University of Turin, Dec. 5 2023

Open Science why and how

Elena Giglia

elena.giglia@unito.it

@egiglia

Housekeeping

SLIDES ARE AVAILABLE ON ZENODO

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

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

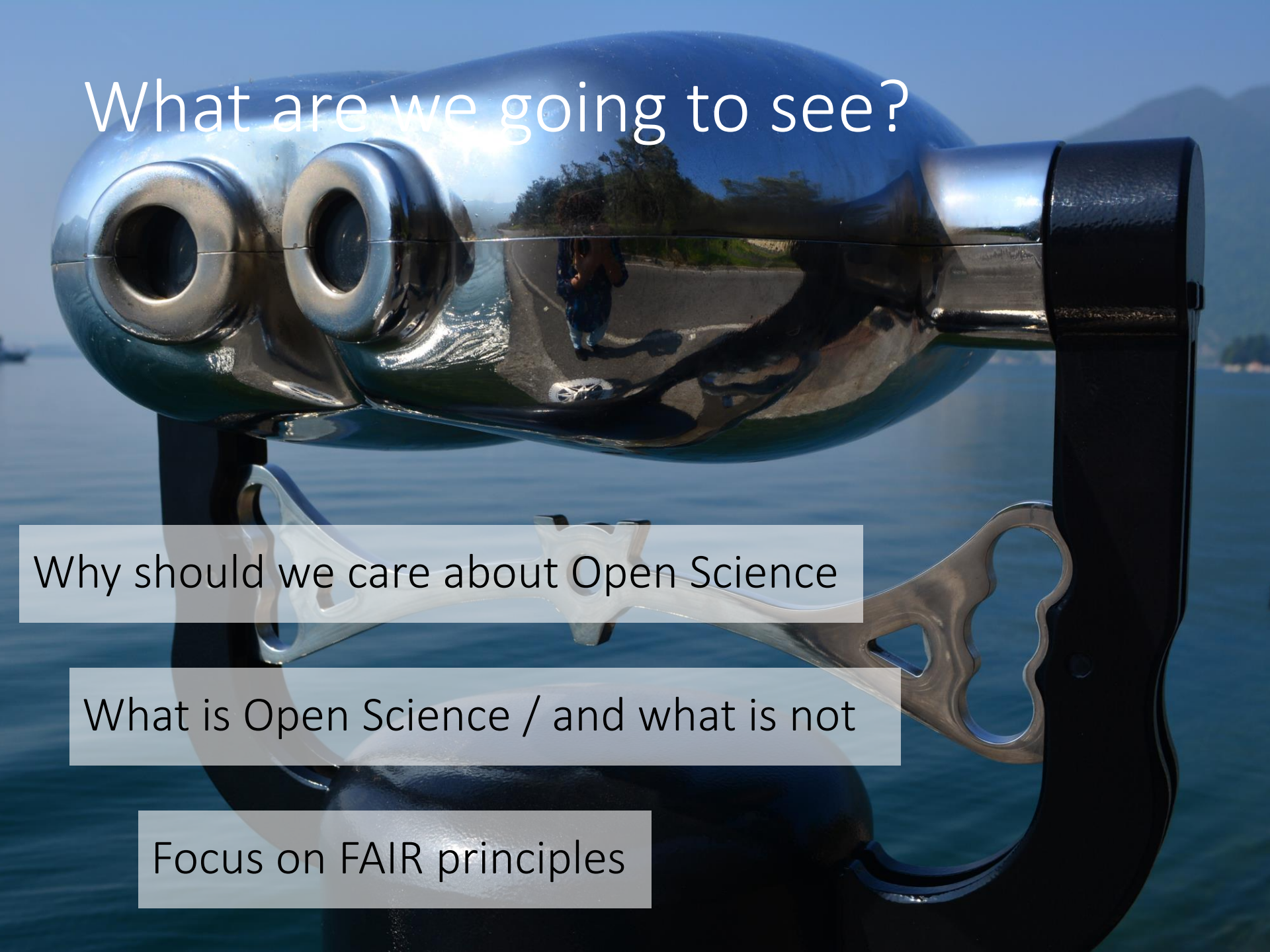
Why are we here today?

EOSC SRIA 1.0

OPEN SCIENCE IS THE «NEW NORMAL»

eosc


#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

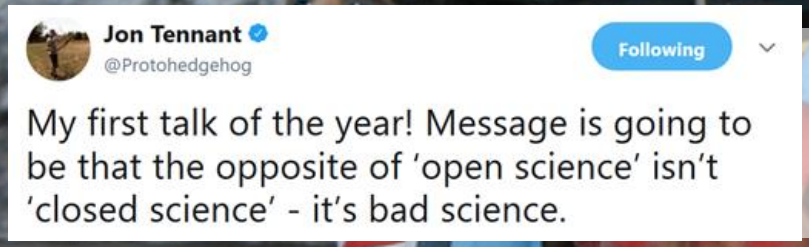
Focus on FAIR principles

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»…



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

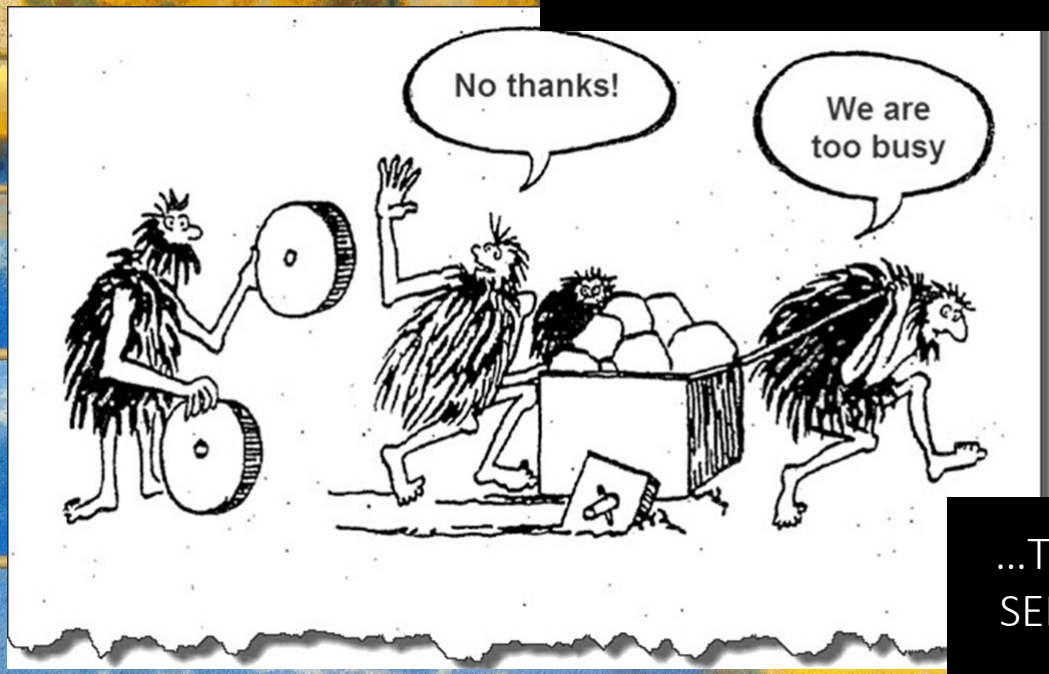
Open Science, Open Innovation, EOSC, FAIR: be ready!

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

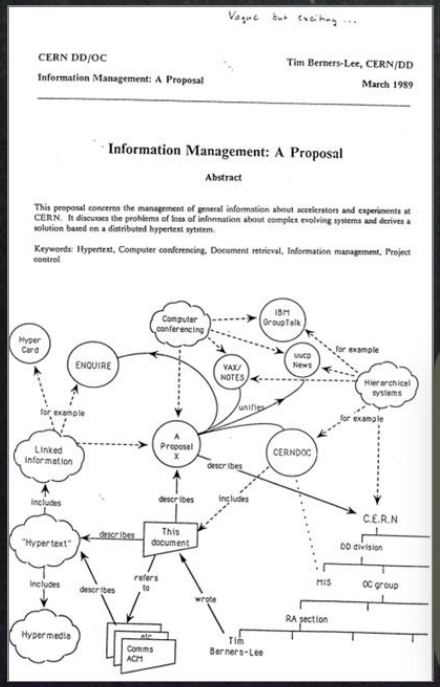
…OPEN SCIENCE HOLDS A HUGE TRANSFORMATIVE POTENTIAL… IF YOU DON'T FOCUS ON ITS REAL VALUE, IT WILL BE SEEN AS THE UNPTEENTH ADMINISTRATIVE BURDEN

Open Science in practice?

"Vague but exciting"

CERN

www.cern.ch



Vague but exciting ...

CERN DD/OC

Tim Berners-Lee, CERN/DD

Information Management: A Proposal

March 1989

Information Management: A Proposal

Abstract

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

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

…THE HTTP PROTOCOL, WHICH CHANGED OUR LIVES – IT USED TO BE AN INTERNAL TOOL, CERN DECIDED TO OPEN IT UP

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.

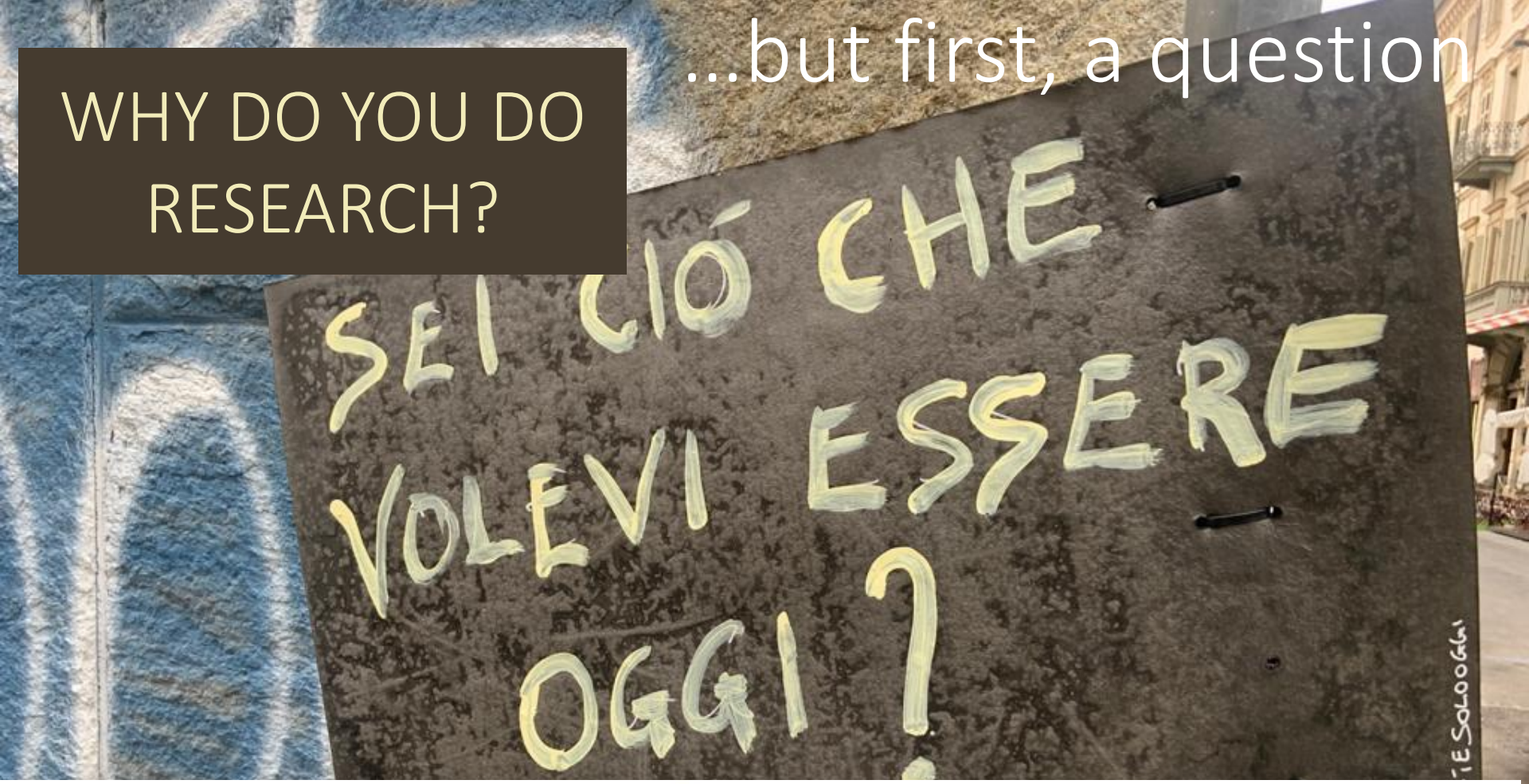
THANK YOU FOR YOUR UNDIVIDED ATTENTION, THAT'S ALL FOR TODAY

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


...JUST KIDDING!
LET'S START

WHY DO YOU DO RESEARCH?

…but first, a question



"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 Nilsonne and Toma Susi Share

…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

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»

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]

«PRESTIGIUOS JOURNALS» = HIGHER SUBSCRIPTION RATES. EVERY YEAR IN UNITO 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]

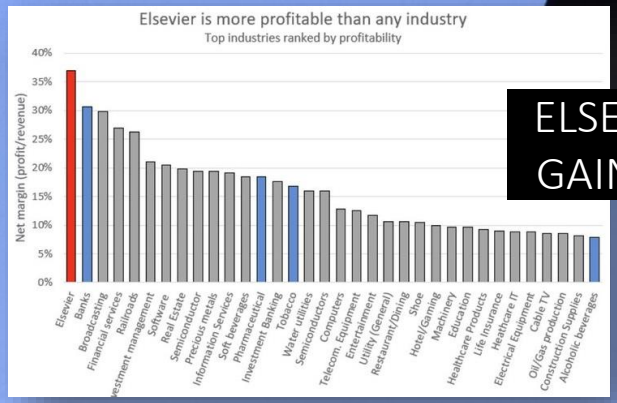
Open science needs no martyrs, but we must recognize the need for reform

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

«SO, IT'S EXTORTION»

[reminder #2]

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

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

UNITED NATIONS, NEW YORK | 8-10 FEBRUARY 2023
3rd Open Science Conference
Accelerating the Sustainable Development Goals, Democratizing the Record of Science
#OpenScienceUN

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 GUARANTEEED TO BE PROFITABLE BECAUSE RESEARCHERS LIVELIHOODS ARE DEPENDENT ON A PREDATORY SYSTEM THAT VALUES PUBLISHING IN HIGH IMPACT JOURNALS»

«THIS, OF COURSE, IS INSANE»

2018

IT'S ACADEMICS, BABY

Let's talk money

Aczel et al. Research Integrity and Peer Review (2021) 6:14
https://doi.org/10.1186/s41073-021-00118-2
Research Integrity and Peer Review

RESEARCH Open Access

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

Balazs Aczel[1*], Barnabas Szaszi[1*] and Alex O.

1 billion $

4

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.

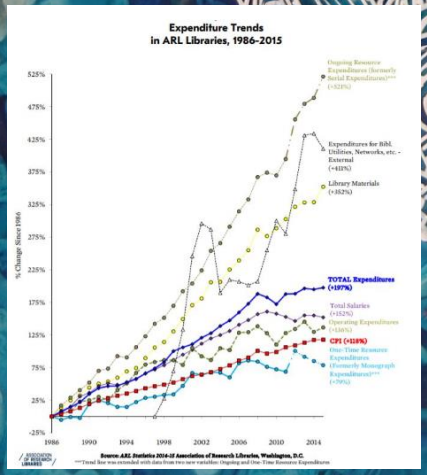
You are the provider, the product, and the consumer.
J. Tennant, 2018

WAGES

RES. FUNDING

RES. OUTPUTS PUBLISHED

SUBSCRITPIONS



4,4 million €

REUSE RIGHTS

521%

INCREASE IN SERIALS EXPENDITURES 1986-2015

GUESS: LIBRARY BUDGET INCREASED BY 521%?

CUTS, CUTS, CUTS

.. and there is more…

...shameless...

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

Plan S
Making full & immediate Open Access a reality

Oct. 21, 2023

Plan S Princip... Blog

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.

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 decisio...

COAR Confederation of Open Access Repositories

Oct. 24, 2023

Home Nev...

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

Oct. 27 2023

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!

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 initi...

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

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.

.. and there is more…

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 instituti
content licensing is directly linked to the purchas
analytics services.

2020

FROM PUBLICATIONS TO DATA ANALYTICS

ELSEVIER

About

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

NO LONGER «PUBLISHERS» EVEN ON THEIR HOMEPAGE

BIG PUBLISHERS ARE EVERYWHERE

2023

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

Surveillance Publishing

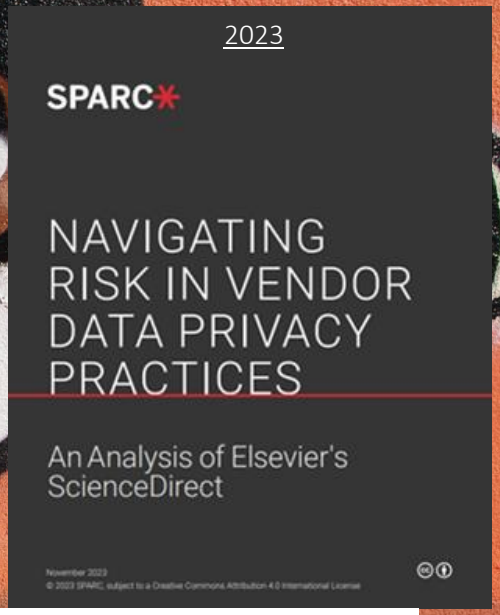
Nov. 2021

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

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



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 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 high-lighting 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…

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

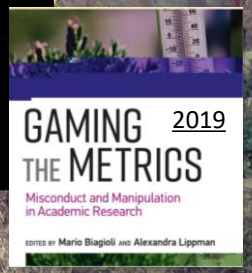
7 DEC 2021 · 8:00 AM · BY JOCELYN KAISER

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

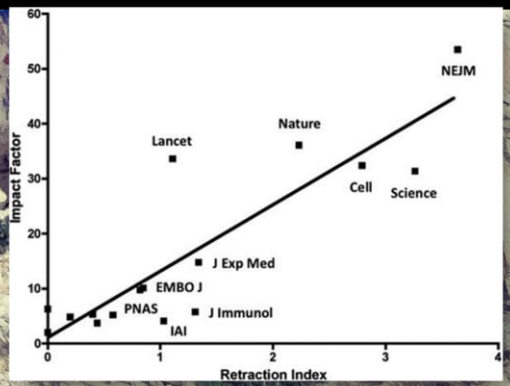
Retraction Watch

Tracking retractions as a window into the scientific process

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



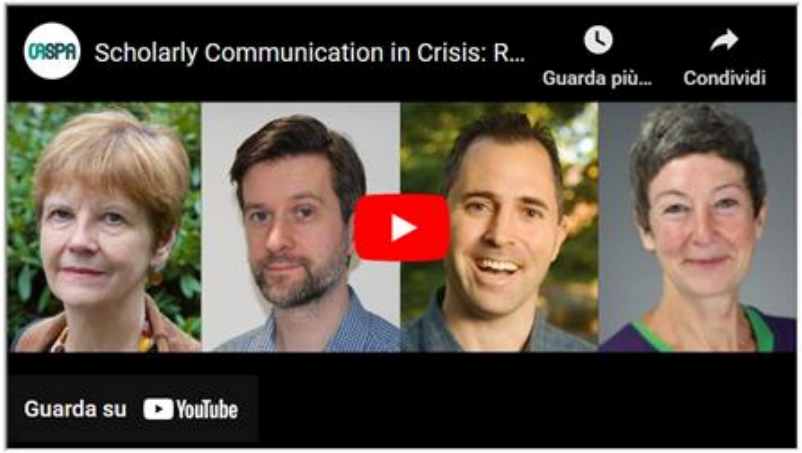
2019



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/

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

Philip Stark

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 *Nati* analysis examines the 'paper mill' problem – and how editors are tryi to cope.

Holly Else & 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.

WILEY Hindawi

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/

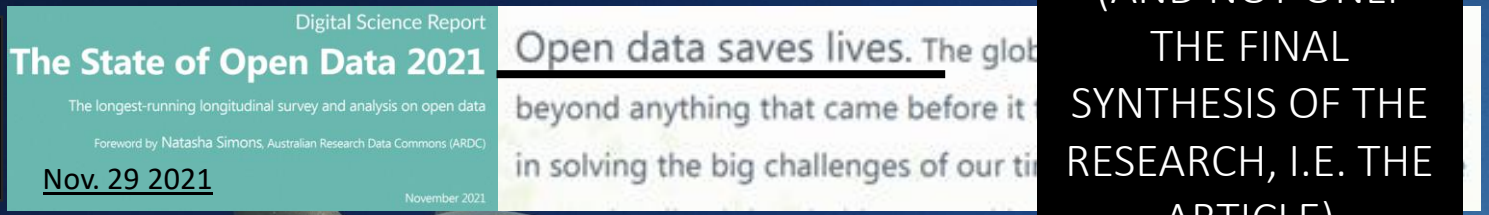
SELLING AUTHORSHIP? HERE IS WHERE THE CURRENT ASSESSMENT CRITERIA BROUGHT US + SCIENCE SHOULD BE «SHOW ME»: OPEN UP THE PROCESS!

It does not work, the way it is

Open Science might help?

Lessons learned from COVID

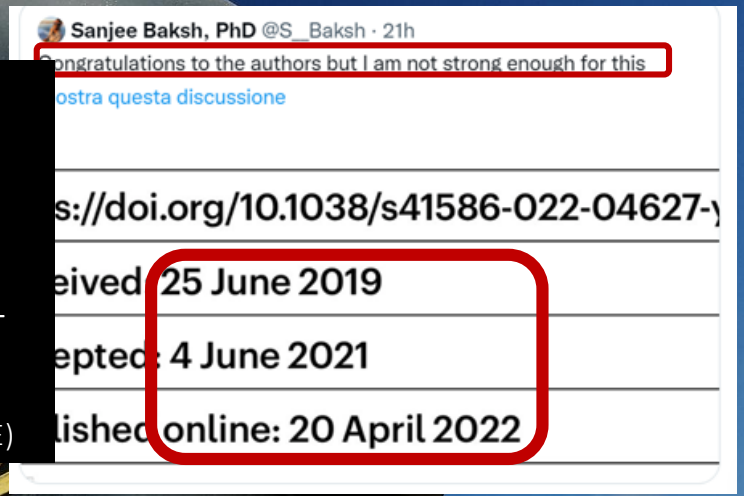
OPEN DATA SAVE LIVES

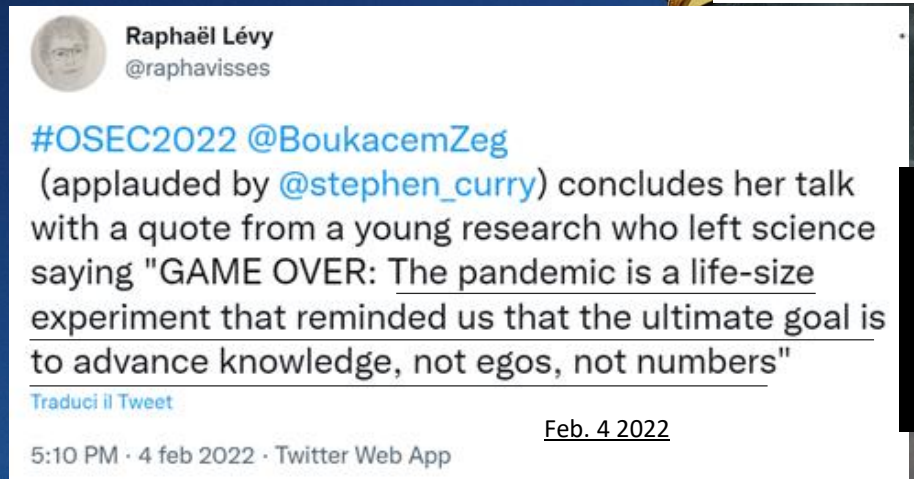


Nov. 29 2021

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



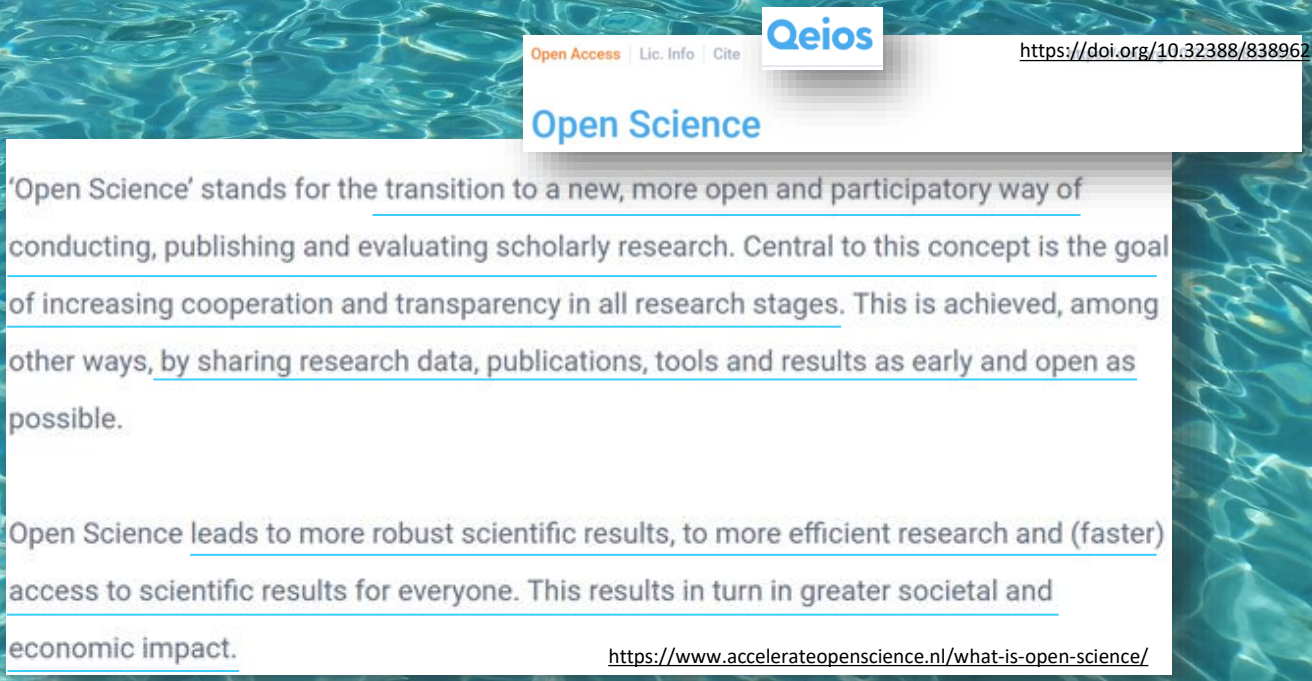


Feb. 4 2022

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

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

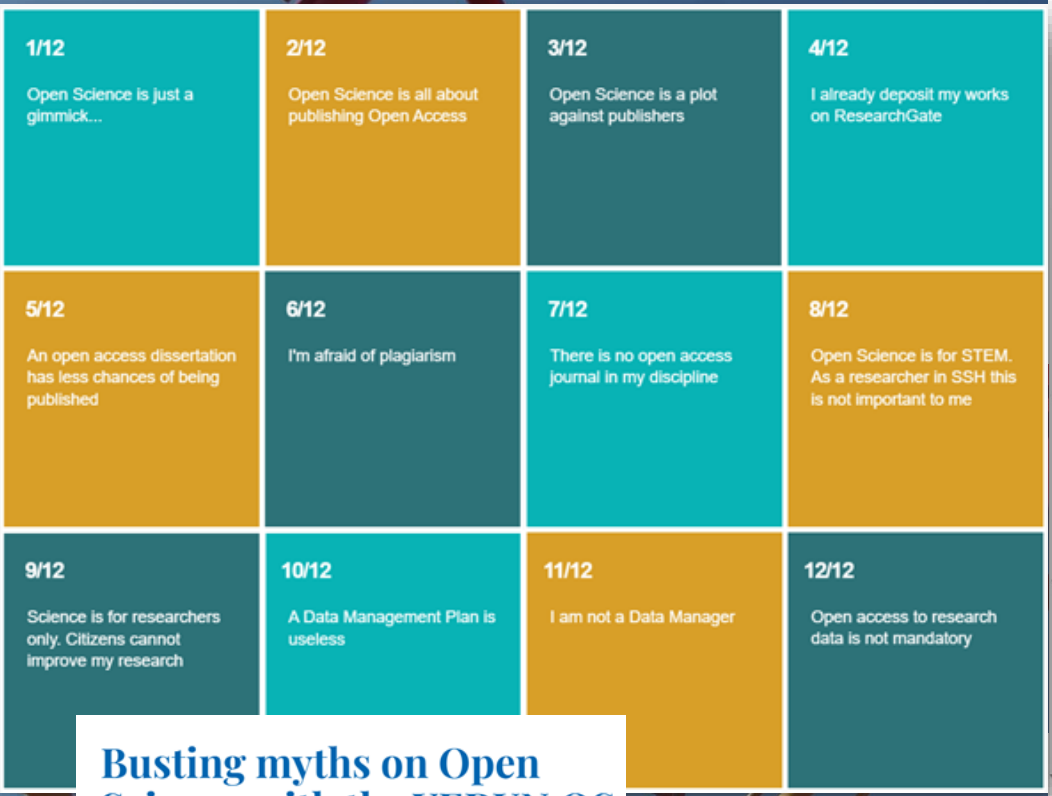


NEW WAY OF
- CONDUCTING
- PUBLISHING
- EVALUATING
RESEARCH

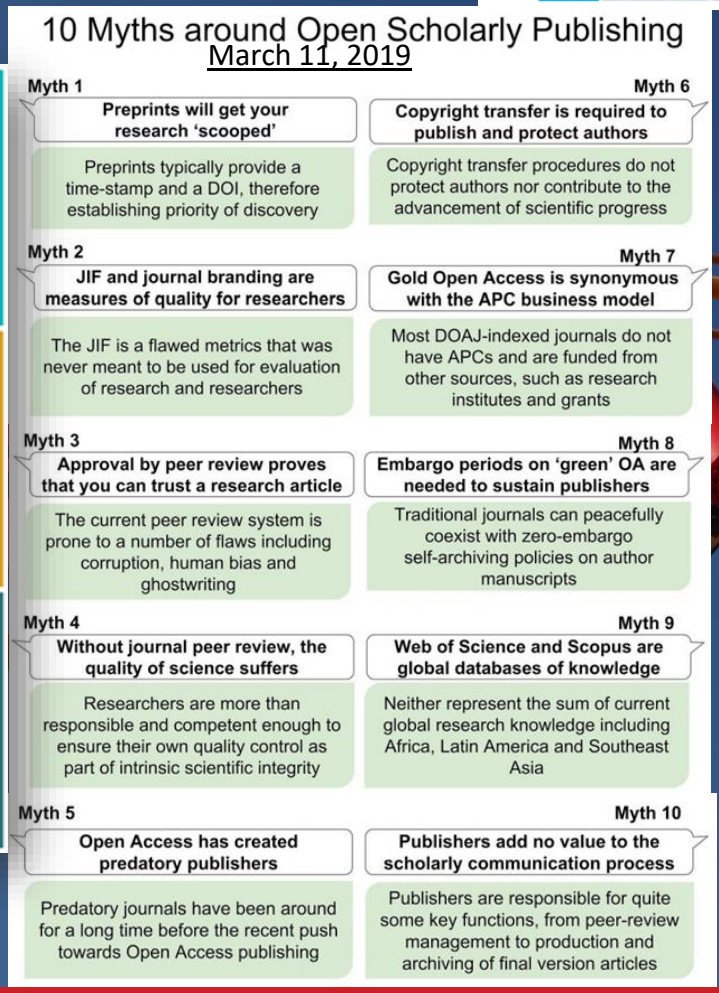
SHARING
- DATA/TEXTS
- TOOLS
- RESULTS…
AS EARLY AND OPEN AS POSSIBLE

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

[Houston, we have a probl



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



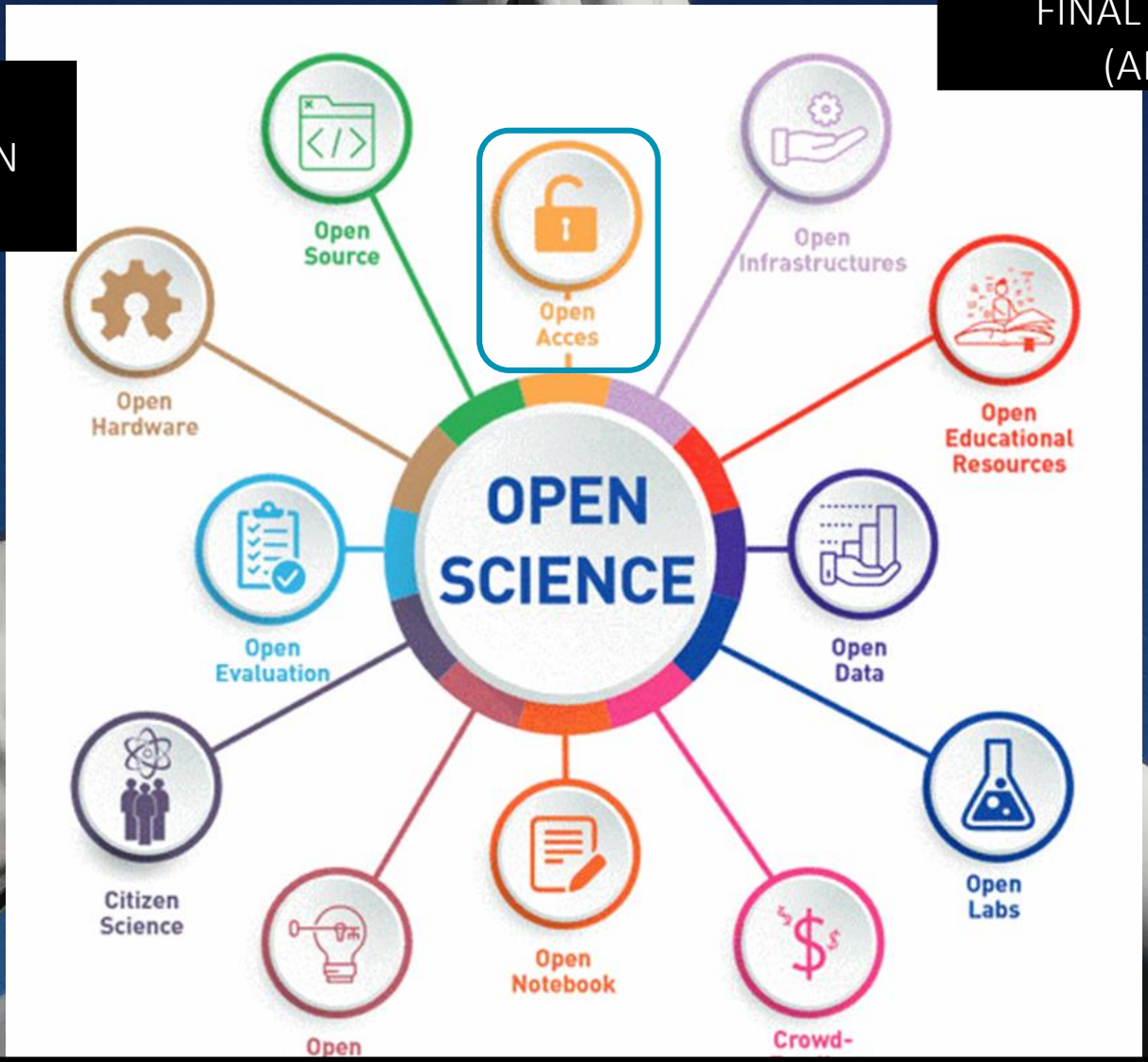
DIFFUSED MISCONCEPTIONS:

OPEN SCIENCE=OPEN ACCESS, YOU ALWAYS PAY TO PUBLISH, OA= PREDATORY, I CAN'T OPEN MY DATA……

Open Science

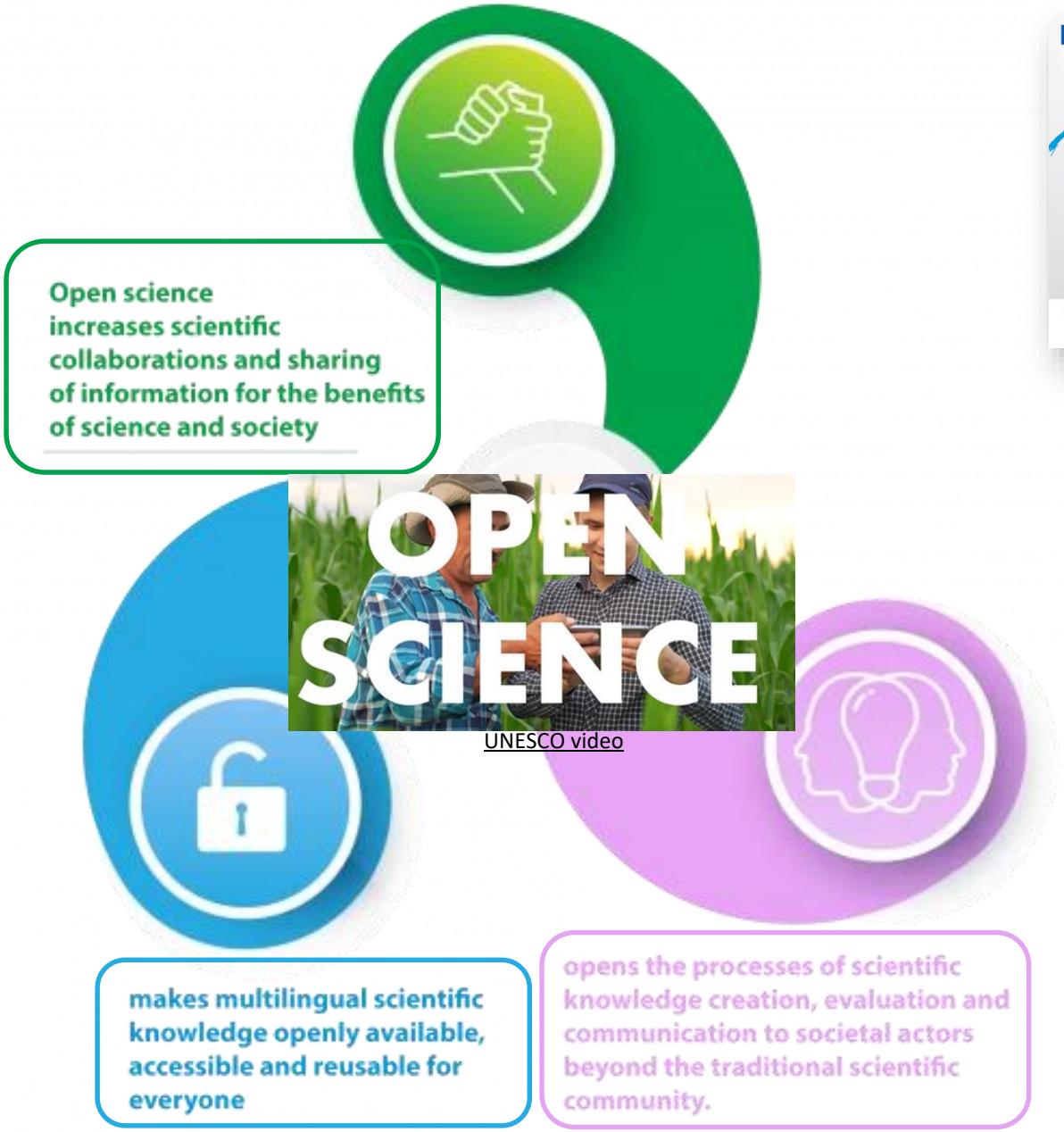
OPEN SCIENCE≠OPEN ACCESS

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



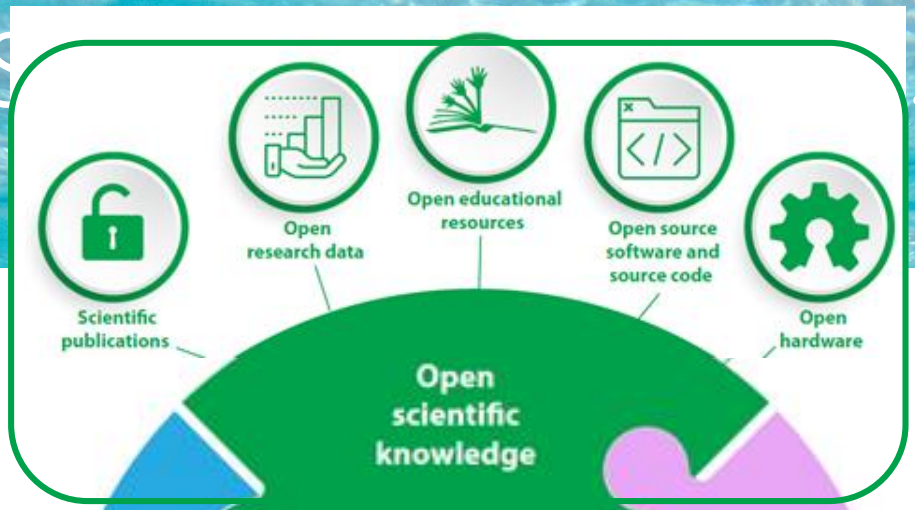
ALL THESE COMPONENTS TO BE EMBEDDED IN THE PROPOSAL TEMPLATE, 1.2 EXCELLENCE-METHODOLOGY AND TO BE EVALUATED UNDER «SCIENTIFIC EXCELLENCE»

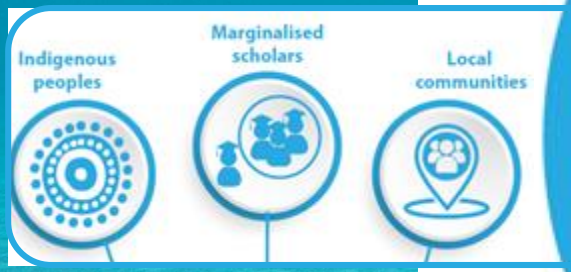
Open Science – definition

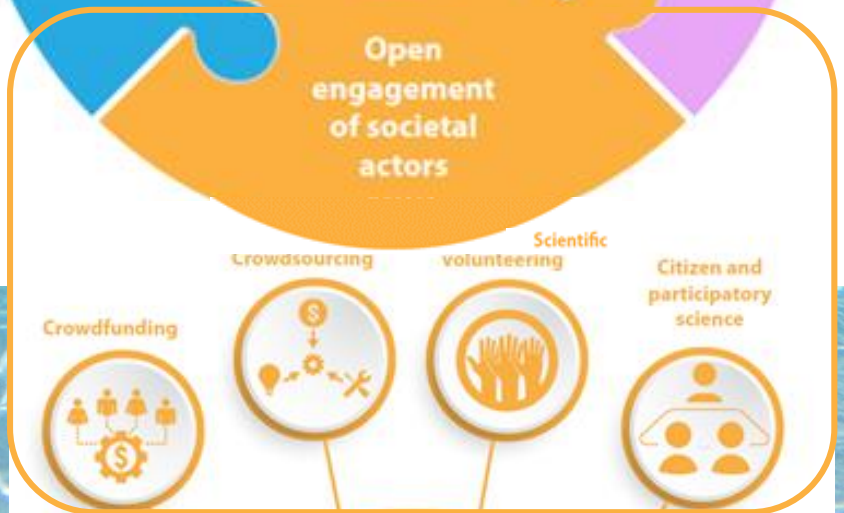


UNESCO video

…Open S…s







Nov. 23, 2021

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

Open Science

Video

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.

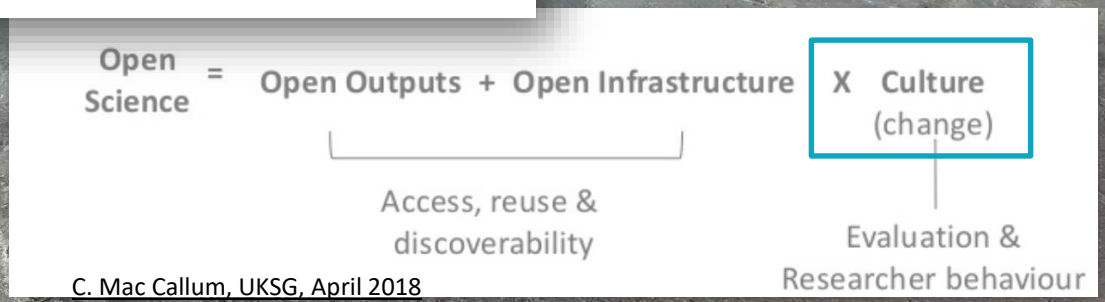
Traduci il Tweet

21:47 -

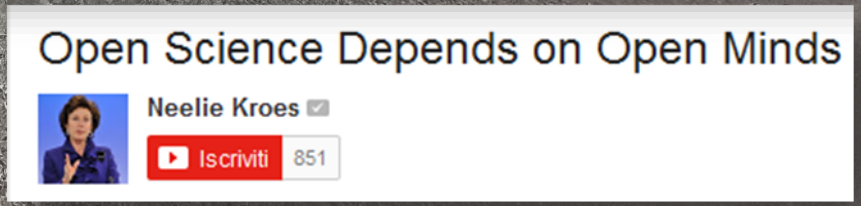
Open Science @openscience · 5 h

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

13 8



C. Mac Callum, UKSG, April 2018



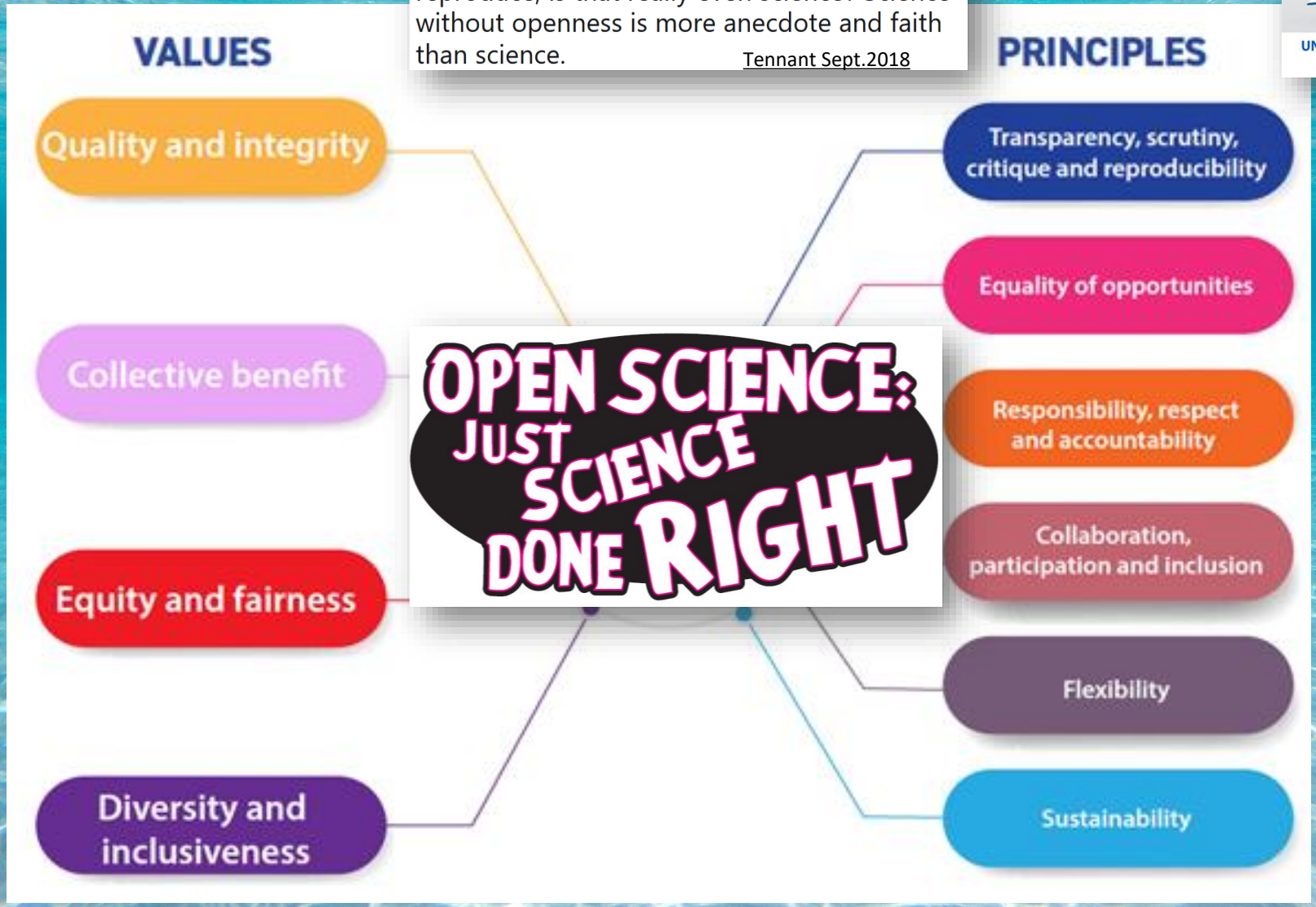
…Open Sc…es

Jon Tennant
@Protohedgehog
Following

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

Tennant Sept.2018

Nov. 23, 2021



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

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.**

BMC Research Notes 2022

Home About Articles Submission Guidelines Collections Submit manuscript

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 Tijdink, Dorien van der Schot & Lex Bouter

Library Element Report

SWG OSI Guideline Report on Research Integrity and Ope Science

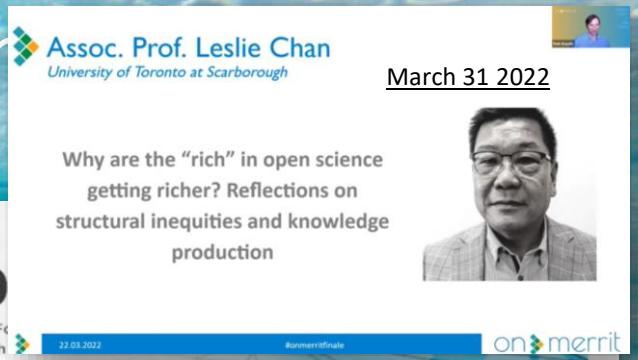
Uploaded by RRI Tools on January 26, 2022

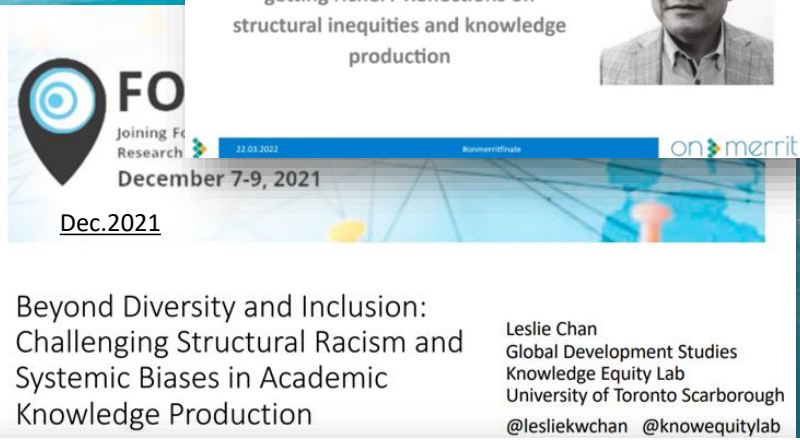
2021

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] Scien

INCLUSION ALSO MEANS MULTILINGUALISM

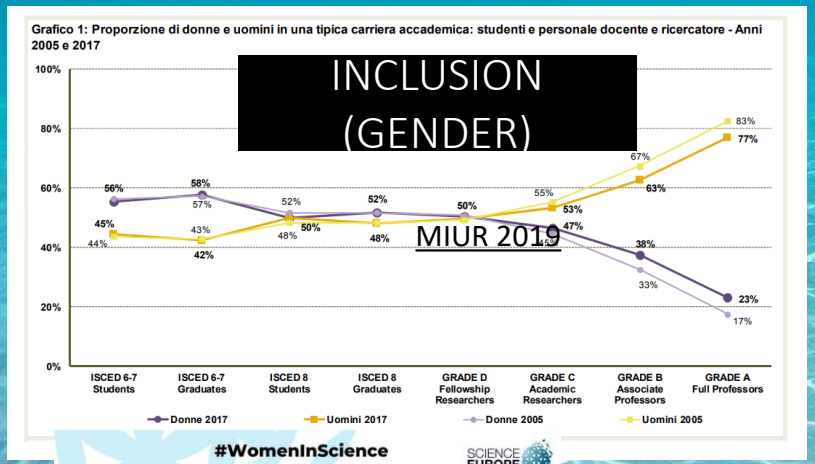




Dec.2021

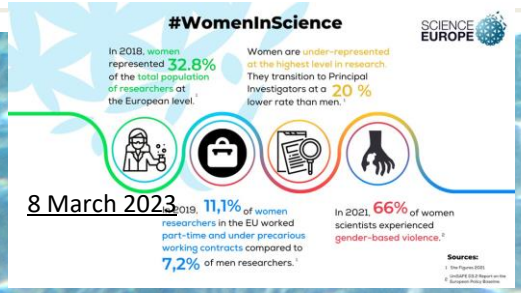
Beyond Diversity and Inclusion: Challenging Structural Racism and Systemic Biases in Academic Knowledge Production

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



INCLUSION (GENDER)

MIUR 2019



8 March 2023

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…

REDEFINE «EXCELLENCE»…

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

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

@pcmasuzzo
Oct.5, 2020

TAKE BACK CONTROL, ENGAGE PEOPLE…

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**

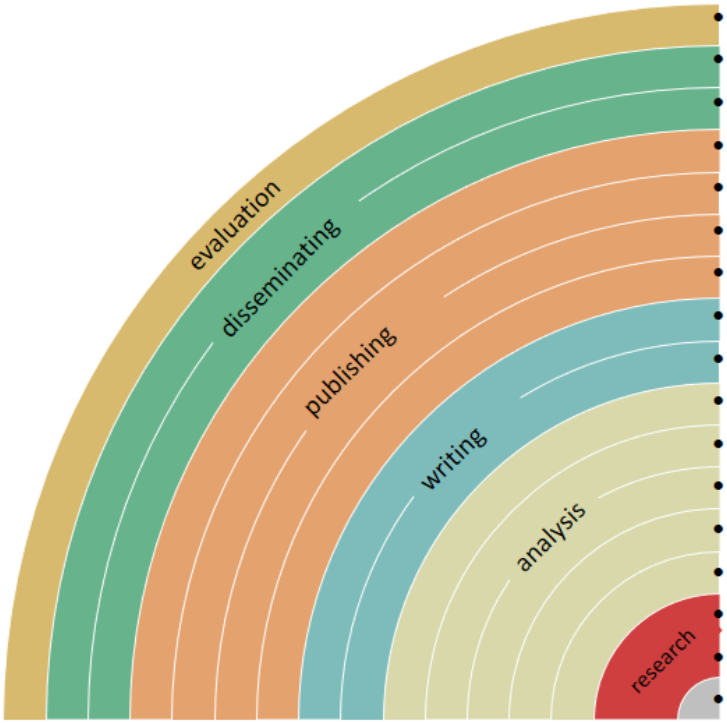
[Petra, PhD, May 2020]

Going Open

Oper

ANY COMPONENT OF THIS RAINBOW SHOULD COUNT AS «RESEARCH OUTPUT»

YOU CAN MAKE YOUR WORKFLOW MORE OPEN BY…



- adding alternative evaluation, e.g. with. altmetrics
- communicating through social media, e.g Twitter
- sharing posters & presentations, e.g. at FigShare
- using open licenses, e.g. Creative Commons BY
- self archiving in archives or publishing on Open journals
- using open peer review, e.g. at PubPeer o F1000
- sharing preprints, e.g. at OSFpreprint, arXiv o biorXiv
- using actionable formats, e.g. with Jupyter o CoCalc
- open XML-drafting, e.g. at Overleaf o Authorea
- sharing protocols & workflows, e.g. at Protocols.io
- sharing notebooks, e.g. at OpenLabNotebook
- sharing code, e.g. at GitHub licensing GNU/MIT
- sharing data, e.g. at Dryad, Zenodo o Dataverse
- pre-registering, e.g. at OSFregistry o AsPredicted
- commenting openly, e.g. with Hypothes.is o Pund.it
- using shared reference libraries, e.g. with Zotero
- sharing (grant) proposals, e.g. with RIO Journal

Interactive rainbow 2021

TECHNICALLY, IT'S THERE.
WHAT IS STILL NEEDED IS THE CULTURAL SHIFT…
AND YOUR FIRST STEP!

TIME IS UP!!!

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

COARA

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.

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
open science

ORION INSPIRING STORIES

Ideas & examples

Co-creation menu

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 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 Areaknown as Open Science.

Rathenau Instituut 2022

Themes ▾ Dossiers ▾ Science in figures About us ▾ Contact ▾ NL \ EN

REPORT INCLUSIVE SCIENCE 23 FEBRUARY 2022

Moving forward together with open science

Towards meaningful public engagement with research

…and a bit of citizen science

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

2023

Citizen Science & Open Science Community of Practice

CITIZEN SCIENCE | GLOBAL PARTNERSHIP

"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**"

Citizens Science is about *process*

Multi-stakeholder & multi-dimensional

Source: Wehn (2022)

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

PARTHENOS HOME TRAINING MODULES FOR TRAINERS FOR LEARNER

CITIZEN SCIENCE IN THE (DIGITAL) ARTS AND HUMANITIES

Citizen science and the Humaniites

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.

https://eu-citizen.science/

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

eu-citizen.science

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

HELLO HOLA ПРИВЕТ ALOHA BUNA

Projects Resources Training Organisations Platforms Users Our Gold Star Selection

Search...

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?

It is a process based on collaboration that provides innovative solutions to a challenge, a problem or a need

Co-design or collaborative design, is a practice of creating or improving ideas, products, services, policies and other outputs with –not for– people.

Co-design is so versatile that it can be adapted to any context and field

From science to economy, politics, ecology, technology, citizen science, public participation and others.

It can involve a wide range of stakeholders' profiles

The key to success is to give voice to all the people that need to be in the room.

A SUCCESS CASE: COS4CLOUD

CHALLENGE

In citizen science we need more data, more open and accessible technologies. However, there is still a low interoperability, low levels of data validation and low technological capacity.

INNOVATIVE SOLUTION

To tackle this challenge Cos4Cloud has co-designed and developed 13 services for citizen observatories to increase the quantity and quality of citizen science data. These services are available at the EOSC*.

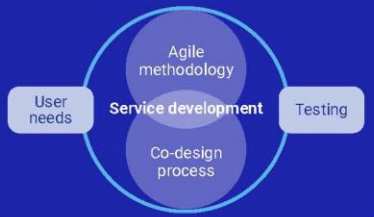
PROCESS TO ACHIEVE IT

Co-design

Cos4Cloud has organised several co-design activities to collect needs and expectations towards these new services directly from the services end-users, the citizen science community.

Agile methodology

Cos4Cloud is constantly reviewing and improving its services thanks to the collaborative relation with the services end-users.



OUTPUTS TO SHARE

An open guideline for implementing co-design in the development of citizen science technologies, based on the lessons learned by Cos4Cloud project.

*European Open Science Cloud

Cos4Cloud | This Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 863463.

Project coordinator: Institut de Ciències del Mar

Co-design activities coordinator: Science for Change

This project is part of: EUROPEAN OPEN SCIENCE CLOUD

CO- CREATION IN DIALOGUE WITH SOCIETY

OPERAS
open scholarly communication in the european research area for social sciences and humanities

COESO

coeso
connecting research and society

The COESO project (Collaborative Engagement on Societa
participatory research project, funded by the European C
and supported by the OPERAS research infrastructure. It
communities: the social sciences and humanities commu
scholarly communication community. It will thus contribu
development of citizen science in the social sciences and
research through a service-first approach.The project will

Research for

OPERAS
open scholarly communication in the european research area for social sciences and humanities

Vera

OPERAS Vera

vera
activating research

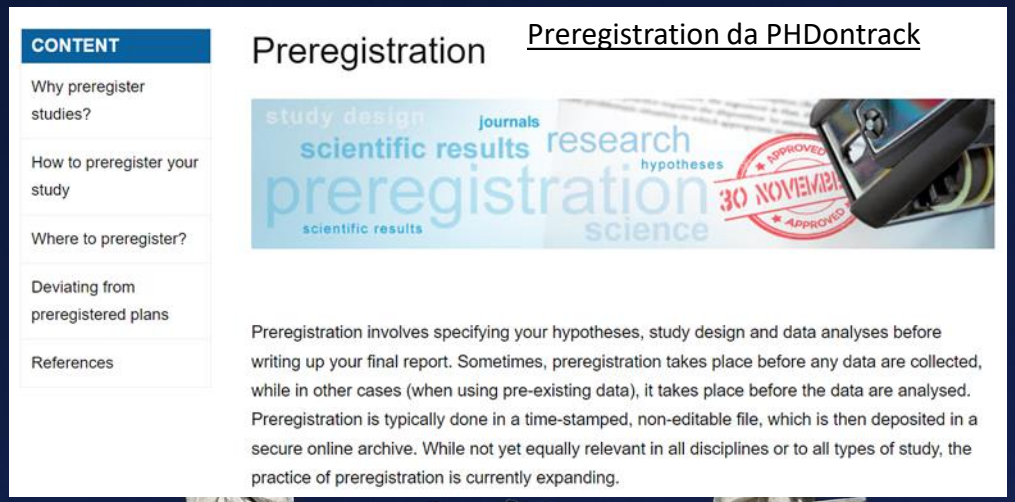
VERA

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.

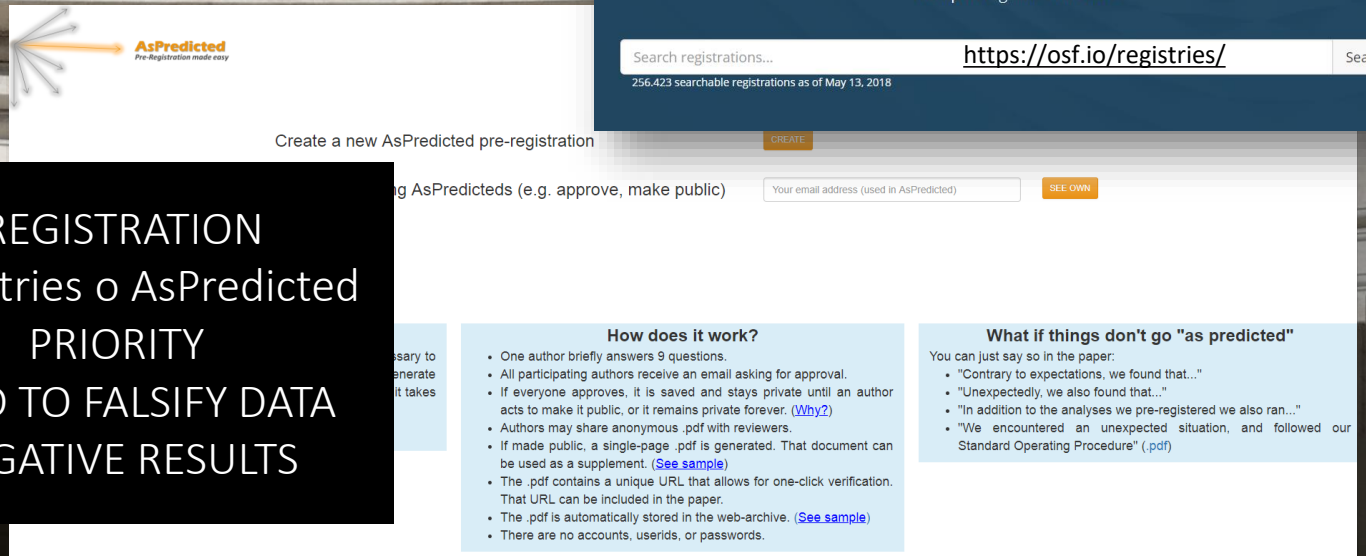
…opening up the entire cycle

Dec. 14 2021



Preregistration da PHDontrack

https://osf.io/registries/



PREREGISTRATION
OSF Registries o AsPredicted
- PRIORITY
- HARD TO FALSIFY DATA
- NEGATIVE RESULTS

...being reproducible

2017

Open Access | Published: 10 January 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

FORRT | ABOUT FORRT | EDUCATIONAL NEXUS | PEDAGOGIES | PUBLICATIONS | GET INVOLVED!

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 Markowetz

Genome Biology **16**, Article number: 274 (2015) | Cite this article

18k Accesses | 38 Citations | 456 Altmetric | Metrics

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

Welcome

Guide for R

- Overview
- 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 Compen
- Risk Assessment
- Case Studies

The Turing Way started by defining reproducibility in the context of this handbook, laying out its

import ots, tools and

resour putational

environ

review n written, edited,

We wel ts in

t our contributing

The Turing Way

Search this book...

ITALIAN REPRODUCIBILITY NETWORK

SEMINARS ON OPEN SCIENCE

remote educational course open to everyone, focused on Master nd 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.

RN IT Italian Reproducibility Network

https://www.itrn.org/

ITRN OPEN RESEARCH SURVEY

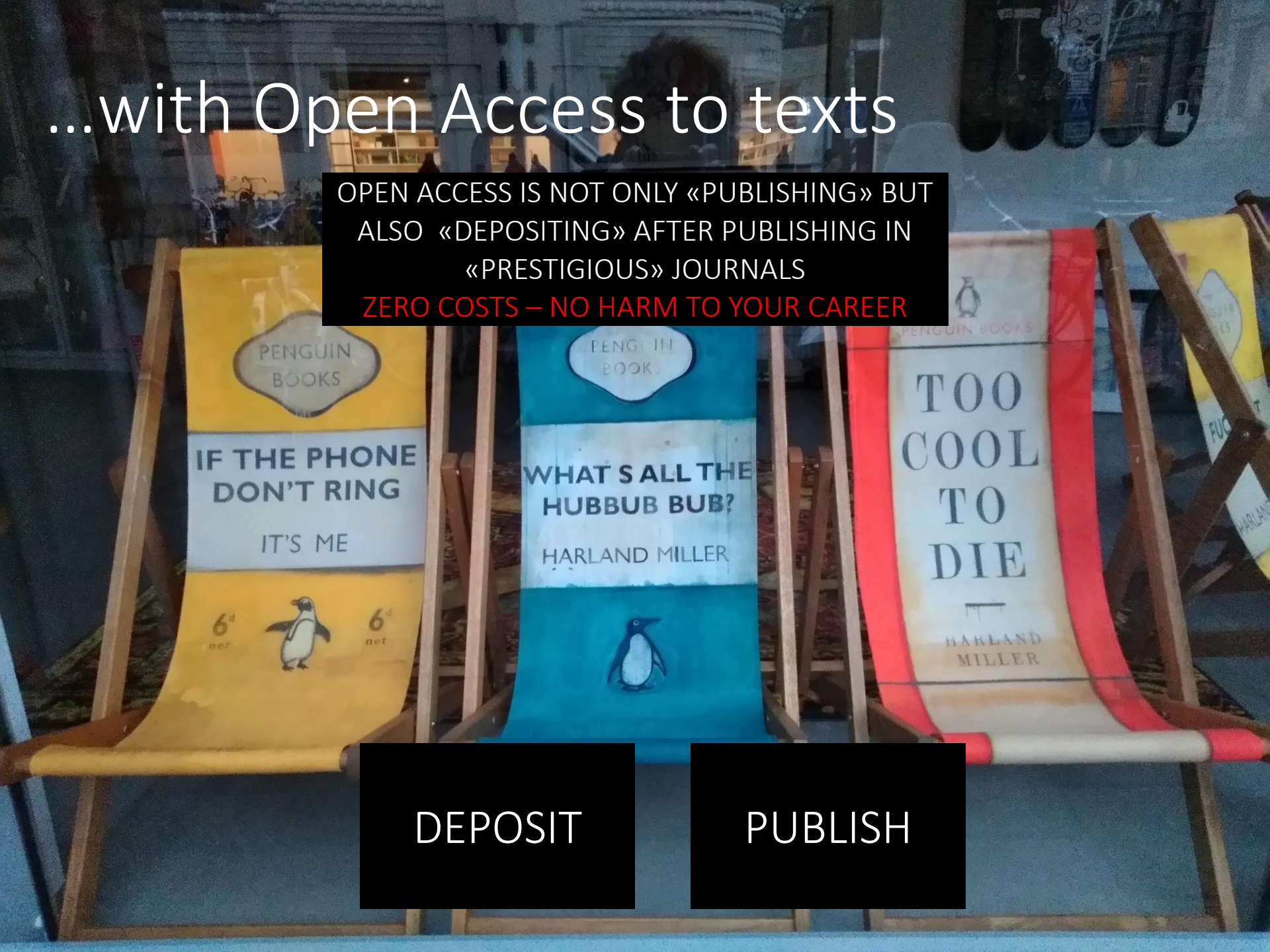
We ask you for a few minutes of your time to answer some questions about the use of Open Research practices in your research. This is the link to participate: ***RN survey***

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

Next

ducible Research

…with Open Access to texts



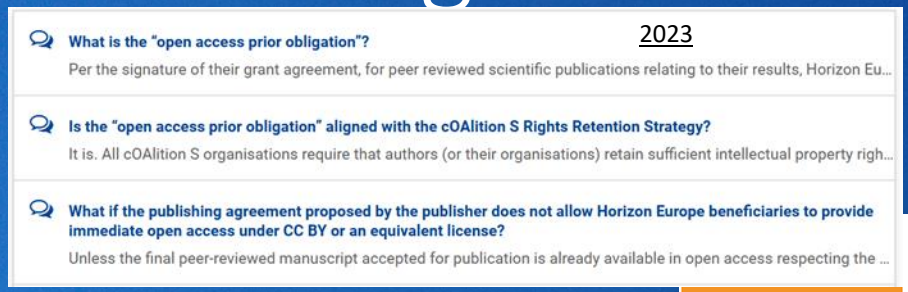
OPEN ACCESS IS NOT ONLY «PUBLISHING» BUT ALSO «DEPOSITING» AFTER PUBLISHING IN «PRESTIGIOUS» JOURNALS

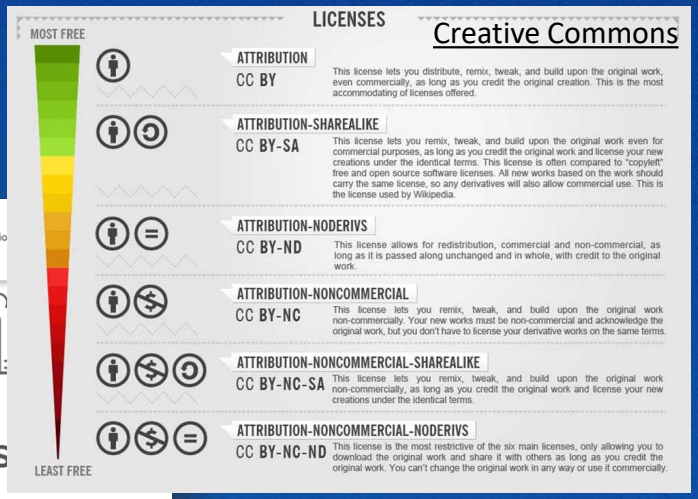
ZERO COSTS – NO HARM TO YOUR CAREER

DEPOSIT

PUBLISH

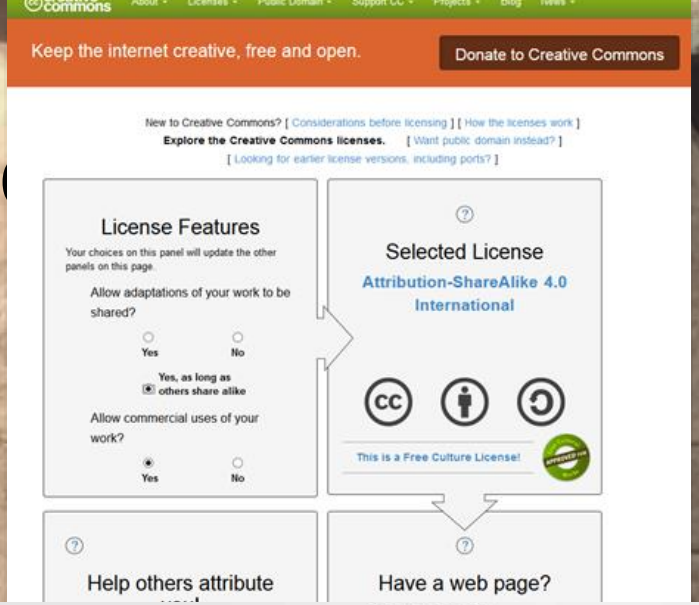
… being aware of your rights





YOUR INTELLECTUAL PRODUCTION IS YOURS. DON'T GIVE IT AWAY!!!

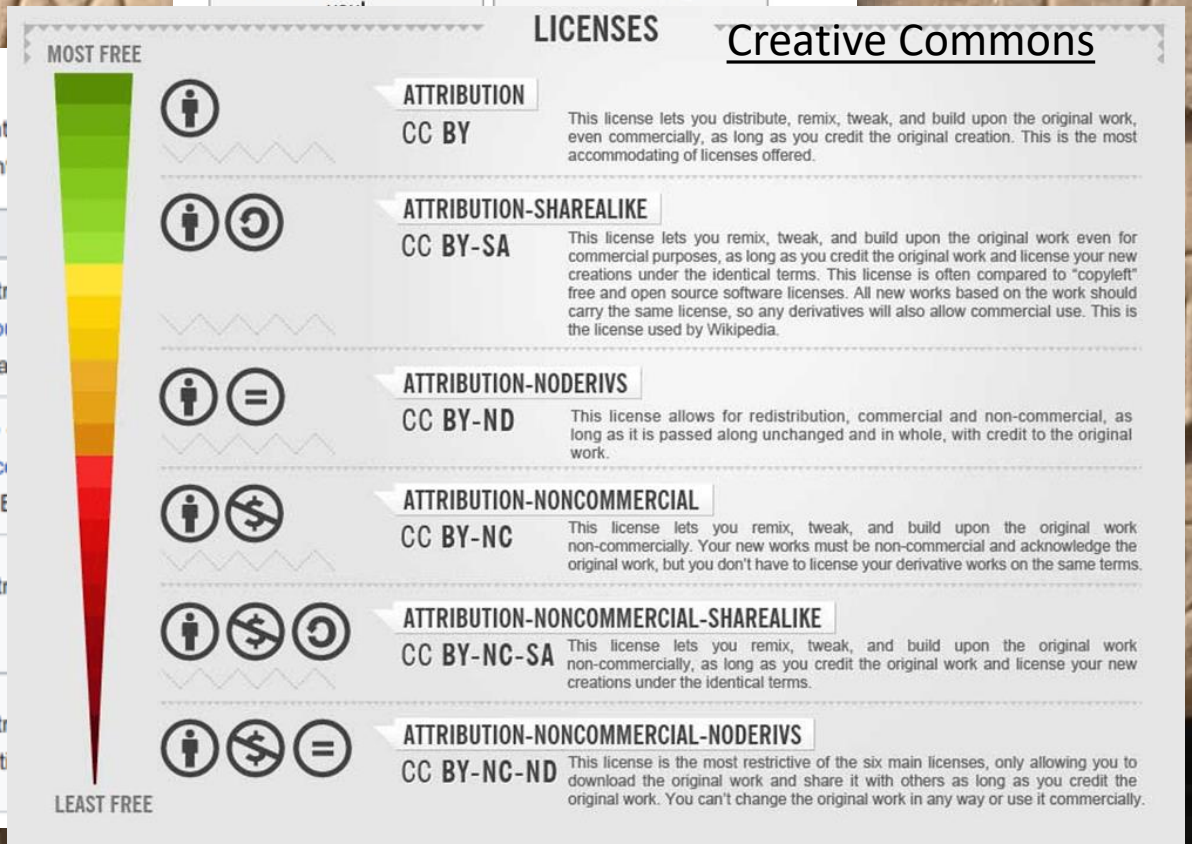
Creative Comm



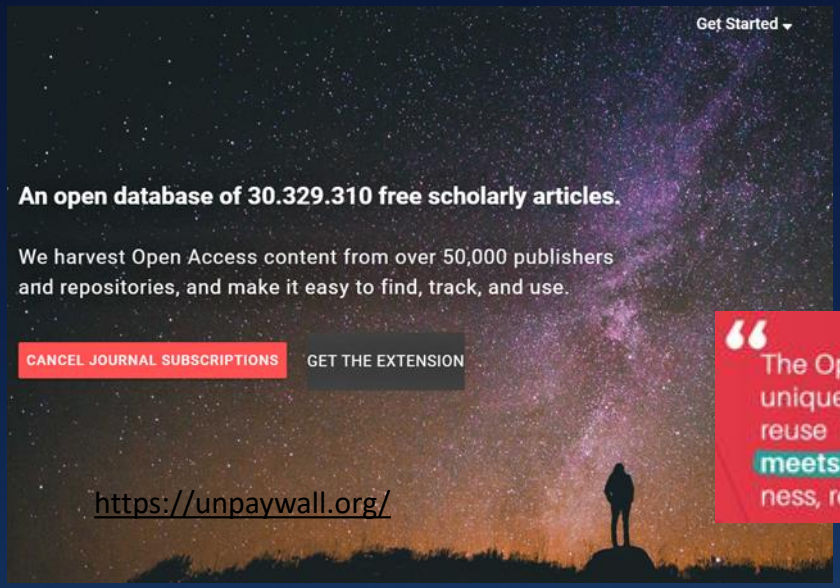
Four rights [edit]

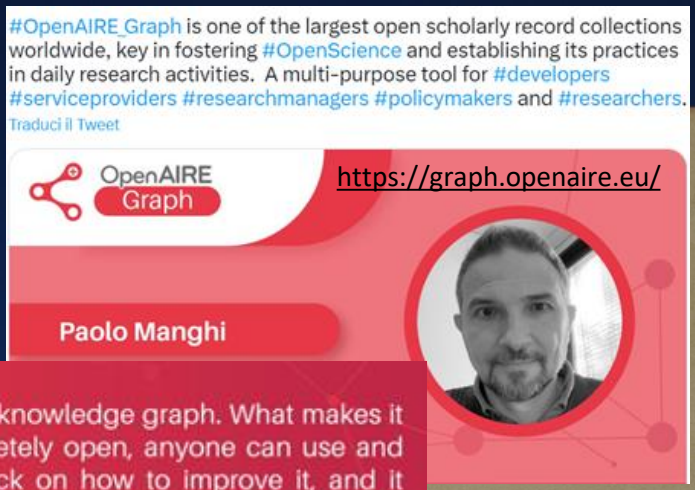
The CC licenses all grant "baseline rights", such as the right
addition, different versions of license prescribe different righ

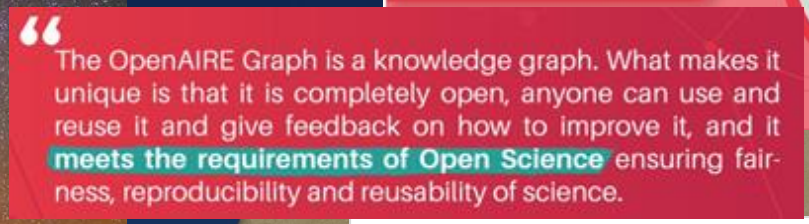
Icon	Right	
	Attribution (BY)	Licensees may copy, distr licensor the credits (attrib attribution to the creator a
	Share-alike (SA)	Licensees may distribute original work. (See also c license clauses, e.g. CC B
	Non-commercial (NC)	Licensees may copy, distr commercial purposes.
	No derivative works (ND)	Licensees may copy, distr Since version 4.0, derivat



…tearing down walls/enabling services

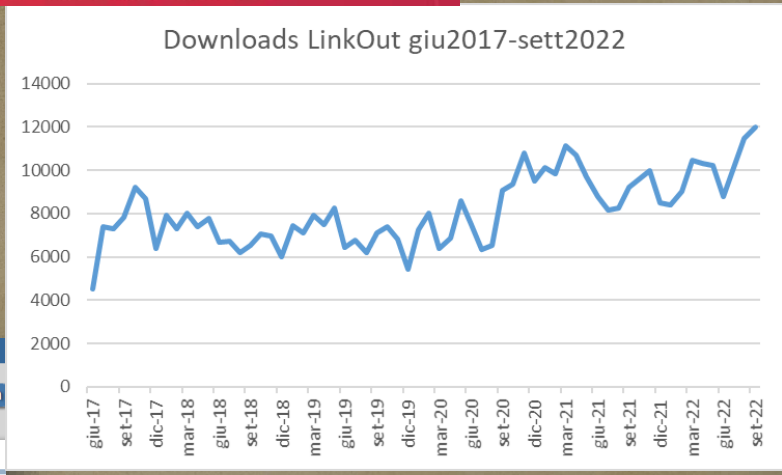






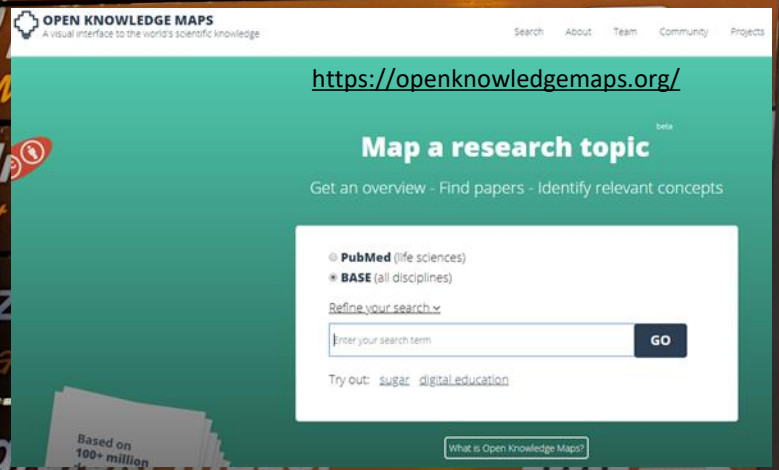
POSSIBLE ONLY IF AUTHORS SELF-ARCHIVE TEXTS AND DATA

PUBMED LINKOUT



521.585 downloads from June 2017 [8.150/month]

…going for a new discoverability



https://openknowledgemaps.org/

https://www.gotriple.eu/

…linking research and industry…

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

...publishing

JOTE

Journal Website Submit

Journal of Trial and Error The interactive repository.

HOME ISSUE 1 ARTICLES PEER REVIEWS SUBMIT WHY PUBPUB? FAQ

Journal of Trial and Error

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.

JOTE Search Dashboard

HOME ISSUE 1 ARTICLES PEER REVIEWS SUBMIT WHY PUBPUB? FAQ

Issue 1 Editorial **Published on** Dec 02, 2020

Science Fails. Let's Publish

by Sean Devine, Max Bautista Perpinya, Valentine Delrue, Stefan Gaillard, Thomas F. K. Jorna, Martijn van der Meer, Lottricia Millett, Chelsea Pozzebon, and Jobke Visser

…publishing not only

https://github.com/

https://workflowhub.eu/

https://zenodo.org/

https://www.protocols.io /

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

… not only articles

PREPRINTS

May 2017

PLOS COMPUTATIONAL BIOLOGY

Browse | Publish | About | Search

advanced searc

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

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

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

How Science Beat the Virus

And what it lost in the process

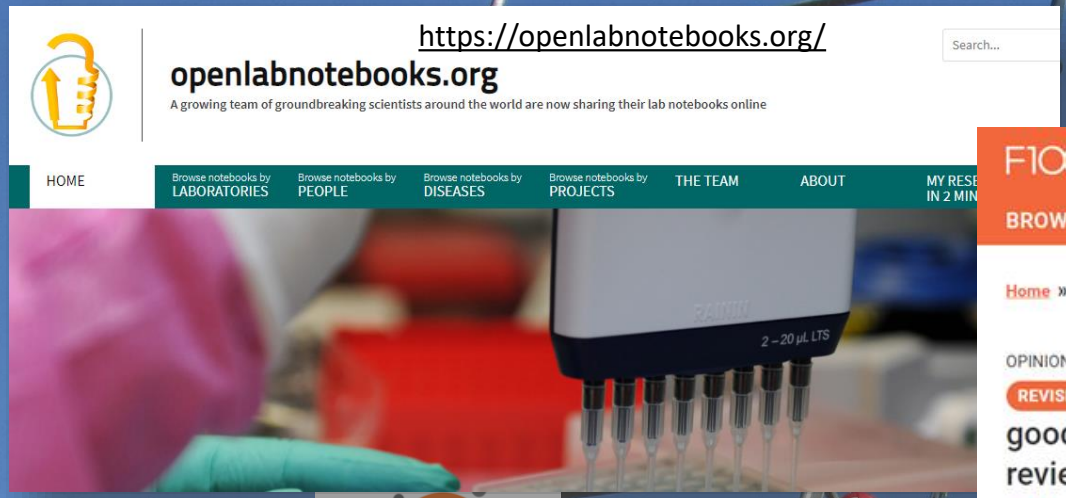
Story by Ed Yong

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

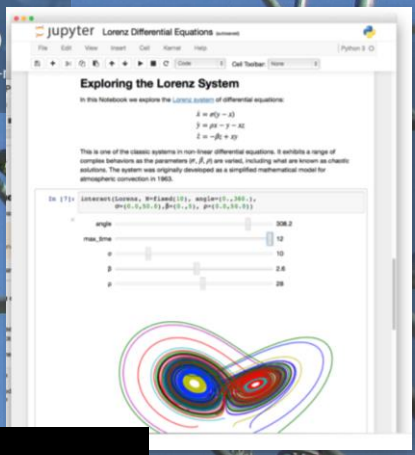
https://openlabnotebooks.org/



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.



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*.

JOURNALS ARE OLD AND FLAWED. LET'S USE OPEN NOTEBOOKS… LIVING DOCUMENTS INSTEAD OF FOSSILS

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…

F METADATA, PERSISTENT IDENTIFIERS…

A TRUSTED REPOSITORIES, FORMATS

I ONTOLOGIES, STANDARDS

R LICENSES AND DOCUMENTATION

TO KNOW MORE


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

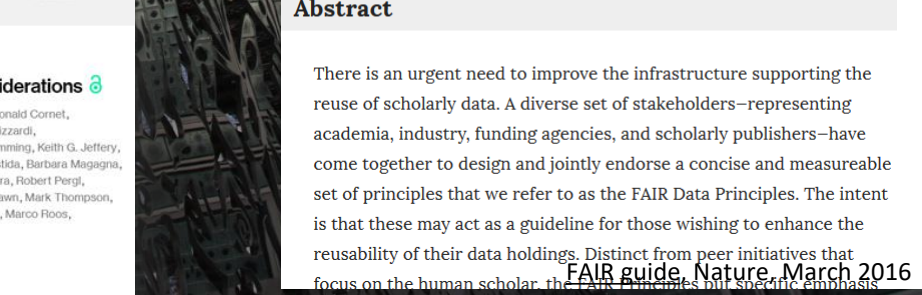
Annika Jacobsen, Ricardo de Miranda Azevedo, Nick Juty, Dominique Batista, Simon Coles, Ronald Cornet, Mélanie Courtot, Mercè Crosas, Michel Dumontier, Chris T. Evelo, Carole Goble, Giancarlo Guizzardi, Karsten Kryger Hansen, Ali Hasnain, Kristina Hettne, Jaap Heringa, Rob W.W. Hooft, Melanie Imming, Keith G. Jeffery, Rajaram Kaliyaperumal, Martijn G. Kersloot, Christine R. Kirkpatrick, Tobias Kuhn, Ignasi Labastida, Barbara Magagna, Peter McQuilton, Natalie Meyers, Annalisa Montesanti, Mirjam van Reisen, Philippe Rocca-Serra, Robert Pergl, Susanna-Assunta Sansone, Luiz Olavo Bonino 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, Erik Schultes

Author and Article Information

Data Intelligence (2020) 2 (1-2): 10–29.

Previous Article Next Article

Article Contents


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 measureable 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

FAIR guide, Nature, March 2016

Because we have

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

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…

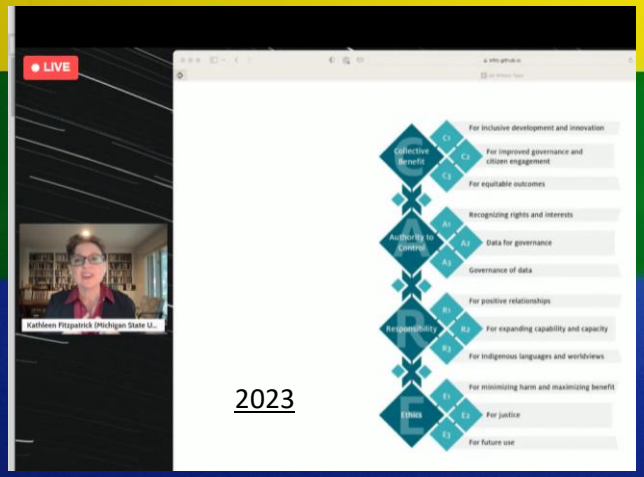
A SUPPORTING ENVIRONMENT FOR OPEN SCIENCE AND NOT AN «OPEN CLOUD» FOR SCIENCE

YOU DON'T «UPLOAD» YOUR DATA INTO EOSC

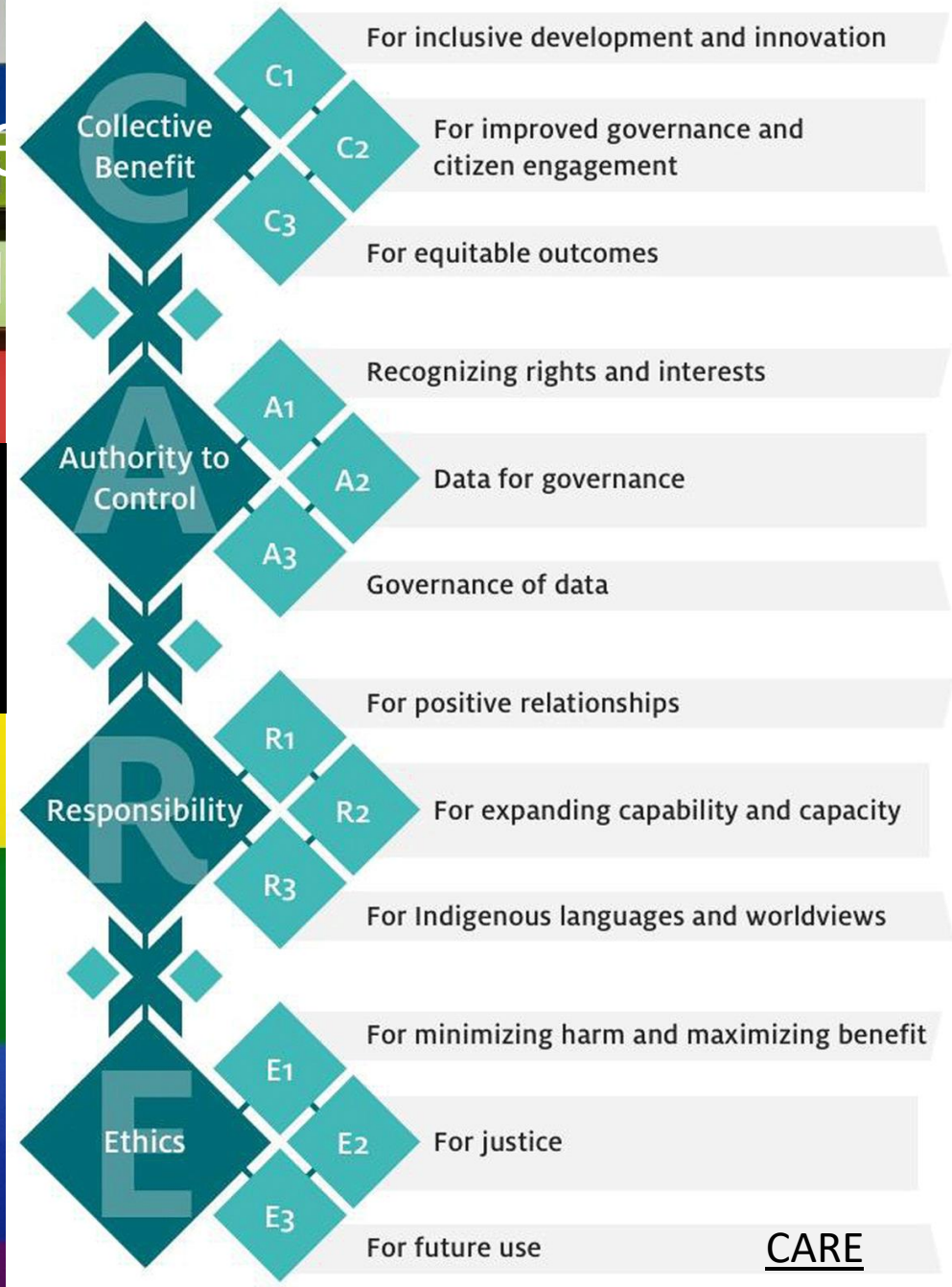
AND GIVE SEAMLESS ACCESS TO 20 M EU RESEARCHERS

…coupled with the CARE principle

- COLLECTIVE BENEFIT
- AUTHORITY TO CONTROL
- RESPONSIBILITY
- ETHICS



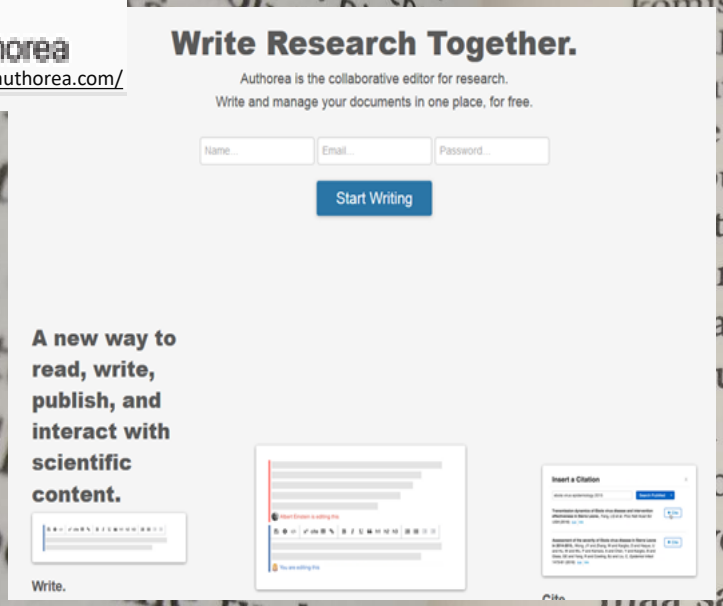
2023

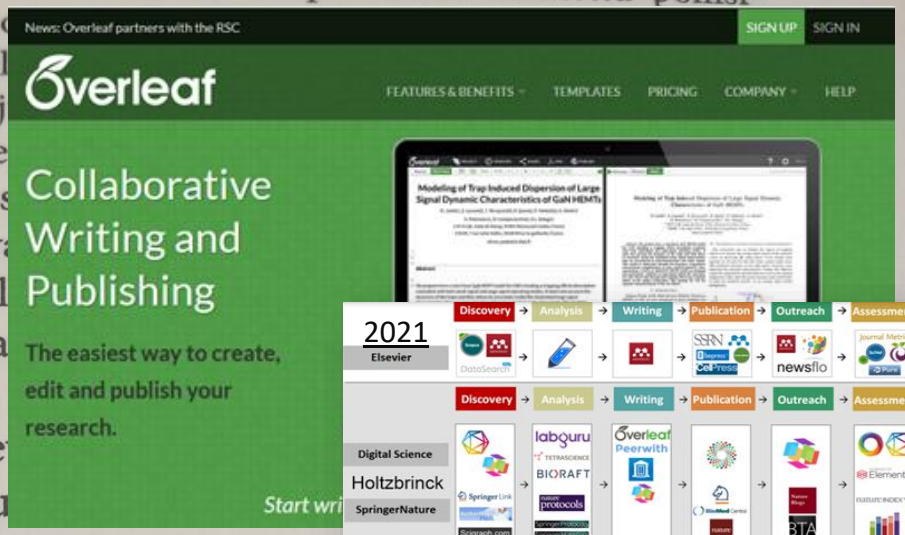


CARE

…writing differently and annotating

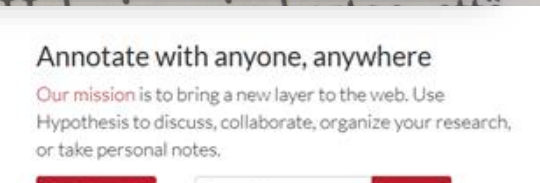
Authorea
https://www.authorea.com/





BEWARE: NO LONGER OPEN

PundIT video

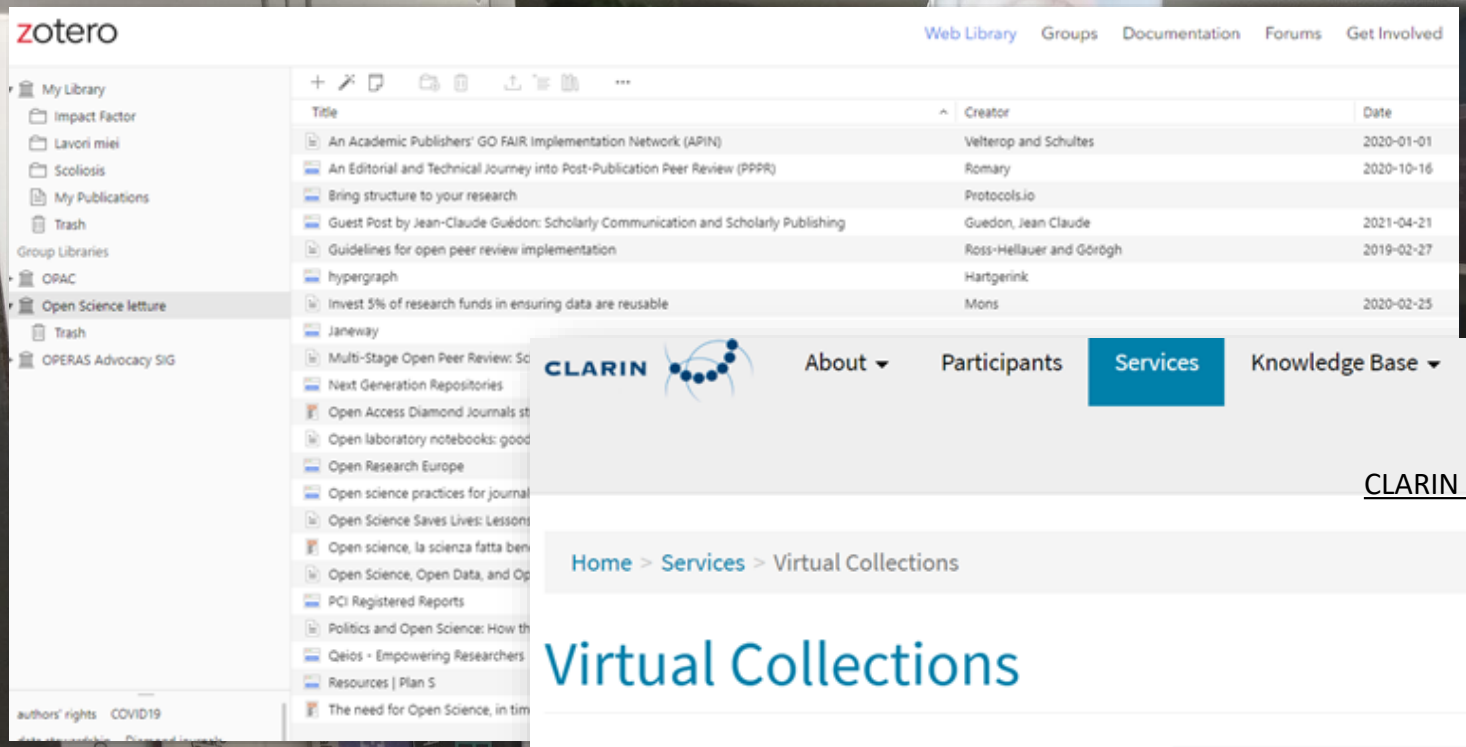


Hypothesis announces a coalition of over 40 scholarly organizations bringing annotation to all knowledge. Learn more

https://hypothes.is/

COLLABORATIVE WRITING / ANNOTATING

.....sharing bibliographies and



CLARIN virtual collections

FOCUS ON [FAIR] DATA MANAGMENT

IMAGE CREATED BY
Noa, Anna, Lilian e Charlotte

Data

ALLEA 2020

> *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.*

2022

PLOS ONE

Browse Topics

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

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

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]

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

DESCRIPTION FOR DISCOVERABILITY (metadata)

ORGANIZATION (file naming, folders, versioning…)

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.

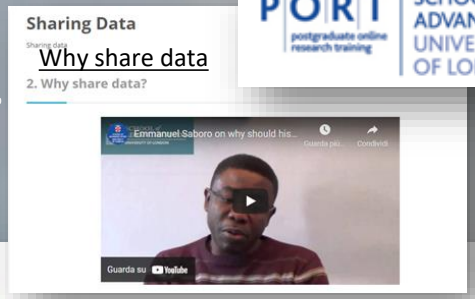
«ACCESIBLE»
DOES NOT MEAN «OPEN».
DATA CAN BE CLOSED, PROVIDED YOU – AND MACHINES - KNOW WHERE TO FIND THEM AND UNDER WHAT ACCESS CONDITIONS

3. [WHENEVER POSSIBL
Data should be Open

BECAUSE OPEN DATA SAVE LIVES.

Nov. 29, 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.



PORT postgraduate online research training | SCHOOL OF ADVANCED STUDY UNIVERSITY OF LONDON

Better research

- Demonstrates research integrity, as there is transparency and accountability in the production of the d
- Encourages research enquiry and debat
- Promotes innovation and potential new
- Encourages the improvement of researc
- Prevents research fraud

BETTER RESEARCH
- INTEGRITY
- DEBATE
- REUSE

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 da
- Can lead to new collaborations
- Produces a public record of the research

BETTER IMPACT
- VISIBILITY
- CREDIT
- COLLABORATIONS

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
- Maximises return on research investmen
- Preparing data for sharing also prepares

BETTER VALUE
- AVOID DUPLICATIONS
- MAX RETURN ON INVESTMENTS

FAIR/Open

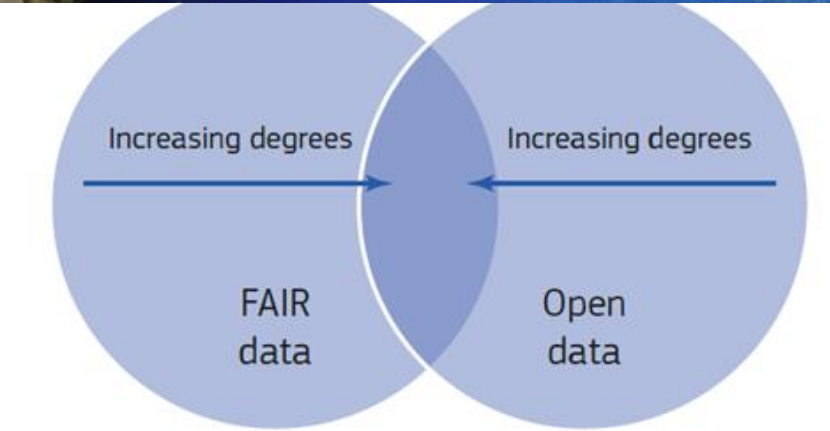


Figure 4. The relationship between FAIR and Open

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

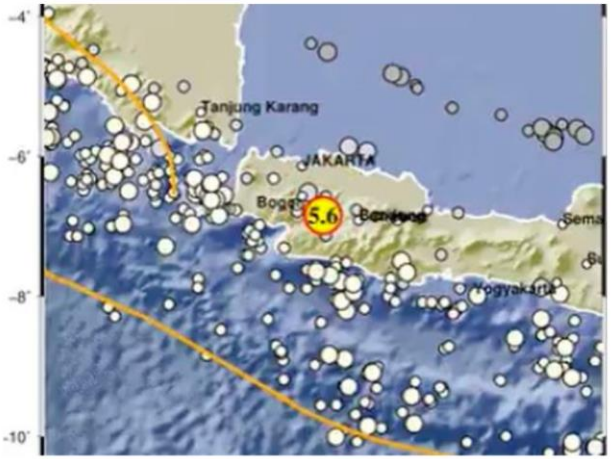
…a selfie…

How we can get those data

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

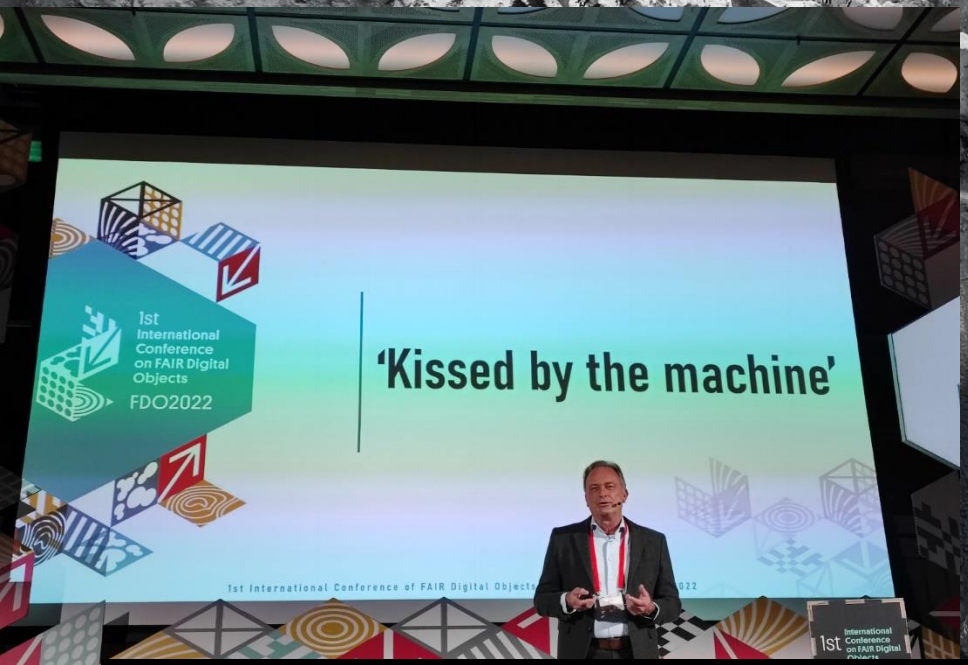
Those data points are not really data points. They're just a selfie of data points.

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

RDA

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

Connie Clare, PhD

RDA

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)

Clearbox AI

Clearbox

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

s flexible product / Rea

clearbox AI

Your

Synthetic Data

provider

RDA

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 ar whether datasets are fit for purpose.

ARTIFICIAL INTELLIGENCE

- WORKS IF DATA ARE GOOD
- THERE ARE ETHICAL ISSUES

FAIR in practice

FINDABLE

ACCESSIBLE
[≠OPEN]

INTEROPERABLE

REUSABLE

Metadata standards catalog

Metadata Standards Catalog

Search Sign in

tandards Catalog is a collaborative, open directory of metadata standards
:h data. It is offered to the international academic community to help address
nges.

DataCite
FIND, ACCESS, AND REUSE DATA

ORCID
Connecting Resea
and Researchers

ROR

https://www.re3data.org/

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

Data journals

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
t these exist, as this data would

DANS formats

If your data are stored in other formats than those mentioned below, please contact DANS.

Type	Preferred format(s)	Non-preferred format(s)
Text documents	• PDF/A (.pdf) • ODT (.odt)	• Microsoft Word (.doc) • Office Open X • Rich Text File (• PDF other tha

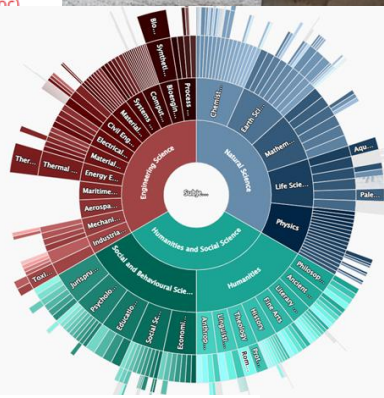
https://fairsharing.org/

FAIRsharing.org
standards, databases, policies

STANDARDS DATABASES POLICIES COLLECTIONS ADD CONTENT STATS

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

We guide consumers to discover, select and use these resources with confidence, and producers to make thei
resource mo



OpenAIRE

SERVICES SUPPO

Guides for Researchers

How do I know if my research data is protected?

Learn more a
intellectual pr

MIT Press Direct 2020

Data Intelligence

Volume 2, Issue 1-2
Winter-Spring 2020

January 01 2020

Licensing FAIR Data for Reuse

Ignasi Labastida, Thomas Margoni

CC Factsheet

creative commons

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 licences. 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 documentat
researcl
instrum
that you

Data-level documentation

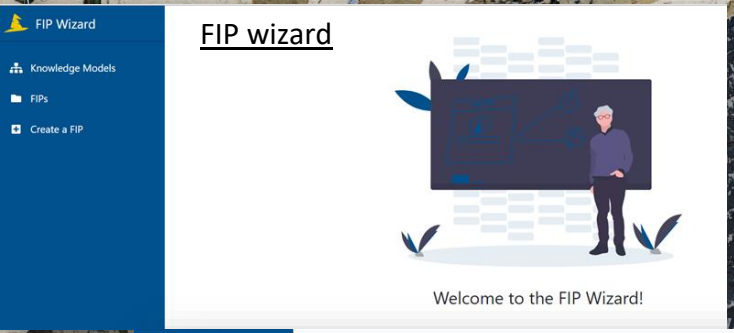
Data-level or object-level
umentation provides information
he level of individual objects such

cessda

Data Management Expert Guide

FAIR Implementation profiles

FIP wizard



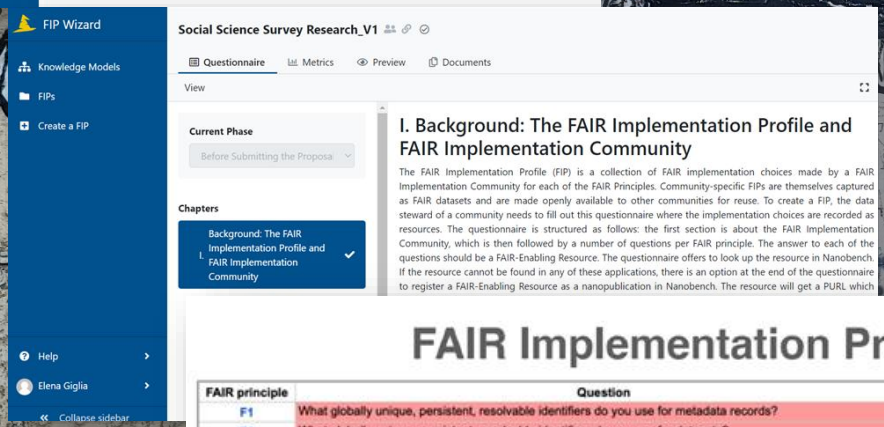
2020

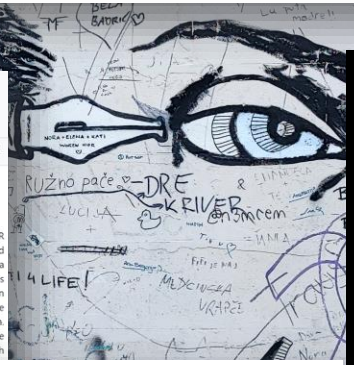
International Conference on Conceptual Modeling
ER 2020: Advances in Conceptual Modeling pp 138-147 | Cite as

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





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

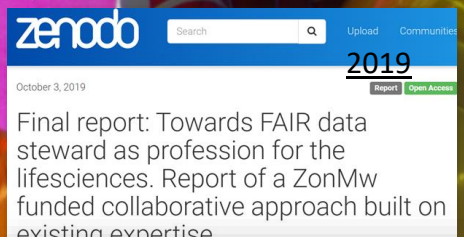
FAIR Implementation Profile

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

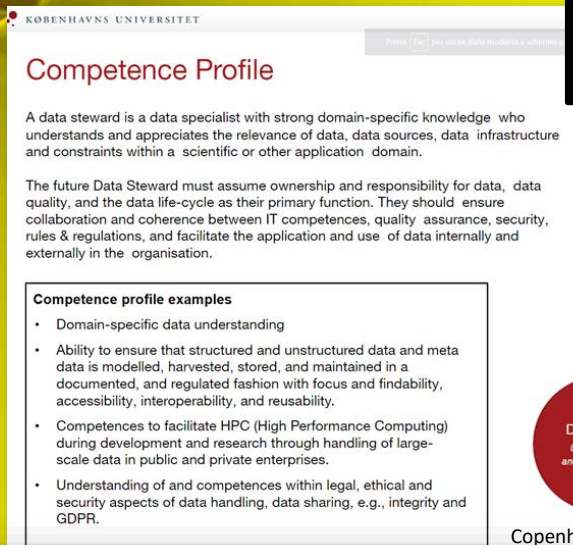
[we need data stewards]

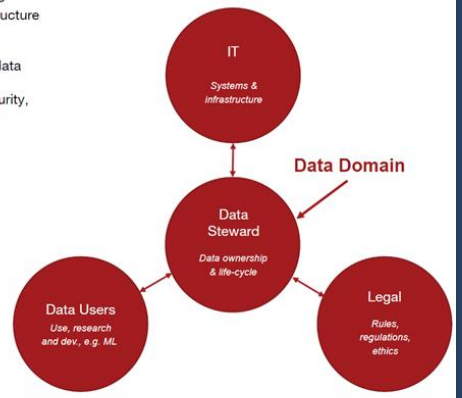
WE NEED 500.000 DATA STEWARDS

DATA DOMAIN EXPERTISE + TECH, LEGAL, SEMANTIC WEB SKILLS



2019



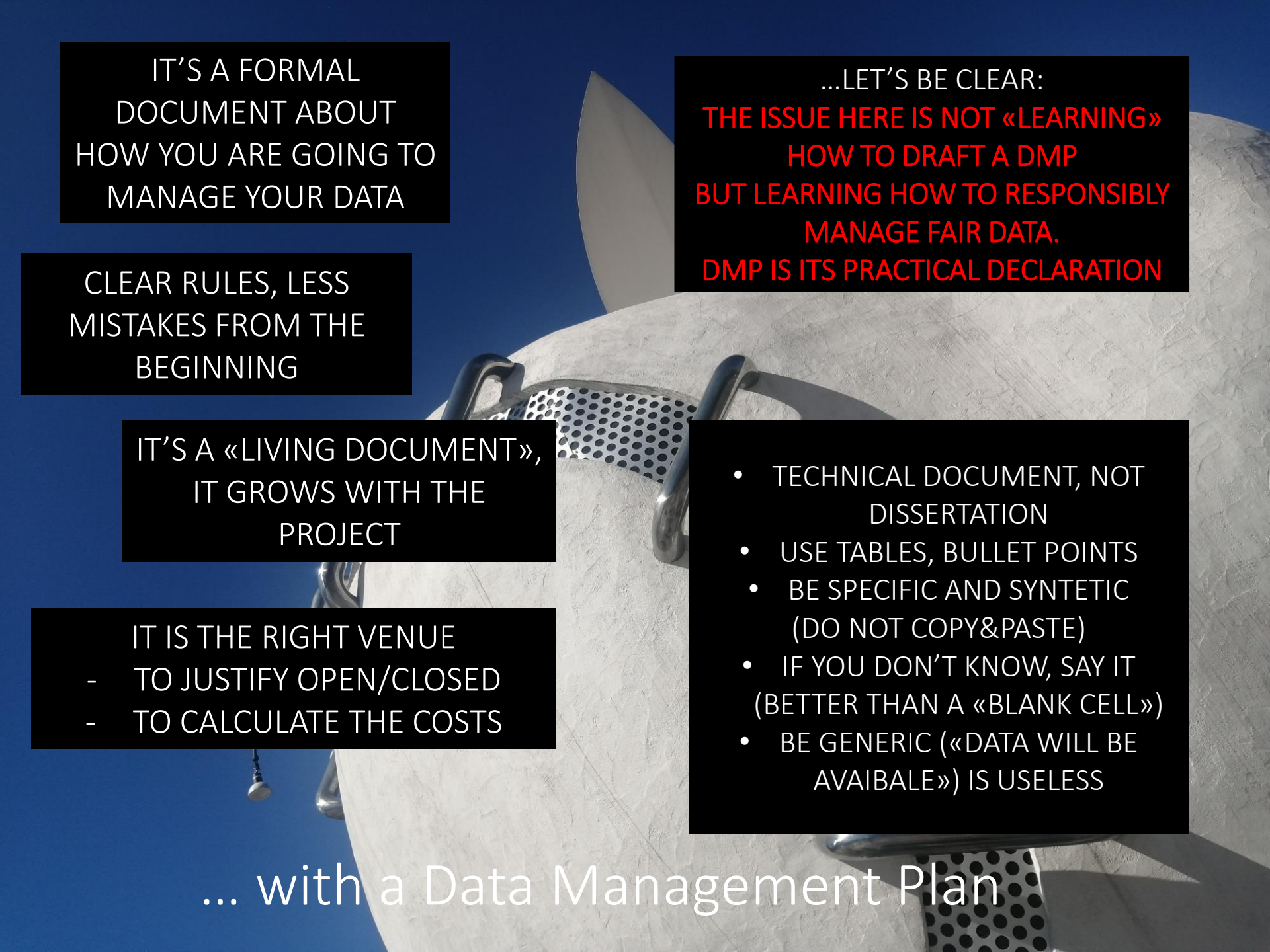


Copenhagen Univ. June 17 2020

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

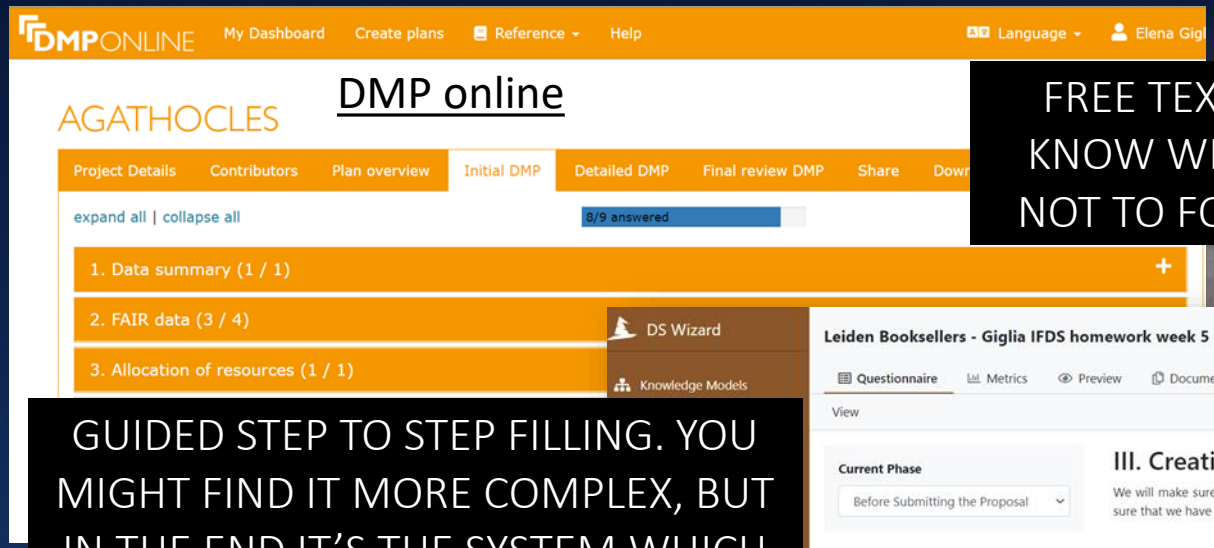
IT'S A «LIVING DOCUMENT», IT GROWS WITH THE PROJECT

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

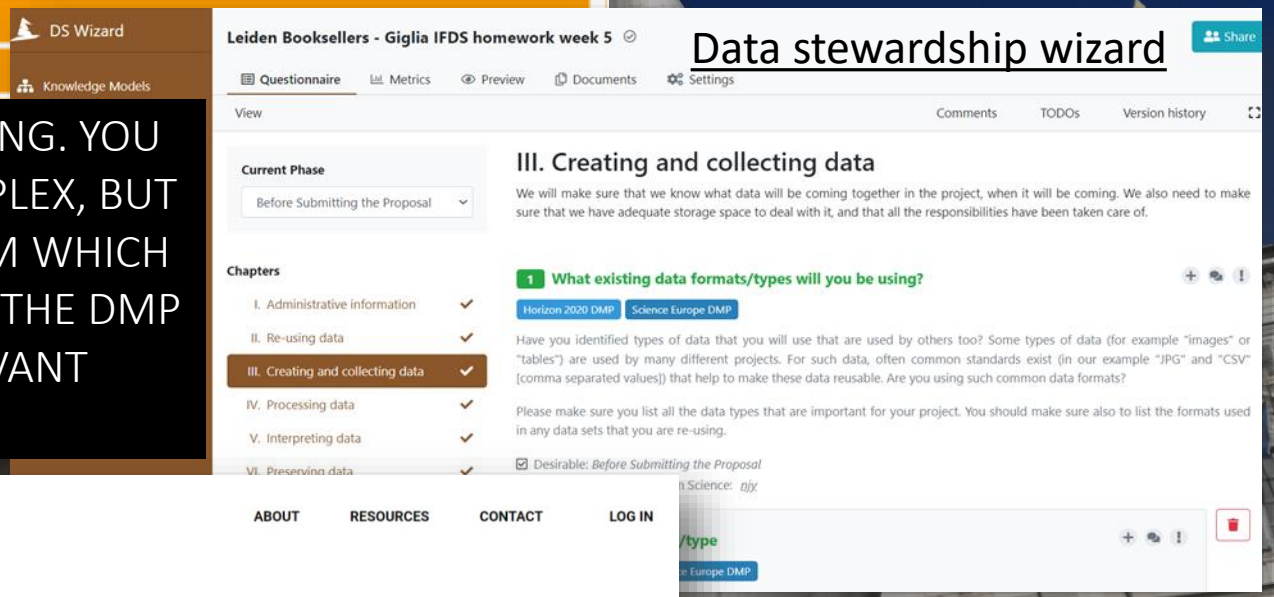
- TECHNICAL DOCUMENT, NOT DISSERTATION
- USE TABLES, BULLET POINTS
- BE SPECIFIC AND SYNTETIC (DO NOT COPY&PASTE)
- IF YOU DON'T KNOW, SAY IT (BETTER THAN A «BLANK CELL»)
- BE GENERIC («DATA WILL BE AVAIBALE») IS USELESS

... with a Data Management Plan



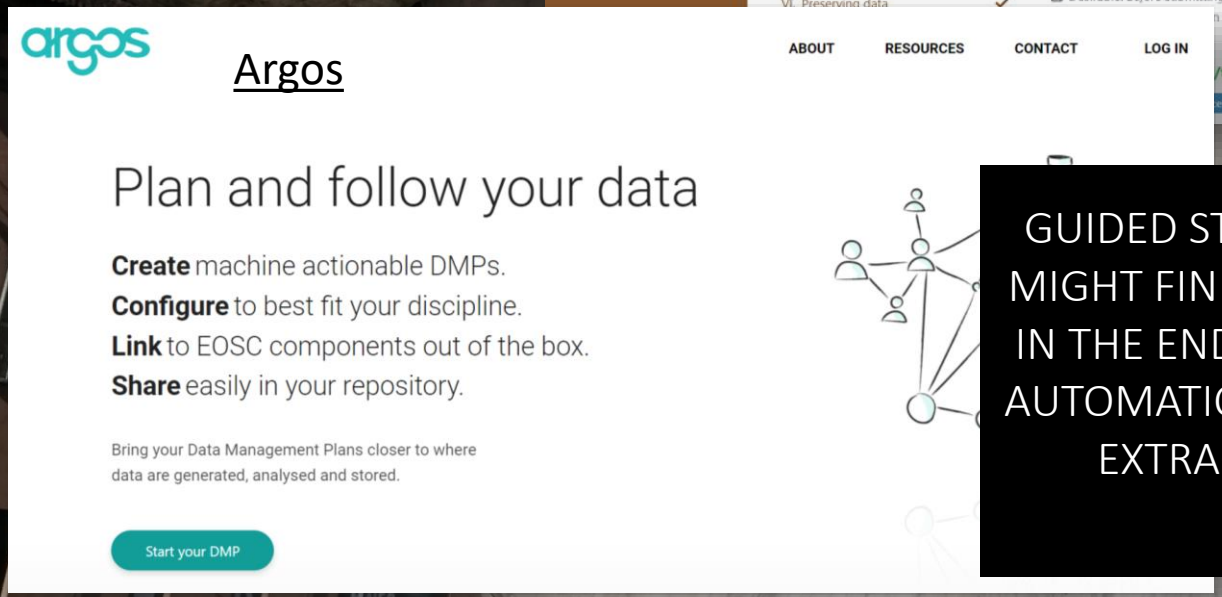
DMP online

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



Data stewardship wizard

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



Argos

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

THANK YOU!