

تأملات في دلالات حركة العلوم المفتوحة في العالم العربي

د.بتول المرزوق



"Open science is not just a trend; it's a necessity. By openly sharing research methods, data, and results, we can collectively address complex challenges and drive scientific breakthroughs that improve our world."

— **Randy Schekman, Nobel Laureate in Physiology or Medicine**



"العلم المفتوح ليس مجرد اتجاه عابر، بل هو ضرورة حتمية. فقط من خلال مشاركة طرق البحث والبيانات والنتائج بشكل مفتوح، نستطيع جميعًا التصدي للتحديات المعقدة وتحقيق اختراقات علمية تُحسّن عالمنا."

— راندي شيكمان، الحائز على جائزة نوبل في الطب



أزمة إعادة (أو البناء) على النتائج البحثية المنشورة

Science is like a stack of building blocks. If any block is **irreproducible**, it becomes impossible to build upon it.

The reproducibility crisis is central to the ethos of open science

[nature](#) > [nature reviews drug discovery](#) > [correspondence](#) > [article](#)

Published: 31 August 2011

Believe it or not: how much can we rely on published data on potential drug targets?

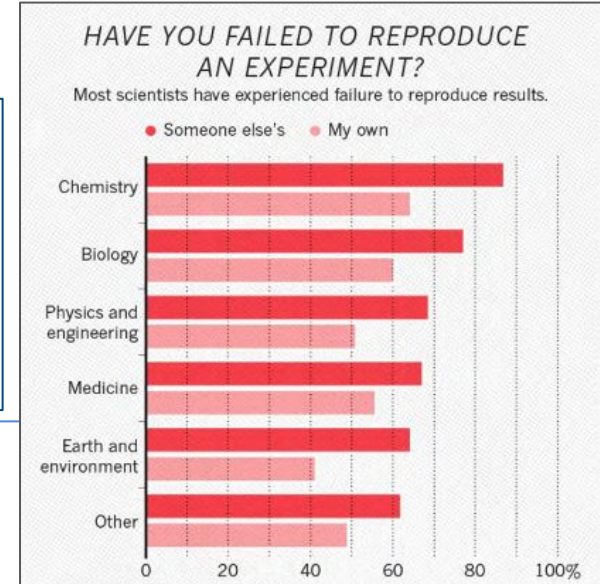
[Florian Prinz](#), [Thomas Schlange](#) & [Khusru Asadullah](#) ✉

[Nature Reviews Drug Discovery](#) 10, 712 (2011) | [Cite this article](#)

The \$28 Billion a Year Research Reproducibility Crisis

📅 October 19, 2015

The biggest crisis in the future of healthcare has nothing to do with the kind of issues that politicians talk about, such as payment systems and accessibility. Since cost-effective solutions to tragic and costly conditions like heart disease, dementia, diabetes, and cancer depend on bringing to market new treatments that rely upon genomics, nanotechnology, and molecular biology, the *biggest* problem is that at least half of the research money we invest in them is wasted. How can this be? What are the implications? What are the solutions? We'll show you.



NUMBERCRUNCHER

Inadequate reporting, variability in reagents and the pressure to publish all contribute to the reproducibility crisis that is affecting life sciences...



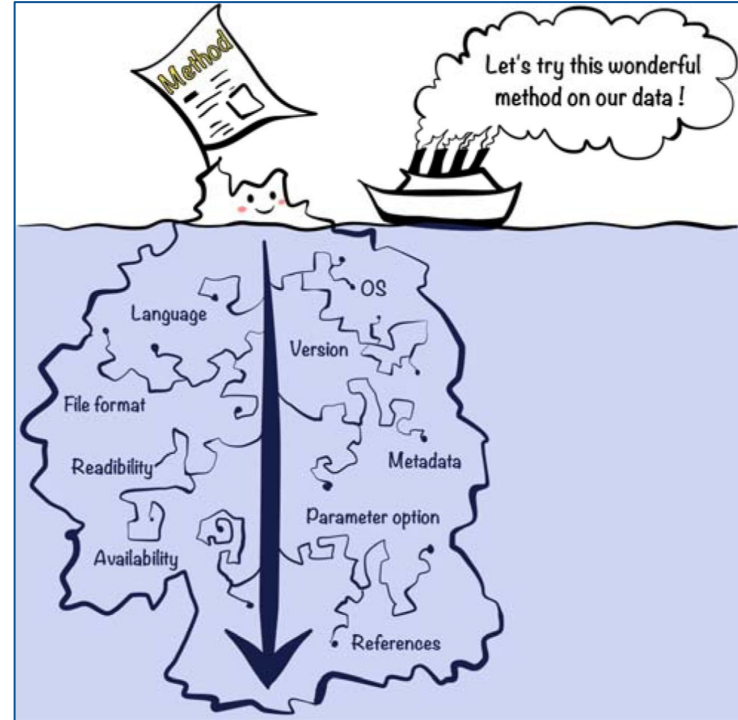
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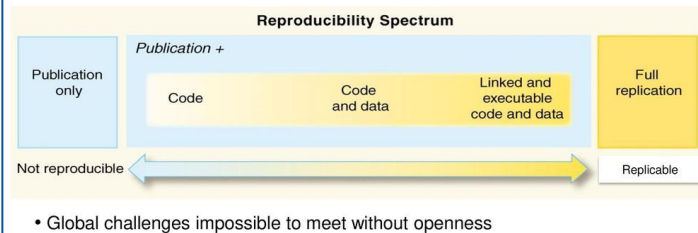
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Reproducibility require Openness!



Reproducibility requires openness



البرلمان البريطاني : أزمة إعادة (أو البناء) على النتائج البحثية المنشورة



Committees

[UK Parliament](#) > [Business](#) > [Committees](#) > [Science, Innovation and Technology Committee](#) > Reproducibility and research integrity

Reproducibility and research integrity

Inquiry

As the UK seeks to recover from the pandemic, research and innovation has the ability to drive economic growth, with UKRI estimating that every £1 spent on research and development delivers £7 in economic and social benefit. However, the integrity of research, especially medical and social science research, is at risk from what is known as the 'reproducibility crisis' (i.e. it being very difficult or impossible to replicate a scientific study).



As open as possible, as closed as necessary

A set of principles to enhance
the value of all digital resources

Developed and **endorsed** by *researchers,*
service providers, publishers, funding
agencies and industry partners

FAIR Principles

F = Findable

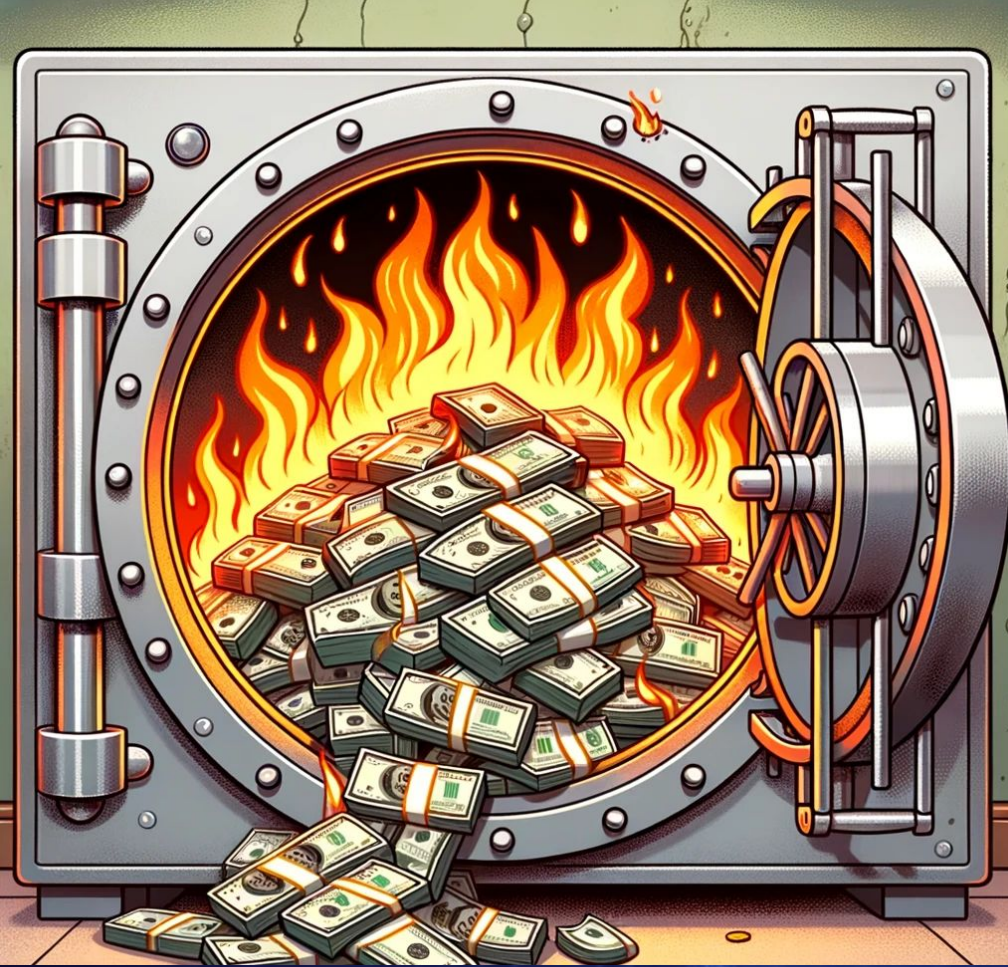
A = Accessible

I = Interoperable

R = Reusable

This slide is taken from this talk "Almarzouq, B., Karoune, E., & Sharan, M. (2022, June 9). Are best practices applicable to your project? Contextualising The Turing Way for the global Community. [Workshop materials in Arabic and English]. Zenodo. <https://doi.org/10.5281/zenodo.6627260>" - the section of this talk was presented by Emma Karoune





Why FAIR?

FAIR Principles

F = Findable

A = Accessible

I = Interoperable

R = Reusable

According to "Cost-benefit analysis for FAIR research data - Cost of not having FAIR research data" (European Commission, 2018):

- It has been estimated that **not having FAIR** research data costs the European economy **at least €10.2 billion per year.**

- تُقدر التكلفة السنوية لعدم وجود بيانات بحثية تتبع معايير FAIR على الاقتصاد الأوروبي **بما لا يقل عن 10.2 مليار يورو.**

Credit: Illustration crafted using DALLÉ-3.



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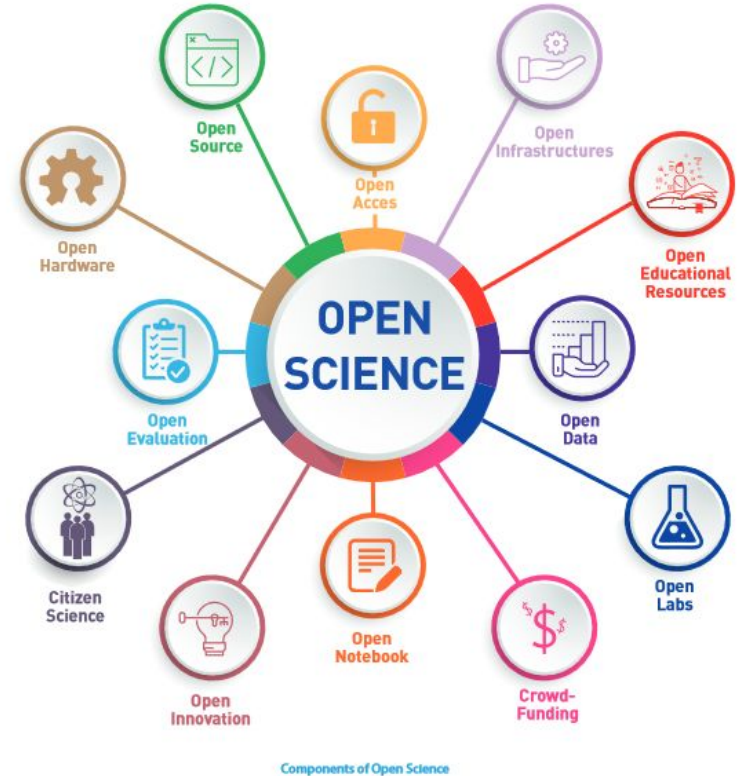


WHAT is Open Science?

Open Science is **huge umbrella** that includes:

- Open Source
- Open Hardware
- FAIR data (NOT open irresponsibly)
- Open peer review
- Open Infrastructure
- Open License
- Registered reports and...so on

Open Science **isn't** merely about sharing; it's about collaborative **co-creation** and embracing **participatory science**



UNESCO Recommendation in Open Science

UNESCO Recommendation on Open Science was adopted by **all member states** in November 2021.

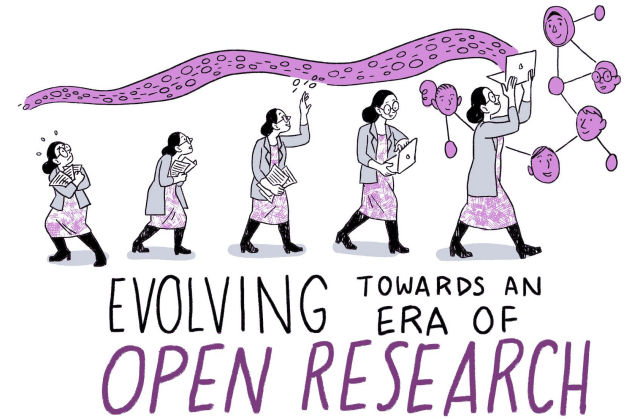
UNESCO regards science/ research as a **human right** - the greatest collective endeavour

“Open Science is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and **reusable for everyone.**”



Misconception about Open Science

- Data or educational materials accessible online alone **is not (open)** if there is no means to cite, re-use using open license.
- Open Science is about **culture change** rather than tools/infrastructure



Scriberia

@turingway, CC-BY 4.0, The Turing Way, @turingway, CC-BY 4.0, The Turing Way, DOI: 10.5281/zenodo.5654766



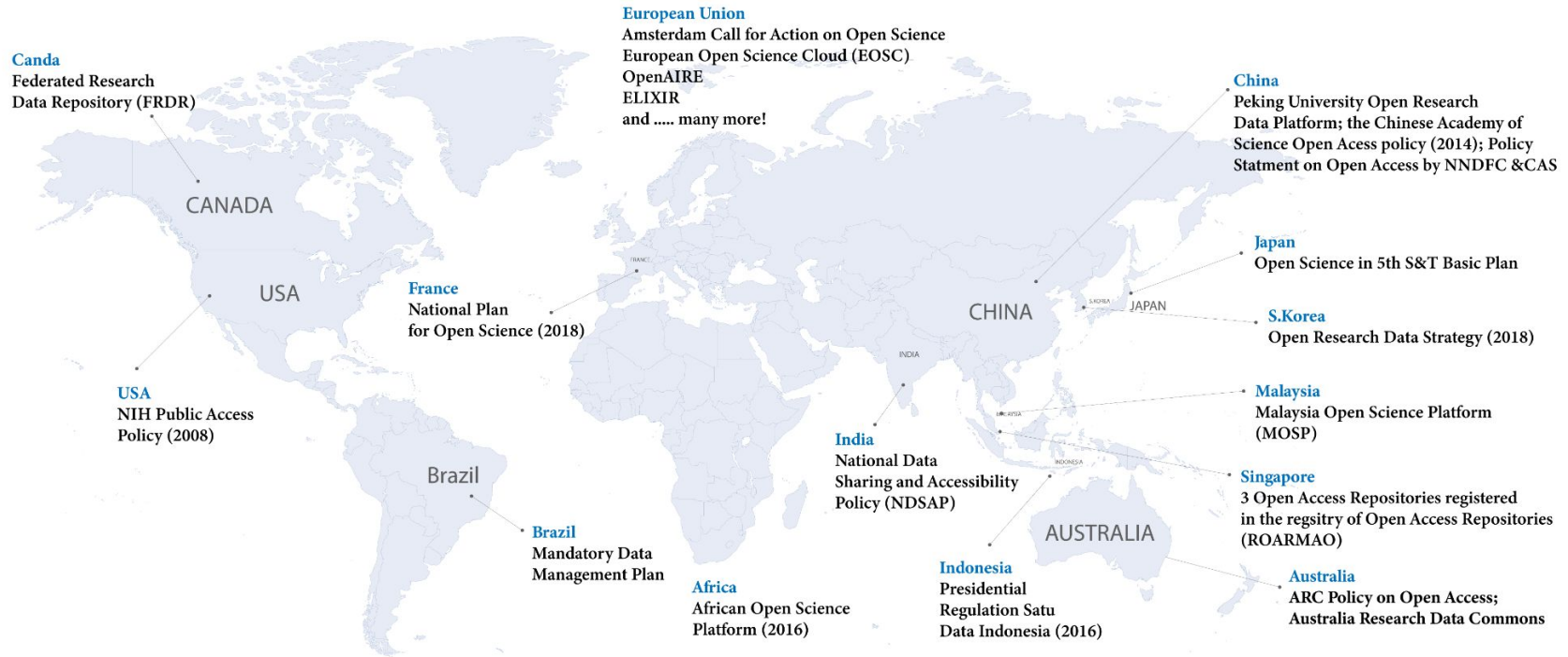
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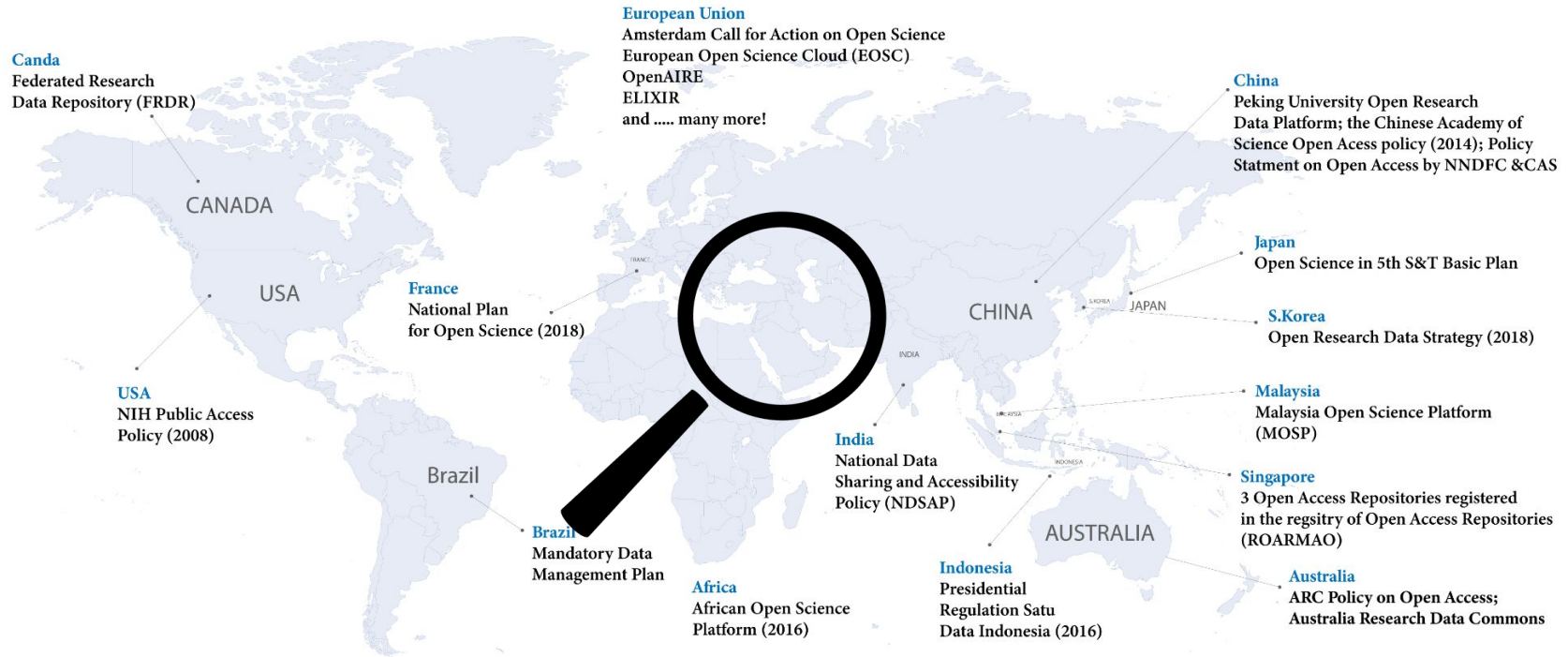
Landscape of Open Science in 2020



Overview of the current Open Science policies and Infrastructure around the Globe. Image adopted from Malaysian Open Science Platform by Open Science community Saudi Arabia (OSCSA), licensed under CC BY 4



Landscape of Open Science in 2020



Overview of the current Open Science policies and Infrastructure around the Globe. Image adopted from Malaysian Open Science Platform by Open Science community Saudi Arabia (OSCSA), licensed under CC BY 4



In Dec 2021, we have launched OSCSA



مجتمع العلوم المفتوحة السعودي هو مجتمع يهدف إلى **تعزيز وتشجيع مفهوم العلم المفتوح** والبحث المفتوح. نجمع ما بين المبتدئين والخبراء لتبادل الخبرات والمعرفة، ونعمل على توفير بيئة تفاعلية تعزز من التعلم والتعاون في إطار قيم **الشفافية والمشاركة**. نحن فخورون بأن نكون جزءًا من رؤية المملكة 2030 وتوجيهاتها نحو تعزيز ثقافة العلم المفتوح والابتكار في مجتمعنا.

يلتحق مجتمع العلوم المفتوحة السعودي بالشبكة الدولية للمجتمعات المتخصصة في العلوم المفتوحة (INOSC).



The Turing Way project illustration by Scriberia. Used under a CC-BY 4.0 licence. DOI: [10.5281/zenodo.3332807](https://doi.org/10.5281/zenodo.3332807)



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خلال السنوات الأخيرة، قام أعضاء جمعية العلوم المفتوحة بتنظيم وإلقاء وتدريب ضمن مجموعة متنوعة من الفعاليات



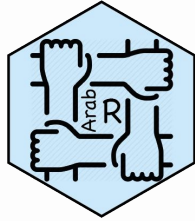
Einstein Stiftung Berlin
Einstein Foundation Berlin



أمثلة لنشاطات الجمعية



التعاون مع المؤسسات والباحثين لاكتساب المهارات والأدوات اللازمة لجعل أبحاثهم مفتوحة وقابلة للتكرار.



متطوعين من Carpentries



الهيئة العامة للغذاء والدواء
Saudi Food & Drug Authority

باحثون في المؤسسات العلمية



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*“I’ve developed a new package called Lextale. To my knowledge, this is the **first R package in the field of linguistics** developed in Saudi Arabia. Being part of rOpenSci is an opportunity for networking with other champions/mentors from around the world, a potential to support the community, share experiences, and **contribute to the existing body of reproducible science.**”*



Ghozayel Elotteebi

OSCSA Community Member PhD,
rOpenSci Champion Student at the
University of Nottingham



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Abdulrahman Alswaji
OSCSA Community Member
Bioinformatician in KAIMRC

  @alswajiab

“Reflecting on my mentorship experience, it was truly rewarding as I not only had the opportunity to guide and support others but also found valuable lessons in the process, making it a rich and fulfilling journey of mutual growth.”

Co-delivered a talk in **FOSS Backstage 2023** titled “***Lessons Learned for increasing the accessibility for Right-to-Left Language support in Open Source Community***” and co-mentor in Outreachy to develop MOOCs Platform



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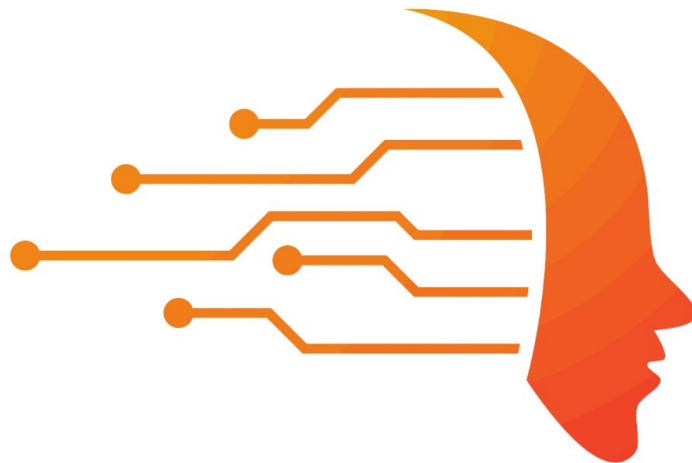


Open Science Community Saudi Arabia (OSCSA)

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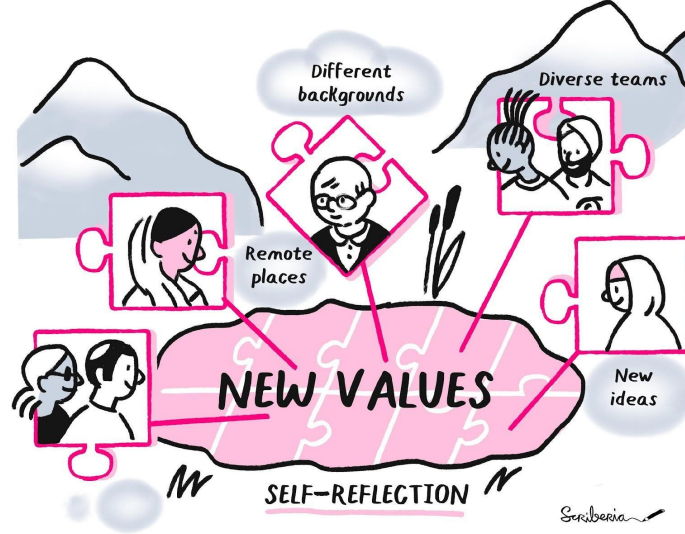
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مفتوح للجميع



نحن نسعى لإنشاء بيئة آمنة وشاملة للأفراد بغض النظر عن العمر، والإعاقة، والخبرة، والعرق، والديانة. كما نقوم بفتح المجتمع للأفراد من خارج المملكة العربية السعودية ودول الخليج.



The Turing Way project illustration by Scriberia.
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[10.5281/zenodo.3332807](https://doi.org/10.5281/zenodo.3332807)



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creative commons

Avoiding the “catch-up” trap

These are bridges/tools to reach the destination

- Open access publications
- Research data sharing ← — —
- Research software open — — → ness
- ...etc

This is the destination

- **Sovereignty** and agency in knowledge production
- **Promote** inclusiveness, **equity**, and participation in scientific discoveries
- Help **solve complex** social, environmental challenges



The goal of open science is **NOT openness itself**, it's about redistributing power in knowledge production—challenging the extractive systems that enrich the Global North at the expense of the Global South



Image Credit: <https://imperialismshowcasejanetterivera.weebly.com/imperialism-cartoon.html>



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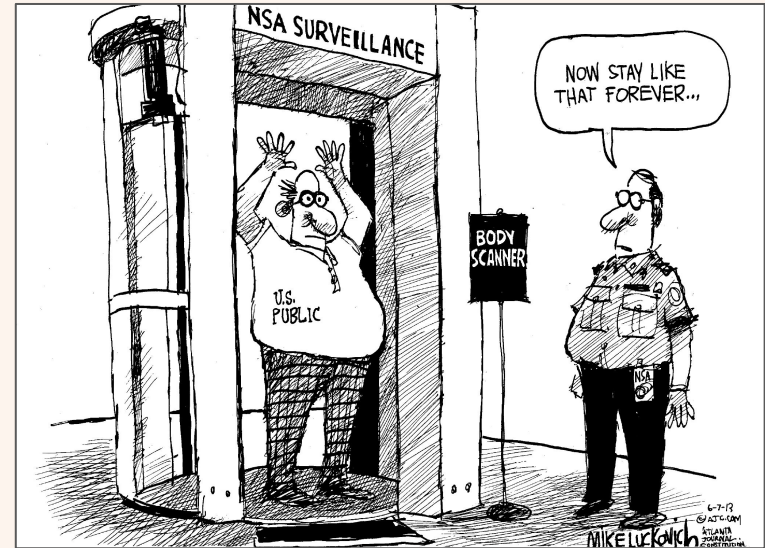
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Monitoring and open practice should **never reinforce the very problems** it aims to solve

Rethinking Publisher Surveillance

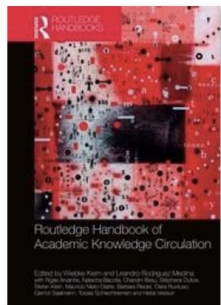
- Publishers use surveillance publishing: collecting detailed authorship and readership data to fuel analytics, control, and profits.
- According to Sarah Lamdan (Data Cartels, 2022): publishers act as “data brokers,” monetizing data beyond publishing.
- Example: Elsevier and Thomson Reuters helped U.S. Immigration and Customs Enforcement (ICE) build surveillance networks to identify and deport immigrants, revealing ethical breaches of academic data use.



Source: <https://www.bostonglobe.com/opinion/2013/06/13/editorial-cartoon-nsa-surveillance/LlIHam6LVuAMg23Eg9OOYL/story.html>



Reflection on the Digital Object Identifier (DOI) history



Chapter

Digital Object Identifier

Privatising Knowledge Governance through Infrastructuring

By [Angela Okune](#), [Leslie Chan](#)

Book [Routledge Handbook of Academic Knowledge Circulation](#)

DOI became the ISO international standard in 2012 due to intense publisher lobbying, Registration agencies charge significant fees, limiting participation of smaller publishers.

*"At a minimum, the DOI helps ensure that publishers will dance to the same rhythm. [...] Adopting electronic-publishing solutions based on common open standards **increases the likelihood that publishers' capital investments will pay off. It helps ensure that publishers will be able to extend their franchises into cyberspace, where much of the world of information is surely going**"*

- Rosenblatt wrote in 1997 in *The Journal of Electronic Publishing*



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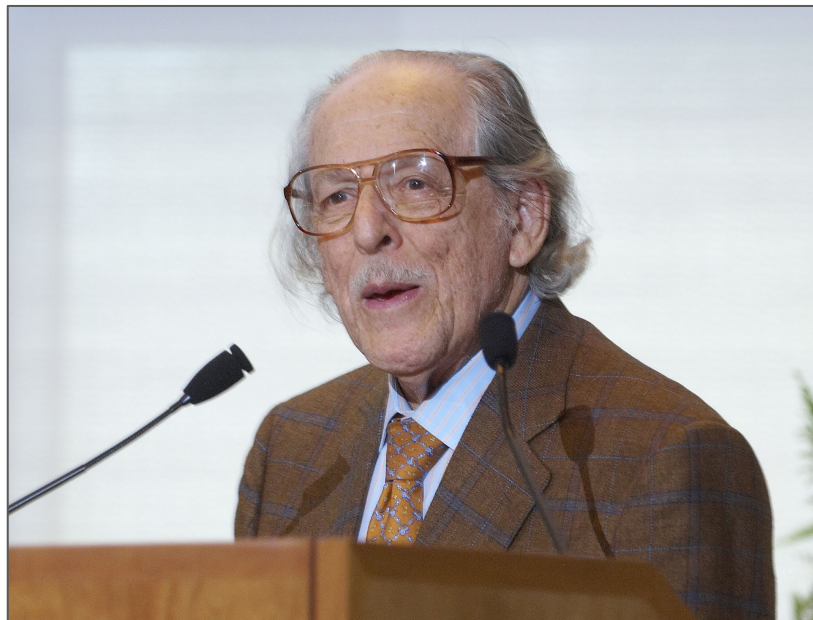


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Depoliticised Open Science is a misconception; Science has never stood outside power

When Eugene Garfield launched the Science Citation Index in 1963, and coverage centred on the US and Western Europe. **Of the first 613 journals, 70% came from the US or UK, and none from Africa, and more than 550 African journals existed then.**



Eugene Garfield founded the Institute for Scientific Information in 1955 and launched the Science Citation Index in 1963

Resource: Does the African academy need its own citation index? Global Africa Journal. Retrieved September 4, 2025, from <https://www.globalafricajournal.org/critical-issues/does-the-african-academy-need-its-own-citation-index>



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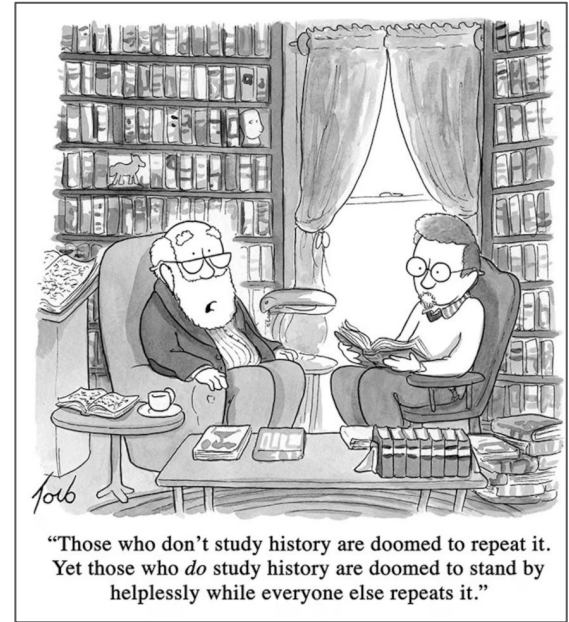


المنطقة العربية منطقة حساسة تاريخيًا وسياسيًا، ولذلك ينبغي أن يكون تطبيق مبادئ العلوم المفتوحة نابغًا من فهم محلي عميق، لا مجرد تقليد للنماذج الغربية، مع التفكير بعناية في جميع أبعاده.

We shouldn't **reduce** Open Science to technical problems that we "attempt" to fix – but ignore the power dynamics

Open Science **shouldn't be a checklist of open practices.**

Cartoon originally appeared in the June 25, 2012 issue of Litro (UK).





“We tend to focus on the **visible barriers** like paywall in the open space & not enough attention to the **hidden and invisible epistemic and structural barriers** of the north and south”

Leslie Chan - Director @KnowEquityLab



دروس وتأملات من مجتمعنا

السؤال المطروح هو: كيف يمكننا بناء بيئات وبنى معرفية بديلة **تُعزز التضامن الفكري والاقتصادي**، ونُنمّي الترابط المعرفي، بدلًا من استنساخ نماذج المؤسسات الغربية؟

نحن بحاجة إلى مزيد من الدراسات التي تتناول أسئلة مثل:

- كيف تتوزع تمويلات العلوم المفتوحة بين بلدان الجنوب العالمي والشمال؟
- ما السبل التي قد تُسهم بها بُنى العلوم المفتوحة في توسيع نطاق المراقبة أو الحدّ منها؟
- وكيف يمكن للعلوم المفتوحة أن تدعم الصمود السياسي والاقتصادي وتُعزز القدرات المحلية؟



A word cloud shaped like a heart, featuring the phrase "Thank You" in the center in large red letters. Surrounding it are numerous words in various languages and scripts, including English, Arabic, Urdu, Persian, and others, all expressing gratitude. The words are arranged in a circular pattern, with "Thank You" being the largest and most prominent.

- **Abdulrahman Alswaji**
- **Abdulrahman Al-Dallak**
- **Ebtisam Al-Harbi**
- **Ghozayel Elotteebi**