



GETTING UP TO SPEED WITH PREPRINTS: WHERE WE CAME FROM, WHERE WE ARE NOW

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Outline

- A brief history of preprints
- The current growth of preprints
- Integration of preprints into the scholarly communication ecosystem
- The potential of preprints



Disclosures: John Inglis PhD

Cold Spring Harbor Laboratory

- Professor
- Executive Director and Publisher, Cold Spring Harbor Laboratory Press
- Executive Committee Member and Academic Mentor, School of Biological Sciences
- Co-founder, bioRxiv and medRxiv

External positions

- Director, Life Science Alliance LLC
- Advisory Board Member, MIT Press
- Advisory committee member, The Royal Society

Grants

- Gates Foundation: funding for *You, Me, and HIV* education project in South Africa
- Solebury Trout LLC: financial support for *A Cure Within*
- Flowers Foundation: financial support for *Malaria: Biology in the Era of Eradication*
- Chan Zuckerberg Initiative: major support for bioRxiv



Definitions

Preprint (n):

a research manuscript its authors choose to distribute before its acceptance by a journal

Preprint server (n):

a website dedicated to the distribution of preprints



A brief history of preprints

- Informal sharing by snail mail
- NIH Information Exchange Groups 1960-1967
- Email sharing of physics preprints by Joanne Cohn in 1990' s
- Not-for-profit arXiv launched in 1991 at Los Alamos Laboratory
- Social Science Research Network, founded 1994, acquired by Elsevier 2016
- ClinMed Netprints (1999 – 2005)
- Nature Precedings 2007-2013
- bioRxiv and PeerJ Preprints launched 2013
- Open Science Framework hosts multiple servers including SocArxiv, PsyArxiv, EarthArxiv, and several regional servers, beginning in 2014
- ESSOAr launched 2018
- Journals exposing manuscripts under consideration
 - F1000Research
 - Cell Press Sneak Peek
 - Springer Nature In Review

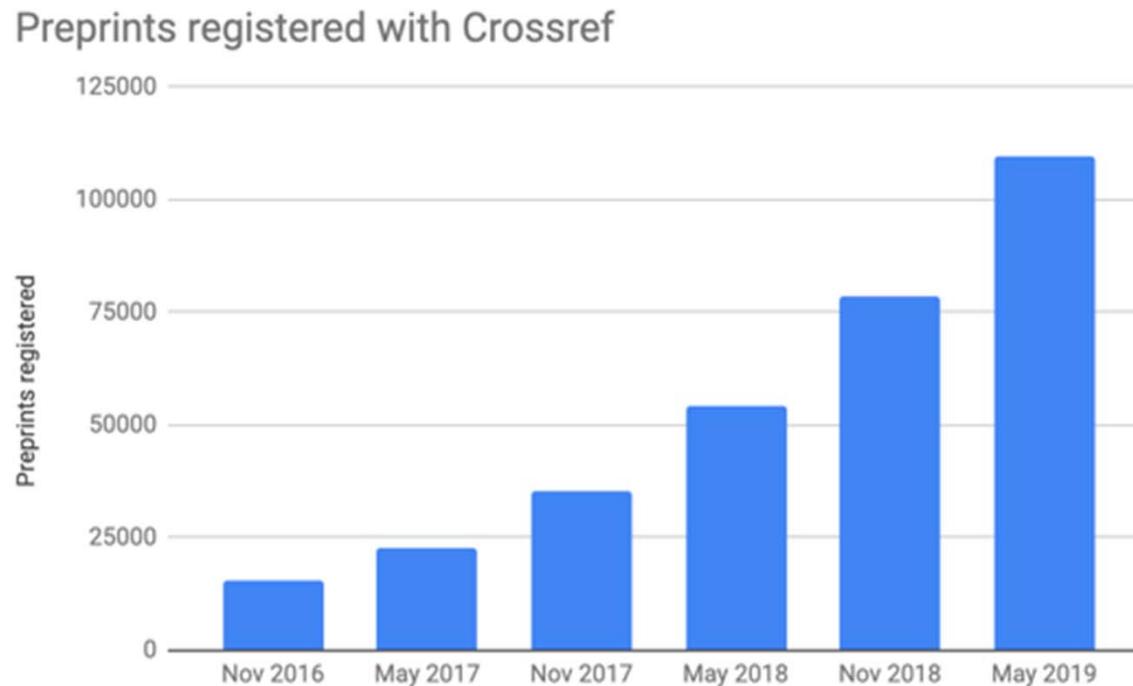


Preprint servers are proliferating





Preprint volume across disciplines is growing



Volume has doubled in each of the past 2 years, compared with 2-3% for articles

Source: Jennifer Lin, CrossRef



bioRxiv: a server for life science preprints



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bioRxiv

THE PREPRINT SERVER FOR BIOLOGY

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Neuroscience

Plant Biology
Physiology
Pharmacology and Toxicology
Physiology
Plant Biology
Scientific Communication and Education
Synthetic Biology
Systems Biology
Zoology

View by Month

Partly supported by  CHAN ZUCKERBERG INITIATIVE

- 6 years old
- Free, not-for-profit service of Cold Spring Harbor Laboratory
- Hosted by HighWire Press
- Publisher-neutral
- Supported by  CHAN ZUCKERBERG INITIATIVE
- 50,000 manuscripts
- 2400 new submissions/mo
- 232,000 authors, 14k institutions
- 5m page views + downloads/mo
- Now full-text HTML/XML

medRxiv: a server for health science preprints



- Like bioRxiv conceptually and technologically
- Not-for-profit
- Publisher-neutral
- Owned and operated by CSH Laboratory
- Managed in partnership with Yale University and BMJ
- Launching June, 2019



Practice variations among preprint servers

- Submission requirements
- Permitted article types, including postprints
- License choices
- Screening procedures
- Links to external data/published versions
- Withdrawal and removal procedures



Integration of preprints into the communication ecosystem

- Direct submission to preprint server from journals
- Direct submission from preprint server to journals
- Forward linking of preprints to published versions
- Backward linking of published papers to preprint versions
- Assembly of all versions of papers by Google Scholar
- Combined indexing of preprints and published papers by Meta



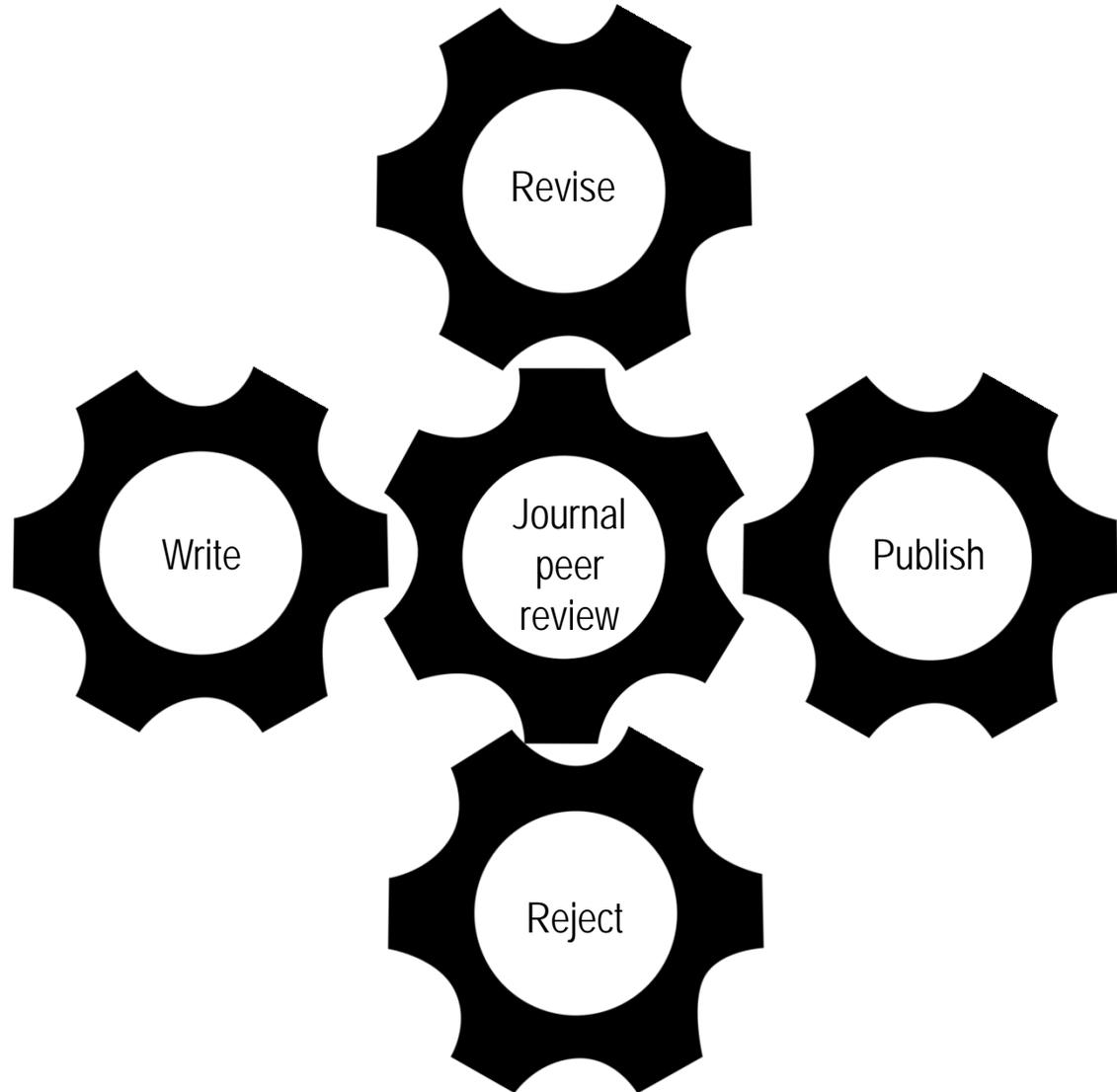
The possibilities of preprints: Plan U

- Preprint servers provide free access to research findings at low cost
- By disseminating manuscripts from the slower process of evaluation and certification by journals, preprints significantly accelerate the pace of research
- If all funding agencies mandated posting of preprints by grantees—an approach we term Plan U (for “universal”)—free access to the world’s scientific output for everyone would be achieved with minimal effort
- And the existence of all articles as preprints would allow experimentation with new peer review and research evaluation initiatives, in which hosting and archiving costs are already covered

Sever, Eisen, and Inglis (2019) in press

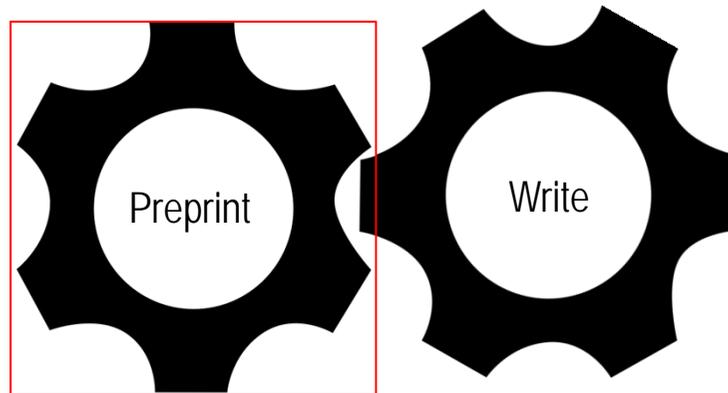


Research evaluation: relies on journal peer review



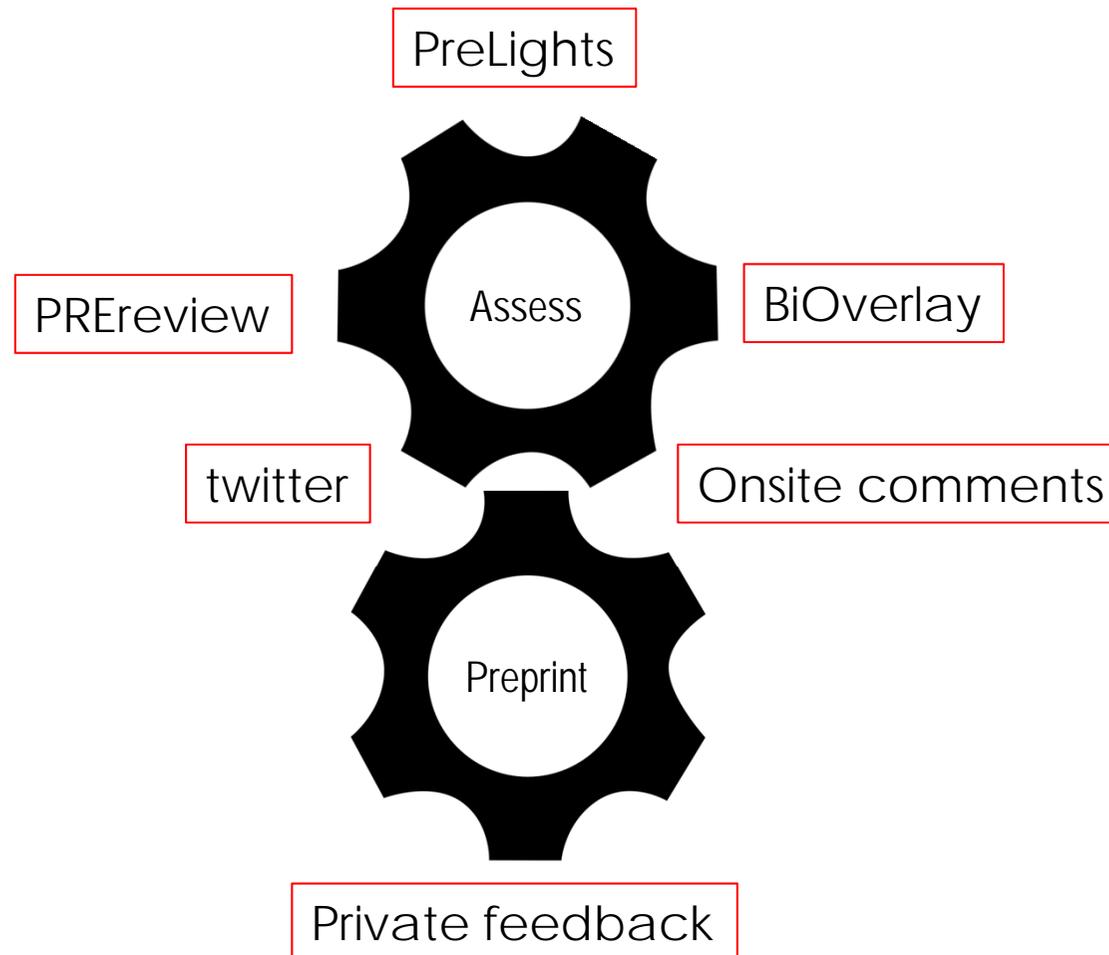


Preprints enable new forms of research evaluation



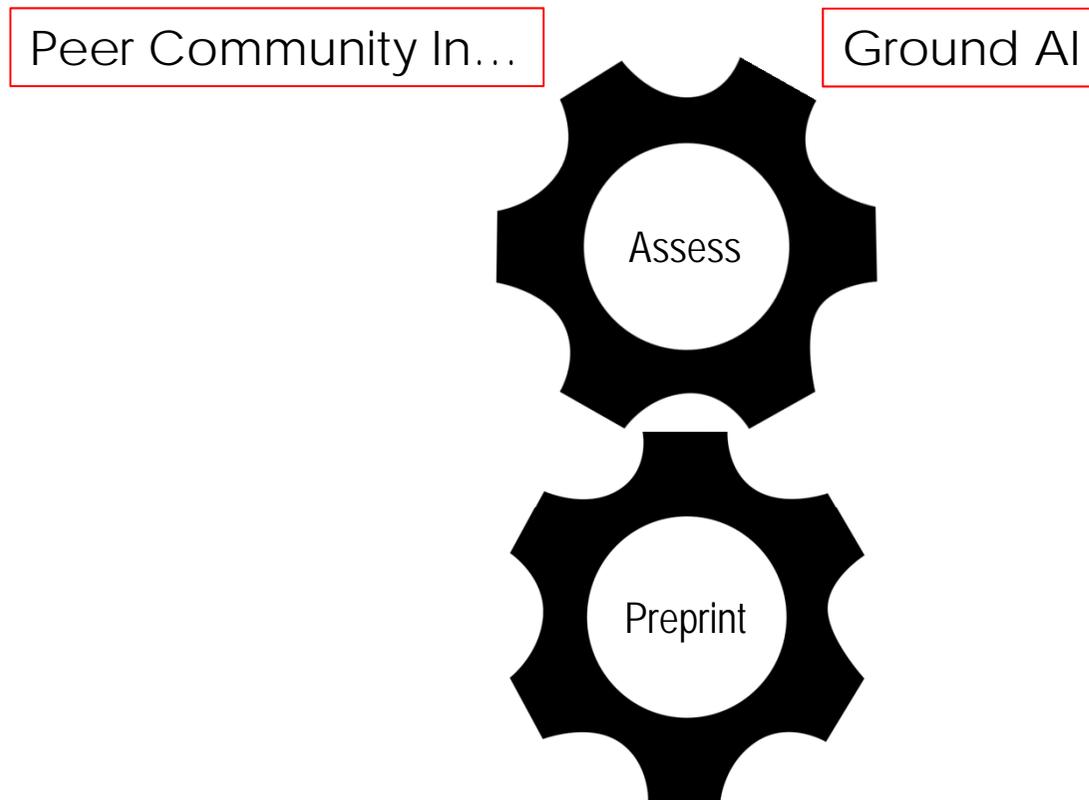


Preprint assessment – unsolicited

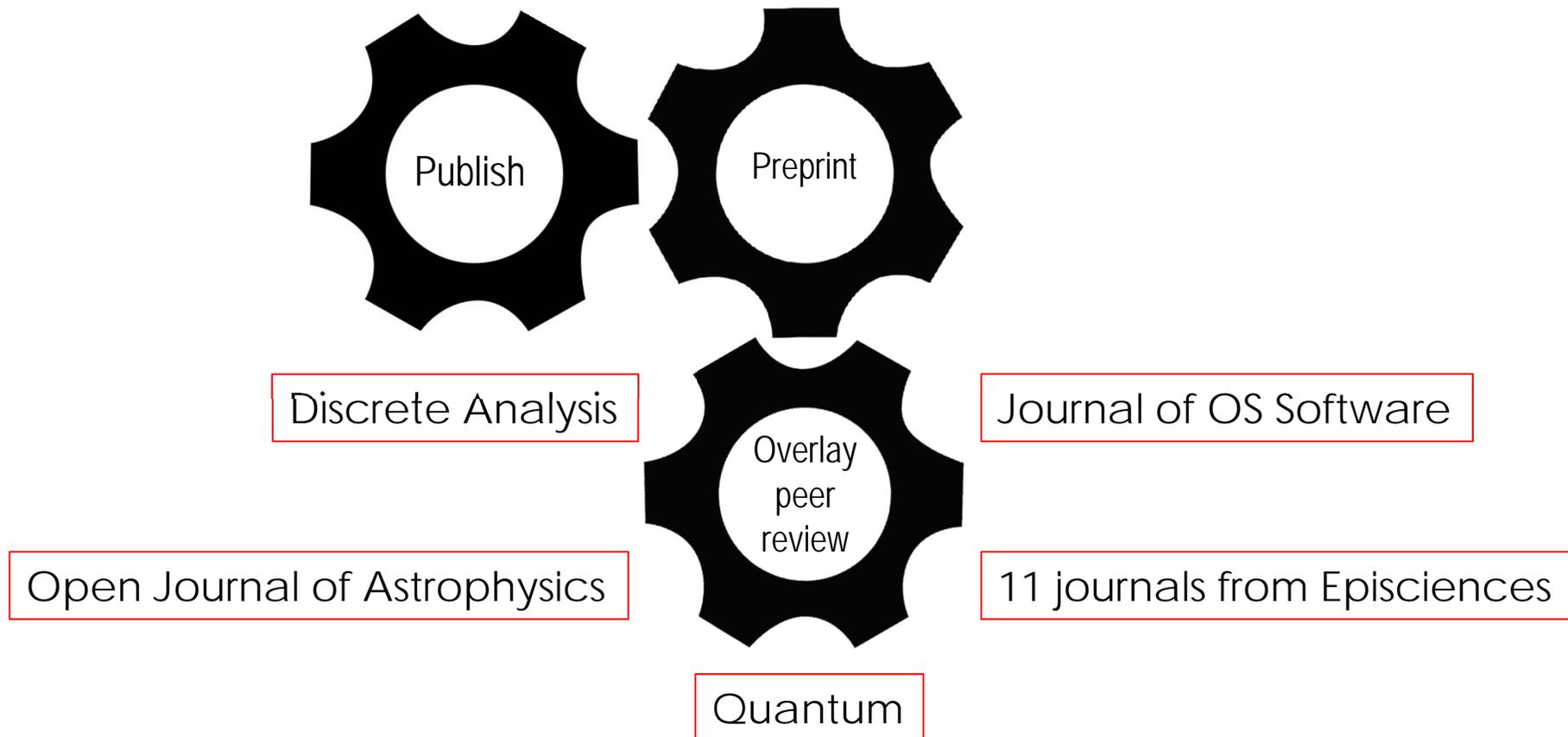




Preprint assessment – author-solicited

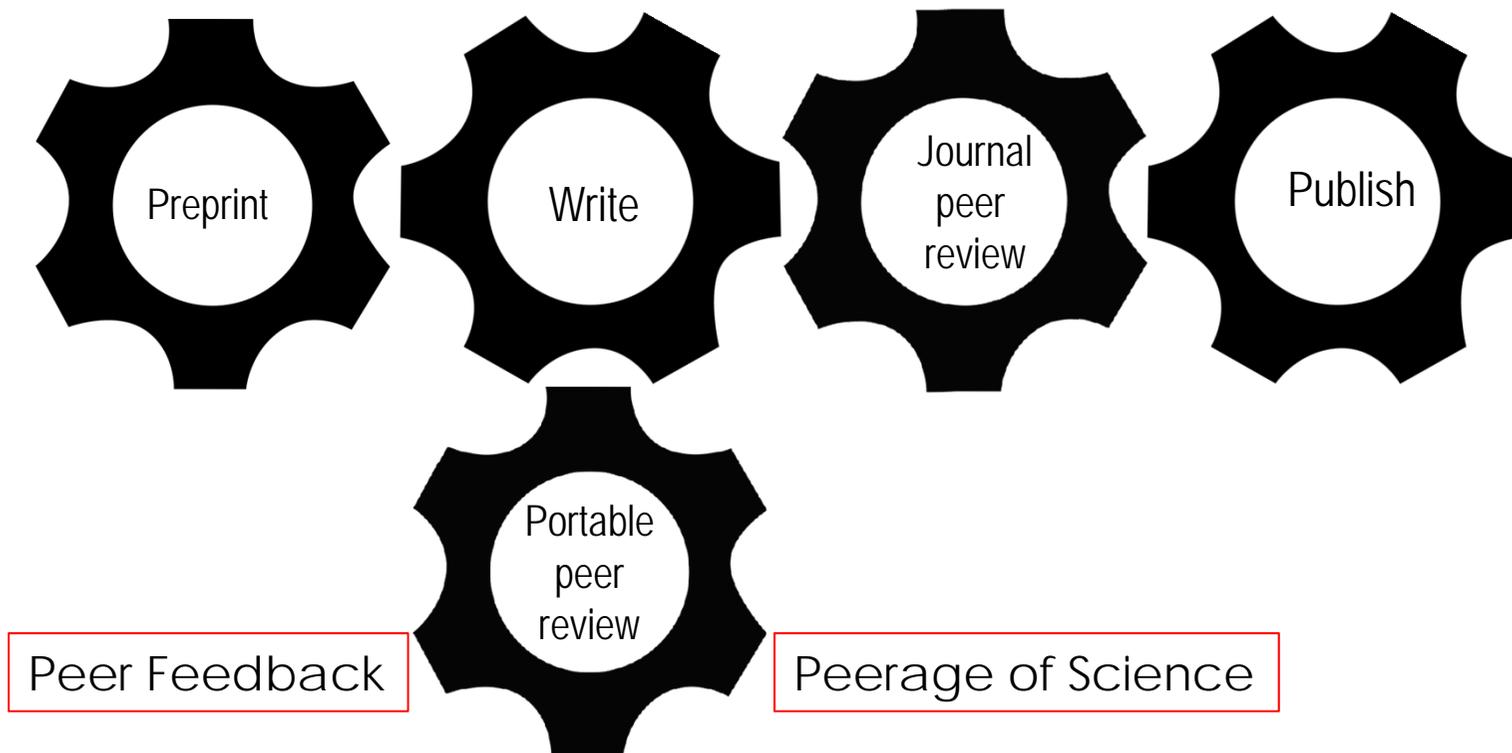


Preprint peer review followed by publication



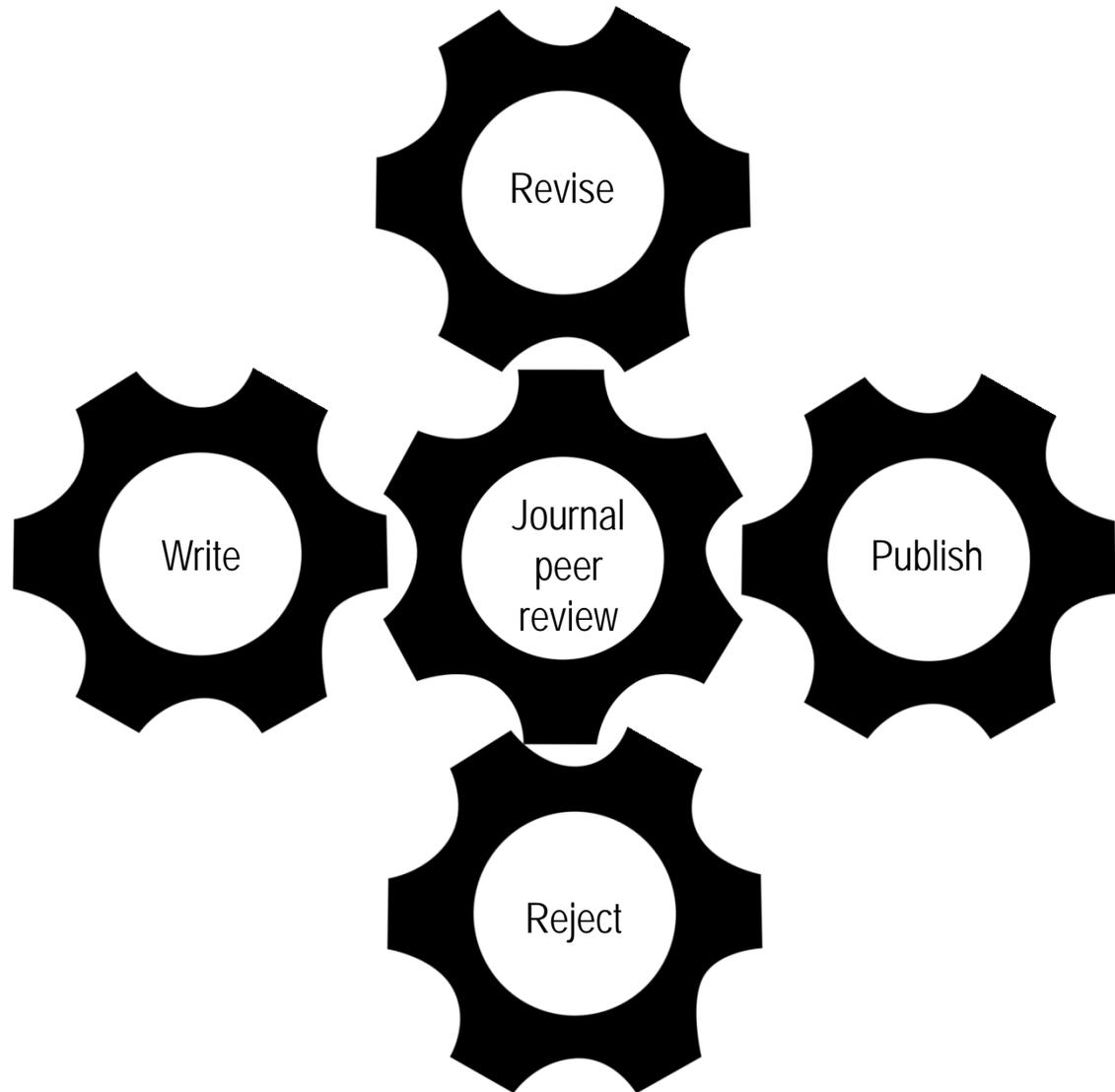


Journal-independent peer review



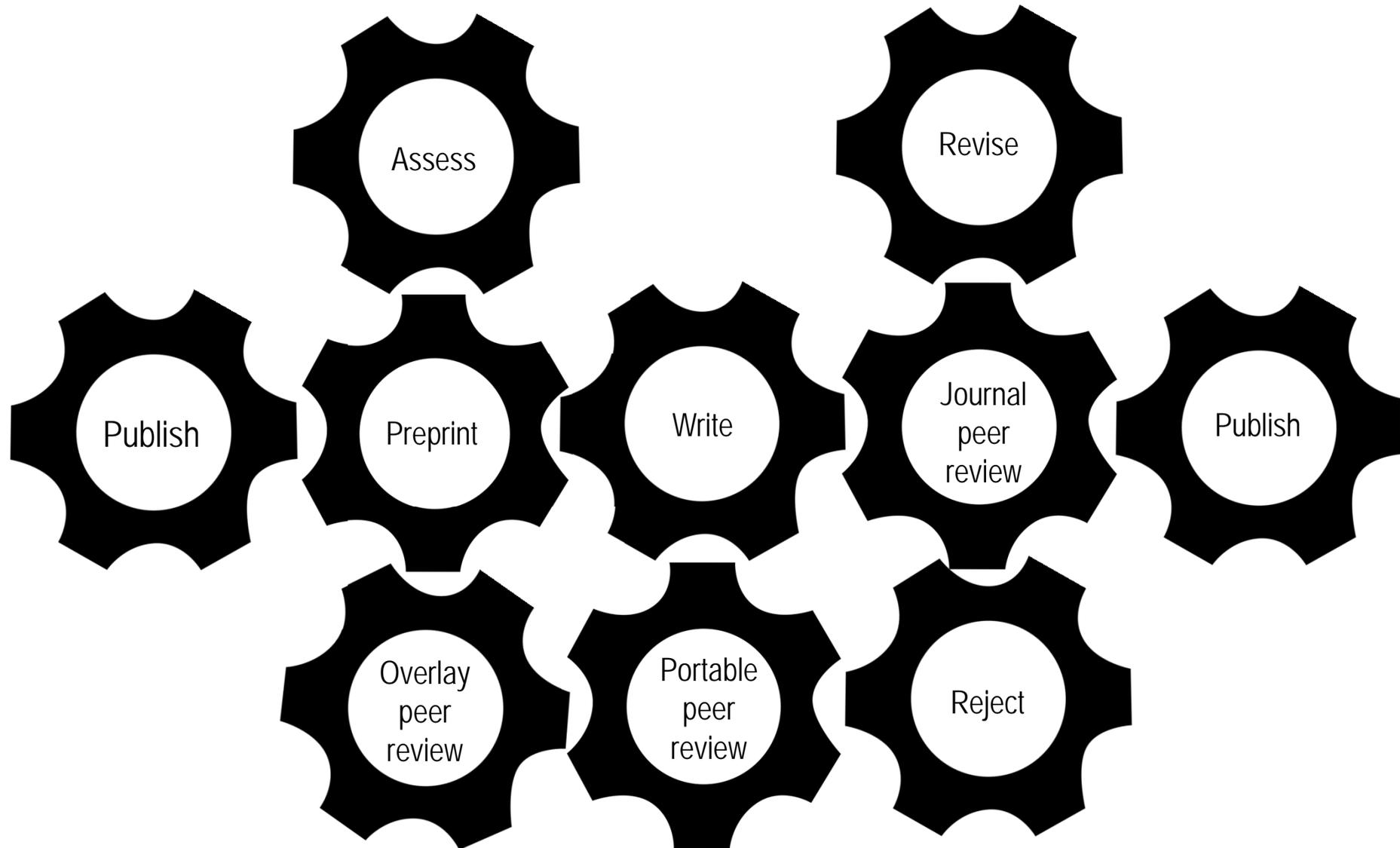


Research evaluation: dominated by journal peer review



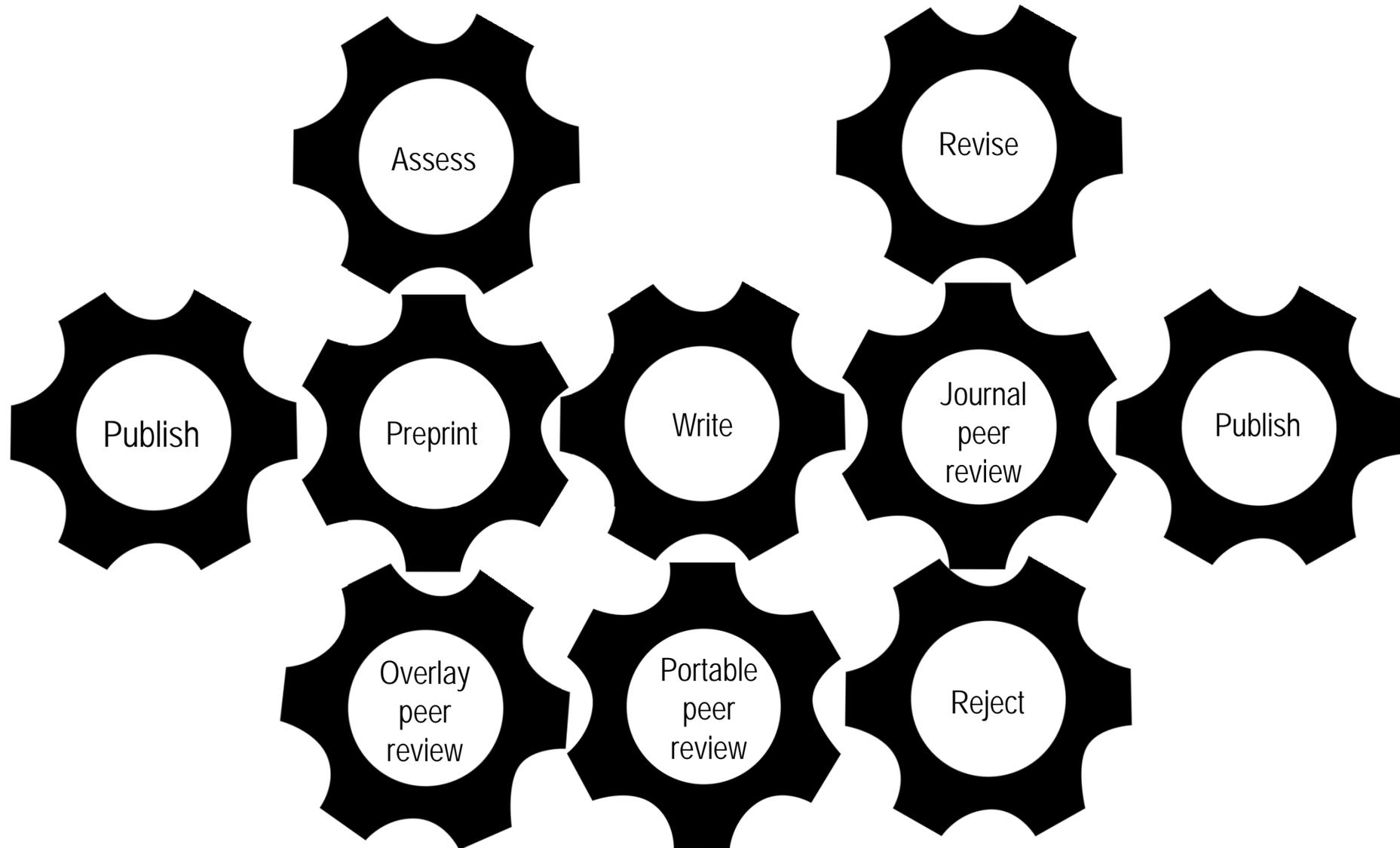


Research evaluation: preprints are catalyzing change





Research evaluation: preprints catalyzing change





THANK YOU!

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