Scientific Communication:

publishing and evaluation

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PhD Course in Statistics

21/02/2019

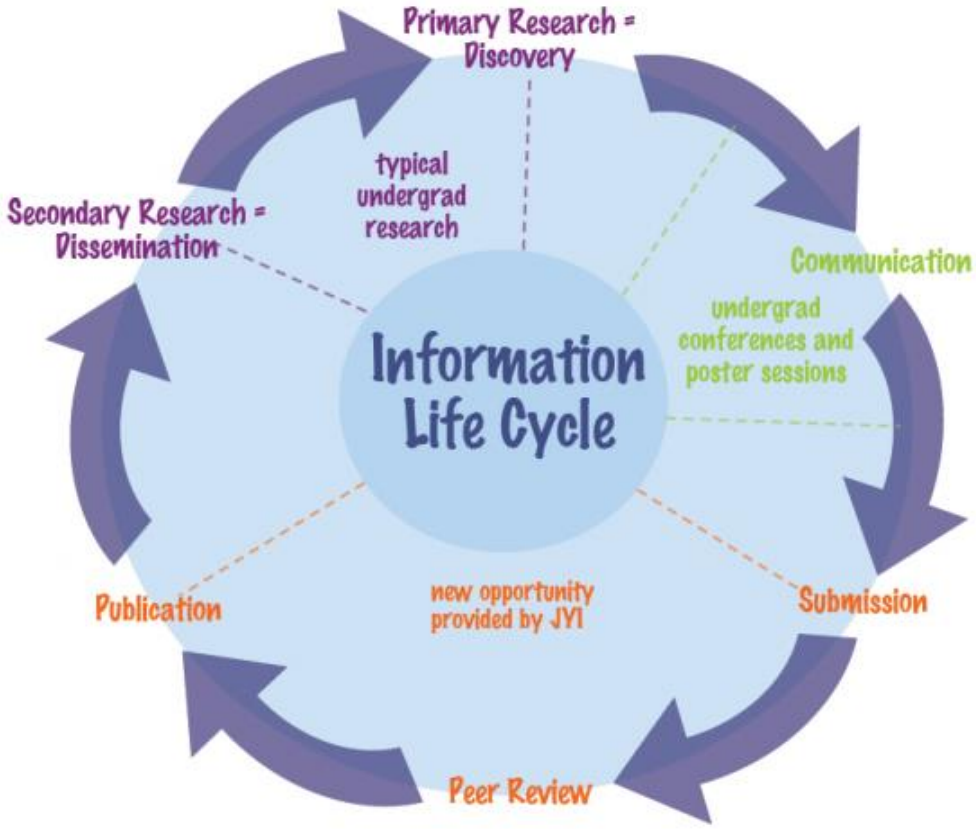
What we will see today:

- **Scholarly Communication**: traditional publishing and Open Access

- **Bibliometrics**: traditional and innovative tools for scientific evaluation

Scientific communication

» the process of publication and dissemination of research findings

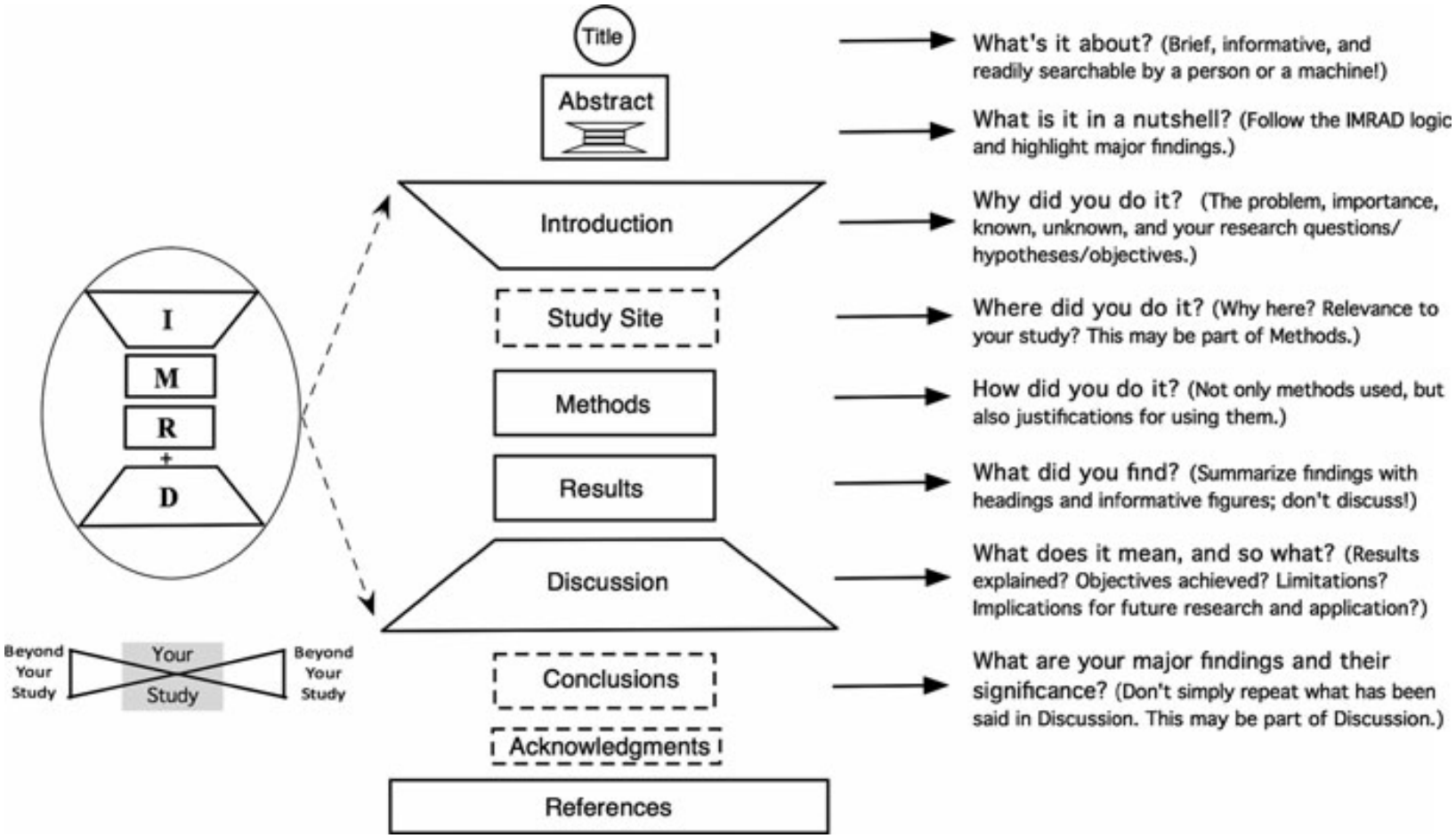


http://www.jyi.org/about-jyi/mission/

Research publications:

- ✓ **Books (monographs)**
- ✓ **Journal article, book section, chapter in research book, conference proceedings**
- ✓ **Publications for professional communities** (guide or professional manual, textbook material, research report or technical report, working paper, maps …)
- ✓ **Theses and dissertations**
- ✓ **Patents and invention disclosures**
- ✓ **Standards**
- ✓ **Statistics**
- ✓ **Video, image and sound resources**
- ✓ **.....**

Scientific writing: structure of a scientific paper



http://leml.asu.edu/jingle/Wu-Publications-PDFs/2011/Wu-2011-ScientificWriting.pdf

Process of publication of a scientific paper

https://aoasg.files.wordpress.com/2013/12/hefce-publishing.jpg

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University of Padova
Library System

Scientific journals

STM (Scientific, Technical and Medical) Journals

Journal or Serial

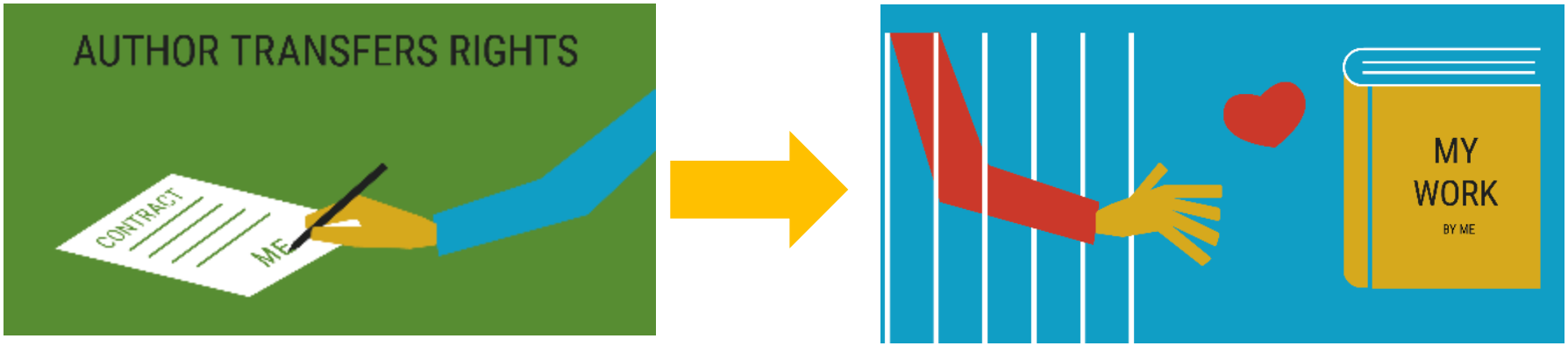
=

publication that appears in intervals of time longer than 24 hours

- Addressed to the scientific community (expert audience)
- With selected contents
- Referee system

In STM field it is imperative to publish research as soon as possible, so journals are the main way to **quickly disseminate information**

Many Scholarly or Academic Journals require authors to sign away their rights to their own articles!



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Images from https://www.authorsalliance.org/wp-content/uploads/2017/10/creative-commons-infograph-horizontal-1.png

Intellectual property

Intellectual Property (IP) protects different types of intellectual creations. It is usually divided into two parts:

1. Industrial property

comprises …

- **Designs and models** protects the **new design** of an utilitarian object
- **Patent law** protects **new inventions**
- **Trademark law** protects **signs** used in commerce to distinguish the origin of goods or services

2. Literary and artistic property

comprises mainly …

Copyright / author's rights

MORAL RIGHTS <-> ECONOMIC RIGHTS

PATERNITY: the author has a paternity right which enables him to have his name on the work

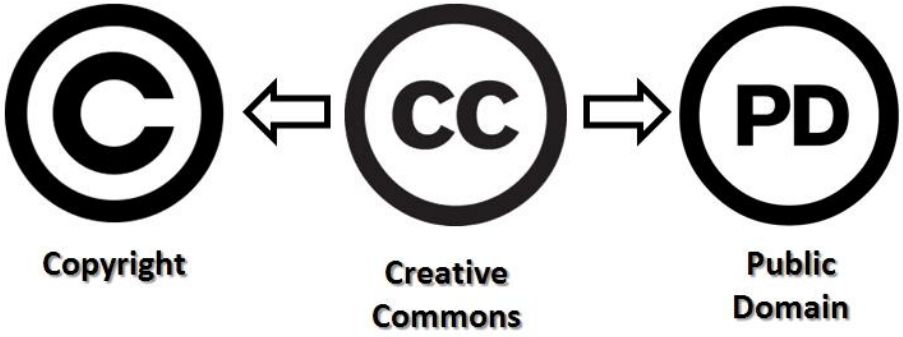
INTEGRITY: which enables the author to refuse any modification to the work (or its context) or any re-use of it

PRIMARY RIGHTS are reserved to the author; no one else could publish, distribute, diffuse the work without the author's consent and without paying a reward to the rights owner

SECONDARY RIGHTS involve situations where a third party uses a work that's already been distributed to the public

For researchers and authors a wide variety of publishing models are emerging that do not follow the traditional academic pattern of outright assignment of copyright to publishers or data owner…

Copyright and Creative Commons



Creative Commons

Attribution or **CC-BY**

Attribution-ShareAlike, or **CC-BY-SA**

Attribution-NoDerivs, or **CC-BY-ND**

Attribution-NonCommercial, or **CC-BY-NC**

Attribution-NonCommercial-ShareAlike, or **CC-BY-NC-SA**

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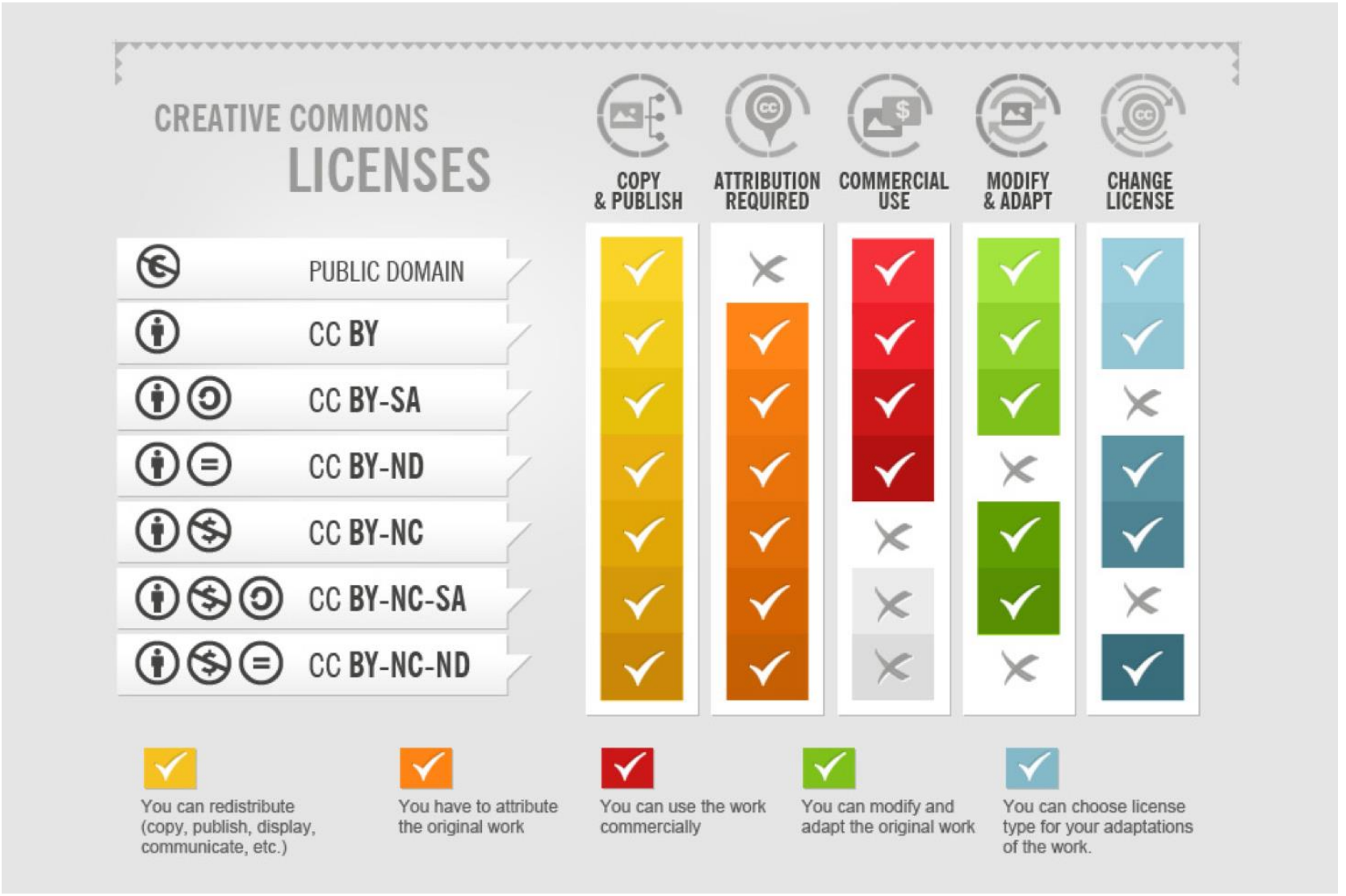
CC0 mark



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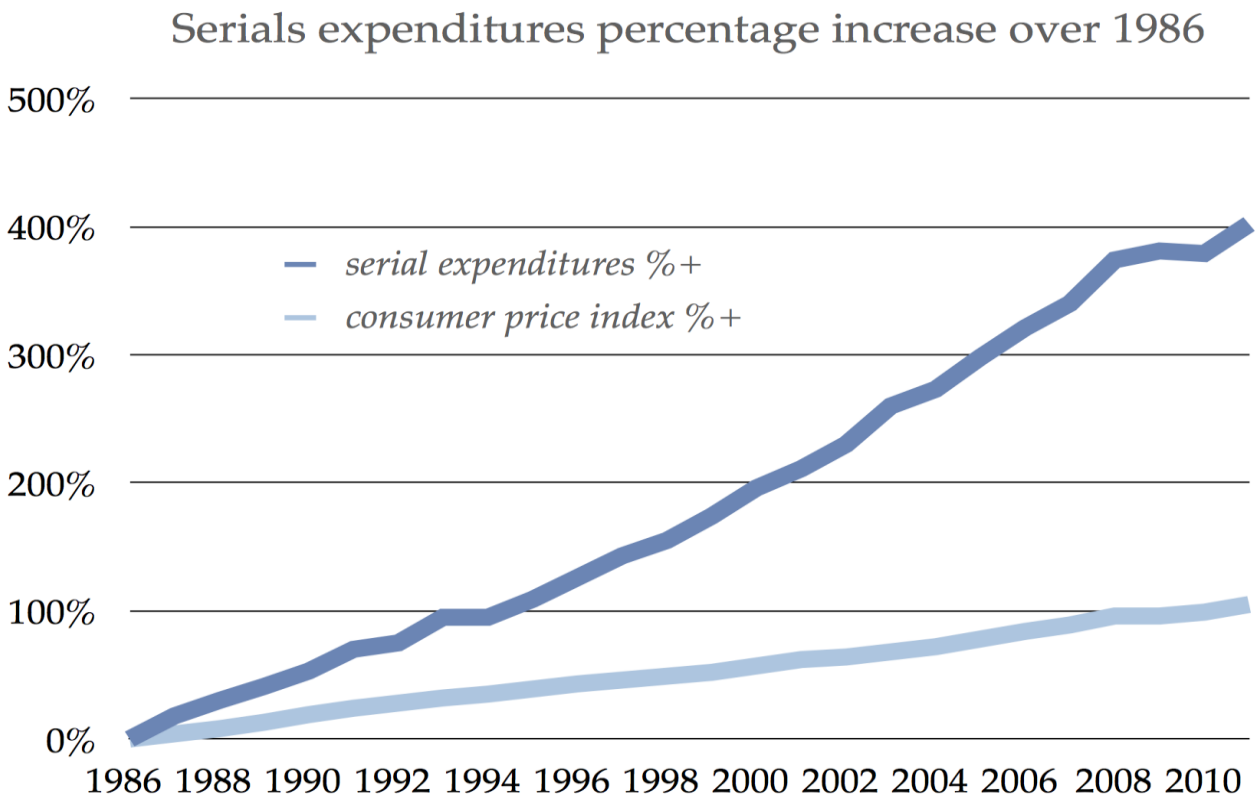
Serials crisis



Scholarly journal expenditures percentage increase 1986–2010 compared to consumer price index. Data from Association for Research Libraries.

https://blogs.harvard.edu/pamphlet/2013/01/29/why-open-access-is-better-for-scholarly-societies/

And the future of scientific publication?

OPEN ACCESS

Open access logo, originally designed by
Public Library of Science.
https://commons.wikimedia.org/wiki/File:Open_Access_logo_PLoS_white.svg

What is Open Access?

Open-access (OA) literature is

digital, online, **free of charge**, and **free of most copyright** and licensing restrictions.

What makes it possible is the internet and the consent of the author or copyright-holder.

A Very Brief Introduction to Open Access by Peter Suber
https://legacy.earlham.edu/~peters/fos/brief.htm

Which are the benefits?

Nowadays, it is widely recognized that **making research results more accessible contributes to better and more efficient science**, and **to innovation in the public and private sectors**.

European Commission, Horizon2020

https://ec.europa.eu/programmes/horizon2020/en/h2020-section/open-science-open-access

Which are the benefits?

CC-BY Danny Kingsley & Sarah Brown

OA literature is not free to produce: the question is not whether scholarly literature can be made costless, but whether there are better ways to pay the bills.

[Peter Suber]

https://legacy.earlham.edu/~peters/fos/brief.htm

OA JOURNALS **OA ARCHIVES**

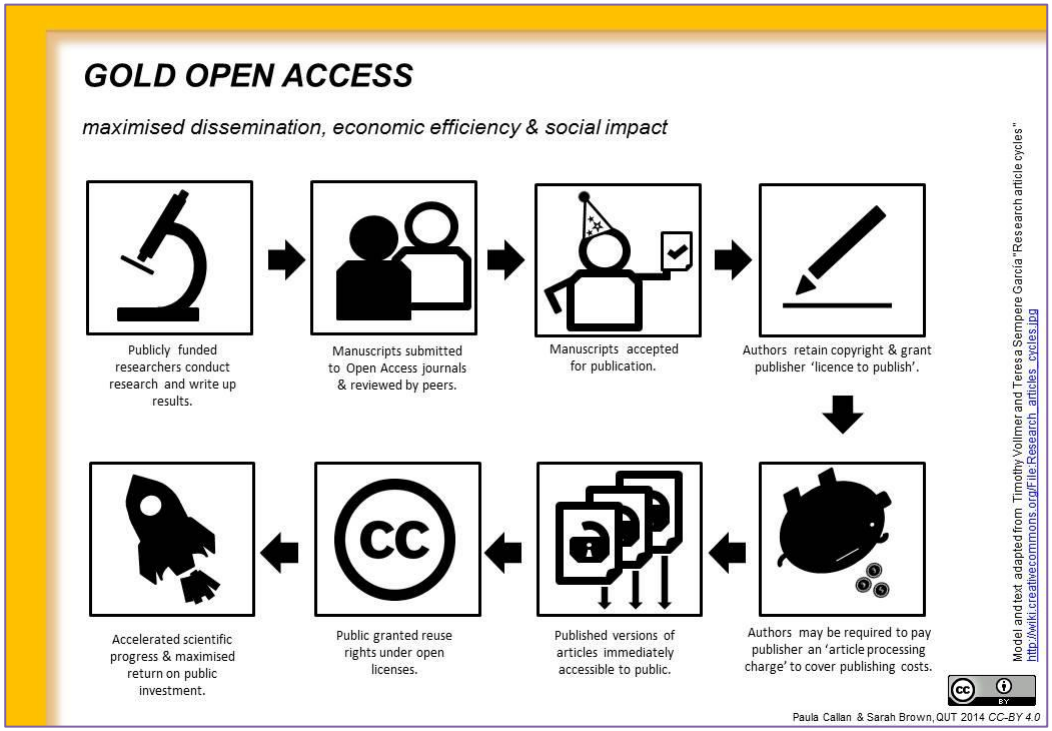
How do you make your work openly accessible?

GOLDEN ROAD

GREEN ROAD

RED ROAD

BLACK ROAD

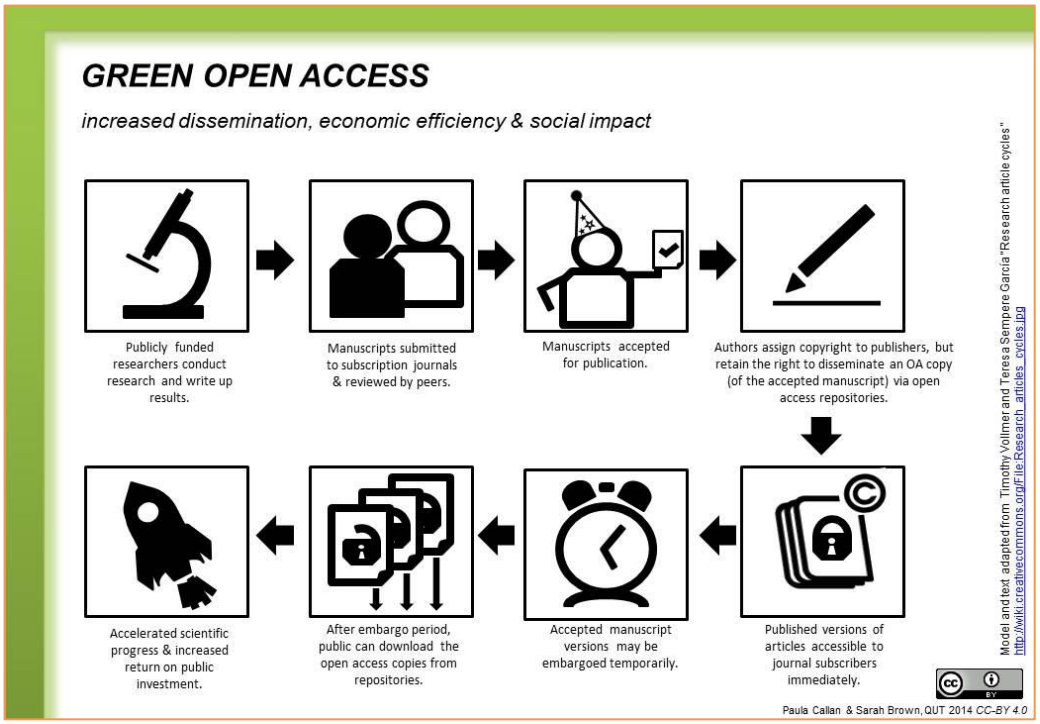


https://aoasg.org.au/what-is-open-access/

- The article is published in an open access journal or in a magazine that contemplates the open access publication of individual articles (hybrid journal).

- In both cases, authors retain copyrights, while **specific licenses regulate the use and reuse** of articles by readers (e.g. Creative Commons licenses).

- In most hybrid journals authors are required to pay a fee (***APC - Article Processing Charge***) to publish in open access.



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https://aoasg.org.au/what-is-open-access/

•Some versions of an article can be uploaded to an open institutional or disciplinary archive.

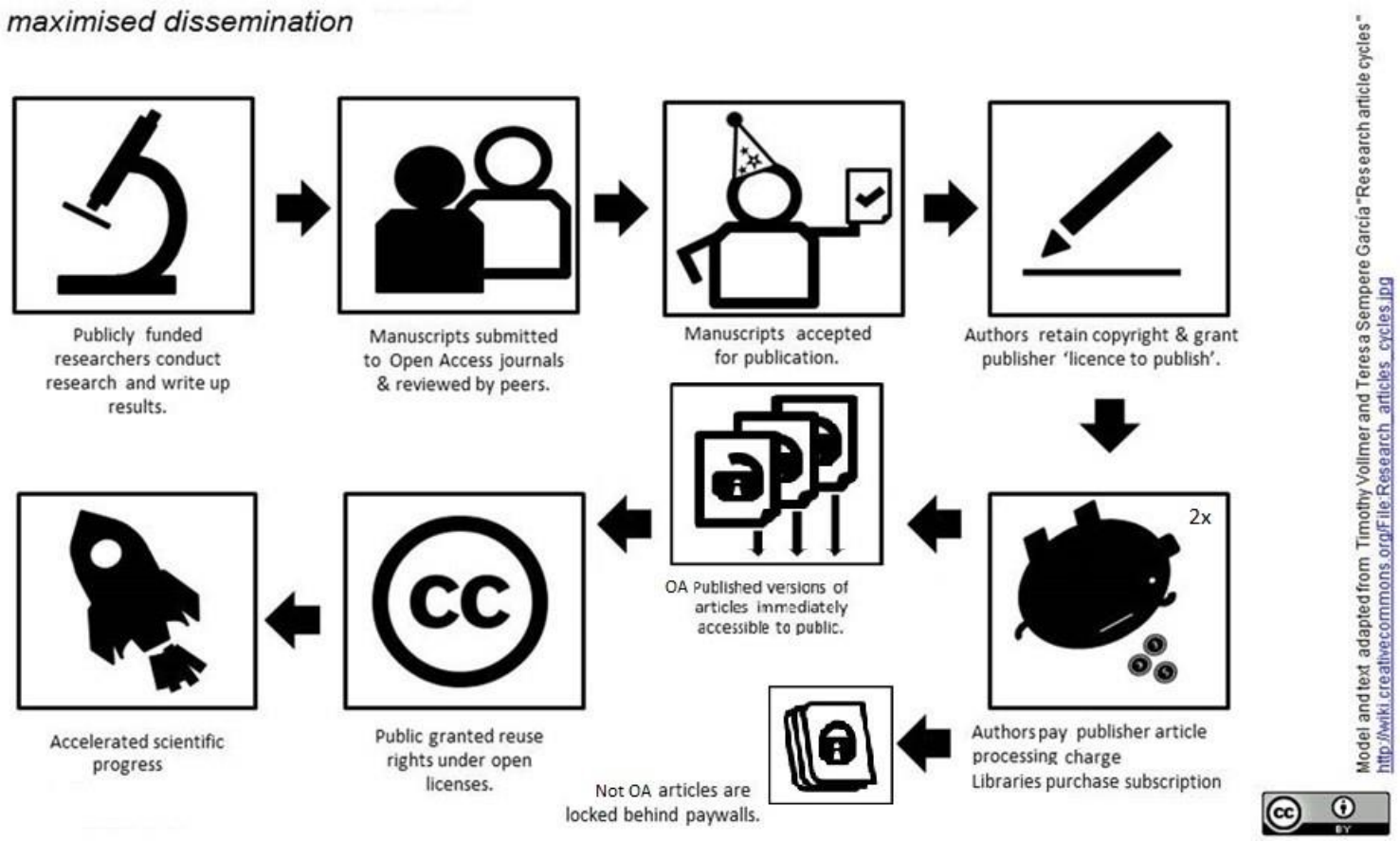
•This practice, also called ***self-archiving***, is accepted by most international publishers.

•Possible versions include:
Pre-print: the text of the article ready to be submitted to a journal
Post-print or **author's accepted manuscript**: the article that has already passed the peer review but is not yet formatted by the publisher.

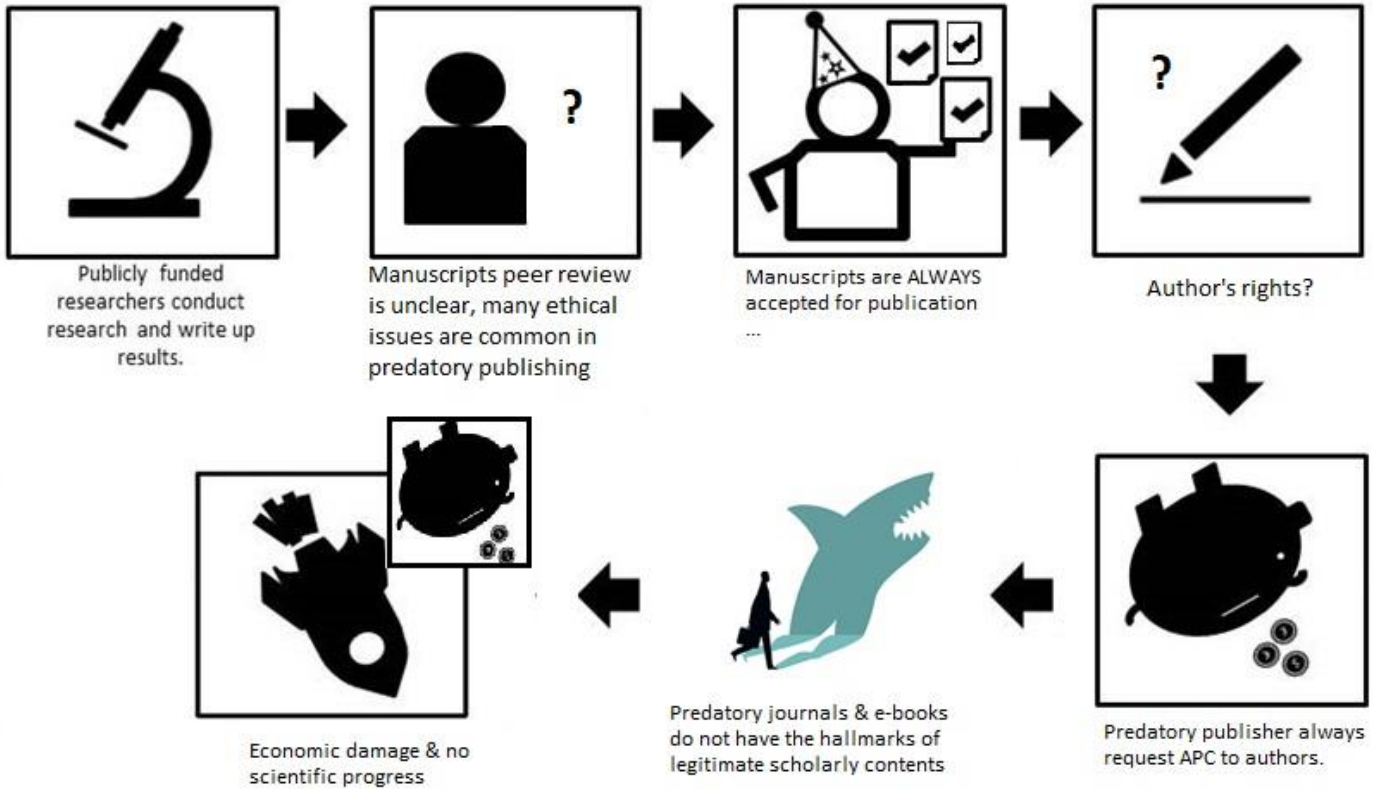
•Published version or **Version of record**

•The filing can take place at the time of publication or after an embargo period: it depends on the policies of the publishers and the agreement signed by the author.

RED ROAD: publishing in hybrid journals paying APC



BLACK ROAD:
predatory publishing and fraudulent



Model and text adapted from Timothy Vollmer and Teresa Sempere García "Research article cycles" http://wiki.creativecommons.org/File:Research_articles_cycles.jpg

Advice to Authors: you are the owner of copyrights!

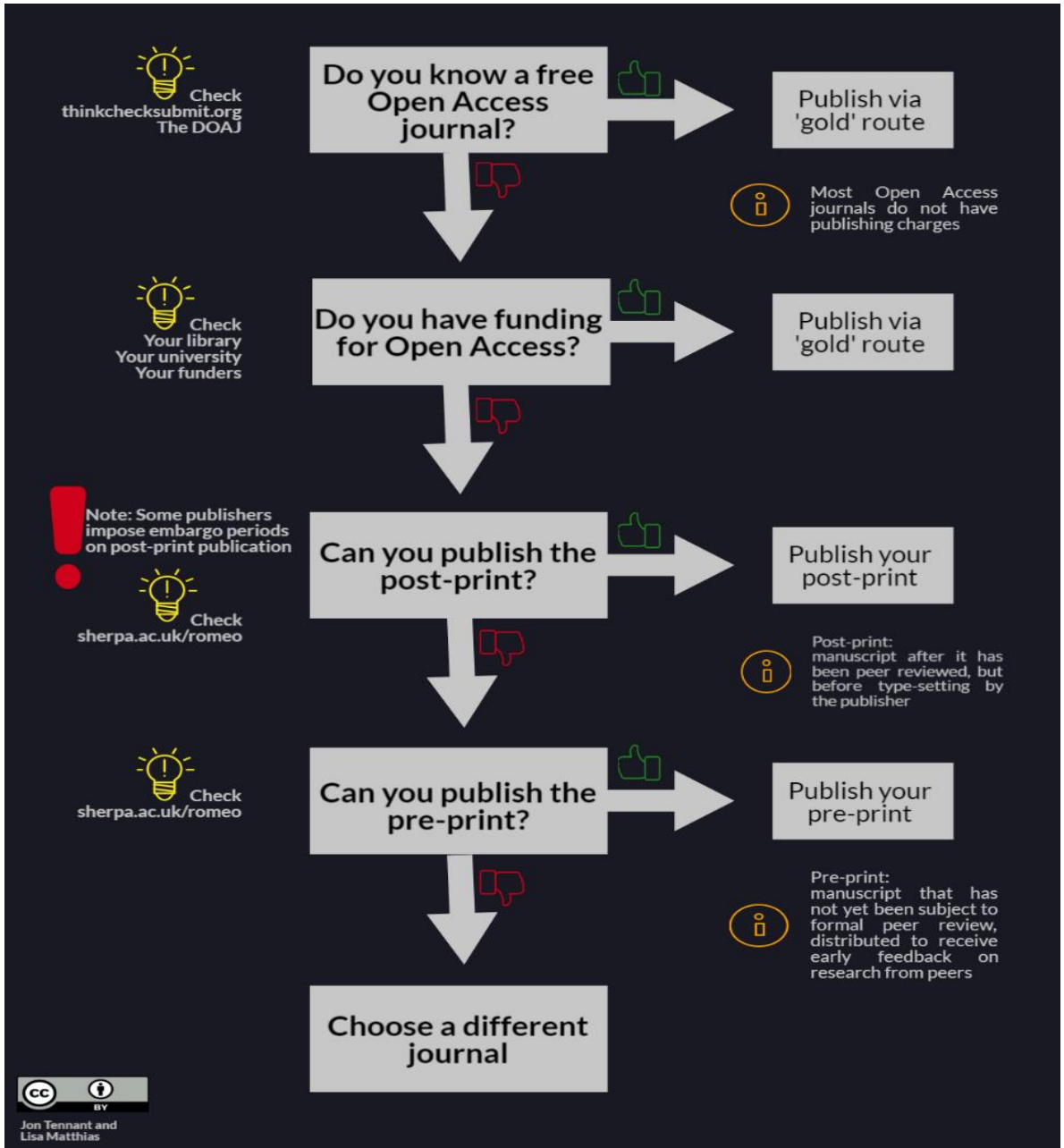
1. Read your contracts and retain some of rights → SPARC Author Addendum

2. Find out more about publishers' open access policies → SHERPA RoMEO

3. Pick your publisher carefully and consider to publish in an open access journal → Directory of Open Access Journals

4. Be careful of predatory journals → Beall's list of predatory journals and publishers

5. Need Help? Ask the Library Helpline of Padua University



How to make your research open access

https://figshare.com/articles/How_to_make_your_research_open_access_For_free_and_legally_/5285512/3

Choose the right journal for your research

What we will see today:

- **Scholarly Communication**: traditional publishing and Open Access

- **Bibliometrics**: traditional and innovative tools for scientific evaluation

Evaluation of scientific research: why?

- Single researcher: recruitment, promotion, grant awarding career

- Research groups (same department, faculty, university, research organization, nation): to grant funding

- Scientific journals: to determine the most influential journals in a research area

Evaluation of scientific research: Italy

The **National Committee of Guarantors for Research (***Comitato Nazionale dei Garanti per la Ricerca – CNGR)*
Consultative body to the Ministry of Education, University and Research (MIUR), tasked to promote the quality of research and ensure proper functioning of peer reviews.

The **National Agency for the Evaluation of the University and Research Systems** (*Agenzia Nazionale di Valutazione del sistema Universitario e della Ricerca – ANVUR)*
Reports to the MIUR and, on the basis of autonomy, impartiality, professionalism and transparency, works to ensure the quality of higher education and research in Italy.

https://www.researchitaly.it/en/understanding/overview/assessment/

Evaluation of scientific research: how

Qualitative assessment : review by colleague-scientists (peers)

Quantitative assessment: analysis of bibliographic citations (bibliometric indicators)

Other criteria: congress partecipation as invited speaker, patents etc.

Bibliometrics

The branch of library science concerned with the application of **mathematical and statistical analysis to bibliography**; the statistical analysis of books, articles, or other media of communication.

http://www.oxforddictionaries.com/definition/english/bibliometrics

That is…
data about publications, or citation frequency

Evaluation of scientific research

Citations analysis: number of citations received by a publication

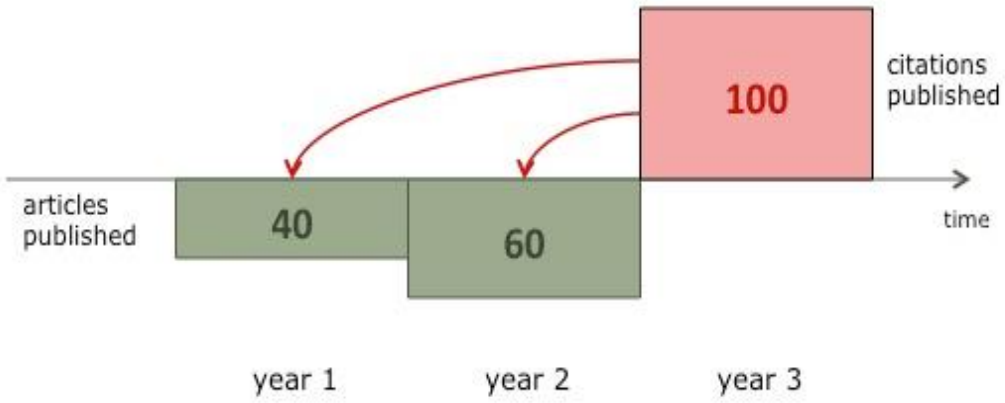
"Assuming that scientists cite the work that they have found useful in pursuing their own research, the number of citations received by a publication is seen as a quantitative measure of the resonance and impact that this publication has created in the scientific community." (Neuhaus, 2006)

https://www.researchgate.net/publication/241700153_Data_Sources_for_Performing_Citation_Analysis_An_Overview/download

Bibliometrics tools

The Impact Factor

Introduced in 1950's by Eugene Garfield: ISI



$$IF(year\,3) = 100/40 + 60 = 1$$

http://curt-rice.com/wp-content/uploads/2014/12/Slide2.jpg

Bibliometrics tools

Journal rankings:

Journal Citation Report

Scopus

THOMSON REUTERS

Databases that measure ***journal impact***

Web of Science

ELSEVIER

Scopus

THOMSON REUTERS

Google Scholar

ELSEVIER

Databases mostly used for ***citation searching***

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Quick Reference Cards *for* Research Impact Metrics

ELSEVIER

Other Journal Ranking Tools

Freely available Tools (for journal or citations impact):

SCImago SJR (free, Scopus citations data)
http://www.scimagojr.com/index.php

Google Scholar Metrics (Journals) (free, publications 2013 - 2017)
http://scholar.google.com/intl/en/scholar/metrics.html

Google Scholar+Harzing's Publish or Perish (PoP)
https://harzing.com/resources/publish-or-perish

And the authors?

HIRSCH INDEX (h-index)

- It measures the output of a scientist through the number of citations of his published works and the number of published works

- It has been applied also to journals, research teams, institutions, nations (see Scimago)

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. Proc.Nat.Acad.Sci., 46, 16569.

Need Help?

About Publishing
http://bibliotecadigitale.cab.unipd.it/en/about-publishing-new

Online course
https://elearning.unipd.it/sba/course/index.php?categoryid=5

UNIPD Library Helpline
http://bibliotecadigitale.cab.unipd.it/en/helpline

Useful links

Science Information life cycle, UCLA Libraries
https://uclalibrary.github.io/find_science_info_tutorial/web_files/index.html

Creative Commons - Tutorial
https://creativecommons.org/choose/

WoS Training
http://thomsonreuters.com/products_services/science/training/wos/

Scopus Tutorials
https://service.elsevier.com/app/answers/detail/a_id/14799/supporthub/scopus/#searchl

Credits

Scientific publications, introduction to bibliometrics and Open Access, by Elisa Rubino and Maria Cristina Vettore (PHD School in Statistics 2016)

Strategie e opportunità per la ricerca: Open Access, valutazione scientifica e supporto alla pubblicazione, by Emanuela Canepa (27 gennaio 2017)

Open access and scholarly communication, by Antonella De Robbio (PHD Summerschool 2018)

THANK YOU FOR YOUR ATTENTION

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