

## Open Scholarship: Open Access, Open Science, Open Data

Open Scholarship advocates for research to be transparent and openly available to all. In this workshop, we'll give an overview of the Open Science movement and the general principles including access to publications and the underlying research process, FAIR data, and initiatives within scholarly communications that support “openness” of the research endeavor (preprints, registered reports, persistent identifiers, and community engagement platforms).

# Open Scholarship: Open Access Open Science Open Data

Jim Morris-Knowler  
Gail Steinhart  
Sarah Wright



# Who we are:



Gail Steinhart  
Open Scholarship  
Services Librarian



Sarah J. Wright  
Research Data & Life  
Sciences Librarian



Jim Morris-Knowler,  
Research & Global  
Initiatives Librarian

# Agenda

- What is Open Scholarship?
- Why Open Scholarship?
- Open Data
- Open Access publications
- Research Impact (including altmetrics)

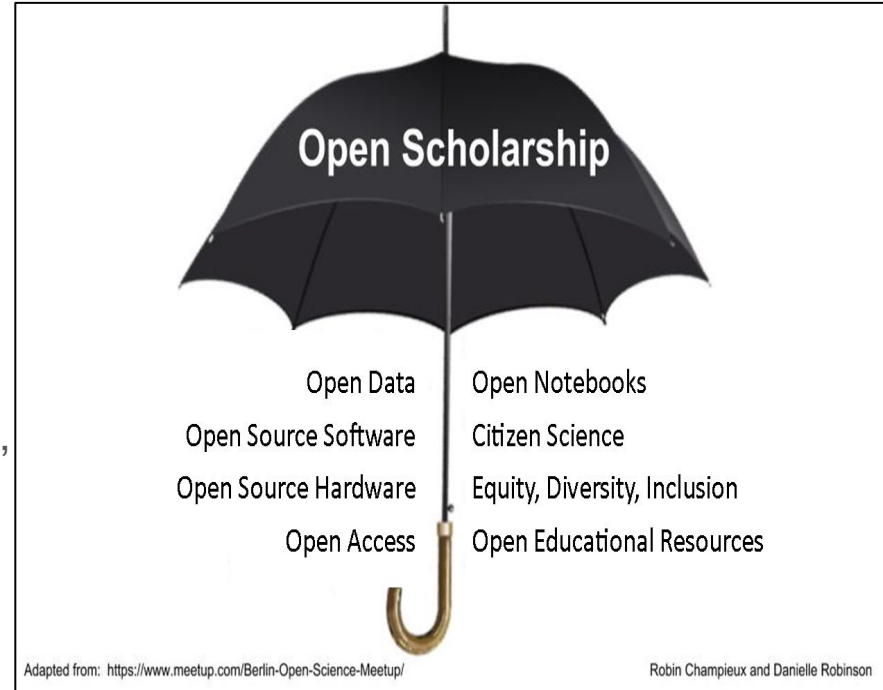
# Definitions

**Open science** is the movement to make scientific research, data and dissemination accessible to all levels of an inquiring society.

[FOSTER](#)

**Open scholarship** encompasses open access, open data, open educational resources, and all other forms of openness in the scholarly and research environment

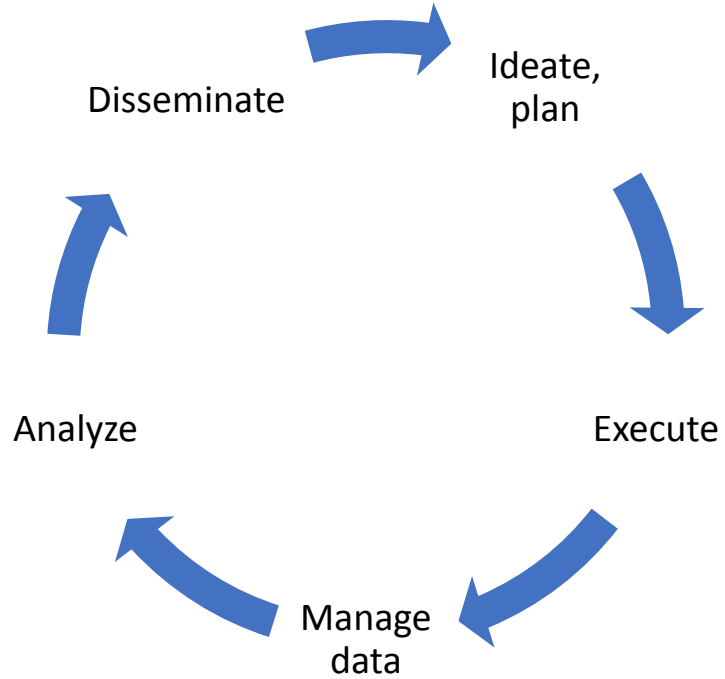
[Association of Research Libraries \(ARL\)](#)



# Why Open Science?

- Research equity--knowledge belongs to the community
- Research quality--open scholarship promotes scholarly rigor & transparency

# Research process



# What Open Scholarship practices do you engage in now?



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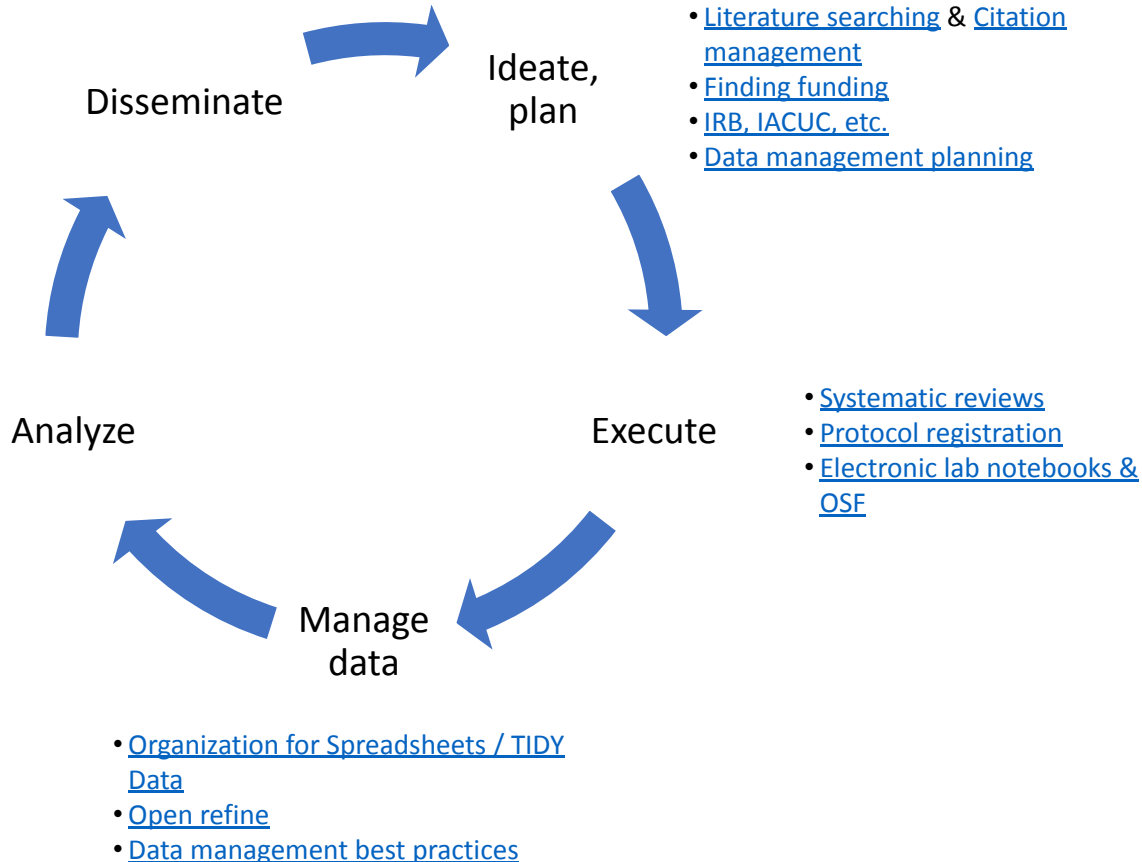
Start the presentation to see live content. For screen share software, share the entire screen. Get help at [pollev.com/app](https://pollev.com/app)



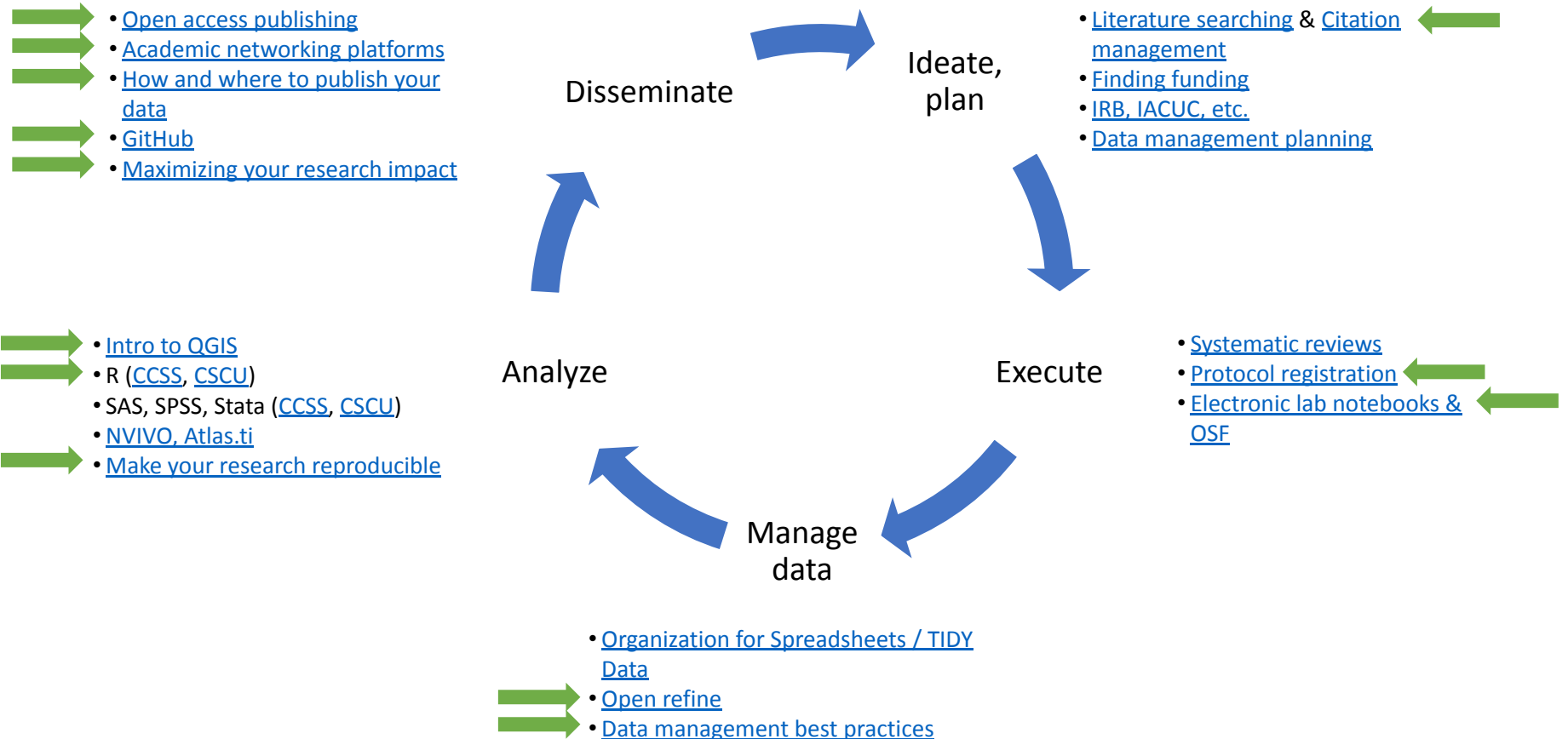
# Cornell support for the research process

- [Open access publishing](#)
- [Academic networking platforms](#)
- [How and where to publish your data](#)
- [GitHub](#)
- [Maximizing your research impact](#)

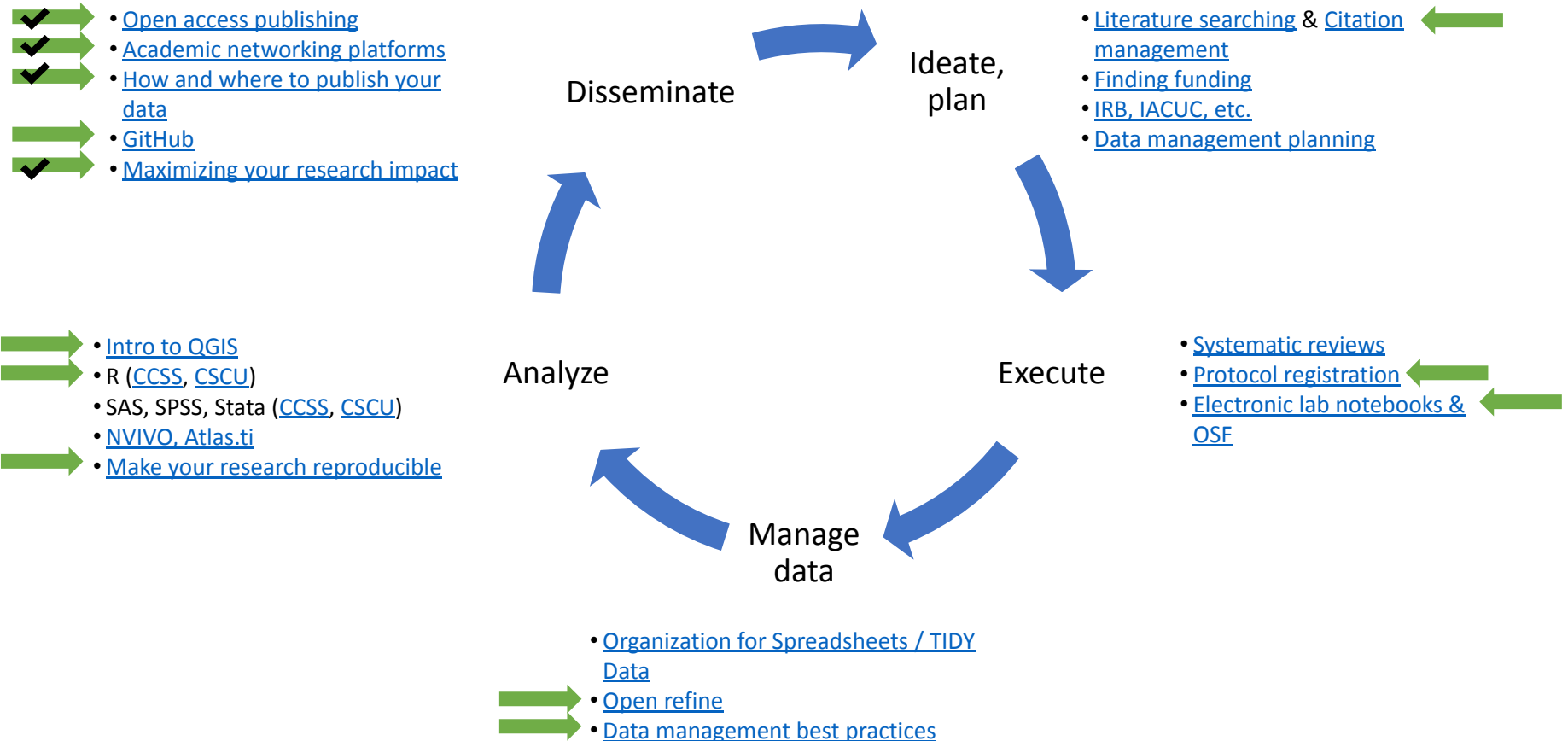
- [Intro to QGIS](#)
- R ([CCSS](#), [CSCU](#))
- SAS, SPSS, Stata ([CCSS](#), [CSCU](#))
- [NVIVO](#), [Atlas.ti](#)
- [Make your research reproducible](#)



# “Openness” in the research process



# “Openness” in the research process



Open Data

# Open Data - Defined

Open data is **data that can be freely used, re-used and redistributed by anyone** - subject only, at most, to the requirement to attribute and share alike.

Open Data Handbook (<http://opendatahandbook.org/guide/en/what-is-open-data/>)

What is data?		
Images	Text extracts	Maps
Archival documents	Photographs, audio, film	Field notes
Spreadsheets	Interview notes	...

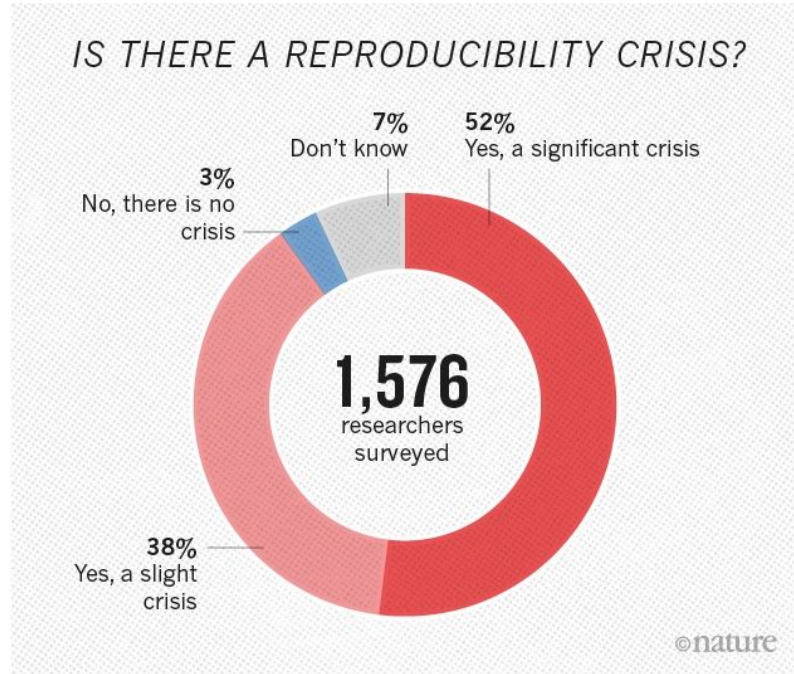
# Open Data - “freely used, re-used and redistributed by anyone”

**Availability and Access:** the data must be available as a whole and at no more than a reasonable reproduction cost, preferably by downloading over the internet. The data must also be available in a convenient and modifiable form.

**Re-use and Redistribution:** the data must be provided under terms that permit re-use and redistribution including the intermixing with other datasets.

**Universal Participation:** everyone must be able to use, re-use and redistribute - there should be no discrimination against fields of endeavour or against persons or groups. For example, ‘non-commercial’ restrictions that would prevent ‘commercial’ use, or restrictions of use for certain purposes (e.g. only in education), are not allowed.

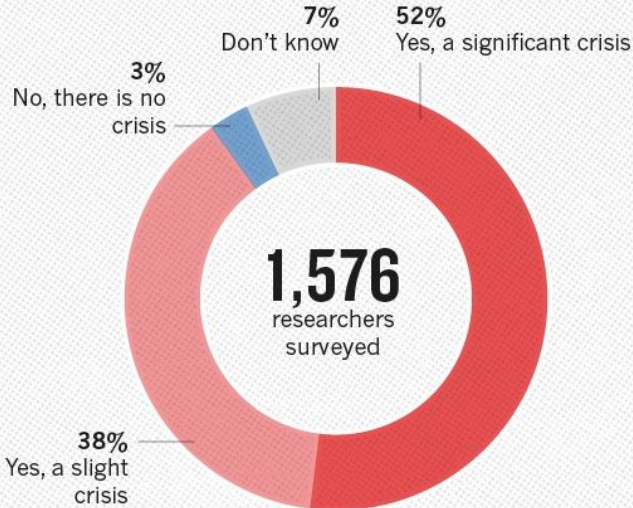
# Open Data and reproducibility



Baker, Monya. (2016). 1,500 scientists lift the lid on reproducibility. Nature.

# Open Data and reproducibility

*IS THERE A REPRODUCIBILITY CRISIS?*



Baker, Monya. (2016). 1,500 scientists lift the lid on reproducibility. Nature.

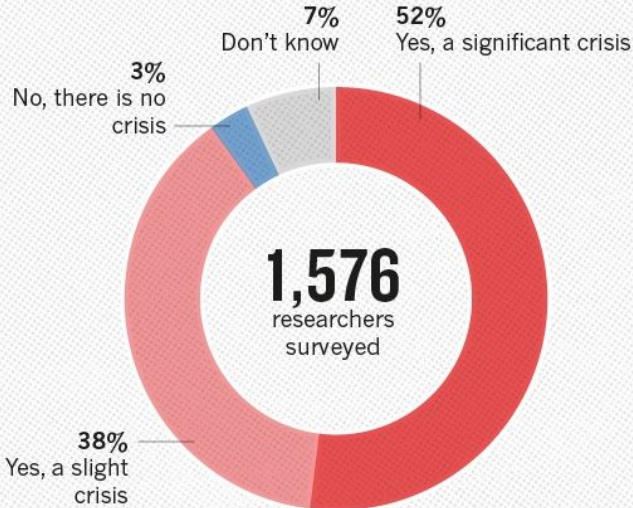
*HAVE YOU FAILED TO REPRODUCE  
AN EXPERIMENT?*

Most scientists have experienced failure to reproduce results.



# Open Data and reproducibility

*IS THERE A REPRODUCIBILITY CRISIS?*

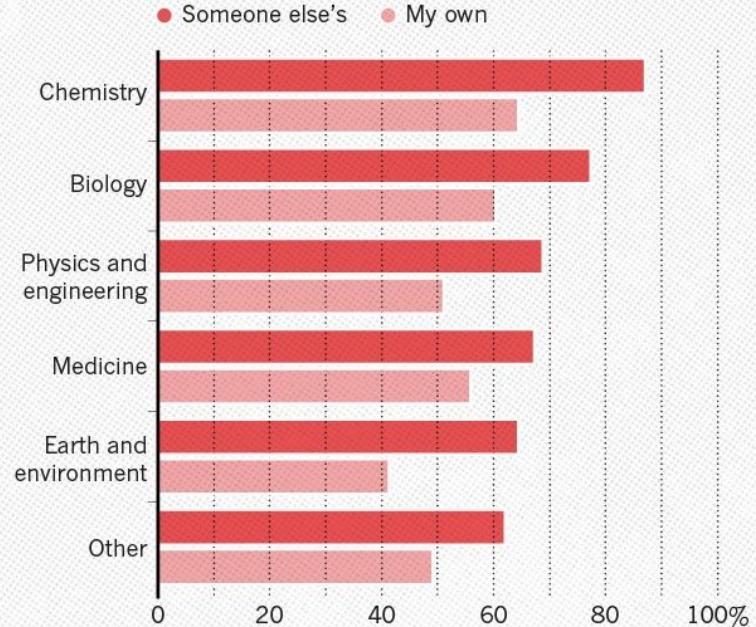


©nature

Baker, Monya. (2016). 1,500 scientists lift the lid on reproducibility. Nature.

*HAVE YOU FAILED TO REPRODUCE AN EXPERIMENT?*

Most scientists have experienced failure to reproduce results.



# Open Data = FAIR Data



Findable



Accessible



Interoperable



Reusable

Wilkinson, M. D., et al. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data* 3(160018). doi:10.1038/sdata.2016.18

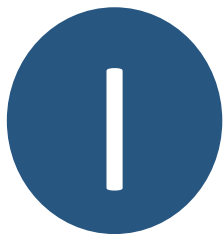
See also: <https://www.force11.org/group/fairgroup/fairprinciples>

# Findable and Accessible Data



<https://guides.library.cornell.edu/orcid>

# Interoperable Data



It's better to use formats that are:

- Unencrypted
- Uncompressed
- Non-proprietary/patent-encumbered
- Open, documented standard
- Standard representation (ASCII, Unicode)

Type	Original Format	Preservation Friendly Formats
Text	Hand-written, docx, odt, rtf, txt, html, xml, pdf	pdf/a, txt, xml
Tabular (simple)	csv, tsv, xls(x), ods, xps	csv
Image	pdf, jpeg, tiff, png, gif, bmp	pdf/a, tiff, jpeg2000
Database	mdb, dbf, sql, db, xml	xml, sqlite
Video	mpeg4, mov, avi	mpeg4

More: <https://guides.library.cornell.edu/ecommons/formats>

# Reusable Data



“Independently understandable for  
informed reuse”

OAIS Reference Model

Codebook

Data  
Dictionary

Data  
Guide

README

Methods  
Reports

Lab  
Notebooks

Protocols

Instruments

Etc...

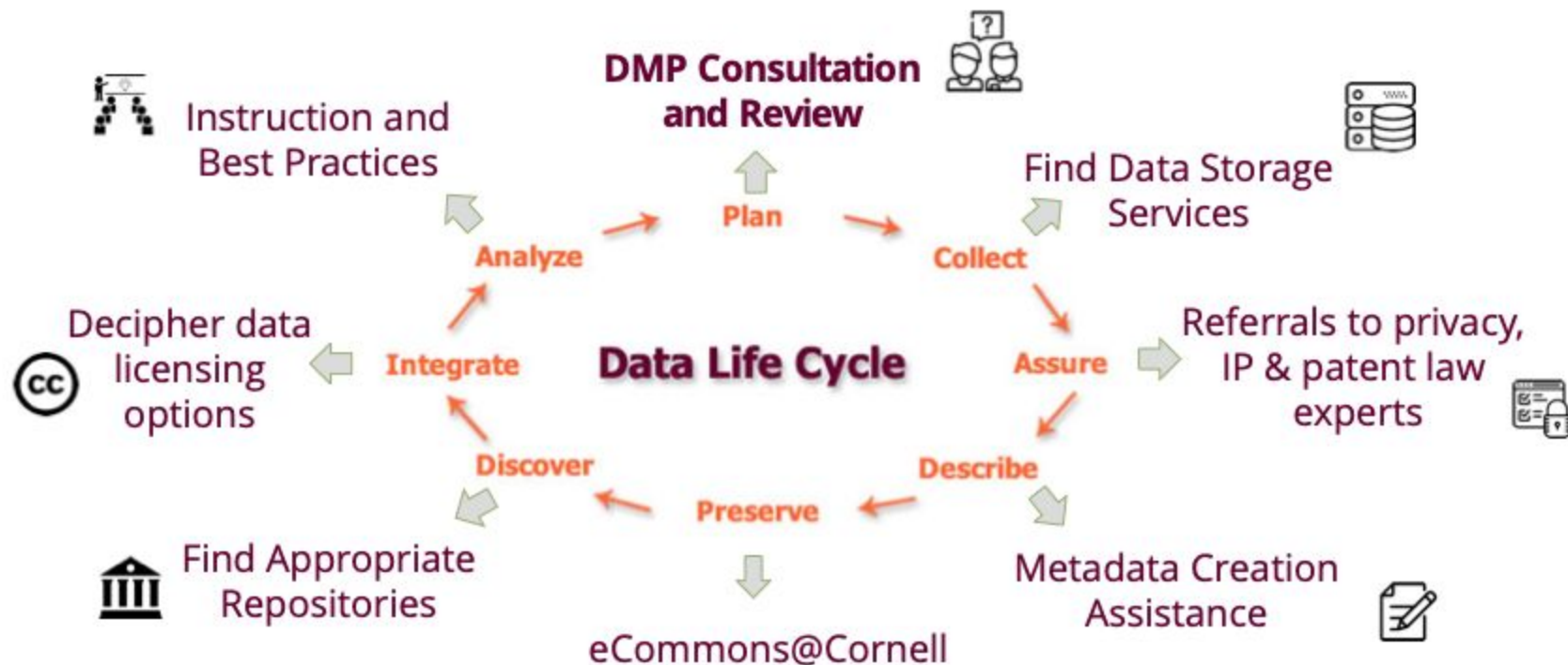
<https://data.research.cornell.edu/content/readme>

<https://data.research.cornell.edu/content/writing-metadata>

# Cornell Research Data Management Service Group

🌐 <http://data.research.cornell.edu/>

✉ [rdmsg-help@cornell.edu](mailto:rdmsg-help@cornell.edu)



# Open Data at Cornell



CORNELL UNIVERSITY  
Library

- Open access
- Persistent identifiers (Handle, DOI)
- Flexible, optional licenses
- Curatorial review
- Links to and citations for related material
- Versioning
- Long term sharing and preservation

The screenshot shows the eCommons website. At the top is a red header with the 'eCommons' logo and the tagline 'Open scholarship at Cornell'. To the right of the logo is a search bar and navigation links for 'Browse', 'About', 'Help', and 'Login'. Below the header is a large banner image of a Cornell campus scene. Overlaid on the banner are two white boxes. The left box contains text describing eCommons as a service of Cornell University Library that provides long-term access to a broad range of Cornell-related digital content of enduring value, with a 'Learn more' link. The right box is titled 'Make a deposit' and encourages users to submit documents, research papers, images, data sets, etc., into Cornell's digital repository, with a 'Submit your work' button and a 'How to submit' link. Below the banner, it states '98,059 items in eCommons'. At the bottom, there is a row of statistics with green checkmarks: 9,908 dissertation or thesis, 200 dataset, 1,815 biography, 4,850 newsletter, 3,404 Technical Reports, and 1,016 video/moving image.

eCommons  
Open scholarship at Cornell

Search

Browse ▾ About ▾ Help Login

**eCommons** is a service of Cornell University Library that provides long-term access to a broad range of Cornell-related digital content of enduring value. [Learn more](#)

**Make a deposit**  
Submit your document, research paper, image, data set and more into Cornell's digital repository.  
[Submit your work](#) [How to submit](#)

98,059 items in eCommons

✓ 9,908 dissertation or thesis ✓ 200 dataset ✓ 1,815 biography ✓ 4,850 newsletter ✓ 3,404 Technical Reports ✓ 1,016 video/moving image

eCommons: <https://ecommons.cornell.edu/>



# Open Data example

## Data from: How Honey Bee Colonies Survive in the Wild: Testing the Importance of Small Nests and Frequent Swarming

ColonyNo.	Treatment	Date	ExpDay	Year	Mites.100bees	Mites.100bees	BeeCount	Bees	Brou
c39	small	2012-06-29	45	2012	1	0.33	6.1	6125	
c116	small	2012-06-30	45	2012	5	1.67	4.5	4500	
c104	small	2012-07-01	45	2012	4	1.33	2.8	2750	
c29	small	2012-07-02	45	2012	0	0	3.5	3500	
c49	small	2012-07-03	45	2012	2	0.67	7.4	7400	
c13	small	2012-07-04	45	2012	0	0	6.3	6300	
c114	small	2012-07-05	45	2012	2	0.67	3.4	3400	
c15	small	2012-07-06	45	2012	0	0	4.3	4300	
c33	small	2012-07-07	45	2012	2	0.67	4.6	4600	
c89	small	2012-07-08	45	2012	3	1	5.1	5100	
c57	small	2012-07-09	45	2012	1	0.33	3.1	3100	
c105	small	2012-07-10	45	2012	1	0.33	5.6	5625	
c47	large	2012-07-11	45	2012	1	0.33	7	7000	
c102	large	2012-07-12	45	2012	0	0	4	4000	
c101	large	2012-07-13	45	2012	0	0	7.5	7500	
c16	large	2012-07-14	45	2012	2	0.67	3.9	3875	
c91	large	2012-07-15	45	2012	2	0.67	6.6	6625	
c48	large	2012-07-16	45	2012	10	3.33	4.5	4500	
c9	large	2012-07-17	45	2012	2	0.67	1.1	1125	
c107	large	2012-07-18	45	2012	2	0.67	3.3	3250	
c7	large	2012-07-19	45	2012	3	1	3.5	3500	
c108	large	2012-07-20	45	2012	2	0.67	8	8000	
small	small	2012-07-21	45	2012	0	0	0	0	
large	large	2012-07-21	45	2012	0	0	0	0	

### AUTHOR

Loftus, J Carter; Smith, Michael L; Seeley, Thomas D

### ABSTRACT

The ectoparasitic mite, *Varroa destructor*, and the viruses that it transmits, kill the colonies of European honey bees (*Apis mellifera*) kept by beekeepers unless the bees are treated with miticides. Nevertheless, there exist populations of wild colonies of European honey bees that are persisting without being treated with miticides. We hypothesized that the persistence of these wild colonies is due in part to their habits of nesting in small cavities and swarming frequently. We tested this hypothesis by establishing two groups of colonies living either in small hives (42 L) without swarm-control treatments or in large hives (up to 168 L) with swarm-control treatments. We followed the colonies for two years and compared the two groups with respect to swarming frequency, *Varroa* infestation rate, disease incidence, and colony survival. Colonies in small hives swarmed more often, had lower *Varroa* infestation rates, had less disease, and had higher survival compared to colonies in large hives. These results indicate that the smaller nest cavities and more frequent swarming of wild colonies contribute to their persistence without mite treatments. This item is the dataset underlying this project.

### SPONSORSHIP

This research was supported by a grant from the Eastern Apiculture Society Research Fund, a Hatch Grant (Project No. NYC-191400) from the Cornell University Agriculture Experiment Station (to TDS), and by a US National Science Foundation Graduate Research Fellowship (DGE-1144153) (to MLS).

### DATE ISSUED

2016

### SUBJECT

bee hive design; honey bee health; swarming; wild honey bees; *Varroa destructor*

### VIEW/OPEN

[Loftus\\_etal\\_MitesData.csv \(11.37Kb\)](#)

[Loftus\\_etal\\_MitesData\\_ReadMe.txt \(5.281Kb\)](#)

### PERMANENT LINK(S)

<https://hdl.handle.net/1813/42437>

### COLLECTIONS

- Neurobiology and Behavior Research

### METADATA

[Show full item record](#)



# Open Data example

## PERMANENT LINK(S)

<https://hdl.handle.net/1813/42437>

## COLLECTIONS

- [Neurobiology and Behavior Research](#)

## METADATA

[Show full item record](#)

This research was supported by a grant from the Eastern Apiculture Society Research Fund, a Hatch Grant (Project No. NYC-191400) from the Cornell University Agriculture Experiment Station (to TDS), and by a US National Science Foundation Graduate Research Fellowship (DGE-1144153) (to MLS).

## DATE ISSUED

2016

## SUBJECT

bee hive design; honey bee health; swarming; wild honey bees; Varroa destructor

## RELATED PUBLICATION(S)

Loftus JC, Smith ML, Seeley TD (2016) How Honey Bee Colonies Survive in the Wild: Testing the Importance of Small Nests and Frequent Swarming. PLoS ONE 11(3): e0150362. doi:10.1371/journal.pone.0150362

## LINK(S) TO RELATED PUBLICATION(S)

<http://doi.org/10.1371/journal.pone.0150362>

## RIGHTS

Attribution 4.0 International

## RIGHTS URI

<https://creativecommons.org/licenses/by/4.0/>

## TYPE

dataset

# Open Data is a continuum



Beginning	Developing	Accomplished	Exemplary
Not (yet) making data available for access and reuse.	Sometimes engages in open data practices. <ul style="list-style-type: none"><li>• ORCID</li><li>• At least one dataset made available in open repository with FAIR principles</li></ul>	Frequently engages in open data practices. <ul style="list-style-type: none"><li>• Routinely makes some data available according to FAIR principles</li><li>• Sometimes uses ORCID, DOIs, Creative Commons licenses</li></ul>	Consistently engages in open data practices. <ul style="list-style-type: none"><li>• Consistently makes most data available according to FAIR principles</li><li>• Consistently uses ORCID, DOIs, Creative Commons licenses, etc.</li></ul>

# What kind of open data practitioner are you?

A Beginning

B Developing

C Accomplished

D Exemplary



# What kind of open data practitioner would you like to be?

A Beginning

B Developing

C Accomplished

D Exemplary



# Open access publishing and other ways to share writing

What we will cover:

- **Open access** defined
- Very basic introduction to **copyright** & **managing your rights** as an author
- Publishing models (including **open access**)
- Other ways to **share** your work
- Some **best practices**

# **Open access (OA) defined:**

Open-access (OA) literature is digital, online, free of charge, and free of most copyright and licensing restrictions.

- Peter Suber

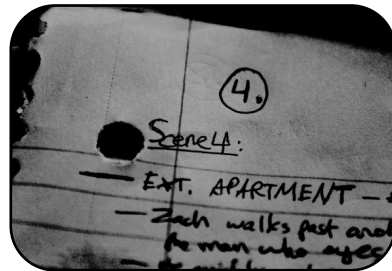
# Rights of copyright holders



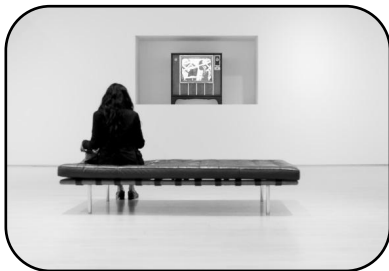
Reproduce



Distribute



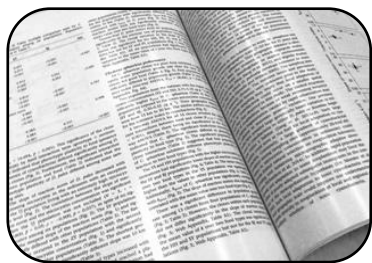
Create  
derivatives



Display



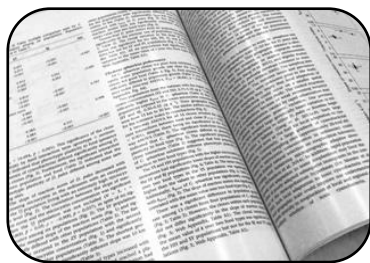
Perform



# **Some useful rights for authors:**

- Include some/all in dissertation
- Reuse parts in other works; make derivatives
- Make and distribute copies for teaching, research
- Grant permission to others to use for teaching
- Post the work online

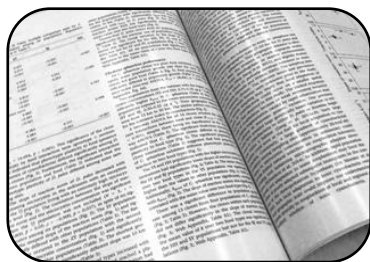




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- Make and distribute copies for teaching, research
- Grant permission to others to use for teaching
- Post the work online

*BUT... Publishers typically demand complete transfer of copyright*



# Understanding and managing your rights

What are your publisher's terms?

- Publishing agreement & website
- [SHERPA/RoMEO](#)

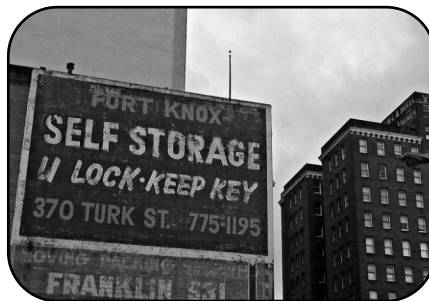
What can you do about it?

- Copyright Information Center – [Copyright Management for Authors](#)
- Library guide – [Author rights](#)

# Publishing models



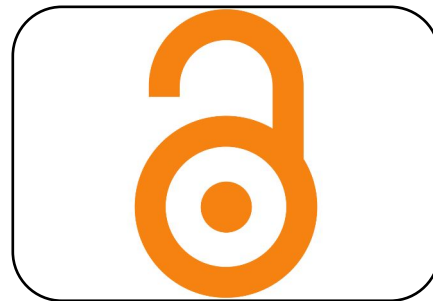
Traditional (closed)



Traditional (self-archive,  
"green" OA)



Hybrid (traditional,  
selected OA)



Fully open access  
("gold" or "diamond" OA)

# Publishing model: ??



Edited By: Dr. Isidro Morales  
Online ISSN: 2041-7373  
© Policy Studies Organization



[LATEST ISSUE >](#)

Volume 10, Issue 1  
May 2019

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## About the Journal

**Latin American Policy (LAP):** A Journal of Politics and Governance in the Policy Studies Organization and the Escuela de Gobierno y Transformación Pública, Tecnológico de Monterrey, Santa Fe Campus, published its first issue in mid-2010. LAP's primary focus is intended to be in the policy arena, and will focus on any issue or field involving authority and politics (although not necessarily clustered on governments), agency (either governmental or from the civil society, or both), and the pursuit/achievement of specific (or anticipated) outcomes. We invite authors to focus on any crosscutting issue situated in the interface between the policy and political domain concerning or affecting any Latin American and Caribbean (LAC) country or group of countries. This journal will remain open to multidisciplinary approaches dealing with policy issues and the political contexts in which they take place.

## Gold Open Access - OnlineOpen

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Published on behalf of the Policy Studies  
Organization and the Escuela de Gobierno

# Publishing model: ??



LARR

Latin American  
Research Review

Start Submission

Become a Reviewer

LATEST ARTICLES

POPULAR ARTICLES

## Open Access Policy

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

Authors of articles published remain the copyright holders and grant third parties the right to use, reproduce, and share the article according to the [Creative Commons](#) license agreement.



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Journal Blog

## About this Journal

The Latin American Research Review (LARR) publishes original research and review essays on Latin America, the Caribbean, and Latina/Latino studies. LARR covers the social sciences and the humanities, including the fields of anthropology, economics, history, literature and cultural studies, political science, and sociology. The journal reviews and publishes papers in English, Spanish, and Portuguese. All papers, except for book and documentary film review essays, are subject to double-blind peer review. LARR, the academic journal of the Latin American Studies Association, has been in continuous publication since 1965.

Share:



Reflections on Haitian  
Democracy: Zooming in on a  
Megaproject in the  
Hinterland

Shamsie — 10 Apr 2019

Share:



Determinants of Support for  
Extralegal Violence in Latin  
America and the Caribbean



# **A few things to know about open access (OA) publishing.**

- Doesn't require full transfer of ©.
- An access model, not a peer review model.
- Author fees may apply (potential for fraud).
- Information and help:
  - [Open access](#)
  - [Avoiding predatory publishing](#)
  - [Cornell Open Access Publication](#) (COAP) Fund

# Other sharing options

Google Scholar



eCommons

Open scholarship at Cornell

arXiv

ACADEMIA



SSRN



# Other sharing options



What do they do?

- Discover
- Profile
- Impact
- Network
- Preserve
- Other



# Other sharing options



What *ELSE* do they do?

- Who provides the service?
- What is their motivation?
- Terms of use, privacy?
- What do they do with your data?

*And don't forget about  
copyright...*

# An example

## [Subscription journal](#)



Original Paper | [Published: 06 October 2020](#)

### Nation-Level Gender Inequality and Couples' Income Arrangements

[Joanna R. Pepin](#) & [Philip N. Cohen](#)

[Journal of Family and Economic Issues](#) **42**, 13–28 (2021) | [Cite this article](#)

**364** Accesses | [Metrics](#)

## [Journal information](#) (Sherpa Romeo)

### Submitted Version

None

Preprint Repository, Author's Homepage

Embargo

No Embargo

Location

Author's Homepage

Preprint Repository

Conditions

Published source must be acknowledged

Must link to publisher version with DOI

## [Preprint server](#)

SOC  
ARXIV SocArXiv Papers

### Nation-level Gender Inequality and Couples' Income Arrangements

AUTHORS

[Joanna Pepin](#), [Philip N. Cohen](#)

# An example

## [Subscription journal](#)



Original Paper | [Published: 06 October 2020](#)

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## [Preprint server](#)

SOC  
ARXIV SocArXiv Papers

### Nation-level Gender Inequality and Couples' Income Arrangements

AUTHORS

[Joanna Pepin](#), [Philip N. Cohen](#)

(Or you could just  
publish open access.)

# **Suggested best practices:**

- Understand and manage your rights as an author.
- Consider publishing open access.
- Save your publishing agreement and last draft ("post-print").
- Find alternatives to complement traditional publishing arrangements (but avoid hybrid OA).
- Evaluate any services you might use.

# Research Impact & Open Scholarship

- Bibliometrics: traditional measurements of impact of research
- Open Scholarship & the effect on impact
- Beyond citations--newer Alt(ernative) Metrics

# Bibliometrics & Alt(ernative)metrics

Bibliometrics=citation counts  
determine impact

Altmetrics=social web  
activity determines impact



Created by Mirna Bard  
www.mirbabard.com

# Open Access Citation Advantage (OACA) ?

- Open Access publishing=higher citation counts
- Open data=higher citation counts
- True?

# Research Impact (including altmetrics)

PLOS ONE

advanced search

 OPEN ACCESS  PEER-REVIEWED

RESEARCH ARTICLE

## Is the open access citation advantage real? A systematic review of the citation of open access and subscription-based articles

Allison Langham-Putrow  , Caitlin Bakker , Amy Riegelman 

Published: June 23, 2021 • <https://doi.org/10.1371/journal.pone.0253129>

14  
Save

2  
Citation

2,842  
View

86  
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Article

Authors

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## Results

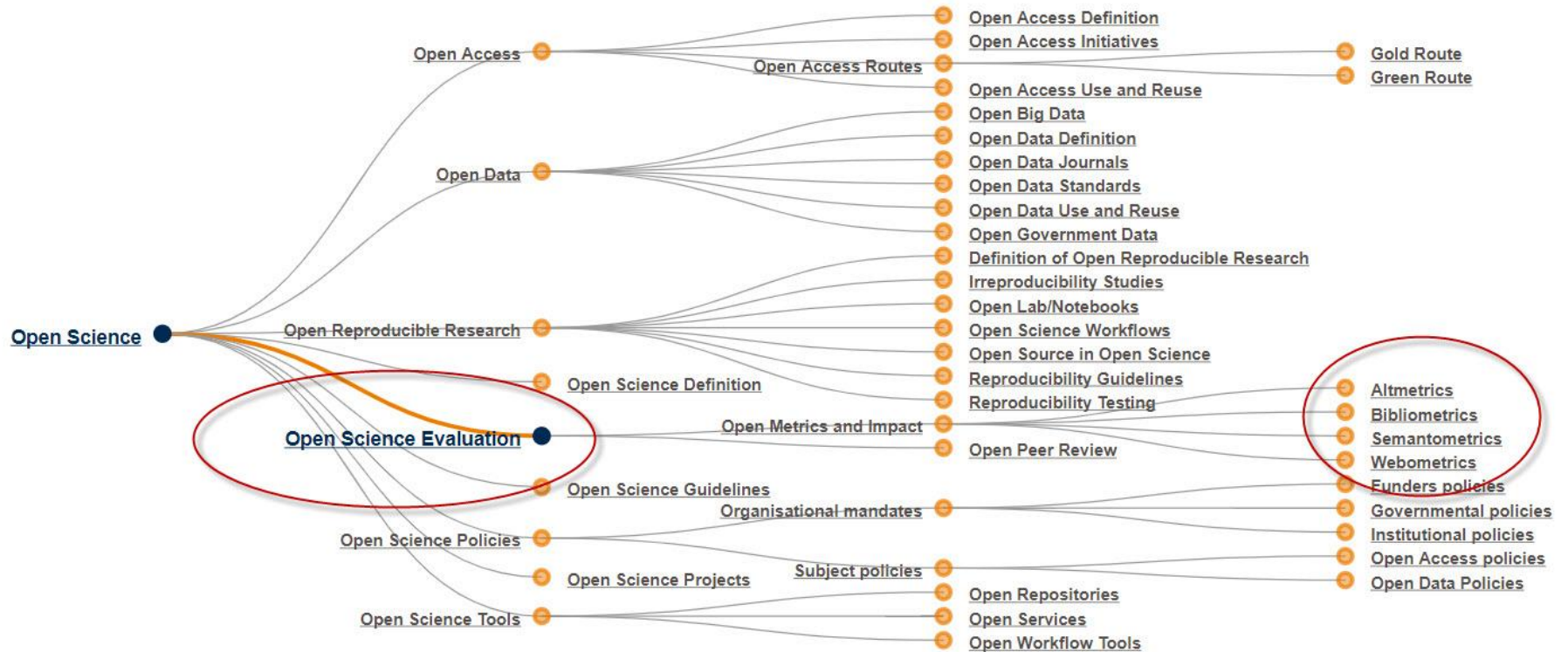
A total of 5,744 items were retrieved. Ultimately, 134 items were identified for inclusion. 64 studies (47.8%) confirmed the existence of OACA, while 37 (27.6%) found that it did not exist, 32 (23.9%) found OACA only in subsets of their sample, and 1 study (0.8%) was inconclusive. Studies with a focus on multiple disciplines were significantly positively associated with finding that OACA exists in subsets, and are less associated with finding that OACA did not exist. In the critical appraisal of the included studies, 3 were found to have an overall low risk of bias. Of these, one found that an OACA existed, one found that it did not, and one found that an OACA occurred in subsets.

## Research Impact (beyond citations)

- citation metrics = the use of a study in the academic world.
- One goal of OS is broader access to research; these uses are often not captured through citations.
- EG: practitioners who do not have institutional access to subscription resources.

# Alternative Metrics *or* Altmetrics





# Alternative Metrics & OA--an example

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# Is Green Growth Possible?

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