

 OPEN ACCESS WEEK 2020

OCTOBER  
19-25

**ABRIR CON PROPÓSITO**  
EMPRENDER ACCIONES PARA CONSTRUIR  
EQUIDAD E INCLUSIÓN ESTRUCTURALES

उद्देश्यकासाथ खुला

समरचनागत समता र समावेशिता निर्माणको लागि कृयासिलता

**OPEN WITH PURPOSE**

TAKING ACTION TO BUILD STRUCTURAL EQUITY AND INCLUSION

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**OUVRIER AVEC INTENTION**

RENFORCER L'ÉQUITÉ ET L'INCLUSION DE MANIÈRE STRUCTURANTE

# open access TO open science



**j. k. vijayakumar Ph.D**

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today

Open access  
Open Science  
role of libraries  
discussion

# Open Access

“Open access (OA) can be defined as **the practice of providing on-line access** to scientific information that is free of charge to the user and that is re-usable. In the context of R&D, open access to 'scientific information' refers to two main categories:

- **Peer-reviewed scientific publications** (primarily research articles published in academic journals)
- **Scientific research data**: data underlying publications and/or other data (such as curated but unpublished datasets or raw data)”

[European Commission [Website](#)]

# Open Access



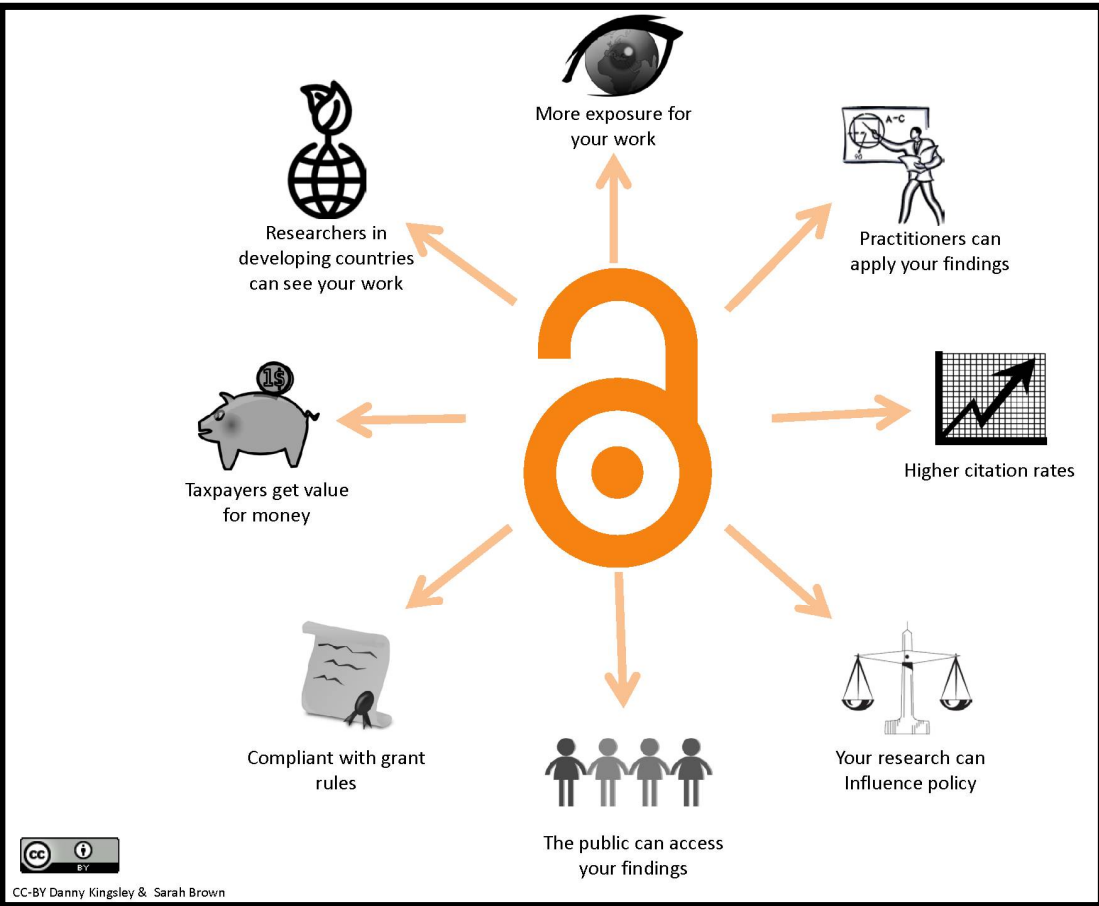
- Most publishers own the rights to the articles—not the authors.
- Anyone who wants to read the articles pays a fee to access them.
- No part of the article can be reused by researchers, students, or taxpayers without permission from the publisher, often at the cost of an additional fee.
- Through OA, providing immediate and unrestricted access to the latest research, we can accelerate discovery and create a more equitable system of knowledge that is open to all.

© PLOS why open access matters

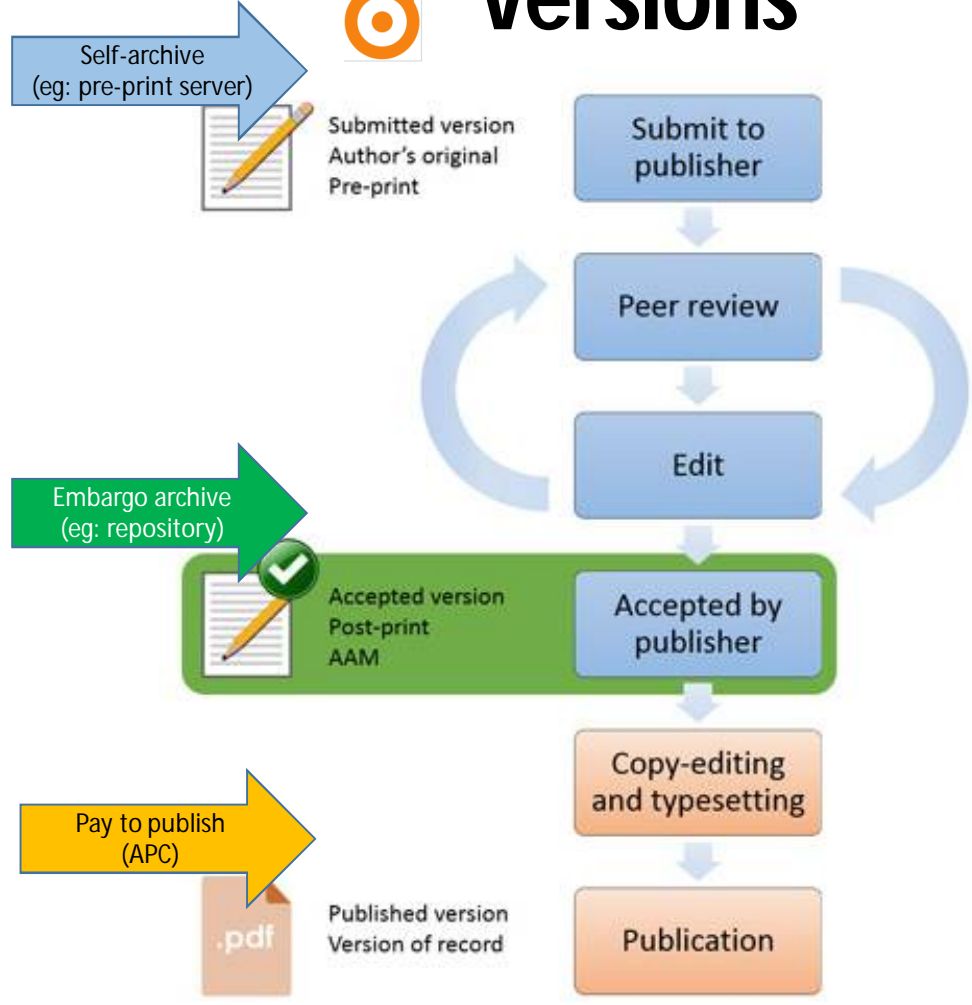
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# Impacts of Open Access



# Versions



# Open Access Article share

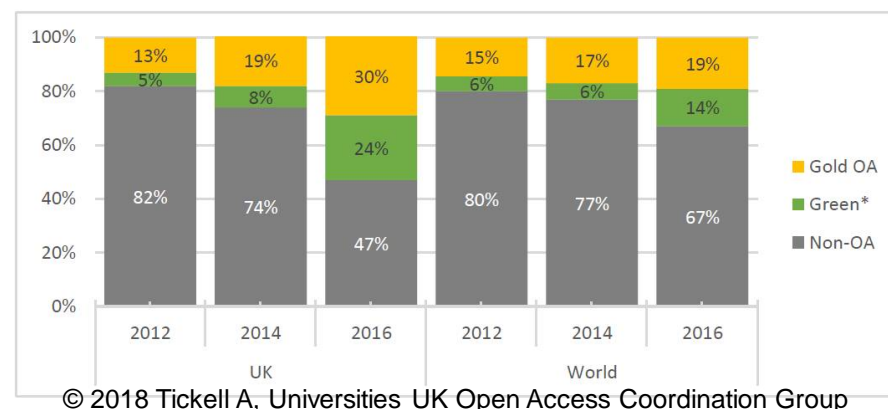
**Table 10: Open access article shares reported by selected studies (see text for details and qualifications)**

	<i>EC Open Science Monitor</i> <sup>198</sup>	<i>Bosman and Kramer (2017)</i>	<i>Universities UK (2017)</i>	<i>Piwowar et al (2018)</i>	<i>Science-Metrix (2018)</i>	<i>Martín-Martín et al (2018b)</i>
<i>Primary data source(s)</i>	Scopus DOAJ, ROAD, CrossRef, PubMed Central, OpenAIRE	Web of Science + Unpaywall	Scopus Google	Web of Science Unpaywall	Web of Science + 1Findr	Web of Science + Google Scholar
<i>Publication year considered</i>	2016	2016	2016	2015	2014	2014
<i>Gold (total)</i>	14.4%	-	19%	16.7%	23%	11.6%
<i>Gold OA</i>	14.4%	-	15%	11.2%	-	10.1%
<i>Hybrid OA</i>	-	-	4%	5.5%	-	1.5%
<i>Delayed OA</i>	-	-	3%	-	-	1.1%
<i>Bronze OA</i>	-	-	-	10.8%	-	12.6%
<i>Green OA</i>	13.9%	-	-	10.4%	31%	10.5%
<i>"Other OA" (total)</i>	-	-	11%	-	-	20%
<b>All OA</b>	<b>28.3%</b>	<b>29%</b>	<b>33%</b>	<b>37.8%</b>	<b>55%</b>	<b>55.8%</b>

© 2018 STM: International Association of Scientific, Technical and Medical Publishers Fifth Edition published October 2018

© J.K. VIJAYAKUMAR 2020

**Figure 1: Prevalence of journal article publishing via Gold, Green\* and traditional (non-OA, subscription only) routes after 24 months, for UK and World, 2012-2016<sup>31</sup>**



## Lack of significant progress in the OA movement

Open Access is (exceptionally) strong as a **principle**

— cf. the many resolutions, policies, guidelines etc.

...but still fairly weak as a **practice**

- very low deposit rate in IRs
- 85% of research is still behind paywalls
- subscription system as prosperous as ever

© Colleen Campbell, Max Planck Digital Library

# Transformative Models (recent OA trend)

- **MEMBERSHIP AGREEMENTS**

- authors from the member institution(s) receive discounted open access charges.

- **DEPOSIT ACCOUNTS/PREPAID ACCOUNTS**

- prepay or deposit an agreed upon amount to the publisher to cover all anticipated APCs for a given time period, usually a year

- **READ AND PUBLISH and PUBLISH AND READ**

- pay an agreed upon amount for “read” access to subscription-based journals (the subscription fee portion of the agreement) and receive “publish” benefits which means all eligible and accepted manuscripts from the respective institution’s researchers are published open access immediately

- **Subscribe to Open S2O**

- Existing subscription investment will convert valuable journals to OA, with no extra funds needed. if all subscribing libraries participate, publishers can make all previous volumes of the Subscribe to Open journals freely available (Annual Reviews).

- **SCOAP<sup>3</sup>**

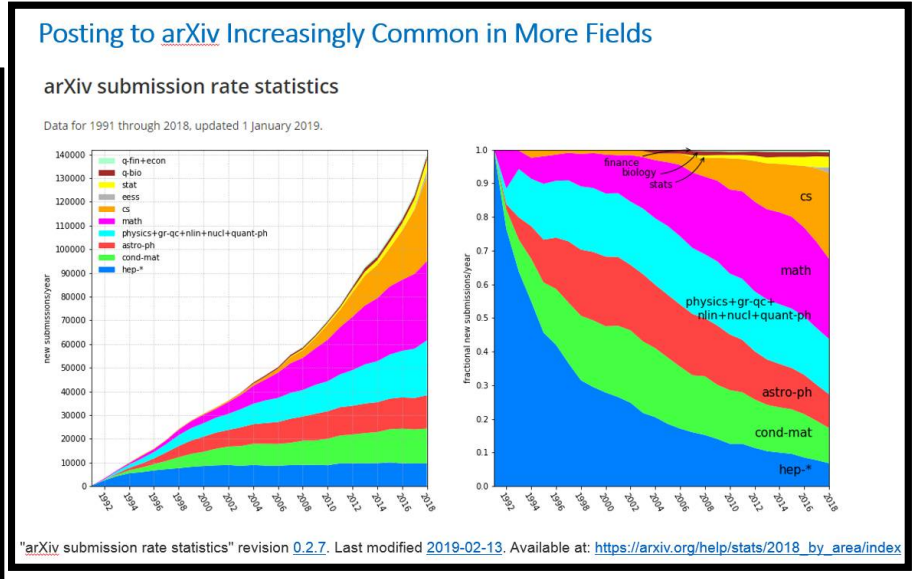
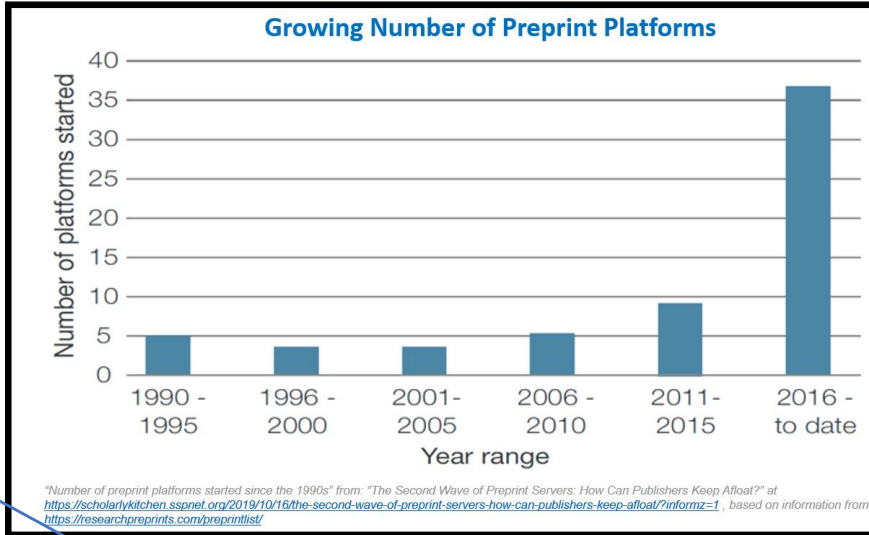
- Partnership of over three thousand libraries, key funding agencies and research centers in 44 countries and 3 intergovernmental organisations. Working with leading publishers, SCOAP<sup>3</sup> has converted key journals in the field of High-Energy Physics to Open Access at no cost for authors

## Combination of 3 routes to reach 100% Open Access

	Route 1	Route 2	Route 3
<b>What</b>	Open Access publishing venues (Gold journals or platforms) Immediate Open Access	University repository route Delayed (up to 24 months) Open Access	Transition from subscription to publishing model (Hybrid journals) Immediate Open Access
<b>How</b>	Institutional Membership/OA Agreement. CC By License	Authors deposit Author's Accepted Manuscript (AAM) openly available in a repository. Copy right and reuse restrictions	Change from Subscription agreement to Read and Publish OR offset agreements with selected Publishers. CC By License
<b>What Libraries can do</b>	APCs can be negotiated down. Centralized invoice management etc.	Establish Open Access policy and repository. Integrate with other platforms, add value.	Negotiate transformative agreements, avoid double dipping.



# Preprint Servers

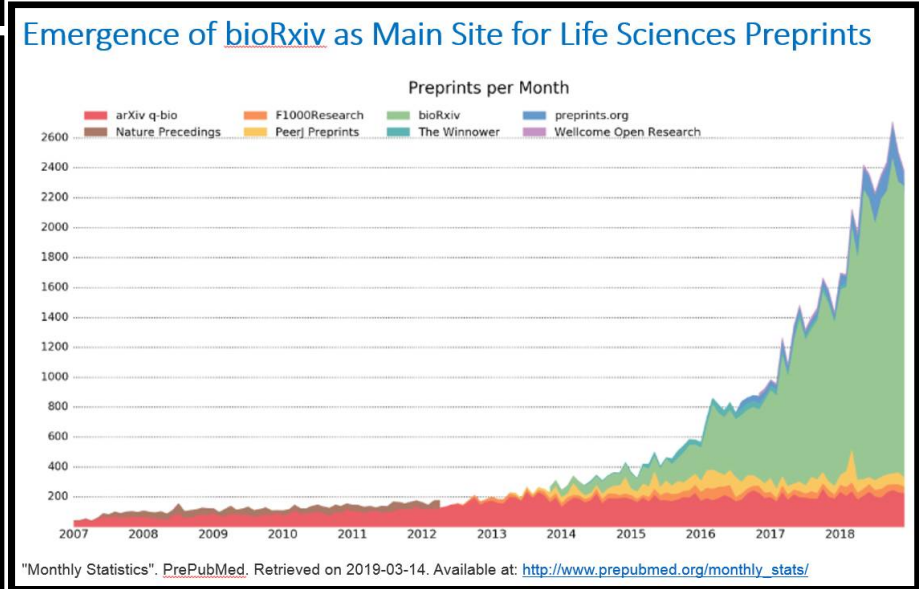
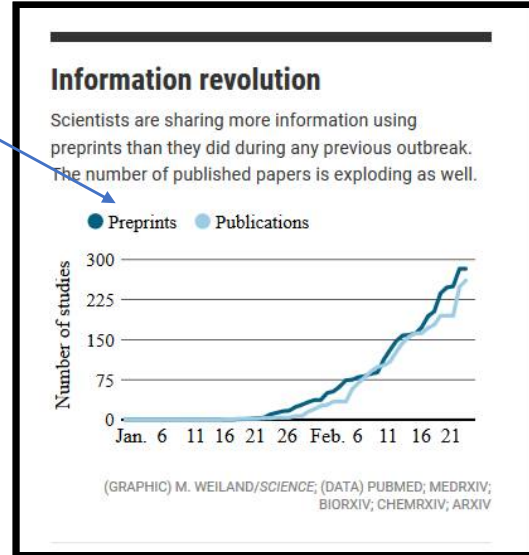


Science Contents News Careers Journals

Researchers at the Pasteur Institute in Lille, France, at work on the new coronavirus on 20 February. SHIVAN LEFEBVRE/GETTY IMAGES

**'A completely new culture of doing research.'**  
Coronavirus outbreak changes how scientists communicate

By Kai Kupferschmidt | Feb. 26, 2020, 2:05 PM



# Open Science

Open Science represents a **new approach to the scientific process** based on cooperative work and new ways of diffusing knowledge by using digital technologies and new collaborative tools

[European Commission, 2016b:33](#)

- Digitisation in Science & Research
- (almost) all actions along the research life cycle create data points
- value creation chain becomes visible (and therefore also threats / barriers to it)

# Scholarly Record

## Scholarly record: Content & perspective

Date	\$ bn
2012-01-01	16289.6
2012-04-01	16419.2
2012-07-01	16603.7
2012-10-01	16677.3
2013-01-01	16772.7
2013-04-01	16907.9
2013-07-01	17175.9

**Faculty:** what establishes credentials

**Researchers:** what is necessary to validate & build on current literature

**Publishers:** what is “published”

e-



Scholarly?



```
float gasdev(long *idum) {  
    static int iset = 0;  
    static float gset;  
    float fac, rsq, v1, v2;  
    if (iset == 0) {  
        do {  
            v1 = 2.0*ran1(idum) - 1.0;  
            v2 = 2.0*ran1(idum) - 1.0;  
            rsq = v1*v1 + v2*v2;  
        } while (rsq > 1.0);  
        iset = 1;  
        gset = (v1 + v2*rsq) / rsq;  
    }  
    return gset;
```

**Library:** what is selected and preserved

OCLC Research @Brian Lavoie, 2014



Libraries services always connected to the collections: (scholarly records/published literature)

# Evolving Scholarly Record



## Open Research

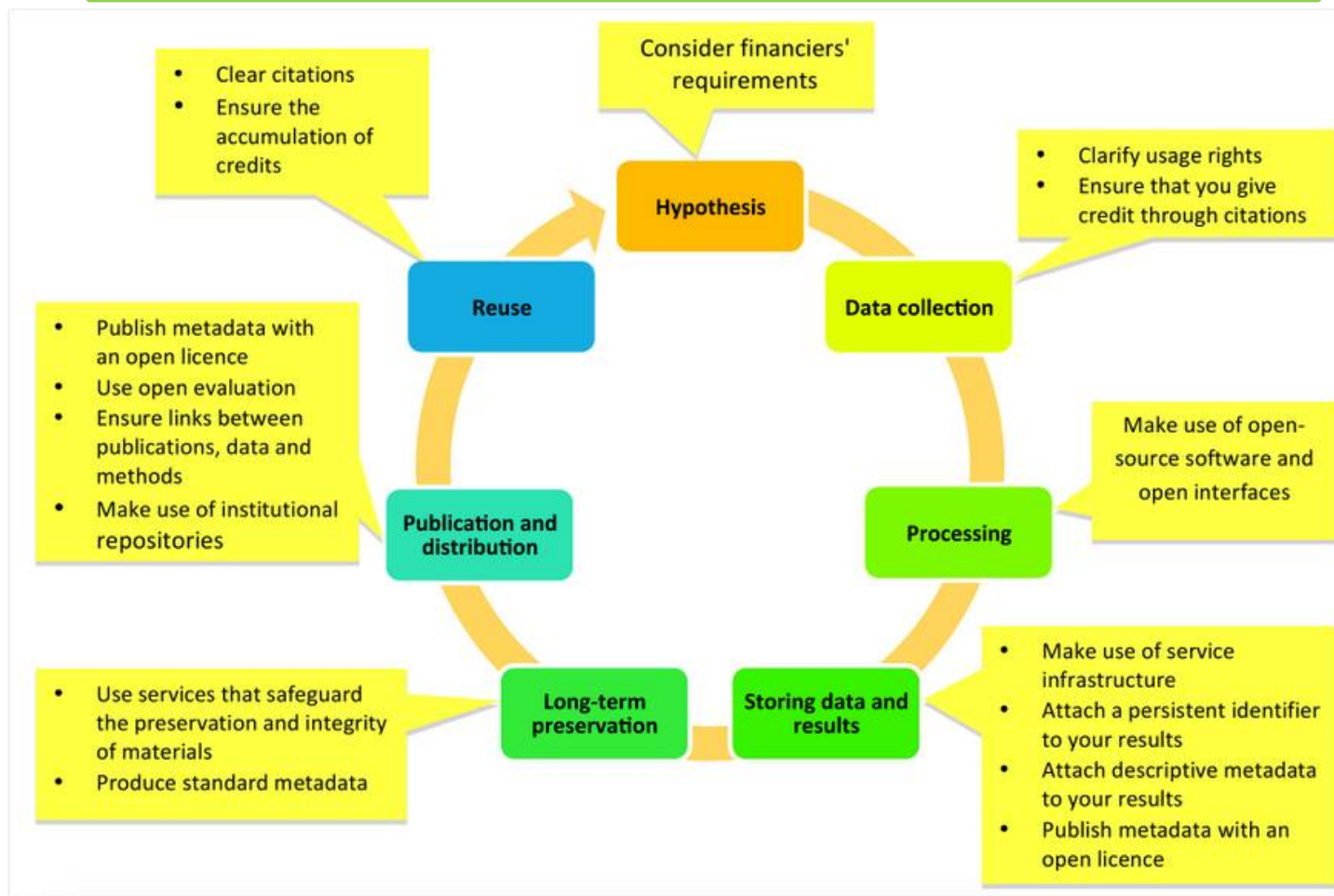
### Research Literature

- Increasing Volume of Content
- Increasing Diversity and Complexity of Content
- Increasing Distribution of Custodial Responsibility
- Broader Awareness of System-wide Context
- *Many more*



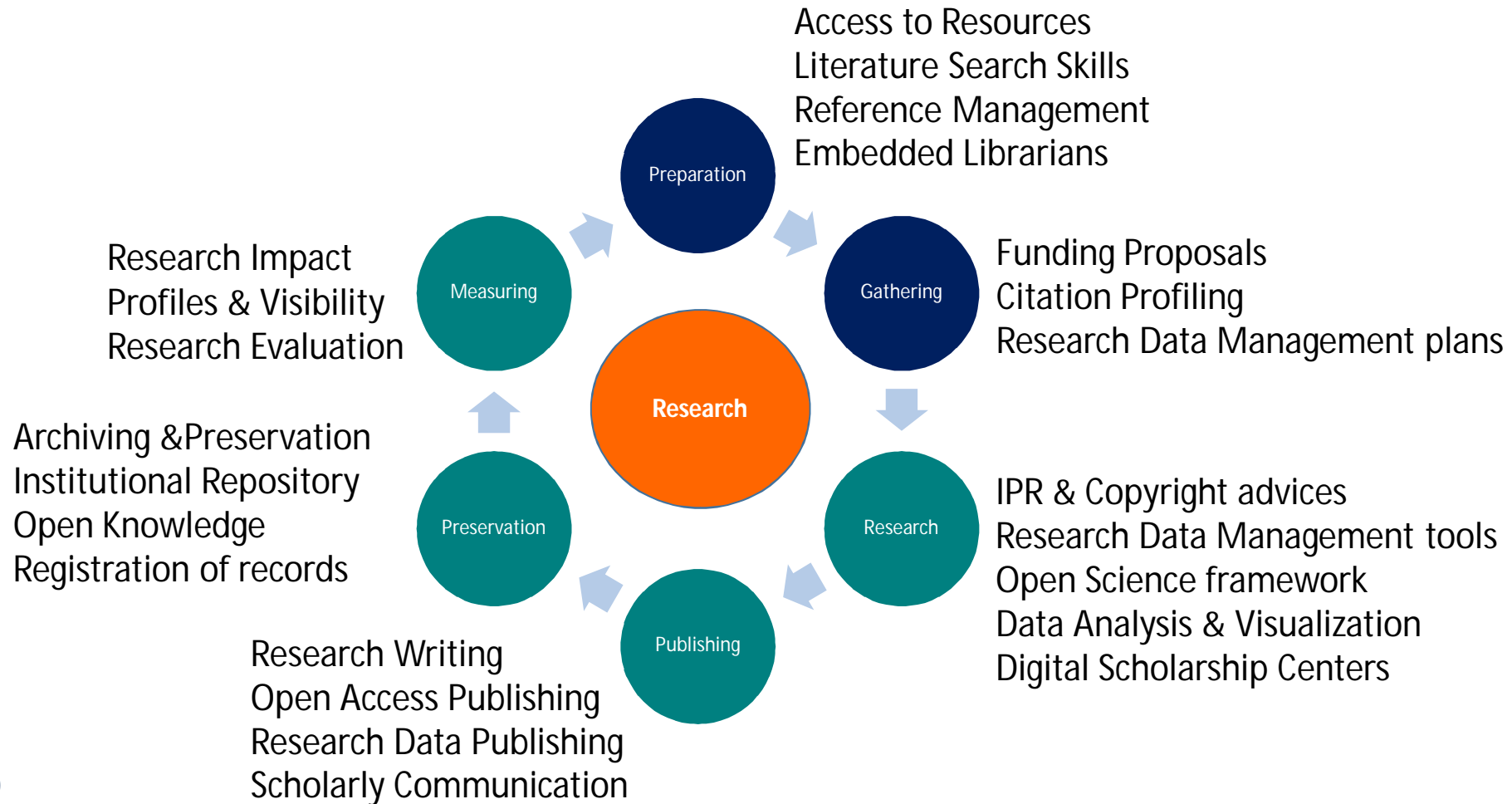
"The content of the scholarly record" by [OCLC Research](#), from *The Evolving Scholarly Record* (doi:10.25333/C3763V), CC BY 4.0

# Open Science in Research Cycle

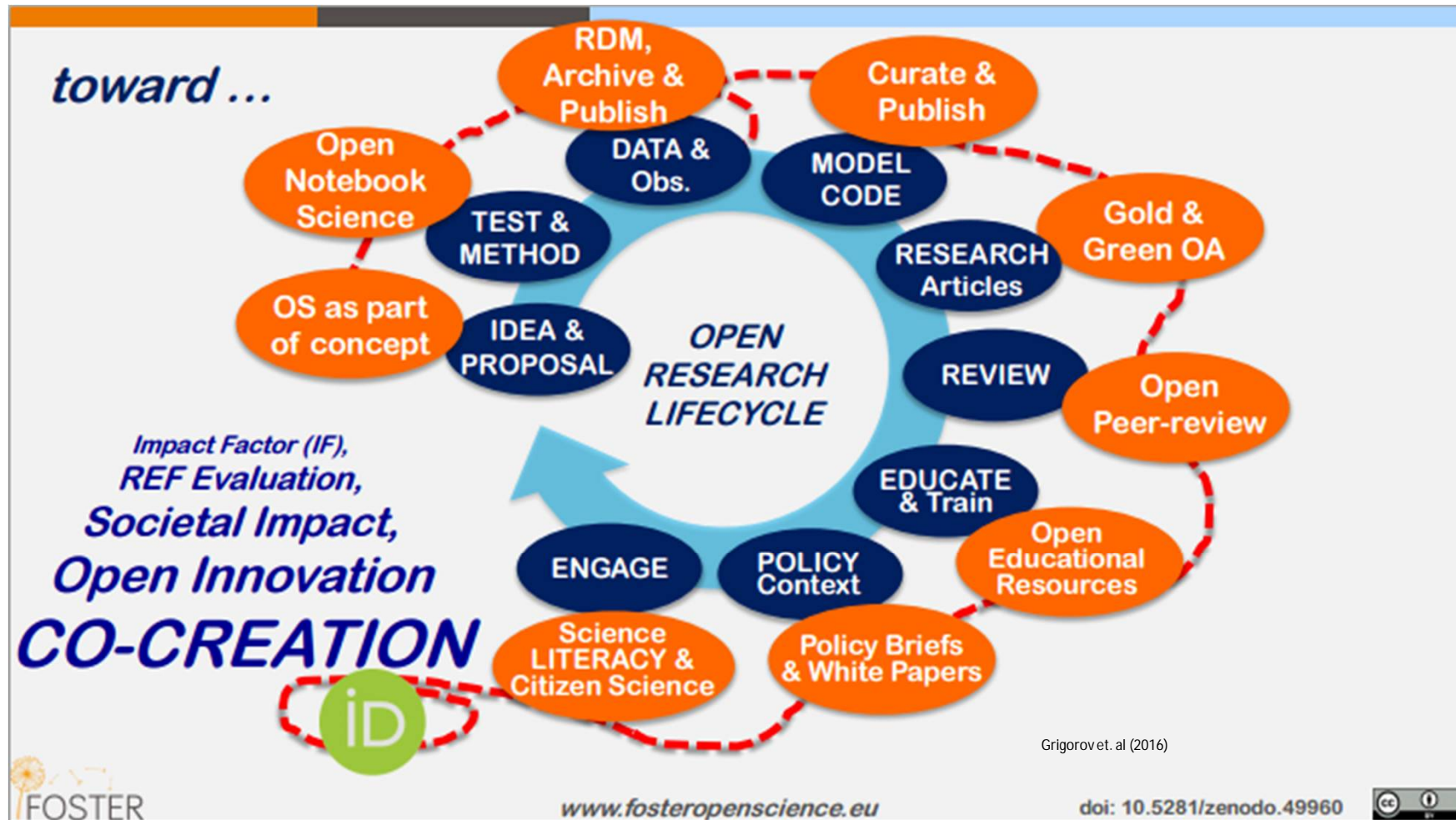


\*\*Figure 1. Promoting openness at different stages of the research process (Open Science and Research Initiative, 2014)\*\*

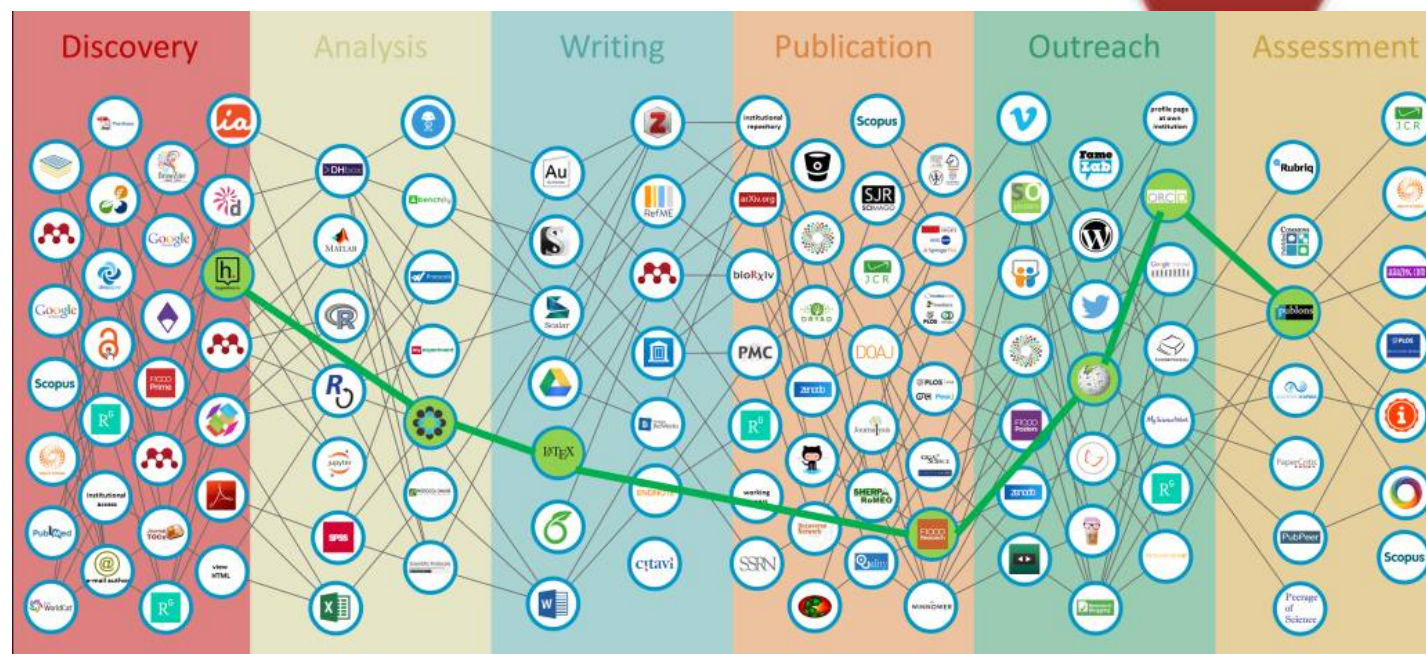
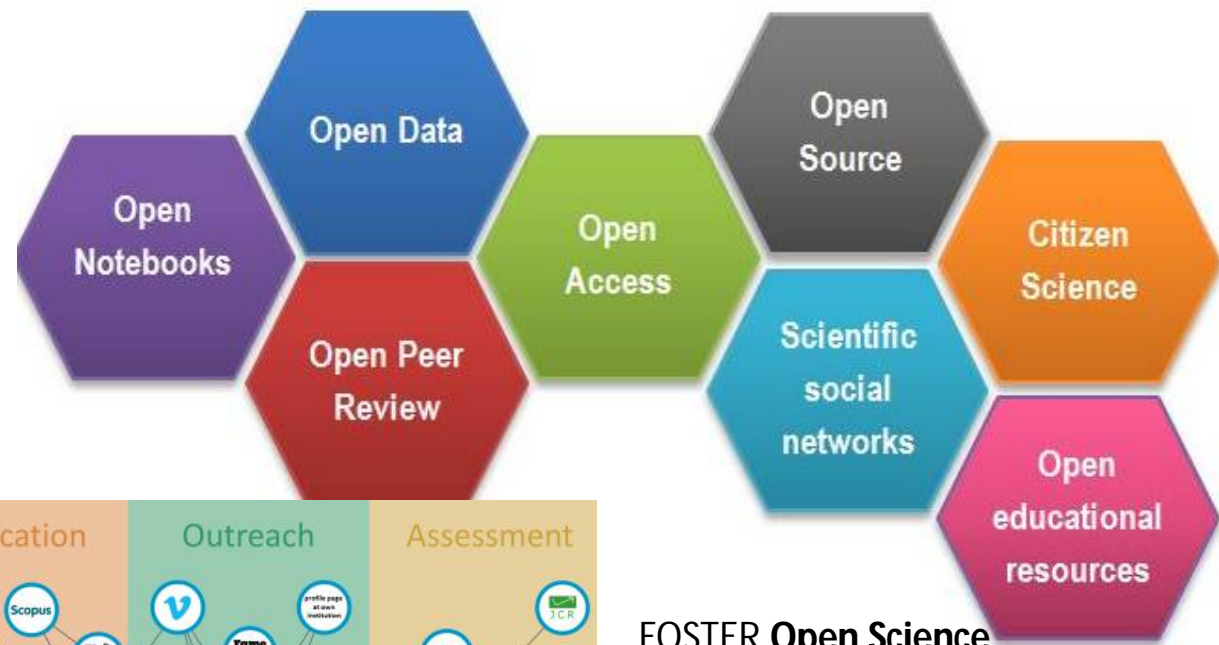
# Library Support in Research Cycle



# Research Lifecycle through "Open Science by Default" Workflow



# Components of Open Science



FOSTER Open Science Training Courses

Grigorov et. al (2016)

<https://www.fosteropenscience.eu/toolkit>

FOSTER Handbook

<https://open-science-training-handbook.gitbook.io/book/>



# Open Data: research data Management

Research data management (RDM) is assuming an increasingly prominent place in scholarly communication, funder requirements, codes of academic practice, university research strategy, and even national policy.

© OCLC RDM report

- Raw/initially processed data produced at a research facility such as an observatory
- ‘Research ready’ processed data which has been fully calibrated, combined and cleaned/annotated
- Published output dataset – following detailed analysis of research ready datasets
- Published catalogue type representation of published output dataset

# Open Source for Open Science

Open research software, or open-source research software, refers to the use and development of software for analysis, simulation, visualization, etc. where the full source code is available. In addition, according to the Open Source Definition, open-source software must be distributed in source and/or compiled form (with the source code available in the latter case), and must be shared under a license that allows modification, derivation, and redistribution.

© The Open Science Training Handbook



# Open Peer Review OPR

Open peer review is an umbrella term for a number of overlapping ways that peer review models can be adapted in line with the aims of Open Science.

Open identities

Open reports

Open participation

Open interaction

Open pre-review manuscripts

Open final-version commenting

Open platforms

+ Transparency

+ Speed

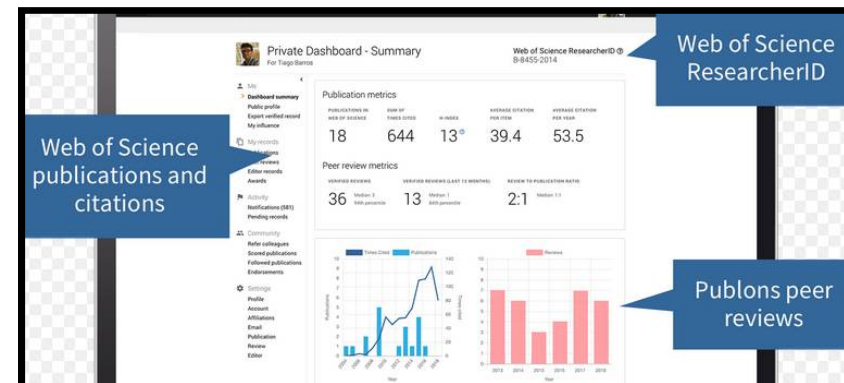
+ Reliability

+ Consistency

+ Context

+ Motivation

Publishers provide peer- reviewers training  
Peer review part of research profiles  
Include in our awareness sessions  
Preprint servers : example



# Open Peer Review Example

**F1000Research**  
Open for Science

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SOFTWARE TOOL ARTICLE Check for updates

## Connecting the pieces: Using ORCIDs to improve research impact and repositories [version 1; peer review: 2 approved]

[Mohamed Baessa](#)<sup>1</sup>, [Thibaut Lery](#)<sup>2</sup>, [Daryl Grenz](#)<sup>1</sup>, [J. K. Vijayakumar](#)<sup>1</sup>

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**Abstract**

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### Open Peer Review

Reviewer Status ✓ ✓ ⓘ

#### Reviewer Reports

	Invited Reviewers	
	1	2
<b>Version 1</b> 07 Jul 15	<span>✓</span> read	<span>✓</span> read

1. **Sarah L. Shreeves**, University of Miami, Coral Gables, USA

2. **Antonella De Robbio**, University of Padua, Padua, Italy

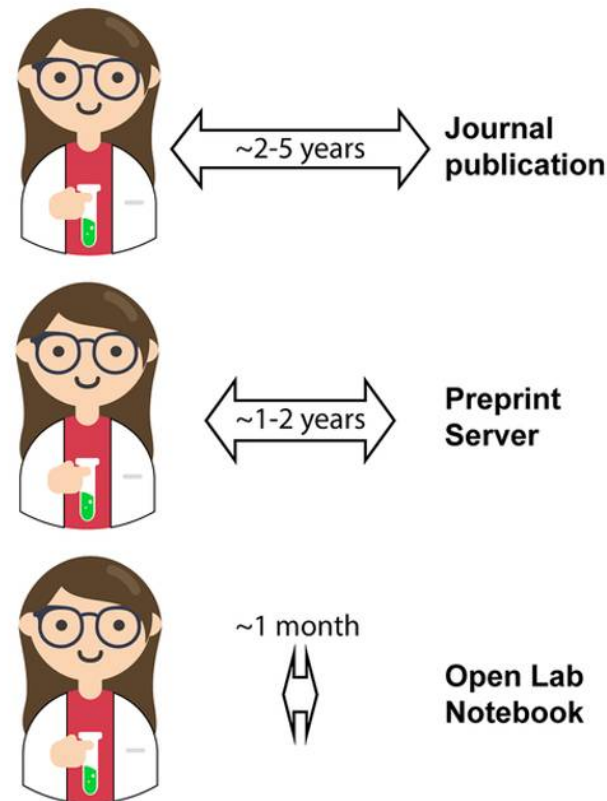
### Comments on this article

# Open Notebook Science

Open notebooks drastically reduce the time frame from bench to publication in the public domain.

**Open-notebook science** is the practice of making the entire primary record of a research project publicly available online as it is recorded. This involves placing the personal, or laboratory, notebook of the researcher online along with all raw and processed data, and any associated material, as this material is generated.

© Wikipedia



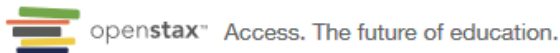
Harding RJ (2019) Open notebook science can maximize impact for rare disease projects. PLOS Biology 17(1): e3000120.  
<https://doi.org/10.1371/journal.pbio.3000120>  
<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3000120>

# Open Educational Resources (OER)

**Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.**

**@UNESCO**

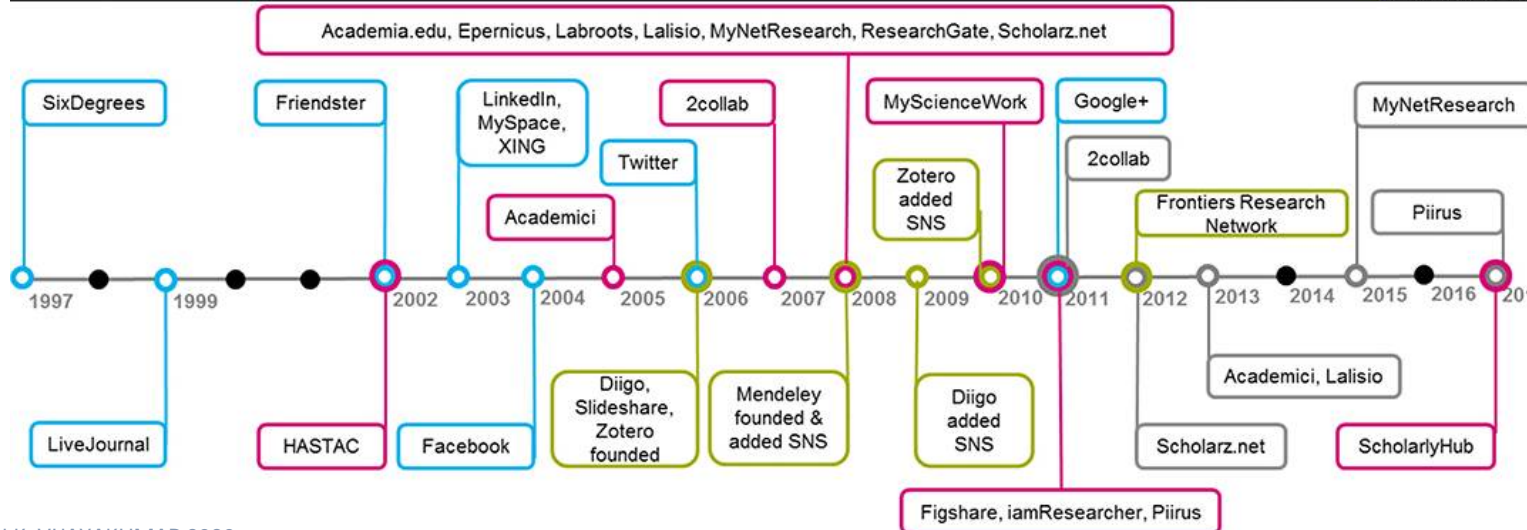
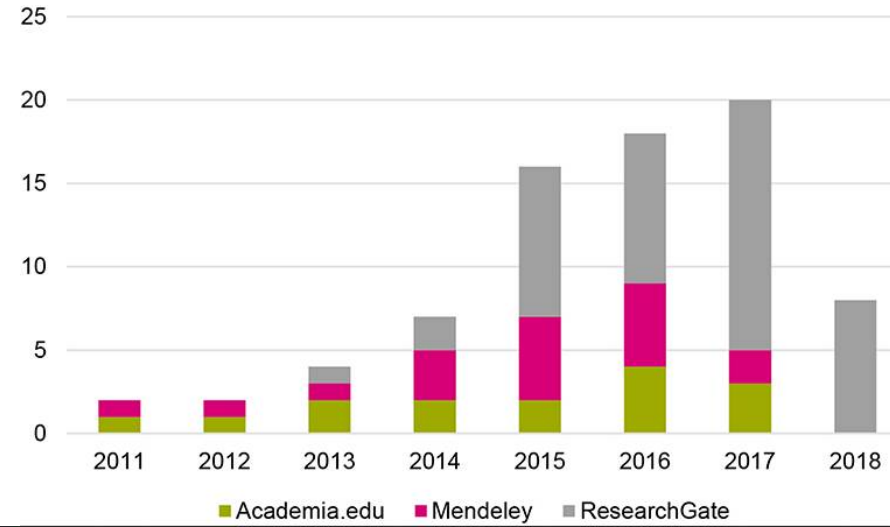
<https://guides.lib.vt.edu/oer/opentextbooks>



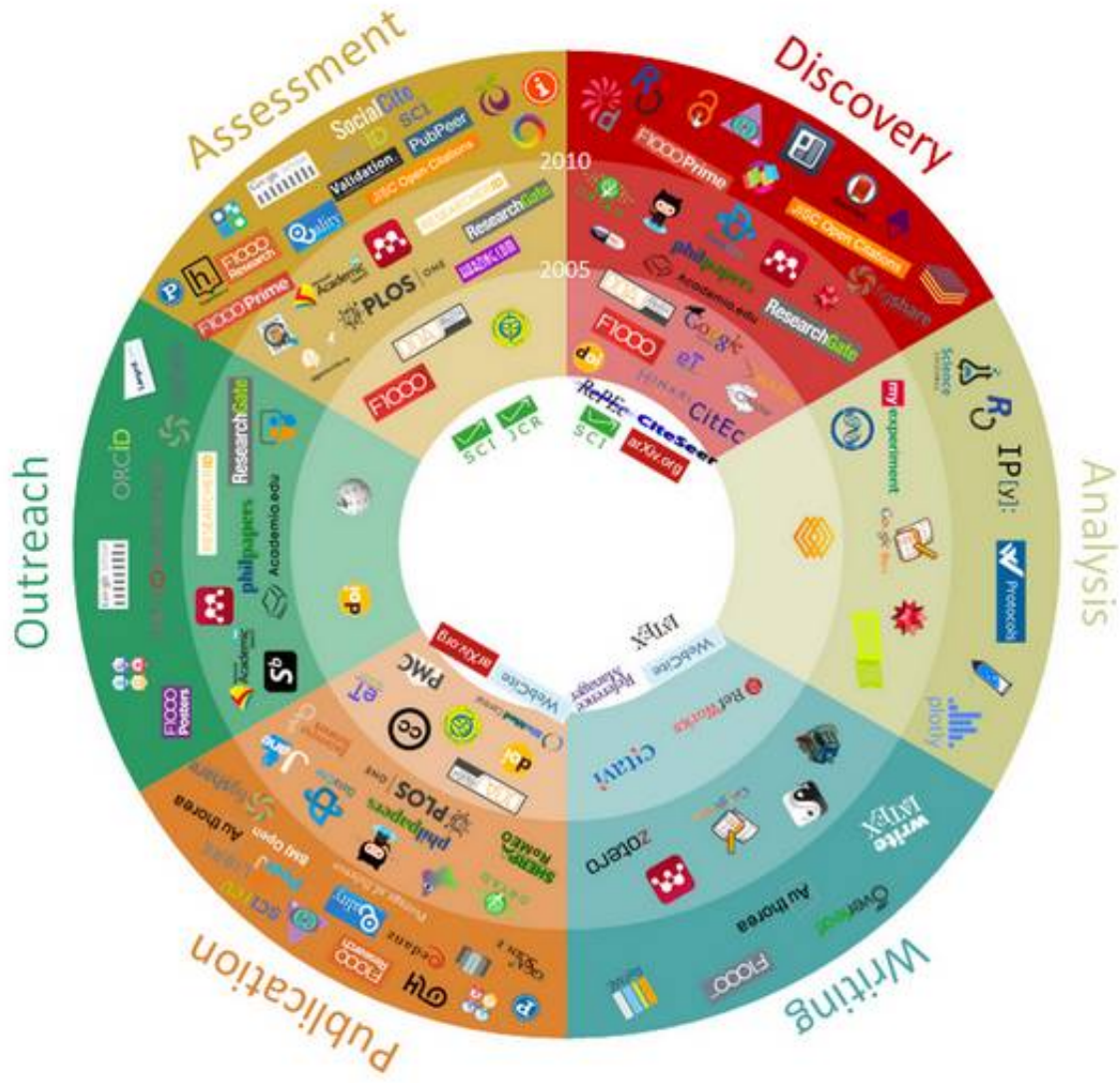
<https://guides.library.illinois.edu/oer>

# Scientific Social Networks

"Academic social media" sites are targeted toward researchers and academics, but the same cautions exist here as on Twitter, Facebook, and other more social sites. Be aware of your audience, privacy settings, and your digital reach.

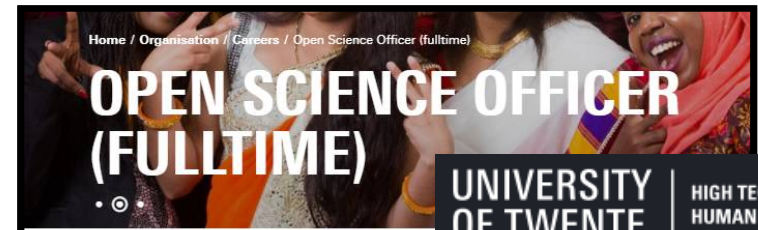


# Increase visibility and impact of research activity





# Open Science Skills for Librarians & Researchers



## JOB DESCRIPTION

The Faculty ITC of the University of Twente is committed to make Open Science a standard practice of the scientific process. Open Science makes the research process more transparent and collaborative. Research results will become more accessible too because publications, data and code will be open for anyone to see – or made as FAIR as possible if privacy or other circumstances prevent us from openly sharing them. The shift towards Open Science will have a strong impact on the core activities of the faculty, namely, capacity building, education and, of course, research. This new position will primarily focus on research but will consider and evaluate the implications of adopting Open Science for the other two core activities of the faculty. The transition towards Open Science will mean adopting and adapting new digital technologies that will support collaborative approaches, scientific reproducibility, and a wider and stronger commitment to knowledge diffusion. Hence, the ideal candidate will have a good mix of technological know-how and social skills to realize this change of research culture on a large scale, leaving no one behind.

- Provide scientific and technical support to the research work done at ITC and contribute to the preparation and dissemination of our scientific outputs.
- Lead the development of a faculty-wide Open Science platform that focuses on transparency, integrity and efficiency and that makes our research outcomes more FAIR (findable, accessible, interoperable and reusable).
- Propose, evaluate and (co-)implement various Open Science research tools and solutions that support the daily needs of ITC's researchers.
- Create guidelines and (e-learning) educational material that support the transition towards Open Science.
- Further develop the policy, infrastructure and culture of data stewardship, open research, software creation and documentation, and general scientific practice.
- Support research evaluation assessments.
- Explore the relationship between Open and Citizen Science, particularly in relation

<https://libguides.asu.edu/openaccess/opendata-science>

# Open Science : Role of Libraries

And their role is that of **enablers**: “*Libraries have adapted their role and are now active in the preservation, curation, publication and dissemination of digital scientific materials, in the form of publications, data and other research-related content. Libraries and repositories constitute the physical infrastructure that allows scientists to share use and reuse the outcome of their work, and they have been essential in the creation of the Open Science movement*” © OECD, 2015.

- **Advocating and raising awareness:** promotion of the benefits of Open Science should take place in parallel with the development of tools and services, the incentives and recognition mechanisms that support excellence in Open Science. Libraries can advocate within institutions to develop open access policies and roadmaps. This will benefit not only researchers, but also other stakeholders at institutional level and international level, and even the whole society, promoting Open Science and engaging with citizens.
- **Giving support to the infrastructures** to share articles or data, including repositories; keeping with their involvement and responsibilities in the development and governance of repositories of publications and data, in regards to appraisal, selection, description and metadata application, curation and preservation; information retrieval; monitoring data reuse, citation and impact, etc.
- Contributing to the development of **research data management (RDM)** policies and strategies at their home institutions and carrying RDM themselves;
- **Training and supporting researchers** to open their research workflows, sharing and reusing the research outputs produced by others. Besides the necessary research infrastructure, researchers need support at a practical level throughout the whole research cycle. Librarians can offer guidance, training and services in: the provision of information during the exploratory stage of research; funding opportunities and requirements; bibliography and data management; applying metadata; identification of open research methods and tools for analysis; outputs sharing and publication; data citation, licensing and other intellectual property issues; preparing data for deposit and long-term preservation of data, among others. For these purposes, librarians need to know their community research practices in regards to information use, production, and sharing, and the platforms, tools and services that they use.



Downloaded from <https://science.sagepub.com/> on October 21, 2020

SCIENTIFIC PUBLISHING

## In pursuit of open science, open access is not enough

Preventing monopolies in knowledge infrastructure is the next battleground for publishers and research institutions

By **Claudio Aspesi<sup>1</sup>** and **Amy Brand<sup>2,3</sup>**

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“the majority of scientists support open science, a minority actually fully participate in it. Although the trends toward open science are increasing, strategies need to be found to stimulate the necessary negotiation within the scientific community and a new willingness to experiment with scientific communication to shape the future criteria of science”

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**OPEN WITH PURPOSE**

TAKING ACTION TO BUILD STRUCTURAL EQUITY AND INCLUSION

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መዋቅራዊ እኩልነትንና እካታኝነትን ለመገንባት ለተግባር እንገሳ

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RENFORCER L'ÉQUITÉ ET L'INCLUSION DE MANIÈRE STRUCTURANTE

thank you

Open access

Open Science

role of libraries

discussion

@jkvijayakumar