Effective Peer Review

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A good teacher doesn't teach facts, he or she teaches **enthusiasm**, **open-mindedness** and **values**.

Gian-Carlo Rota

Workshop Outline

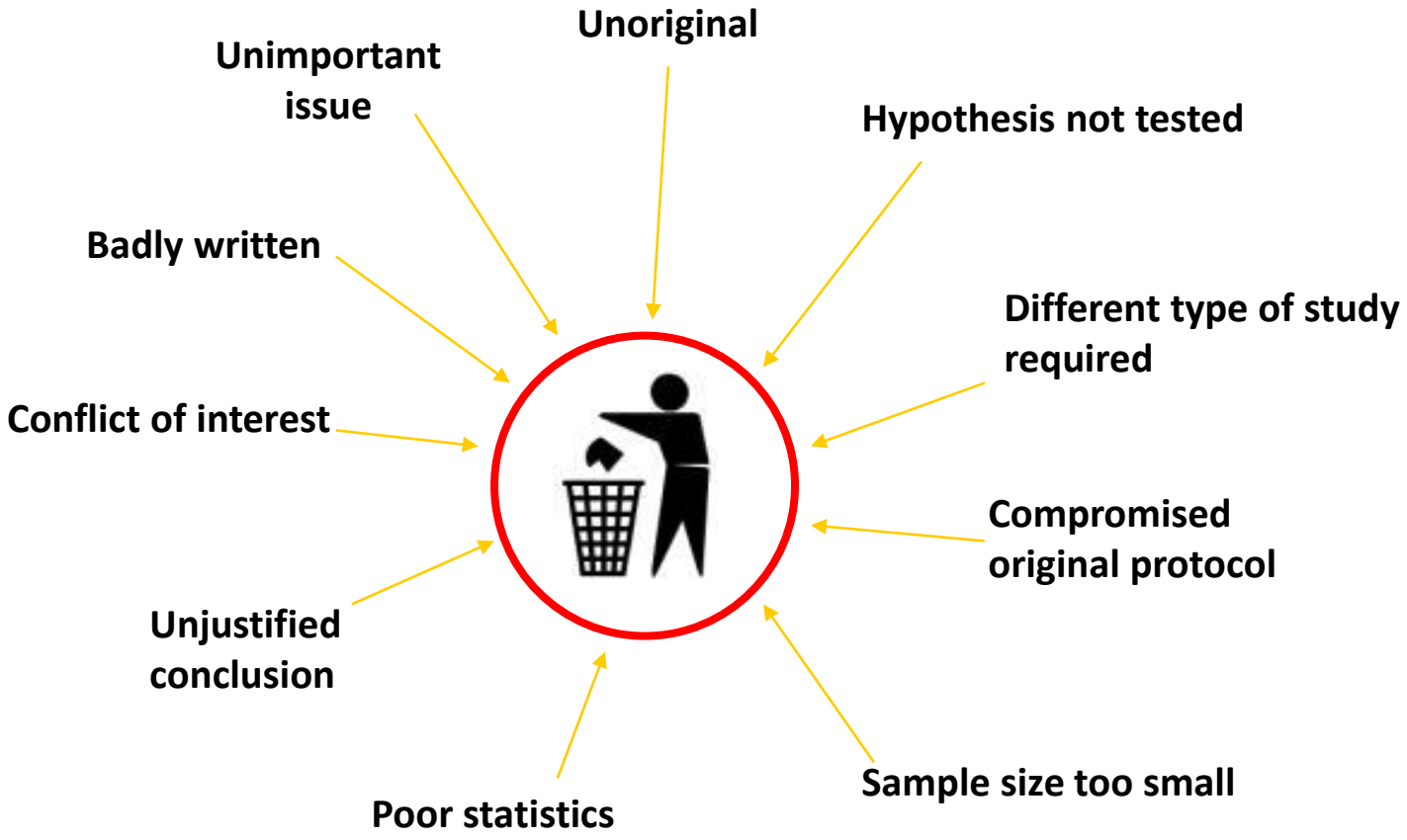
- What is Peer Review? Why should I Review?
- What to consider when I get invitation for a review?
- Where to start review? What is the citeria to use?
- What is Review Forms?
- Which are the different Decisions?
- What is Conflict of Interest?
- What is different types of Reviews?

Peer Review

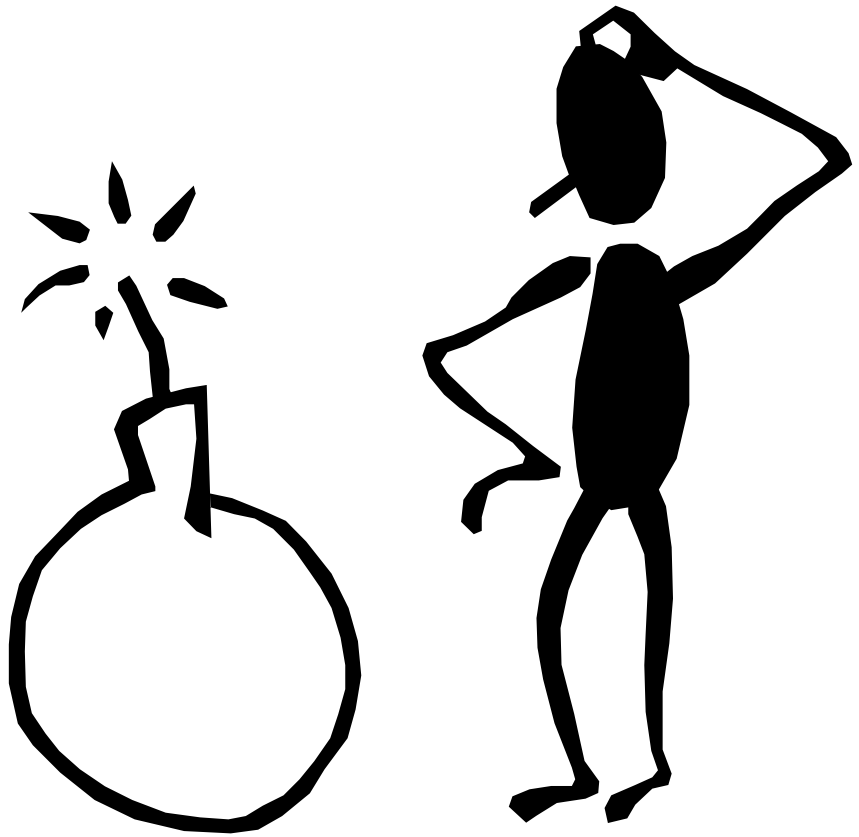
Objectives

- Describe types of peer review.
- Describe principles and policies that guide peer review.
- Given cases, discuss the dilemmas, problems, solutions, and preventive actions associated with peer review issues.
- Commit yourself to being honorable in the peer reviews that you may perform.

The Science of 'Trashing' a Paper



What is Peer Review?



Types of Review

- Reviewer Types:
  1. Reviews done by Specialty → Expert Review
  2. Reviews done by Peers → Peer Review

Definition

- Peer review is an assessment of grant proposal, manuscript or other work by a Peer.

- Peer review is used to make decisions about research funding and dissemination at conferences and peer-reviewed journals.

Goal of Peer Review

- To provide a reliable, honest, unbiased judgment of a work's
  - Importance
  - Quality

- Offer ways to improve the work.

(American Medical Association, 1997)

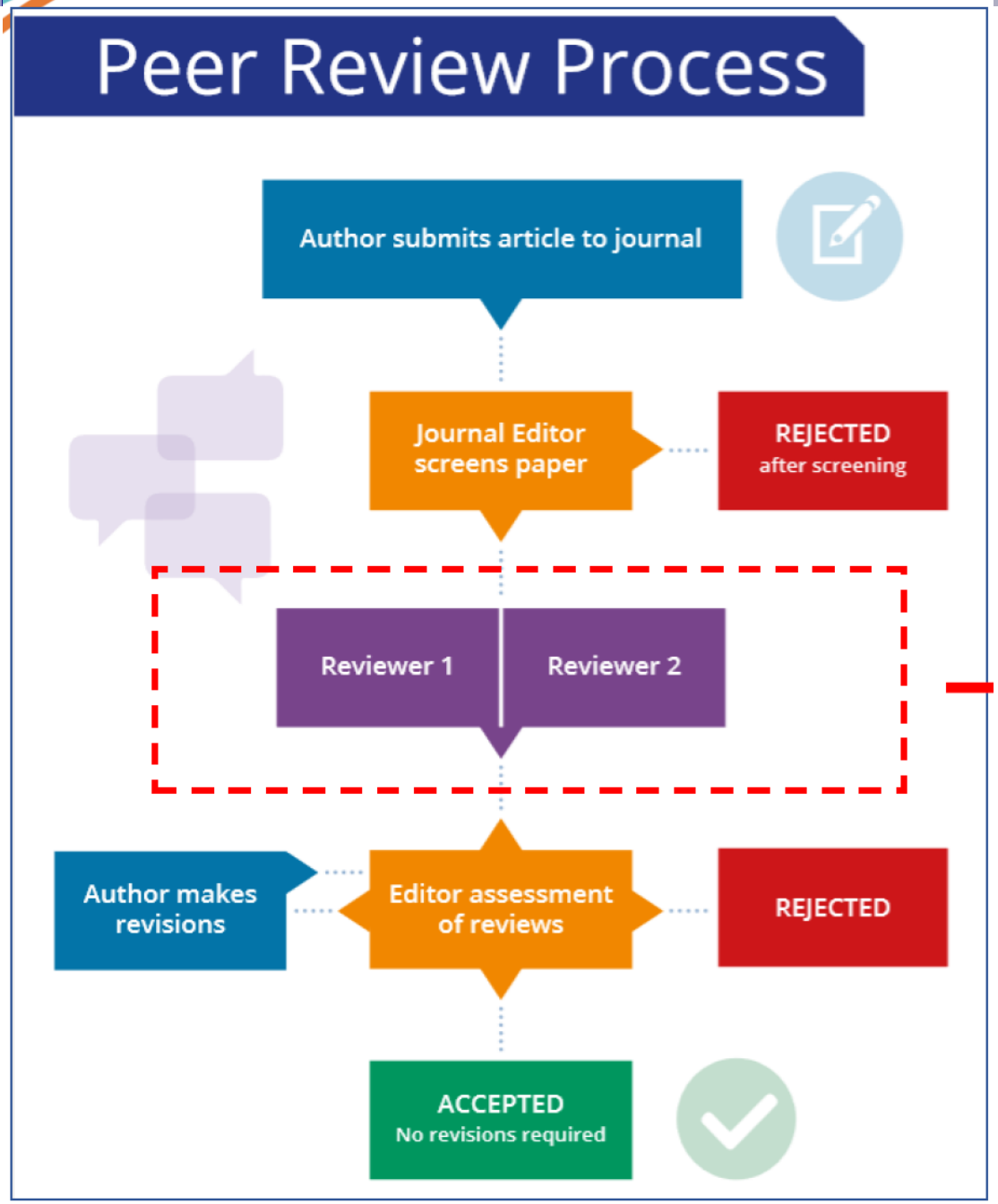
Importance of Peer Review

- “After authors, reviewers are the lifeblood of any journal.”

  Mike J. Smith, Editor-in-Chief, *Journal of Maps*.

- “90% of researchers believed their last paper was improved through peer review.”

  Sense about Science Peer Review Survey 2019



- **Peer Review Process & Journey**

Types of Review

- Single Blind Review
- Double Blind Review
- Open Peer Review
- Transparent Peer Review
- Collaborative Review
- Post Publication Review
- Transferrable (Cascading & Waterfall) Peer Review

Types of Peer Reviews

- **Open**: Authors and reviewer know each others' identities.
- **Single–blinded:** Reviewer knows the authors' identities, but authors do not know the reviewer's identity
- **Double-masked:** Neither reviewer nor authors know each others' identities

Expectations From Reviewers

Editors

- Summarized information on scholarly contribution and the rigorous of conclusions.
- Allow editors to assess the suitability of the article for publication in the journal.

Authors

- Detailed feedback
- Highlight any errors, inconsistent arguments or gaps in literature or reported results
- Assist with making the article more applicable to the journal readership

Readers

- Trusted research integrity of the article
- Ensuring adequately detailed methodology to allow readers to judge the merit of the study design
- Ensuring clarity of argument and/or reliability of conclusions

When You Receive an Invitation for a Review:

Are there any potential conflicts of interest?

Can you complete the review in a timely fashion?

Are you happy with the type of review used by the journal?

When You Receive an Invitation for a Review:

- Accept
  - Meet the deadline
  - Note that it is not a one-off task
- Decline (Indicate the reason)
  - Declare conflicts of interest if any
  - The invitation is not within your subject area
  - Suggest replacement reviewers if you can
- Unavailable
  - Specify when you will be available
  - Editors may get back to you with an extended deadline

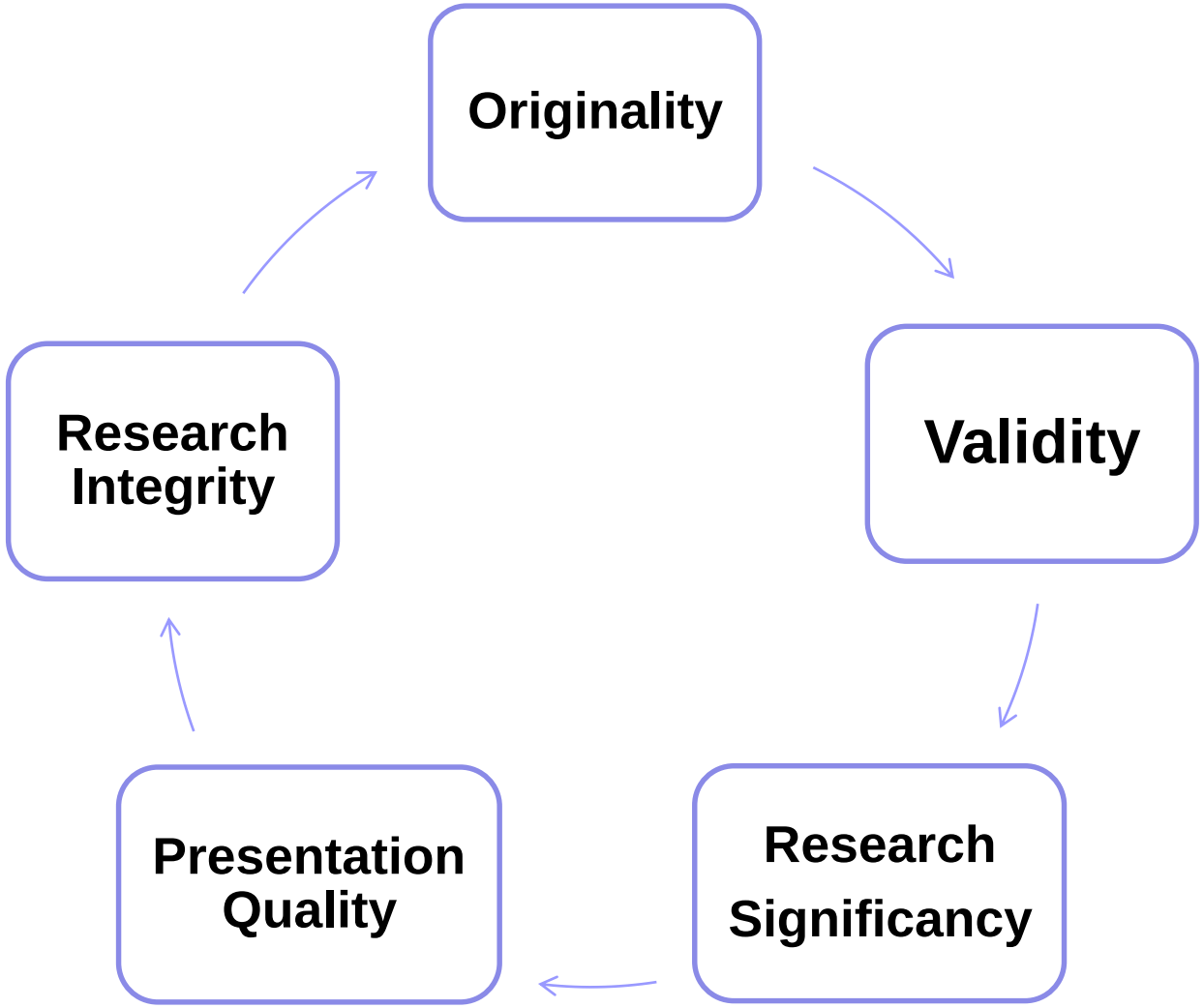
Keep ….

- Consider whether you will be able to review in a timely manner
- Declare any potential conflict of interest before agreeing to review and any relationship that may potentially bias your review
- Keep the peer review process confidential from the moment you get the invitation
- Judge the article on its merits, regardless of race, religion, nationality, sex, seniority, or affiliation of the author(s)

Criteria for a Suitable Reviewer

- Active in the relevant field and/or methodology as judged by their publication records
- Ideally having published more than 10 articles in the past 10 years
- Not too senior, as they are likely to be very busy
- Reviewers should be 'independent' of one another, i.e.
  - Not currently working at the same lab/institution

Peer Reviewers Should Look for:



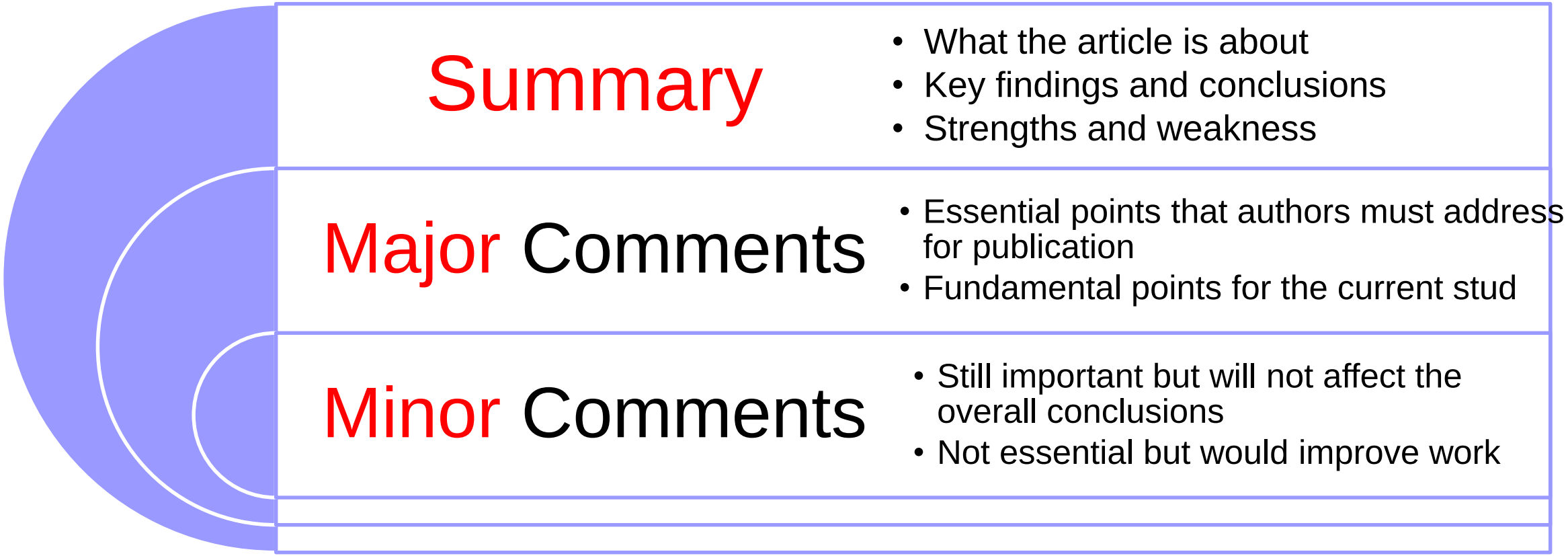
How to make an Effective Peer Review?

- Start by getting an overview of the article
- Consider what is expected from each section of the article
- Note methods/methodology section specifically
- Look carefully at the data or argument presented and consider whether the conclusions are supported
- Start your report with a summary (Make a positive point)
- Make it clear which comments are essential
- Review as you would want to be reviewed
- Be Objective, Specific & Fair enough.

Get an Overview of the Manuscript

- Is it clear what the authors want to communicate?
- Is it reporting original research or is it another type of article?
- What contribution does the article make to the field of study?
- Is the manuscript original?
- Is the overall study design and approach appropriate?
- Are you concerned about the language?

Structure of the Review Report



Detailed Review for Research Articles

- Title
- Abstract
- Introduction
- Methods
- Results
- Discussion and conclusion
- Tables and figures
- References

Title

- Does it express clearly what the manuscript is about?
- Does it highlight the importance of the study?
- Does it contain any unnecessary description?
- Does it contain unacceptable abbreviations?
- Dose it contain the study type when necessary?
- Is it short & concise?

Abstract

- Is it a short and clear summary of the aims, key methods, important findings and conclusions?
- Does it include enough information to stand alone?
- Does it contain unnecessary information?
- Does it comply with the journal requirement on being structured/unstructured abstracts?

Introduction

- Does it clearly summarize the current state of the topic?
- Does it address the limitations of current knowledge in this field?
- Does it clearly explain why the study was necessary?
- Does it clearly define the aim of the study and is this consistent with the rest of the manuscript?
- Is the research question clear and appropriate?

Methods

- Are the study design and methods appropriate for the research question?
- Is there enough detail to repeat the experiments?
- Is it clear how samples were collected or how participants were recruited?
- Is there any potential bias in the sample or in the recruitment of participants?
- Are the correct controls/ validation included?
- Are any potential confounding factors considered?
- Has any randomization been done correctly?
- Is the time-frame of the study sufficient to see outcomes?
- Is there sufficient power and appropriate statistics?
- Do you have any ethical concerns?

Results

- Are the results presented clearly and accurately?
- Do the results presented match the methods?
- Have all the relevant data been included?
- Is there any risk of patients or participants being identified?
- Is the data described in the text consistent with the data in the figures and tables?

Discussion and Conclusion

- Do the authors logically explain the findings?
- Do the authors compare the findings with current findings in the research field?
- Are the implications of the findings for future research and potential applications discussed?
- Are the conclusions supported by the data presented?
- Are any limitations of the study discussed?
- Are any contradictory data discussed?

Tables and Figures

- Are data presented in a clear and appropriate manner?
- Is the presentation of tables and figures consistent with the description in text?
- Do the figure legends and table headings clearly explain what is shown?
- Do the figures and tables include measures of uncertainty, such as standard error or confidence intervals, where required as well as the sample size?
- Do you have any concerns about the data manipulation?

References

- Are there any key references missing?
- Do the authors cite the initial discoveries where suitable?
- Are there places where the authors cite a review but should cite the original paper?
- Do the cited studies represent current knowledge?

Final Checks before Sending the Review Report

- Have you given a brief summary of the article and highlighted the key messages?
- Have you given positive feedback as well as constructive criticism?
- Have you made it clear which of your concerns are major (significant points, essential for publication) or minor (smaller issues, may not be essential for publication)?
- Are your concerns specific, with examples where possible?
- Have you numbered your comments and referred to page/ line numbers in the article to make it easy for the authors to address your points?

Final Checks before Sending the Review Report

- Is your feedback constructive, and focused on the research?
- If you were the authors, would you understand how to improve the manuscript?
- If you were the Editor, would the comments be detailed enough to help you make a decision?
- Have you checked the spelling and grammar in your report?
- Have you included your comments in the correct places in the online system – checking that any confidential comments for editors are in the right place – and have you answered all the questions?

Reviewer Bias

- Free of any Potential Bias, i.e.
  - No co-publications with an author/submitter of the submitted manuscript/proposal in the last 5 years
  - Not currently or recently affiliated at the same center as an author
  - Not excluded by the authors
  - Not known to have particularly strong views or opinions on the topic, unless this can be balanced by additional reviewers

Peer Review Demands Six Things

- **Competence**: Decline to review a work if you are not expert
- **Control for any bias**: Bring any real or apparent, potential, or real conflicts of interest or biases to the attention of the editor or funder
- **Promptness**: Perform a prompt review
- **Confidentiality**: Keep all aspects of the review confidential. Do not even disclose that you have performed a review on a specific topic.
- **Security:** Do not use a reviewed work as a private source of information.
- **Constructive Criticism:** Suggest ways to improve the work.

How Editors Select Reviewers?

- Knowledge of research field
- Searches of journal submission system
- Searches of published literature
- Authors suggestion on submission
- Article references
- AI tools

Conflict of Interest

What is Conflict of Interest?

- Conflict of interest is a set of conditions in which professional judgement concerning a primary interest (such as patients' welfare or the validity of research) tends to be unduly influenced by a secondary interest (such as financial gain).

- Thompson DF. Understanding financial conflicts of interest. N Engl J Med 1993; 329: 573-576

What is Conflict of Interest?

- Conflict of interest is a **condition** not a **behaviour**.
- Having a conflict of interest is not, in and of itself, evidence of wrong doing
- For many professionals, it is virtually impossible to avoid conflicts of interest from time to time

- Reviewers?!

Conflict of Interest

- Possibility from the perspective of an *independent* observer that an individual's private financial interest or family's interests may influence professional actions, decisions, or judgment
  - Not possible or desirable to eliminate
  - Need to manage

What should we do?

- In case of conflicting interests, one should declare.

- You might want to disclose any sort of competing interest that would embarrass you if it became generally known after publication

Why authors don't declare conflicts of interest?

- Some journals don't require disclosure
- The culture is one of not disclosing
- Authors think that it's somehow "naughty"
- Authors are confident that they are not affected by conflicts of interest

- What about reviewers?!

Conflict of Interest Within Journals

- Acceptance of a particular study may be accompanied by a reprint order of more than a million dollars. It's not difficult to tell which studies might produce such an order. Does this influence the decision on which studies to publish?
- Few (if any) journals publish the competing interests of their editors, editorial board, and management team and board

Conclusions

- Concern about conflict of interest is not just political correctness
- Conflict of interest has an important impact on the information reaching health professionals and the public and on patient care
- Conflict of interest is very common in medicine

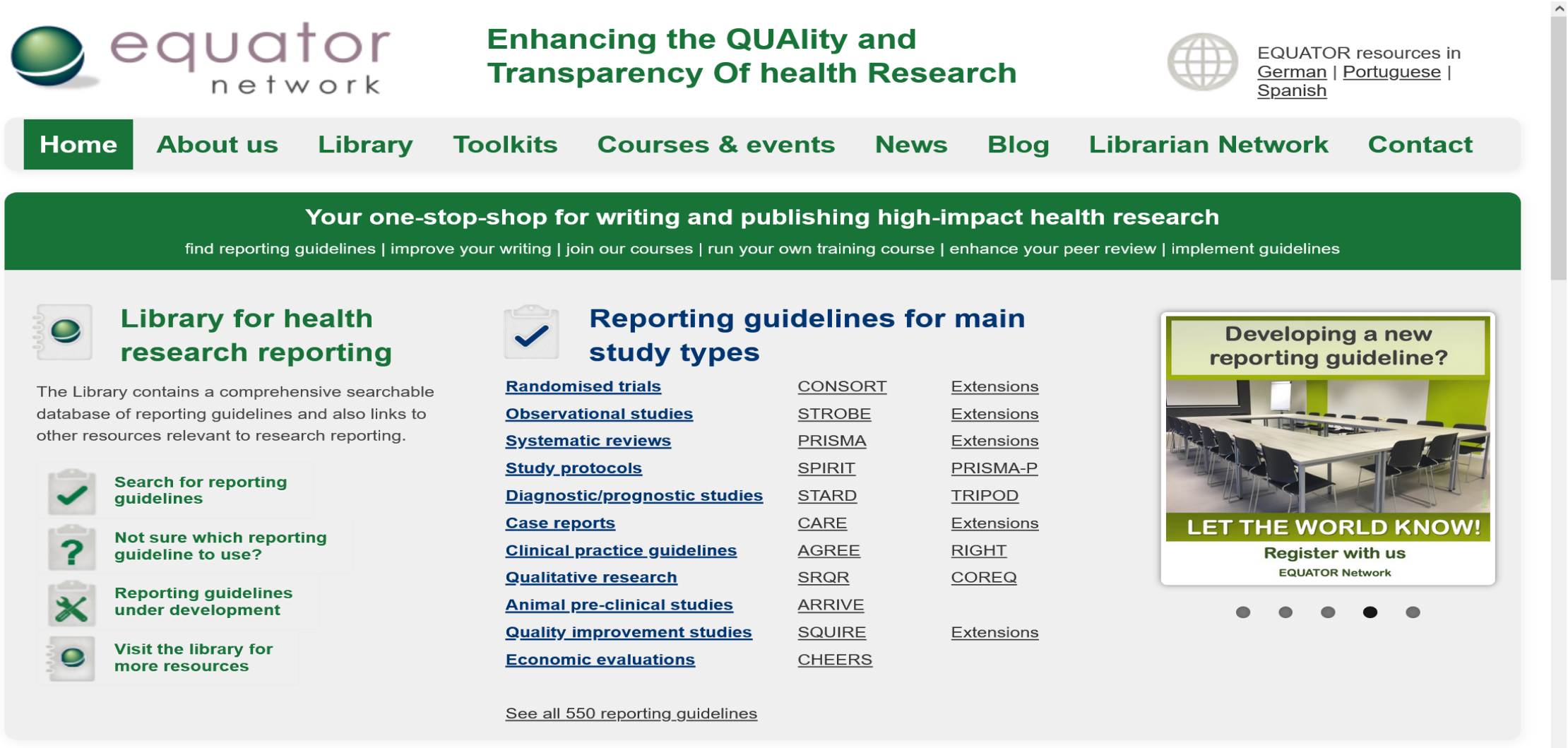
Editorial Decision

An editorial committee may decide that a paper:

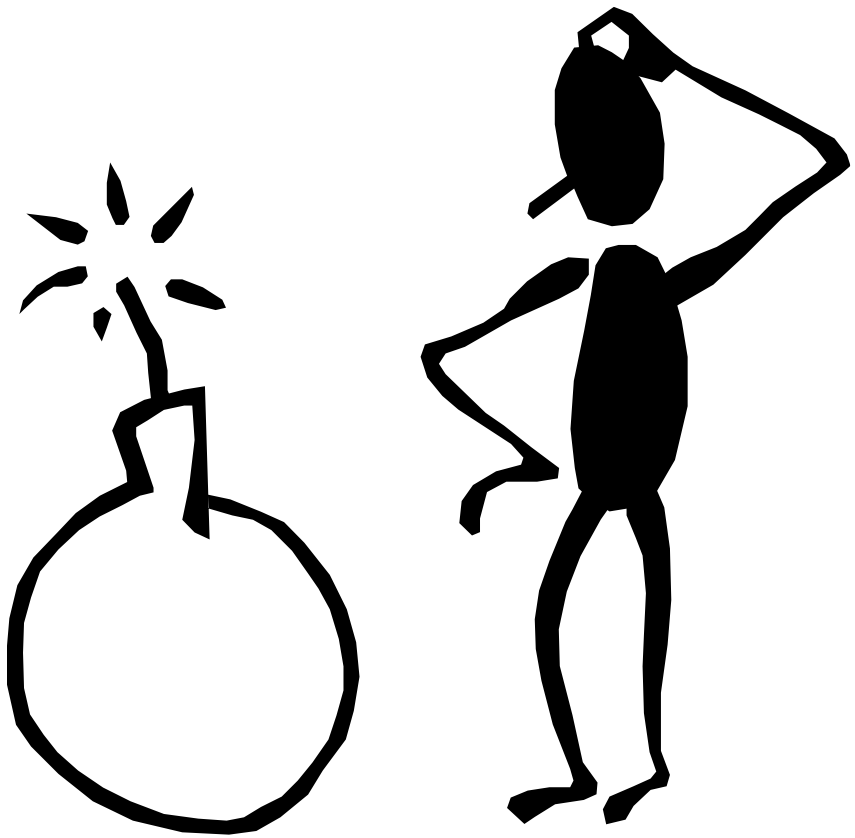
- Is acceptable for publication
- Is acceptable for publication following minor revisions
- Is acceptable for publication following major revision
- May be reconsidered for publication following major revisions
- May be considered for publication as a letter or a short report
- Is unacceptable for publication

Enhancing the Quality and Transparency Of Health Research

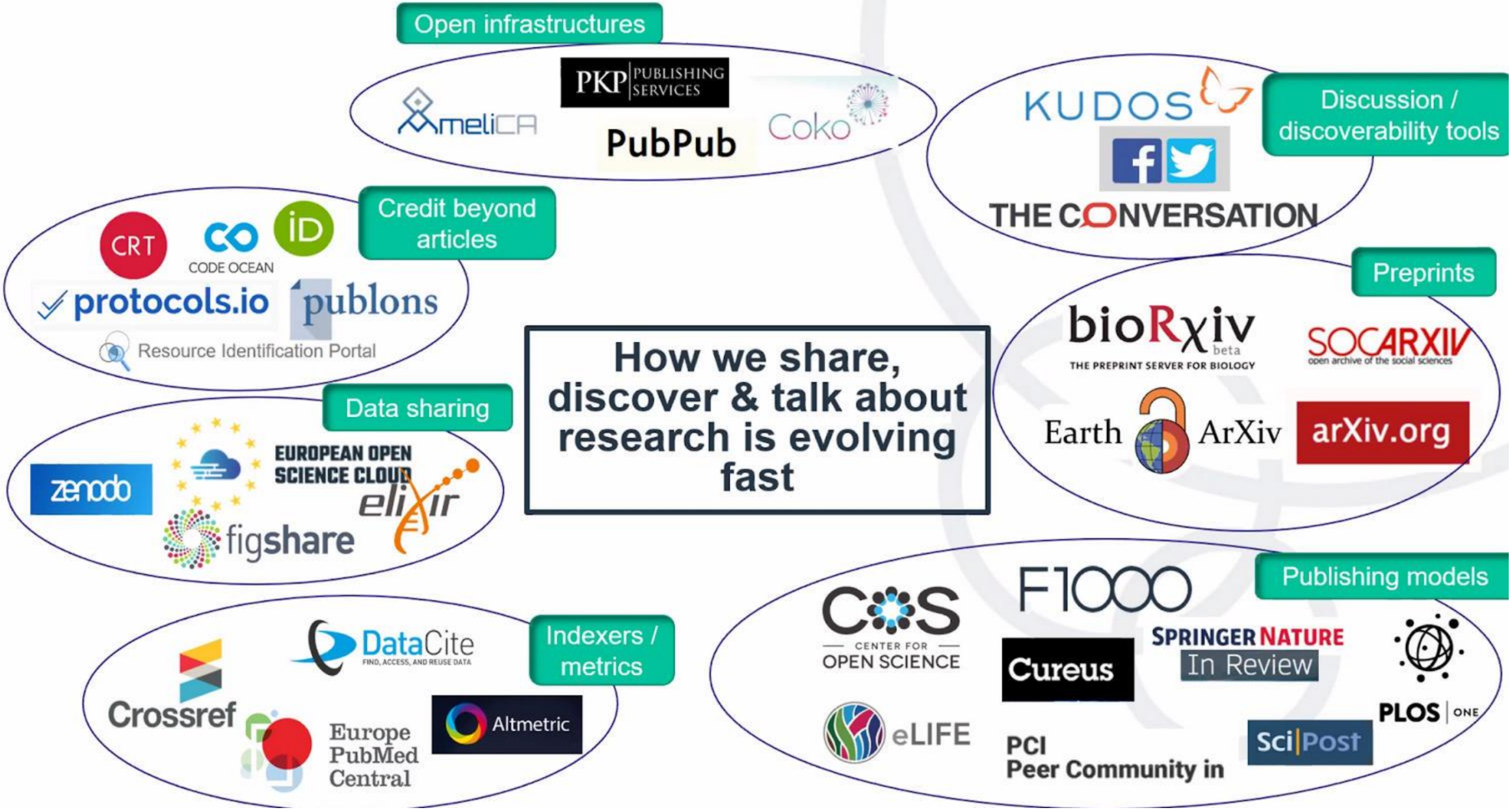
https://www.equator-network.org/



Was it clear enough !



Whats New in Science Publishing?


Open infrastructures
PKP PUBLISHING SERVICES
meliCA
PubPub
Coko
Discussion / discoverability tools
KUDOS
THE CONVERSATION
Credit beyond articles
CRT
CODE OCEAN
iD
protocols.io
publons
Resource Identification Portal
How we share, discover & talk about research is evolving fast
Preprints
bioRxiv
THE PREPRINT SERVER FOR BIOLOGY
SOCARXIV
open archive of the social sciences
Earth ArXiv
arXiv.org
Data sharing
zenodo
EUROPEAN OPEN SCIENCE CLOUD
elixir
figshare
Publishing models
COS
CENTER FOR OPEN SCIENCE
F1000
Cureus
SPRINGER NATURE
In Review
PLOS ONE
eLIFE
PCI
Peer Community in
SciPost
Indexers / metrics
DataCite
FIND, ACCESS, AND REUSE DATA
Crossref
Europe PubMed Central
Altmetric

New Changes in
Research Publishing Lifecyle

We need transparency and accountability throughout the research and publishing lifecycle:

- Open research practices: preprinting; ORCID; CRediT; data sharing; Registered Reports; transparency in peer review, Open Research Badges => “Trust signals”

Preprinting

ORCID
Connecting research and researchers

Open Data

GO FAIR

Open Research Badges

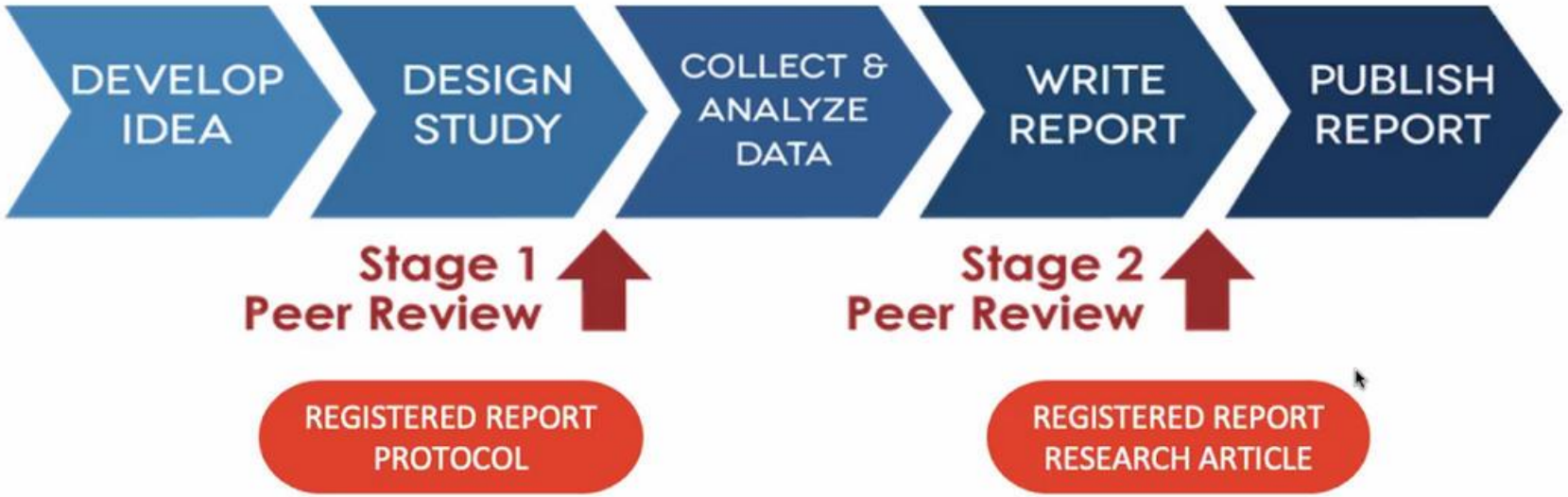
CRediT
Contributor
Roles Taxonomy

CRT

Transparency
in peer review

Registered Reports

Open Research: Registered Reports



COS
CENTER FOR OPEN SCIENCE

https://cos.io/rr/

>200 journals have adopted registered reports including *PLOS ONE* and *PLOS Biology*

PLOS

Outline

- What are preprints?
- What are the benefits of preprints?
- The history of preprints and their place in the biological sciences.
- Common community questions about preprints.
- What to consider before you post a preprint.
- How to search the preprints literature.

Preprint Servers

- "Preprints" are preliminary versions of scientific manuscripts that researchers share by posting to online platforms known as preprint servers before peer-review and publication in an academic journal.

- Preprint servers are **publicly available online archives that host preprints and their associated data**.

Background and Rationale

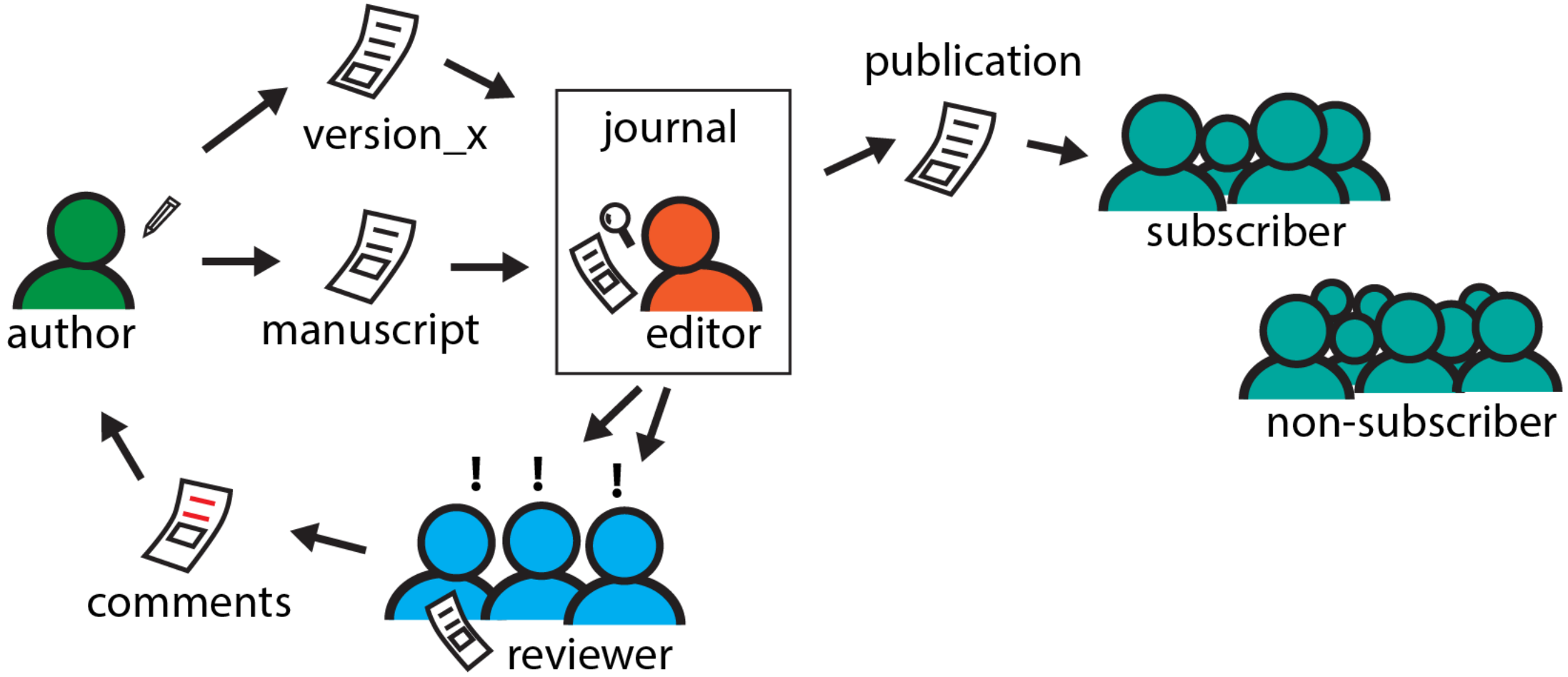
- The traditional academic publishing process is known to be time-consuming and, in some cases, slow.

- Preprints have started becoming more widespread in a number of disciplines over the past few years to partly address this and allow authors to share their work ahead of formal publication. Publishers, among other stakeholders, have picked up on this emerging trend.

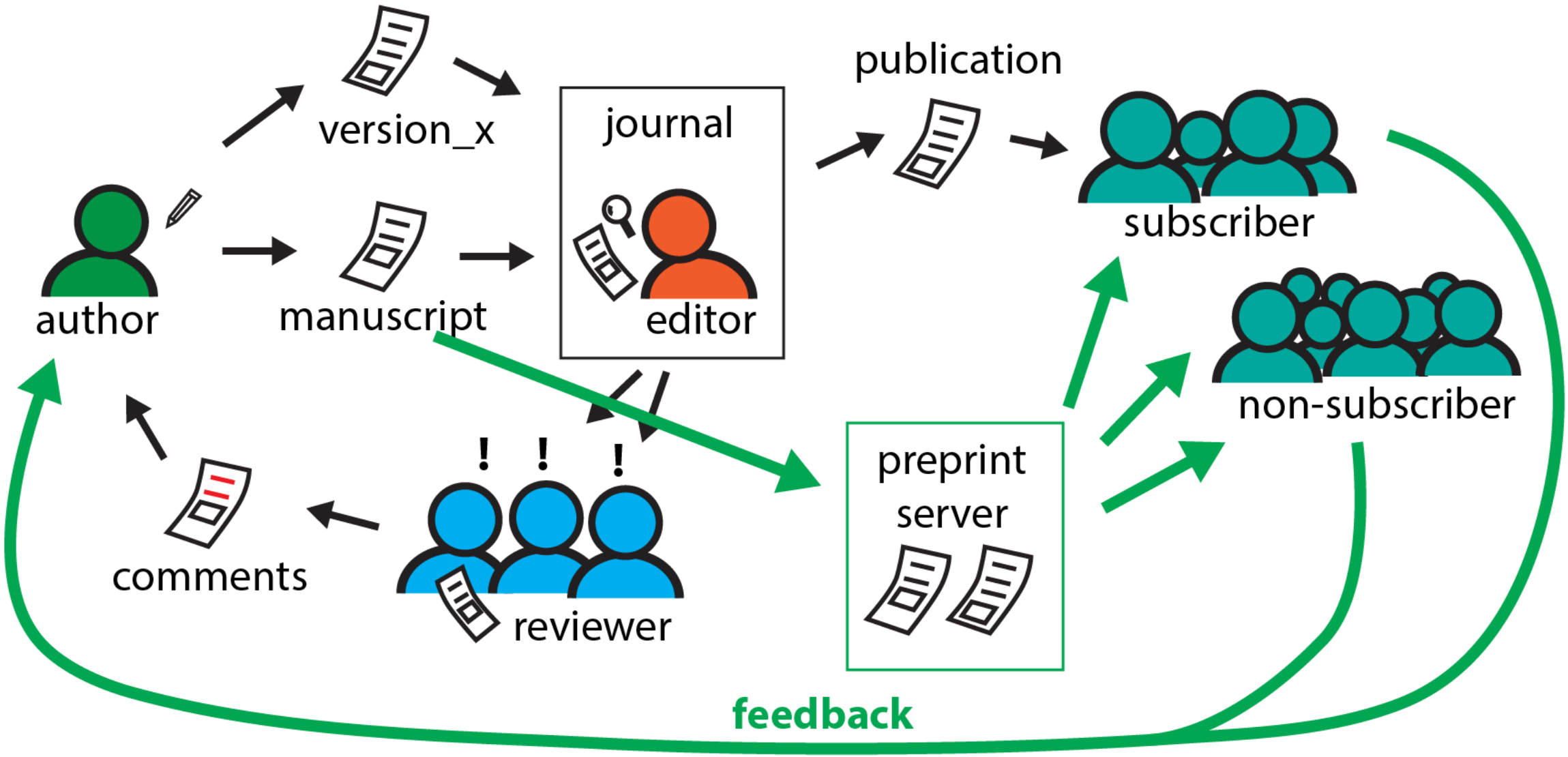
Sources: http://www.knowledge-exchange.info/event/preprints, https://www.elsevier.com/connect/elsevier-research-futures-report

The History of Preprints

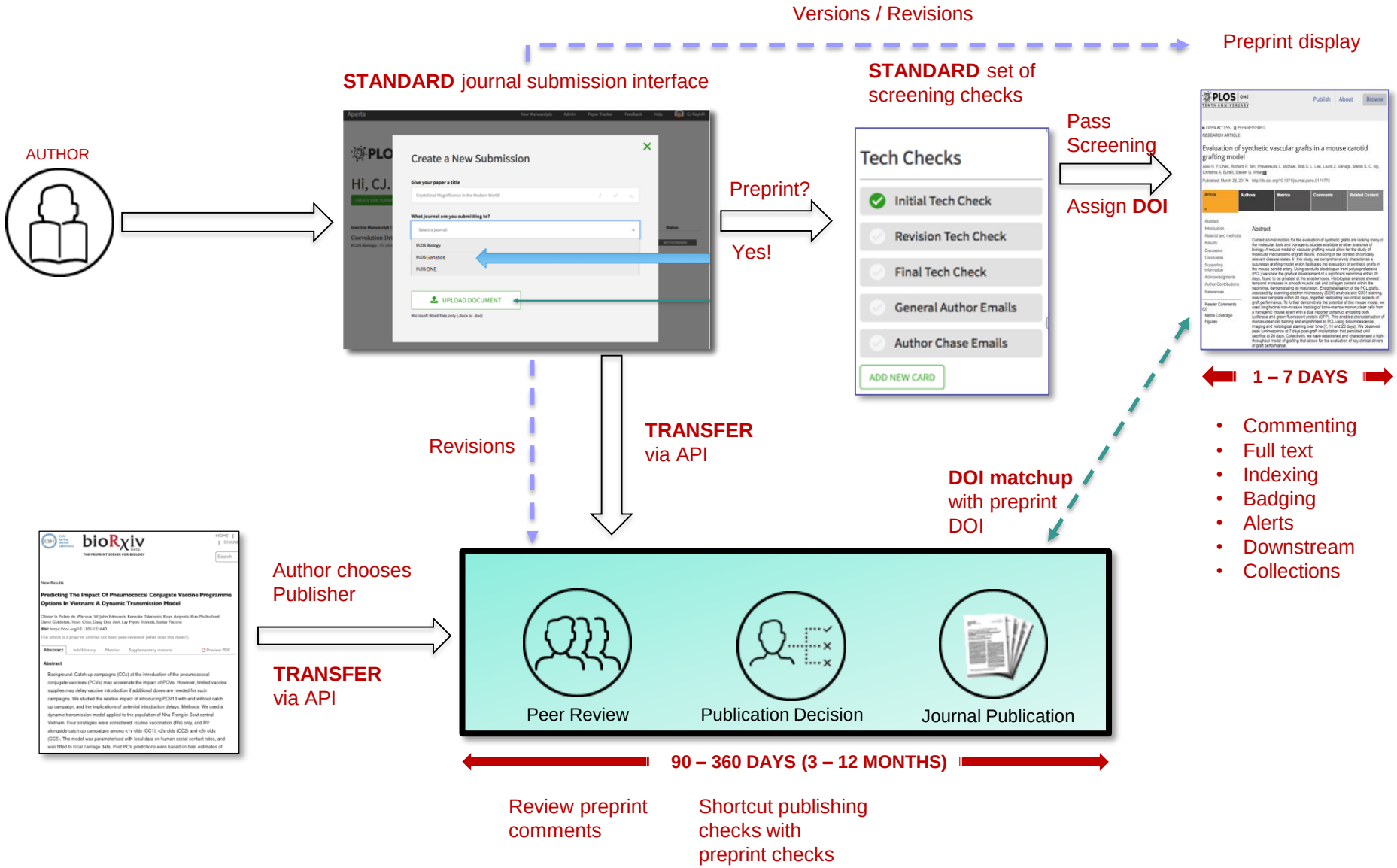
Publication Pathway(s)



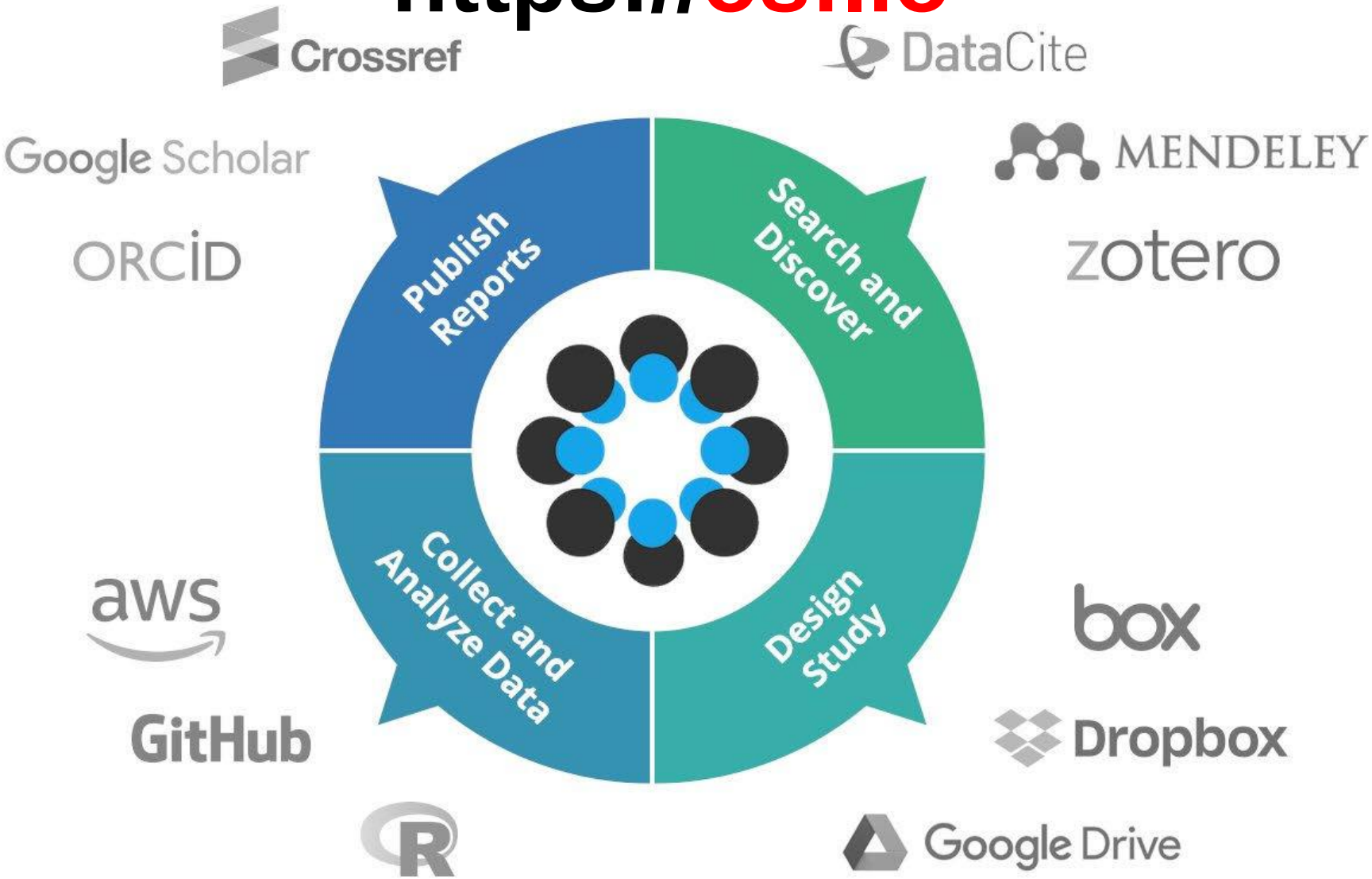
Publication Pathway(s) with Preprints



Publisher Driven Preprints Model



Open Science Framework (OSF)
https://osf.io



Preprints are:

- **Free** to Submit
- **Fast** to Publish
- **Open** Access
- **Established** In Many Natural Sciences

You should consider submitting a preprint if:

- You are seeking to **communicate** your scientific findings **without delay**
- You want **everyone** to have **access** to your work
- You want **feedback** on your work from the **community**
- You want to publish **larger datasets**
- You may want to **Accelerate** Progress with **Early Sharing**
- You may able to create direct links to audio, video, references, or data.

Additional Benefits

- Save author time
  - One submission can be a preprint and an article
  - Articles can be transferred to other journals through standard manuscript transfer protocols
- Add “conversations” to the record
  - Include preprint checks, open reviews, comments
- Save publisher time
  - Avoid duplication of effort
  - Speed decision through transparency

Preprint Servers

- https://arxiv.org
- https://www.biorxiv.org
- https://chemrxiv.org
- https://mediarxiv.org
- https://zenodo.org
- https://www.researchsquare.com

https://asapbio.org/preprint-servers

Research Square

https://www.researchsquare.com

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