

# Open access and the impact on publishing and purchasing

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In the field of academic publishing and the dissemination of research outputs, the advent of open access poses big questions. Will it mark the end of traditional journal publishing? How will research made available through open access be accessed by users, and what role will libraries play? What effect will it have on current journal purchasing arrangements? Open access allows authors to make their papers freely available to all, widening access to the outputs of research; this paper describes the open access movement, how the effects of this are being addressed, and what this will mean for publishers, librarians, and intermediaries. Open access is here to stay. It is a relatively immature process, though, and it is up to all parties involved to work together and establish new mutually acceptable models of publishing.



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## Introduction

This paper describes the advent and development of the open access movement. This movement poses a challenge to traditional journal publishing like no other before and it is inevitable that current practice in publishing and purchasing will be affected. However, open access is still developing and it is too early to say what or how much of an effect this might be. Open access offers huge potential for the dissemination of academic research outputs to all, at no chargeable cost to the user, thus opening up research to many who could not afford subscriptions to traditional journals. But there are issues of preservation and peer-review that traditional journals are well-suited to. A balance is needed and will only be reached when all parties (including publishers, subscription intermediaries, researchers, and librarians) seek to ensure the best outcomes for all.

The Joint Information Systems Committee (JISC)<sup>1</sup> is an agency of the UK Further and Higher Education Funding Councils with a remit to promote and disseminate best practice on the use of Information Communication Technologies to the academic community. It is examining the technology and cultural implications of the open access movement and this work is described alongside other initiatives.

## Open access

What is open access? In a sense it is what it says on the tin. Open access means that access is permitted to research papers and documents in an open environment at no chargeable cost to the user. The concept of open access applies exclusively to online access, as it is the internet that has offered up the technical possibility of allowing users to view research openly and without paying anything. With online access, of course, there are costs in establishing the infrastructure to allow users this access, but the spread of the internet worldwide has made this barrier smaller, and one that is cheaper in the long term than ongoing subscription models. The open access movement is also focused on allowing access to scholarly publishing, and scholarly publishing through journal articles predominantly. It is based on the concept that researchers wish their research to be made known and shared as easily as possible for the direct benefit of others, not themselves. However, it is also recognised that benefits, even if indirect, may well accrue to the researcher in terms of their renown.

So why has there been a move towards developing open access as an alternative to traditional forms of publishing? A major reason is the increasing costs of subscriptions for journals, partly brought about by package deals and the

adding of extra costs for online access. Many libraries are struggling to maintain collections of journals relevant to, and needed by, their institutions, which may well lead to future gaps in coverage as titles are cancelled and research not being as widely circulated as it could be. Open access provides an alternative means for research outputs to be shared, with libraries taking on an organising role to promote and advise on where research is openly available. It is also regarded as a more dynamic model of publishing. It offers greater flexibility, with research capable of being made available independently of other articles in an 'issue'. It allows for more rapid dissemination through providing access via the internet and can operate a peer-review system online. And it builds linkages between research areas and groups by encouraging interaction and hyperlinking without any concerns over access by other users. A key factor is the lack of copyright restrictions when compared to traditional publishing, in other words allowing authors to maintain ownership of the material. Generally, open access is seen as a means for widening access to information beyond what can be currently achieved.

Open access does not necessarily mean free. There are costs involved in providing the infrastructure for online access, and there are also the costs of making information available electronically. There are infrastructure costs at the publishing end as well as the delivery end of the line, plus processing costs. As with traditional publishing, there are costs for refereeing the research being published where this is carried out. Indeed, many of the costs of traditional publishing are also associated with open access. As such, any argument for open access needs to weigh up these costs and put them alongside the benefits. Even when this is done, the costs are less. A study in the USA<sup>2</sup> has shown that the costs per article when published through open access on the internet are far cheaper than through a traditional publishing route: \$300-\$1000 per article as opposed to \$4000.

### Open access models

So far I have described open access in general terms, as a 'movement' and as an alternative publishing model. More specifically, there are two main open access models that can be currently adopted if this means of publishing is chosen.

#### Open access journals

The first is through the development of open access journals, internet journal titles that are freely available to all users. Many of these have been established in recent years and the number is growing fast. A key player in the medical field is BioMed Central, which publishes a range of online titles. *The New Journal of Physics* is proving very popular in its field. Journals such as these fund their development predominantly through author charges. Hence, the user can access the information for free, but the author has paid to have it made available. This is part of the quality and peer-review process, and online journals such as these are aiming more and more for the quality mark that has made traditional titles so valuable over the years. Interestingly, increasing popularity can be a problem, as the *Journal of High Energy Physics* found. This started as an open access journal, but has recently had to apply limited charging for access because of the number of hits it was receiving. A directory of open access journals has been compiled by the University of Lund in Sweden<sup>3</sup>.

#### Self-archiving

The second open access model is self-archiving. This involves the setting up of a repository, which can be subject-based, institution-based or even personal, into which research outputs are deposited for use by anyone who wishes to and can access this repository. There are a variety of software options to facilitate this, but two are gaining popularity: e-prints.org from the University of Southampton<sup>4</sup> and DSpace from MIT<sup>5</sup>. Each allows easy publishing on the internet allowing open access. The US study on costs mentioned above has calculated that such models can cost as little as \$5 an article, depending on the scale and volume of the repository in question.

Although these two models have grown and developed over a period of years, they have recently been identified by the Budapest Open Access Initiative<sup>6</sup> (BOAI) as the two major means for the development of open access. This Initiative came out of a meeting at the end of 2001 held in Budapest which considered how open access could be developed in a more structured way. It can be summarised as '...a statement of principle, a statement of strategy, and a statement of

commitment.' As such, it aims to be a focus for open access discussion and promotion. The Initiative itself is a document outlining the major principles of the open access movement, and individuals and organisations are invited to sign up to this to show agreement.

### **OAI and e-prints**

The Open Archives Initiative (OAI) standard for sharing information was developed primarily for exchanging information about e-prints – research outputs often associated with the self-archiving open access model. Originally, such self-archiving was aimed at pre-prints, electronic versions of articles prior to publication in a traditional journal. The open access movement has raised the issue of self-archiving post-prints, making printed versions of articles available electronically, through the archive. The term e-prints covers both of these. E-prints are predominantly electronic versions of articles, though some are now using the term to also refer to research outputs more generally.

E-prints are, now, an established means of electronic publishing, through their deposit in archives. The first archives to be established were subject based, for example ArXiv<sup>7</sup>, which was established over ten years ago, and Cogprints<sup>8</sup>. Note that the term 'archive' used here is synonymous with 'repository', but is generally preferred when referring to subject-based systems. One difficulty in establishing these archives is how users discover what they hold. Each offered a search mechanism and served those who knew of them well. However, as more archives were established there became a need to search across them and provide alternative means of access. OAI was designed to facilitate this in two ways: firstly, services like my.OAI<sup>9</sup> use OAI to gather information, or metadata, about many different archives and their content and allow users to search across these. Secondly, OAI acts as a standard through which anyone can harvest metadata in archives that have been set up to allow this and allow users to search this local version. OAI has thus been a primary means through which the self-archiving model of open access has grown.

### **Institutional repositories**

Institutional repositories are a growth area. Subject

repositories or archives have been created by like-minded groups of researchers who wish to share research outputs between institutions. There is also a desire to maintain ownership of the material rather than sign over copyright. Universities are realising that it is in their interest to maintain ownership of material produced by their staff, and are investigating institutional repositories as a means for this. There are a number of reasons why this route is being followed. The main one is related to impact. By making research outputs available through a local repository, institutions can brand this when it is harvested and/or searched by others. This may increase the potential for attracting further funding. Such repositories are also a way in which institutions can capture all information and outputs. One of the main outputs is e-prints, highlighting a possible conflict between subject and institutional repositories that is currently unresolved.

### **JISC and open access**

So how is JISC addressing open access? At present there are two areas of work that relate to open access. One of the current programmes of projects is Focus on Access to Institutional Resources, or FAIR<sup>10</sup>. This programme comprises 14 projects running for different timespans between 2002 and 2005, and has been put together, recognising that institutions hold assets and resources that could be shared with others for mutual benefit. It has also been inspired by the potential of OAI as a technical means to enable this sharing.

As already indicated, one of the main collections of assets that institutions hold are e-prints and research outputs. In relation to open access models, the FAIR projects will address the self-archiving model in some detail. However, there are no plans to investigate or develop open access journals at this time.

Whilst the FAIR programme will address the technical means for sharing information, the JISC Scholarly Communications Group has a more advisory and policy remit. It is investigating and monitoring changes and trends in scholarly publishing itself, and will advise JISC and institutions on the directions these appear to be going in. Policy decisions will also feed into future development work beyond FAIR.

## Impact on publishing and purchasing

Not surprisingly, the advent of open access, subject archives, institutional repositories, e-prints etc, and the interest being shown in these developments suggests that there will be some future impact on publishing and purchasing.

To address open access journals first, there is no doubt that there will be, and in some cases already is, competition between titles. Open access journals wish to publish high quality papers in the same way as traditional journals, but their business model is different. Authors will have to decide where they wish to publish, if they decide to at all – they may just self-archive everything. The effect on publishing will depend very much on the perceived quality of the open access titles available. The business model is still developing and it will be interesting to watch developments. Another key factor will be support from the researchers. Open access is supported by many researchers as the best means for publishing papers that are then available to all. The trend in this area will also affect how research is published in the long term.

Whereas open access journals are clearly in competition with traditional publishing, there is much ongoing debate about whether self-archiving is or not. Clearly, if authors publish only through self-archiving, then yes, there is competition. But if the self-archive is primarily for works in progress, which in itself is a worthy aim, then there is a possible role for journals as the publishers of definitive or canonical versions of a work. Journals may play the quality card. This model has been shown to work in the physics community – the ArXiv repository has been running in parallel with traditional physics journal publishing for over ten years without any obvious detriment to the publishing side. Whether this model will work in all subject areas, or even in an institutional context, remains to be seen. The driving factors would appear to be maximising exposure of research outputs and the best way of achieving this, and the ongoing costs of traditional publishing and costs to libraries in subscriptions.

The latter two factors will also have a knock on effect on purchasing, particularly costs. However, there are other areas that need addressing in the long term. Where will researchers find the information they need? If researchers decide they can get what they need from open access sources,

then demands for the purchase of journals will fall. As demand for particular titles falls, there will be a knock on demand from libraries to withdraw certain titles from package deals or bulk buying. This presents a need, and scope, for more flexible licence arrangements.

## Conclusions

Open access is here to stay. It allows the exposure of research outputs to the widest possible audience, a feature that appeals greatly to researchers, particularly in the STM field.

Having said that, the business models and technical solutions are still being tested and need development. The JISC FAIR programme is addressing some of these issues and the open access movement will continue to develop an ongoing discussion of the issues. There will be an impact on publishing and purchasing in the long term. However, this impact can be relatively small if the various parties (authors, institutions and publishers) work together to establish new mutually acceptable models of publishing.

## References

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