

The global state of Open Science

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Lima, Peru
Sept 11th, 2019

[Open] Science is a Human Right

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.

We are in the middle of a global research [r]evolution

There are (at least) five major 'crises':

- **Access** – Most research still paywalled to most people
- **Reproducibility** – Much research fails basic reproducibility tests
 - **Serials** – The dramatic price increases of journals
 - **Evaluation** – The metric that shall not be named
- **Copyright** – No longer serves researchers or creators

The way the current system works is
a consistent violation of
fundamental human rights.

This is why each of us has to fight to
protect them. Today.



United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

WORLD SCIENCE DAY FOR PEACE AND DEVELOPMENT 2019

OPEN SCIENCE, LEAVING NO ONE BEHIND

THE THEME FOR 2019

The World Science Day for Peace and Development, celebrated every year on 10 November, was established by UNESCO in 2001 with the aim of highlighting the important role of science in society and the need to engage the wider public in debates on emerging and important contemporary issues relevant to science.

In 2019, the Day will be devoted to the theme of **Open Science** – a burning issue in the scientific community, which is gaining increasing attention by the non-scientific community as well. Innovators, engineers, tech developers, both from private and public sectors are embracing the open science and open innovation concepts. And policy makers and citizens are increasingly embracing the concept of open science as a tool for making science more accessible, the scientific process more inclusive and the outputs of science more readily available.

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SUSTAINABLE DEVELOPMENT GOALS



We need science to help solve the problems our global society faces.

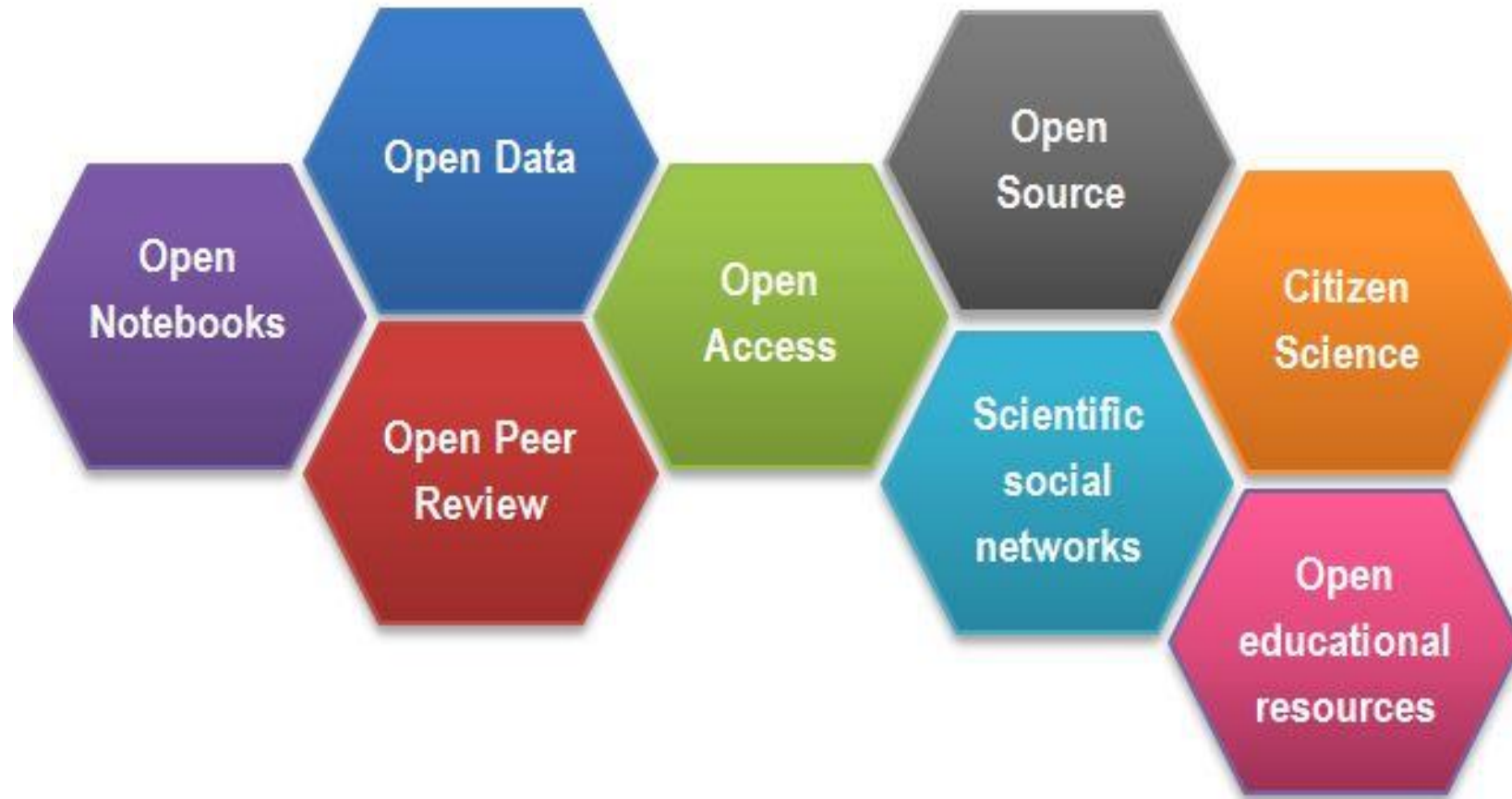
We must acknowledge that by preventing access to research, we are acting against meeting these goals.

And this is what many in the present scholarly publishing industry are doing. In exchange for vast sums of public money.

It's not a bug. It's a feature.



What is 'Open Science'?



What is the difference between “Open Science” and good science?



Comment | [Open Access](#)

When will 'open science' become simply 'science'?

[Mick Watson](#) ✉

Genome Biology 2015 16:101

<https://doi.org/10.1186/s13059-015-0669-2> | © Watson; licensee BioMed Central. 2015

Published: 19 May 2015

Open Science now: A systematic literature review for an integrated definition

[Ruben Vicente-Saez](#) ✉, [Clara Martinez-Fuentes](#) ✉

“Open Science is transparent and accessible knowledge that is shared and developed through collaborative networks.”

“Open science describes the practice of carrying out scientific research in a completely transparent manner, and making the results of that research available to everyone. **Isn't that just 'science'?**”

<https://genomebiology.biomedcentral.com/articles/10.1186/s13059-015-0669-2>

<https://www.sciencedirect.com/science/article/abs/pii/S0148296317305441>

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Principles of Open Scholarship



Transparency	Accountability	Inclusivity
Responsibility	Community & Collaboration	Visibility
Rigour	Equality	Public good
Reproducibility	Findability	Accessibility
Interoperability	Re-usability	Innovation



- ✓ Freedom
- ✓ Fairness
- ✓ Justice
- ✓ Truth
- ✓ Liberty

Open Science Promotes Diverse, Just, and Sustainable Research and Educational Outcomes

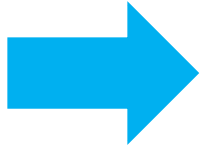
Jon E Grahe , Kelly Cuccolo , Dana C Leighton , Leslie D Cramblet Alvarez

Show

“Open science initiatives also promote **diversity, justice, and sustainability** through increased levels of **inclusion** and access, **equitable** distribution of opportunities and dissemination of knowledge, and increased sustainability stemming from increased generalizability.”



**GOOD
SCIENCE**



- Transparency
- Reproducibility
- Accountability

Principles

Thoughts in progress...

**OPEN
SCHOLARSHIP**

**GOOD
PEOPLE**



- Open Access
- Open Methods
- Pre-registration

Practices



Values

- Equity
- Freedom
- Fairness

advertising



text



+

data



+

code



+

version



science



0%

reproducibility spectrum



100%



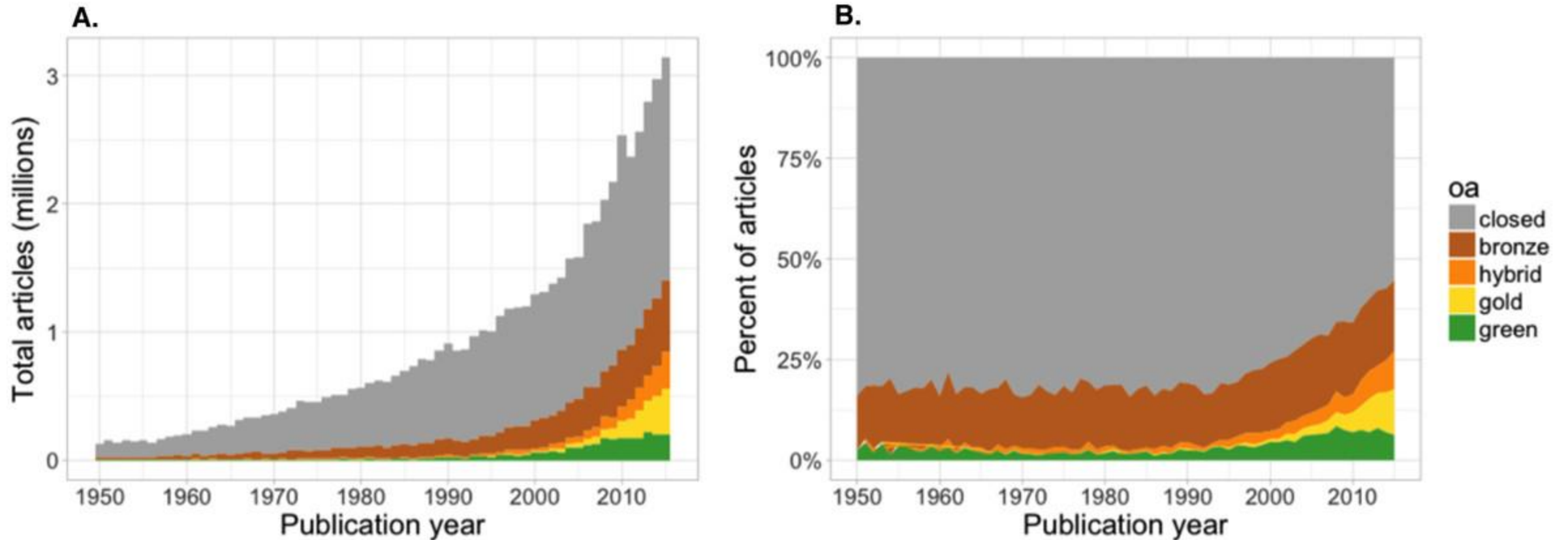
Paola Masuzzo, re-used with permission
Sticker by Melanie Imming

Science *without*
is just
open anecdote

Open Science is global and affects all of us



Painfully slow growth of Open Access?



“We estimate that at least 28% of the scholarly literature is OA (19M in total) and that this proportion is growing, driven particularly by growth in Gold and Hybrid.” – Piwowar et al., 2018.

Mega-publishers are corrupting Open Science



Organisations stuck in a pre-digital mindset with a key product developed in the 17th Century.

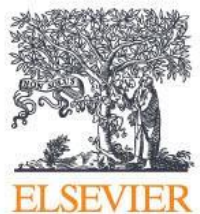
Basically the reason why the Open Science 'movement' began.

Business models based on exclusion, exploitation of privilege, discrimination, extortion..

Who pay lip service to Open Science, while simultaneously subverting it to meet their own intentions.

We DO NOT share the same values and principles.

Four principles of...



...the information system supporting research

Four principles of...

The Evlsevier Empire



...the information system supporting research

<https://twitter.com/brembs/status/1100713883373838337>

Things you can't even make up

Elsevier are corrupting open science in Europe

Elsevier - one of the largest and most notorious scholarly publishers - are monitoring Open Science in the EU on behalf of the European Commission. **Jon Tennant** argues that they cannot be trusted.

<https://www.theguardian.com/science/political-science/2018/jun/29/elsevier-are-corrupting-open-science-in-europe>

https://zenodo.org/record/2565052#.XXL_7GZOnZs – Referring RELX to the EU Competition Authority

<https://bit.ly/2PPjwRK> – Democratising Knowledge, Education International

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WHO joins coalition for free digital access to health research

Statement by the World Health Organization in support of cOAlition S

29 August 2019 | Departmental news

Today, WHO announces it is the first of the United Nations agencies to join a coalition of research funders and charitable foundations (cOAlition S), an initiative to make full and immediate open access to research publications a reality. cOAlition S is built around [Plan S](#), which consists of [10 principles](#) to ensure that the

<https://www.who.int/news-room/detail/29-08-2019-who-joins-coalition-for-free-digital-access-to-health-research>

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The reading hall at the central library of the Humboldt University in Berlin. ANDREAS LEVERS/FLICKR (CC BY-NC-SA 2.0)

German researchers resign from Elsevier journals in push for nationwide open access

By Gretchen Vogel | Oct. 13, 2017 , 3:30 PM

“One big publisher stated: if your country stops subscribing to our journals, science in your country will be set back significantly. I responded [...] it is interesting to hear such a threat from a producer of envelopes who does not have any idea of the contents.”

€£\$€¥|€R

#villain



Martin Grötschel, President of the Berlin-Brandenburg Academy of Sciences and Humanities

#HERO

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Norwegian Universities Ditch Elsevier

By [Lindsay McKenzie](#) // March 13, 2019

4 COMMENTS 

Germans to close “transformative” deal with SpringerNature

Deal banks heavily on hybrid option and excludes Nature-affiliated publications

[Internationaal](#) | door [Sicco de Knecht](#)

22 augustus 2019 | For the better part of three years German research institutes including the Max Planck society have been battling the major publishers over open access. Today Projekt DEAL and Springer have come to an understanding on immediate open access for most – but not all publicati

[NEWS](#) / [PUBLISHING NEWS](#) / [ELSEVIER SIGNS PI...](#)

Elsevier signs pilot agreement to serve Hungary

10 July 2019



German Institutions and Wiley Reach Open-Access Publishing Deal

The three-year contract, in which all articles will be published as open access in exchange for an annual fee for journal subscriptions, is a triumph for Project DEAL.

[NEWS](#) • 19 JULY 2018

Dutch publishing giant cuts off researchers in Germany and Sweden

Negotiations with Elsevier have stalled over open-access deals.

NEWS RELEASE 3-SEP-2019

Springer Nature and the Austrian Academic Library Consortium renew open access contract

Researchers and students in Austria continue to benefit from the proven 'Read & Publish' model; the agreement combines the opportunity to publish open access in more than 1,900 Springer journals with access to more than 2,000 subscription journals

Springer Nature accelerates its transformative journey with the signing of landmark pure Open Access (OA) deal

June 27, 2019



SPRINGER NATURE

Two further new read and publish deals drives Springer Nature's transformative deals into double figures

New agreements agreed this week with the Bibsam consortium in Sweden and Norway's Unit consortium takes the number of Springer Nature's read and publish deals to ten, putting the publisher firmly on the path to becoming a

transformative publisher.

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Springer Nature abusing power for profits

Page 99 of the Springer Nature IPO* prospectus:

“We also aim at increasing APCs by increasing the value we offer to authors through improving the impact factor and reputation of our existing journals.”

Springer Nature is committed to being a part of the open-access movement

Institutions, research funding bodies and publishers must all work together to change the system in the interest of advancing research, says Steven Inchcoombe

May 18, 2018

<https://www.timeshighereducation.com/blog/springer-nature-committed-being-part-open-access-movement>

<https://www.timeshighereducation.com/blog/linking-impact-factor-open-access-charges-creates-more-inequality-academic-publishing>

*failed...

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We have to combat their propoganda

Springer Nature proposes model for open access transition

Suggested approach could see content from *Nature* made freely available

May 10, 2019



“We respect academics,” Mr Inchcoombe told *Times Higher Education*, “but it’s become increasingly clear...that unless we can move from being a passive enabler for academics and researchers to make their choices, to become a driver enabler, the transition is going to happen at a snail’s pace.”

The announcement was met with some scepticism, however. Jon Tennant, a researcher at the Institute for Globally Distributed Open Research and Education, rejected the notion that the company was acting as a leader on open access.

“Springer Nature are the definition of bandwagon jumpers,” he said. “They have been dragged kicking and screaming into the open access space.”

<https://www.timeshighereducation.com/news/springer-nature-proposes-model-open-access-transition>

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Better or worse?



<https://www.hrk.de/press/press-releases/press-release/meldung/projekt-deal-and-springer-nature-reach-understanding-on-worlds-largest-transformative-open-access-a/>

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North America in transition?

California's Elsevier break strengthens other campuses' hands

Universities report winning more conciliatory terms on open access question in their own negotiations with publisher

September 2, 2019

By Paul Basken

Twitter: @pbasken

The University of California's decision to cut ties with Elsevier has led the publisher to soften its demands with other US campuses, according to an open access advocate.



<https://osc.universityofcalifornia.edu/2019/08/fact-check-uc-and-elsevier/>

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<https://www.timeshighereducation.com/news/californias-elsevier-break-strengthens-other-campuses-hands>

We are running out of time

“The current model of scholarly publishing contains a disastrous blend of Stockholm Syndrome and cognitive dissonance. Researchers are helplessly locked into the system because of an over-reliance on journal brands for their evaluations.

Every time we sign one of these so-called transformative contracts, which often contain multi-year lock-ins, we lose the opportunity to create something more just, sustainable, efficient and effective. We actively work against efforts to return control of publishing to the academic community. **It is time to take a step back and to think again about what we really want.”**



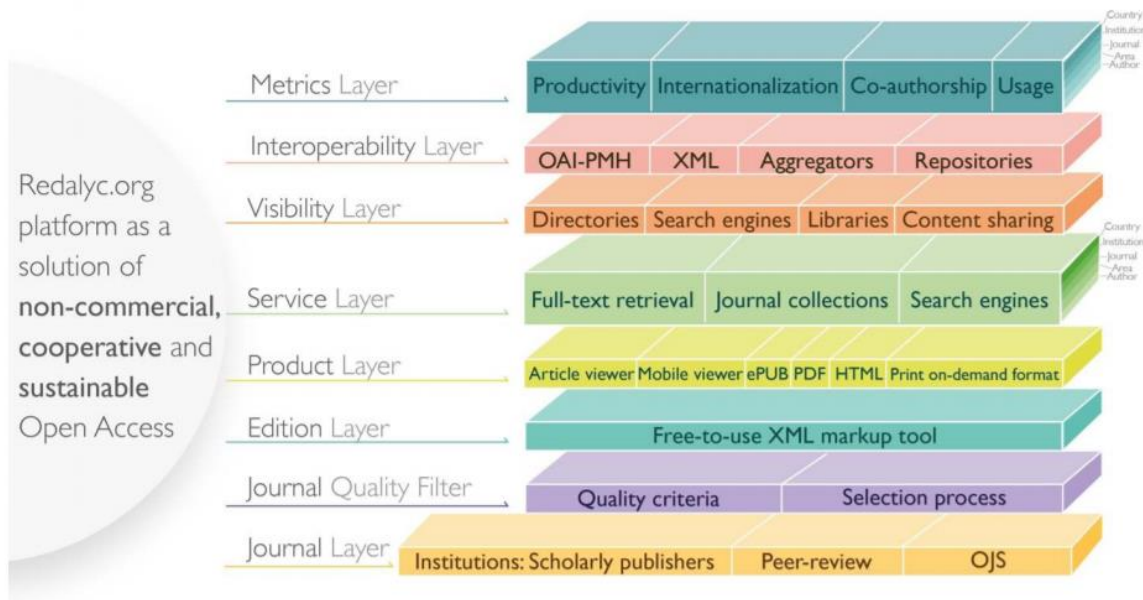
Bridging the North-South divide

What can we learn from the successes and failures of each other?

SciELO: the hero the world needs?

- Covers Latin America, Iberian Peninsula, and South Africa (13 countries)
- Around 750,000 published papers, 1,200 active journals – all OA!
- 20 years of free/low cost publishing for researchers
- Production costs much lower than ‘western’ publishing houses





- 1,260 journals from 15 Iberoamerican countries
- 622 publishers
- Half a million full text articles
- Generates bibliometric indicators too

Why are SciELO/REDALYC so effective?

- Strong cultural commitment and sense of public mission among Latin American universities and researchers:
 - *“Iberoamerican scientists especially are committed to the movement as a way to ensure that society benefits from their research.”* - Victoriano Colodrón.
- Have we lost this idea around much of the rest of the world?
- Or have the ‘western’ publishing houses corrupted the process?

Vive la revolution?

PubliSciences [Home](#) [About](#) [Contact](#) [Join us](#)

Discover the first cooperative platform dedicated to **academic research publication**

An innovative publishing platform led and built by the scientific community.
Enjoy better visibility and transparency with a **real Open Access** and **high quality Open Peer Reviewing**.

[Join us](#) [Manifesto](#)

https://twitter.com/michael_rera



<https://publiscience.com/>

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Plan S has it backwards

- Instead of Plan S trying to impose itself on the rest of the world (**cough** Neocolonialism **cough**), we should be asking how can we co-operate and learn from the huge successes of Latin America
- Without continuing to funnel billions of taxpayers money into a corrupt, dysfunctional, profit-driven system

“From a geopolitical perspective, there are fundamental differences in the notion of scientific publishing and scholarly publications, which appear to be handled as a commodity prone to commercialization in Plan S guidelines.”

“We believe that the potential adhesion of Argentina and other countries from this region to Plan S ignores the reality of Latin America, and harms at a regional and global level the advancement of non-commercial Open Access initiatives.”

Principles to achieve Open Access

Europe



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

The Funders will ensure jointly the establishment of robust criteria and requirements for the services that compliant high quality Open Access journals and Open Access platforms must provide;

In case such high quality Open Access journals or platforms do not yet exist, the Funders will, in a coordinated way, provide incentives to establish and support them when appropriate; support will also be provided for Open Access infrastructures where necessary;

Where applicable, Open Access publication fees are covered by the Funders or universities, not by individual researchers; it is acknowledged that all scientists should be able to publish their work Open Access even if their institutions have limited means;

When Open Access publication fees are applied, their funding is standardised and capped (across Europe);

The Funders will ask universities, research organisations, and libraries to align their policies and strategies, notably to ensure transparency;

The above principles shall apply to all types of scholarly publications, but it is understood that the timeline to achieve Open Access for monographs and books may be longer than 1 January 2020;

The importance of open archives and repositories for hosting research outputs is acknowledged because of their long-term archiving function and their potential for editorial innovation;

The 'hybrid' model of publishing is not compliant with the above principles;

The Funders will monitor compliance and sanction non-compliance.

Latin America and the Global South



1 Scientific knowledge generated by public funds is a common good and access to it is a right.

2 Open Access must be legally protected in order to avoid the appropriation of scientific knowledge for profit.

3 Open Access has no future or meaning without an evolution of research evaluation systems.

4 The consolidation of Open Access must consider the transition to digital scientific communication as an essential axis.

5 The economical investment in Open Access must be coherent with its benefit to society just as commercial solutions are paid.

6 The adverse economic scenarios facing Open Access will have to be overcome with work schemes based on collaboration and sustainability.

7 It is necessary to recognize the diversity of scientific journals and stop the pressures that seek to homogenize them. In the other hand, journals must support the strengthening of institutional repositories by means of the disappearance of policies of embargo.

8 The social impact of science is the foundation of Open Access' existence.

9 It is necessary to respect the different dynamics of generation and circulation of knowledge by area, especially the dynamics of the social sciences and the humanities.

10 Open Access must be permanently conceptualized and accordingly defined. The three "B" homogenize the conditions of the development of science and the conditions of the South are different from those of the North.

www.amelica.org/en/index.php/2019/01/10/amelica-vs-plan-s-mismo-objetivo-dos-estrategias-distintas-para-lograr-el-acceso-abierto/

Arianna Becerril-García, chair of AmeliCA:
“The commercial strategies that for-profit publishers have adopted for open access are ravenous, exclusionary and unsustainable. This is entirely contrary to the vision of open access that AmeliCA supports.”



Arianna Becerril-García | PhD. in Computer Science
Executive Director, Redalyc.org | Chair, AmeliCA

Redalyc  AmeliCA

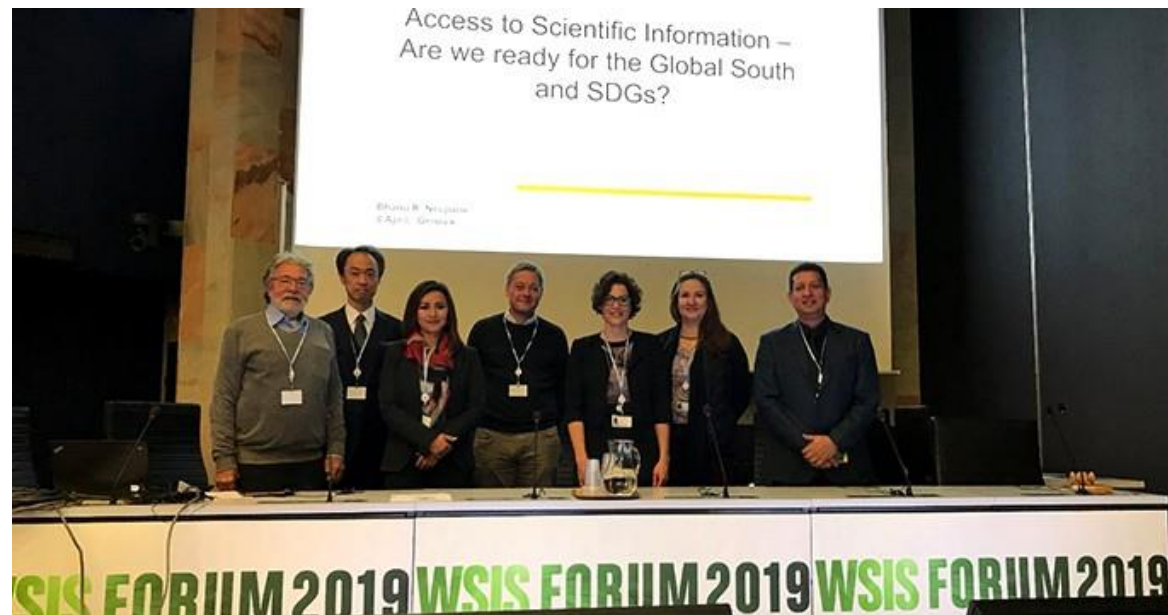
<https://www.youtube.com/watch?v=yQDFHBJX7xl&feature=youtu.be>

<https://poynder.blogspot.com/2019/05/the-oa-interviews-arianna-becerril.html>

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GLOALL: Global Alliance of Open Access Scholarly Communication

Taking back control of scientific publications by academics and institutions by investing the in development of a shared and open scholarly infrastructure.



AmeliCA, AJOL, Érudit, J-STAGE, OpenEdition, and SciELO



What can we all achieve if we stand together?

We need to stand together as a unified global community to make sure that we are acting in the best interests of the public, not corporate gains.

#PeopleNotProfits

What do we need to change cultures?

➤ **Leadership from those who are less at risk**

- They need to invest in our future
- Make sure that the system we are creating is in the best interests of future generations

➤ **For each of us to take small steps where we can**

- Without putting ourselves at risk
- Be aware of the options available to us

➤ **And some times to be brave**

- To stand up for what we believe in
- To ask the challenging questions
- To be deeply introspective of what we are doing and why

Welcome to the Open Science MOOC!

**To help make 'Open' the default setting
for all global research.**

We want to help create a welcoming and supporting community, with good tools, teachers, and role-models, and built upon a solid values-based foundation of freedom and equitable access to research.

Can we break the inertia?

➤ Education, training, support.

- Empowerment and leadership for the next generation.
 - Shifting power dynamics to reduce bias and abuse.
 - Building a global community based on strong values, sharing and collaboration.
 - Massive-scale engagement to re-align Open Science with current incentive structures.



- **GitHub:** <https://github.com/OpenScienceMOOC>
 - **Website:** <https://opensciencemooc.eu>
 - **Twitter:** [@OpenScienceMOOC](https://twitter.com/OpenScienceMOOC)
 - **Email:** info@opensciencemooc.eu

Modular learning

Open principles



**OPEN
PRINCIPLES**

Open collaboration



**OPEN
COLLABORATION**

Reproducible Research and Data Analysis



**REPRODUCIBLE
RESEARCH
& DATA ANALYSIS**

Open Research Data



**OPEN
RESEARCHDATA**

Open Research Software and Open Source



**OPEN
RESEARCH SOFTWARE
& OPEN SOURCE**

Open Access to Research Papers



**OPEN ACCESS
TO RESEARCHPAPERS**

Open Evaluation



**OPEN
EVALUATION**

Public Engagement with Science



**PUBLIC ENGAGEMENT
WITH SCIENCE**

Open Educational Resources



**OPEN
EDUCATIONAL RESOURCES**

Open Advocacy



**OPEN
ADVOCACY**

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Designed by: Mike Morrison

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

We are not alone



Status

- **In development**
- 2 modules currently live, 1000 enrolled participants
 - 860 Slack community members
 - 7500 Twitter followers
- 150 strong GitHub development team
 - 45 strategic partnerships
 - 2 more modules in development

<https://www.dataplanes.org/osmooc-dashboard/>

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

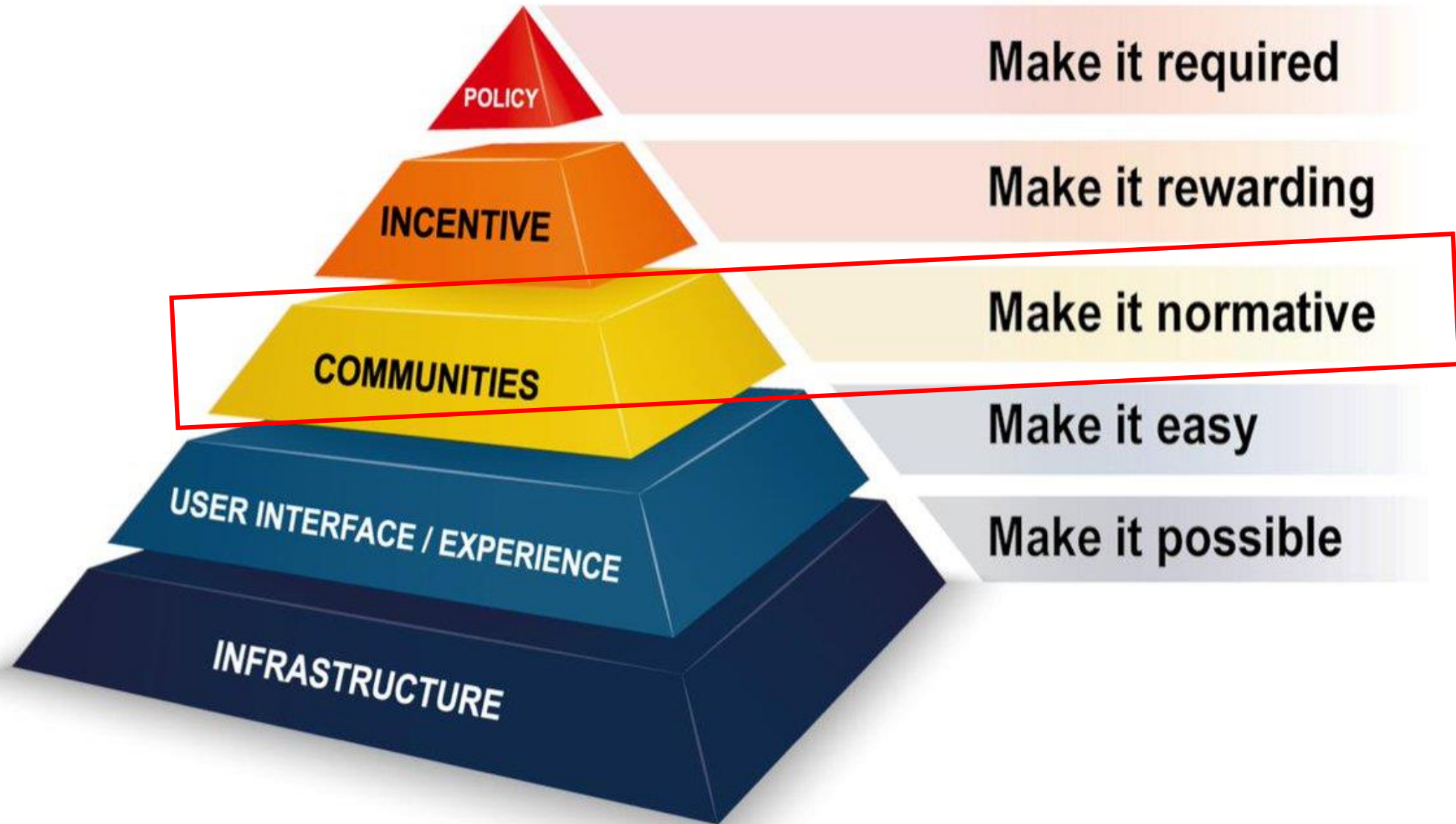
I invite you all to join us!

Locations of Open Science Twitter MOOC-ers

Profile locations geocoded with OpenStreetMap Nominatim (N = 2221)



Open science is a cultural change



How do we get to where we want?

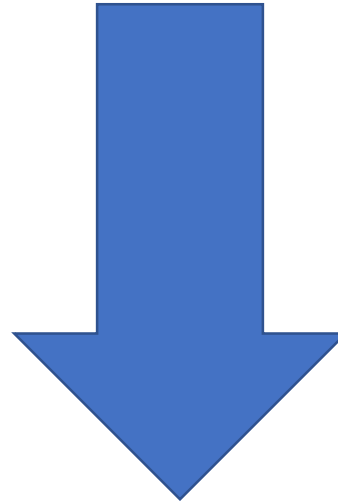
Imagine a future defined by the **values** and **principles** of Open Science:

- **Freely available public good**
- **Rigorous and reproducible**
- **Open to ALL**
- **Isn't that just GOOD science?**

The ultimate goal

Pooling knowledge and resources to create a decentralised scholarly infrastructure, with communities as the focus.

- ✓ Inclusivity
- ✓ Equality
- ✓ Accountability
- ✓ Freedom
- ✓ Fairness



- ✓ Justice
- ✓ Truth
- ✓ Rigour
- ✓ Transparency
- ✓ Reproducibility

SCIENCE AS A PUBLIC GOOD FOR THE BETTERMENT OF SOCIETY

#PeopleNotProfits

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.

Margaret Mead

