



Open Access is Broken: What Can Be Done?

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Abstract

The idea of “Open Access” (hereafter OA) emerged in the late 1990’s and early 2000’s with a noble goal: to provide comprehensive access to the scholarly literature for everyone around the world by making the results of scholarly research freely and immediately available online to all. After more than 20 years of OA advocacy and development, where do things stand? Has the noble goal of universal access been realized, and is the scholarly literature now accessible and open to the global community of scholars? How strong is the current OA movement and where is it headed? While significant advances have been made, to be sure, the fact is that elements of OA have taken a wrong turn somewhere, resulting in a system that is broken and has not lived up to its promise. Early OA efforts focused on the need for better access to read and reuse scholarly literature. While significant advancement has been made in this area, it has created another barrier to the free and open sharing of scholarly research—access for authors to publish their research. This is especially problematic for those without the means or support to participate in the “pay to publish” model of OA that has become dominant. There is still hope to correct this imbalance, but the scholarly community must refocus and recalibrate its efforts to get back on track.

The Dawn of OA

OA rose to prominence in the late 1990s and early 2000s as a response to the increasing difficulty of access to scholarly literature, a result of a publishing system dominated by for-profit corporations that control publishing venues, prices, and intellectual property of the majority of scholarly-research output. The buying power of libraries in US and European institutions has not kept up with the growing costs of scholarly literature, which has far outpaced inflation and forced institutions to cut journal subscriptions. In ‘southern’ and ‘eastern’ countries—the “Global South”—the challenges and effects were far graver. The emergence of the Web and other digital technologies offered new opportunities for editorial production and distribution and the call for new models of publishing grew, culminating in an official formulation of the term “open access” in the Budapest Open Access Initiative (2002), the Bethesda Statement on Open Access

Publishing (2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). These three statements, as well as subsequent OA initiatives, focused on the critical need for better access to read the scholarly literature. The Budapest declaration states:

By ‘open access’ to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself (Budapest Open Access Initiative).

The Colorful World of OA

Since those early statements and initiatives, the idea of OA—and the models and mechanisms to achieve

it—has developed along several different channels, commonly distinguished by a color system. One of the earliest was the “green” option, in which authors or institutions place a version of an already-accepted or published article in an open space online, often a university or institutional open repository. This green option relies on the author’s agency and willingness to take action, along with repository infrastructure provided by an institution to host or post the article.

In the “gold” OA model, the publisher itself makes the article freely available on the journal website. BioMed Central and Public Library of Science (PLOS) journals were early experiments in gold OA. Gold OA publishers often rely on author publishing charges (APCs) in which the author (or author’s institution) pays the publisher to have their article included in an OA journal. This shifts the burden of payment from the reader (or library) to the author and, as implemented by commercial publishers, has become a major complication in the current OA ecosystem, as discussed later in this article.

Another APC-based model is “hybrid OA,” in which a subscription (closed-access) journal allows an author to pay a fee so that a particular article is open in a journal that is otherwise closed, or so that the author would have the rights to share the article in open spaces.

“Platinum” OA refers to journals that are free both to readers and to authors, without any paywall or fee involved. It is perhaps the most equitable and “truest” form of OA. Platinum journals are often supported by subventions and other forms of support from research institutions, funding agencies, consortia, or governments.

These various OA models (green, gold, hybrid, platinum) have nuances strengths, weaknesses, risks, and other factors that shape how they developed, why they continue, and why they thrive (or not) in various parts of the world. These nuances are often lost in general conversations about OA.

OA Achievements

There have undeniably been some significant advances in the past two decades.

- Greater numbers of OA journals now exist. As of the time of writing, the Directory of Open Access Journals (DOAJ) lists almost 17,500 peer-reviewed OA journals, up from 300 when DOAJ was launched in 2003 (<https://doaj.org/about/>).

- The number of Institutional and subject-based digital repositories has grown rapidly in the past two decades. OpenDOAR, the Directory of Open Access Repositories, has grown from 78 repositories in December 2005 to 5,890 repositories in July 2022. (https://v2.sherpa.ac.uk/view/repository_visualisations/1.html)
- Major research funders in the U.S, Canada, and Europe, along with universities and other research institutions have created OA policies and mandates that require that the research they support be made openly available to the global community of scholars. The Registry of Open Access Repositories Mandatory Archiving Policies (ROARMAP), which charts this growth, shows that between 2005 and 2022 the number of such policies has grown from 124 to 1,113. The specific policies, mechanisms, and time-frames vary among organizations. (<https://roarmap.eprints.org/>)
- Alternative measures of value and impact for scholarly contributions, have been explored, exemplified, or developed. These “altmetrics” provide alternatives to the traditional metrics of value such as impact factor and h-index. Altmetrics may take into account social media and other public forms of attention and engagement, and can help recognize the value that increased accessibility brings to research.
- Lightweight and open-source OA publishing software such as Open Journal Systems (OJS) (<https://pkp.sfu.ca/ojs/>) and Janeway (<https://www.openlibhums.org/site/janeway/>) has been developed, lowering the technical and financial barriers for individual journals and small-scale publishers to manage their own publishing efforts. OJS in particular has been widely adapted and serves as the platform for thousands of OA journals worldwide.

The percentage of scholarly work published in the last 20 years that is available openly, one way or another, has grown. One study found that 55% of Web of Science-indexed documents from 2009 and 2014, across all countries and fields of research, are freely available in some form through Google Scholar (Martín-Martín).

Clouds on the Horizon

Even in the face of such intensive OA-related activity and development, however, OA seems to be headed down the wrong road. In simplest terms, qualitatively fewer free options exist for a publishing scholar, the cost of being a publishing scholar is rising steadily and dramatically, and rights retention has become more complicated and nuanced for authors navigating publisher agreements. These “clouds” complicate and impede communication among all scholars, but probably affect scholars in the Global South and other disadvantaged regions, institutions, and situations most dramatically.

How has this come to be? One reason is that the idea of OA has been deftly co-opted by the commercial publishing industry, which has pushed a gold OA model that conflates OA with APCs and supports the commercial, for-profit model of OA. After initially viewing OA as a threat to their business model, the industry saw an opportunity to absorb OA into the broader for-profit publishing system, making authors or their home institutions pay for the privilege of publishing through APCs. For commercial publishers, OA is not a noble goal, but just another revenue stream and money-making opportunity that perpetuates commercial ownership of and profit from scholarly publishing. The result is that billions of dollars drain out of academia and into commercial profit margins—dollars that could be better spent on creating a truly equitable scholarly publishing ecosystem from within academia.

The exorbitant APCs—averaging more than \$1600 per article worldwide and across all disciplines (Morrison 2021), and too-often charged by both corporate publishers and not-for-profit OA publishers alike—are prohibitive for many scholars, excluding them from publishing their work. This situation is patently abusive towards the individual scholar and towards university, research institute, and library budgets, as APCs are considerably higher than the actual costs involved with online publishing and distribution of research contributions. Scholars and their institutions scramble to assemble funds sufficient to allow scholars to continue publishing their work. Authors in the Global South and less prosperous institutions everywhere often must pay these fees from their own pocket. Thus, although now much more of the scholarly literature is indeed OA to read, the high-cost of OA publishing has shifted the access barrier to one of publishing access. Not only is this an unfair burden to individual authors without the

means or support to pay these fees, it has a deleterious, systemic impact on knowledge production as a whole. By favoring publication of research by those with the means to pay, this model reinforces a hierarchy of knowledge production in which publishers in the Global North retain control over what is published, and research produced in the Global North receives more visibility and esteem (Knöchelmann 2021).

Conflation of OA with APCs has also decreased awareness of the diversity of other possible OA solutions. Across academia, there is no broad and mutual understanding of what OA is, such that discussions and debates on the topic are often fraught with misunderstanding and miscommunication. Specifically, much confusion surrounds the different types of OA, the implications of different OA business models, and the differences between non-APC OA and commercially-owned, author restricted OA. (A common comment about OA, for example, would be, “Oh, I don’t have the money to publish my work in OA journals”).

Many departments and universities still adhere to the idea that publishing in Web of Science-indexed journals or other so-called “high-impact” (generally commercial) journals is the best measure of academic impact when considering individuals for promotion and tenure. This deeply ingrained culture of academic prestige contributes to the dominance of the gold OA model, by shunting resources to commercial journals with reading access that is subscription-based and author access that is APC-based, rather than ‘highly accessible’ journals.

The Promise of Platinum OA Journals

Platinum OA journals—open to read and open to publish without APCs—are an ideal solution, but require journals to navigate the complex landscape of funding models that do not require APCs from authors. More support for the platinum model is still needed, but there are important examples that demonstrate that this is a viable model.

Many East European institutional journals have moved to platinum OA usually because government subvention models continue to be the norm, uninterrupted since before 1989. Similarly, Latin American journals have practiced a form of platinum OA based on institutional and governmental support since before the OA movement in the Global North began. Although many of these journals lack the prestige of the commercial journals, their emergence and survival demonstrates that platinum OA

publishing models can indeed be sustainable.

Even in the Global North, several initiatives, albeit at relatively small scales, are attempting to implement such models. The Open Library of the Humanities (OLH, <https://www.openlibhums.org/>), run by the University of London, is one such example. The OLH is funded by an international consortium of libraries to publish rigorously peer-reviewed journals across the humanities disciplines, which are less-funded and less amenable to an APC model. The OLH was launched in 2013, just under 10 years ago from the time of this writing. In that time it has grown from an idea to a suite of more than 25 journals and growing.

Sci-Hub and Other Shadow Libraries

Finally, an important point is that most of the recent scholarly literature actually is available online, not via publishers' websites, but through so-called "shadow libraries" such as Sci-Hub (Himmelstein). The wide popularity of Sci-Hub and similar initiatives demonstrates the technical feasibility of such access, as well as the failure of publishers, research institutions, and governments in meeting the needs of researchers and students (Bodó). Indeed, it could be argued that Sci-Hub is the best effort yet at achieving that noble goal of universal and comprehensive access. Still, such sites exist in a murky legal and ethical environment, and are not a sustainable model in the long run. Long-term, sustainable efforts must involve slow, above-ground work through legal, political and institutional channels. Nonetheless, Sci-Hub and its peers are serving a critical need and are an important part of the current scholarly publishing ecosystem. As has often historically been the case with regard to book piracy, such efforts may provide the disruption or spark that is needed in the battle for a transformation to true, universal, legal OA (Bodó).

What can be done?

So, what can be done at this point, two decades into the OA movement, and with a view held by many that OA is broken? Clearly, the previous subscription model is falling by the wayside, but in favor of what? Efforts to hark back to the original, more noble goals of OA can proceed on several fronts.

- An important step is to build awareness of the diversity of OA models. This awareness will highlight the harm that for-profit, commercial publishing does to budgets of academic institutions. It can also, in a more positive vein,

show the availability of other OA models that are more positive for academia.

- Another element is that of encouraging individuals, departments, and institutions to explore and adopt methods of assessment that value access in tandem with impact, in evaluating the importance of scholarly publications. This use of multiple assessment criteria will be particularly important in steps such as promotion and tenure, which have long been "stuck" in old value systems.
- On a broader level, an important step is to develop and support sophisticated forms of coordination and cooperation among well-intentioned publishers, scholarly societies, libraries, and funders. Several such not-for-profit OA publishing initiatives have been undertaken. The Radical Open Access Collective (<https://radicaloa.disruptivemedia.org.uk/>), for example, is a community of over 70 scholar-led, not-for-profit presses, journals and other open access projects, that is devoted to promoting and championing new modes of cooperation among various actors in the OA ecosystem. Detailed study of how those cooperative projects are working, lessons learned and ways to improve and strengthen the coordination and solidarity across sectors, are needed (Adema).
- Finally, and perhaps most importantly, individual scholars can and should vote with their actions, by choosing which publishers and publications to work with, submitting their papers to true OA journals, and offering reviewing and editing services to the same publications.

Working on these multiple fronts, progress can be made in the battle for the noble cause of open access, and what is currently broken or breaking can be repaired.

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