HOW INNOVATIVE NEW PRACTICES ARE HELPING TRANSFORM SCHOLARLY PUBLISHING

Kathleen Shearer, Executive Director of COAR, explores how innovative new practices are helping transform scholarly publishing

In today's fast-paced world where new discoveries emerge at an ever-increasing rate, delays of 12–24 months in accessing research articles – many of which are taxpayer-funded – are no longer acceptable. Furthermore, as public trust in research declines in some countries, it is crucial to adopt a more efficient and transparent system that ensures public access to reliable research findings. The rise of a thriving preprint and review ecosystem is driving a new era of scholarly publishing, offering significant promise for the future.

COAR is an international association based in The Netherlands with members and partners from around the world representing libraries, universities, research institutions, government funders, and others. For the last two decades, COAR has been working, along with other organizations, to greatly improve access to the results of research to accelerate new discoveries and maximize the benefits of science and scholarship for society.

A look at scholarly publishing
Scholarly publishing is one of the few sectors that has remained relatively unaltered over the last few centuries. Yes – journals are now primarily in digital format as opposed to in print – but today's journal articles look remarkably similar to the articles published in the very first journals launched in 1665, "Journal des sçavans" [1] and "Philosophical Transactions". [2] Innovations have been limited even though technology has radically

transformed how most research is conducted across almost all disciplines. While this is not necessarily catastrophic, it does mean that we have failed to take advantage of new technologies to significantly improve scholarly publishing by making it more efficient, transparent, and open.

There are a number of reasons why scholarly publishing has been slow to modernize, including some very entrenched commercial interests that have no incentive to change and an inherent conservatism related to publishing amongst the research community. This has resulted in a system that a few large companies dominate; one that is expensive, opaque, with very long lag times from submission to publication. Indeed, universities and governments worldwide are collectively paying billions of dollars each year [3] to a handful of players, most of which is

going towards profits rather than much-needed research and research infrastructure.

What is preprint sharing?
Over the last few years, we have begun to see a change in practices that take advantage of digital technologies. This revolution, in part, started with an uptick in sharing preprints which is an author's manuscript that has not yet been peer-reviewed or published in a scholarly journal. While preprint sharing has long been a tradition in certain fields like physics, it is now becoming common in other domains as researchers seek to share their research findings more quickly.

This practice expanded significantly during the COVID-19 pandemic, especially in the biomedical fields, when societies and governments had a massive push to understand the disease and develop effective

treatments and vaccines very quickly. Since then, preprint sharing has continued to grow within the researcher community, and a new publishing ecosystem is evolving around these preprints.

The evaluation of an article's findings

One of the most important functions of scholarly publishing is the evaluation of an article's findings. In the case of preprints, no such assessment is built into the system. This has led to a growing number of outside initiatives that bring together subject experts to undertake reviews and evaluations of preprints, often making those reviews publicly available, creating a dynamic research communication environment whereby there are open discussions and continuous input about the merits of various research claims. Compared to traditional journals that do not post reviews, this brings a new level of transparency by making the entire scholarly record – preprints, reviews, and commentaries – available to readers.

Linking preprints with peer reviews

A key requirement in this evolving ecosystem is some kind of 'interoperability' between preprint repositories and external peer review and evaluation services. To address this, COAR launched the Notify Project to develop a standard, interoperable mechanism for linking preprints with peer reviews. The project was funded by the Arcadia Fund in 2022 and since then has developed the COAR Notify Protocol.

The protocol is based on two simple but well-established technologies: linked data notification and activity streams. It is a critical piece of the puzzle for being able to scale the "preprint-review" model. The Protocol, which is being adopted by many platforms and services, enables authors who deposit a preprint in a COAR Notify-enabled repository, such as bioRxiv or Zenodo, to request a review from compliant peer review services or journal, such as Peer Community In or eLife. In the next two years of the project, widespread community adoption of COAR Notify within the scholarly ecosystem is expected.

A key feature of this evolving ecosystem is the decentralization of publishing functions, which fosters innovation at any stage of the workflow without disrupting others. This flexibility opens the door to new peer review initiatives, such as evaluating research data or code, as well as exploring alternative methods for reviewing and endorsing content. The decentralized nature of the preprint-review model also makes it highly adaptable, allowing for the publication of diverse outputs, topics, languages, and contributions from researchers worldwide.

The rapidly expanding preprint and review ecosystem is shaping a new era of scholarly publishing – one that is cost-effective, efficient, and committed to quality assurance. Be part of the growing movement of universities, governments, and research institutions advancing toward a more open and innovative research landscape. Join the growing number of universities, governments, and research institutes on this journey toward an open and innovative research communications environment.

References

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