

## Leeds Metropolitan University

### Nick Sheppard

*“Open Access (OA) means immediate, free and unrestricted access to digital scholarly material.”*

*“OA was made possible by the advent of the internet.”*

(Peter Suber)

#### Introduction

The scientific journal as we know it today can be traced back to Henry Oldenburg who created the Philosophical Transactions of the Royal Society of London (Phil Trans) in 1665 and:

*“understood that if only he could attract the majority of Europe’s significant scientific authors to register their discoveries in the Phil Trans, his innovative use of print technology would become a defining moment of the European scientific movement.”*

(Guédon, 2001)

So was born a paradigm that lasted for more than 300 years. Modern scholarly journals, like their venerable forbear, do not pay authors for their articles and the majority of scholars publish their research in peer-reviewed journals not for financial, but for professional gain (Yiotis, 2005).

However, the “system of scholarly communication that has existed for hundreds of years” described by Yiotis evolved in the age of print at a time when scholarly output was relatively small. As the number of universities and associated research output increased in the 19th and 20th centuries, commercial publishers became interested in a market with an established creative source and pattern of consumption. Consequently, in the 1970s journal prices began to rise faster than inflation, having a negative impact on serials collections in libraries who could afford to subscribe to fewer and fewer of the expensive journals; the so-called “serials pricing crisis” (Guédon, 2001).

The unsustainable price rises of traditionally published journals coincided with the emergence of the internet and in 1990 Stevan Harnad introduced *Psycoloquy*, the first peer-reviewed scientific journal on the internet, which paved the way for free academic publishing on the web after 1993. Open Access, which had been “physically and economically impossible in the age of print, even if the copyright holder wanted it” (Suber, n.d.), was now possible.

#### Some arguments for Open Access

##### Increased research impact

There is evidence that OA articles are cited both more often and earlier than non-OA ones. In a seminal article of 2001 Steve Lawrence presents an analysis of 119,924 conference articles in Computer Science and related disciplines, illustrating that “more highly cited articles, and more recent articles, are substantially more likely to be freely available on the web” (Lawrence, 2001).

Although Lawrence’s analysis focuses on conference articles in a narrow subset of disciplines, there have been more recent studies that suggest these findings also apply to journal articles in a broader set of disciplines (e.g. Harnad and Brody, 2004; Eysenbach, 2006).

##### The unsustainable price rises of traditionally published journals

A fully realised system of OA publishing benefits universities, their libraries and research communities whether they are rich or poor; even affluent libraries can afford to subscribe to a relatively small subset of published research.

##### Publicly funded research should be publicly available

The public have a right to the research that their taxes have helped fund and it is increasingly common for funding bodies to mandate that the research they commission is made available in an OA repository; the Wellcome Trust is the best known example in the UK, while in 2005 the National Institute for Health introduced a similar mandate in the United States.

##### The democratisation of knowledge

The Budapest Open Access Initiative (2002) detailed the “unprecedented public good” that OA could do:

*“Removing access barriers...will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.”*

According to Yiotis (2005) making scholarly material available to scholars in wealthy first world nations, in developing ex-communist second world nations and in underdeveloped third world nations signifies

“the democratization [sic] of knowledge” while Chan et al (2005) emphasise that Open Access is in the interests of the first as well as the developing world because “research generated in these regions is ‘missing’ to the international knowledge base”...“leading to incomplete pictures of global science in general, and global health, environmental and development issues in particular.”

### Routes to Open Access

There are two distinct models of Open Access, commonly referred to as the Gold and Green routes.

The Gold route means publishing a research article in an Open Access journal; the Green route means publishing in a non-Open Access journal but also self-archiving (depositing an author-produced version of a published paper) in an OA archive, a practice that is formally permitted by increasing numbers of academic publishers.

An OA journal, by definition, requires an alternative cost recovery model to subscription, usually by charging author-institutions to submit their articles. Stevan Harnad (2004) cites “the riskiness and untestedness” of this model as the main reason for the still relatively small number of OA journals; the Directory of Open Access Journals currently lists 2,873 journals, a fraction of the total number of peer-reviewed journals.

It is the Green route, however, that represents the academic community’s most innovative response to the “serials pricing crisis” and has arguably precipitated the biggest shift in the industry since Oldenburg. There are several ways that an individual academic may choose to self-archive and there are those who believe that the long-term solution is likely to be in the form of personal web pages; however, at this time scholars still need “the tools and assistance to deposit their refereed journal articles in open electronic archives” (Budapest Open Access Initiative, 2002) and the model increasingly adopted is the Institutional Repository, an institutionally maintained web-accessible and fully searchable repository. The technology also means that metadata (title, author, year of publication) can be retrieved by Internet search engines including Google.

### Copyright conditions and permission to self-archive

Sustained lobbying by Open Access activists has succeeded in raising the profile of OA at national and international level with publishers increasingly adopting a formal position on self-archiving. The University of Nottingham SHERPA project maintains the RoMEO database which provides a summary of permissions normally given as part of publishers’ copyright transfer agreements. At the time of writing the database incorporates 386 publishers and covers 8,000-9,000 individual journals; not all grant permission but overall the majority of titles of interest to UK researchers allow some form of self-archiving (SHERPA RoMEO, 2008).

### Institutional repositories: not just for research

Institutional repositories are “digital collections capturing and preserving the intellectual output of a single or multi-university community” (SPARC, 2002) and as such are not limited to research output; they can also be used to store Reusable Learning Objects (RLOs); PhD theses; digital images of heritage collections; indeed, any of the disparate digital assets generated by a modern university. The Directory of Open Access Repositories (openDOAR - [www.opendoar.org/](http://www.opendoar.org/)) currently lists 152 repositories in the UK. The majority (109) are institutional repositories with every major higher education institution in the country either already hosting or in the process of developing one; most of these are primarily Open Access archives of research though some also incorporate Learning Objects, PhD theses etc.

Indeed, as the technology develops, universities are increasingly realising the benefits of using a common system for a range of digital resources instead of discrete information silos with differentiated content which may lead to compatibility and interoperability issues. Leeds Met is at the forefront of these developments with an integrated repository platform developed with funding from the Joint Information Systems Committee (JISC) and using a commercial software platform called intraLibrary which is able to manage a wide range of digital file formats.

## An institutional repository for Leeds Metropolitan University

Leeds Met is well on the way to establishing an Open Access archive of university research output; the collection will also comprise citation when copyright restrictions prohibit the deposit of full text material. It has the potential to be used as an administrative tool by the University Research Office for the Research Excellence Framework (REF). Work is also underway to use the system for storing and sharing RLOs both within Leeds Met and, where appropriate, externally.

Library staff are carrying out much of this early work, for example identifying copyright permissions for research submitted for the Research Assessment Exercise and uploading it to the repository, but the ultimate goal is to establish processes for academic staff to self-archive their own papers and articles and to deposit RLOs and other digital material.

### Summary

Institutional repositories represent the 'Green' route to Open Access to research, utilising internet technology to make the intellectual output of universities widely and, where appropriate, freely available. There are tangible benefits to making resources available in this way, both to the individual institution and to the wider community. The repository at Leeds Met will increase the profile of the research outputs and pioneering assessment, learning and teaching work carried out at the University and contribute to the developing global infrastructure of institutional repositories.

### References

Budapest Open Access Initiative (2002) Available at: <http://www.soros.org/openaccess/read.shtml> [Accessed 1 May 2008]

Chan, L., Kirsop, B., and Arunachalam, S. (2005) Open Access Archiving: the fast track to building research capacity in developing countries. Available at: <http://openmed.nic.in/1134/> [Accessed 1 May 2008]

Eysenbach, G. (2006) Citation Advantage of Open Access Articles. *PLoS Biol* 4(5): e157. doi:10.1371/journal.pbio.0040157

Guédon, J.-C. (2001) *In Oldenburg's long shadow: librarians, research scientists, publishers, and the control of scientific publishing*. Available at: <http://www.arl.org/resources/pubs/mmproceedings/138guedon.shtml> [Accessed 1 May 2008]

Harnad, S. (2004) *The Access/Impact Problem and the Green and Gold Roads to Open Access*. Available at: <http://eprints.ecs.soton.ac.uk/10209/> [Accessed 1 May 2008]

Harnad, S. and Brody, T. (2004) Comparing the impact of open access (OA) vs. non-OA articles in the same journals. *D-Lib Magazine* 10(6).

Lawrence, S. (2001) *Online or Invisible?* Available at: <http://ivyspring.com/steveLawrence/SteveLawrence.htm> [Accessed 1 May 2008] [Edited version appears as: Lawrence, S. (2001) Free online availability substantially increases a paper's impact. *Nature* 411(6837), 521.]

OPENDOAR (2008) Available at: <http://www.opendoar.org/> [Accessed 1 May 2008]

SHERPA RoMEO (2008) Available at: <http://www.sherpa.ac.uk/romeo.php> [Accessed 1 May 2008]

SPARC (Scholarly Publishing and Academic Resources Coalition) (2002) Available at: <http://www.arl.org/sparc/> [Accessed 1 May 2008]

Suber, P. (n.d.) Open Access Overview. Available at: <http://www.earlham.edu/~peters/fos/overview.htm> [Accessed 1 May 2008]

Yiotis, K. (2005) The Open Access Initiative: a new paradigm for scholarly communications. *Information Technology and Libraries* 24(4).

**Nick Sheppard**

**Repository Development Officer  
The Headingley Library**

For more information contact Nick Sheppard at [n.e.sheppard@leedsmet.ac.uk](mailto:n.e.sheppard@leedsmet.ac.uk) or search our nascent research collection online at: <http://repository.leedsmet.ac.uk/main/index.php>