

## Chapter 12: Learned Society business models and Open access

If Matthew Cockerill is clear about the benefits, indeed necessity, of open access, then Mary Waltham is more circumspect. Her chapter is based on an investigation commissioned by the Joint Information Systems Committee (JISC) Scholarly Communications Group in the UK. It reveals that the business models of learned society publishers lead them to question the viability, in their circumstances, of current models of open access publishing. Nevertheless, undeniable strains within the subscription model mean that further experiments and investigation, perhaps on a disciplinary basis, are likely.

# Chapter 12: Learned Society business models and Open access

Mary Waltham

During the past two to three years (2003 to 2006) there has been much debate about the sustainability of an Open Access<sup>8</sup> (producer pays) business model for scholarly journals, with particular interest from the learned societies whose mission and purpose is aligned with the overarching goals of such a model. However, in the absence of factual data on publisher economics and the impact of long term trends that are affecting journal publishing performance, it was not possible for learned society publishers or their Boards to make well informed decisions about the appropriate strategy with respect to Open Access for their journal. A study commissioned by JISC in March 2005 set out to contribute to the knowledge and understanding that then existed by providing detailed case-studies of a sample of typical learned society publishers, by identifying trends through analysis of three years of precise financial and circulation data provided by the publishers for 2002, 2003 and 2004, noting landmarks and proposing best practice guidelines for publishers wishing to move to an Open Access model (Waltham, 2005<sup>9</sup>). The full report gives a practical, fact-based framework which the publishing leadership in learned societies can use to support and inform active engagement with the key and core business issues surrounding a move to an Open Access business model, and the steps involved in doing so.

## Why change the business model?

The annual world production of research results as peer-reviewed published articles is increasing from the level estimated to be 1.2 million articles in 2003, driven by growth in global research funding and in certain disciplines the tendency to produce many more articles to describe one substantive research finding (the 'least publishable unit' problem). Individual journal pricing and annual price increases have been driven by a number of economic factors including the increasing numbers of articles and pages published. The costs associated with the selection and production of more edited content drives up the cost of both print and online versions of scholarly journals.

As the volume of the research literature grows, higher education is not in a position to provide all the injection of funds required to pay for increased print and online publishing costs expressed as rising subscription and site license prices.

For these reasons alternative models for publishing peer-reviewed research are likely to be required because existing business models for the scholarly communications system which rely solely and most heavily on subscription fees paid by institutions may become unsustainable.

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<sup>8</sup> Throughout this chapter Open Access is used to refer only to the situation where the author pays the publisher a fee on acceptance of an article to cover the costs of publication. There is no subscriber access control of the journal article and on publication the article is available free of charge online to anyone.

<sup>9</sup> Readers not familiar with publisher terminology and publishing economics will find the account of each in this report especially helpful

## Overview of the publishers and the journals

Nine learned society publishers agreed to take part in the 2005 JISC study of business models and provided detailed profit and loss information about one or more journals based on the complete confidentiality of the information submitted. Eight of these publishers were based in the UK. One learned society publisher from the USA was invited to take part in the study to help provide further context to the particular issues facing the UK publishers. In total these nine publishers provided detailed circulation and profit and loss information about 13 journals. One journal was already fully Open Access (producer pays) and so no circulation figures could be provided. All of the publishers can be described as not-for-profit and all use the surplus generated by publishing to support other activities central to their mission as a learned society.

The nine study participants are active in the following areas of STM publishing:

Clinical medicine: 2 publishers

Biomedicine: 1 publisher

Applied Biology: 2 publishers

Science: 1 publisher

Technology: 2 publishers

Plus one publisher active in both the life and physical sciences.

<u>Frequency</u>	<u>Number of journals</u>
<u>24 x year</u>	<u>1</u>
<u>12 x year</u>	<u>9</u>
<u>6 x year</u>	<u>2</u>
<u>4 x year</u>	<u>1</u>

**Table 12.1: Print publishing frequency of journals included in the 2005 JISC study**

Although the sample size was small and each journal quite individual, the results show overall trends that are consistent within STM publishing. The type of research content published varied as would be expected across traditional STM areas with some journals including extensive mathematical setting, numerous graphs and charts and very little colour and others frequently including numerous illustrations such as half-tone photomicrographs or four colour histopathology figures. Length of article also varied by broad discipline and, within the 'Information for Authors' for each journal, maximum and optimal article lengths were provided by the publishers.

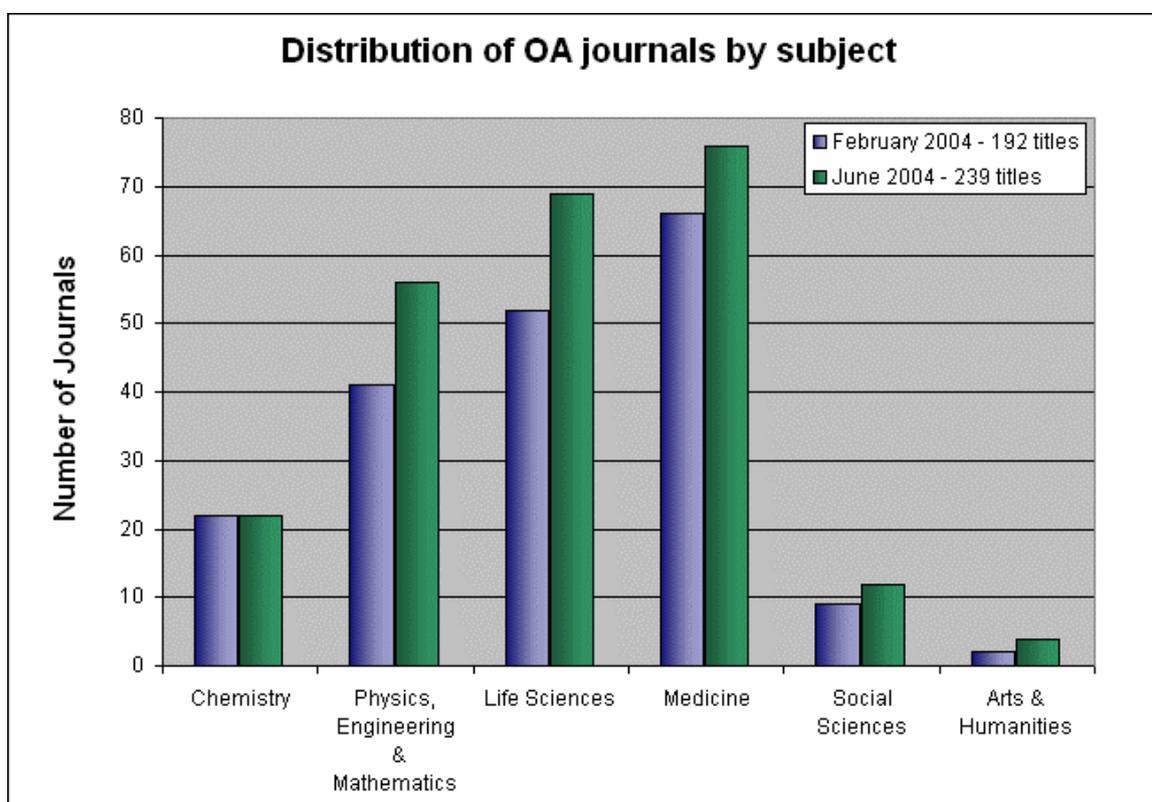
## Open Access as a business model?

Open Access business models have been widely promoted within the scholarly publishing community as the basis for transforming and resolving the funding problems of the communication of research. However, precise data on revenues and costs of publishing peer-reviewed journals in print and online have been difficult to access. Estimates of the cost per article for publication vary widely with sketchy or incomplete data to support figures proposed and poor definition of which elements of the publishing process are to be covered by OA author

fees, for example. Several of the participants in the JISC study are interested in experimenting with OA although justified nervousness about the impact of such an experiment on overall business performance is likely to lead to more cautious experimentation with small and less critical journals.

### Uptake of Open Access

Within certain disciplines there may be some resistance to shifting to a producer pays model because of enduring scholarly traditions and/or questions of quality. The uptake of OA by publishers and the research community by discipline can be mapped using Thomson ISI Journals Citation data and in particular work done by ISI to identify OA journals covered by the Journal Citation reports (JCR). In Figure 12.2, compare the number of new OA journals in Chemistry in the ISI database with the numbers in physics, life sciences and medicine. Although the timescale over which this analysis took place is short the trends are quite clear.



[Insert Figure 12.2]

**Figure 12.2 - Change in coverage of OA journals within ISI JCR from February 2004 to June 2004: (Source: McVeigh, 2004)**

What do the learned society business models reveal?

Based on information provided by the nine learned society publishers participating in the 2005 JISC funded study, the surplus delivered by their journals is used to support any or all of the following within each publishing operation:

- new product development, for example back issue digitisation;
- new journal launches, for example in the emerging inter-disciplinary research areas;
- other society activities, for example, research based meetings and conferences;
- other activities, for example, travel scholarships for young scientists.

As a result either the business model selected by the publishers needs to deliver cost recovery plus a modest surplus or the society will need to find funds from other sources to support investments and member service activities. The decision on this will doubtless need to be made at the individual society and publisher level but an active choice needs to be made in the event of falling journal revenues and surplus.

The Open Access model as currently construed is unlikely to meet the needs of learned societies although it is attractive in principle to many learned society publishers because it is aligned with their mission and provides increased visibility to their journal (or journals) and the authors and research they publish. Deep concern is expressed by the leadership of learned societies over the financial sustainability of a switch to this model across the board.

The costs of publishing each of the learned society journals included in the JISC study increased year on year throughout the period 2002-2004 (up 11% over 3 years). If a journal relies on OA to support publication, then it is important that the per-article fees can be raised to take account of this. If not, then OA publishers will have to rely on subsidies and alternative revenue streams that themselves will require new or additional resources to generate them. Costs have increased as a result of increased numbers of submissions – which take time and money to handle, increased numbers of articles and pages published, higher labour costs with the need for more technically qualified staff to work with the online version and the additional costs of publishing in dual versions. The fixed costs of publishing have been a primary source of the increased cost levels and these are costs that are not reduced by falling print runs.

Costs per article are driven by a number of factors irrespective of print or online version, which have not been addressed in much of the literature on the topic. These include:

- the overall rejection rate: the higher the rate the higher the cost per published article
- the length of article: long articles cost more to publish than short articles since the costs of creating journal content are driven by the volume of content processed
- the number and complexity of figures and illustrations and the amount of colour: the more of any of these in general the more expensive the article
- the first language of the author can also affect the extent of post-acceptance editing of an article that is required, for example, as research output grows in Asia, editing of articles from this region will be more costly for publishers.

There is heavy reliance by learned society publishers on institutional subscription revenue to support the journals, while the number of institutional subscriptions is falling. In contrast, the price charged to members for their society subscriptions is in general not covering the costs of providing the print journal. Online only member subscriptions would reduce the cost and some publishers are implementing this change. Net margin/surplus patterns are shown in Table 12.2.

Year	Highest net surplus	Average net surplus	Lowest net surplus/loss
2002	60% (£240,000)	23%	A loss of £220,000
2003	60% (£242,000)	19%	A loss of £200,000
2004	62% (£268,000)	22%	A loss of £161,000

**Table 12.2 - Net margin/surplus patterns – 10 learned society journals**

Although average numbers mask the differences in the journals analysed, the average publishing cost per article in print and online was £1,447 (range £493-£2,232) and per page £144 (range £65 – £203) in 2004. The average revenue per article was £1,918 (range £389-£3,380) and per page was £194 (range £21-£538 in 2004).

If all print costs are removed the average publishing cost per page was £97 for an average article of 9.8 pages. Above this length, costs per article will increase and below them the variable costs will fall, but fixed costs will not. In determining OA fees to authors it is essential to factor in article length as this is a major cost driver irrespective of format.

#### Online only?

In order to cover the average online only costs for a 10 page article and deliver the average surplus, the OA fee per article for 2004 would need to be set at £1,166 for the society journals included in the 2005 JISC study. However, revenues from print deliver a considerable proportion of the surplus generated by the learned society journals included in this journal study.

Learned society publishers are not all separating print and online costs in a way that is helpful in predicting the impact of falling print circulation on the total cost of publishing the journal. In part this is due to the bundling of outsourced print and online services by third party suppliers and in part it is because there is a quite widespread view based on current trends that print cannot 'go away' until institutions stop wanting to buy it. As this transition proceeds it becomes essential for publishers to understand their distinctly print, distinctly online and shared print and online costs and revenues.

Although there would doubtless be savings and efficiencies within the publishing system from removing print it will need to be removed entirely for those to be realized and in the meantime statements that publishers should be charging Open Access author fees that are equal to the costs of online publication are somewhat difficult for many publishers to translate into a sum because many are not collecting the financial information required to do this.

Value Added Tax (VAT) is a barrier to making the transition from print to online in the UK and Europe because of the anomalous situation that protects print (and bundled print and online) subscriptions from VAT but not online only. This is not the case in North America or Asia. It is possible that moving to online and abandoning print entirely would save more than the 17.5% of VAT but, as noted above and described more fully in the report (Waltham, 2005), the move to online only is not necessarily to the advantage of all publishers because for some a

considerable proportion of their current surplus comes from print subscriptions sold to institutions. Notice also that VAT is chargeable on individual OA author fees.

### Acceptability of OA

None of the learned society publishers could see substantial savings from moving to an OA publishing model although most agreed that there should be some savings and then pointed out the additional costs incurred for administering and collecting author publishing fees and the additional costs of marketing to authors versus institutions, that is many individuals versus a few institutions.

From the results reported by publishers experimenting with the OA business model across STM publishing including the exclusively OA publishers, there is not yet a strong and positive 'pull' from the author community for OA to their articles despite increased financial support from funding agencies. Such a change may take a long time. Nevertheless a market is emerging for the price of publishing an article OA within existing (and newly launched) journals with OA fees ranging from \$500 to \$3,000 per article.

Author acceptance of and interest in OA - the producer pays publishing model - is generally low but shows some variation by discipline. The landscape of this pattern of preference is becoming clearer as the various publisher experiments with a hybrid model proceed and exclusively OA journals such as those from The Public Library of Science and BioMed Central build a track record within their respective fields. As more results of the responses to OA opportunities become available they should be carefully and independently documented and broadly disseminated to the scholarly communication communities for reference.

Two key features seem most likely to influence the uptake of OA by authors as customers and publishers as service providers. Firstly, are articles that are OA from first publication cited, read and integrated into research more, and more rapidly than subscription-only access articles? (On this point, see Kurtz and Brody, this volume.) Secondly, does an open access journal receive more high quality submissions than a competing subscription-based journal? The answers to these questions will take time and rigour to develop a clear understanding as there are important disciplinary differences to consider.

There is no universal answer to the issues faced in funding publication of the research literature but alternatives need to be explored collaboratively and based on sound information. Solutions are likely to emerge on a case by case, discipline by discipline and market by market basis.

### Acknowledgments

Thanks are certainly due to the nine deliberately anonymous learned society publishers who took part in the 2005 JISC study for the generous and thoughtful way in which they provided highly confidential data and spent time and effort interacting with me so that their case study information included in the JISC report was as accurate and complete as possible.