides resources for use in teaching and learning
- Meets funder requirements
- Ensures data can be re-visited for future research
- Maximises return on research investment
- Preparing data for sharing also prepares it for reuse

Sharing Data

Why share data

2. Why share data?



BETTER RESEARCH

- INTEGRITY
- DEBATE
- REUSE

BETTER IMPACT

- VISIBILITY
- CREDIT
- COLLABORATIONS

BETTER VALUE

- AVOID DUPLICATIONS
- MAX RETURN ON INVESTMENTS

FAIR/Open

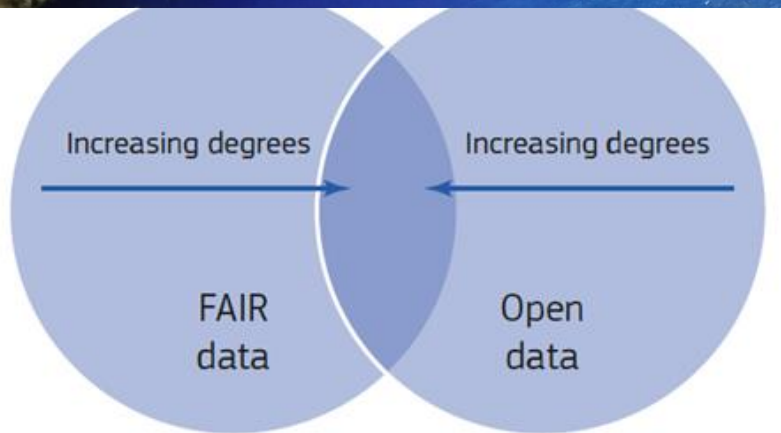


Figure 4. The relationship between FAIR and Open



THERE WILL BE AN INCREASING DEGREE IN OVERLAPPING.
BUT WE'LL ALWAYS HAVE PERFECTLY FAIR CLOSED DATA

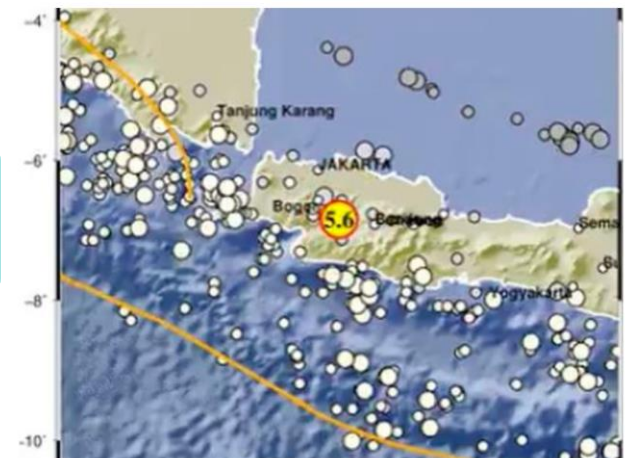
...a selfie...

How we can get those data

This was the best map that we can get (cited by the media)

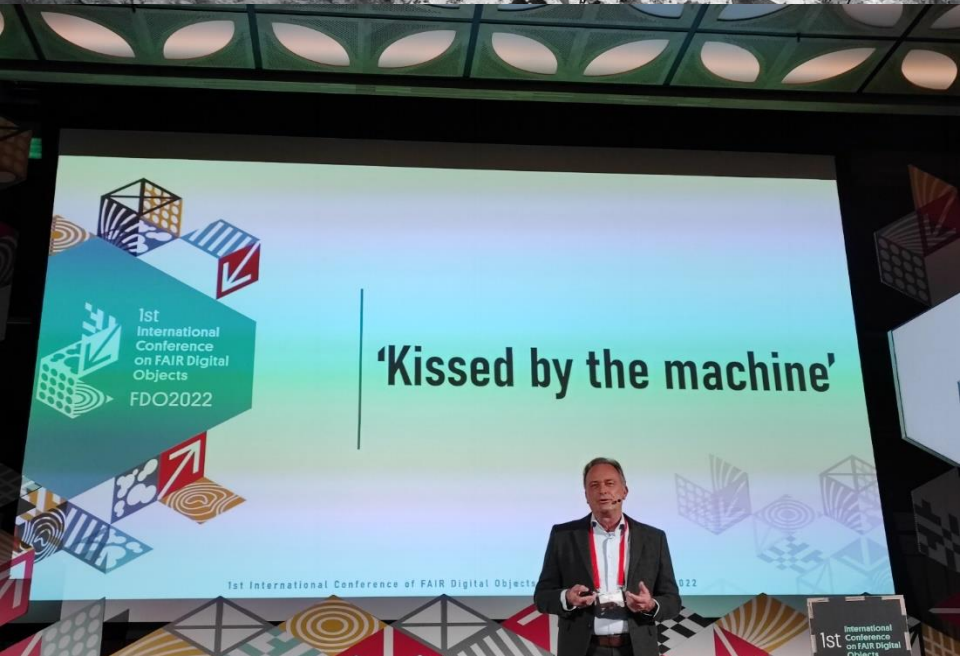
Those data points are not really data points. They're just a selfie of data points.

They're not reusable.



BE CAREFUL...
IF DATA ARE NOT REUSABLE THEY
ARE ONLY A **SELFIE OF DATA**
[Dasapta Erwin Irawan]

Kissed or missed?



FAIR PRINCIPLES ARE
«MACHINE ACTIONABLE»
(MORE THAN READABLE)
FAIR = FULLY AI READY
IF NOT... **YOU'LL BE MISSED (INSTEAD OF KISSED)** BY THE MACHINE



Decision making procedures in data management and data stewardship for Open Science

Connie Clare, PhD



Data-centric AI

Automated decision making using data.

Data is fundamental for training and deploying AI models.

Data management and/or curation is a crucial step to feed into AI model.

'Machine learning models are only as good as the data they're trained on' - <https://fairmlbook.org/datasets.html> (Chapter 8)

en

Clearbox AI

[Clearbox](#)

We are on a mission to harness powerful AI technologies to improve businesses and society in a trustworthy and human-centered way.

is flexible product / Rea

clearbox_{AI}

Your

Synthetic Data

provider



Data stewardship challenges & AI ethics

? **Black box AI** - Model inputs and operations remain a mystery. Unknown input data provenance and quality. Automated data retrieval lead to inconsistent results.

⚙️ **AI bias** due to generalisation (insufficient representative input data), or unsuitable data collection, processing (cleaning), quality, mislabelling and model design. Synthetic (output) data generated inherits and propagates bias affecting scientific validity.

✖️ **Data misuse** - Using data as input for an AI model that causes harm.

📋 **Lack of standards, tools and mechanisms** to evaluate data quality and whether datasets are fit for purpose.

ARTIFICIAL INTELLIGENCE

- WORKS IF DATA ARE GOOD
- THERE ARE ETHICAL ISSUES

FAIR in practice

FINDABLE




Metadata Standards Catalog

Search Sign in

Metadata standards catalog

Metadata Standards Catalog

Metadata Standards Catalog is a collaborative, open directory of metadata standards for research data. It is offered to the international academic community to help address metadata issues.



ACCESSIBLE
[≠OPEN]



<https://www.re3data.org/>

What are data journals?

Data journals are scholarly journals that publish datasets or data papers. According to *Geoscience Data Journal*, "a data paper describes a dataset, giving details of its collection, processing, software, file formats etc, without the requirement of novel analyses or ground breaking conclusions. It allows the reader to understand the when, how and why data was collected, and what these exist, as this data would be used."

If your data are stored in other formats than those mentioned below, please [contact](#) DANS.

Type	DANS formats	Preferred format(s)	Non-preferred format(s)
Text documents		<ul style="list-style-type: none"> PDF/A (.pdf) ODT (.odt) 	<ul style="list-style-type: none"> Microsoft Word (.doc) Office Open XML (.docx) Rich Text File (.rtf) PDF other than PDF/A

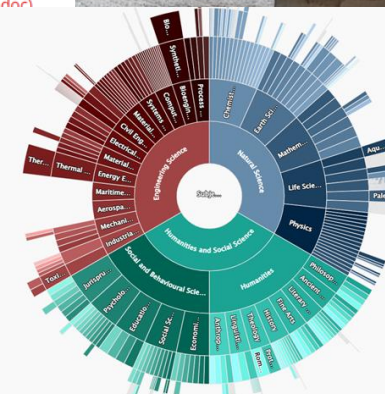
INTEROPERABLE




<https://fairsharing.org/>

A curated, informative and educational resource on data and metadata standards and policies inter-related to databases and data policies.

We guide consumers to discover, select and use these resources with confidence, and producers to make their data and metadata resource more discoverable, more widely adopted and cited.



REUSABLE



MIT Press Direct 2020

Data Intelligence

Volume 2, Issue 1-2 January 01 2020
Winter-Spring 2020

Licensing FAIR Data for Reuse


Ignasi Labastida, Thomas Margoni



Guides for Researchers

How do I know if my research data is protected?

Learn more about data protection and licensing



CC Factsheet

FACT SHEET ON CREATIVE COMMONS & OPEN SCIENCE


This information guide contains questions and responses to common concerns surrounding open science and the implications of licensing data under Creative Commons licenses. It is intended to aid researchers, teachers, librarians, administrators and many others using and encountering Creative Commons licences in their work.

Project-level documentation


The project-level documentation provides information on the level of individual objects such as research instruments that you use.

Data-level documentation

Data-level or object-level documentation provides information on the level of individual objects such as



Cessda



Data Management Expert Guide

FAIR Implementation profiles

- FIP Wizard
- Knowledge Models
- FIPs
- Create a FIP

FIP wizard



Welcome to the FIP Wizard!

[International Conference on Conceptual Modeling](#)

2020

ER 2020: [Advances in Conceptual Modeling](#) pp 138-147 | [Cite as](#)

Reusable FAIR Implementation Profiles as Accelerators of FAIR Convergence

Authors [Authors and affiliations](#)

Erik Schultes, Barbara Magagna, Kristina Maria Hettne, Robert Pergl, Marek Suchánek, Tobias Kuhn

- FIP Wizard
 - Knowledge Models
 - FIPs
 - Create a FIP
- Help
- Elena Giglia
- Collapse sidebar

Social Science Survey Research_V1

Questionnaire Metrics Preview Documents

View

Current Phase

Before Submitting the Proposal

Chapters

Background: The FAIR Implementation Profile and FAIR Implementation Community

I. Background: The FAIR Implementation Profile and FAIR Implementation Community

The FAIR Implementation Profile (FIP) is a collection of FAIR implementation choices made by a FAIR Implementation Community for each of the FAIR Principles. Community-specific FIPs are themselves captured as FAIR datasets and are made openly available to other communities for reuse. To create a FIP, the data steward of a community needs to fill out this questionnaire where the implementation choices are recorded as resources. The questionnaire is structured as follows: the first section is about the FAIR Implementation Community, which is then followed by a number of questions per FAIR principle. The answer to each of the questions should be a FAIR-Enabling Resource. The questionnaire offers to look up the resource in Nanobench. If the resource cannot be found in any of these applications, there is an option at the end of the questionnaire to register a FAIR-Enabling Resource as a nanopublication in Nanobench. The resource will get a PURL which

FAIR Implementation Profile

FAIR principle	Question	FAIR enabling resource types
F1	What globally unique, persistent, resolvable identifiers do you use for metadata records?	Identifier type
F1	What globally unique, persistent, resolvable identifiers do you use for datasets?	Identifier type
F2	Which metadata schemas do you use for findability?	Metadata schema
F3	What is the technology that links the persistent identifiers of your data to the metadata description?	Metadata-Data linking mechanism
F4	In which search engines are your metadata records indexed?	Search engines
F4	In which search engines are your datasets indexed?	Search engines
A1.1	Which standardized communication protocol do you use for metadata records?	Communication protocol
A1.1	Which standardized communication protocol do you use for datasets?	Communication protocol
A1.2	Which authentication & authorisation technique do you use for metadata records?	Authentication & authorisation technique
A1.2	Which authentication & authorisation technique do you use for datasets?	Authentication & authorisation technique
A2	Which metadata longevity plan do you use?	Metadata longevity
I1	Which knowledge representation languages (allowing machine interoperation) do you use for metadata records?	Knowledge representation language
I1	Which knowledge representation languages (allowing machine interoperation) do you use for datasets?	Knowledge representation language
I2	Which structured vocabularies do you use to annotate your metadata records?	Structured vocabularies
I2	Which structured vocabularies do you use to encode your datasets?	Structured vocabularies
I3	Which models, schema(s) do you use for your metadata records?	Metadata schema
I3	Which models, schema(s) do you use for your datasets?	Data schema
R1.1	Which usage license do you use for your metadata records?	Data usage license
R1.1	Which usage license do you use for your datasets?	Data usage license
R1.2	Which metadata schemas do you use for describing the provenance of your metadata records?	Provenance model
R1.2	Which metadata schemas do you use for describing the provenance of your datasets?	Provenance model

Slides courtesy of Erik Schultes [Go FAIR OSF | HS.3PFF.Oct 2021.pdf](#)

CREATE FAIR
IMPLEMENTATION
PROFILES
REUSABLE BY
YOUR
COMMUNITY
- KEYWORD:
CONVERGENCE

[we need data stewards]

WE NEED 500.000 DATA STEWARDS

zenodo Search Upload Communities
October 3, 2019
2019
Report Open Access
Final report: Towards FAIR data steward as profession for the lifesciences. Report of a ZonMw funded collaborative approach built on existing expertise

KØBENHAVNS UNIVERSITET
Home | EN | [get access data resources & software](#)

Competence Profile

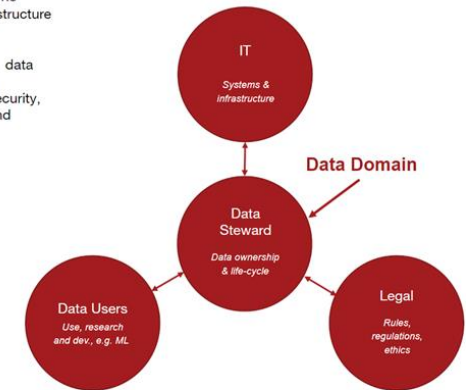
A data steward is a data specialist with strong domain-specific knowledge who understands and appreciates the relevance of data, data sources, data infrastructure and constraints within a scientific or other application domain.

The future Data Steward must assume ownership and responsibility for data, data quality, and the data life-cycle as their primary function. They should ensure collaboration and coherence between IT competences, quality assurance, security, rules & regulations, and facilitate the application and use of data internally and externally in the organisation.

Competence profile examples

- Domain-specific data understanding
- Ability to ensure that structured and unstructured data and meta data is modelled, harvested, stored, and maintained in a documented, and regulated fashion with focus and findability, accessibility, interoperability, and reusability.
- Competences to facilitate HPC (High Performance Computing) during development and research through handling of large-scale data in public and private enterprises.
- Understanding of and competences within legal, ethical and security aspects of data handling, data sharing, e.g., integrity and GDPR.

DATA DOMAIN
EXPERTISE + TECH,
LEGAL, SEMANTIC
WEB SKILLS



Copenhagen Univ. June 17 2020

Data stewardship is the responsible planning and executing of all actions on digital data before, during and after a research project, with the aim of optimising the usability, reusability and reproducibility of the resulting data.

It differs from data management, in the sense that data management concerns all actual, operational data-related activities in any phase of the data lifecycle, while data stewardship refers to the assignment of responsibilities in, and planning of, data management.

DATA STEWARDSHIP IS THE RESPONSIBLE **PLANNING** AND EXECUTING OF ALL ACTIONS ON DIGITAL DATA BEFORE, DURING AND AFTER A RESEARCH PROJECT, WITH THE AIM OF OPTIMISING THE USABILITY, REUSABILITY AND REPRODUCIBILITY OF THE RESULTING DATA

IT'S A FORMAL
DOCUMENT ABOUT
HOW YOU ARE GOING TO
MANAGE YOUR DATA

CLEAR RULES, LESS
MISTAKES FROM THE
BEGINNING

IT'S A «LIVING DOCUMENT»,
IT GROWS WITH THE
PROJECT

IT IS THE RIGHT VENUE
- TO JUSTIFY OPEN/CLOSED
- TO CALCULATE THE COSTS

...LET'S BE CLEAR:

**THE ISSUE HERE IS NOT «LEARNING»
HOW TO DRAFT A DMP
BUT LEARNING HOW TO RESPONSIBLY
MANAGE FAIR DATA.
DMP IS ITS PRACTICAL DECLARATION**

- TECHNICAL DOCUMENT, NOT DISSERTATION
- USE TABLES, BULLET POINTS
- BE SPECIFIC AND SYNTETIC (DO NOT COPY&PASTE)
- IF YOU DON'T KNOW, SAY IT (BETTER THAN A «BLANK CELL»)
- BE GENERIC («DATA WILL BE AVAIBALE») IS USELESS

... with a Data Management Plan

AGATHOCLES DMP online

Project Details Contributors Plan overview Initial DMP Detailed DMP Final review DMP Share Download

expand all | collapse all

8/9 answered

FREE TEXT. YOU HAVE TO KNOW WHAT TO ADDRESS NOT TO FORGET ANYTHING

1. Data summary (1 / 1)

2. FAIR data (3 / 4)

3. Allocation of resources (1 / 1)

DS Wizard Knowledge Models

GUIDED STEP TO STEP FILLING. YOU MIGHT FIND IT MORE COMPLEX, BUT IN THE END IT'S THE SYSTEM WHICH AUTOMATICALLY GENERATE THE DMP EXTRACTING THE RELEVANT INFORMATION

Leiden Booksellers - Giglia IFDS homework week 5

Questionnaire Metrics Preview Documents Settings

View Comments TODOs Version history

Current Phase: Before Submitting the Proposal

III. Creating and collecting data

We will make sure that we know what data will be coming together in the project, when it will be coming. We also need to make sure that we have adequate storage space to deal with it, and that all the responsibilities have been taken care of.

Chapters:

- I. Administrative information ✓
- II. Re-using data ✓
- III. Creating and collecting data ✓
- IV. Processing data ✓
- V. Interpreting data ✓
- VI. Preserving data ✓

1 What existing data formats/types will you be using?

Horizon 2020 DMP Science Europe DMP

Have you identified types of data that you will use that are used by others too? Some types of data (for example "images" or "tables") are used by many different projects. For such data, often common standards exist (in our example "JPG" and "CSV" [comma separated values]) that help to make these data reusable. Are you using such common data formats?

Please make sure you list all the data types that are important for your project. You should make sure also to list the formats used in any data sets that you are re-using.

Desirable: Before Submitting the Proposal

ABOUT RESOURCES CONTACT LOG IN



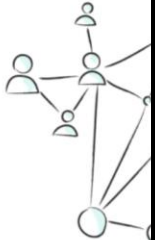
Argos

Plan and follow your data

- Create** machine actionable DMPs.
- Configure** to best fit your discipline.
- Link** to EOSC components out of the box.
- Share** easily in your repository.

Bring your Data Management Plans closer to where data are generated, analysed and stored.

Start your DMP



GUIDED STEP TO STEP FILLING. YOU MIGHT FIND IT MORE COMPLEX, BUT IN THE END IT'S THE SYSTEM WHICH AUTOMATICALLY GENERATE THE DMP EXTRACTING THE RELEVANT INFORMATION

ONE DAY OR
DAY ONE
you decide.

THANK YOU!