

Science is/as a Public Good



redalyc AmeliCA
UAEMEX

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President, AmeliCA



2nd Global Summit on Diamond Open Access
8 – 14 December 2024, Cape Town, South Africa

AUTOPISTA TOLUCA - ATLACOMULCO

PLAZA DE COBRO "EL DORADO"

Ubicación Km. 16+600



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PANAMERICANA LIBRE!!



From public to private...

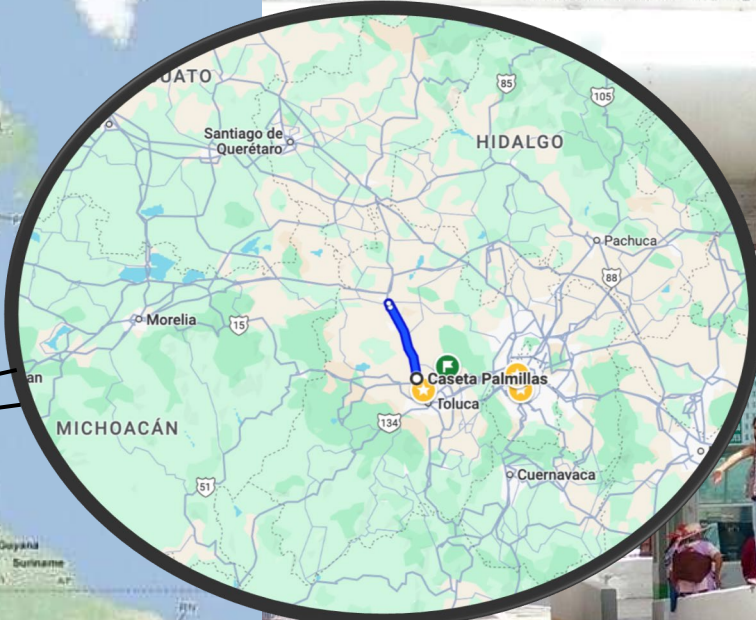
The pan-american highway



America united
Simon's Bolivar dream

- It used to be a free highway (no fee), the territory of this stretch of road was donated by the communities living there in the 1937.
- It connects indigenous communities (Otomies, Mazahuas) to the capital city.
- During neoliberalism stage in Mexico a concession was granted to private companies.
- Now they “kindly” offer fee exemptions to the original donors.
- But what about the universal benefit?

TOLUCA - ATLAZCOMULCO
"EL DORADO" Ubicación Km. 16+600



Universal benefit: LOST
A highway with more quality or efficiency: FALSE

Key factors in Open Access

Commodification

```
graph TD; A[Commodification] --> B[From public to private]; B --> C[Losses in diamond OA journals];
```

From public to private

Losses in diamond OA journals

Myths about publishing in commercial journals



- Efficiency
- Quality
- Visibility
- Prestige

Collateral damages of directing resources towards the commercial market

- National/institutional Infrastructure
- Capacity of shaping the future of publishing
- Editorial know-how in future generations of scholars and researchers
- Control and decision-making power (subordination)

Open Science is currently failing us to cause this transition:

From science
commodification

...

To science as
global public
good

Commercial publishing market

IF-like indicators of private databases are the foundational element of the exclusionary landscape.

Note: IF was created by E. Garfield to select journals for purchase, another unfortunate side-effect of the commercial market of journals.



Journals as brands



Industry of prestige based on non-transparent, non-replicable, proprietary metrics and rankings that serve as store displays.



Commercial publishers are judge and jury



The cost of publishing (subscription/APC) based on the industry of prestige



A game not designed for non-commercial journals

Commercial publishing market model



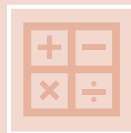
Undervalue of local research and local languages



Undervalue of the current ecosystem of journals published in Diamond OA



Misunderstanding of the terms visibility and internationalization.



Centered on “publish or perish” instead of scientific values.

Now, many claim the problem relies on the “journal” concept

- The problem is the **business model** not the journal concept itself
- The strategy “Towards Responsible Publishing” of Plan S, do not take “Diamond OA” into account.

“The dominant publishing models are highly inequitable because of subscriptions or APC barriers. (Towards Responsible Publishing, Plan S)”

- This problem is being faced by regions with high dependence on commercial publishers.
- Then these are the vices of commercial publishing, which is not the prevailing model in the Latin-American region: scholar-led and -owned Open Access non-APC publishing.

Unless we do not discuss the root of the problem will end up having the same discussion 10 years later with new formats of communication of science (i.e. preprints)

SCIENCE,
A GLOBAL
PUBLIC
GOOD

The battle is not among formats (i.e journals vs preprints) or in “big deals” negotiations.

The battlefield is on the ethos of science, sustainability models, principles and values.

SCIENCE,
A GLOBAL
PUBLIC
GOOD

The *Journals as brands*
problem causes the
funnel journals
phenomenon

SCIENCE,
A GLOBAL
PUBLIC
GOOD

It takes strong will on creating, sustaining and fairly recognizing Diamond OA journals to disrupt for a better future

- Research evaluation systems have relied on journals-as-brands strategies. Such situation has led to an unsustainable targeted pressure to few journals (for example, journals in the first quartiles of some indexes). Leading such journals to become funnels, stressed by the enormous flows in the reception of articles, the instability in the portfolios of reviewers, again, increased by the lack of recognition of the work of reviewers in the peer review processes.
- The slow reaction in the creation of Diamond Open Access journals, and the lack of firmness to sustain and retain journals within this model augments the problem of funnel journals. This situation is particularly serious in regions that contribute very little to diamond OA journals but do benefit from those that exist.
- The complexity of the problem suggests that the solution not only points to the "journal" entity but also to the scientific communication system with serious challenges in the assessment of scientific work that has distorted the flows of articles for reasons unrelated to the quality or contribution of the articles (as noted in the DORA Declaration).



“Public good” by design

Design and develop solutions for creating, sustaining and sharing digital public goods require “public good” thinking

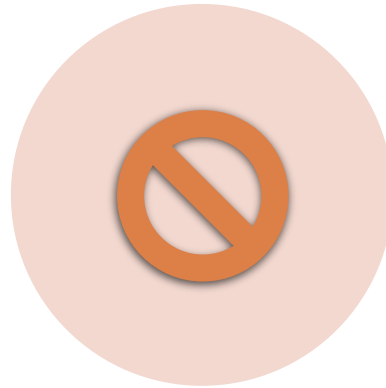
Created and sustained by the community serving the community

In the commercial approach of Open Access :

the transition to OA is measured by the total number of articles in OA



OPEN ACCESS NO
MATTER THE COSTS



OPEN ACCESS NO
MATTER WHO IS LEFT
BEHIND



OPEN ACCESS NO
MATTER FUTURE
IMPLICATIONS

From Science to Public Good

Open Science as a means to an end

Where Do We Want To Go?



Where Are We?



How Do We Get There?

**The ultimate aim
of Science is ...**

The fundamental goals of science are to:



Describe



Predict



Explain

The aim of Science:

- Is it not about progress?
- Is it not about development?
- Is it not about benefit for society?
- Is it not about saving lives?
 - Is it not about improvement of life conditions?

Open Science from Merton's norms

Open Science >
Open Access, peer
review,
reproducibility,
replicability, Open
Data

1) **Universalism**

Objectivity precludes
particularism

2) **Communality**

Common ownership of
scientific goods is integral
to science

Open Science >
Open Access,
Diamond OA, Green
OA, property,
licensing

Open Science >
Research
assessment

3) **Disinterestedness**

Science should be done
for the sake of science,
rather than self-interest.

4) **Organized Skepticism**

Scientific claims should be
exposed to critical
scrutiny before being
accepted

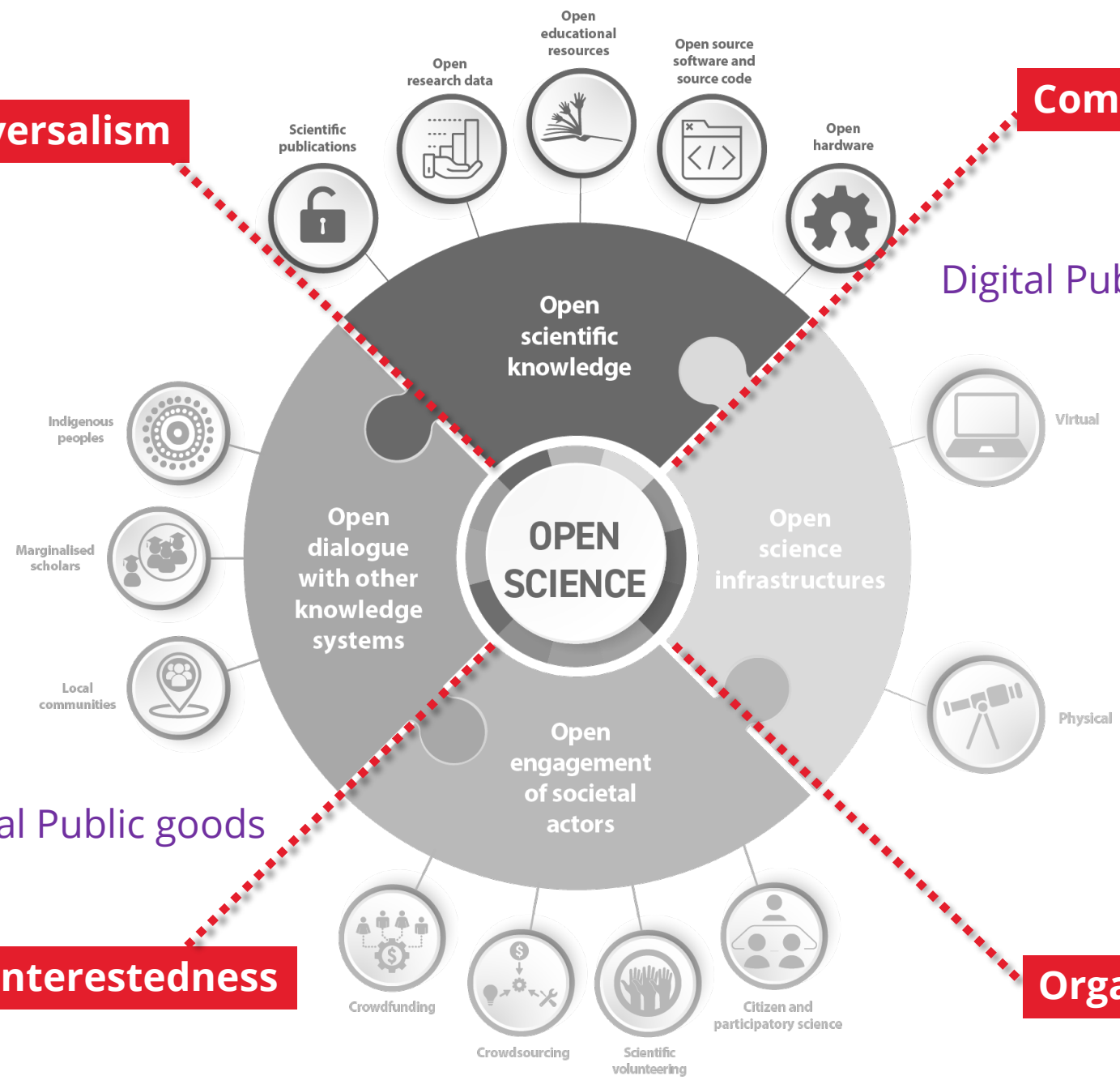
Open Science >
peer review,
reproducibility,
replicability, Open
Data

Universalism

Communality

Desinterestedness

Organized skepticism



Digital Public goods

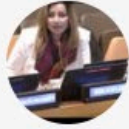
Digital Public goods

From Science to Public Good through Open Science

Open Science, an opportunity



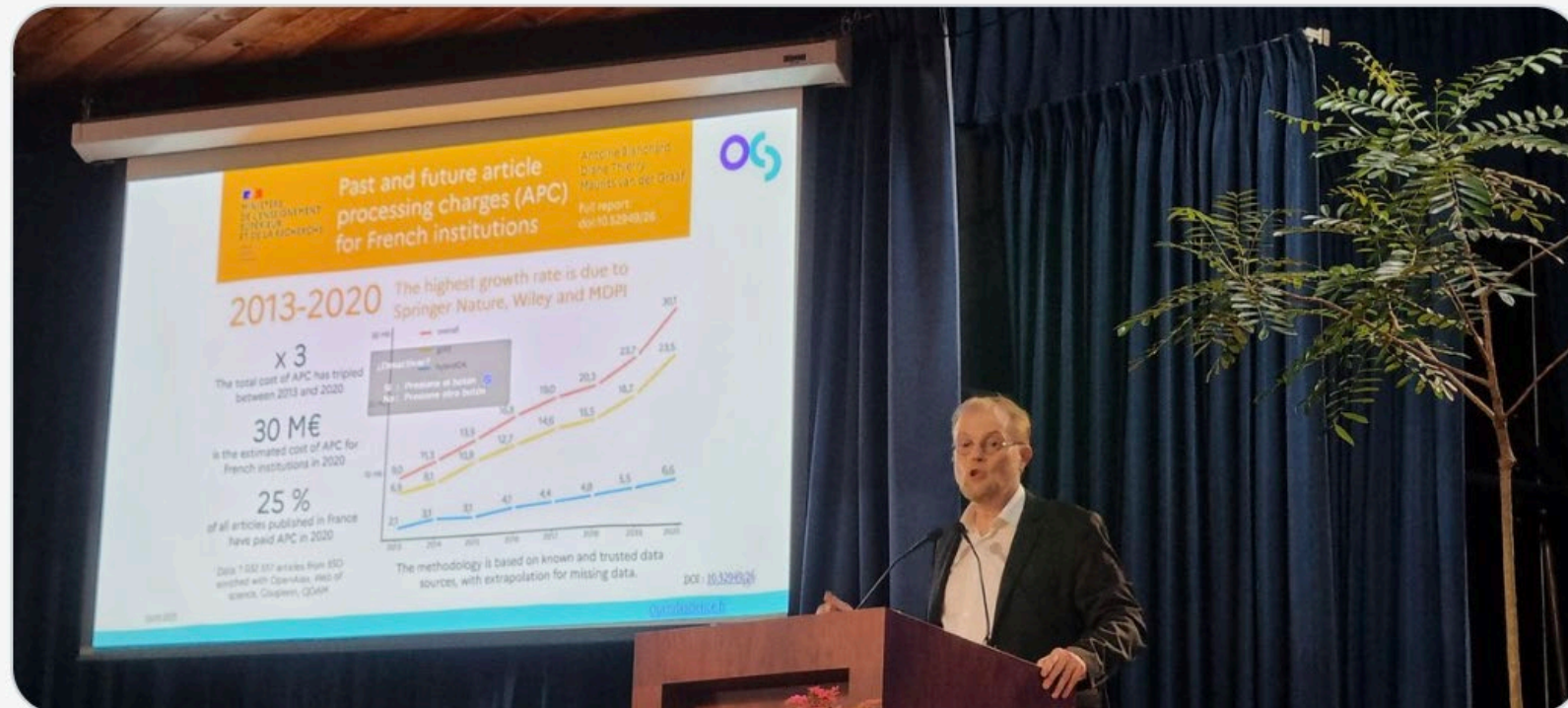
Where are we?



Arianna Becerril-García  @ariannabec · 18 may. 2023



@marindacos : The total cost of **APC** has tripled between 2013 and 2020
#COAR2023 // APC-based **publishing** is simply unsustainable



Is Science a Public Good?

Browse by discipline Information for

Science, Technology, & Human Values

Impact Factor: 3.1 / 5-Year Impact Factor: 3.8

Restricted access | Research article | First published October 1994

Is Science a Public Good? Fifth Mullins Lecture, Virginia Polytechnic Institute, 23 March 1993

[Michel Callon](#) [View all authors and affiliations](#)

[Volume 19, Issue 4](#) | <https://doi.org/10.1177/016224399401900401>

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Abstract

Should governments accept the principle of devoting a proportion of their resources to funding basic research? From the standpoint of economics, science should be considered as a public good and for that reason it should be protected from market forces. This article tries to show that this result can only be maintained at the price of abandoning arguments traditionally deployed by economists themselves. It entails a complete reversal of our habitual ways of thinking about public goods. In order to bring this reversal about, this article draws on the central results obtained by the anthropology and sociology of science and technology over the past several years. Science is a public good, not because of its intrinsic properties but because it is a source of diversity and flexibility.

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Contradictions of Commercialization: Revealing the Norms of Science?

Published online by Cambridge University Press: 01 January 2022

Tarja Knuuttila



Contradictions of Commercialization: Revealing the Norms of Science?

Published online by Cambridge University Press: 01 January 2022

study on the commercialization of the research of one academic language-technology group is presented. The case study does not support the constructivist conclusion that the norms of science are malleable at will.

Type	Norms of Science and Science Policy
Information	Philosophy of Science, Volume 79, Is DOI: https://doi.org/10.1086/667844
Copyright	Copyright © The Philosophy of Science


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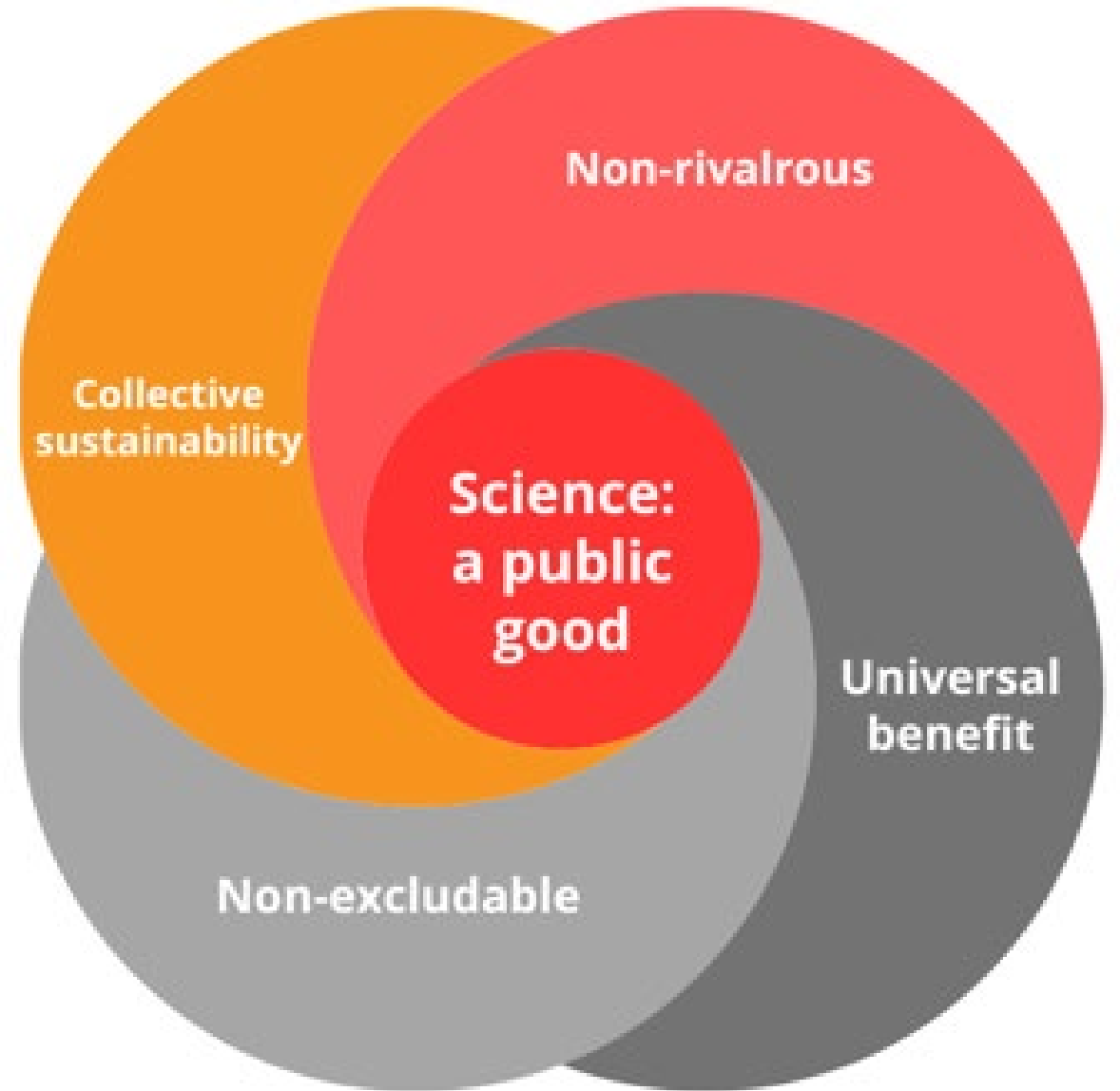
Article purchase

Digital access for individuals

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From Open Access to Digital Public Goods

Open Science from the paradigm of public goods



Open Science as a way to achieve science as a global public good



Prevent APC adoption



Design Open Science policies centered on the paradigm of science as a global public good



Reform on research assessment



Strengthen non-commercial Openness

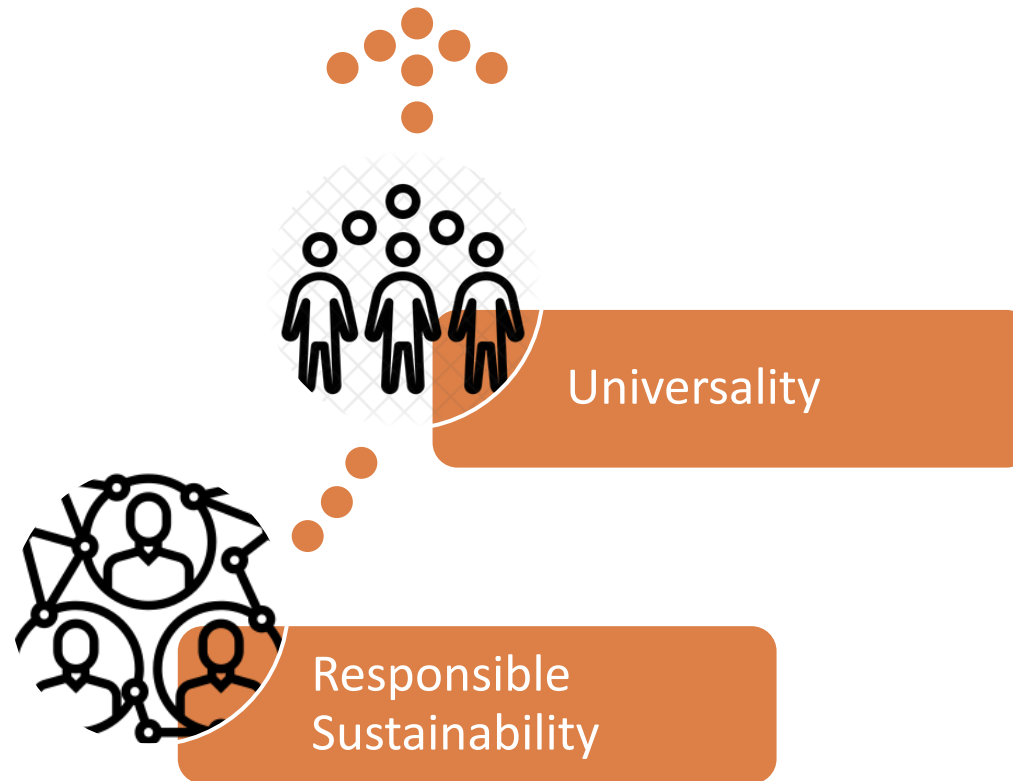


Investment in institutional/national/regional/global infrastructure

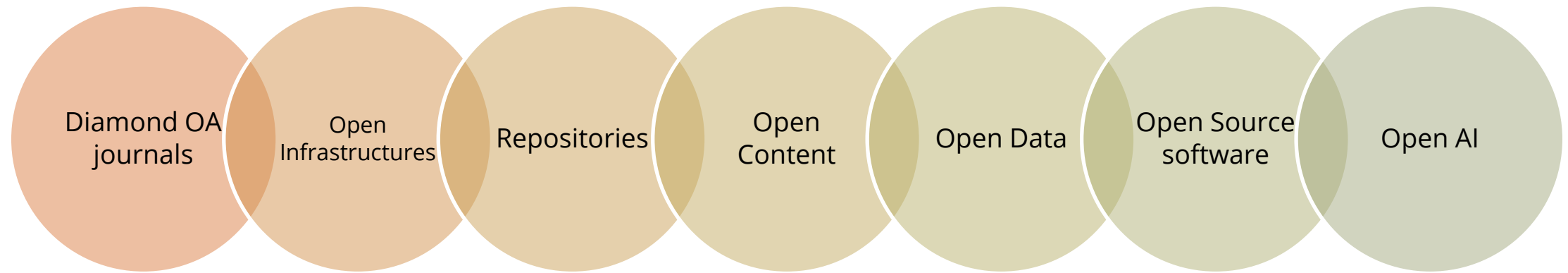


Creation and sustainability of Diamond OA journals and repositories

From Open Access to Digital Public Goods



Components of the Open Science ecosystem as public goods



The Digital Public Goods Alliance

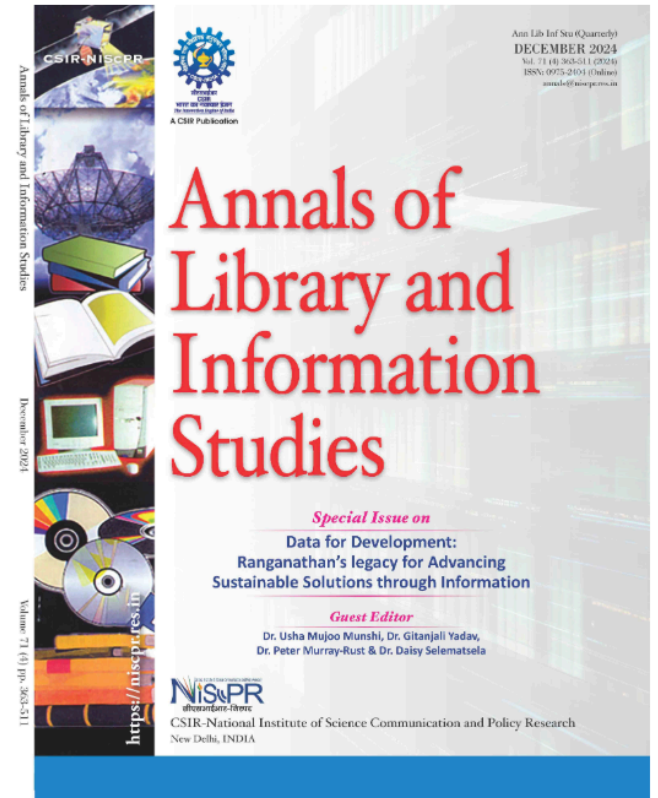
Science as a Public Good: The Role of Community and Digital Technologies for Equity, Sustainability and Development in the Global South

Arianna Becerril García

DOI: <https://doi.org/10.56042/alis.v71i4.14248>

Abstract

Knowledge generation is a recursive and community process that evolves by building on prior knowledge. The non-rivalrous and non-excludable nature of science, that allows it to be a public good, is reinforced when it takes place on the World Wide Web. Digital technologies are keystones for science to provide universal benefit and for enabling the community to collectively sustain it and lead it. Paywalls entail exclusion which affects the



Analysis of the Latin American journal publishing ecosystem

Publisher institutions as funders of journals to analyze the sustainability of publishing

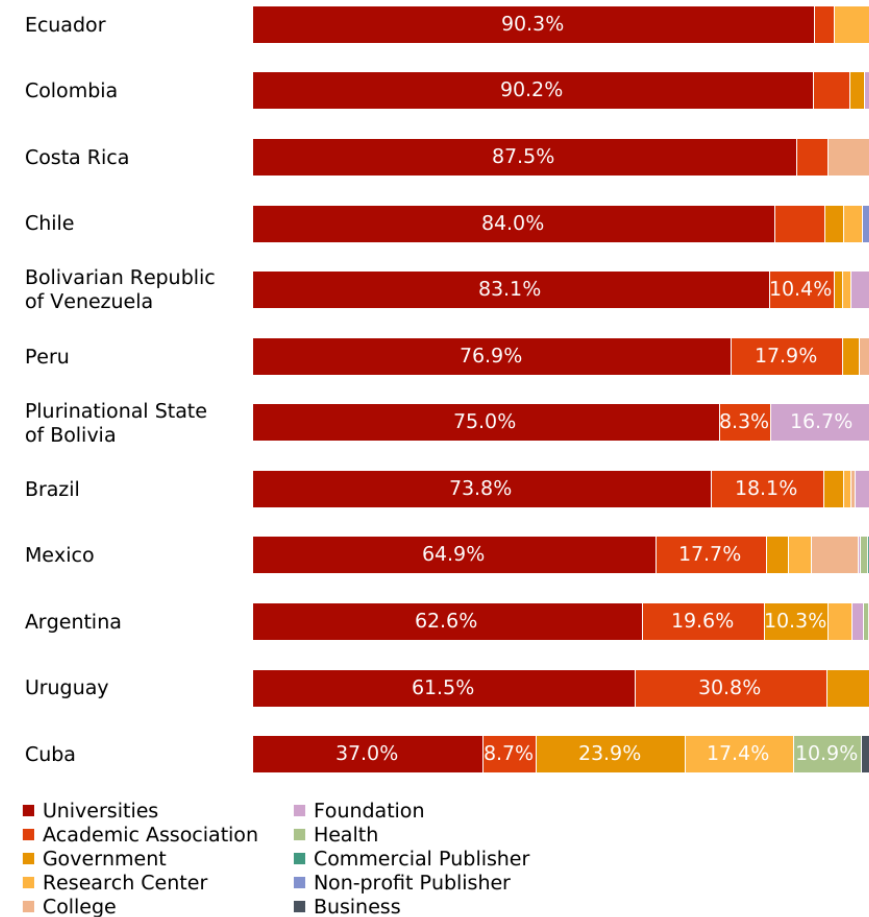
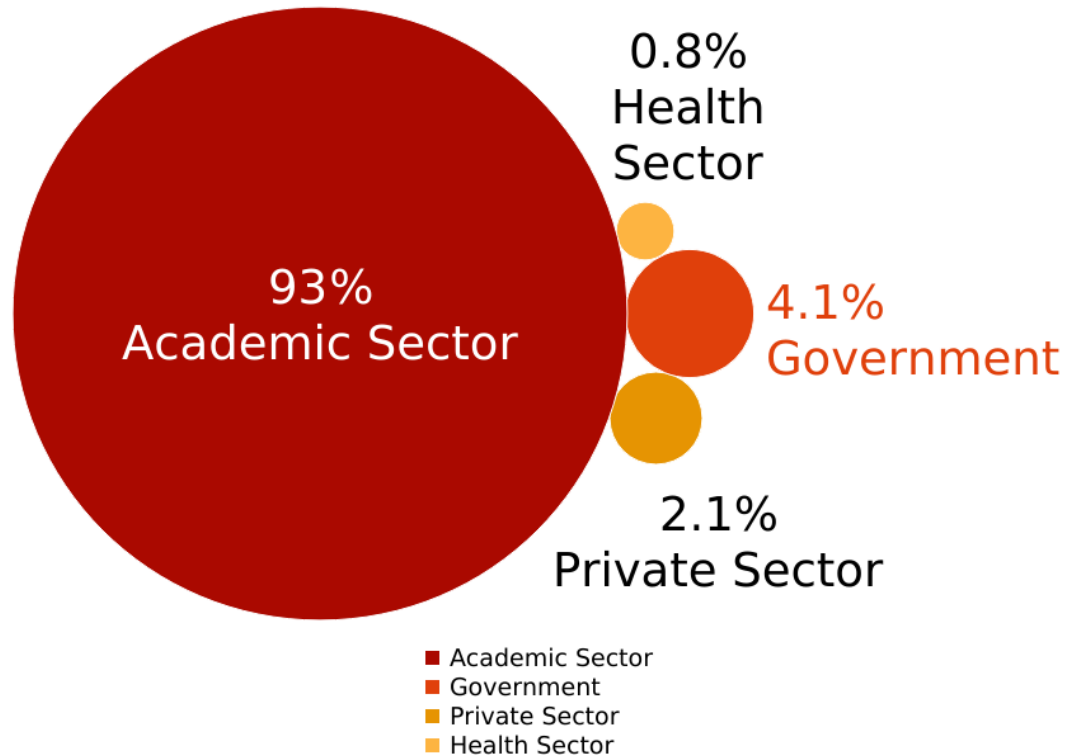
Sustainability

Usage by the community of authors and readers to assess the “universality” of the benefit that Diamond OA journals provide

Universal benefit

Collective sustainability

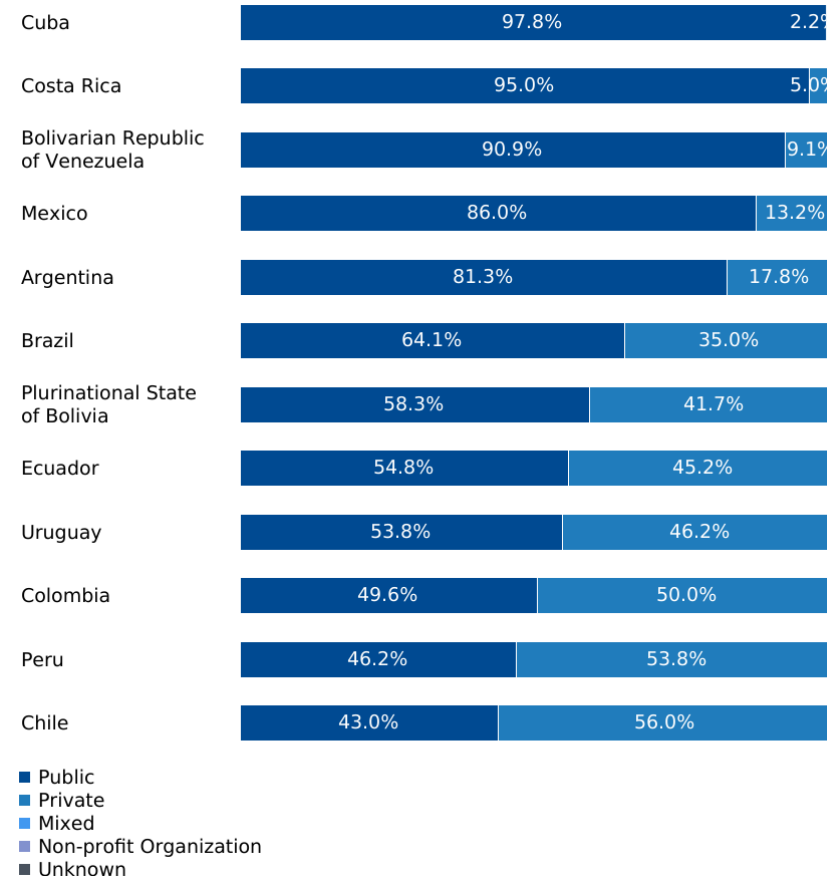
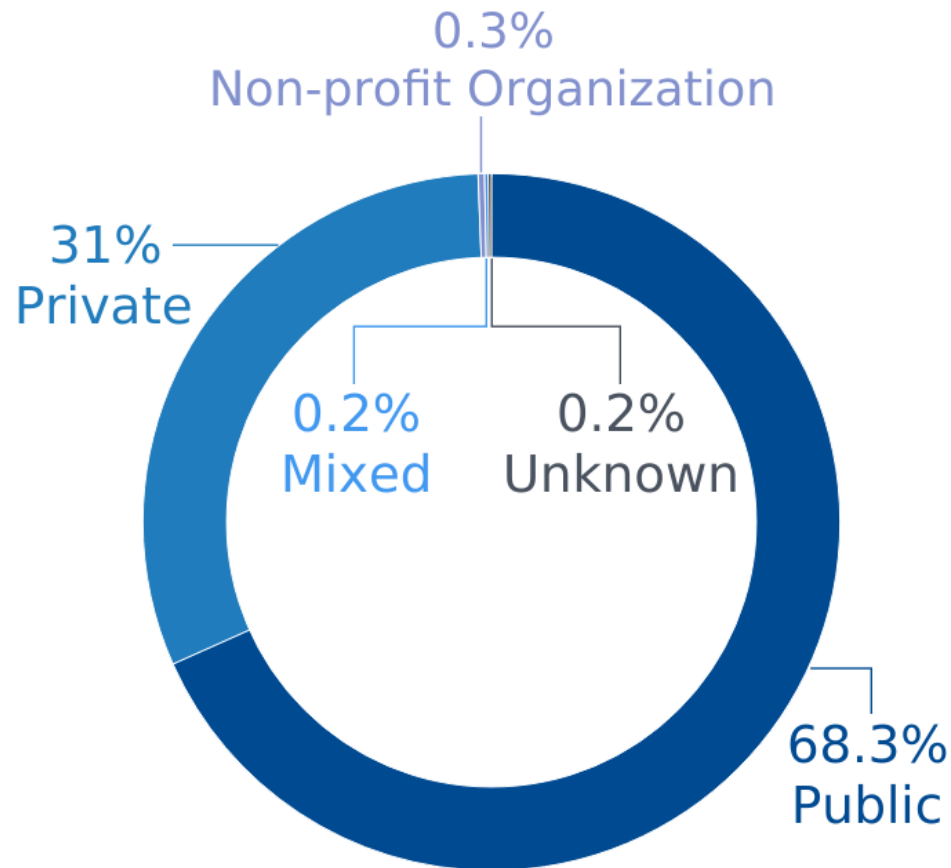
Diamond Open Access Journals in LatAm



Based on data from Redalyc.org

Collective sustainability

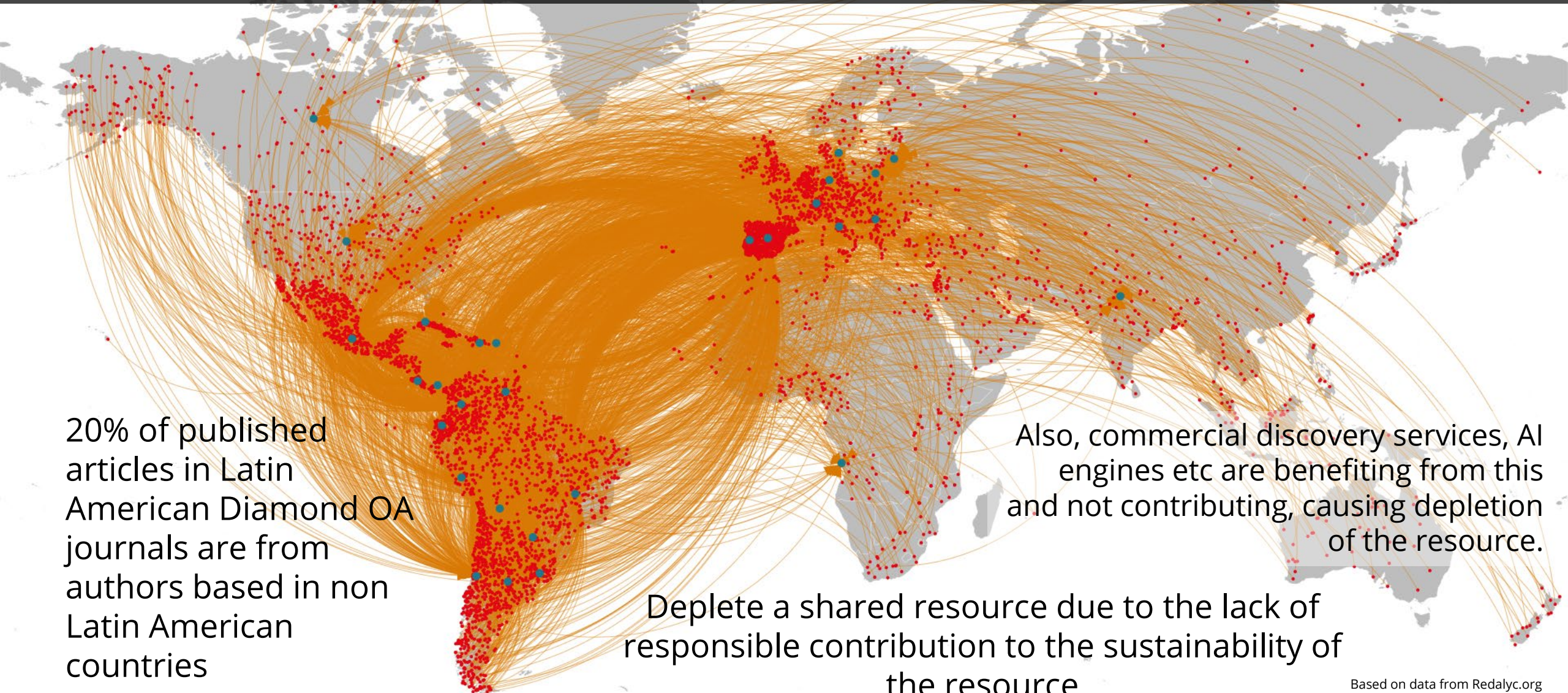
Diamond Open Access Journals in LatAm



Based on data from Redalyc.org

The tragedy of the commons in Diamond OA

It provides benefit even for those who do not contribute to its sustainability



20% of published articles in Latin American Diamond OA journals are from authors based in non Latin American countries

Also, commercial discovery services, AI engines etc are benefiting from this and not contributing, causing depletion of the resource.

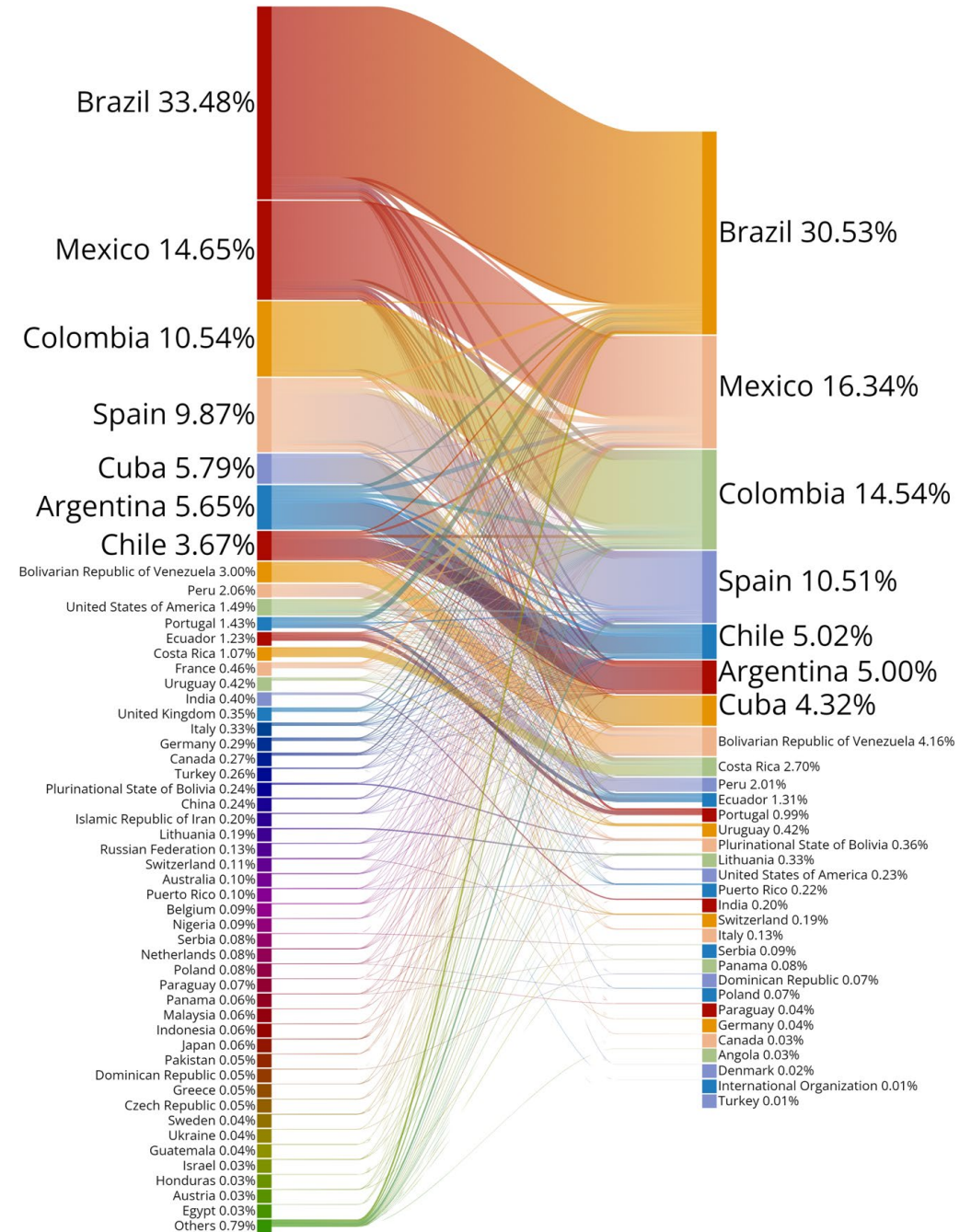
Deplete a shared resource due to the lack of responsible contribution to the sustainability of the resource

Analysis by country

Diamond OA journals as digital public goods for equitable participation of authors

Author Affiliation Country

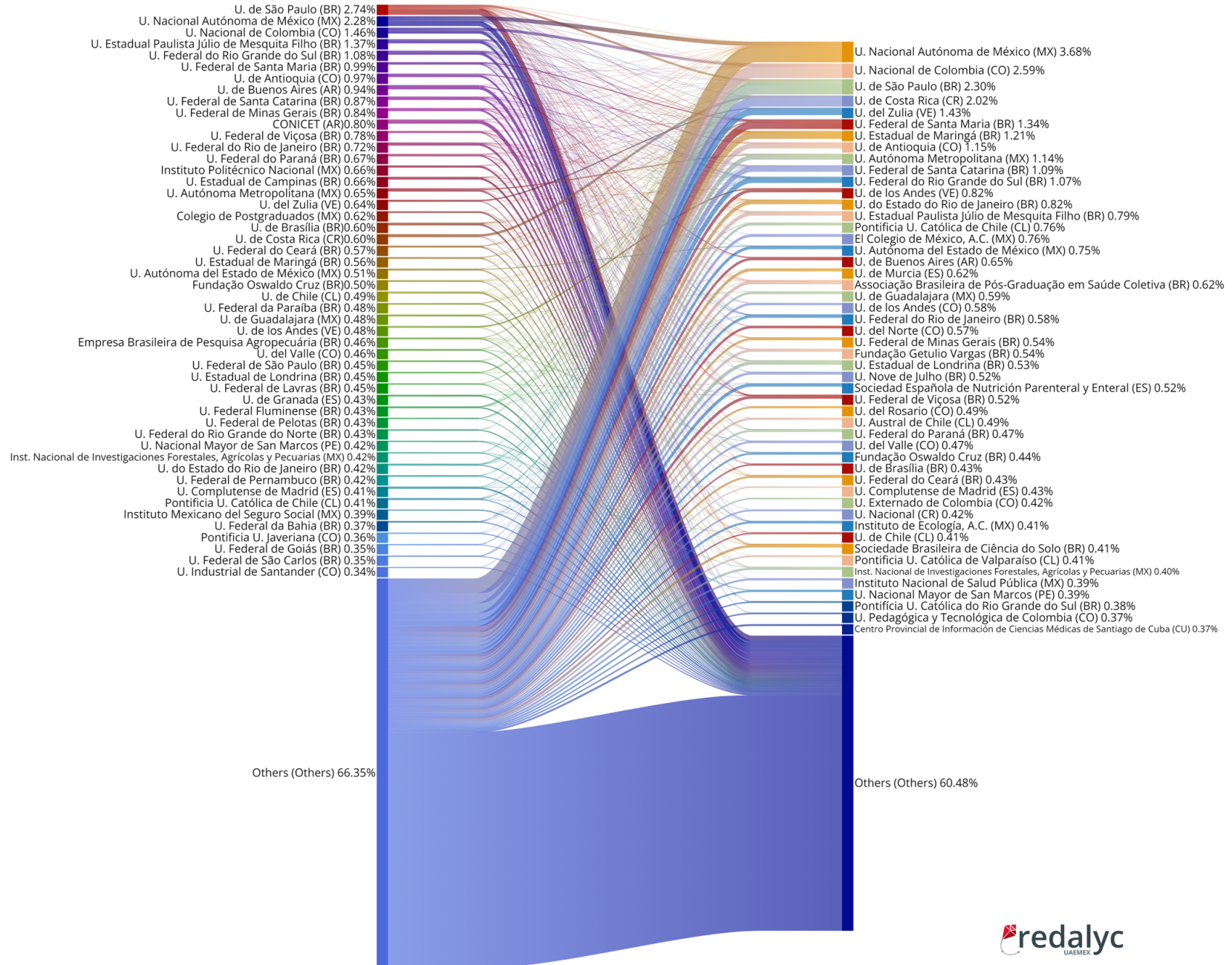
Journal Publisher Country



Analysis by institutions Diamond OA journals as digital public goods for equitable participation of authors

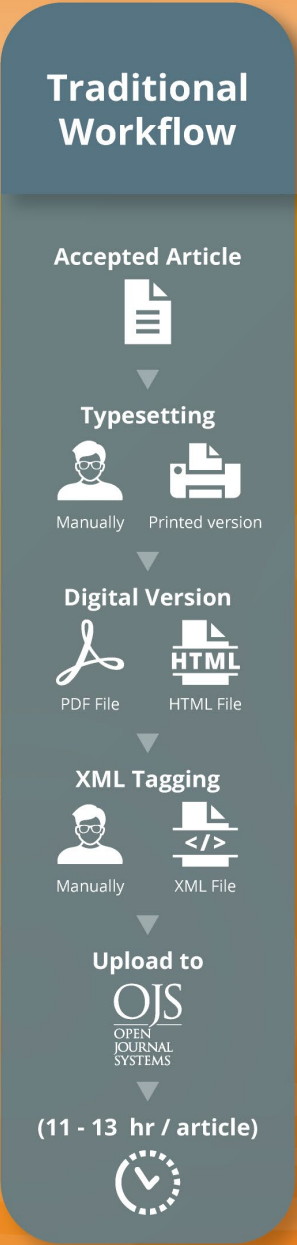
Author Institutional Affiliation

Journal Publisher Institution



Optimizing Editorial Workflows for Diamond Open Journals through Marcalyc and AmeliCA XML

AmeliCA XML



Free access for journals of the Index of Certified Journals Redalyc and Index of Journals In Consolidation AmeliCA.

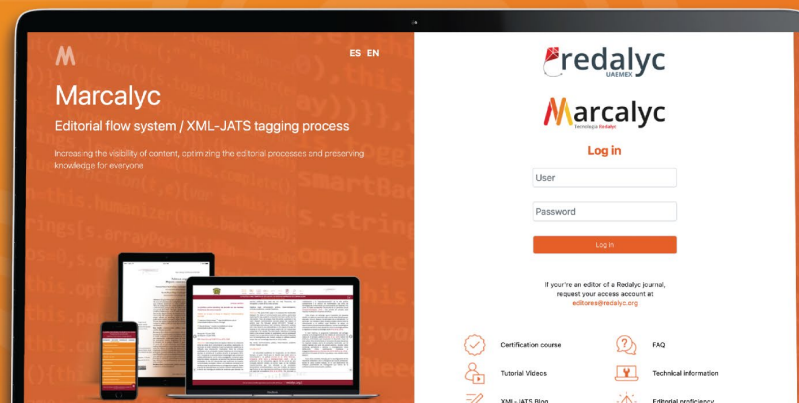
Compliant with NISO JATS 1.3, DOI, ARK, ROR, ORCID.



Comparing the processing time of each article under a 40-hours workweek, the traditional method handles about 4 articles per week, while Marcalyc enables editors to process up to 18 articles weekly.



Leveraging AI to make publishing more sustainable and to prevent APC adoption.



- **Lower costs journal production**
- **International standards**
- **Reduces time after peer review to online deployment**



Marcalyc



AmeliCA XML



How much would this collaborative work would cost in the commercial market?

(just in the edition phase)

- Redalyc/AmeliCA –with Marcalyc- contributes to journal production workflow by developing technology.
- Since Marcalyc was launched about 10,000 issues have been processed that **would cost in the market more than USD\$10 Million**
- Important to highlight that editorial teams are trained on journal publishing, so the tradition keeps alive.

Cost per journal issue (USD)	
XML markup	300
PDF	300
ePUB	300
HTML	300
Article reader	360
Total per issue	1.560

How much would this collaborative work would cost in the commercial market?

- This year Redalyc reached the peak of 1 million users in one month (people downloading full-text articles) without paywalls.
- We will end 2024 with more than 100 million articles downloaded.
- If these articles had a reading cost of 30 USD like those published by several commercial publishers, the cost of access this collection would rise **to 3 billion dollars annually**.
- Journals indexed in redalyc publish 60,000 articles a year.
- If these articles had charged an APC of 1.000 dollars (which would seem reasonable to many), the community of authors or their institutions would be paying **60 million dollars annually**.
- **In Redalyc there is almost 1 million Diamond OA articles (if they had been published under APC, it would have costed 1 Billion USD -at and APC of 1K USD-). And the most important is that profit would be kept for few private.**
- In Diamond OA the return rate is INCLUSION, SCIENCE FOR ALL.

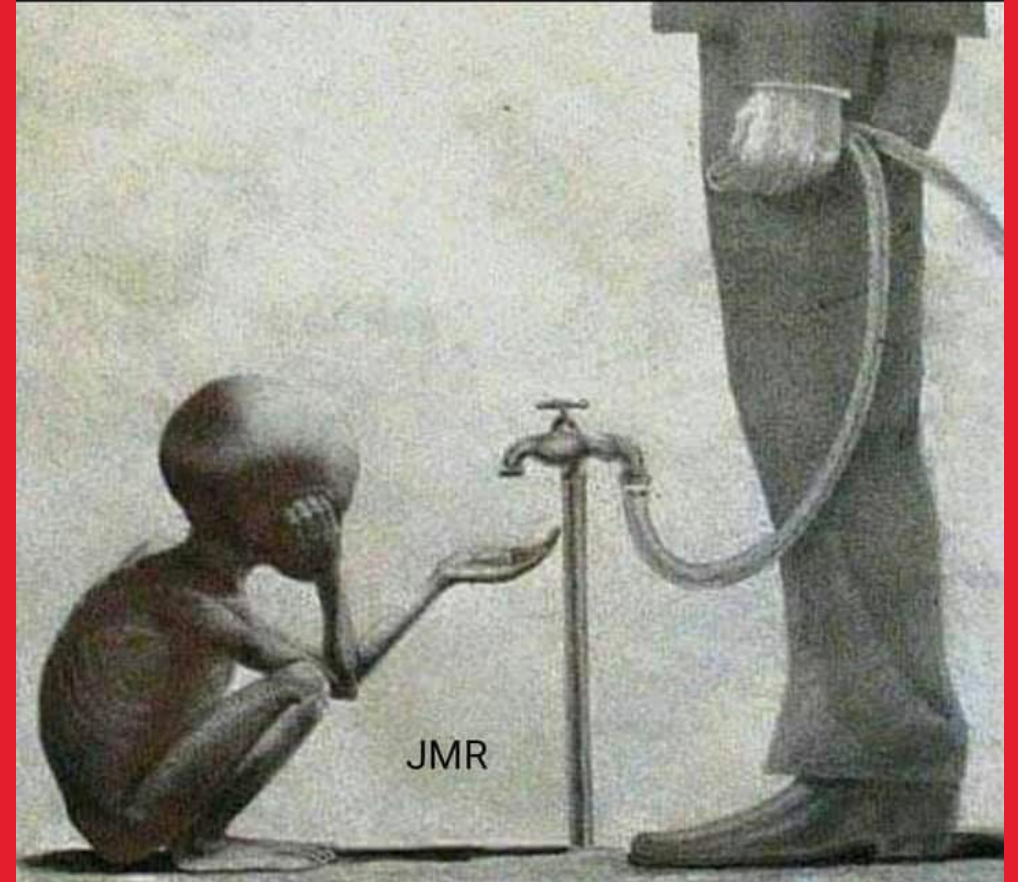
How epistemic justice can be achieved within the commercialization model? Not possible

Patronizing strategies perpetuate structural inequity

- Develop local infrastructure
- Strengthen Diamond OA journals that allows communities to **own and control** scholarly communications (independence)

It is justice, not charity, that is wanting in the world!

Mary Wollstonecraft





If you are neutral in situations of injustice, you have chosen the side of the oppressor

Desmond Tutu



Thank you

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SCIENCE, SCIENCE, SCIENCE,
A GLOBAL A GLOBAL A GLOBAL
PUBLIC PUBLIC PUBLIC
GOOD GOOD GOOD