

Bibliometrics and academic publishing

PhD Course in Statistics
Library Labs: Module III
December 14 2021



What we will see today:

- **Scholarly Communication:** traditional academic publishing and Open Access
- **Bibliometrics:** traditional and innovative tools for scientific evaluation

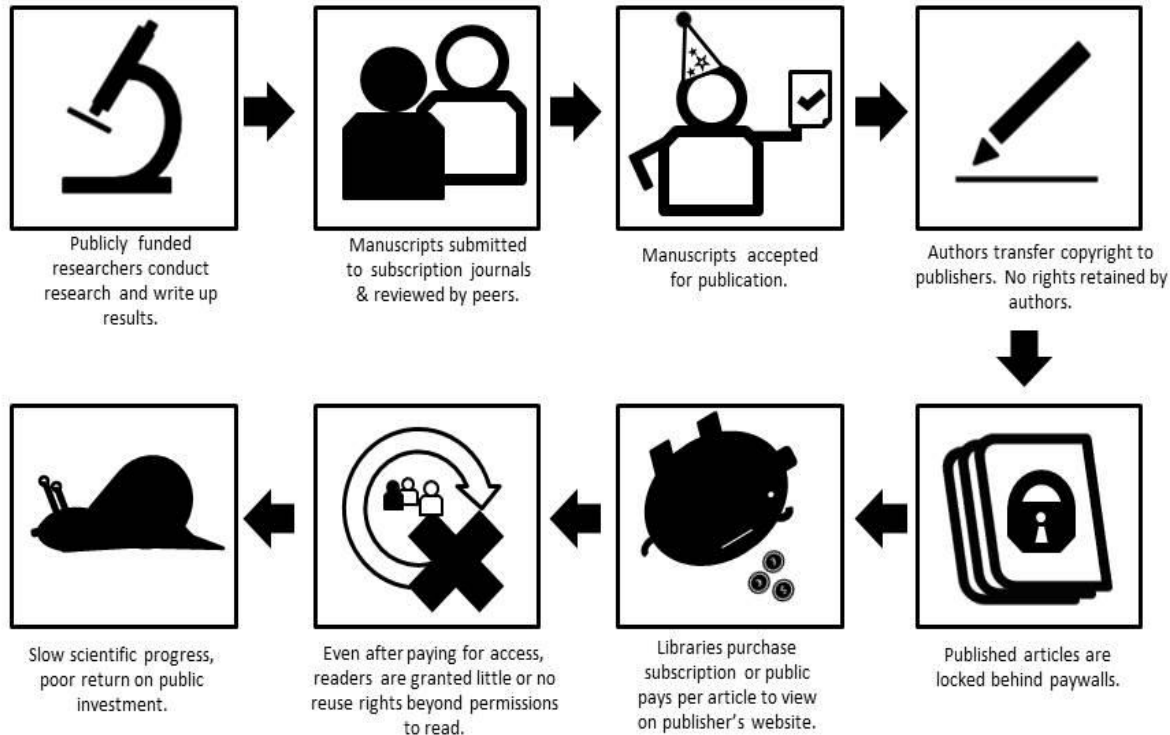
Scientific communication

The process of publication and dissemination of research findings



The Traditional Academic publishing model

limited dissemination, economic efficiency & social impact



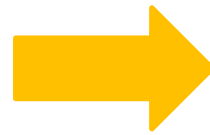
Model and text adapted from Timothy Vollmer and Teresa Sempere García "Research article cycles" http://wiki.creativecommons.org/File:Research_articles_cycles.jpg



Paula Callan & Sarah Brown, QUT 2014 CC-BY 4.0

The traditional business model of academic publishers is to archive and disseminate works whose authors have transferred **exclusive publication rights to the publisher.**
The revenue of publishers is based upon providing **paid access** to the papers.

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



<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

Italian context into the European law framework



- **Civil Code** (art. 2575-2583)

- **Legge 22 aprile 1941 n. 633**,
"Protezione del diritto d'autore e
di altri diritti connessi al suo
esercizio"

Amended by

- **Legge 18 agosto 2000 n. 248**,
"Nuove norme di tutela del diritto
di autore"

Italian context into the European law framework



International Conventions

- Berne Convention for the Protection of Literary and Artistic Works
- TRIPS Agreement
- [Directive \(EU\) 2019/520 of 19 March 2019](#) (Copyright in the Digital Single Market)
Member States shall transpose the Directive by 24 months.

Authorship VS Ownership

NON-TRANSFERABLE

Moral
Rights

Authorship is a moral right (paternity):
it can't be transferred,
bought or sold.

Exploitation is an economic right:
it can be transferred,
bought or sold.

TRANSFERABLE

Economic
Rights



Focus on...

Copyrights on doctoral thesis



Be careful: your PhD thesis is public!

Focus on...

Patents and doctoral thesis

- Patent request must be submitted before the discussion of the thesis: even the simple declaration of the subject of the patent during the discussion invalidates the evaluation process of the patent.
- The period required by agencies to evaluate subjects and accept communications from submitters takes at least 18 months.
- [Patent info at UNIPD](#)
- Embargo (partial) on Doctoral Theses



"Digital" editorial model

The Web allows new type of documents, technologies and editorial policies: e-books, e-journals, databases, full text, Open Access ...

THAT MEANS

- for authors: self-publishing and cooperative text sharing, more dynamic revision process, self-archiving (especially in OA)
- for publishers: reduction of printing and distribution costs
- for readers: easily available documents, interoperability and content reuse

OPEN ACCESS

Accessible

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

Without costs
for the reader

Possibility
to reuse

**Open Access without barriers and restrictions
to scientific knowledge**

Open Access



It is a type of (open) access to digital contents

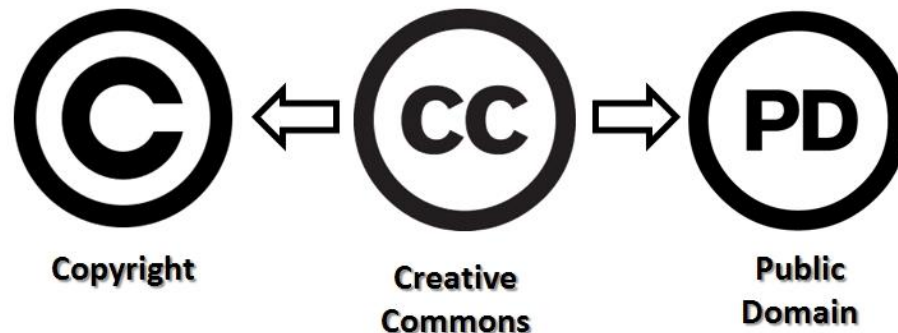
Any type of digital content can be openly accessible

OA particularly refers to academic, technical and scientific content

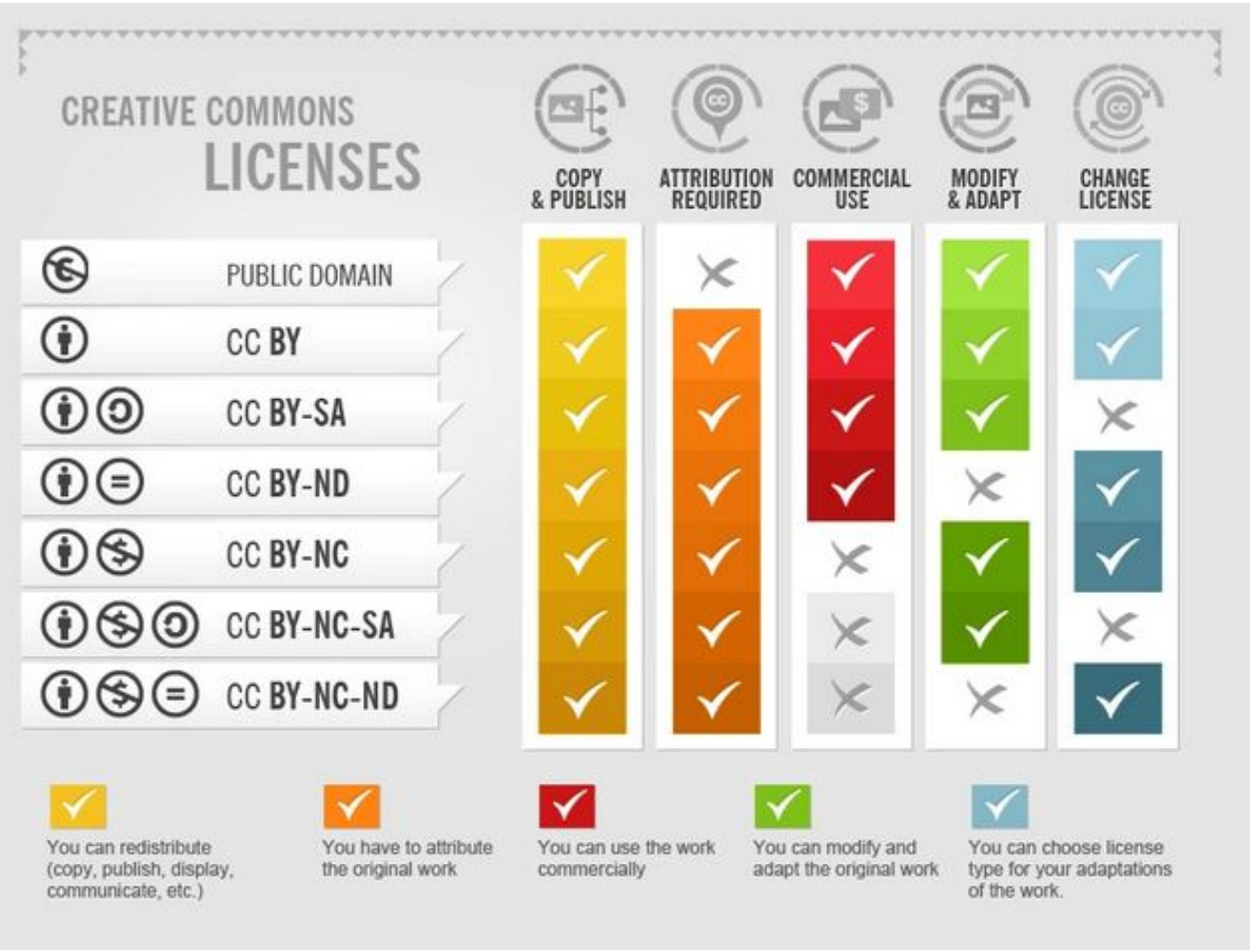
There are several [editorial models](#) and licenses compatible with OA, in constant evolution

Copyright and Creative Commons

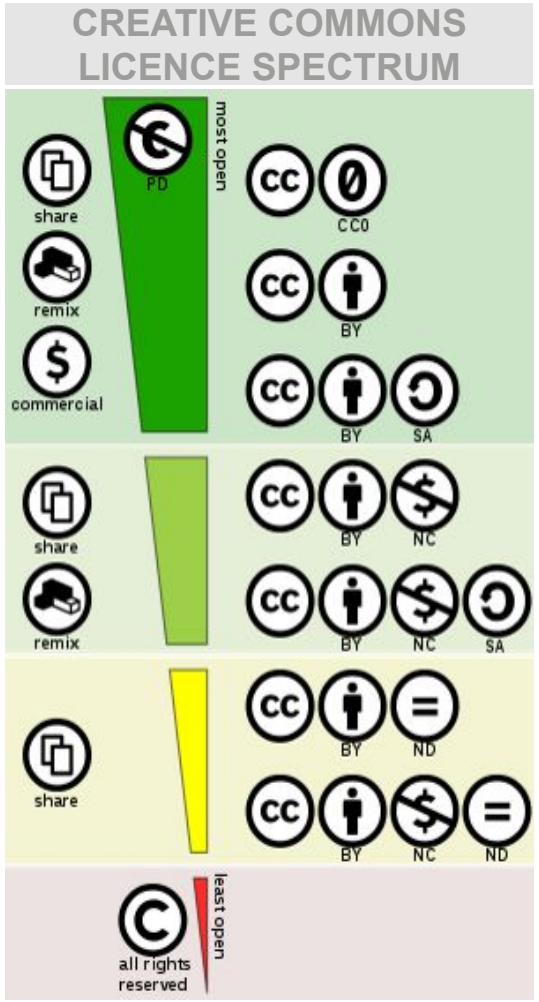
For researchers and authors a wide variety of publishing models are emerging that do not follow the traditional academic pattern of outright assignment of copyright to publishers or data owner...



Open Licenses: Creative Commons

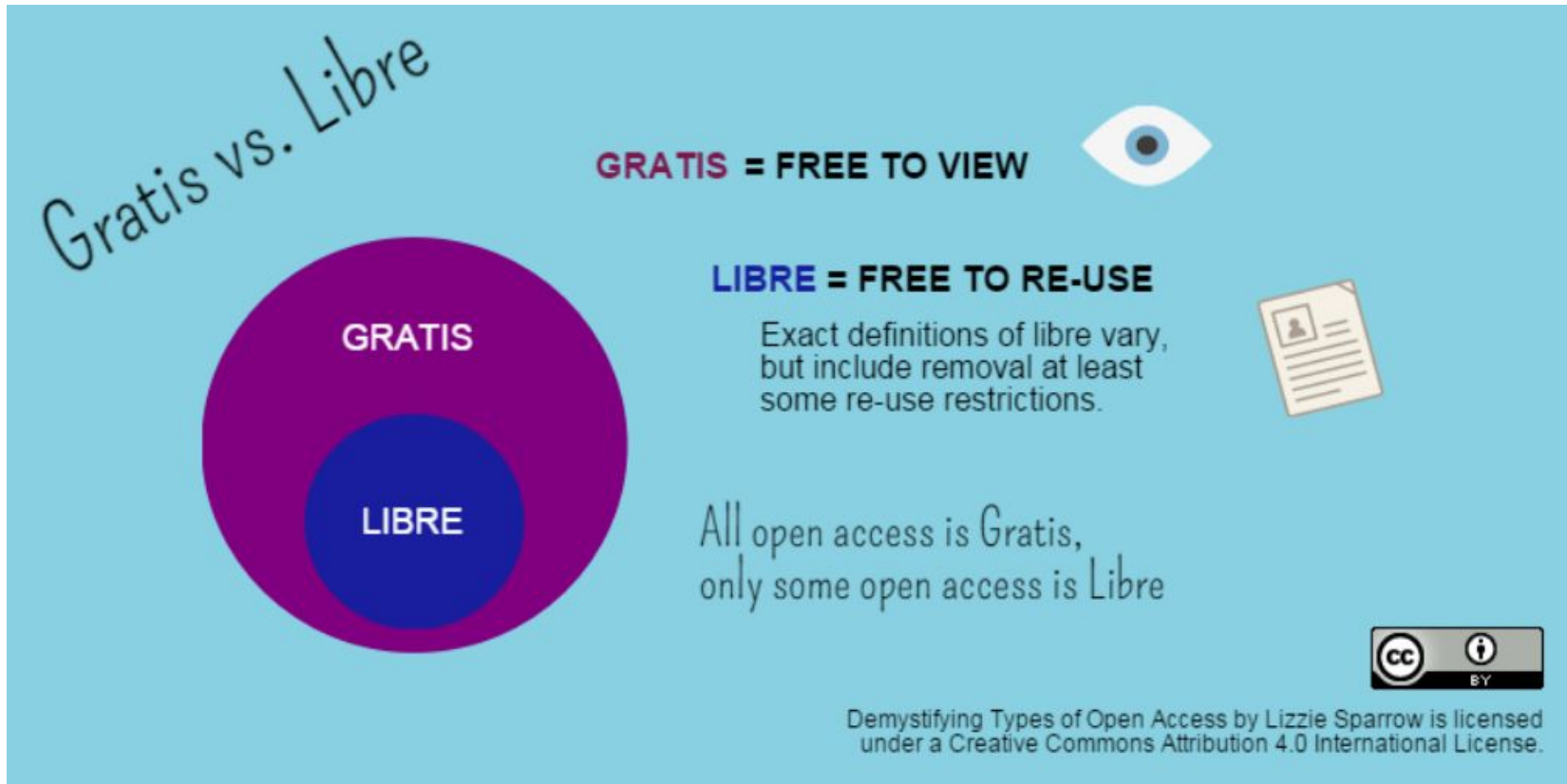


[Creative Commons licenses](#) by Foter (CC-BY SA)



[Creative commons Licence spectrum](#) Shaddim

Free Access vs. Open Access



Gratis = Free Access while Libre = Open Access

Which are the benefits?

Open science is a policy priority for the European Commission and the standard method of working under its research and innovation funding programmes as it improves the quality, efficiency and responsiveness of research.

When researchers share knowledge and data as early as possible in the research process with all relevant actors it helps diffuse the latest knowledge.

And when partners from across academia, industry, public authorities and citizen groups are invited to participate in the research and innovation process, creativity and trust in science increases.

OPEN ACCESS: BENEFITS

Unique visitors



Increased
Visibility



Increased
Citation Rates

Citation Rates

62% 38%

Open access articles Subscription access articles

"Jack Andraka, a 15 year old from USA, used free articles from Google Scholar to develop a highly innovative method of detecting a rare type of pancreatic cancer."



Drives
Innovation



Global
Impact

"Piya Sorcar, founder of Teach Aids made materials & research about HIV available for free globally. The material is now available in 15 languages and has reached over 70 countries, including numerous educators, governments and NGOs."

Open Access brings new audiences to scholarly content, such as educators, business owners, support workers and so on by removing barriers of affordability and access.



Public
Access

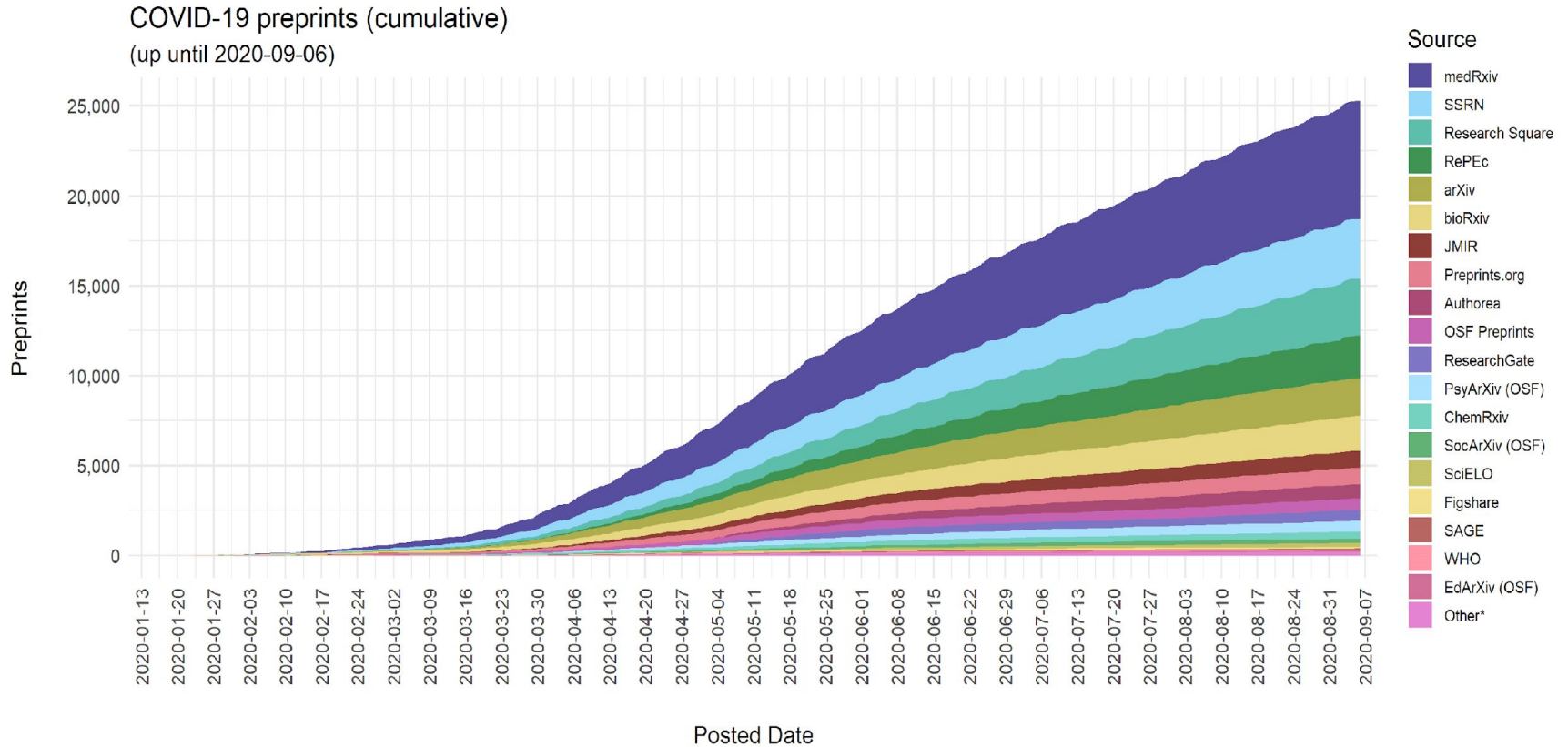


Comply with
Funder Policies

Funders, such as the Research Councils, European Commission and the Wellcome Trust, mandate for open access publication of research outputs.

Open Access publishing for Aston authors: OA publishing explained – Aston University

Which are the benefits?



* 'Other' refers to preprint repositories containing <40 total relevant preprints. These include: AfricArXiv (OSF), AgriXiv (OSF), BioHackrXiv (OSF), EarthArXiv (OSF), EcoEvoRxiv (OSF), engrXiv (OSF), Frenxiv (OSF), INA-Rxiv (OSF), IndiaRxiv (OSF), LawArXiv (OSF), MediArXiv (OSF), NutriXiv (OSF), ScienceOpen, SportRxiv (OSF), Techrxiv (IEEE), Zenodo.

Nicolas Fraser, Bianca Kramer, Github https://github.com/nicholasmfraser/covid19_preprintsCC-BY 4.0 International license.

Scholarly communication in times of crisis: The response of the scholarly communication system to the COVID-19 pandemic

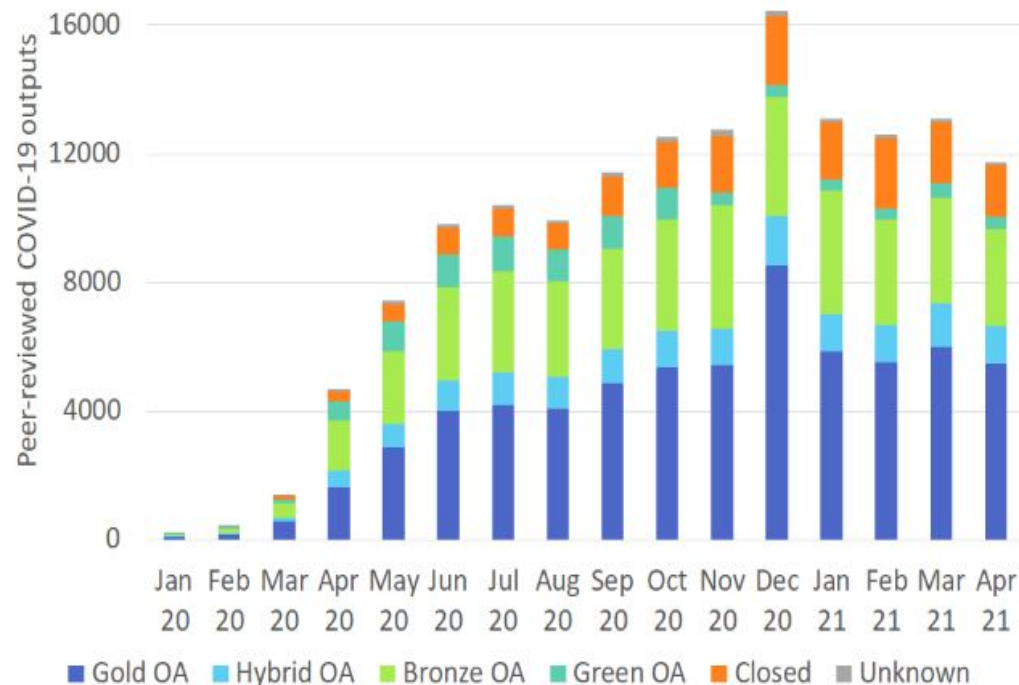







Figure 2.5: Breakdown by open or free access status for monthly number of COVID-19 outputs.

Waltman, Ludo; Pinfield, Stephen; Rzayeva, Narmin; Oliveira Henriques, Susana; Fang, Zhichao; Brumberg, Johanna; et al. (2021): Scholarly communication in times of crisis: The response of the scholarly communication system to the COVID-19 pandemic. Research on Research Institute. Report. <https://doi.org/10.6084/m9.figshare.17125394.v1>

Versioning



OPEN ACCESS COLORS

	 Green OA	 Diamond OA	 Gold OA	 Hybrid OA	 Bronze OA
	Self-archiving in compliance with publisher's policy Embargo	Full, immediate OA publishing, without Article Processing Charge - APC	Full, immediate OA. Author pays an APC	Immediate OA publish of a single article in a subscription based Journal, author pays an APC	Immediate free publishing, without a clearly identifiable open licensing or OA policy
COST	NO	NO	YES	YES	PUBLISHERS' CHOICE
LICENCE	AUTHOR or PUBLISHERS' CHOICE	CREATIVE COMMONS CC BYCC BY SA	OPEN or CC LICENCE	CC LICENCE on single article	NO

Sherpa Romeo

[About](#)[Search](#)[Statistics](#)[Help](#)[Support Us](#)[Contact](#)[Admin](#)

Search

Enter a journal title or issn, or a publisher name below:

Journal Title or
ISSN

Search

Publisher Name

Search

You can also [browse publications by publisher](#).

Publisher Policy









Open Access pathways permitted by this journal's policy are listed below by article version. Click on a pathway for a more detailed view.

Published Version

[pathway a]

   None  CC BY  PMC 

 Any Website, Journal Website, +3

 OA Fee	This pathway has an Open Access fee associated with it
 OA Publishing	This pathway includes Open Access publishing
 Embargo	No Embargo
 Licence	CC BY
 Copyright Owner	Authors
 Publisher Deposit	PubMed Central
 Location	Any Website Institutional Repository Named Repository (PubMed Central) Subject Repository Journal Website
 Conditions	Published source must be acknowledged

Accepted Version

 12m 

 Non-Commercial Institutional Repository, PMC, arXiv, +5

 Embargo

12 Months

 Location

Author's Homepage

Named Repository (arXiv, AgEcon, PhilPapers, PubMed Central, RePEc, SSRN)

Non-Commercial Institutional Repository

 Conditions

Publisher source must be acknowledged with citation

Must link to publisher version with set statement (see policy) and DOI

Submitted Version

 None 

 Non-Commercial Institutional Repository, PMC, arXiv, +5

 Embargo

No Embargo

 Location

Author's Homepage

Named Repository (arXiv, AgEcon, PhilPapers, PubMed Central, SSRN, RePEc)

Non-Commercial Institutional Repository

 Conditions

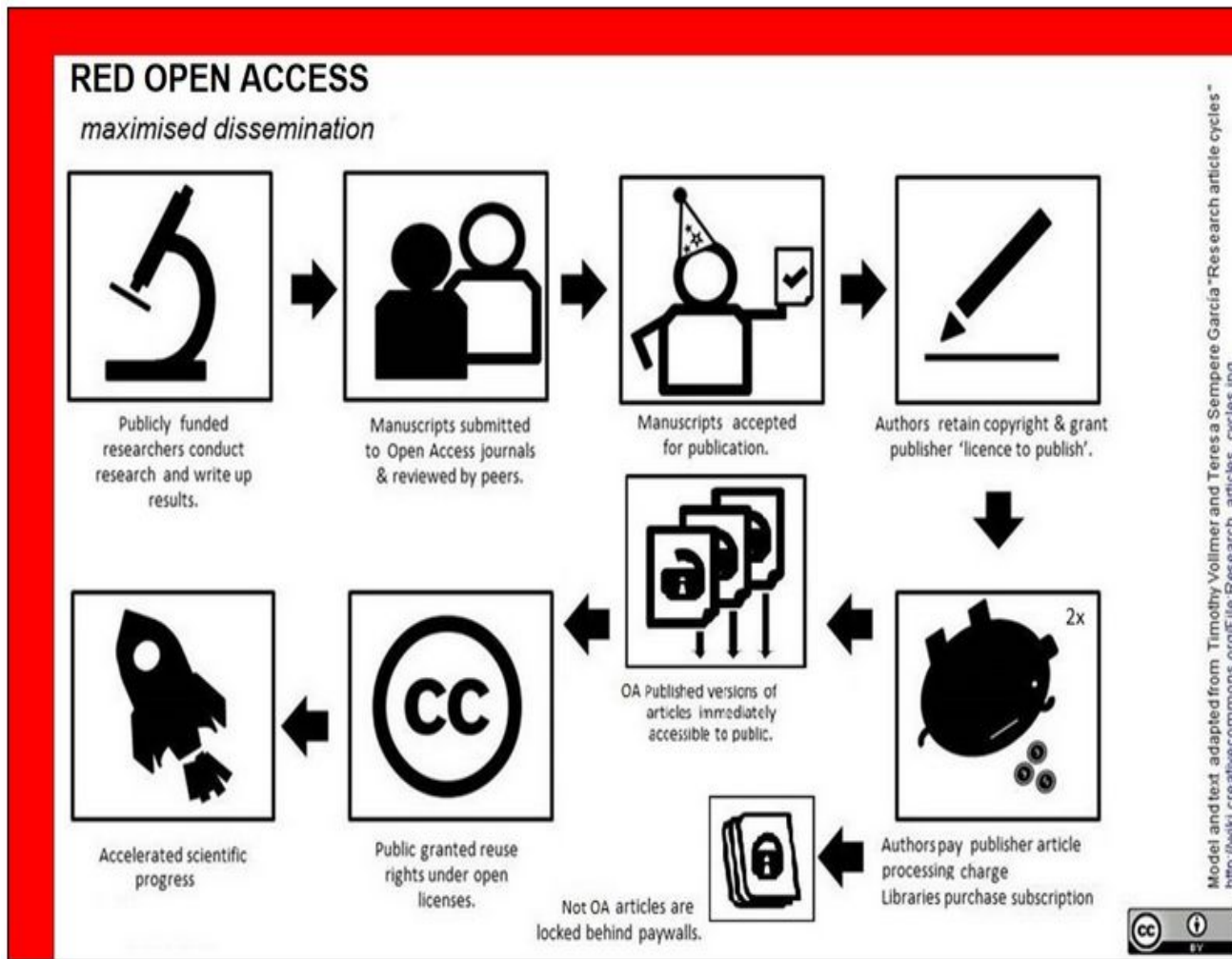
Must acknowledge acceptance for publication

May not be updated with Publisher's Version/PDF

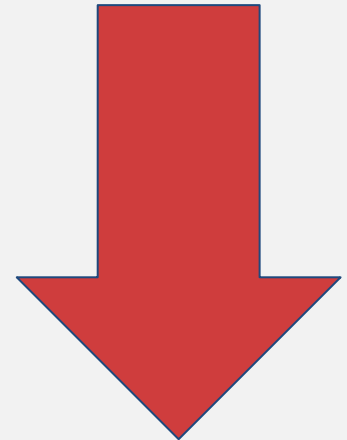
Publisher source must be acknowledged with citation

Must link to publisher version with set statement (see policy)

Hybrid Open Access Journal



**HYBRID
OPEN
ACCESS
JOURNALS**



**DOUBLE
DIPPING**

Transformative agreements



Trasformative agreements



How does UniPD support its “authors”?

Facilitations may be provided for authors on the payment of the APC

Gold Open Access

- discounts via institutional membership (centrally paid or without costs) with MDPI, BMJ, Royal Society of Chemistry, and Taylor & Francis

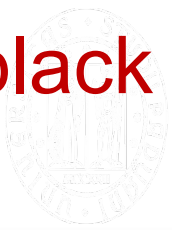
Hybrid Open Access & “Transformative agreements”

- *transformative agreements* are signed with publishers as Springer, Wiley, DeGruyter, Cambridge University Press, American Chemical Society, Emerald, Lippincott

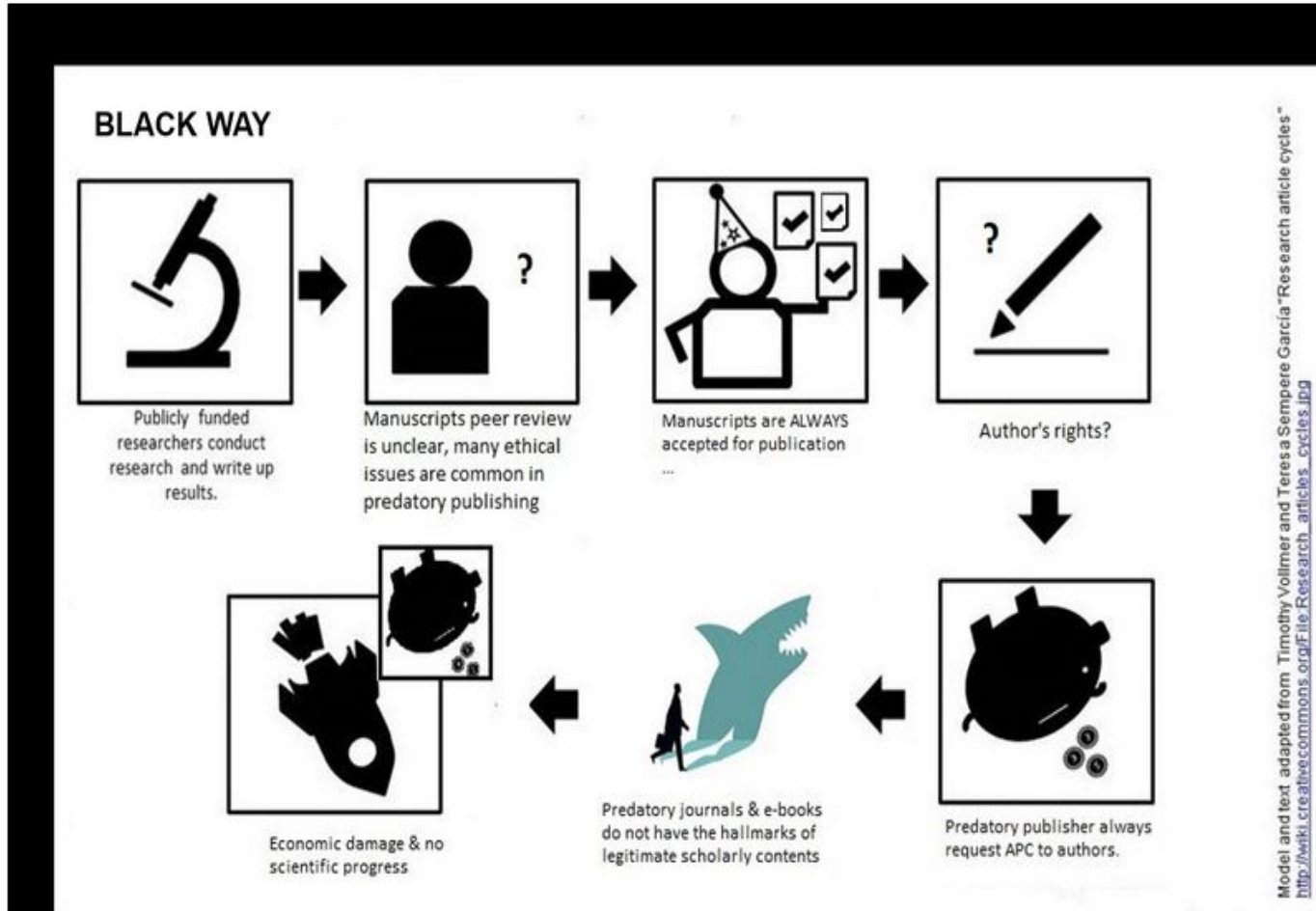
- *APC discounts in hybrid journals* are available with Elsevier, Royal Society of Chemistry, BMJ and Taylor & Francis



The black way



DEGLI STUDI
DI PADOVA



Hints:

- <https://beallslist.net/>
- Think. Check. Submit.

6 WAYS TO IDENTIFY PREDATORY PUBLISHERS OR VANITY PRESS

- 1 The journal does not identify a formal editorial/review board
- 2 The publisher has no policies or practices for digital preservation
- 3 The publisher begins operations with a large fleet of journals, often using a template to quickly create each journal's home page
- 4 The publisher provides insufficient information or hides information about author fees, offering to publish an author's paper and later sending a previously-undisclosed invoice
- 5 The name of a journal does not adequately reflect its origin
- 6 The journal falsely claims to have an impact factor, or uses some made up measure (e.g. viewfactor), feigning international standing.

What we will see today:

- **Scholarly Communication:** traditional publishing and Open Access
- **Bibliometrics:** traditional and innovative tools for scientific evaluation

Evaluation of research: why?

- **Single researcher**

- recruitment, promotion, grant awarding career

- **Research groups** (but also departments, faculties, universities, research organizations, nations)

- grant funding, prestige

- **Scientific journals**

- to determine the most influential journals in a research area

Evaluation of research: Italy

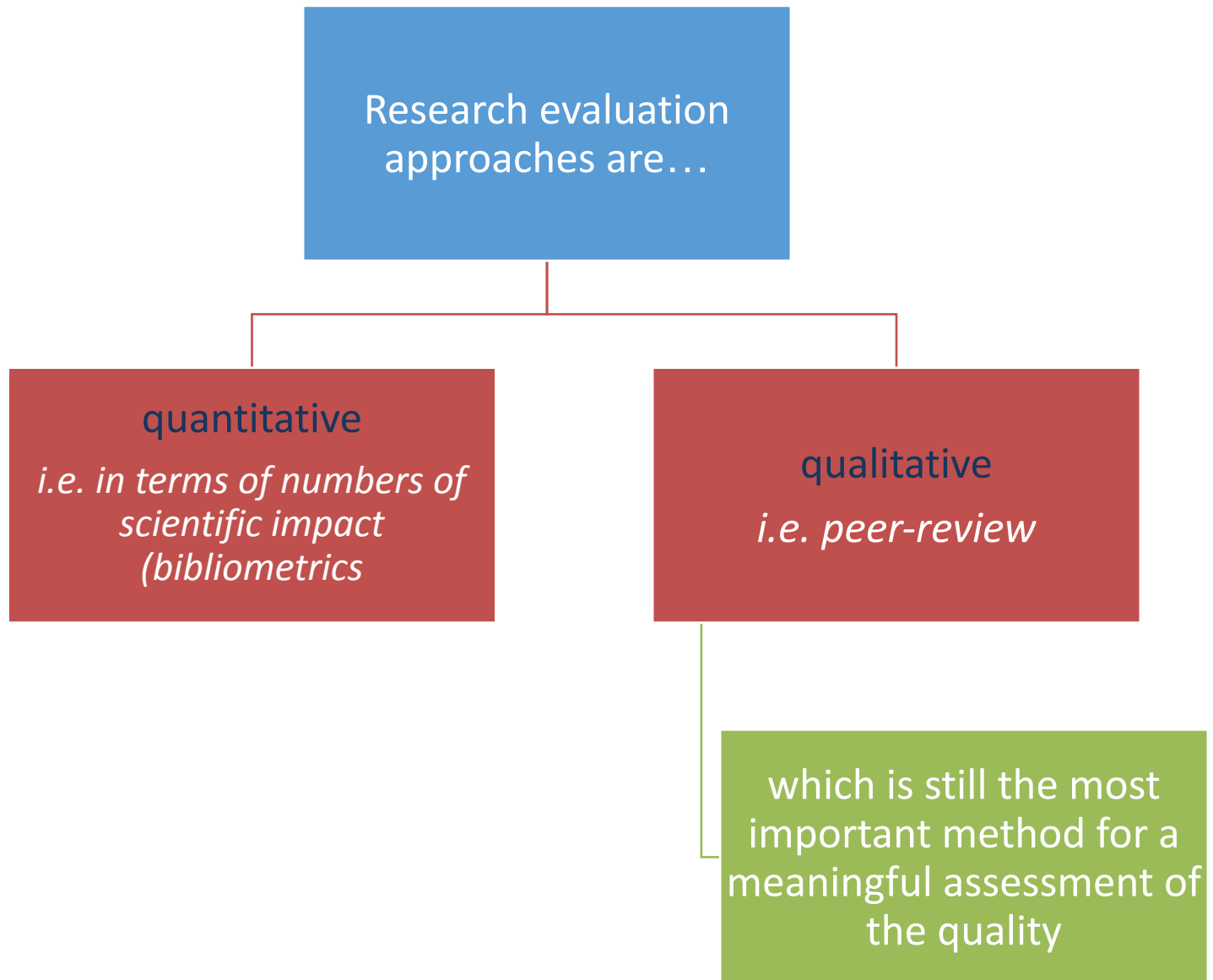
The **National Committee of Guarantors for Research** (*Comitato Nazionale dei Garanti per la Ricerca – CNGR*) Consultative body to the **Ministry of Education, University and Research (MIUR)**, tasked to promote the quality of research and ensure proper functioning of peer reviews.



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.



Evaluation of research: how?



Qualitative assessment: *Peer Review*

A group of expert scholars, working in the same scientific area evaluate submitted research work, published in a scientific journal in a particular field.

It's an evaluation process to assess the quality of scientific research before it is published. It's different across journals and research fields:

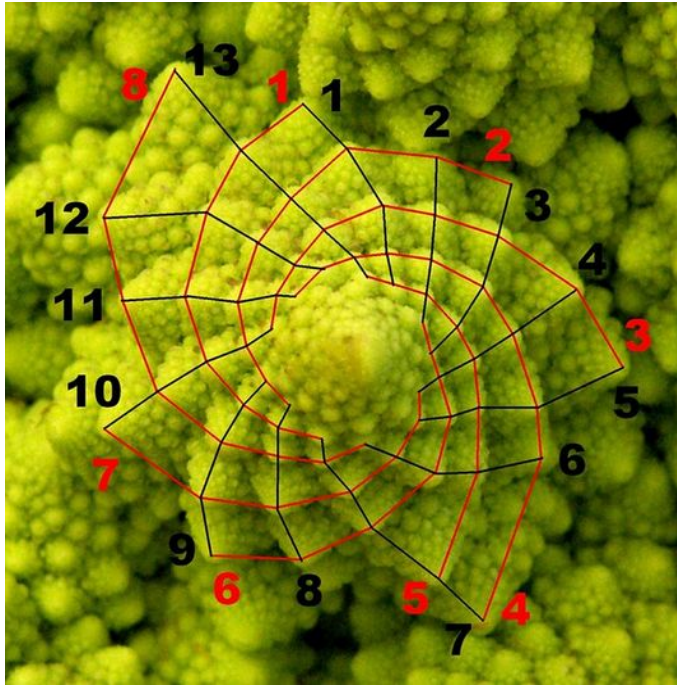
- ✓ SINGLE-BLIND REVIEW
- ✓ DOUBLE-BLIND REVIEW
- ✓ OPEN REVIEW
- ✓ PEER REVIEW

Quantitative assessment : *Citation Analysis*

Citation analysis is a way of measuring the relative importance or impact of an author, an article or a publication by counting the number of times that author, article, or publication has been cited by other works.

«... 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».

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



Bibliometric indicators

Impact
factor

Altmetric

PlumX

Scimago
Eigenfactor

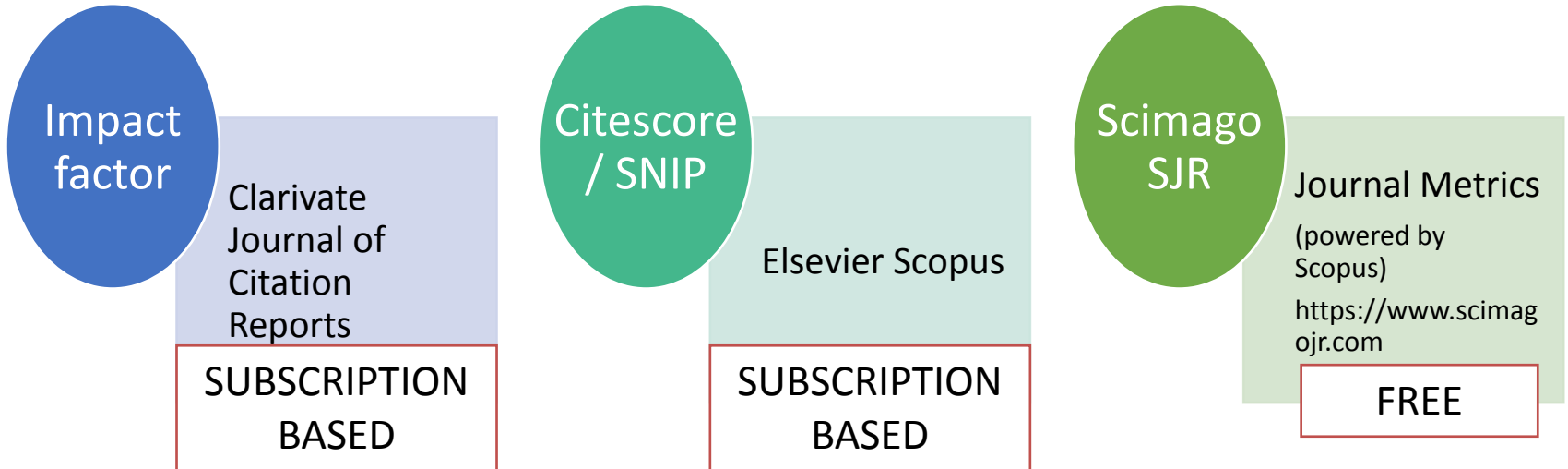
Bibliometric indicators are **indexes** generally used to evaluate the quantity of the impact of research within the **community** of an author.

h-inde
x

Google
Scholar

Web of
science
Scopus

Bibliometric Indicators & related databases:



Each journal metric offers \neq values for Journal ranking

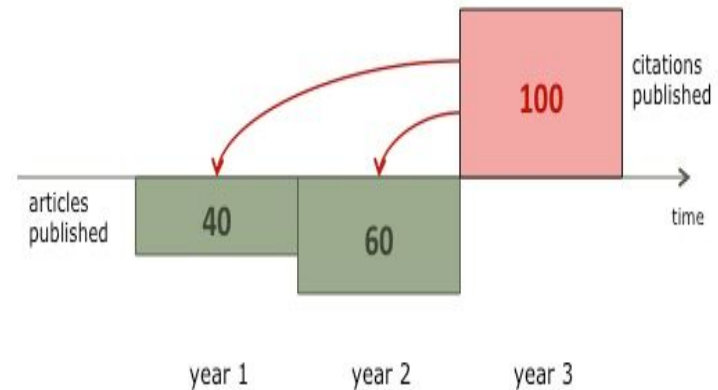
The Impact Factor

The **impact factor (IF)** or **journal impact factor (JIF)** of an academic journal is the average between the number of citations of the works published in the journal and the total number of works published by the same journal in the two previous years.

It is a copyrighted index, and can be consulted only through the products of the publisher **Clarivate Analytics**, and in particular the **Journal Citations Reports** database.

The Impact Factor

Introduced in 1950's by Eugene Garfield: ISI



$$IF(\text{year } 3) = 100 / (40 + 60) = 1$$

Alternative metrics (Altmetrics)

Altmetrics are **non-traditional** bibliometrics proposed as an alternative or complement to more traditional citational impact metrics. They measure the impact of articles by taking **data from social media, websites, and other internet resources**.



Altmetric.com: data science company that tracks where published research is mentioned online, and provides tools and services to institutions, publishers, researchers, funders and other organisations to monitor this activity.

Plum Analytics: altmetrics company whose best known product is **PlumX**. It was acquired by Elsevier in February 2017 and its metrics were immediately incorporated into Elsevier's products, including Mendeley and Scopus.



ImpactStory: open source, web-based tool that provides altmetrics to help researchers measure the impacts of their research outputs including journal articles, blog posts, datasets, and software.

What about authors?

Hirsh Index (*h*-index)

The *h*-index quantifies the prolificacy and impact of scientists' work, based on the number of their publications and the number of citations received.

The *h*-index calculators are easily available on the net and are accessible through:

- Web of Science (Clarivate Analytics – under subscription)
- Scopus (Elsevier – under subscription)
- Google Scholar (for free – only if the author has a profile)
- PoP (Publish or Perish - for free - based on Google Scholar data)



Curiosity: Highly Cited Researchers

You can use Bibliometrics tools and try to answer to questions such as:

- What are the “ high impact journals” within a certain research area?
- Who is citing my articles?
- How many times have I been cited?
- How do I know this article is more or less important?
- In which scholarly journal should I publish to have more impact?



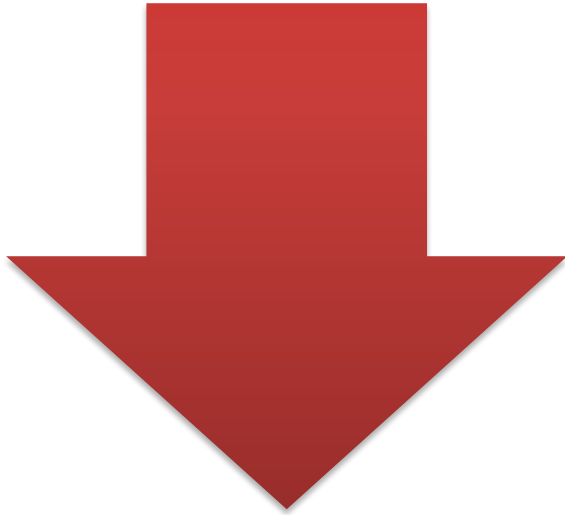
The Advent of Open Science

1/12 Open Science is just a gimmick...	2/12 Open Science is all about publishing Open Access	3/12 Open Science is a plot against publishers	4/12 I already deposit my works on ResearchGate
5/12 An open access dissertation has less chances of being published	6/12 I'm afraid of plagiarism	7/12 There is no open access journal in my discipline	8/12 Open Science is for STEM. As a researcher in SSH this is not important to me
9/12 Science is for researchers only. Citizens cannot improve my research	10/12 A Data Management Plan is useless	11/12 I am not a Data Manager	12/12 Open access to research data is not mandatory
13/12 Open science is useless	14/12 The repositories are not user friendly	15/12 I do not want to deposit my raw data in a repository because other researchers	16/12 By publishing open access I will lose control over my work

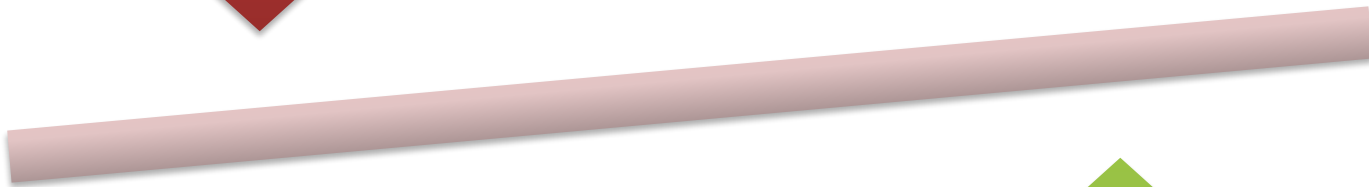
<https://www.yerun.eu/calendar/>

Mandatory Open Access

Ne parla poi Michela?



OBLIGATIONS



OPPORTUNITIES



Funding programs

Ne parla poi Michela?



2008

F P7

- OA Pilot
Deposit and
OA

2014

H2020

- OA Mandatory
Deposit and
OA
- & ORD/DMP
Pilot

2017

H2020

- OA
Mandatory
Deposit and
OA
- & ORD/DMP
by default
(exceptions)

2021

Horizon Europe

- OA Mandatory
Deposit and OA
- DPM in line with
FAIR Mandatory
- Open Data
by default
(exceptions)
- & Open Science
embedded

Funding programs

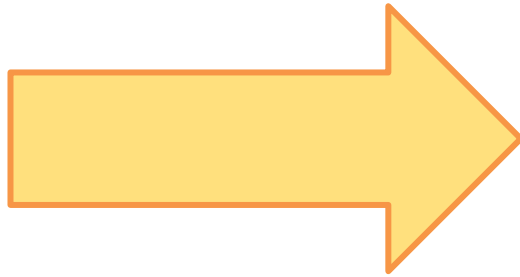
Ne parla poi Michela?



- projects funded with public funds (Horizon 2020, Marie Curie, ERC)
- projects funded by private foundations or entities (e.g. Bill & Melinda Gates Foundation or Wikimedia Foundation)
- projects funded by institutions or research networks that adhere to Plan S

Italian law

Ne parla poi Michela?



Art. 4
Legislative Decree
n. 91/2013



Agenzia Nazionale di Valutazione
del sistema Universitario e della Ricerca



**Research
evaluation
call 2015-2019**

UNIPD supports Open Access



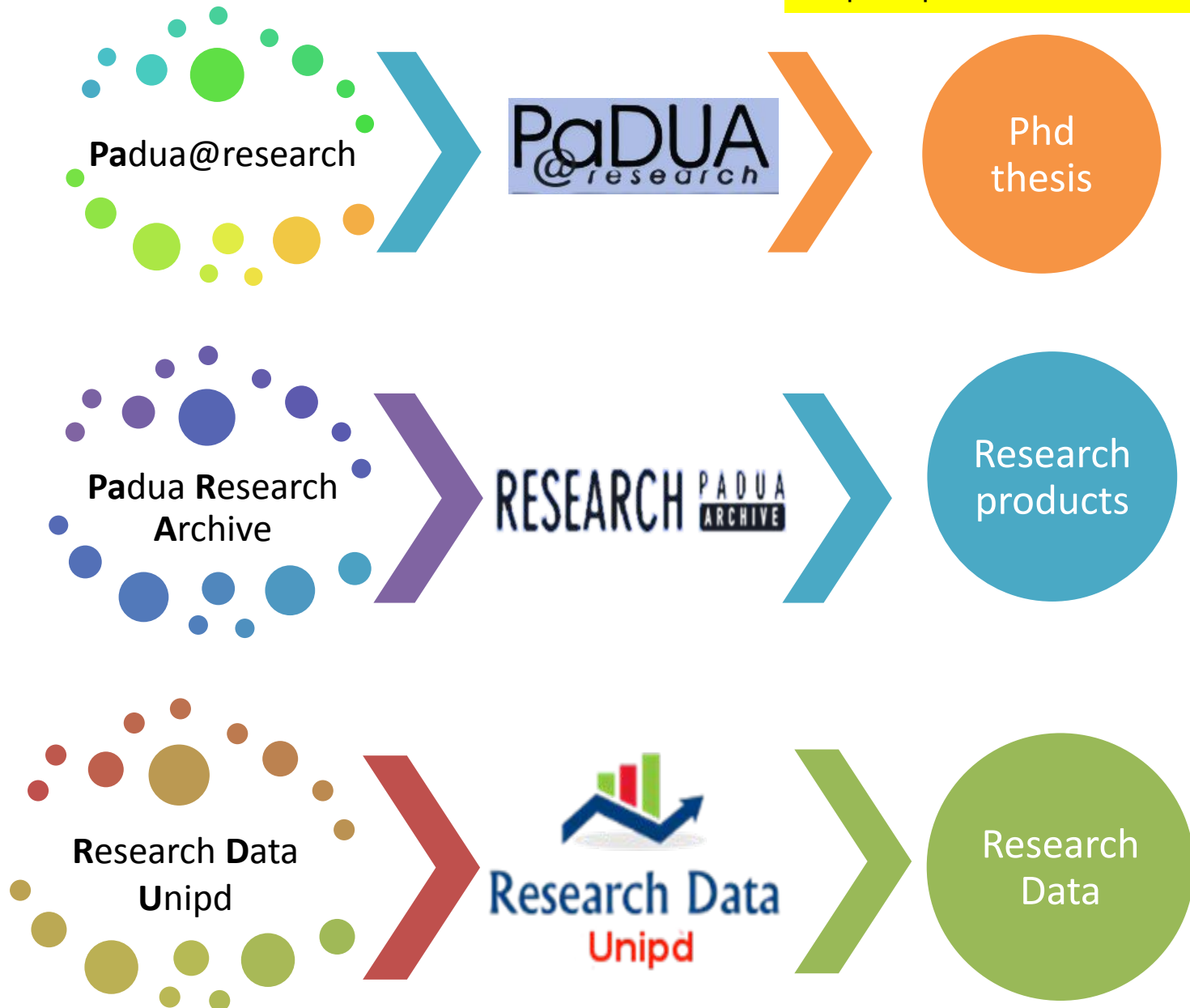
OPEN

ACCESS

- [Statute](#), Tit. III, Art. 56, Par. 3
- Endorsement to [Messina declaration](#) – Academic Senate, 9/11/2004
- [Policy on Open access to scientific literature](#) – Academic Senate, 08/06/2015
- [Regulation on Open access to UNIPD scientific production](#) – Academic Senate, 07/07/2017
- [Policy on the management of research data](#) – Academic Senate, 19/11/2018

UNIPD Repositories

Ne parla poi Michela?



PhD students

Ne parla poi Michela?

Regolamento per i corsi di dottorato di ricerca

(D.R. 468343 dated 17/10/2018)

ART. 32.2: La domanda di ammissione all'esame finale deve essere corredata: a) da un esemplare della tesi in formato digitale per il deposito presso l'archivio dell'Ateneo che ne garantisce la conservazione e la pubblica consultabilità. Lo stesso deposito è funzionale anche ai fini di adempiere all'obbligo di deposito della tesi presso le biblioteche nazionali di Roma e Firenze. In caso di richiesta di revisioni da parte dei valutatori la tesi definitiva deve essere depositata secondo i tempi e le modalità annualmente stabilite dall'Ateneo.

[You should attach to the application to the final exam: a) a digital copy of your thesis to be stored in the **Unipd institutional repository**, which guarantees conservation and public accessibility. The storage meets the requirement to store the thesis in the Italian national libraries in Rome and Florence. In case the evaluator requires a revision of the thesis, the revised final version must be stored accordingly to the calendar annually established by Unipd.]

PhD students

Ne parla poi Michela?

Regolamento per i corsi di dottorato di ricerca
(D.R. 468343 dated 17/10/2018)

ART. 24.9: E' condizione necessaria per il conseguimento del titolo di dottore di ricerca che il dottorando acceda al **catalogo IRIS** e inserisca i dati relativi alla propria produzione scientifica, se presente.

[It's mandatory for PhD students to log into **IRIS catalogue** and submit information about their own scientific production, if produced.]

Support services

In the section “[About publishing](#)” of the Library System web portal, authors will find information on Open Access, on publishing, and on the management of data.

About publishing



Filed under: [digital repositories](#), [open access](#), [self archiving](#), [OAI](#), [license agreement](#), [publication](#), [open archives](#), [publication standards](#), [Impact Factor](#)



Research repositories

Get your articles viewed more often



Open Access

Increase the impact of your research



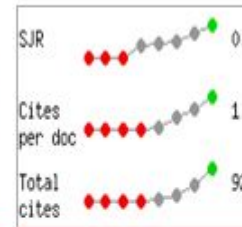
Research Data Unipd

A safe place for your research



Research data management

Manage your data in the best possible way



Measure your impact

Evaluate the scientific impact of your research



Publishing support

Open Access publishing? It's easier with us!

Library System support services

Submit specific requests
to the Library System Help
Service, choosing:

- 11 Supporto Open
Access (Supporto
Ricerca)



Kyle James

<https://www.flickr.com/photos/jameskm03/2711755476>



Library System support services

Before and after publishing articles and data, improve your knowledge with:

Scholarly Communication **and principles of Open Science**

a Training Course on SBA Moodle For PhD Students, composed by five modules.

It aims to introduce early-career researchers to scientific communication and to the principles of Open Science (Open Access, Open Data, Open Licences)



Presentation by OA Support Group University of Padova Library System



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