



Bibliographic resources and research tools for PHD students in Industrial Engineering

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26/01/2023

What we'll talk about

- Scholarly publishing
- Tips on authors' rights
- Bibliometrics and bibliometric indicators
- Open Access
- Who requires Open Access
- Facilitations for authors
- Repositories + Padua Research Archive (IRIS)
- Research data management + Research Data Unipd
- Unipd Library System services for authors



[Rakicevic Nenad from Pexels](#)

Workshop materials

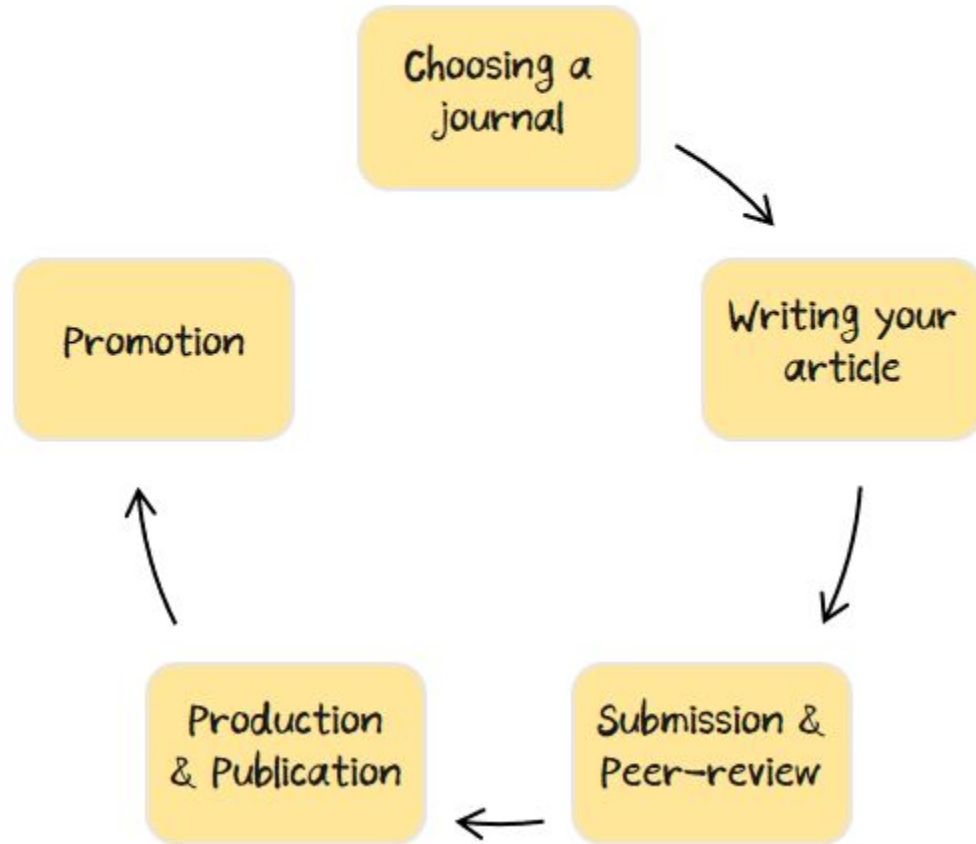
Workshop slides are available here:

<http://biblioingegneriacentrale.cab.unipd.it/usa/laboratori/materiali>

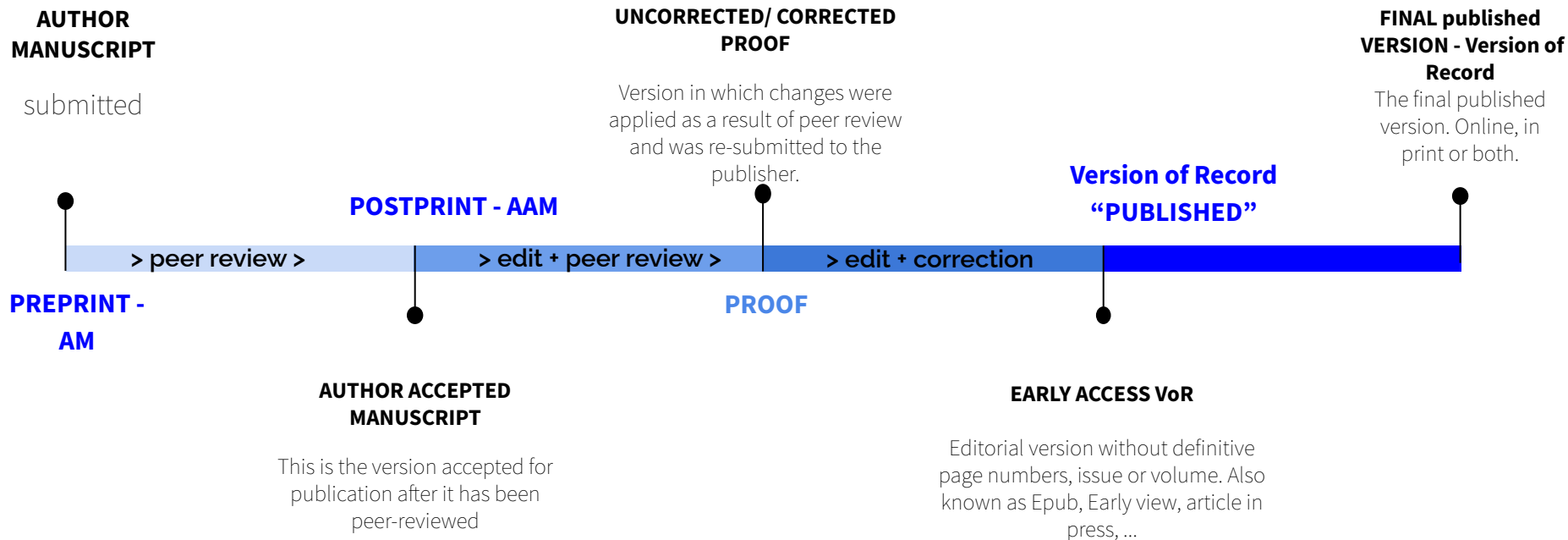


Scholarly publishing

Scholarly Publishing Process



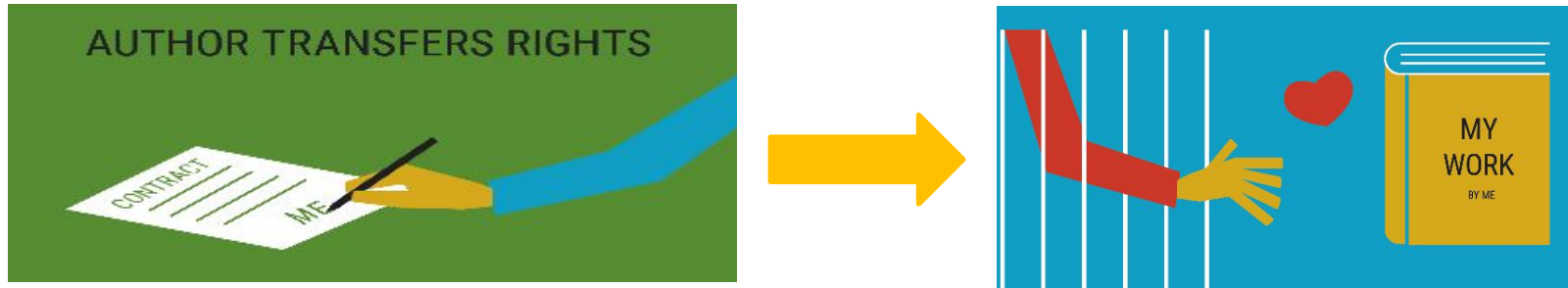
Versioning





Authors' rights

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

- **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

Copyright / author's rights

What is meant by copyright, publishing rights, related rights...

Moral Rights

Author's right allows the author to be the one entitled to dispose of his/her works in an exclusive way.

Economic Rights



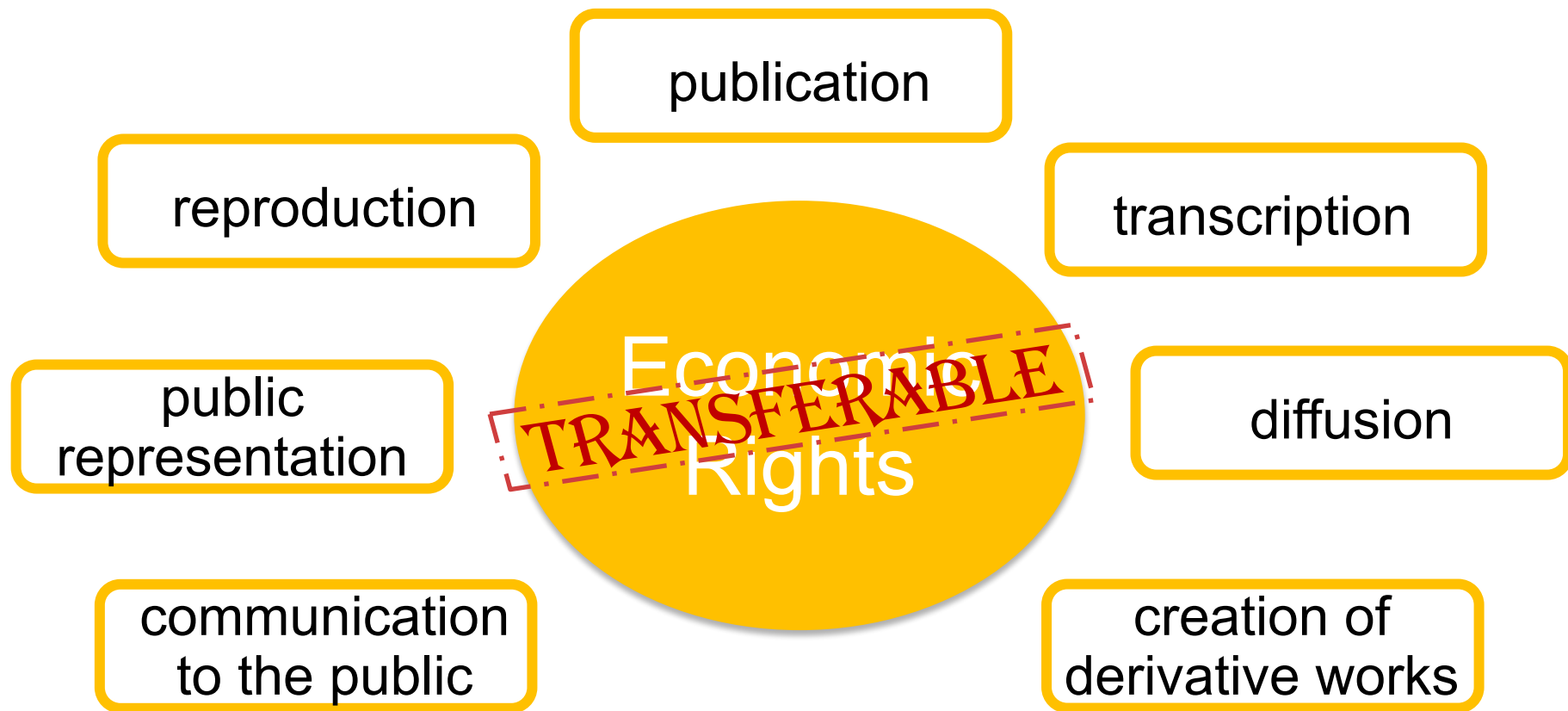
authorship
(paternity)

repentance

~~NON-TRANSFERABLE!~~
Moral
Rights

on unpublished
works

to the integrity
of the work



Secondary rights: rental and lending, resale

Amendment to the contract (addendum)

[SPARC addendum](#) and [Science Commons SCAE](#) are legal tools that authors can use to safeguard their editorial rights by amending standard publisher agreements.

In the guidelines for authors, Sparc illustrates how to use the addendum to the editorial contract to guarantee authors' rights. SPARC addendum is also available in Italian.

For authors participating in EU-funded projects who need to publish in non-Open Access journals, Horizon 2020 has proposed a [specific model of publishing agreement](#).

In the revised editorial agreement, the author agrees with the publisher on the possibility of:

- maintain the right to reproduce, distribute and publicly display the article, not for commercial, but for teaching and research use
- self-archive the article on the personal or institutional website and deposit it in open archives
- prepare works derived from the article: for example, use the contents of the publication to create didactic material.

<https://bibliotecadigitale.cab.unipd.it/en/digital-library/about-publishing/while-publishing>

Italian law on author's rights



- 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"

Copyrights on doctoral thesis



Submission and publication of PhD theses

Regolamento per i corsi di dottorato di ricerca

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 deposit 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 yearly established by Unipd.]

Publication workflow

- Soon after the PhD student career closure: migration of theses from Uniweb to Padua Research Archive (PRA/IRIS)
- Once a year: harvesting of theses toward National Libraries of Florence and Rome, according to legal deposit

Check deadlines for submission in Doctoral program [webpages](#)

Embargo

(consent form)

[temporary embargo]

Richiede che il testo completo della tesi depositata nell'archivio istituzionale [Padua Research Archive \(IRIS\)](#) rimanga chiuso per (selezionare):

- 12 mesi
- 18 mesi
- 36 mesi

con la seguente motivazione³ (selezionare):

- Brevetto
- Motivi editoriali (allegare una copia del contratto sottoscritto con l'editore o altra attestazione)
- Protezione dei diritti economici dell'Ateneo
- Segreto industriale (se è stato firmato un accordo di non divulgazione, allegare una copia dell'accordo)

[permanent embargo]

È possibile chiedere che venga applicata una chiusura permanente nel caso in cui intervenga una delle motivazioni seguenti (selezionare):

- inserimento nella tesi di testi e/o materiale altrui non autorizzato, in violazione dei diritti di terze parti, d'autore o editoriali, fatta eccezione per l'uso di immagini a bassa risoluzione
- motivi di sicurezza pubblica o nazionale: indicare obbligatoriamente nel campo NOTE tutti i dati necessari per la verifica
- motivi di privacy o presenza di dati sensibili: assicurarsi che il motivo non rientri nell'embargo temporaneo.

In questo caso è necessario selezionare in Uniweb l'opzione di 36 mesi di embargo e successivamente contattare l'Ufficio Dottorato e Post Lauream - Settore Dottorato di Ricerca al seguente indirizzo e-mail phd@unipd.it specificando nell'oggetto della mail: "Richiesta embargo PERMANENTE".

Licenza

Accesso libero

Embargo: 30/05/2024

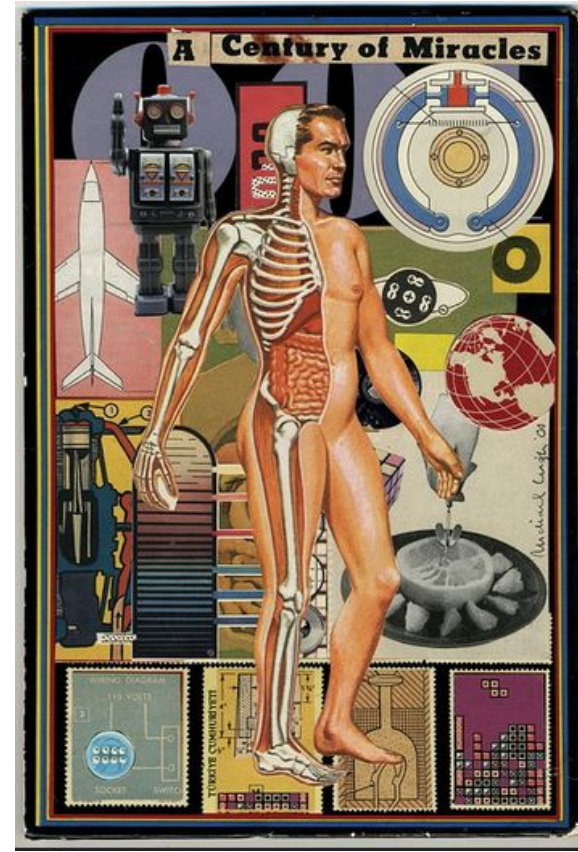
FILES IN THIS ITEM:

There are no files associated with this item.

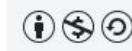
Editorial reasons

Theses including articles
(already published or not)

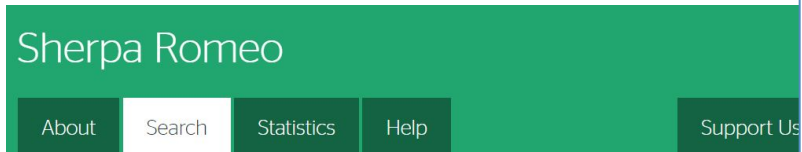
- pay attention to publishers' policies concerning the use of articles in PhD dissertations
- ask for permission through an Addendum
- choose the pre-print or the Accepted version



<https://www.flickr.com/photos/21133841@N03/3542221586/in/photostre>



Sherpa Romeo



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](#).

IEEE Journal of Quantum Electronics

Publication Information

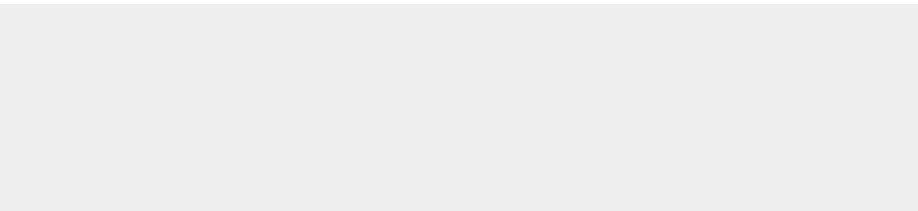
Title	IEEE Journal of Quantum Electronics (JQE) [English]
ISSNs	Print: 0018-9197 Electronic: 1558-1713
URL	http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=3
Publishers	Institute of Electrical and Electronics Engineers [Society Publisher]
TJ Status	Plan S Approved

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	None CC BY	+
	Any Website, Journal Website	
Accepted Version (pathway a)	None	+
	Institutional Repository, arXiv, TechRxiv, +2	
Accepted Version (pathway b)	24m	+
	Funder Designated Location	
Accepted Version (pathway c)	None CC BY	+
	Any Website, +2	
Submitted Version (pathway a)	None	+
	Institutional Repository, arXiv, Funder Designated Location, +4	
Submitted Version (pathway b)	None	+
	Academic Social Network	

<https://www.oa.unito.it/new/cose-utile/leggere-bene-le-indicazioni-di-sherpa-romeo/>



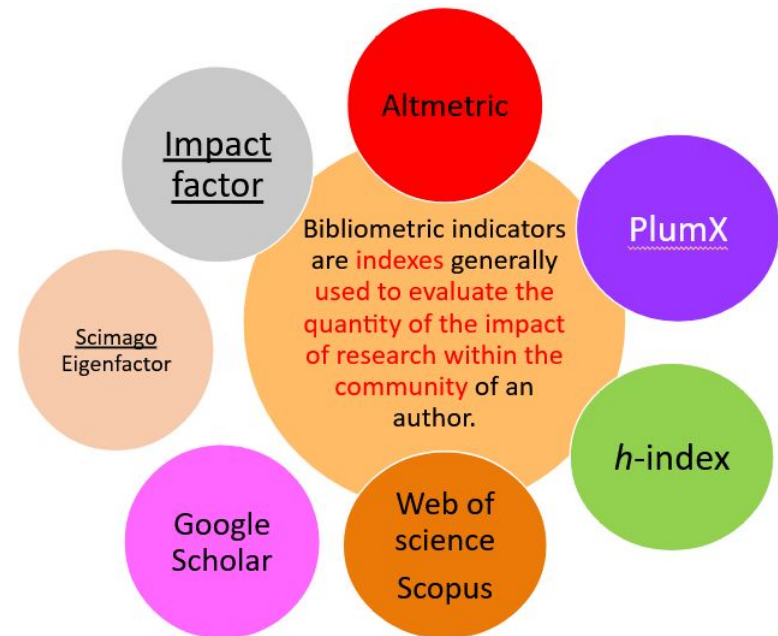
Bibliometrics and bibliometric indicators

Visibility, prestige and citation impact of a journal

Before choosing a publisher or journal to submit a work for publication, it is a good idea to evaluate what opportunities for visibility in the reference scientific community that the journal offers. The more disciplinary and interdisciplinary databases that index the journal, the greater the possibility of disseminating the results of research.

The “[Impact of research](#)” section collects information on [Web of Science](#) and [Scopus](#), databases that calculate the most popular citation indexes (citation count, [Impact Factor](#), SJR, [h-index](#) and others).

It is important to verify the citation impact (Impact Factor) of the journal, as the number of citations that a publication receives is of great importance both for defining the impact potential of the research presented within it, and for the attribution of scores in the publications. competitions, and the recurring [ANVUR](#) assessment exercises (e.g. VQR).



Bibliometrics and...

BIBLIOMETRICS is a set of mathematical and statistical methods used to analyze and measure the quantity and quality of books, articles, and other forms of publications.

Bibliometrics

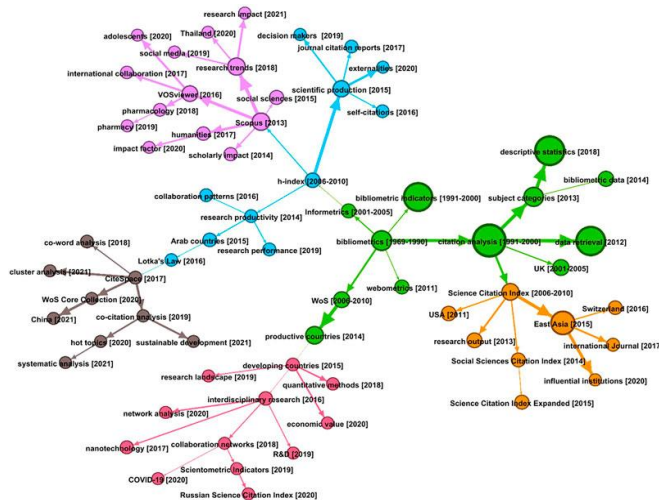
- identifies the best journals of a specific discipline
- defines the prestige of a specific journal
- determines the impact of published research

Bibliometrics evaluates:

- scientific journals
- single researchers
- research groups

Scientific evolution pathways of bibliometric research between 1969 and 2020. (Front. Res. Metr. Anal., 24 September 2021

Sec. Research Policy and Strategic Management
<https://doi.org/10.3389/frma.2021.742311>



... bibliometric indicators

Bibliometric indicators are very important for researchers and organizations, as these measurements are often used in funding decisions and promotions of researchers. They are becoming increasingly important since published research results are read and then quoted by other researchers.

- **quantity indicators:** measure the productivity of a particular researcher (**Impact Factor; SNIP, SCImago**)

- **quality indicators:** measure the quality or performance of a researcher's output; corresponds to the so called “peer-review”, a review by colleague-scientists (***h-index***)



Impact Factor

The **impact factor (IF)** is a measure of the frequency with which the average article in a journal has been cited in a particular year. It is used to measure the importance or rank of a journal by calculating the times its articles are cited.

How Impact Factor is Calculated?

The calculation is based on a two-year period and involves dividing the number of times articles were cited by the number of articles that are citable.

The Impact Factor is used to compare different journals within a specific disciplinary field.

The [Journal of Citation Report](#) indexes more than 11,000 science and social science journals.

It is important to note that Impact Factor is a journal metric and should not be used to assess individual researchers or institutions.

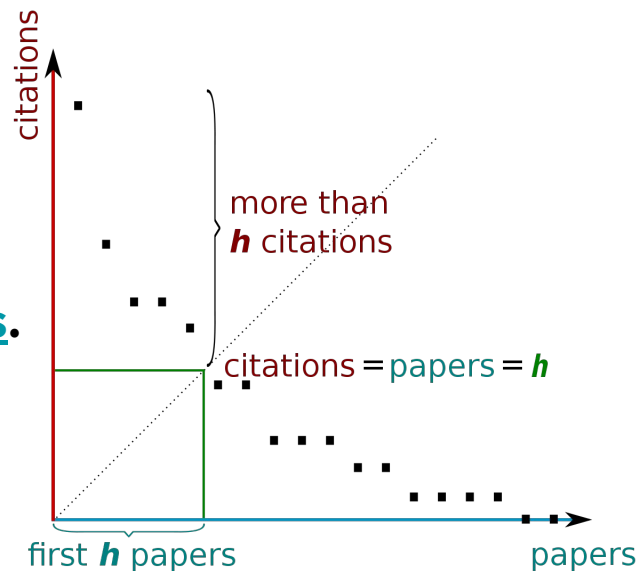


H-Index

The ***h*-index** quantifies an individual's scientific research output (cit. J.E. Hirsch).

The ***h*-index** evaluates an author impact inside a specific scientific community on the basis of the number of his/her publications and citations obtained.

The ***h*-index** is one of the most important function in [Scopus](#).



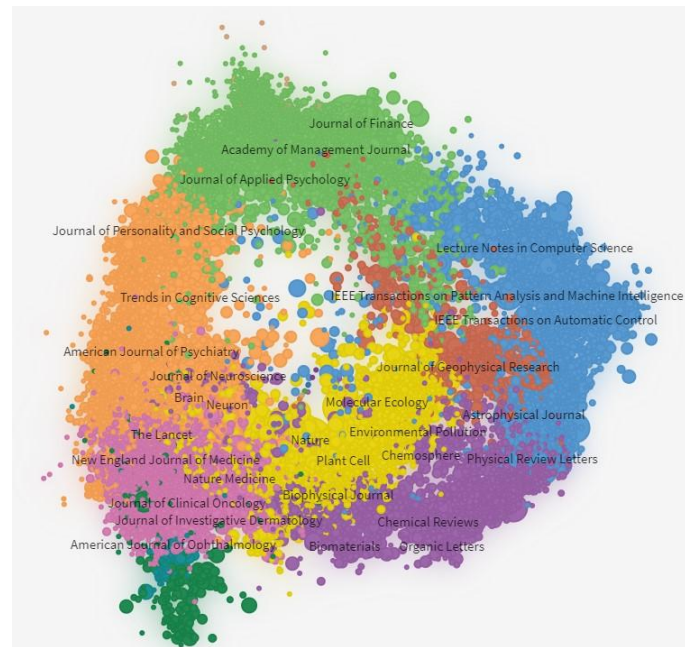
SCImago Journal Ranking

SCImago a database that can be accessed for free online, which allows you to obtain statistics on the citations of articles published in peer-reviewed journals.

It provides statistics and compares the number of published articles and citations in each country.

Journal ranking

Country rankings





Open Access

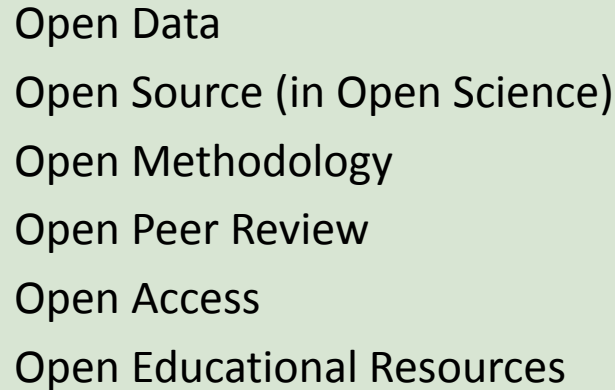
Introduction to Open Science

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

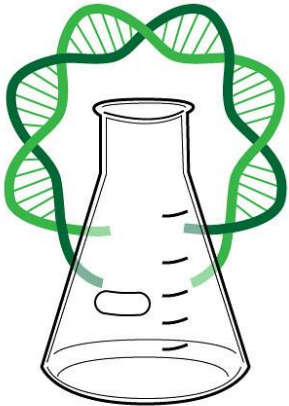
FOSTER consortium



Open
Science



- Open Data
- Open Source (in Open Science)
- Open Methodology
- Open Peer Review
- Open Access
- Open Educational Resources



OPEN ACCESS

Accessible

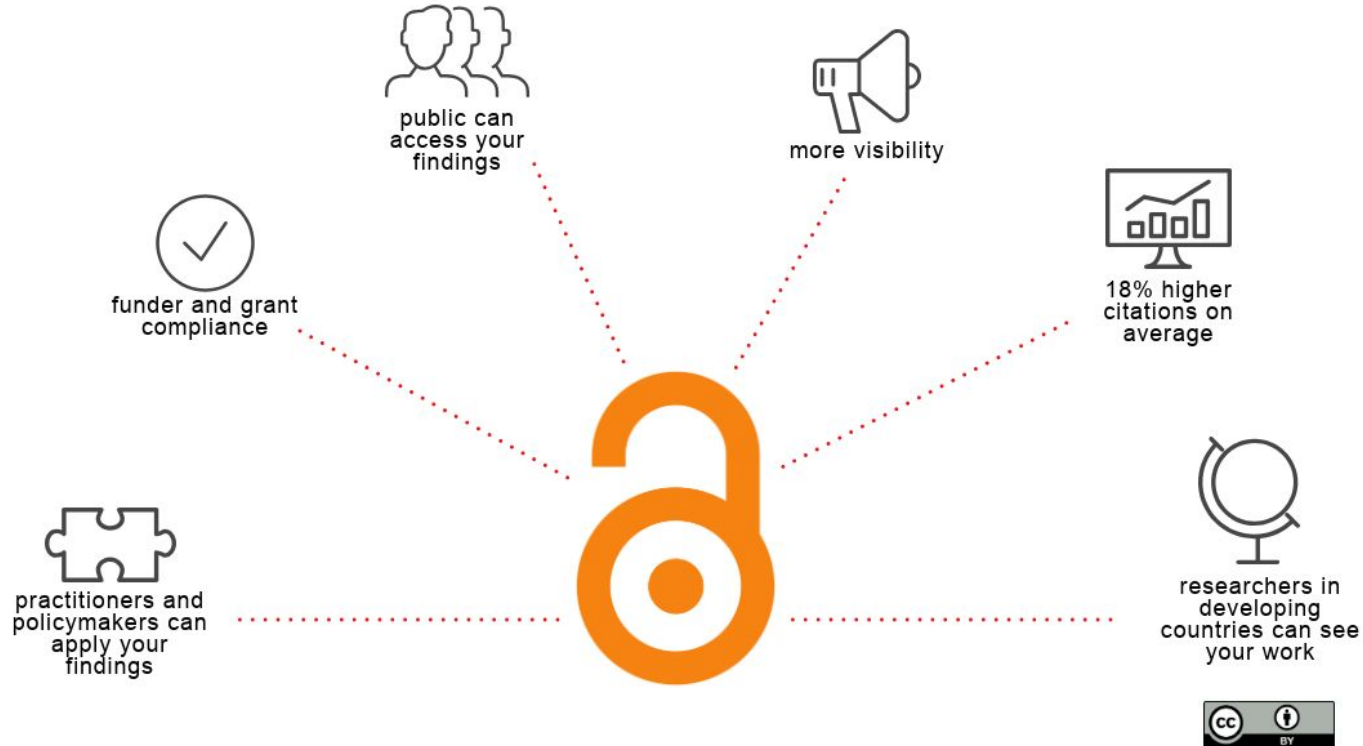
Without costs for
the reader

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

Possibility to
reuse

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














Open Access benefits




<https://www.waikato.ac.nz/library/guidance/guides/open-access-information>


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	CC BY-ND	✓	✓	✓	✗	✓
	CC BY-NC	✓	✓	✗	✓	✓
	CC BY-NC-SA	✓	✓	✗	✓	✗
	CC BY-NC-ND	✓	✓	✗	✗	✓




You can redistribute (copy, publish, display, communicate, etc.)




You have to attribute the original work



You can use the work commercially



You can modify and adapt the original work



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license for
your work

Publishing in OA

					
	Green OA	Diamond OA	Gold OA	Hybrid OA	Bronze OA
	Self-archiving in compliance with publisher's policy	Full, immediate OA publishing, without Article Processing Charge - APC	Full, immediate OA. Author pays an APC	Immediate OA of a single article/chapter in a paywalled Journal/Ebook, author pays an APC	Immediate or delayed free contents, without a clear open licence or reuse permission
	Embargo				
COST	NO	NO	YES	YES	PUBLISHER'S CHOICE
LICENCE	AUTHOR or PUBLISHER's CHOICE	CREATIVE COMMONS CC BY CC BY SA	OPEN or CC LICENCE	CC LICENCE on single item	NO

<https://bibliotecadigitale.cab.unipd.it/en/digital-library/about-publishing/open-access>



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. view factor), feigning international standing.

How to identify a predatory publisher

It is useful to consult the [infographic on predatory publishing](#) to evaluate better the publisher with whom to publish.

[Think, Check & Submit](#): a tool to evaluate the publisher and verify its policies.

[DOAJ - the Directory of Open Access Journal](#): it's the best way to find trustworthy information on Open Access journals

<https://beallslist.net/>: a list of potential predatory journals (updated to 2016)

HOW TO IDENTIFY PREDATORY PUBLISHERS

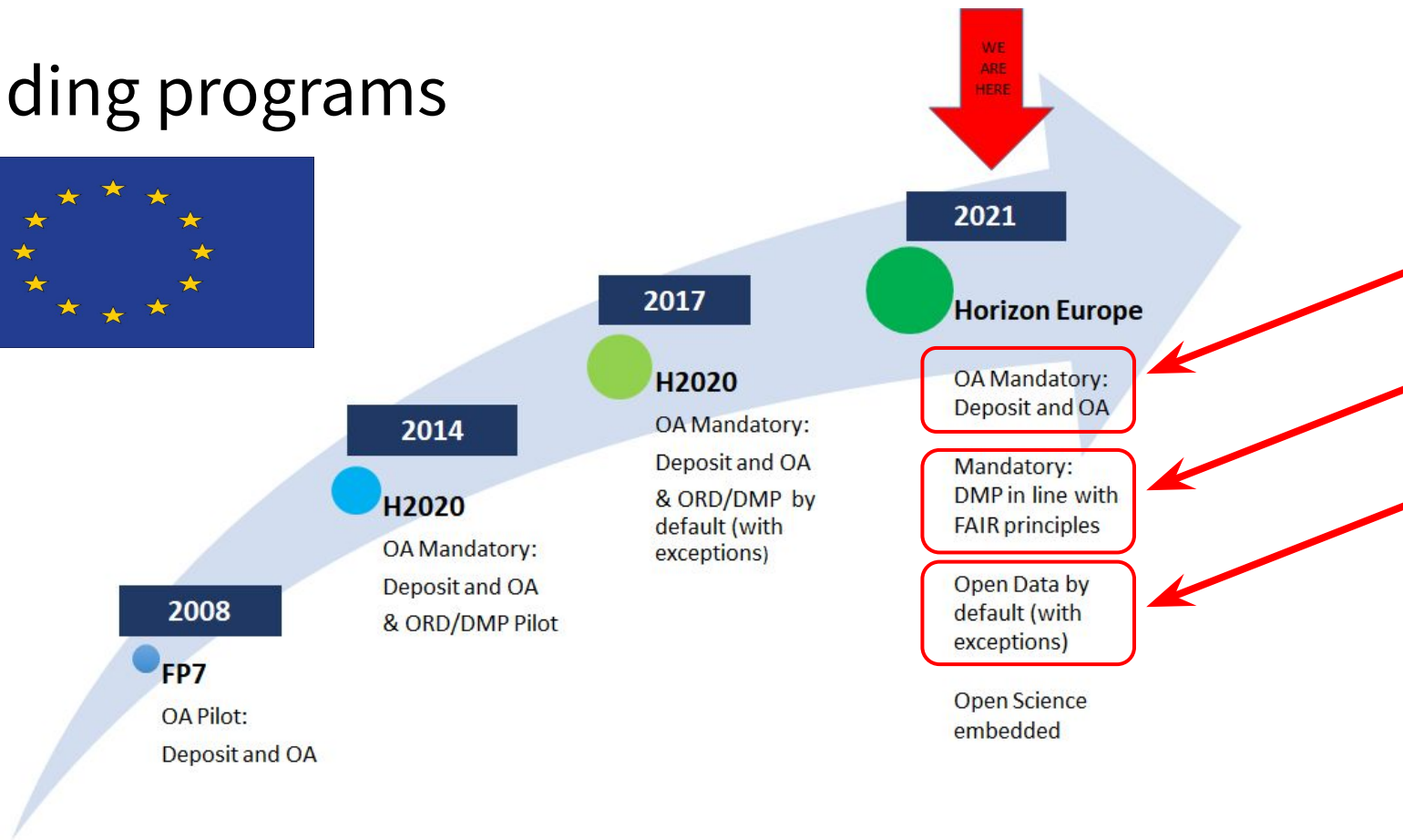
for authors and reviewers of academic works





Who requires Open Access?

EU funding programs



From OpenAIRE webinar: Horizon 2020 Open Science Policies and beyond, October 22nd, 2019 by Emilie Hermans (Ghent University)

https://www.slideshare.net/OpenAIRE_eu/horizon-2020-open-science-policies-and-beyond-with-emilie-hermans-openaire

Funders: OA Mandatory Policies

Projects funded with public funds

- **Italian Law 112/2013:** Publicly funded research (+ 50%) outputs in Scholarly Journals (18-24 month embargo, preprint, AM, VoR)
- **Plan S & cOAlition S** funders: rights retention via mandatory deposit with CC-BY licence, no embargo, AM o VoR version, Hybrid OA only under *Transformative Agreement*
- **EU Horizon Framework** ([H2020](#) / [H Europe](#) – MSCA fellowships), see Plan S & Open Res. Europe
- **ERC** [Article 29.2]: mandatory deposit 6-12 M Embargo AM o VoR version. The ERC Scientific Council recommends as disciplinary repos : [Europe PubMed Central](#) for publications in the life sciences domain and [arXiv](#) for publications in the physical and engineering sciences. Recommended repository for monographs (etc.) is the [OAPEN Library](#).
- **MUR** (ITA) SIR 2014, PRIN 2015, PRIN 2017, PRIN 2020, see Law 112/2013
- **UniPD Supporting Talent in ReSearch** - STARS Grants 2019, 2020, 2021

Projects funded with private funds

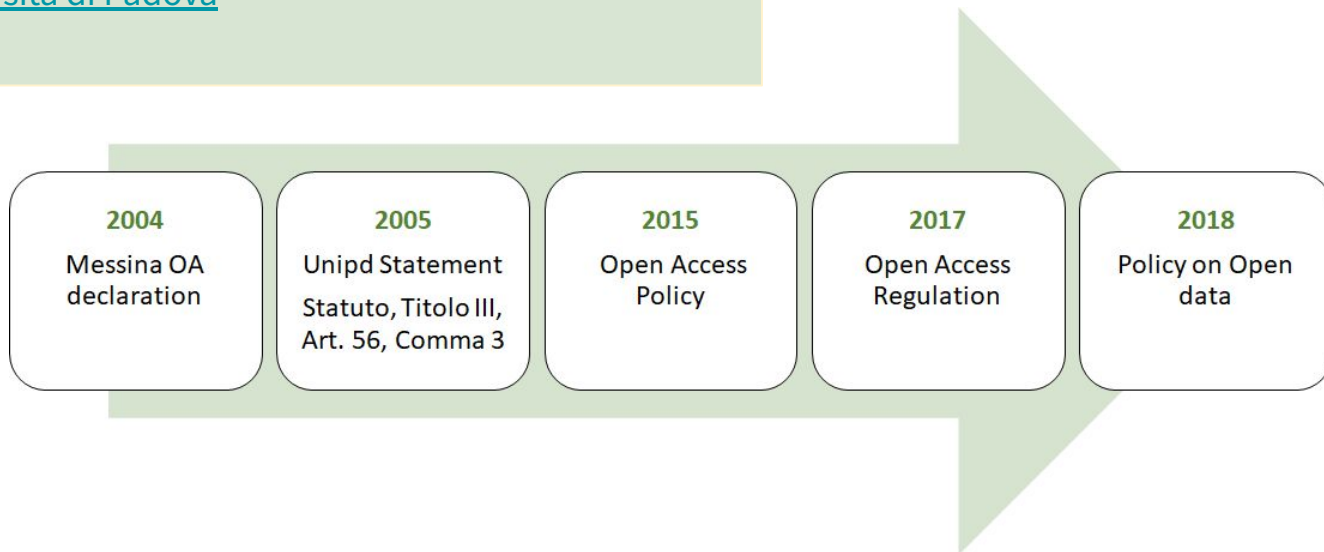
- Bill & Melinda Gates Foundation
- Wikimedia Foundation
- Telethon
- ...



The journey towards Open Science at the University of Padova

UniPD promotes the free and open distribution of the University's research results, as defined in its:

- Statute [Title III, Art. 56, Paragraph 3]
- "[Policy sull'Accesso Aperto \(Open Access\) alla letteratura scientifica](#)"
- "[Regolamento per l'Accesso Aperto \(Open Access\) alla produzione scientifica dell'Università di Padova](#)"





Facilitations for authors

Facilitations for UniPd authors



*Read and Publish
contracts
aka
Transformative
agreements*

[https://bibliotecadigitale.cab.unipd.it/
biblioteca-digitale/per-chi-pubblica/ag
evolazioni-per-gli-autori](https://bibliotecadigitale.cab.unipd.it/biblioteca-digitale/per-chi-pubblica/ag evolazioni-per-gli-autori)

[https://bibliotecadigitale.cab.unipd.it/
en/digital-library/about-publishing/agr
eements-with-publishers](https://bibliotecadigitale.cab.unipd.it/en/digital-library/about-publishing/agreements-with-publishers)

Read & Publish contracts

main characteristics

- they are **commercial contracts** and, just like the “classic” subscription contracts, they are negotiated between publishers and institutions that in Italy are represented by CARE-CRUI;
- **in addition to historical contents with closed access, they offer an open access publishing service;**
- they mainly apply to **hybrid journals**, but in some cases they also apply to full open access journals (Gold OA).
 - **authors no longer pay APCs** (paid centrally by the institution);
 - **authors retain the rights to their works**

How does OA Read & Publish work?

- when submitting the article, the **corresponding author** follows the instructions given by the publisher, selecting the OA option;
- **the corresponding author is identified** by the publisher as an affiliate of UniPD through these information:
 1. **Membership body**
 2. **Institutional address**
 3. ID (university network or auth-proxy);
- **after the article has been accepted**, the University Library Center is required to verify the correctness of the information provided by the corresponding author and to definitively approve the OA option.

Contracts in progress

- American Chemical Society - ACS (Hybrid OA)
- Annual Reviews (S2O)
- Cambridge University Press - CUP (Hybrid & Gold OA)
- De Gruyter (Hybrid OA)
- Emerald (Hybrid OA)
- IEEE (Hybrid & Gold OA)

- Institute of Physics - IOP (Hybrid & Gold OA)
- Lippincott (Hybrid OA)
- Royal Society of Chemistry - RSC (Hybrid OA)
- Springer (Hybrid OA)
- Wiley (Hybrid OA)

Other kinds of facilitations (discounts on APCs)

- British Medical Journal - BMJ
- Elsevier
- Taylor & Francis
- SCOAP3
- MDPI

Facilitations for Authors

Thanks to specific agreements stipulated with publishers, Unipd authors who wish to publish their work in Open Access can take advantage of facilitations on the payment of APCs (Article Processing Charge).

Transformative agreements

According to the new type of agreements defined as "transformative", only authors belonging to the institutions adhering to the specific transformation contract can publish without additional costs.

Each article managed under the agreement is defined "token" or "voucher": the vouchers for the free publication of Open Access articles, although available in large numbers for each institution adhering to the consortium contract, are limited at the national level.

Requirements for accessing the facilitations provided for by the Transformative Agreements

The corresponding author must formally belong to the University. Upon submitting the article to the journal, the corresponding author must indicate affiliation with the University of Padua. Furthermore, the **use of the institutional e-mail @unipd.it** is preferable.

<https://bibliotecadigitale.cab.unipd.it/en/digital-library/about-publishing/agreements-with-publishers>

Transformative agreements

Requirements for accessing the facilitations provided for by the Transformative Agreements

Publishers who provide
Library Helpline

- + American Chemical Society - ACS
- + Annual Reviews
- + Cambridge University Press - CUP
- + De Gruyter
- + Emerald
- + IEEE
- + Institute of Physics - IOP
- + Lippincott
- + Royal Society of Chemistry - RSC
- + Springer
- + Wiley



Repositories

Disciplinary archives

= databases collecting the
production of a specific
scientific community



<https://engrxiv.org/index>



<https://www.techrxiv.org/>

Interdisciplinary archives: Zenodo

The Zenodo logo consists of the word "zenodo" in a white, lowercase, sans-serif font, centered on a solid blue rectangular background.

<https://zenodo.org/>

For self-archiving of publications and data, open to all researchers in the world.

Managed by CERN for OpenAIRE (EU)

Search results are stored securely in the same cloud infrastructure as CERN's LHC search data

Assignment of a digital object identifier (DOI)

Possibility of identifying any subsidies, as they are integrated into the reporting lines

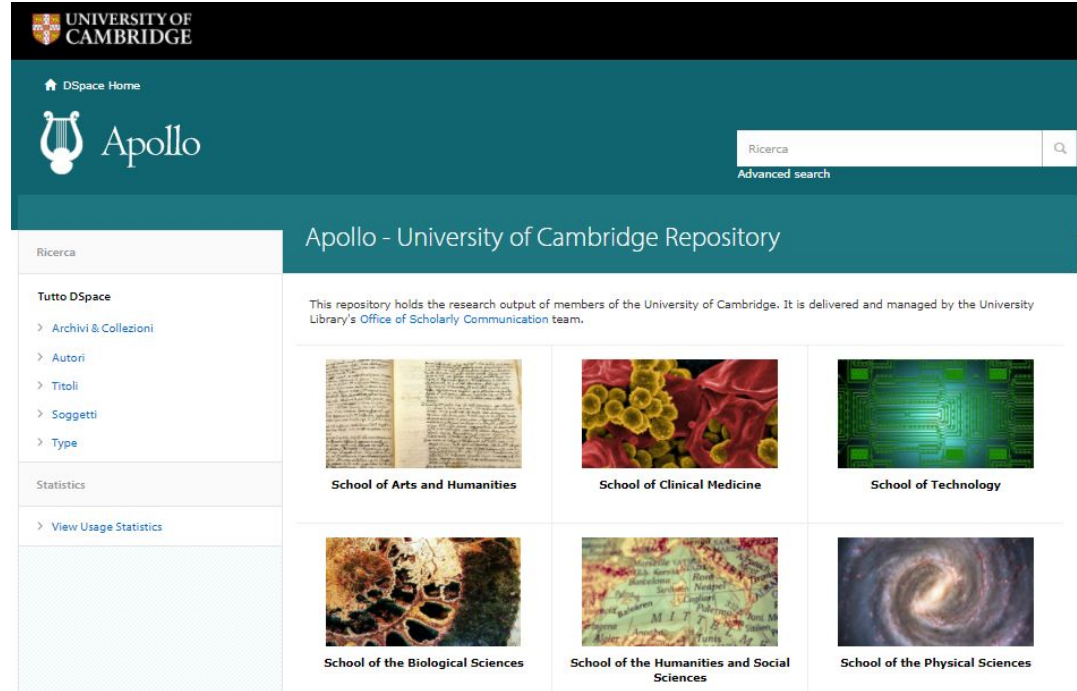
Possibility of assigning flexible guarantees of use, since not everything is under Creative Commons

Institutional archives

= databases that collect the scientific production of an institution

Main types of documents:

- Scholarly articles
 - Pre print
 - Post print
 - Version of record
- Conference papers
- Book chapters



Trustworthy Digital Repositories (TDRs)

Principle	Guidance for repositories
Transparency	To be transparent about specific repository services and data holdings that are verifiable by publicly accessible evidence.
Responsibility	To be responsible for ensuring the authenticity and integrity of data holdings and for the reliability and persistence of its service.
User Focus	To ensure that the data management norms and expectations of target user communities are met.
Sustainability	To sustain services and preserve data holdings for the long-term.
Technology	To provide infrastructure and capabilities to support secure, persistent, and reliable services.

in: Lin, D., Crabtree, J., Dillo, I. *et al.* The TRUST Principles for digital repositories. *Sci Data* 7, 144 (2020). <https://doi.org/10.1038/s41597-020-0486-7>

see also:

<https://www.coar-repositories.org/coar-community-framework-for-good-practices-in-repositories/>

and:

<https://eua.eu/downloads/publications/2021%20oa%20checklist%20final.pdf>

Institutional Repositories vs. Academia.edu or ResearchGate

	Open access repositories	Academia.edu	ResearchGate
Supports export or harvesting	Yes	No	No
Long-term preservation	Yes	No	No
Business model	Nonprofit (usually)	Commercial. Sells job posting, services, sells data.	Commercial. Sells ads, job, posting services, data.
Sends you lots of e-mails (by default)	No	Yes	Yes
Wants your address book	No	Yes	Yes
Fulfills requirements of Unipd's OA policies	Yes	No	No




Padua Research Archive

PRA (IRIS): homepage - info and instructions

RESEARCH PADUA
ARCHIVE


1222-2022
80 ANNI




UNIVERSITÀ
DEGLI STUDI
DI PADOVA


Home Sfoglia IT LOGIN

Padua Research Archive, l'archivio istituzionale della produzione scientifica dell'Università degli Studi di Padova, ha lo scopo di raccogliere, documentare, conservare e pubblicare, anche ad accesso aperto, i prodotti della ricerca dell'Ateneo. Padua Research Archive utilizza la piattaforma IRIS (Institutional Research Information System) sviluppata da Cineca.





Esplora il catalogo della ricerca



Ricerca avanzata

Avviso:
Cineca informa che le attività di migrazione alla piattaforma DSpace6 per il catalogo Padua Research Archive – IRIS e l'aggiornamento delle pagine personali degli utenti sono terminate. E' possibile riprendere il caricamento di nuovi prodotti e le modifiche dei prodotti esistenti. Eventuali anomalie residue sono in corso di risoluzione.

80 and over Adolescent Adult Aged Animals Astronomy and Astrophysics Biochemistry Cardiology and Cardiovascular Medicine Child Computer Science Applications1707 Computer Vision and Pattern Recognition Condensed Matter Physics COVID-19 Electrical and Electronic Engineering Female Humans Infant Italy Male Materials Science (all) Mechanical Engineering Medicine (all) Middle Aged Nuclear and High Energy Physics Oncology Physics and Astronomy (all) Retrospective Studies Space and Planetary Science Surgery Treatment Outcome Young Adult

REFERENTI IRIS DIPARTIMENTALI

DOCUMENTI UTILI ▼

OPENACCESS@UNIPD ▼

ALLEGATI

RESOURCE MANAGEMENT (RM)

LINK ESTERNI UTILI ▼

Scopri

<https://www.research.unipd.it/>

PRA (IRIS) and PhD students

[Regolamento per i corsi di dottorato di ricerca](#)

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.

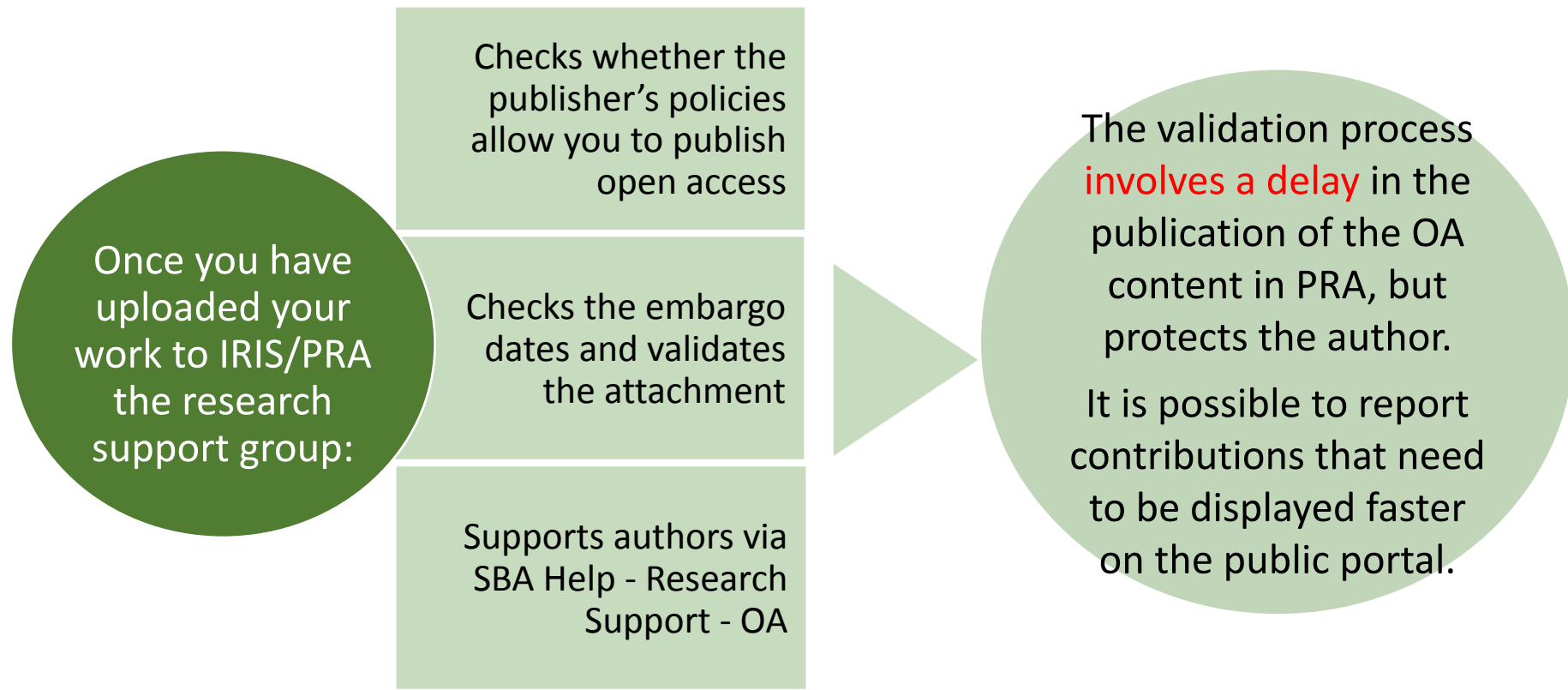
[It is a necessary condition for the attainment of the PhD degree that students log into **IRIS catalogue** and submit information about their own scientific production, if produced.]

PRA (IRIS): Research outputs archive



- Research outputs archive
- Open Access archive
(pre-print; post-print - embargo if needed; editorial version, if it is allowed)
- Platform for the assessment of research
(eg. VQR 2015-2019, ASN, ...):
 - if publication rights are transferred to the publisher: the attachment will be visible only to the evaluators
 - if contribution are already published in OA: the attachment will be visible to **everyone** (*Attachments declared completely open access by authors are still checked*)

Padua Research Archive (PRA) as an Open Access archive: IRIS beyond Research evaluation



PRA (IRIS): whom you should contact (and when)

Whom should you
contact when uploading
your documents in
PRA/IRIS?



People charged by
departments

Whom should you
contact for technical
problems related to
PRA/IRIS?



Settore supporto
informativo
valutazione della
ricerca e qualità -
Ufficio ricerca e
Qualità
helpdesk
coda: "Catalogo Padua
Research Archive (IRIS)"

Whom should you
contact when uploading
documents in open
access?



Library System
Helpline



Tips on the management of research data

What are research data?

Recorded **information**
(regardless of the form or
the media in which they
may exist) **necessary to
support or validate a
research project's**
observations, findings or
outputs



GIS and
spatial
data



Video



Digital copies
of images



Spreadsheets



Digital texts or digital
copies of text



Audio



Protein or genetic
sequences



Graphics



Databases

BUT ALSO...

- Computer Aided Design (CAD)
- Waveforms
- Computer codes
- Statistics (SPSS, SAS)
- File Matlab
- Artist's products
- Web files
- ...

Data Types

Data Type	Value	Example
Observational data captured around the time of the event	Usually irreplaceable	Sensor readings, telemetry, survey results, neuro-images
Experimental data from lab equipment	Often reproducible but can be expensive	Gene sequence, chromatograms, toroid magnetic field readings
Simulation data generated from test models	Model and metadata (inputs) more important than output data. Large modules can take a lot of computer time to reproduce	Climate models, economic models
Derived or compiled data	Reproducible (but very expensive)	Text and data mining, compiled databases, 3D models

Data Costs



Data management costing tool

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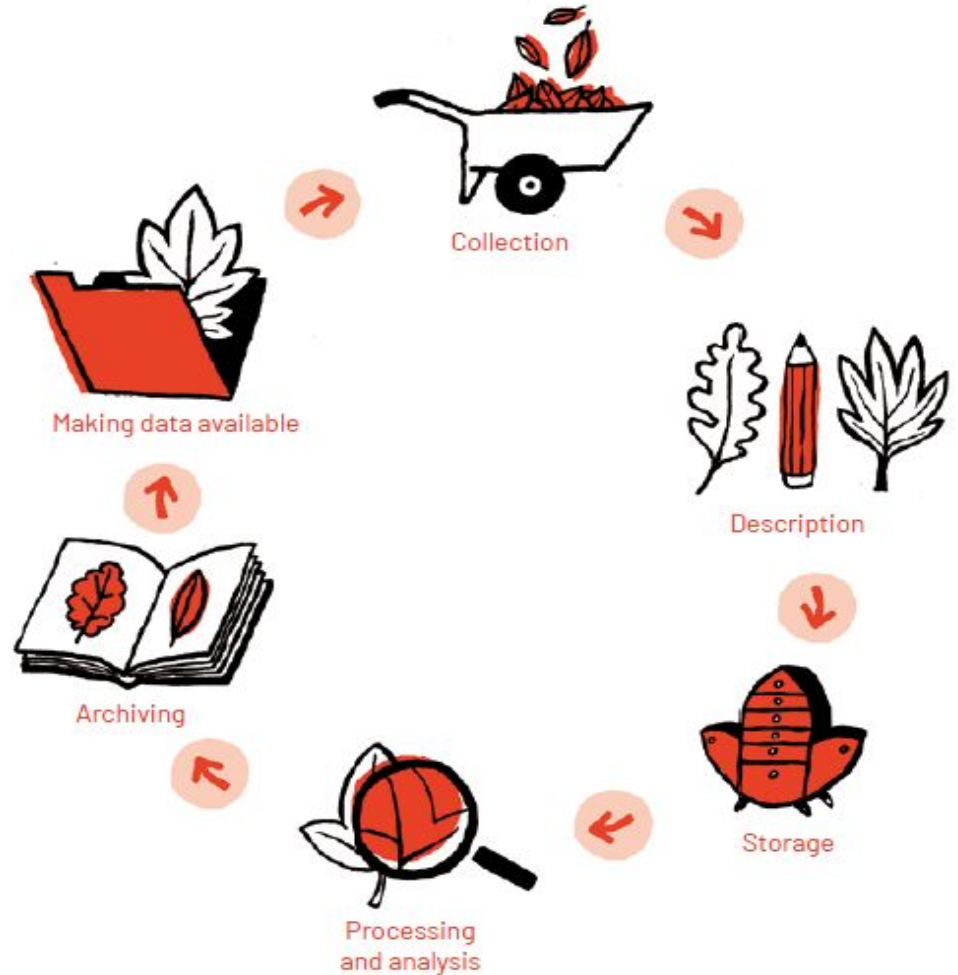
Guides for Researchers

How to identify and assess Research Data Management (RDM) costs

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Research data lifecycle

From: [Passport for Open Science – A Practical Guide for PhD Students](#)
Licensed under a [CC BY-SA licence](#)



Open Data

Open Data are online, free of cost, accessible data that can be used, reused and distributed, provided that the data source is attributed.

Open Data

It is the philosophy of Open Access applied to data

Data are open when **anyone can access, use and share**

Anyone means: academics, politicians, private citizens, economic stakeholders



Open data: a five-stars rating system

OL (On Line)

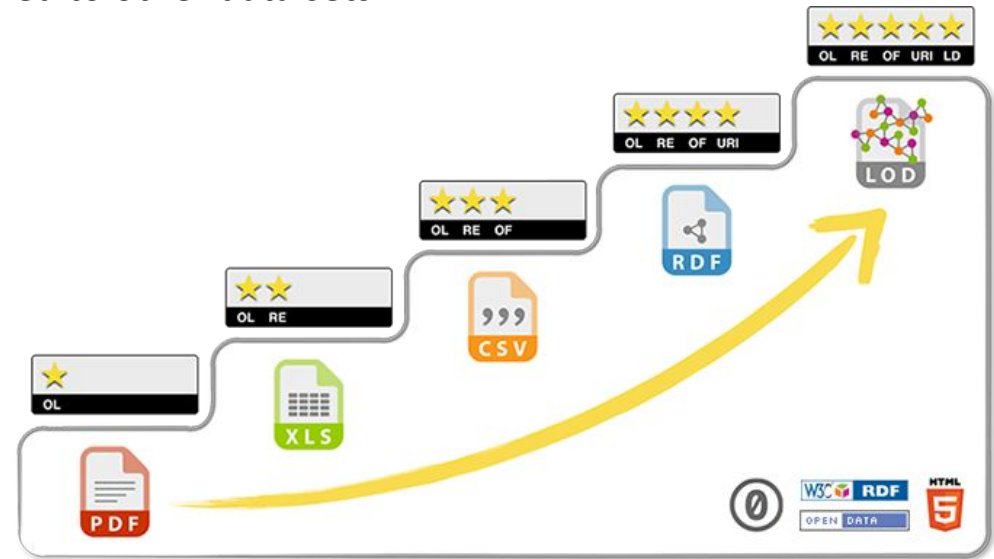
RE (Readable)

OF (Open Format)

URL (Uniform Resource Identifier)

LD (Linked Data)

- available on the web + distributed with an open license
- machine-readable structured data
- encoded with non-proprietary software
- identified by an URL
- linked to other data sets



Funding programs requiring OA: European Union

[COMMISSION RECOMMENDATION \(EU\) 2018/790 of 25 April 2018 on access to and preservation of scientific information](#)

[DIRECTIVE \(EU\) 2019/1024 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on open data and the re-use of public sector information](#)

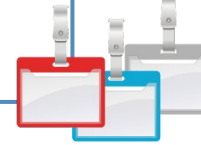
[Horizon Europe Programme Guide](#)

Managing research data: 5 steps

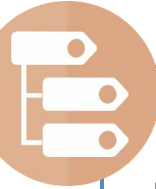


1. Collect research data

2. Reasonably name data



Tips on metadata standard for different disciplines



3. Structure data in hierarchical systems

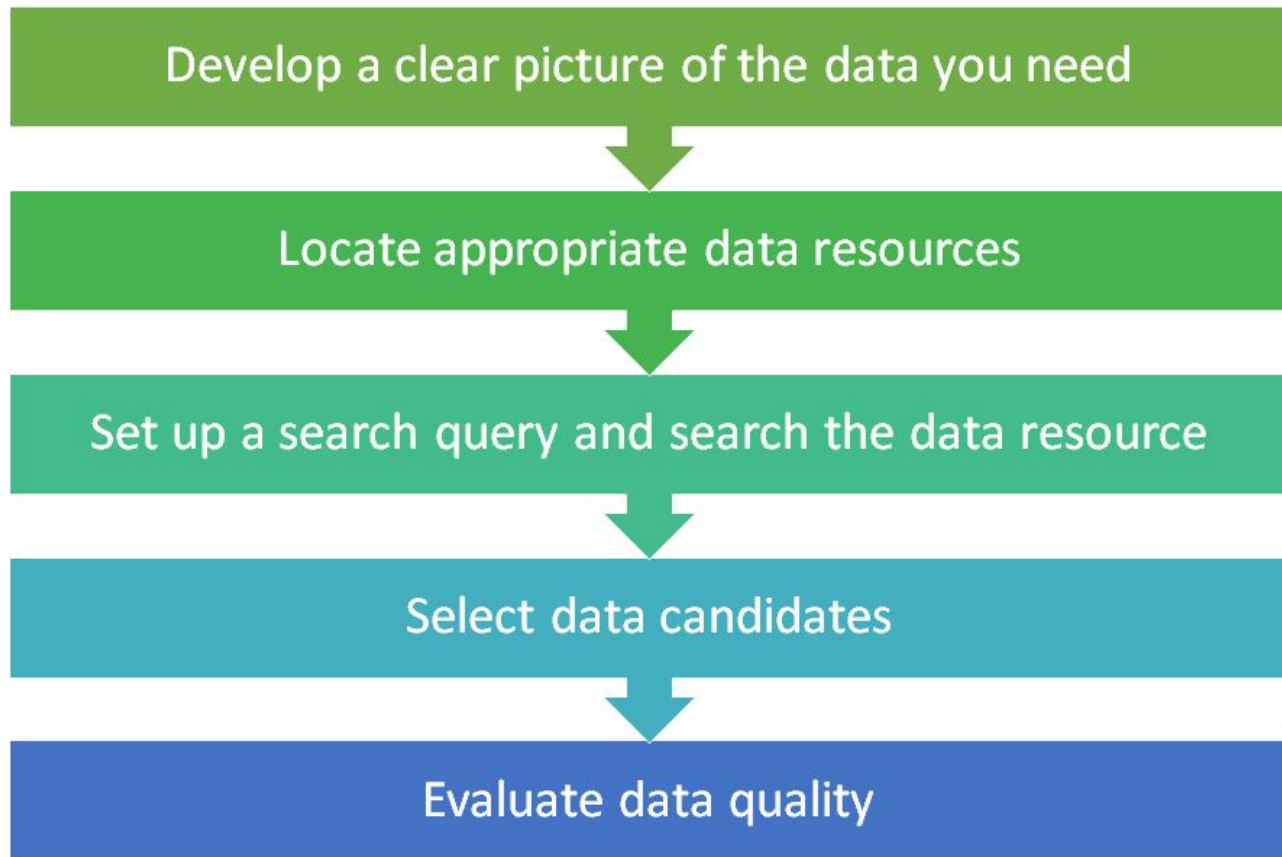
4. Record data through metadata



5. Pay attention to the file format
(Guide on "naming and version control")

First step: collect research data

CC BY-SA Gaelen Pinnock



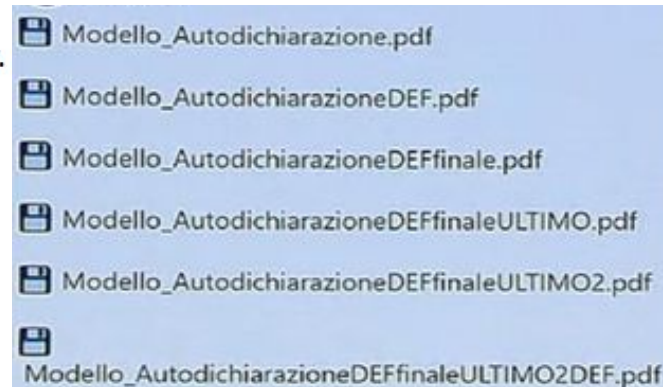
Second step: file name strategy

A file name is a principal identifier of a file

- File name should help to identify the content of the file.
- Good file names provide useful clues to the status and version of a file, uniquely identify a file and help in classifying and sorting files

File naming strategy should be consistent in time and among different people

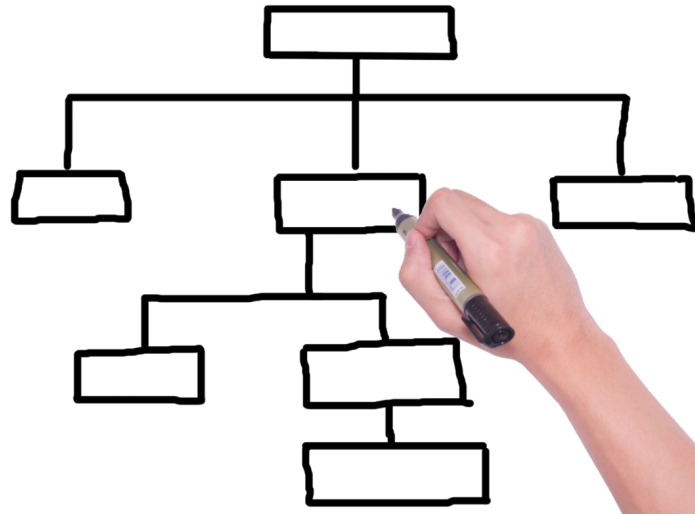
- In both quantitative and qualitative research file naming should be systematic and consistent across all files in the study
- A group of cooperating researchers should follow the same file naming strategy.



Third step: structure research data

Structuring your data **files in folders is important for making it easier to locate and organize** files and versions.

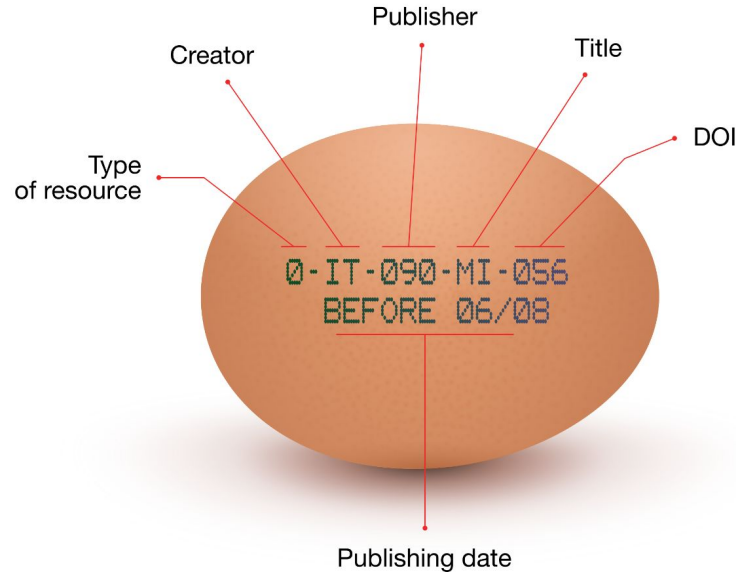
The decision on **how to organize your data files depends on the plan and organization of the study**. All material relevant to the data should be entered into the data folders, including detailed information on the data collection and data processing procedures.



Fourth step: annotate using metadata

Metadata means "data about data".

It is defined as the data providing information about one or more aspects of the data and it is used to summarize basic information about data, which can make easier to track and work with specific data.



[Examples of metadata standards](#)

Fifth step: file formats

When preparing to collect research data, you should chose **open**, **well-documented** and **non-proprietary formats** wherever possible.

The choice of format will vary depending on how you plan to analyze, store and share your data.

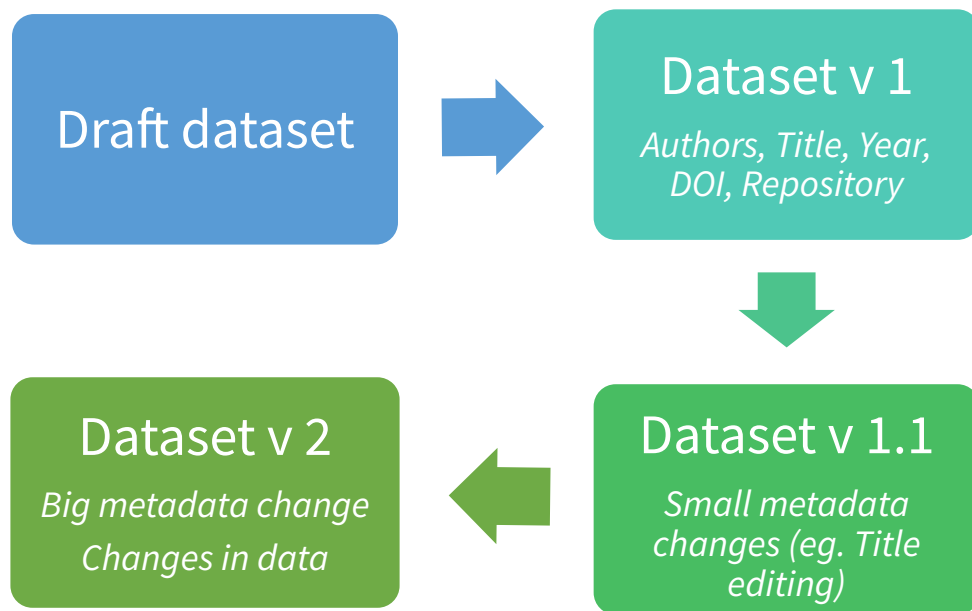
It is advisable to **store your data for use in future**, which means to convert them from a current data format to a long-term preservation format. Most software applications offer export or exchange formats that allow a text-formatted file to be created for importing into another program.



Organize data: dataset versions

Versioning is important for long-term research data management where metadata and/or files are updated over time.

It is used to **track any metadata or file changes** (e.g., by uploading a new file, changing files structure, adding or editing file metadata...) once a dataset has been published.



Useful guides
on [naming and
version control](#)

Storage and preservation

Data **storage** in safe archives adhering to relevant standards.

Preservation actions should ensure that data remains authentic, reliable and usable while maintaining its integrity



Open,
non-proprietary,
well documented
formats



Regular backup

Multiple and
different storage
media



Checkup of
integrity of files



Copy or
migration of files



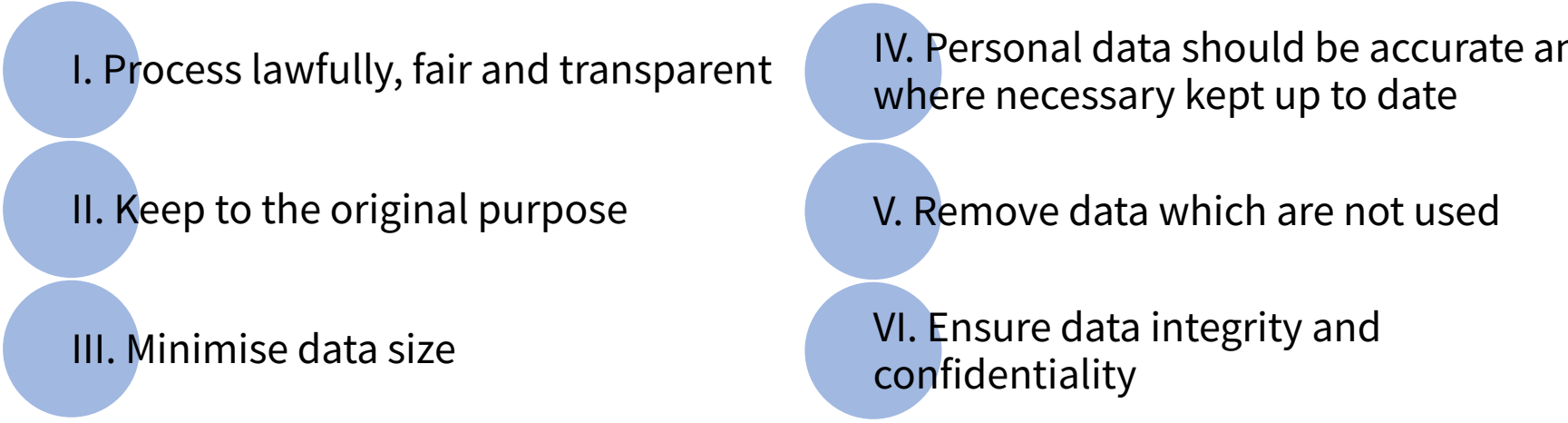
Track changes in
metadata and files
(versioning)

Checklist for [storage](#) and [preservation](#)

General Data Protection Regulation

Since 25 May 2018, the [General Data Protection Regulation](#) (GDPR, European Union, 2016) applies to any EU researcher who collects **personal data of living persons**.

So, when processing personal data, researchers should adhere to the following **six principles**:



I. Process lawfully, fair and transparent

II. Keep to the original purpose

III. Minimise data size

IV. Personal data should be accurate and, where necessary kept up to date

V. Remove data which are not used

VI. Ensure data integrity and confidentiality

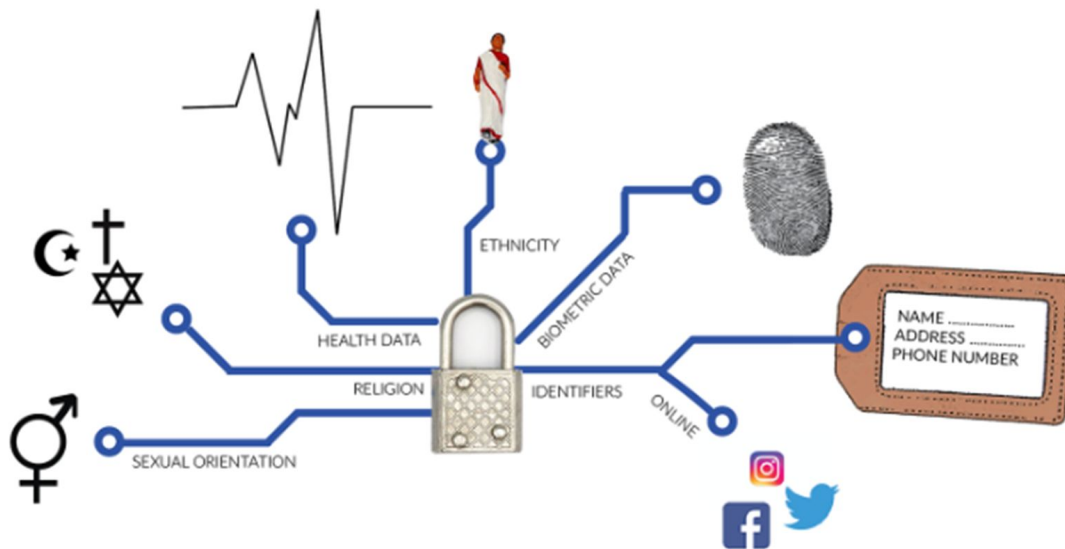
The so-called "research exemption" means that principles 2 and 5 are less stringent when applied to data collected for research projects, public interest, statistical purposes

Privacy and personal data

Works containing sensitive data relating to identifiable persons must not be disseminated in Open Access!

BEFORE collecting data:

- Carry out a **risk assessment**
- Choose which data to collect + follow the **minimization principle**
- Prepare an **informed consent document** (information about the research, the subjects involved, the way data is going to be shared and stored)



[GDPR \(General Data Protection Regulation\)](#)



[Information on research integrity and research ethics](#)

AFTER collecting data:

- **Protect the identities** of the subjects involved (e.g. pseudonyms; keeping the information that allows identification in a separate archive)
- **Anonymize + aggregate** data
- **Regulate access**

DMP = Data Management Plan

1. Data Collection and Documentation



☐ What kind of data are generated

☐ How will data be generated

☐ What metadata are needed

2. Ethics, legal and security Issues



☐ How will ethical issues be handled

☐ How are the data accessed

☐ Are there copyright issues

☐ Are there sensitive data

☐ What about intellectual property rights

3. Data Storage and Preservation



☐ How are the data stored?

☐ Are there back up systems

☐ How are data safely preserved

4. Data Sharing and reuse



☐ How and where will the data be shared?

☐ How are sensitive data protected

☐ How can data be accessed

DMP: Guidelines & tools



DCC = Digital Curation Centre

- <https://www.dcc.ac.uk/dmponline>

DMP Online

DMP templates according to funders' specific requirements

- https://dmponline.dcc.ac.uk/public_templates



Data Stewardship Wizard

DMP which can be exported using selected template and format, including machine-actionable ones

- <https://ds-wizard.org/>

Science Europe

Research Data Management Guidance and Templates for DMPs

- <https://scienceeurope.org/our-priorities/research-data/research-data-management>



Horizon Europe

Funding & tender opportunities > Project reporting templates > Data management plan (HE)

- <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents:programCode=HORIZON>

Tools for researchers

UniPD Ufficio Ricerca Internazionale: strumenti per la progettazione e il proposal writing (with SSO)

- <https://elearning.unipd.it/ufficiiservi/ziapplicazioni/course/view.php?id=112>



DMP: two examples

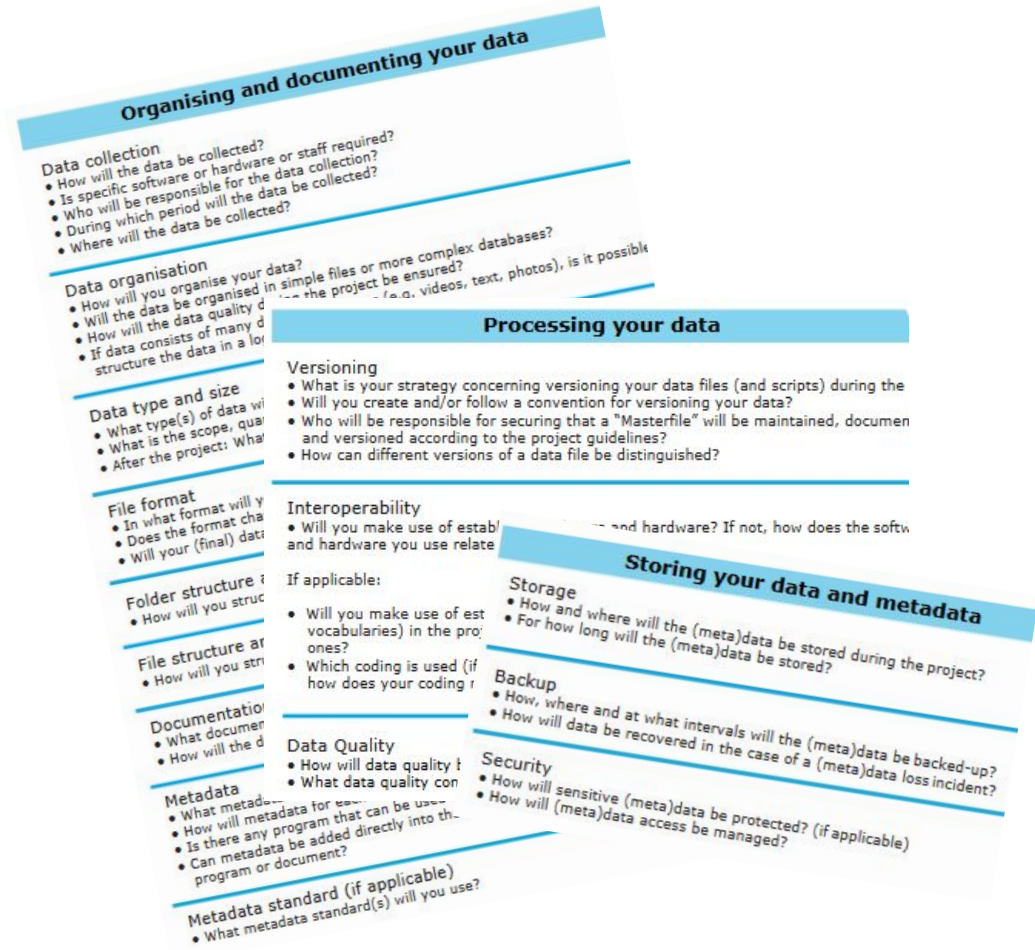
CESSDA (Consortium of European Social Science Data Archives)

Link to pdf version [here](#)

Link to editable version in this [page](#)

DCC (Data Curation Centre)

Link to DMP Checklist [here](#)





Research Data Unipd

Research Data Unipd is a research data archive. The service aims to facilitate data discovery, data sharing, and reuse as required by funding institutions (e.g. European Commission).

Anyone has access to data. The deposit of datasets is reserved to institutional users: they can log in with their Single Sign-On (SSO) credentials.

The University of Padua recognises the importance of data management for maintaining the quality of scientific research and is committed to applying the highest standards for their collection, archiving and preservation, as stated in the [University of Padua Policy on the Management of Research Data](#).

For more information on Research Data Management and Repositories, please refer to the [Open Research Data](#) section on the University Library System website, or contact the [Library Helpline](#).

Search...

SEARCH

Latest Additions >

View items added to the repository in the past 90 days.

Browse Repository >

Browse the items in the repository by [Year](#), [Subject](#), [Department](#) and [Author](#).

Search Repository >

Search the repository using a full range of fields. Use the search field at the top of the page for a quick search.

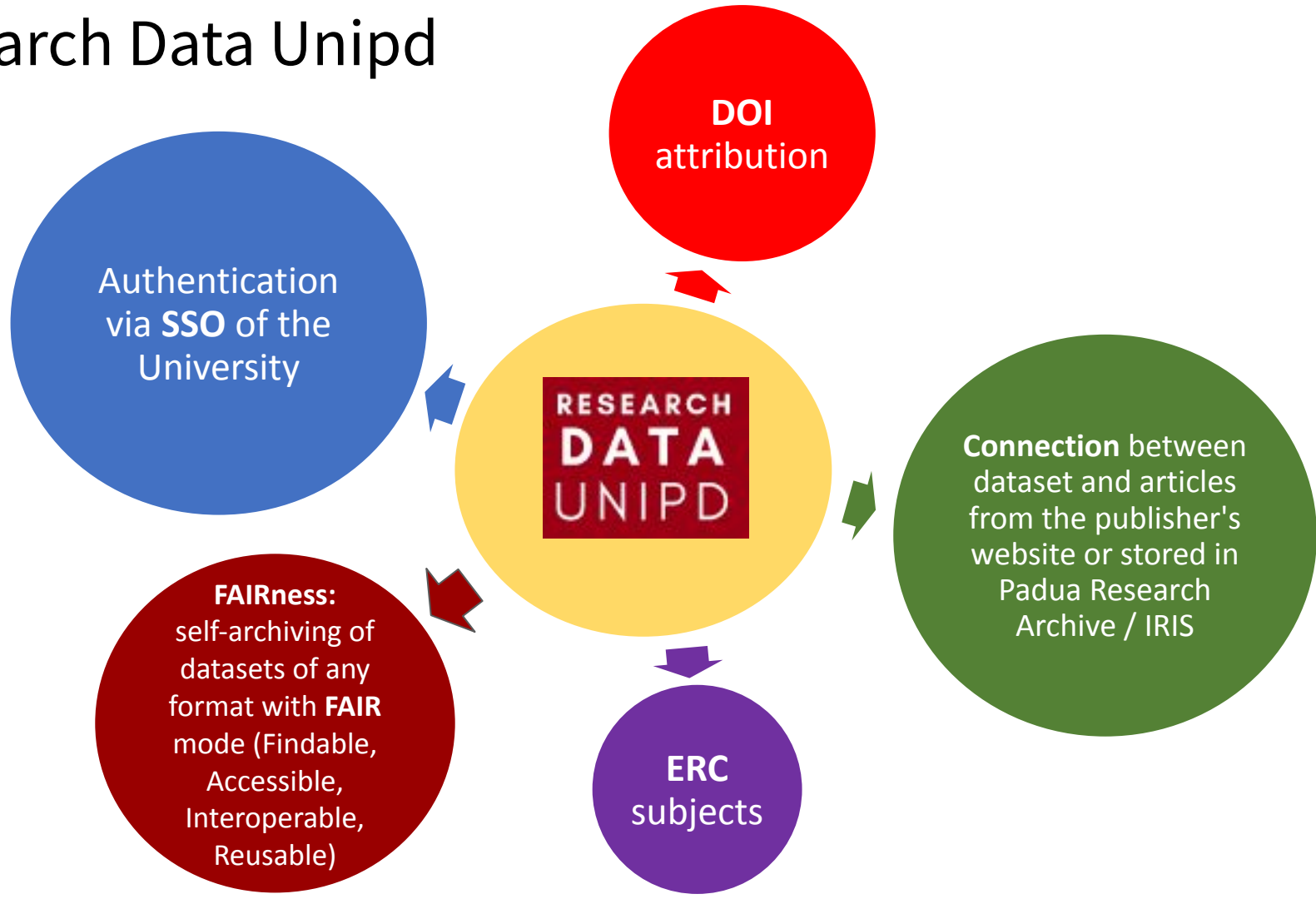
[Atom](#) [RSS 1.0](#) [RSS 2.0](#)

Research Data Unipd supports [QAI 2.0](#) with a base URL of <https://researchdata.cab.unipd.it/cgi/oa12>



<http://researchdata.cab.unipd.it/>

Research Data Unipd

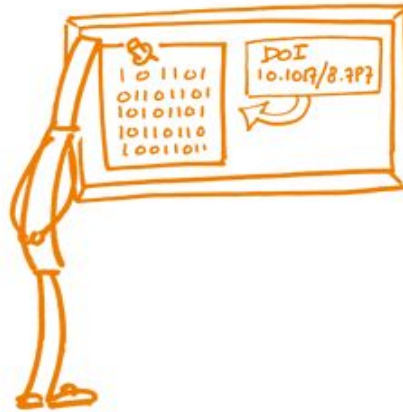


FAIR principles

FAIR DATA PRINCIPLES



FINDABLE



ACCESSIBLE

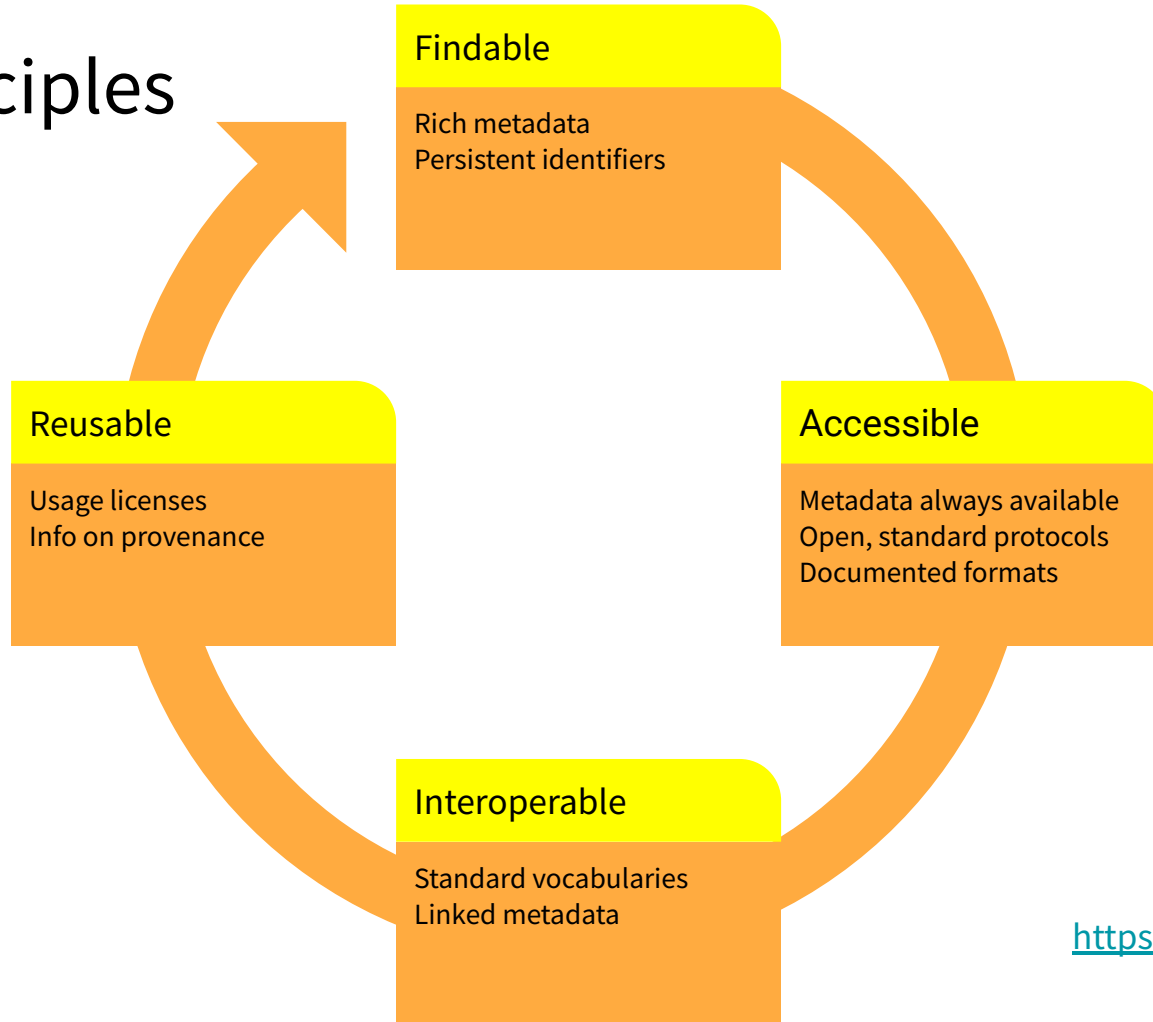


INTEROPERABLE



REUSABLE

FAIR principles



About the Repository

Research Data Unipd supports research produced by members of the University of Padua. The service aims to facilitate data discovery, data sharing, and reuse as required by funding institutions (e.g. European Commission).

According to the [University of Padua Policy on the Management of Research Data](#), data must be stored in a correct, complete and reliable way, respecting their integrity. They must also be accessible, identifiable, traceable, interoperable and, where possible, available for subsequent use as stated in the [FAIR principles](#).

Quality

Datasets published in the Archive have a set of metadata that ensure that data are described and discoverable. Before publication, dataset records are checked by Editors for the presence of appropriate metadata.

Metadata Policy



All published metadata are released under a [CC0 licence](#).

Re-using data



We encourage researchers to use licences on their datasets to promote the reuse of the research data. The licence to be preferred is [Creative Commons Attribution 4.0](#), but several others are used. Any re-use must acknowledge the Creators in an appropriate manner, ideally through a citation similar to that provided with the record.

Recommended formats and data files



[Formats and data files](#)

Submission policy

[Submission policy concerning depositors, quality & copyright](#)

Data deposit agreement



[Agreement to terms and conditions](#)

Licenses on Data

Open Data Commons Licenses

PDDL	•public domain
ODC-by	•attribution
ODbL	•attribution & share-alike

<https://opendatacommons.org/index.html>

Data deposit agreement

When you deposit data in the Research Data Unipd Archive, you must agree to the conditions below. This is done by clicking the "Deposit" button in the archive, before depositing the item.

This agreement confirms that you, the depositor, have the right to submit the dataset to the repository.

This agreement ensures that the archive administrators have the right to carry out activities necessary to facilitate the long-term preservation and sharing of datasets.

By submitting your dataset for a deposit, you grant a non-exclusive licence to the University of Padua to archive, publish and disseminate any material within the dataset. The licence is non-exclusive and therefore does not prevent you from exercising any rights you might have to publish and distribute any of the datasets, in its present or future versions, elsewhere.

Retractions

Retraction of articles due to lack of data, citations and methodologies are increasing.

The inability to access to data and methods prevents from reproducing experiments and validate results.

Author asks to retract nearly 20-year old paper over figure questions, lack of data

The last author of a 1999 paper has asked the journal to retract it less than one month after a user raised questions about images on PubPeer.

Yesterday, last author Jim Woodgett posted a note on the site saying the author who generated the figures in question could not find the original data, and since he agreed the images appeared “suspicious,” he had contacted the journal to retract the paper.

Here's the [note](#) from Woodgett, based at Lunenfeld-Tanenbaum Research Institute at Mount Sinai Hospital in Toronto:

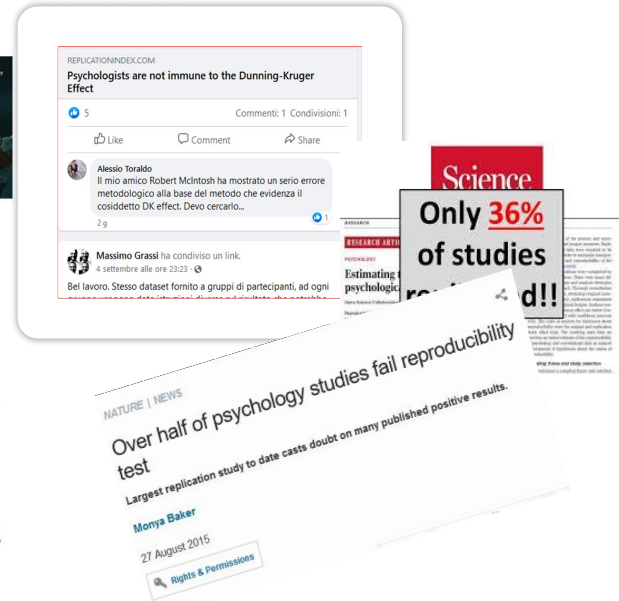
...the person who generated the original data cannot source it and, as a consequence, a request to retract this paper based on the discrepancies in figure 5B and C has been submitted and approved.

The PubPeer exchange is over a pair of figures in the 1999 paper, “Regulation of the protein kinase activity of Shaggy(Zeste-white3) by components of the wingless pathway in *Drosophila* cells and embryos,” which has been cited 77 times, according to Thomson Reuters Web of Science.



Abstract

The purpose of this study is to review the publications retracted due to fraud written by authors with affiliation in Italy in the period 2000-2020. For the identification of retracted publications, Retraction Watch Database has been used and Web of Science and Pubmed databases have been used for their verification and review. A total of 112 retractions were obtained due to fraud related the criteria defined in the methodology. The results obtained establish that the main cause of retraction due to scientific misconduct has been 77.68% of the retractions reviewed. 20.54% of retractions are associated with data and 1.79% with both causes. There is an average of 5.6 articles retracted per year in the period analyzed. The retracted works are research articles in the area of Life Sciences and Biomedicine. It is noteworthy that 37% of the cited after their retraction.



JLIS: <https://www.jlis.it/article/view/12711>

Rete Italiana Open Science: <https://www.facebook.com/groups/172297443522463/>

Retraction watch: <https://retractionwatch.com/2016/09/23/author-asks-to-retract-nearly-20-year-old-paper-over-figure-questions-lack-of-data/>

Steps dominate gas evasion from a mountain headwater stream

Botter, Gianluca and Carozzani, Anna and Peruzzo, Paolo and Durighetto, Nicola (2022) *Steps dominate gas evasion from a mountain headwater stream*. [Data Collection]

- Related publications
- <https://doi.org/10.21203/rs.3.rs-1558447...> (Organisation)
 - <https://www.nature.com/articles/s41467-0...> (Publisher)

Data &
article
reported
findings

nature communications



Article

<https://doi.org/10.1038/s41467-022-35552-3>

Steps dominate gas evasion from a mountain headwater stream

Received: 14 April 2022

Accepted: 9 December 2022

Published online: 17 December 2022

Gianluca Botter¹✉, Anna Carozzani¹, Paolo Peruzzo¹ & Nicola Durighetto¹

Steps are dominant morphologic traits of high-energy streams, where climatically- and biogeochemically-relevant gases are processed, transported to

Data availability

The data that support the findings of this study are openly available in Botter et al. 2022⁶¹ at <http://researchdata.cab.unipd.it/id/eprint/619>, reference number 619.

Open methodology

= the use of open methodologies throughout the entire research cycle, making it open and available to everyone online at the very moment the research is conducted.

Open Notebooks

- <https://openlabnotebooks.org>
- <https://theopennotebook.com/>
- [OpenLab/Notebook](#) % Foster
- [Code Ocean](#)
- [Protocols.io](#)

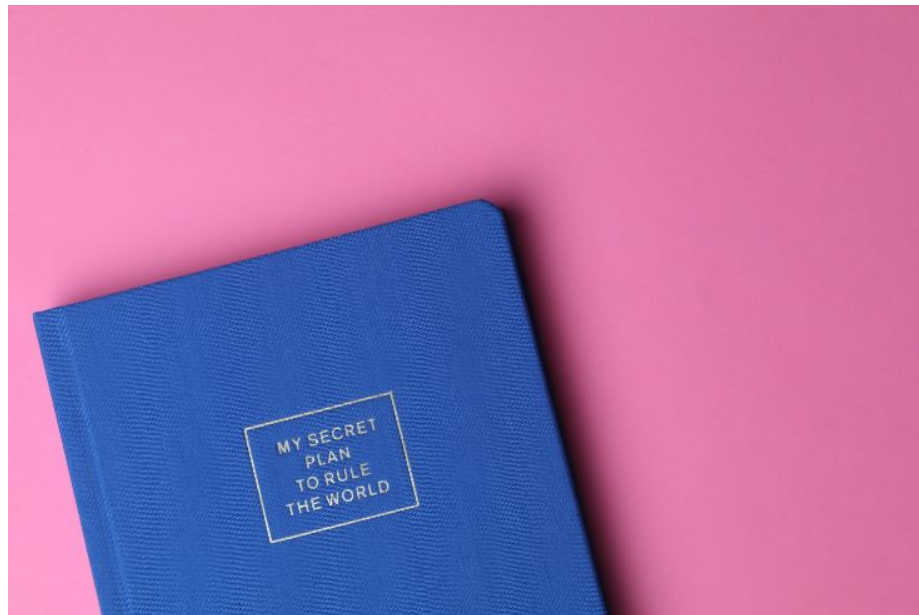


Foto di [Ann H](#) da [Pexels](#)

To sum up ... why is it important to manage research data [properly] and make them **OPEN**?



To allow the continuity
of research through the
use of secondary data

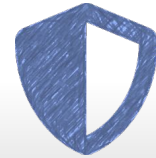


To increase the
efficiency of research

To ensure compliance
with the requirements
set by funders



To support the contents
of a paper and improve
the peer-review



To guarantee the
integrity of research and
the validation of the
results

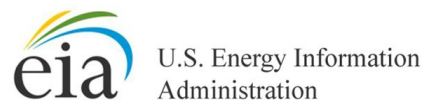


To ensure greater
dissemination and
greater impact

Science research data: guidelines & tools



The American Chemical Society Publications (ACS) is a non-profit scholarly publisher that provides a comprehensive collection, in any medium, of high-quality information products and services that advance the practice of the chemical and related sciences.



The U.S. Energy Information Administration (EIA) provides a wide range of information and data products covering energy production, stocks, demand, imports, exports, and prices. EIA is committed to enhancing the value of its free and open data by making it available through open data tools.



The Open Access Scholarly Publishers Association (OASPA) is a non-profit trade association representing the interests of open access journal publishers globally in all scientific, technical and scholarly disciplines.

"S-LÉGAMI!"

"S-légami! Open Access – Manuale d'uso per ricercatori" is a freely available manual that was born in the APRE Working Group dedicated to Open Science and contains the answers to the most frequent questions and concerns of researchers on open access and open data.



OpenAIRE is a pan-European research information system, which provides services for finding, storing, linking and analyzing research results from all disciplines. Its mission is to move academic communication towards openness and transparency and to facilitate innovative ways to communicate and monitor research.



Supporting authors

Library System support services

About publishing

[Open Science >](#)

- What is it?
- Open Science Pillars
- Insights

[Open Access >](#)

- Policy and Regulations Unipd
- Policy and Requirements UE
- OA Colors
- Self-archiving
- Padua Research Archive and other repositories
- Insights

[While publishing >](#)

- Mandates from funding bodies
- Before publishing
- Agreements with publishers
- APC – Economic facilitations for authors
- After publishing
- Other services for authors

[Open Research Data >](#)

- Policy Unipd and Requirements UE
- DMP – Data Management Plan
- Where to store datasets: Research data Unipd
- Insights

[Impact of research >](#)

- Journal-level metrics
- Author-level metrics
- Misleading metrics
- Author IDs
- Normalized or "weighted" metrics, quartiles and percentiles

[Facilitations for authors >](#)

- Transformative agreements
- Requirements for accessing the facilitations
- List of publishers

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

Library System support services

Authors can submit specific requests using the Library System [Help Service](#), choosing the address:

- Supporto alla pubblicazione accademica
- Consulenza tematiche diritto d'autore
- Supporto Open Science (Open Access, Open Data)

Engineering libraries contacts:

biblio.inge@unipd.it



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



Engineering Libraries
OA Support Group of the UniPd Library System



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4.0 International (CC BY-SA 4.0)