Morressier

Open Access: Integrating the research lifecycle to accelerate science

Intro

The Open Access (OA) movement continues to develop rapidly across the world, spreading principles of transparency, inclusivity, and interoperability. At the heart of the movement, Open Access seeks to change the relationship between science and society, improving public and industry understanding of research and boosting its accessibility.

Today, we seem to be on the precipice of large scale OA change. There are many potential ways forward, and we're at the crossroads of multiple futures.

So let's take a look back at how and when this movement emerged, to give us a better understanding of where it could go, especially when powered by the right tools and strategies.

Open Access: History

The Open Access movement emerged during the digital revolution of the 1990s and the unprecedented rise of the Internet. As society entered a new age of technology, widespread access to information suddenly became available through just a scroll or click. Digitizing research was a natural progression, especially as traditional, print-based scholarly journals faced rising costs of production and distribution.

The OA movement offered the possibility of unlimited, unrestricted, and immediate access to cutting-edge science for anyone in the world. Compare that promise to traditional scholarly publishing models, whose print journals were becoming more expensive, limiting the potential world of individuals who could learn from the world's researchers.

In 1991, the first free scientific online archive, arXiv.org, was launched, built on the pre-print culture and prevalence of self-archiving among the physics community. In its wake, several early examples of Open Access publishing emerged amongst different disciplines, such as the U.S. National Library of Medicine's Medline database.

In the early 2000s, Open Access journals exploded in number, increasing by 500%, while the amount of published openly accessible articles increased by 900%.

Open Access: History

In 2001, over 30,000 academics signed "An Open Letter to Scientific Publishers", supporting the creation of "...an online public library that would provide the full contents of the published record of research and scholarly discourse in medicine and the life sciences in a freely accessible, fully searchable, interlinked form.", leading to the creation of PLOS, one of the biggest Open Access publishers in the world.

Today, Open Access mandates have given the movement institutional and international legitimacy. In 2018, twelve European national research agencies named cOAlition S created a plan that required scientists who benefit from state-funded research organizations to make their work openly accessible by 2021.

These regulations were mirrored in 2022 across the pond, when the United States released the OSTP memorandum requiring that all research published with government funding must be made publicly available by 2025. While these mandates have fast-tracked the Open Access movement, they have also driven the scholarly community to make changes and enforce open principles perhaps faster than they are able.

These mandates eliminate the 12-month embargo period that is typically placed on publicly-funded research, forcing publishers to find alternate sustainable revenue sources and move beyond their reliance on subscription charges.

How will the scholarly community adapt to these changes? Where can the Open Access movement go and what role will it play in the future of science?

Open Access: Types of Open Access

According to a 2018 study, about 28% of peer-reviewed articles published today are openly available. As the world continues to embrace Open Access, different forms and models of OA are emerging.

Types of Open Access

Perhaps the most popular model is **Gold Open Access,** in which research is immediately made freely accessible for anyone to read through the journal or book publisher. Article publishing charges (APCs) are typically paid by the author or their institution to cover publishing costs and replace the revenue traditionally gained through subscription charges. These charges are often included in funding packages. In contrast, **Green Open Access** shifts power from the publisher to the author, giving them full control of the distribution of their work. The author self-archives their research in a digital repository for free public access, typically after a brief embargo period. In the **Bronze Open Access** model, research is free to read on the publisher's website, but is not published under an open license, meaning it is technically not Open Access and readers are unable to share or reuse content.

The Diamond or Platinum model consists of immediate Open Access publication by the journal or publisher at no cost to the author or reader. As of 2021, between 17,000 and 29,000 scientific journals followed the Diamond Open Access model.

Open Access: Types of Open Access

Open Access also comes in more controversial forms: **Black Open Access** refers to the illegal sharing of restricted scientific information. While the rise of technology has bolstered Open Access, it has led to increased misconduct, as rogue sites such as Sci-Hub use digital tools to practice unauthorized online copying. Many subscription-based journals also take part in **Hybrid Open Access,** in which individual articles are made openly available on payment of an APC. While this model has seen rapid growth in recent years, it has also attracted opposition due to "double-dipping", as publishers collect money for both APCs and subscription charges.

As the scholarly community moves away from traditional models towards these varied forms of Open Access publishers and institutions have developed agreements that seek to shift the focus away from subscription-based reading and towards Open Access publishing. Transformative agreements or TAs are contracts that allow authors to make their work openly accessible with the support of their institution. These negotiations come in the form of "read and publish" agreements or "publish and read" models. In the former, publishers receive payments for both reading and publishing, and in the latter publishers only receive payment for publishing, with reading included at no extra cost. Restricted Transformative Agreements limit the amount of articles that can be published under one agreement, while unlimited TA's allow authors to share their work without limitations.

Open Access around the world

Open Access around the World

What started off as small-scale agreements between institutions and publishers has now expanded to international contracts, such as the transformative agreement made between IOP Publishing and Finland, one of many national deals between publishers and governments.

This “read and publish” agreement allows researchers from the Finnish-state owned VTT Technical Research Centre of Finland (VTT) to publish Open Access in 58 hybrid IOPP and partner journals, at no cost and with copyright retention.

Across the pond in California, the University of California (UC) institutions have also developed several TAs, such as one with SAGE Publishing established in 2022 until 2025. This agreement provides unlimited Open Access publishing at a discount for authors affiliated with the UC institutions as well as Open Access to all research content within SAGE journals. The agreement stipulates that UC libraries must cover APC costs when there is no available grant funding and will contribute $1,000 to all APC’s. Transformative Agreements limit the amount of articles that can be published under one agreement, while unlimited TA’s allow authors to share their work without limitations.

Criticisms of Open Access

From Europe to North America, these agreements have helped the scholarly community accelerate towards a more open and transparent future. But is that access consistent around the world?

For institutions in low-income countries and researchers in the Global South, transformative agreements and certain OA models can often be inaccessible due to lack of capital. Researchers who are not affiliated with institutions or whose institutions are under-resourced may struggle to cover APC's, resulting in the loss of important voices from academic conversations.

Fortunately, organizations such as Bioline International, Research4Life, and SciElo have worked to fill this gap and create a space for authors from developing countries to contribute to the academic record.

Critics of Open Access have also expressed concerns about threats to research integrity. When publishers move away from traditional models of sharing information, shifting from relying on subscription charges as revenue sources to relying on APC's, journals are pressured to publish more in order to make profit. This leads to a lack of quality control and paves the way for error-prone or poorly conducted research to be shared with the world, harming the reputation of the scholarly ecosystem.

Even further, predatory journals have taken advantage of the Open Access movement and its rapid growth by disguising themselves as legitimate publications in order to attract submissions. These rogue organizations collect APC's without evaluating the research they agree to publish for its accuracy or relevancy before sharing it, resulting in the spread of misinformation and the manipulation of both authors and readers.

Open Data and Preprints

> ***Mentions in policy documents and on Wikipedia, tweets and shares on social media – these are all important indicators of impact that institutions should be paying attention to.***
>
> Martin Kirk, Director of Research Operations,
> King's College London

Moving away from traditional models to facilitate the sharing of openly accessible research also means that we must consider alternative means of measuring the impact of research beyond citation counts and Impact Factors. Martin Kirk, director of research operations for King's College London suggests that, "Mentions in policy documents and on Wikipedia, tweets and shares on social media – these are all important indicators of impact that institutions should be paying attention to." Sites such as altmetric.com track these forms of impact, but the industry has been slower to value Altmetrics to the same degree as citations.

In keeping with the principles of open science, similar movements have also emerged within data and software. FAIR (Findable, Accessible, Interoperable, and Reusable) data allows researchers to build on each other's ideas and learn from one another at the earliest possible stages. Open source software and codesharing also allows for publicly accessible software that users can modify, improve and utilize.

Another trend that has emerged as a result of Open Access is the rise of digital preprint repositories. The process of journal acceptance, peer review, and publication can take months, and sharing preprints has become a popular solution to skip long publication times and get early-stage research to a wider audience faster. However, preprint servers share early-stage research that has bypassed rigorous peer review methods, which are necessary for ensuring that high-quality research is shared throughout the scholarly ecosystem. The average consumer may not be aware of the necessity of peer review and the fact that preprints have not undergone that process, leading them to make personal decisions that may be based on inaccurate information.

Open Access: Benefits of Open Access

Improves Public Understanding of Research
The general public awareness and understanding of scientific ideas is boosted when research becomes openly accessible.

Increases Transparency
When research is made openly accessible, it increases transparency and supports replicability to improve research integrity.

Drives Collaboration
Scientists can build on each other's ideas when they are shared openly to kickstart interdisciplinary collaboration and even bigger breakthroughs.

Global Impact
In 2020, the free distribution of research paved the way for increased awareness about the coronavirus and its spread, accelerated development of vaccines, and continued scholarly exchange amidst global crisis.

Boosts Visibility
Publishing Open Access can help researchers looking to make their mark on the world by allowing their work to be seen by an expansive global audience.

Open Access: Possible futures

What's clear about the Open Access movement is its mission to change the relationship between science and society. Imagine a world in which this goal was made into an innovative reality.

A world in which scientific breakthroughs were shared across the globe faster and more efficiently. In this world, policymakers, corporations, scholars, the financial sector, and the general public can have immediate, unrestricted access to the discoveries that will define our future as they are being made. Think about the kind of enlightened and informed laws, scholarly insights, and personal decisions that can be made with unlimited access to these ideas.

Let's take this concept a step further. Picture a world in which sustainable Open Access models and transformative agreements exist that benefit both readers and publishers, including those in developing nations.

Publishers would be able to secure stable sources of revenue through these centralized agreements without exploiting authors who simply want to share their ideas openly.

Authors would be able to distribute their findings globally and gain valuable feedback from their peers at no cost.

Readers would enjoy free and immediate access to groundbreaking scholarly insights. Institutions and publishers would find creative ways of obtaining financial security by joining forces with corporations and commodifying their community's freshest ideas.

This future is open and transparent and benefits everyone within the scholarly publishing landscape.

Open Access: Possible futures

Or instead, let's explore a world in which early-stage ideas are shared much faster and further upstream in the research lifecycle, without bypassing crucial peer review methods. Imagine the advancements that we can make collectively when the world gains access to findings that are typically kept hidden.

There is an entire landscape of exciting information gathered before journal articles are published that deserves to be shared, discussed, and built upon. When shared openly and quickly, these early-stage insights can spark new breakthroughs and help the scholarly community reach new heights of innovation.

In this world, we can use automation and other emerging technologies to evaluate information efficiently and ensure integrity is upheld at every step of the research lifecycle.

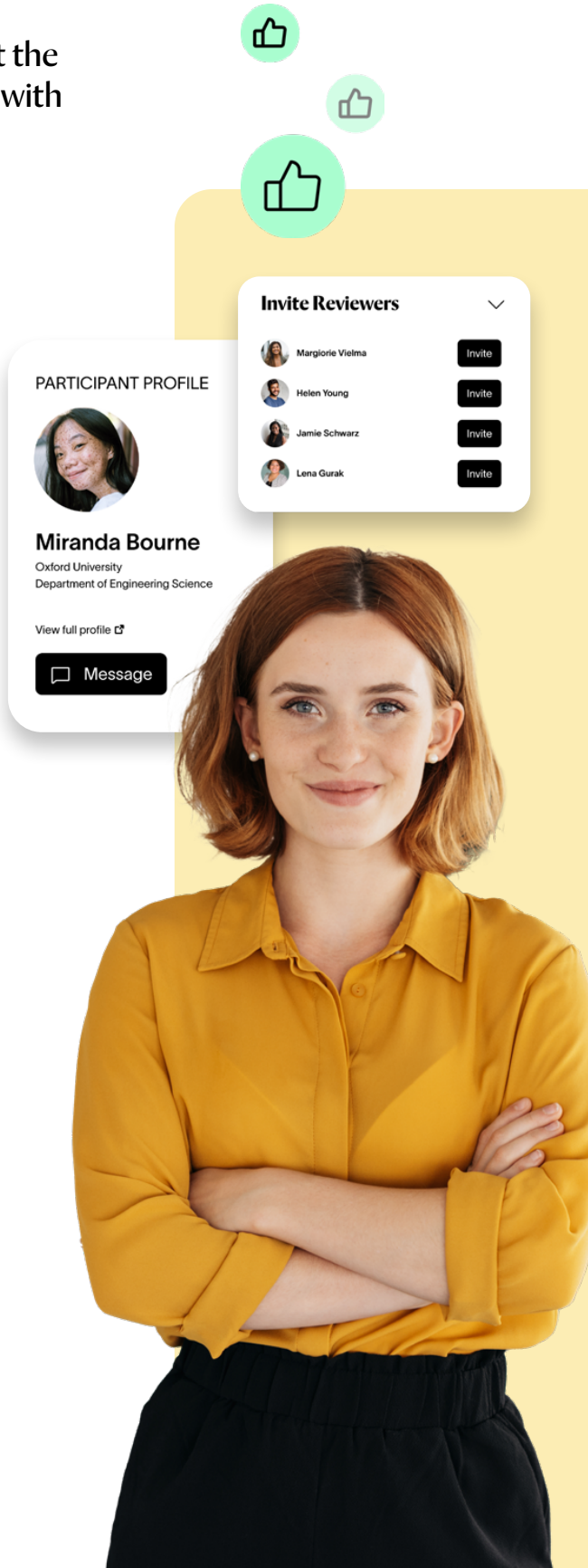
Open Access: The Morressier Difference

At Morressier, we provide flexible options to help meet the needs of all of the societies and organizations we work with in today's Open Access landscape.

Our **Research Libraries** expand the impact of early-stage research by giving conference content a whole new life online, long after the event is over. Even further, our **Peer Review Workflows** and integrity checks embedded throughout the platform ensure that the highest standards of integrity are upheld at every stage of the research lifecycle so that you can have the confidence to share research openly.

In a future driven by Open Access, sustainable revenue sources may seem difficult to secure. Our tools are built to help our customers diversify their research outputs in order to profit in an OA environment. We provide **User Profiles** that help societies keep track of the researchers that are making strides in their community and who have the potential to become their discipline's future leaders. Identifying these individuals within your community can open the door to funding opportunities and corporate sponsorships. With innovative technology, you can identify and meet the needs of your community and retain membership in order to diversify and maintain revenue streams amidst an uncertain future.

As the Open Access movement continues to grow and the volume of research produced expands each year, simply keeping track of trends and popular topics is no longer enough. Our integrated infrastructure provides robust data on your community's early-stage research. Track emerging trends and follow emerging leaders to make editorial decisions on future OA journals or authors, creating a funnel from early-stage research directly to OA publishing.



Open Access: Key Takeaways

As an all-in-one platform for early-stage research, Morressier supports the widespread sharing of scholarly information to create a more efficient, transparent, and inclusive scientific community.

When societies and organizations discover the untapped potential of early-stage research, securing revenue stability within an OA landscape becomes much easier. Taking advantage of your community's biggest and freshest ideas and sharing them with different industries, media organizations, and the wider public can give you the financial capital to lead the future of Open Access.

While the OA movement is complex and ambiguous, when different stakeholders come together to make agreements, support policy changes, and develop publishing practices, amazing advancements in knowledge sharing can be made. Collaboration between funders, publishers, societies, and authors around the world is the key to upholding Open Access and ensuring its long term success and sustainability.

In today's ecosystem, instantaneous knowledge sharing is the norm. The fast and frictionless flow of information is a critical element of openly disseminating research. But, increasing speed shouldn't mean sacrificing quality. Moving forward, we need to be strategic and purposeful when it comes to ensuring research integrity while maintaining speed in academic publishing.