

The World Wide Web has provided the means for researchers to make their research results available to anyone, anywhere, at any time. This applies to journal articles regardless of whether or not their library has a subscription to the journal in which the articles were published as well as to other types of research output such as conference papers, theses or research reports. This is known as Open Access.

Researchers publish their results to establish their own claim to the research and to enable other researchers to build upon them. In the case of journal articles, only the richest institutions have been able to afford a reasonable proportion of all the scholarly journals published and so learning about and accessing such articles has not always been easy for most researchers. Open Access changes all this.

What Open Access is

The Open Access research literature is composed of free, online copies of peer-reviewed journal articles and conference papers as well as technical reports, theses and working papers. In most cases there are no licensing restrictions on their use by readers. They can therefore be used freely for research, teaching and other purposes.

What Open Access is not

There are various misunderstandings about Open Access. It is not self-publishing, nor a way to bypass peer-review and publication, nor is it a kind of second-class, cut-price publishing route. It is simply a means to make research results freely available online to the whole research community.

How is Open Access provided?

Open Access can be provided by various means. A researcher can place a copy of each article in an Open Access archive or repository or can publish articles in Open Access journals. In addition, a researcher may place a copy of each article on a personal or departmental website. Whilst all three routes to Open Access ensure that far more users can access such articles than if they were hidden away in subscription-based journals, the first two constitute much more systematic and organised approaches than the third and maximise the chance of other researchers locating and reading articles.

Open Access archives or repositories are digital collections of research articles that have been placed there by their authors. In the case of journal articles this may be done either before (preprints) or after publication (postprints). This is known as 'self-archiving'. These repositories expose the metadata of each article (the title, authors, and other bibliographic details) in a format compliant with the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). To access the contents of these archives, you can use Google or one of the specialised search engines for a more focused and efficient search. The latter systematically harvest the contents of the archives worldwide, forming a database of current global research. Open Access repositories may be multidisciplinary and located in universities or other research-based institutions, or they may be centralised and subject-based, such as the one covering certain areas of physics and related disciplines, called arXiv. By the beginning of 2005, there were almost 40 Open Access archives in the UK, and more universities and research institutes are planning to launch their own. A list of Open Access archives in the UK is maintained by the Eprints.org site at Southampton University. If your institution does not have an archive, extensive information on how to set one up can be found on that website. Self-archiving is an international movement that is developing fast, and some grant funders are also now planning central archives to house the articles of their grant-holders.

If you are concerned that your journal's publisher may have copyright restrictions that would prevent you from self-archiving your articles, this will in most instances not be the case. Current publisher policies on self-archiving and copyright are detailed on the SHERPA project website at Nottingham University.

Open Access journals are peer-reviewed journals whose articles may be accessed online by anyone without charge. In many cases they may also be published in print. Some, mainly those published from a university department or with substantial subsidy, make no author or page charges. Others levy a charge for publishing an article, turning on its head the traditional model where a library pays for access to the contents of a journal through a subscription. This charge may be paid by the author(s) but in most cases it is financed by a research grant or institutional funds. Your institution may already have taken the decision to pay for Open Access articles to be published, or your grant-awarding body may

have adopted this as one of its policies. A list of grant-awarding bodies that explicitly permit funds to be used for this purpose is maintained on the BioMed Central website. BioMed Central is a well-known Open Access publisher with over 100 journals in its portfolio. Other examples are the journals from the Public Library of Science, such as *PLoS Medicine*, *PLoS Biology*. In the case of an author's financial hardship, BioMed Central, PLoS and other Open Access journal publishers will waive the publication fee. Fees levied by Open Access journals vary quite markedly but, as a guideline, BioMed Central charges £330 per article for most of its journals, and PLoS charges US\$1,500 (approx. £800). In 2003 JISC secured a deal with BioMed Central on behalf of UK institutions to waive author fees for over 90 biomedical journals.

A comprehensive list of Open Access journals in all subject areas is maintained by the University of Lund. In early 2005 this list contained over 1,400 journals. Many of these Open Access journals have impact factors and are indexed by the Institute for Scientific Information for its Web of Knowledge/ Web of Science service. At June 2004, 239 Open Access journals were in this category.

Another form of Open Access is found in 'hybrid' journals: these are publications that will make an article accessible to everyone online without charge if the author opts to pay for

publication. An example of a hybrid journal is the *Proceedings of the National Academy of Sciences*, which will make an article Open Access for a fee of US\$1,000.

Why should authors provide Open Access to their work?

There is accumulating evidence that shows that research articles that have been self-archived are cited more often than those that have not. Across most subject areas there is at least a twofold increase in citation rate. In some subject areas it is even higher. This form of Open Access means that research has much more impact than before. Moreover, the research cycle – where work is published, read, cited and then built upon by other researchers – is enhanced and accelerated when results are available on an Open Access basis. Would you not prefer to be able to access all the articles you need to read and use for your research, easily and without restriction?

This paper has been written by Alma Swan of Key Perspectives Ltd on behalf of JISC and produced and edited by Sara Hassen and the JISC Communications Team.

Alternative formats of the briefing paper can be found at: www.jisc.ac.uk/publications

Further information and resources

JISC Open Access initiatives

JISC's **FAIR Programme** is evaluating and exploring different mechanisms for the sharing of access to institutional resources: www.jisc.ac.uk/programme_fair.html

The **DAEDALUS** and **TARDIS** projects are exploring different models for constructing effective institutional repositories: www.lib.gla.ac.uk/daedalus and <http://tardis.eprints.org>

The **ePrints UK** Project is developing national, discipline-focused services for accessing e-prints from open archive repositories: www.rdn.ac.uk/projects/eprints-uk

Open Access Archives and self-archiving

The Eprints.org site has general information about Open Access archives, including a list of existing archives and a handbook on how to set one up: www.eprints.org

For the best-known Open Archive search engines see: OALster www.oalster.org

and Citebase <http://citebase.eprints.org/cgi-bin/search>

The **SHERPA** project is developing Open Access archives in a number of research-led universities: www.sherpa.ac.uk

Permissions policies can be checked by publisher at: www.sherpa.ac.uk/romeo.php

and by journal at: <http://romeo.eprints.org>

The Directory of Open Access repositories is an emerging pilot service offering an authoritative list of Open Access repositories www.andoar.org

Open Access journals

For information about BioMed Central, the largest Open Access journal publisher see: www.biomedcentral.com

For a list of grant-awarding bodies that make funds available for the payment of publication fees see the list at see: www.biomedcentral.com/info/about/apcfaq#grants

For the Public Library of Science see: www.plos.org

For an up-to-date list of Open Access journals see: www.doaj.org

Open Access citation and impact studies

The earliest study on the enhanced impact of Open Access research articles was by Steve Lawrence: www.nature.com/nature/debates/e-access/Articles/lawrence.html

This has been followed by studies by Michael Kurtz: <http://cfa-www.harvard.edu/~kurtz/jasist1-abstract.html> and <http://cfa-www.harvard.edu/~kurtz/jasist2-abstract.html>

The most recent work on impact of Open Access articles is by Harnad and Brody: www.dlib.org/dlib/june04/harnad/06harnad.html

Other Open Access resources

<http://www.arl.org/sparc/>

www.arl.org/sparc/soa/#forum

American Scientist discussion forum (mainly for researchers): <http://amsci-forum.amsci.org/archives/American-Scientist-Open-Access-Forum.html>