

Open access: what is it and how does it work?

Branwen Hide (Research Information Network)

Creating, using, sharing and accessing information is an integral part of the research process. How researchers access and use information has changed dramatically over the last few years as a result of technological innovations, changes within the publishing community and the need to enhance research impact. Academic libraries are also struggling to provide access to all of the journal titles needed by their users owing to inadequacies of library budgets and increasing journal subscription prices. In addition, the current publishing models limit the access and re-use of research itself, potentially hindering the return on research investment. These changes have triggered an ongoing international debate on issues including 'open access', 'open data' and alternative models of scholarly publishing. These discussions have resulted in a number of initiatives and statements around the globe by various groups and organizations.

What is the 'open-access' movement?

According to the Budapest Open Access Initiative, 'open access' simply means that scholarly literature is made freely available on the internet, so that it can be read, downloaded, copied, distributed, printed, searched, text-mined or used for any other lawful purpose, without financial, legal or technical barriers. This definition was subsequently followed by the Bethesda Statement and the Berlin Declaration. Although there are minor differences between these three statements, the key points are the same: that scholarly publications must be made freely available, to as wide an audience as possible, immediately after publication, and that the author or copyright owner grant any third party the rights to use, copy and distribute the research output as long as it is properly cited.

The OA movement has developed momentum, and, in 2004, the House of Commons Science and Technology Committee published a report recommending that the research councils mandate their funded researchers to deposit a copy of all of their published outputs into open-access repositories. Many research funders, including the Biotechnology and Biological Sciences Research Council (BBSRC) and the Department of Health, have mandates for self-archiving and/or open-access publishing. Details of individual research funders' mandates are listed on the JULIET website.

Routes to open access

The way in which researchers can make their work freely available may vary slightly, but generally falls into two categories: the gold

route or the green route.

The gold route follows the traditional journal publishing procedure with the author handing over copyright to the publisher. The publisher then makes the article freely available immediately after publication, with the cost of publication is covered by a one-off fee paid for by the author prior to publication, instead of by the traditional journal subscription fee. The payment fee varies between the different journals.

The green route (also known as self-archiving) is simply the deposition of an article before (preprint) or after (postprint) publication by the copyright owner into an open-access repository. The repository can be a subject-specific database such as UK PubMed Central (UKPMC) for the life sciences or an institutionally based repository (IR). IRs have received a lot of support from universities as they are seen as a way to showcase the institutes' intellectual talent and a growing number have some form of self-archiving mandates. However, although some IRs are well stocked by the researchers they serve, generally they tend to be underused.

In addition to these two defined models of open access, some traditional journals offer authors the option to pay the author-side publication fee to allow their article to be freely accessible at point of use (Hybrid Model). Also, many traditional journals have embargo periods, whereby, after a set period of time, the publisher will make the article freely available online or allow the author to deposit a copy into a repository. The embargo periods generally last 6 months to 1 year and, although this method is not, strictly speaking, endorsed by the open-access movement, it is preferable to subscription-only access model.

Payment of author-side fees

To help researchers cover the cost of publishing via the gold route, many research funders, and some universities, provide researchers with additional funding to cover these fees. For example, for those researchers funded by one of the seven UK research councils, the cost of publishing is either included under Directly Incurred Costs on grant proposals or should be part of their institution's indirect costs under the full economic costing regime. For research funded by the Department of Health and/or the National Institute of Health Research, the publishing costs should be budgeted for when the research is being commissioned. However, there is still a wide range of discrepancies and a lack of standards with regard to covering the costs of open-access fees.

So why should you publish in an open-access journal or deposit your work in a repository?

Publicly funded research should be made available to the public

The underlying belief is that publicly funded research should be made as widely available as possible. This includes not only the public, but also other researchers, particularly those in developing countries where money and access are serious constraints.

Open-access publishing and self-archiving can potentially increase the impact of your research

There have been a number of studies which have demonstrated that open-access self-archiving leads to an increase in total number of citations. However, as discussed in the report by Mark Ware, many of the papers did not necessarily deal with causation issues such as the following. Are successful researchers more likely to self-archive? Do researchers simply submit their best work into repositories? Did the article receive more citation because it was freely available?

Although these questions have not been answered clearly, a combination of the factors appear to play an important role in enhancing citation counts and the simple act of making something freely available on



the web would logically increase uptake and subsequent impact.

More data/information available leads to enhanced innovation and discovery

It is strongly felt that increasing the availability of research outputs can prevent unnecessary repetition of research and enable researchers to build directly on each others work, increasing efficiencies and productivity in the research process. This will ultimately maximize the return on investment in R&D by research funding bodies.

Open access and peer review – does one exclude the other?

One of the misconceptions of the open-access movement is that it bypasses the peer-review process, yet this is not necessarily the case. All of the statements issued by the open-access movement make it clear that they are talking about quality-assured (peer-reviewed) research outputs. The exception is preprint (unrefereed) material deposited into institutional repositories that the authors intend to submit at a later date for formal publication. In addition, IRs contain other research outputs, such as conference proceedings and presentations which do not have a formal review process.

UK PubMed Central (UKPMC)

UKPMC is based on the U.S. National Institutes of Health (NIH) -funded PubMed Central (PMC), a free digital archive of biomedical and life sciences journal literature. UKPMC provides a stable, permanent and free-to-access online digital archive of full-text peer-reviewed research publications. As part of a network of PMC International repositories, it provides access to all the material in PubMed as well as access to the full-text articles deposited in PMC as part of the NIH mandate on open access. In addition, UKPMC acts as a repository for UK biomedically funded research

(the funders and their policies are listed on UKPMC website). UKPMC beta was launched recently and it will enable researchers to search and link information from literature and drill down into underlying datasets in new and innovative ways. In collaboration with the EBI, they have incorporated the 'Whatizit' service which highlights and links all the biological entities within the abstract or open-access full-text article, enabling the researchers to get important contextual information. Research impact can also be monitored by measuring how often a particular journal article has been cited and by whom. In addition, journal articles can be tied to specific grants, enabling both parties to monitor the success of a particular funding stream.

Have your say

The Research Information Network aims to increase the understanding and awareness of changes in the information and scholarly communications landscape to enable libraries, publishers, universities, funders and others to develop efficient and effective services for researchers. To do this, we need your support and input. How are the changes in information services affecting you? What are your thoughts on the open-access movement? How will it directly affect your own work? We would like to hear from you. If you'd like to keep up with our latest work, sign up to our monthly e-news by emailing contact@rin.ac.uk and you can follow us on Twitter at [research_inform](https://twitter.com/research_inform) or [branwenhide](https://twitter.com/branwenhide). We run a programme of events throughout the year; visit www.rin.ac.uk/events-menu for the latest details. ■

Resources

SHERPA Search – simple full-text search of UK repositories; www.sherpa.ac.uk/index.html

OpenDOAR – worldwide Directory of Open Access Repositories; www.opendoar.org/

JULIET – research funders' archiving mandates and guidelines; www.sherpa.ac.uk/juliet/index.php

ROMEO – publishers' copyright and archiving policies; www.sherpa.ac.uk/romeo/

DOAJ – directory of open-access journals; www.doaj.org/

The Wellcome Trust, A Guide to Open Access – www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtx030576.pdf

Creative Commons Licensing – <http://creativecommons.org/>

RCUK Access to Research Outputs – www.rcuk.ac.uk/research/outputs/access/default.htm

Department of Health Open Access Policy Statement – www.nihr.ac.uk/research/Pages/Research_Open_Access_Policy_Statement.aspx

Guidance: Paying for open-access publication charges (RIN 2009); www.rin.ac.uk/openaccess-payment-fees

Activities, costs and funding flows in the scholarly communications system in the UK (RIN May 2008) – an assessment of the economics of all stages in the lifecycle of the scholarly communications process in the UK; www.rin.ac.uk/costs-funding-flows

ROARMAP – Registry of Open Access Repository Material Archiving Policies; www.eprints.org/open-access/policysignup/

UKPMC and UKPMC beta – free online digital archive of full-text peer-reviewed research publications for the life sciences based on PubMed Central (PMC); <http://ukpmc.ac.uk/>

JISC Open Access Briefing Paper Version 2 – briefing paper on open access; www.jisc.ac.uk/publications/documents/pub_openaccess_v2.aspx

Repositories Support Project (RSP) – a JISC initiative to support the development and growth of the UK repositories network; www.rsp.ac.uk/

References

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