A BRIEF INTRODUCTION TO OPEN SCIENCE

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ITC

Sputnik V: What's the problem?

EMA starts rolling review of the Sputnik V COVID-19 vaccine

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News 04/03/2021

EMA's human medicines committee (CHMP) has started a rolling review of Sputnik V (Gam-COVID-Vac), a COVID-19 vaccine[1] developed by Russia's Gamaleya National Centre of Epidemiology and Microbiology. The EU applicant for this medicine is R-Pharm Germany GmbH.

The CHMP's decision to start the rolling review is based on results from laboratory studies and clinical studies in adults. These studies indicate that Sputnik V triggers the production of antibodies and immune cells that target the SARS-CoV-2 coronavirus and may help protect against COVID-19.

EMA will evaluate data as they become available to decide if the benefits outweigh the risks. The rolling review

https://www.ema.europa.eu/en/news/ema-starts-rolling-review-sputnik-v-covid-19-vaccine

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CORRESPONDENCE | VOLUME 397, ISSUE 10288, P1881-1883, MAY 22, 2021

Data discrepancies and substandard reporting of interim data of Sputnik V phase 3 trial

Enrico M Bucci • Johannes Berkhof • André Gillibert • Gowri Gopalakrishna • Raffaele A Calogero • Lex M Bouter • et al. Show all authors

Published: May 12, 2021 • DOI: https://doi.org/10.1016/S0140-6736(21)00899-0

Several experts[3, 4] found problematic data in the published phase 1/2 results.[2] We have made multiple independent requests for access to the raw dataset, but these were never answered. Despite publicly denying some problems, formal corrections were made

https://www.ema.europa.eu/en/news/ema-starts-rolling-review-sputnik-v-covid-19-vaccine

https://doi.org/10.1016/S0140-6736(21)00899-0

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FIRST OPINION

Is the Sputnik V vaccine too good to be true? Without the data, it's hard to know

By Jonathan Cushing May 26, 2021 Reprints

The current debate over the Sputnik V data is possible only because Gamaleya published its data analysis in The Lancet. But as the saying goes, you don't know what you don't know, and this will remain true for as long as the raw data for Sputnik V — and the numerous other Covid-19 vaccine clinical trials with no published data analysis — remain hidden.

The only way for concerns over Sputnik V and other vaccines to be quelled is for the developers to publish full clinical study reports along with the raw data. Not only will this build confidence in Covid-19 vaccine, but it will pave the way for other developers to follow suit.

https://www.ema.europa.eu/en/news/ema-starts-rolling-review-sputnik-v-covid-19-vaccine

https://doi.org/10.1016/S0140-6736(21)00899-0

https://www.statnews.com/2021/05/26/data-needed-know-if-sputnik-v-vaccine-too-good-to-be-true/

Why is missing data a problem?

One of the prime ministers in Germany stated: There was a lack of verifiable documents needed to approve Sputnik V. The developers need to submit these documents. We cannot take the risk to approve a vaccine that is not documented in a scientifically verifiable way.

Transparency → Trust

Non-transparency → Doubts → Fake news

https://www.mdr.de/nachrichten/deutschland/politik/ramelow-impfstoff-sputnik-v-100.html

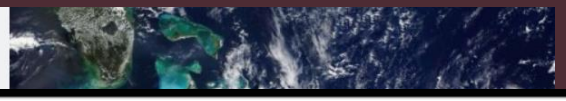
Doubts! A medical problem?

GLOBAL IMPACT

DISASTER MANAGEMENT

Our exposure and vulnerability to extreme events - including both natural and human-induced hazards - continue to increase. Worldwide the impact of disasters is rapidly growing. At ITC, experts work to integrate hazard assessment and disaster risk management into strategic planning and sustainable development.

Find out more



GLOBAL IMPACT

GEO HEALTH

The topic of geo-health concerns the convergence of concepts and knowledge, tools and techniques developed i the health and the geographics domain. ITC brings in the necessary bio-medical expertise and link this effectively to spatio-temporal techniques and the latest developments in big data and data science.

Find out more

GLOBAL IMPACT

SMART CITIES

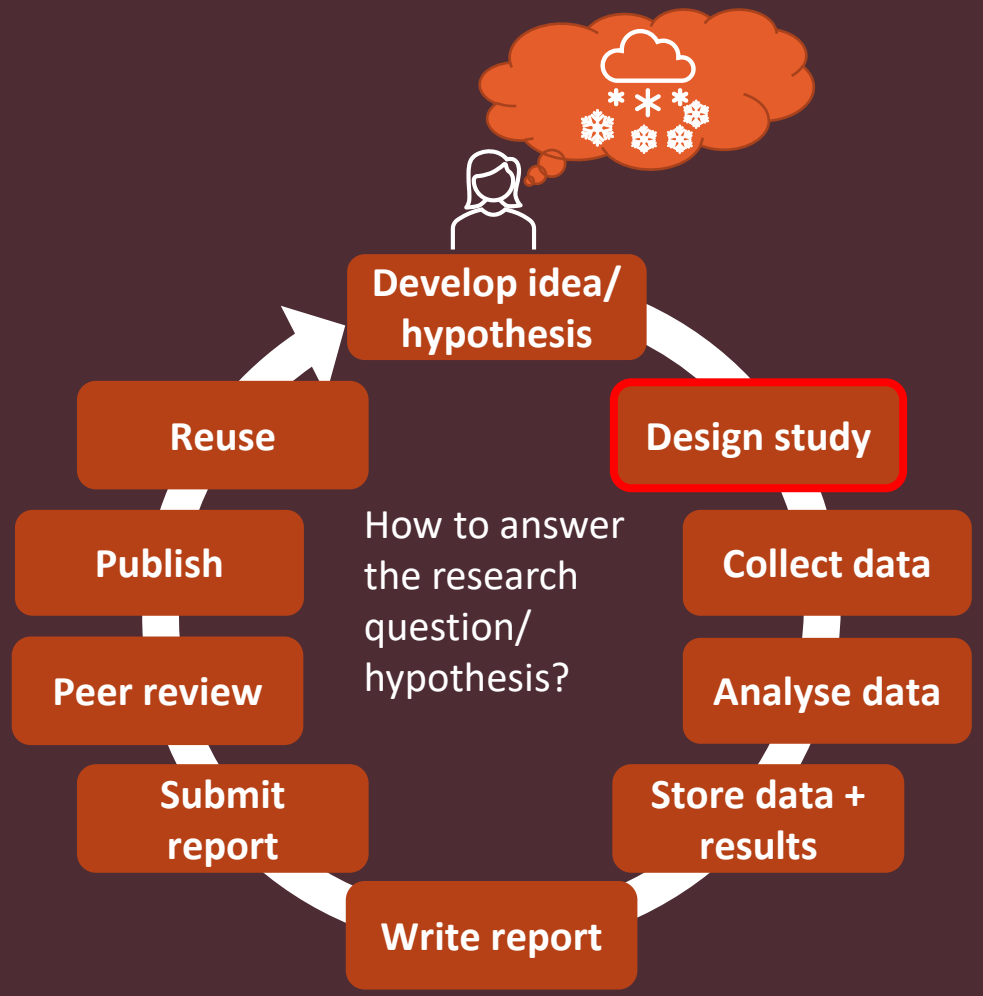
policies and land management practices remains a primary cause of inequity and poverty.

Find out more

https://de.wikipedia.org/wiki/Ziele_f%C3%BCr_nachhaltige_Entwicklung

The research process in a nutshell

The research process in a nutshell



The research process in a nutshell

From: http://gph.is/1BHQMvK

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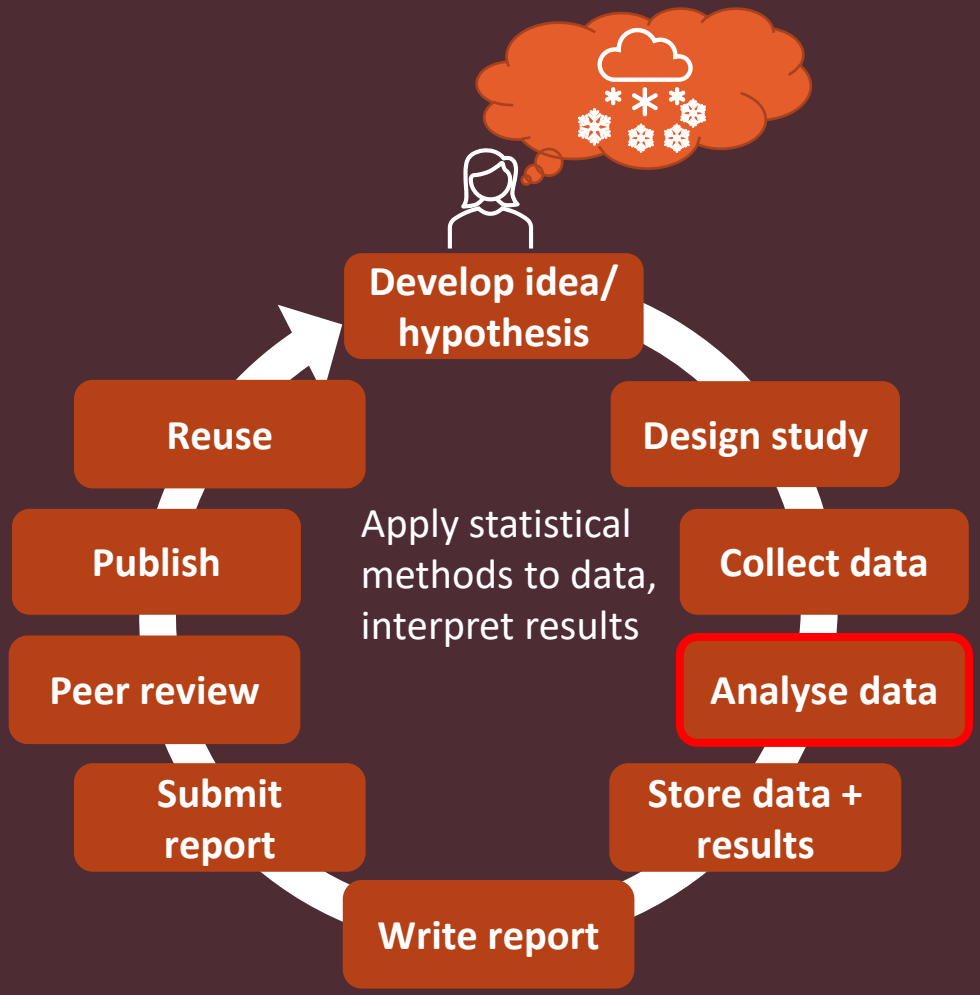

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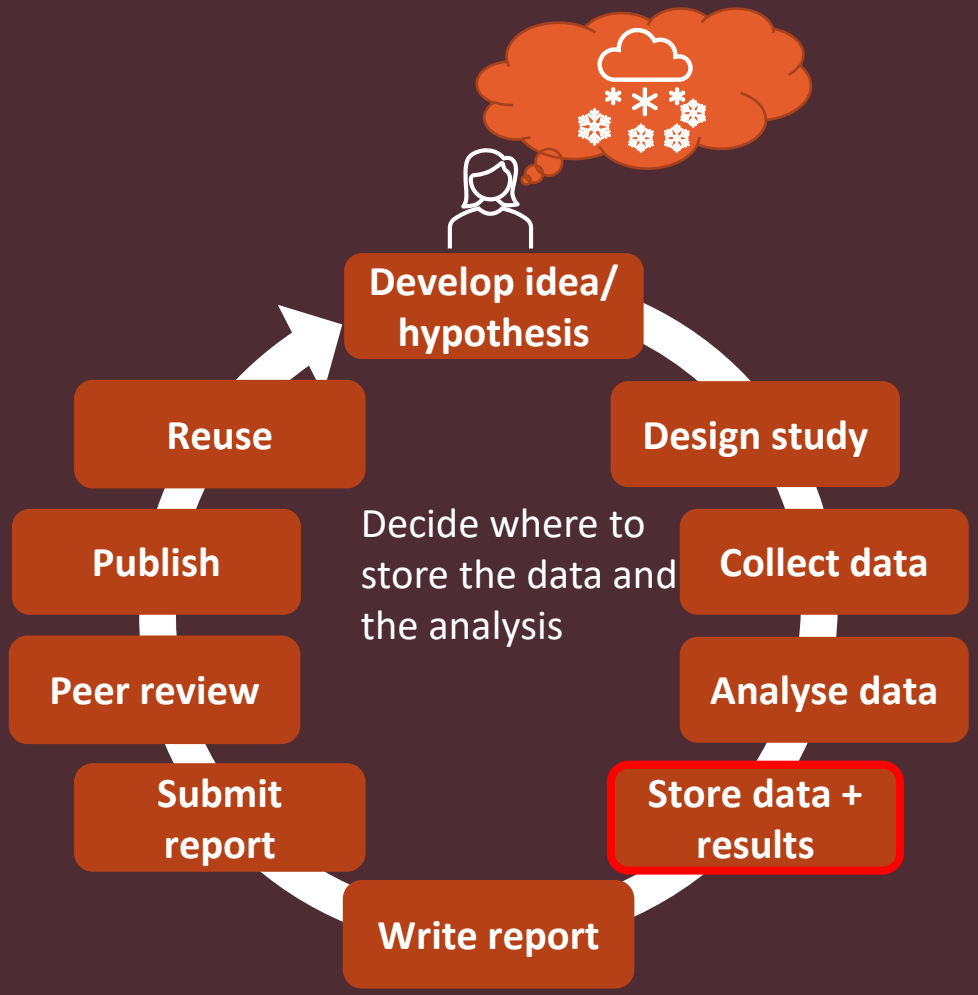

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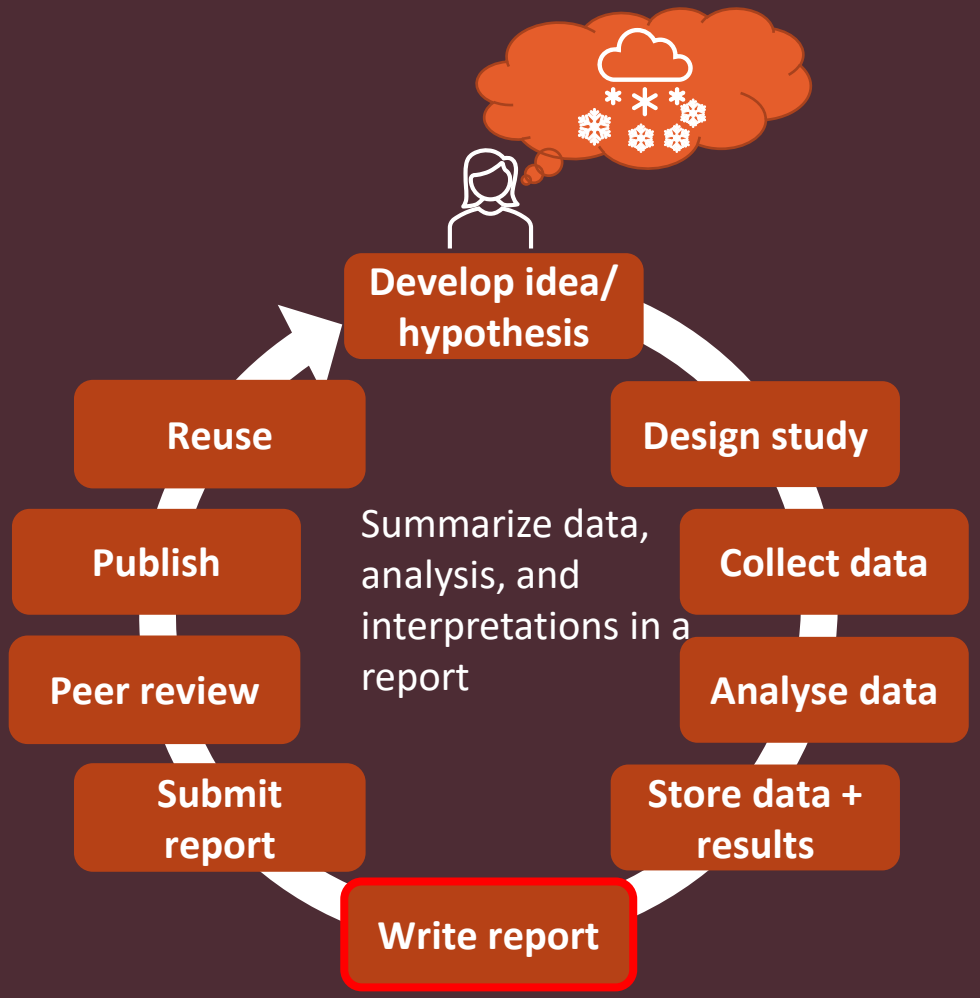

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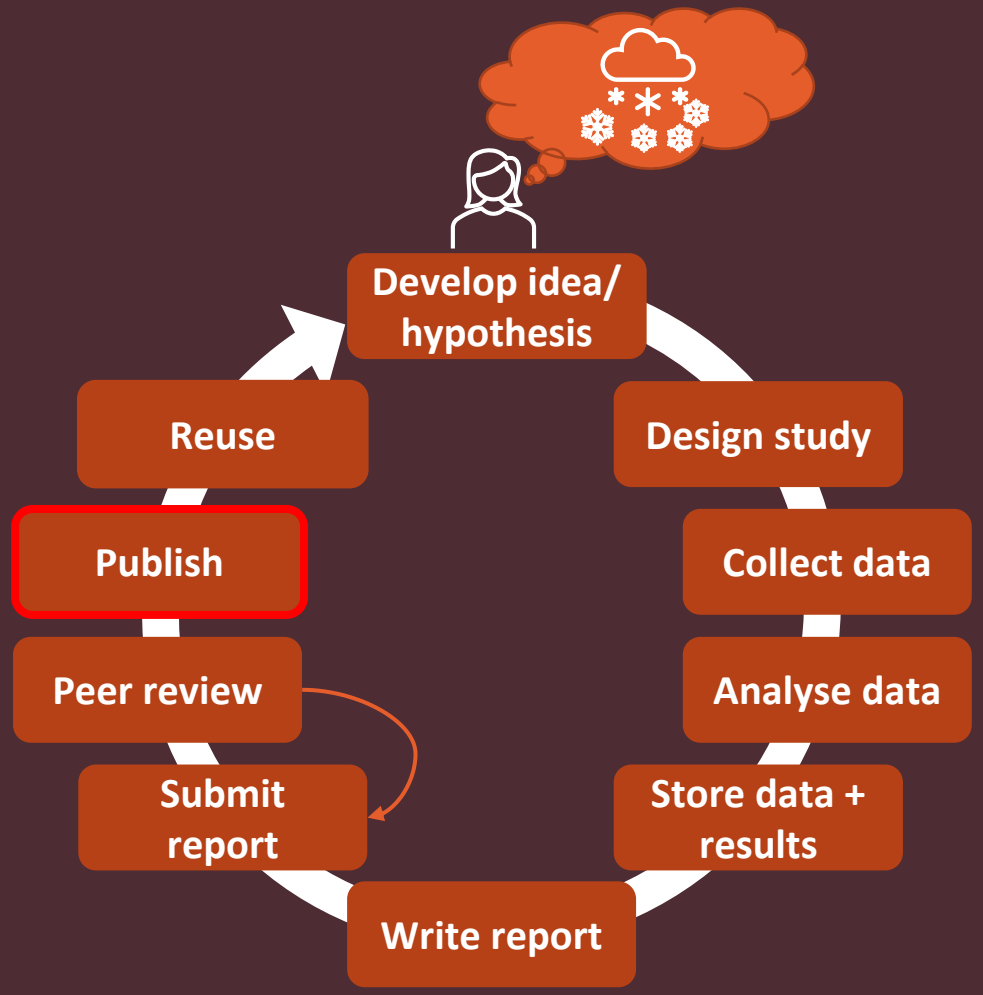


The research process in a nutshell

The research process in a nutshell

Why is missing data a problem?

01

It is difficult to find errors in the analysis

02

Reviewers cannot verify but need to trust the results

03

Analysis is not fully understandable

04

Materials are not reusable (not sustainable)

What is Open Science?

Open Access: Users gain full, immediate, unrestricted access to scientific publications.

Open Data: Data is accessible in accordance with good data governance.

Open Software/Code/Methods accessible under an open license.

OS Infrastructure: Digital I. needed to support OS (e.g. platforms/repositories) should be non-profit.

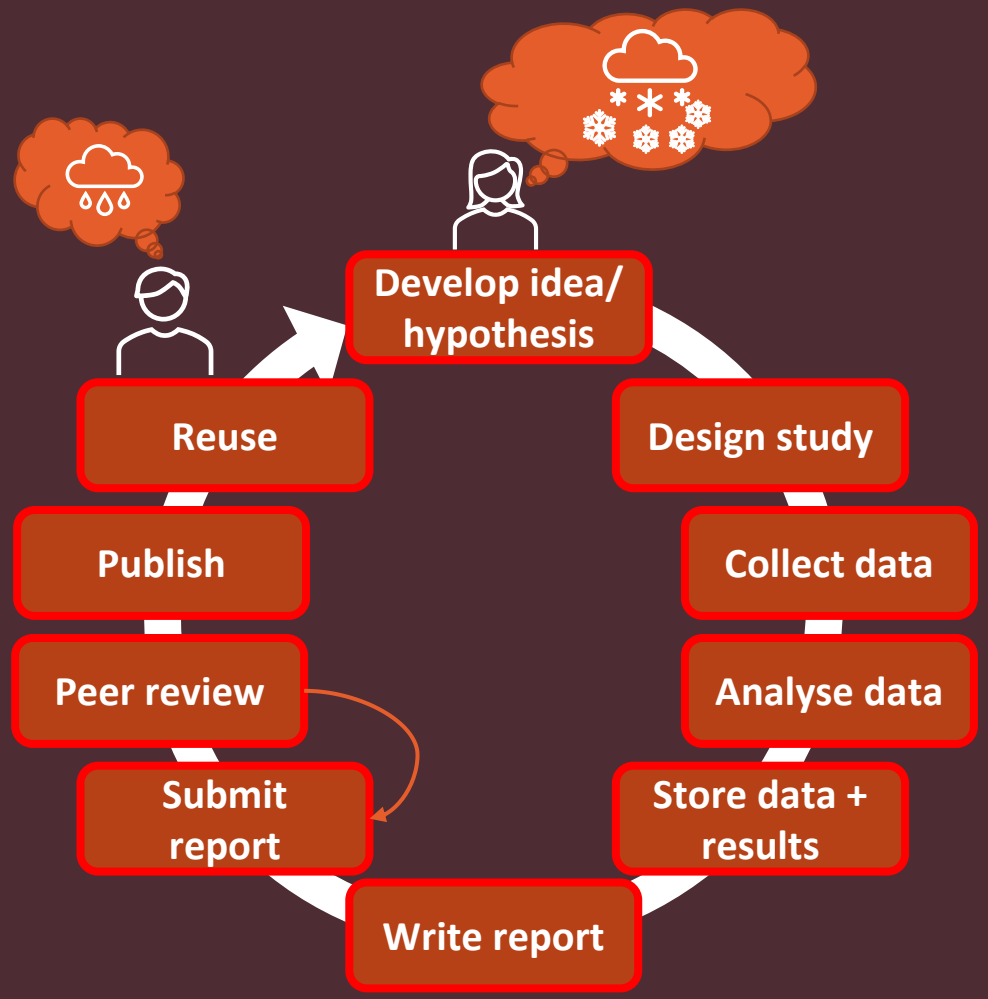
Open Peer Review: Transparent peer review and publicly available reviews.

Open Education: Learning materials should be freely and openly accessible, re-usable, and redistributable.

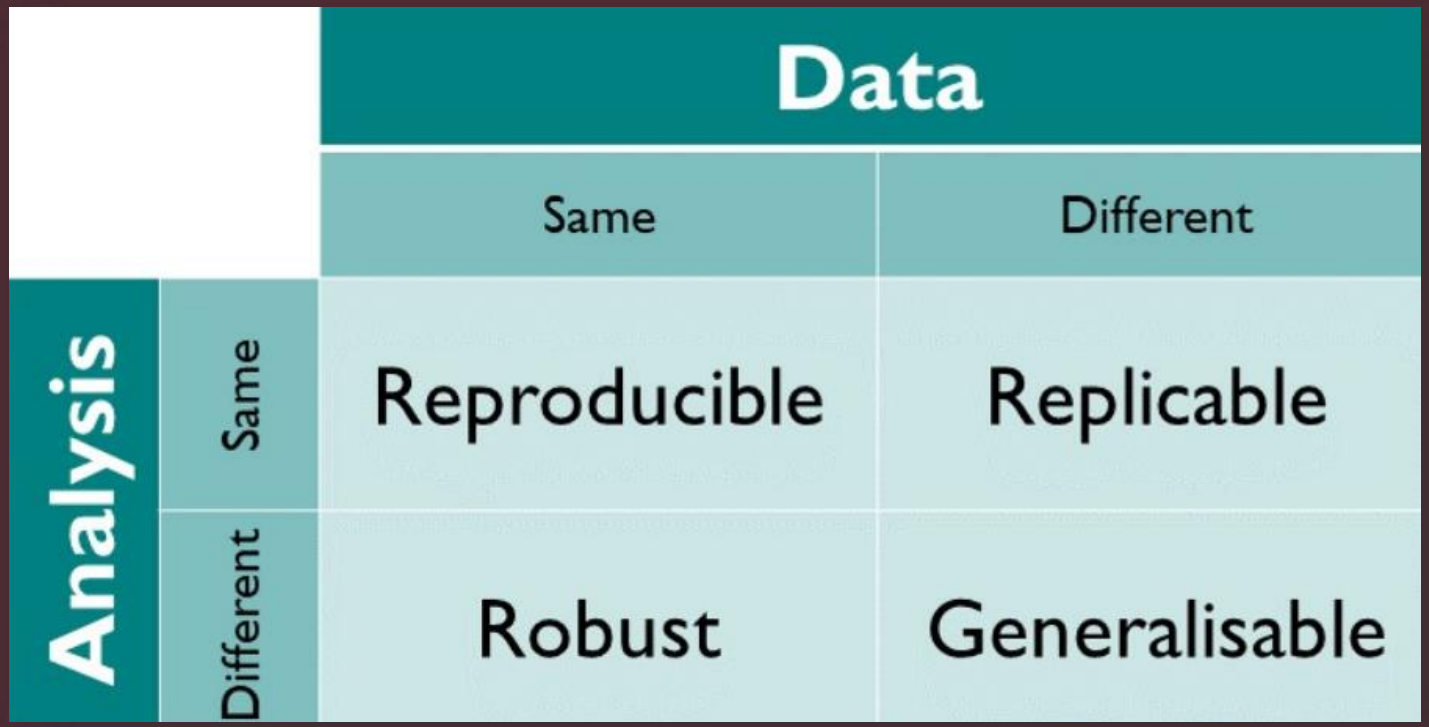
Open Engagement of Societal Actors: Involve people outside science ("Citizen and participatory science").

Openness and Diversity of Knowledge: Recognize richness of diverse knowledge systems, holders, and producers.

Open Science is about giving value to the entire research process



Same same but different



The Turing Way: https://the-turing-way.netlify.app/reproducible-research/overview/overview-definitions.html

Benefits of Open Science

New colla-borations

Media attention

Funding opportunities

More citations

POINT OF VIEW

How open science helps researchers succeed

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

DOI: 10.7554/eLife.16800.001

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

McKiernan et al. eLife 2016;5:e16800. DOI: 10.7554/eLife.16800

Benefits of Open Science

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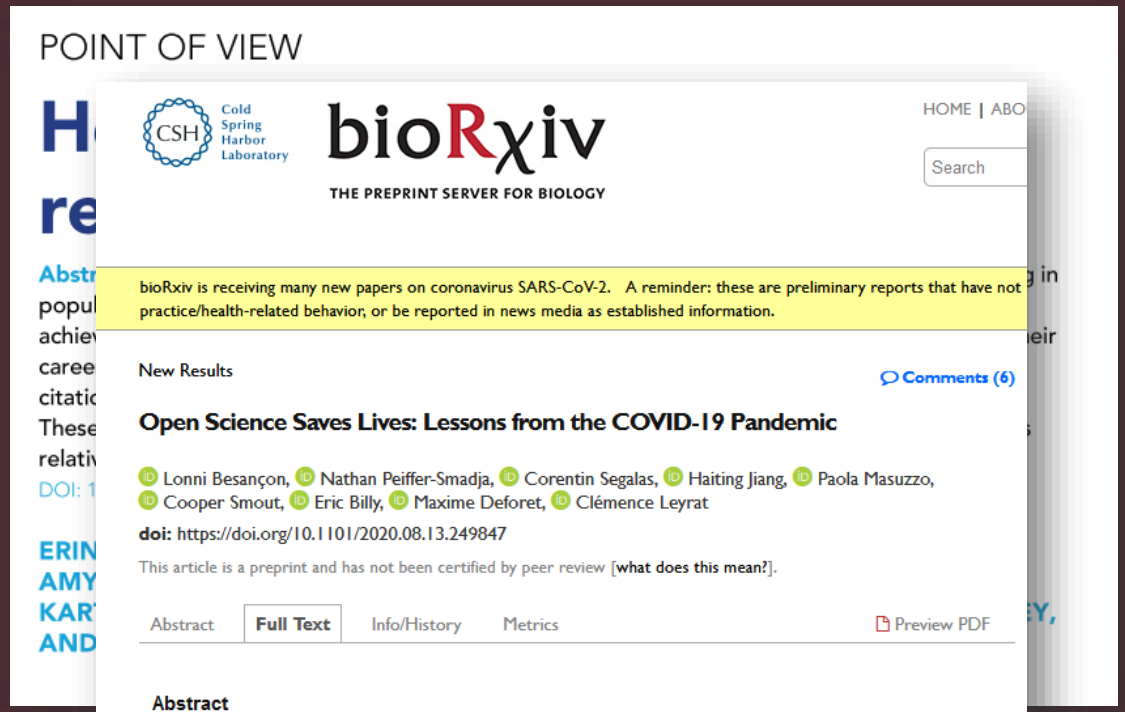
Serve society



POINT OF VIEW

Cold Spring Harbor Laboratory

bioRxiv

THE PREPRINT SERVER FOR BIOLOGY

HOME | ABO

Search

bioRxiv is receiving many new papers on coronavirus SARS-CoV-2. A reminder: these are preliminary reports that have not practice/health-related behavior, or be reported in news media as established information.

New Results

Comments (6)

Open Science Saves Lives: Lessons from the COVID-19 Pandemic

Lonni Besançon, Nathan Peiffer-Smadja, Corentin Segalas, Haiting Jiang, Paola Masuzzo, Cooper Smout, Eric Billy, Maxime Deforet, Clémence Leyrat

doi: https://doi.org/10.1101/2020.08.13.249847

This article is a preprint and has not been certified by peer review [what does this mean?].

Abstract | Full Text | Info/History | Metrics | Preview PDF

Abstract

In the last decade Open Science principles have been successfully advocated for and are being slowly adopted in different research communities. In response to the COVID-19 pandemic many publishers and researchers have sped up their adoption of Open Science practices, sometimes embracing them fully and sometimes partially or in a sub-optimal manner. In this article, we express concerns about the violation of

McKiernan et al. eLife 2016;5:e16800. DOI: 10.7554/eLife.16800

Besançon et al., bioRxiv, 2020 doi: 10.1101/2020.08.13.249847

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Receive formal recognition

Serve society

McKiernan et al. eLife 2016;5:e16800. DOI: 10.7554/eLife.16800

Besançon et al., bioRxiv, 2020 doi: 10.1101/2020.08.13.249847

Shaping 2030: https://www.utwente.nl/en/organisation/about/shaping2030/

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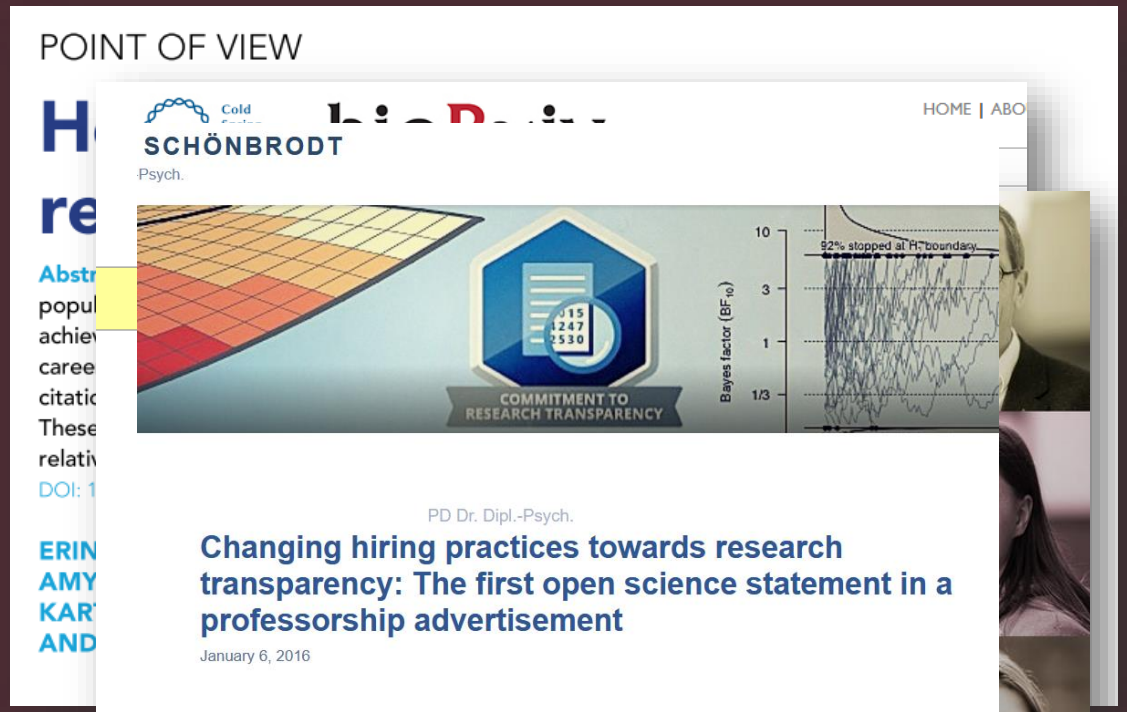
Job opportu-nities



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Shaping 2030: https://www.utwente.nl/en/organisation/about/shaping2030/

Job calls: https://www.nicebread.de/open-science-hiring-practices/

Open Science for scientists only?

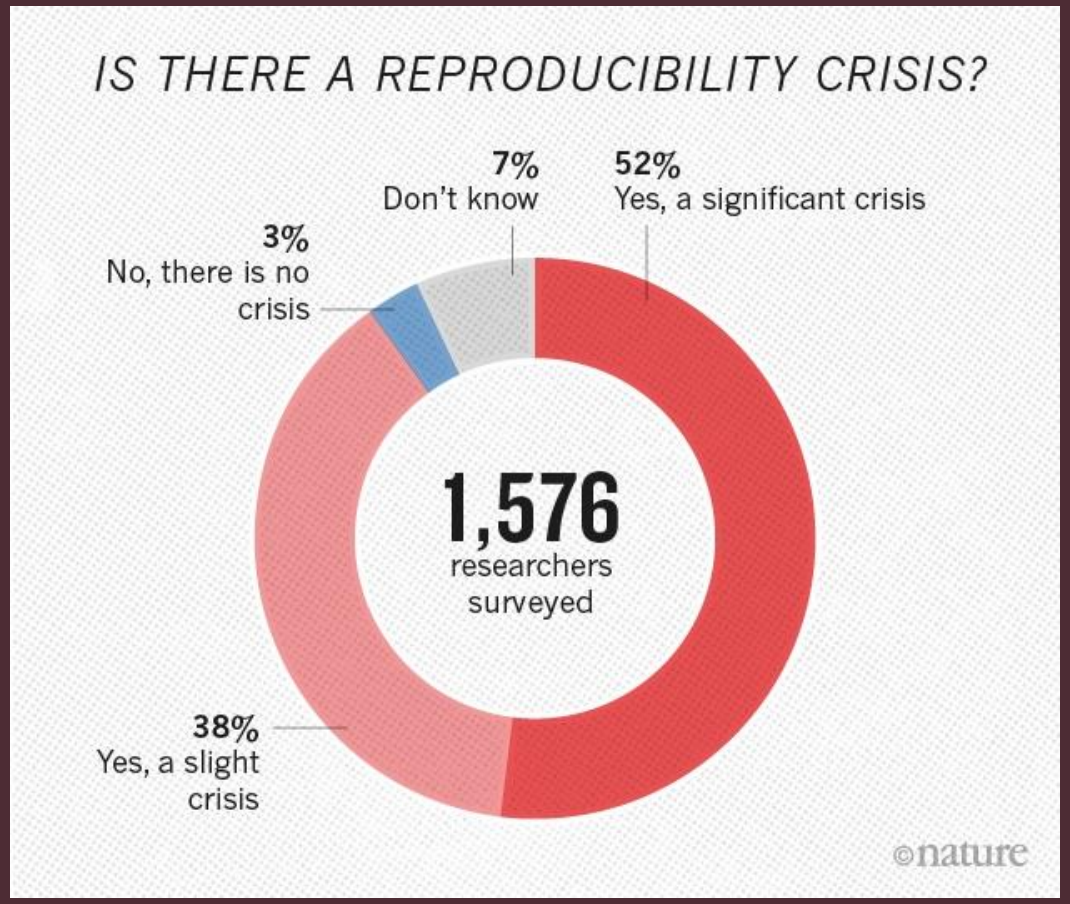
Open Science skills are also relevant in industry

- Data management
- Creating sharable and reusable data
- Software skills (versioning of code)
  - Companies can see your work

Recommendations:

- Keep your workspace clean (file names , folder structure etc.)
- Learn a versioning software (e.g., git)
- Learn a scripting language (e.g., Python, R)

The state of Open Science



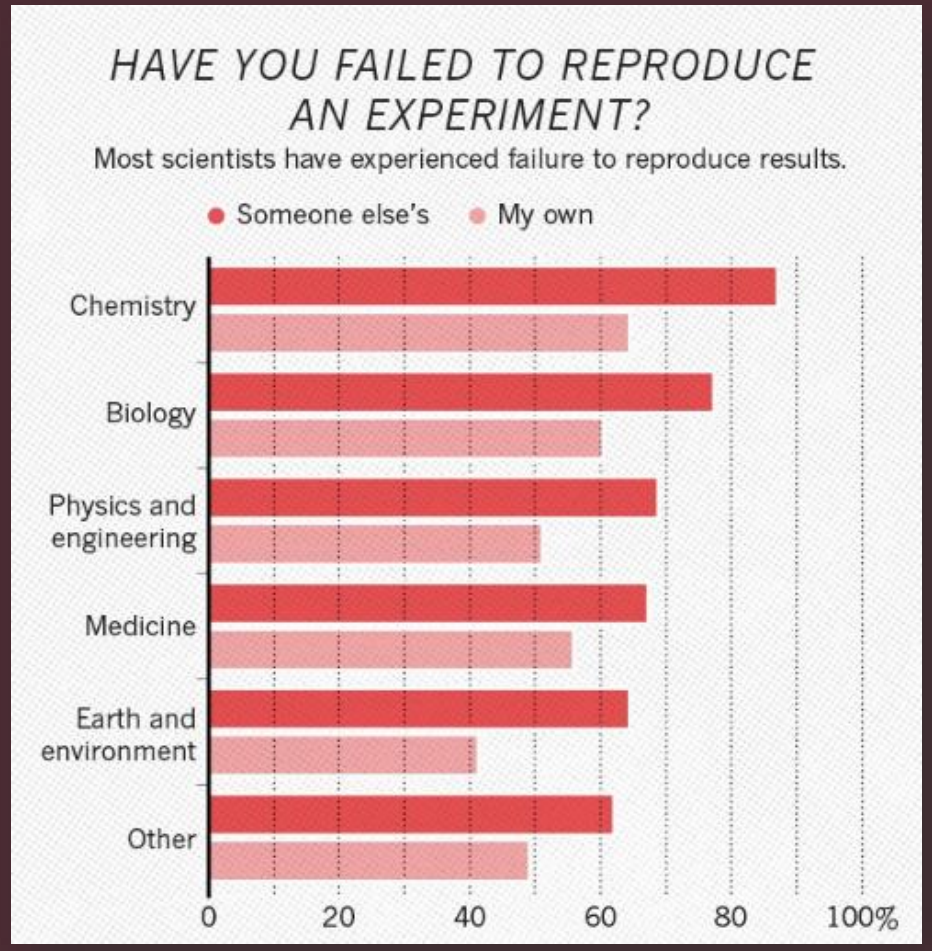
~~Open Data~~

~~Open Code~~

From: https://gph.is/g/4DAnQjB

https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

The state of Open Science



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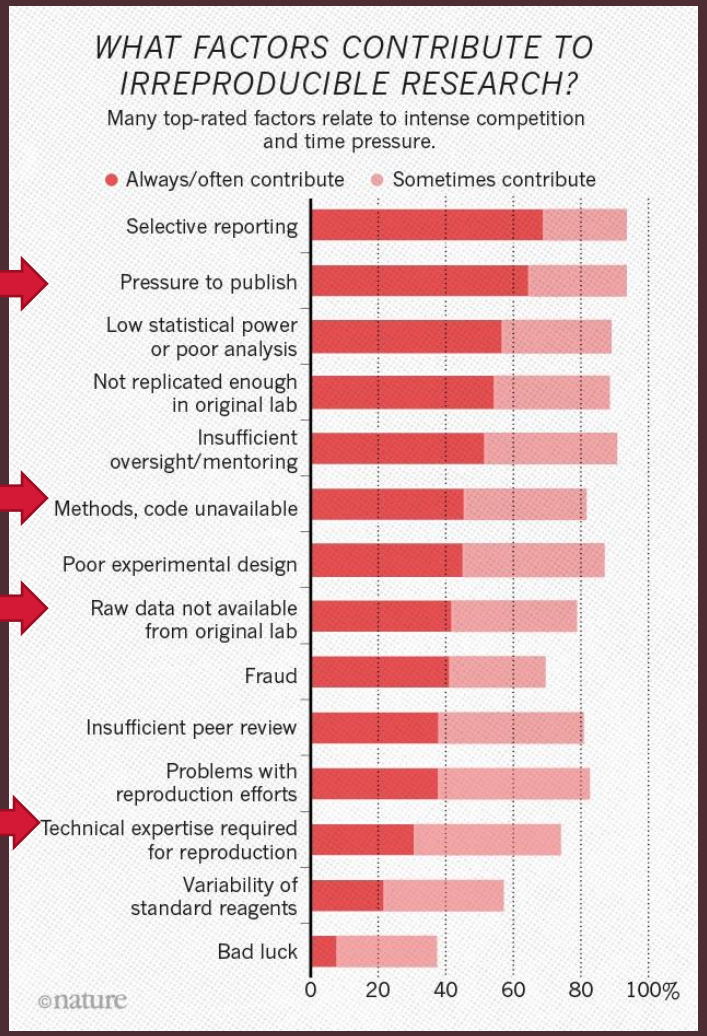
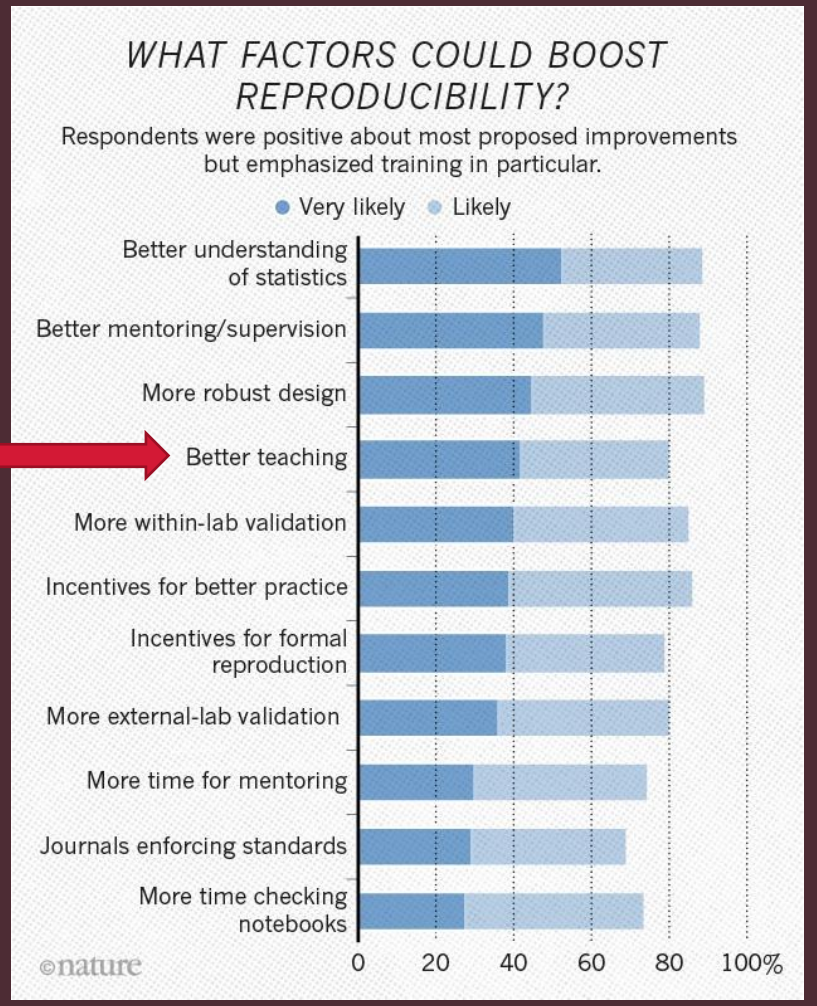
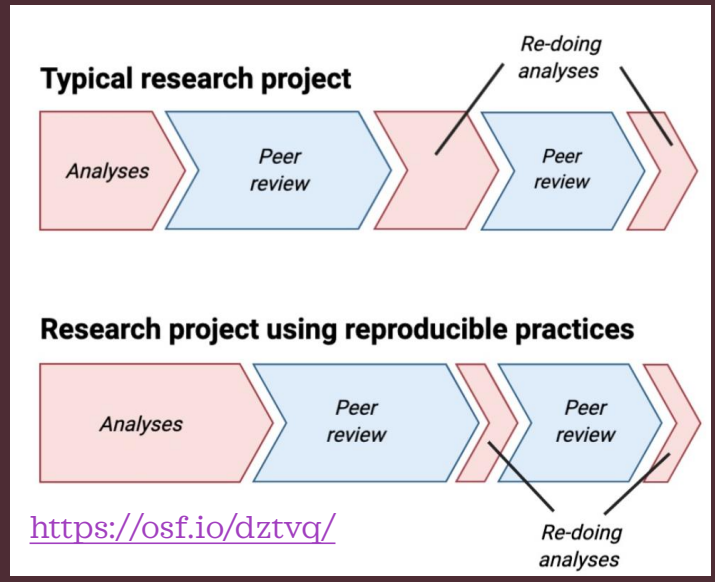




https://www.nature.com/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970

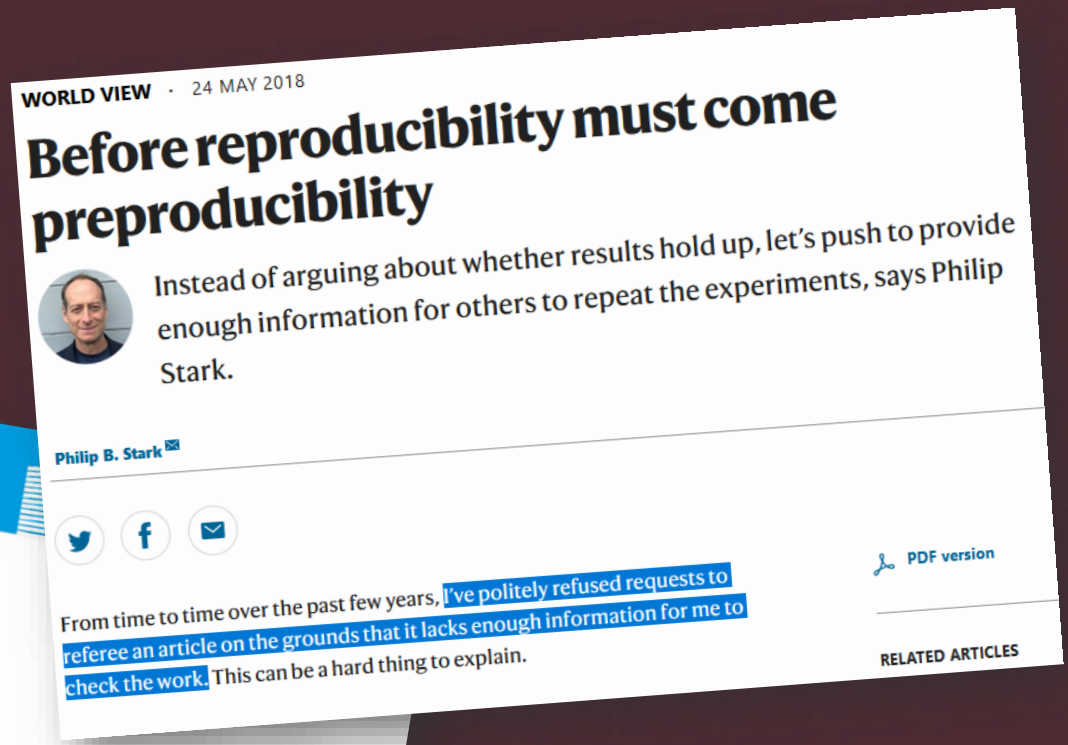
The state of Open Science

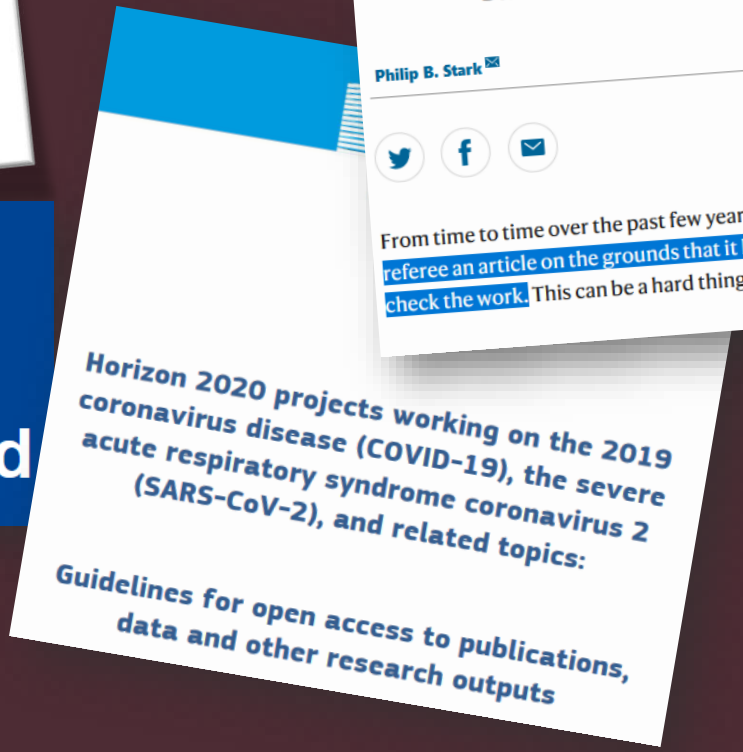
- Losing competitive advantages – publish materials after paper acceptance, use embargoes
- Prepare source code and data – make it reusable to increase your impact
- Proprietary software – use open source software and scripting languages (R, Python)
- Not yet relevant – this will change!
  - How many papers published?
  - In which journals?
  - How man citations?



https://osf.io/dztvq/

The Open Science Movement





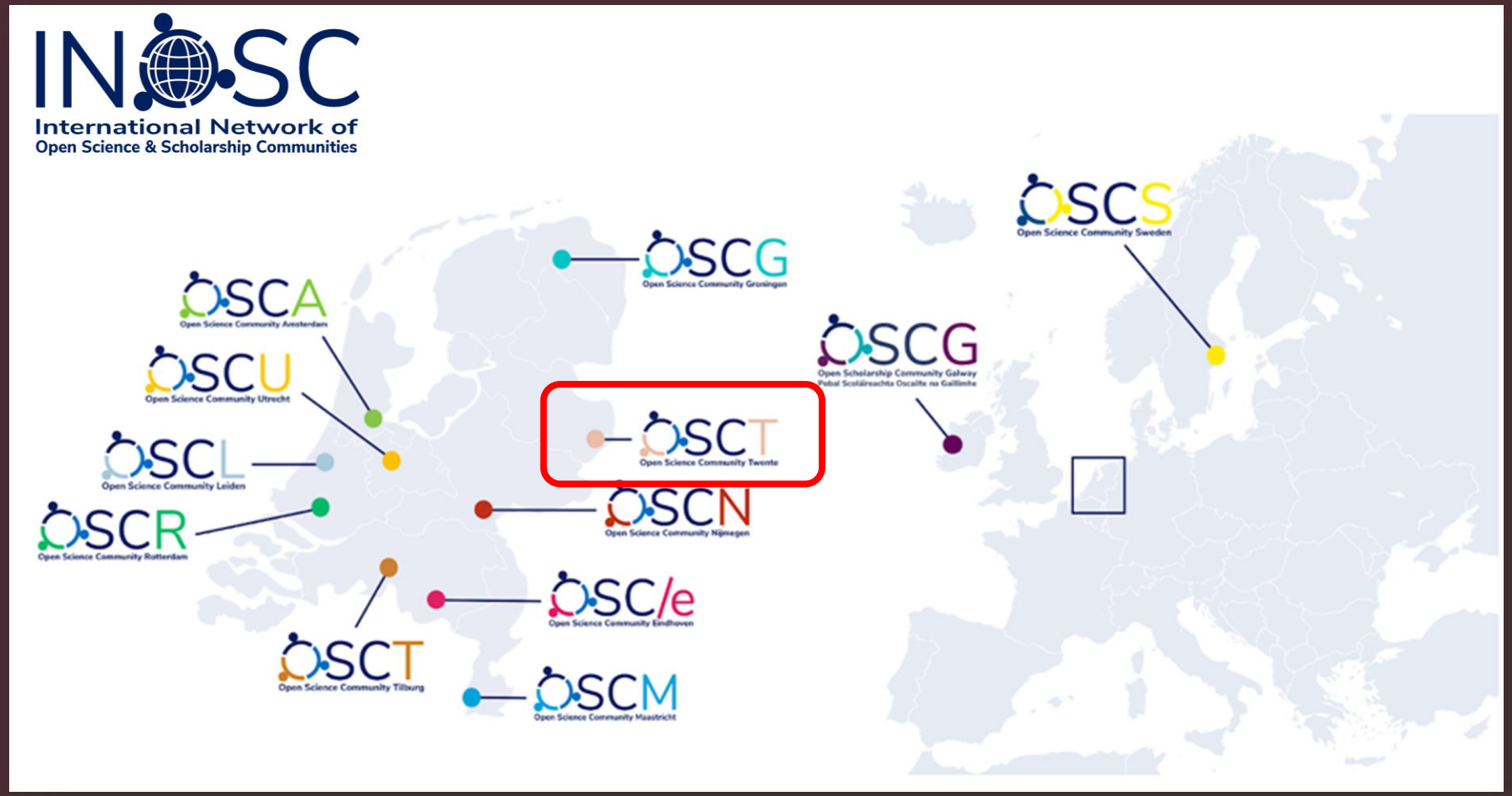
UNESCO: https://unesdoc.unesco.org/ark:/48223/pf0000374409.page=10
EOSC: https://ec.europa.eu/digital-single-market/en/european-open-science-cloud
Article: https://www.nature.com/articles/d41586-018-05256-0
H2020: https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-guidelines-oa-covid-19_en.pdf

Open Science Communities

- Bottom-up communities to learn, share, and discuss Open Science practices
- Make Open Science more visible and accessible
- Organize events, seminars, and workshops
- Facilitate knowledge exchange amongst peers
- Support member initiatives focussed on Open Science
- Connect with international Open Science Communities
- Open to everyone who would like to
  - Ask questions
  - Look for support
  - Share (positive and negative) experiences
  - Acquire skills to make research more open

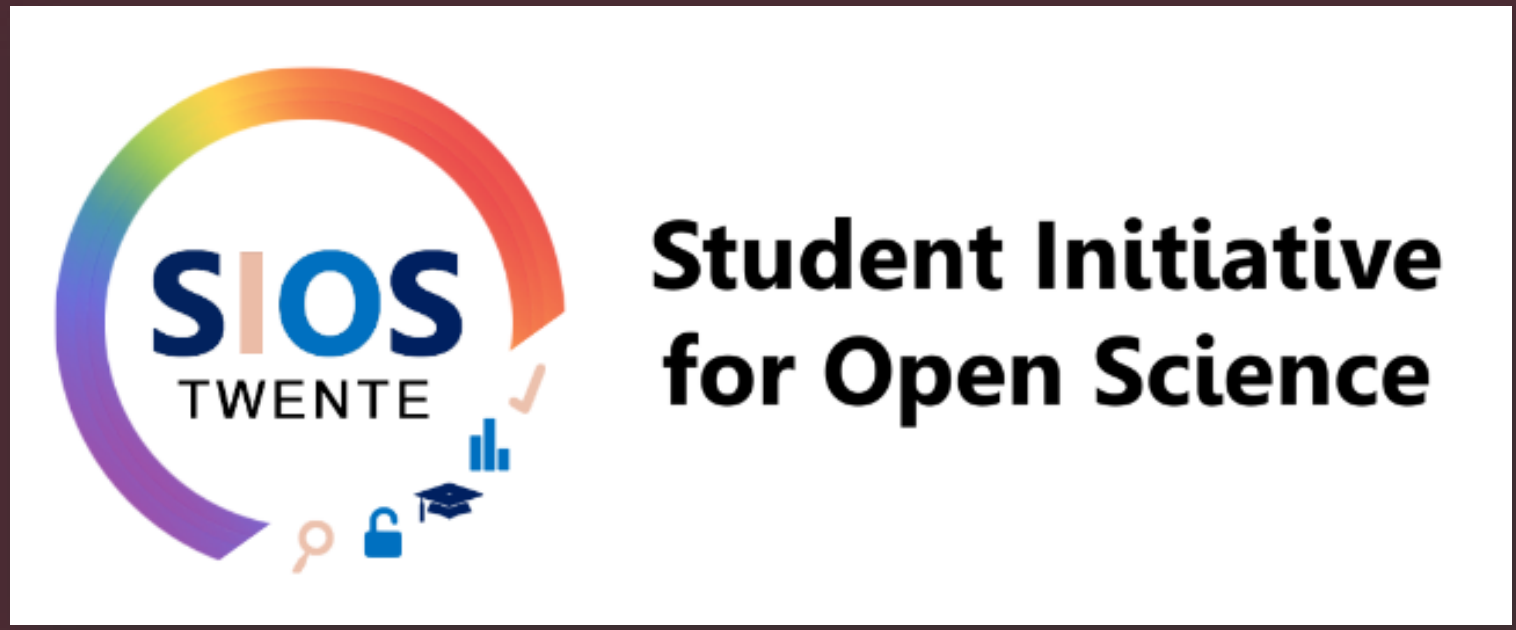
We are not an expert club!

Open Science Communities Twitter: @OSCTwente



Open Science Communities https://www.openscience-twente.com/

Open Science Communities for Scientists only?



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