

What is Open Access

Open Access: Making peer reviewed scholarly manuscripts freely available via the Internet, permitting any user to read, download, copy, distribute, print, search, or link to the full text of these articles, crawl them for indexing, pass them as data to software, or use them for any lawful purpose, without financial, legal or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. May also refer to theses, books, book chapters, monographs and other content. (Budapest Open Access Initiative, source).

Or: Making scholarly research articles free to read and re-use without restriction. If you want a definition that is slightly easier to remember.

I learned about it in Open Access, a history

As always, we like to start these modules off by giving a nice history lesson to help provide additional context to how we arrived at the present state.

So, the history of Open Access (OA) actually goes back a long time before OA was even really a thing. OA is based around ideals and principles around sharing, and these existed long before the term “Open Access” was coined. For example, computer scientists and software developers have been freely archiving and sharing their code since the 1970s. Physicists have been sharing their articles and data since the early 1990s on a platform called “arXiv” (pronounced ar-chi-ve). These ideas are rooted in that of the “Commons” - that all resources should be made accessible to all members of society.

The OA movement was/is primarily motivated by the social inequalities created by restricting access to scholarly research. This model tends to favor large and wealthy institutions with the financial means to purchase access to many research journals. However, it was also catalysed by the economic challenges and perceived unsustainability of the wider academic publishing industry. More on this later on!

Public statements in support of some form of free or equal access to research go back as far as 1964. Here, the Declaration of Helsinki stated that participants in medical studies “are entitled to be informed about the outcome of the study and to share any benefits that result from it.”

Following this, it took almost 3 decades for the concept to gain any real traction. A study by Laakso et al., 2011 showed that there was a period of very rapid growth of OA publishing between 1993–2009. Since the year 2000, the average annual growth rate was 18% for the number of journals and 30% for the number of articles; much faster than the overall relative rates of growth in all scholarly journals.

[INSERT LAAKSO RATE OF GroWTH IMAGE]

The term “Open Access” itself was first formulated in three public statements made in the 2000s, now considered to be pivotal moments in the history of OA. These are the:

- Budapest Open Access Initiative in February 2002, launched by the Open Society Institute.
- Bethesda Statement on Open Access Publishing in June 2003
- Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities in October 2003

These declarations solidified the idea that unrestricted access to scholarly research was generally a good thing. And this is what OA is: **The free and unrestricted access to scholarly research.**

Open Access in its present recognisable form was catalysed by the invention of this thing you might have heard of called “the Internet”. Not just for cat gifs and adverts, theoretically, the power of the internet enabled scientific research to be transferred or copied at low cost, instantaneously, and with a wide audience. Thus, there was a large scope for disrupting the print-based nature of the publishing industry. While there were clear costs associated with producing research articles, the cost of the online distribution of these was essentially minimal.

As such, the world of pre-OA exploded in the 1990s. The fact was that it was eminently feasible now to publish scholarly research and make it instantly accessible almost anywhere in the world for free to readers. The first “free access” or “open access” journals began to emerge in the 1980s-90s, followed shortly after with the first OA books. In the first decade of the 2000s, it is estimated that the number of OA journals exploded again by around a 500% increase, with a 900% increase in the number of OA articles.

[INSERT XKCD INFOGRAPHIC TIMELINE]

A new power is rising. Its victory is at hand.

In 2000, BioMed Central, a for-profit OA publisher with now dozens of OA journals, was launched. One year later, 34,000 researchers signed an Open Letter to Scientific Publishers calling for widespread OA to become the new norm as the counter-culture to subscriptions. This ultimately led to the founding of PLOS - the Public Library Of Science as an advocacy organisation, which later became a fully OA publisher in 2003.

Outside of Europe and North America, SciELO (Scientific Electronic Library Online) was launched in 1997. SciELO is not a publisher in itself, but is more a bibliographic database, digital library, and cooperative electronic publishing model of OA journals. SciELO was created to meet the scientific communication needs of developing countries and provides an efficient way to increase visibility and access to scientific literature, particularly in Latin America, the Iberian Peninsula, and South Africa. It was originally established in Brazil, and now today there are 16 countries in the SciELO network and its journal collections: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Mexico, Paraguay, Peru, Portugal, South Africa, Spain, Uruguay, and Venezuela. To do this day, it forms part of a highly successful open scholarly infrastructure across Latin America.

Shortly after this new wave of OA, the non-OA publishers began to get worried, seeing it as a legitimate threat to their subscription-based business models. Publishers such as Wiley, Elsevier, and the American Chemical Society began an aggressive lobbying and marketing campaign, led by a man known as the “pit bull of Public Relations”. This campaign included deliberately misleading statements to stifle the growth of OA, such as “public access equals government censorship”. Therefore, it became clear in the mid-2000s that some publishers and learned societies clearly did not have public access to knowledge in their best interests, as they saw it as a threat to their finances or business models.

[INSERT LAAKSO IMAGE HERE]

Following these developments, OA started to become more and more popular, and eventually starting reaching public policy at a global level. The latest big development here is that of “Plan S”, announced in September 2018. Here, 11 European research funders, organised under cOAlition S, originally announced the plan, which requires all research outputs based on funding from these organisations to be published in full OA journals. In Latin America, AmeliCA was launched as a sort of counterpart to Plan S.

Things are not growing evenly, however. A recent study by Severin et al., 2018 found that different research disciplines vary a lot in their attitudes towards, and uptake of, OA, depending on the tools available to them and the history of OA in their respective fields.

Either way, there is much more work to be done! A recent analysis of the OA landscape by Piwowar et al., 2018 found that, while the rate of OA growth is accelerating, even now only around 28% of the global research literature is OA in some form.

[insert growth fig from Piwowar here]

More related research from Piwowar recently estimated that some xx% of the global scholarly literature would be OA by 20XX.

[insert new figures from biorXiv preprint here]

Licensing - CC-BY

As we also learn about in the Open Source and Open Research Software module, licensing here is fundamental to OA. Licensing provides a legal framework that grants certain rights to creators and users. Critical to OA

is the ideal of unrestricted re-use, meaning remixing, sharing, and well, anything really. Research clearly works better overall when people are free to do with it whatever they want. So while licensing and copyright are perhaps not the most thrilling topic to many of us, they form a core part of OA developments and impact both creators and users of content.

Many equate this freedom to re-use directly with the Creative Commons CC-BY license, a license that fulfills virtually all of these criteria (i.e., is unrestricted), as long as the source work is appropriately credited or cited. It is one of the more liberal licenses, allowing users to do almost whatever they want with a creative work. Many of the early declarations, such as Berlin, Bethesda, and Budapest make it clear that re-use is equally as important as access, and therefore such explicit licensing is critical here, and CC-BY is usually adopted as the de facto license for OA.

If you think about it, it is actually quite bizarre that this simple freedom is not something normal within our present system. Indeed, the vast majority of research we have ever published as a global society remains inaccessible and unusable - because of licensing and copyright restrictions that do not act in the best interests of users or creators. CC licenses emerged alongside OA as an effective legal tool to help remove such barriers to research.

[Note include video from CC here]

Licensing - other

As OASPA state: "Other Creative Commons licenses allow for three possible restrictions to be imposed in addition to the requirement for attribution. In keeping with its tagline "some rights reserved", these are: No Commercial use (NC), No Derivatives (ND) and Share-Alike (SA). Each type of restriction has its uses, for certain types of content and certain types of sharing. But the emerging consensus on the adoption of CC-BY reflects the fact that any of these restrictions **needlessly limits the possible reuse of published research.**" (emphasis added by us)

- *No Derivatives* (ND): Derived use is fundamental to the way in which scholarly research builds on what has gone before. If we are able to see further it is because we stand on the shoulders of giants, as a wise person once said. One of the many benefits of OA is that elements such as figures from a published research article can be reused, with attribution, as part of teaching material, or in other published works, without needing to request permission of the publisher and even pay for the use. Adding an ND clause to your license prohibits this form of re-use for your work.
- *No Commercial* (NC): One main problem with this license is that the definition of 'commercial' is legally hazy, and can restrict all sorts of potential uses. The whole point of knowledge is to help generate new knowledge and further our society. Adding an NC clause to your license can greatly prohibit this.
- *Share-Alike* (SA): Content distributed under an SA license can be used to create and distribute derivative works, but only if those works are shared under the same SA license.

[INCLUDE Licenses used by gold and hybrid OA journals in DOAJ image here]

Pro-tip: Your article has been accepted for publication in a journal and, like your colleagues, you want it to have the widest possible distribution and impact in the scholarly community. However, in traditional publication agreements you are forced to transfer copyright of your work to the publisher, which prohibits you from being able to freely share it. The SPARC Author Addendum is a legal instrument that modifies the publisher's agreement and allows you to keep key rights to your articles. The Author Addendum is a free resource developed by SPARC in partnership with Creative Commons and Science Commons, established non-profit organizations that offer a range of copyright options for many different creative endeavors.

[INCLUDING ASAPBIO licensing image here, source <https://asapbio.org/licensing-faq/licensing-diagram-2018-10-04>]

As a last little bit here in license-land, we have to note the UK Scholarly Communication License. The UK-SCL is an OA policy mechanism which ensures researchers can retain re-use rights in their own work,

they retain copyright and they retain the freedom to publish in the journal of their choice (assigning copyright to the publisher if necessary). So sort of like publishing your cake and eating it too.

Wait, so really then, what is Open Access?

For this, Samuel Moore has provided quite a nice solution to make a bit of sense within all the chaos:

From analysing its historical underpinnings and subsequent development, I argue that OA is best conceived as a boundary object, a term coined by Star and Griesemer (1989) to describe concepts with a shared, flexible definition between communities of practice but a more community-specific definition within them. Boundary objects permit working relationships between communities while allowing local use and development of the concept. This means that OA is less suitable as a policy object, because boundary objects lose their use-value when ‘enclosed’ at a general level, but should instead be treated as a community-led, grassroots endeavour. (Moore, 2017)

So, it got messy, but it is best to perhaps stick to the original, grassroots-led meaning - see the beginning of this section.

Further reading

For an interactive and more complete timeline of the Open Access movement, check out this cool design by Tobias Steiner.

For more information on the history of Open Access, this Wikipedia article has a lot more detail and further reading.