

CONFIDENTIAL

JISC: Learned Society Open Access Business Models

By

Mary Waltham

www.MaryWaltham.com

184 Springdale Road
Princeton
NJ 08540
USA

e-mail: mary@marywaltham.com

June 2005

CONFIDENTIAL

CONFIDENTIAL

www.MaryWaltham.com

Contents	Page
1. Executive summary	1
2. Methodology and overview of the publishers in the study	4
3. Circulation patterns	6
• Print and online trends	6
• Subscribers	8
• Members	8
○ Print and Online	
• Institutions	9
○ Print and Online	
• Non-Member individuals	10
○ Print and Online	
4. The journals business	12
• What are the costs?	12
• Trends in cost categories 2002-2004	17
• Where do the journal revenues come from?	21
• Surplus	23
5. Open Access experiments	25
• What have we learned from the experiments so far?	25
• Is the Open Access model sustainable?	27
6. Steps towards Open Access	29
• Delayed Open Access	29
• Hybrid Open Access	30
○ What if each of these publishers wanted to make a transition?	
• Removing print	47
7. Conclusions and recommendations	48
Appendices	
Appendix 1: Information gathering tools	51
• Authors and readers template	52
• Profit and Loss template	53
Appendix 2: Case Studies of 9 learned society publishers	56
• Publisher A:	
• Publisher B:	
• Publisher C:	
• Publisher D:	
• Publisher E:	
• Publisher F:	
• Publisher G:	
• Publisher H:	
• Publisher I:	

1. Executive Summary

- 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 {LPU} 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 selection and production of more edited content drives up the cost of both print and online versions of scholarly journals.
- Higher education is not in a position to provide the injection of funds required to pay for increased print and online publishing costs as the volume of the research literature grows.
- For these reasons alternative models for publishing peer-reviewed research are required since existing business models for the scholarly communications system which rely most heavily on subscription fees paid by institutions are becoming unsustainable.
- Open Access¹ 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. The average cost to publish an article will depend on a number of factors, 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. Length of article – long articles cost more to publish than short articles since content creation costs are driven by 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 focus of this study is an in-depth exploration of nine learned society journal business and pricing models in the context of their societies and the Open Access business model (See [Section 2](#)). Eight of the publishers are based in the UK and one in the USA. The study considers whether and how OA can be adapted by the representative sample of STM publishers who agreed to participate in the study by providing full circulation, revenue and cost data for 2002-2004 inclusive.
- Circulation data (See [Section 3](#)) for the three year period 2002-2004 provided by the nine participating publishers shows that bundled subscriptions of print and online accounted for 29% of total circulation and 75% of revenue in 2004. Print subscription numbers fell by 43%. Online only subscriptions also fell by 6% but

¹ **Throughout this report 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.**

- the notion of a single online subscription is artificial given that many of the publishers are selling site wide licenses to use their online journals.
- Society member subscriptions, which account for two thirds of all subscribers, fell by 3% but revenue was up by 6%. Institutional subscriptions, which account for one third of all subscribers, fell by 22% but revenue was up by 9%. Revenue from non-Member individual or personal subscriptions, which account for 2% of subscribers, fell dramatically by 70% over the period 2002-2004.
 - Article submissions to the journals combined increased by 35% and the number of articles published by 25%. Total pages published for the 10 journals where three consecutive years of complete data were available increased by 33% from 2002 to 2004
 - The average cost per article for print and online publication (See [Section 4](#)) for all 13 journals in 2004 was £1,447 and per page was £144 but this average covers a broad range including one journal that is online only.
 - The life sciences journals included in the study were publishing more and shorter articles than the physical sciences and technology journals, and these broad differences have a significant impact on the "cost per article" which will vary by discipline, by journal type and by editorial policy.
 - Fixed costs of publishing the journals increased throughout the period. Variable costs of print manufacturing fell modestly but print distribution and fulfilment costs increased to more than offset this. Over the period under review the revenue, costs and margin per page fell.
 - Subscription revenue (See [Section 4](#)) accounts for 88-89% of revenue to the 10 journals over the period 2002-2004 and this proportion is even higher if the two US journals with author page charges are removed. Some 32% of the total revenue for the two US journals combined comes from author payments which is fairly typical of a US society journal.
 - Institutional subscription revenue accounts for 97-98% of total subscription revenue to the 10 journals reviewed 2002-2004, and 86-87% of the total journal revenues. There is heavy reliance on institutional subscriptions which for all but one journal fell in number through this period.
 - Average revenue per article for all 13 journals in 2004 was £1,918 and per page was £194.
 - Net surplus/loss generated by each of the journals (See [Section 4](#)) varied from a surplus of 62% (£268,000) to a loss of £161,000 in 2004. The average net surplus of 22% masks a wide divergence in business performance.
 - A brief review of recent and current OA experiments (see [Section 5](#)) is included with some comments on what may prove to be emerging trends by discipline (biomedicine versus chemistry) by richness of research funding source (biomedicine versus ecology and environmental sciences) and by increased online access to 'good enough' versions of research through pre-print and institutional repositories.
 - The key requirements for a society journal business model to be financially sustainable are identified. These include covering costs and returning a modest surplus to re-invest in innovation and ongoing support structures such as new content and functionality, and archiving of existing content. The OA model as currently construed is unlikely to meet all of these needs.

- From the results reported by publishers across STM publishing including the exclusively OA publishers, there is not yet a strong and positive 'pull' from the author community for OA of 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.
- Generic steps in considering a transition towards OA are presented (see [Section 6](#)). Key considerations and possible actions at the individual journal level are proposed based on the detailed information provided by the publishers who agreed to participate in the study.
- Opinions have been expressed that removing print would lower the costs of the OA business model (and publication costs in general). Naturally this is true but analysis of the purely print revenues and costs across 12 journals (see [Section 6](#)) included in the study show that revenues would fall more than costs and as a result publishing surplus would fall based on 2004 figures if print subscriptions no longer existed.
- If the variable costs of print are subtracted from 2004 costs then the average publishing cost per article falls to £956 and per page to £97. Averages cover a broad range across the journals analysed.
- Conclusions and recommendations arising from the results of the study are included as [Section 7](#).
- [Appendix 1](#) includes tools that publishers may find helpful in analysing information about their journals as they consider a transition to OA or more broadly the print to online transition that is underway.
- [Appendix 2](#) includes brief Case Studies of each of the nine publishers who participated in the study.

2. Methodology and overview of the publishers in the study

Nine learned society publishers agreed to take part in this study by responding to an invitation posted on two key list-servs as follows:

"JISC wishes to elucidate in detail if and how learned society publishers can consider making a transition to a sustainable open access business model, and what the funding sources and requirements would need to be in order to do so. JISC is seeking UK-based societies to participate in a Business Model study by providing information which will be used in complete confidence to develop a number of case studies."

In subsequent communication by e-mail and by telephone to find out if participation would be possible to the timescale required for this study all of the publishers were assured that:

"All of the information you provide will be held in complete confidence and not divulged to JISC. The publishers involved in this study will not be identified publicly and care will be taken to ensure that the identity of the journals on which the cases are based cannot be deduced."

As a result the numbering system used to identify publishers in this report is deliberately inconsistent; only the participating publishers themselves will know which columns of figures and case studies refer to their own journals.

Eight of the publishers were based in the UK and one in the USA. In total these publishers provided detailed circulation and profit and loss information about 13 journals. One journal is fully Open Access (producer pays) and so no circulation figures are included and two publishers of the nine were unable to provide the full three years of profit and loss data as requested.

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 publishers account for the circulation, revenue and costs of their journals in quite different versions. In order to compare the overall changes taking place over the past 3 complete fiscal years it was essential to establish a common approach and so publishers were asked to supply information about one or more of their journals within two templates (see [Appendix 1](#)):

- Authors and Readers
- Profit and Loss

In addition face-to-face interviews were conducted with each of the publishers during April and May 2005 and the responses to those interviews in combination with the completed templates were used to develop a case study for each publisher, which is included as [Appendix 2](#). Interviews also provided an opportunity to talk through and clarify the information provided by the publisher.

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.

About the sample of journals

<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>

The 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 illustrations such as half-tone photomicrographs or four colour histopathology figures.

Length of article also varied by broad discipline (see [Table 4.3](#)) and within the "Information for Authors" for each journal, maximum and optimal article lengths are provided by the publishers.

One of the journals is already fully OA, and one has been experimenting with a hybrid OA model where if authors wish to pay a fee their article is OA from the date of publication. Several of the other participants are interested in experimenting 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.

Four of the 13 journals publish considerable numbers of pages of specially commissioned review and commentary about current research topics. The remaining nine journals are more typically 'learned journals' in content and presentation with little or no context or interpretation of the research provided explicitly for readers.

3. Circulation patterns

Circulation data by subscriber category was available for 12 journals from 8 publishers.

Overview of circulation and pricing patterns

Feature: The number of publishers with:-	N= 8
falling Member print subscriptions	8
online available to Members or individual subscribers	3
increasing Member online subscriptions	0
falling institutional print subscriptions	4 out of 4 offering print only subs
increasing institutional online subscriptions	3 out of 4 offering online only subs
unbundled pricing 2002-2004	4
only bundled pricing 2002-2004	4
site licenses	7

Print and online trends

Publishers varied in their subscription offerings over the three year period reviewed- some offering online only, some print *or* online and some print *and* online (bundled subscription). All of the publishers were producing online versions of the journals surveyed throughout the three-year period 2003-2004 and many have been full text online since the mid-1990's. Pricing models changed during the three years as did purchasing behaviours as is clear from changes in circulation by version and by customer segment described in this section.

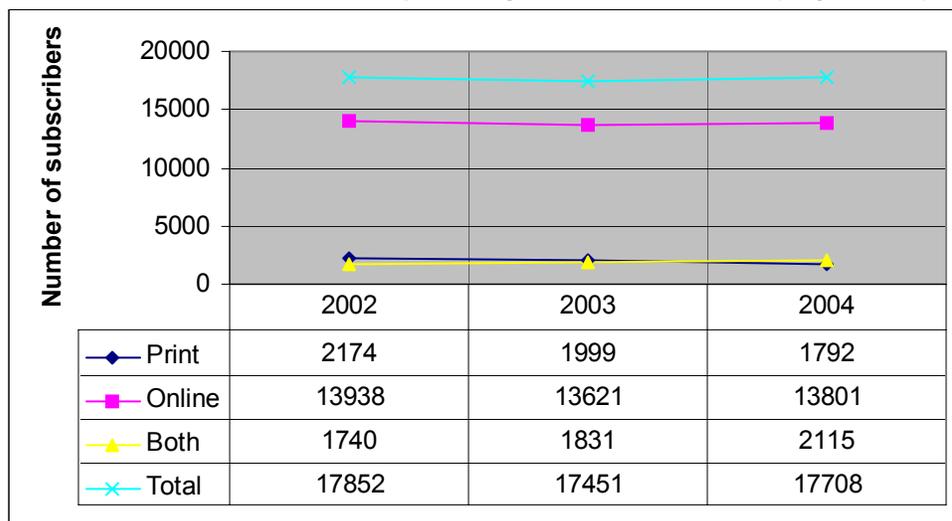
- Print only subscription numbers (including Members) to the 12 journals for which the complete three years of circulation data was available fell by 2,970 or 43% between the end of 2002 and 2004.
- Online only subscription numbers fell by 1,070 or 6% between the end of 2002 and 2004.
- Print and online (bundled) subscription numbers fell by 4% from 2002 to the end of 2004. In the UK and Europe the shift to unbundled pricing is being hampered by Value Added Tax (VAT) which is payable at 17.5% on online subscriptions sold separately from print. Several publishers viewed this additional tax as a limiting factor in their switch to online only subscriptions and feel that VAT effectively removes a large proportion of the cost savings that would be available to institutions if they could purchase online only since VAT cannot be reclaimed by these institutions. For the US publisher this is not an issue at the individual publisher level and they have been selling unbundled online only access through two aggregators throughout the three years.
- Site license numbers certainly grew through the period, but most of these learned society publishers have limited sales and marketing resources of their own and so site license sales are handled by a third party, either a publishing partner or through agreements such as the ALPSP Learned Journal Collection which is being sold by the subscription agent SWETS. Exact numbers of site licensees were often not provided by the publisher as they may see these incorporated within the total online subscription number reports provided or simply have the name of consortia, which comprise many institutions served with a journals collection.

My impression is that the subscription pricing models for this sample of publishers often did not reflect the added value and usage of an online site license because many priced a license at the same price as a single online institutional subscription and this price was in turn always based on the single subscription print price.

Subscribers

Members

Chart 3.1: Total Member subscriptions by version: 2002-2004 (12 journals)



Member subscriptions account for almost two thirds of all subscriptions in terms of numbers for the publishers. However there is a sharp difference between the UK and US publishers with respect to policies on Member subscriptions. Of the 17,289 Member subscribers in 2004, 13,616 (78% of the total Member subs) are to the two US journals. Members of the US society received an online subscription as part of their Membership throughout the period with no additional payment due; in addition a print subscription is available at a very low Member price. In the UK all but one society publisher requires an additional separate payment for a Member to receive a journal subscription whether it is print or online, and this clearly affects total Member subscription numbers. See [Table 3.2](#).

Table 3.2: Member subscriptions by country- 12 journals

Country of publisher	End 2002	End 2004	Change	% Change
US (2 journals)	14,250	13,616	-634	-4.4%
UK (10 journals)	3,602	3,673	+71	+2%
Total	17,852	17,289	-563	-3%

In 2004, Members accounted for 2% of the total subscription revenue received but were 63% of the total number of subscriptions fulfilled. The result is a clear imbalance between revenue and costs of this subscriber segment. Several of the UK publishers have recently started to offer online only subscriptions to Members often at a substantial discount as part of their strategy to convert Members to online only access.

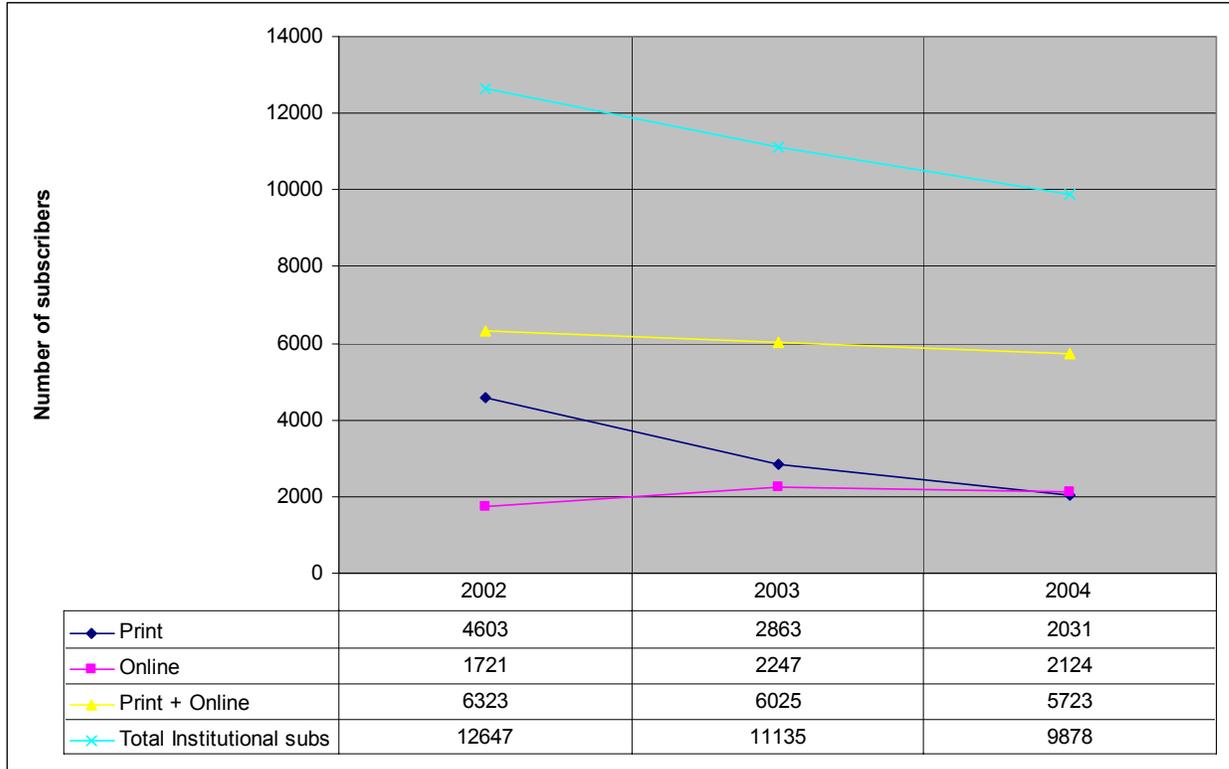
Member print copies fell by just 382 or 18% over the three years, while online only subscriptions offered by just 3 publishers remained fairly flat down by just 137 (- 1%).

Combined print and online subscriptions for Members grew by 375 (+22%) with losses in this category by the US publisher being more than offset by gains from the UK publishers.

Institutions

Institutional subscriptions represent one third of all the subscriptions sold to the 12 journals whose business model includes subscription-controlled access. Institutional subscription revenues provided 97% of total subscription revenues in 2004. The pattern of change for all the institutional subscriptions to the 12 journals is shown in [Chart 3.3](#).

Chart 3.3: Total Institutional subscriptions 2002-2004 by version: (12 journals)



All versions of institutional subscriptions fell to account for the steep 22% drop overall. The steepest was institutional print subscriptions, which fell by 2,031 (56%).

Of course it is impossible to consider individual subscription counts by institution as a measure of access when most of the publishers offer site-wide access to the online version. Adding in the number of site licenses sold would show an increase in the numbers of institutions this group of publishers are reaching. Not all the publishers are offering site licenses and several were not sure to what extent individual institutional subscription sales are being cannibalized by sub-licensed third party aggregator sales of online access to individual institutions and to consortia.

Four of the publishers were offering online only subscriptions and these increased by 403 (23%) in the three years. Although all of these publishers are experiencing a downward trend in their overall institutional subscription numbers, for a sub-set this was especially marked, notably in the life sciences. In contrast one technology society

publisher has been developing their international sales to institutions and recorded a 7% growth in institutional subscription numbers over the three years.

Table 3.4 compares changes in institutional subscriber numbers for the 10 UK based journals with the two US based journals where overall the loss has been less steep.

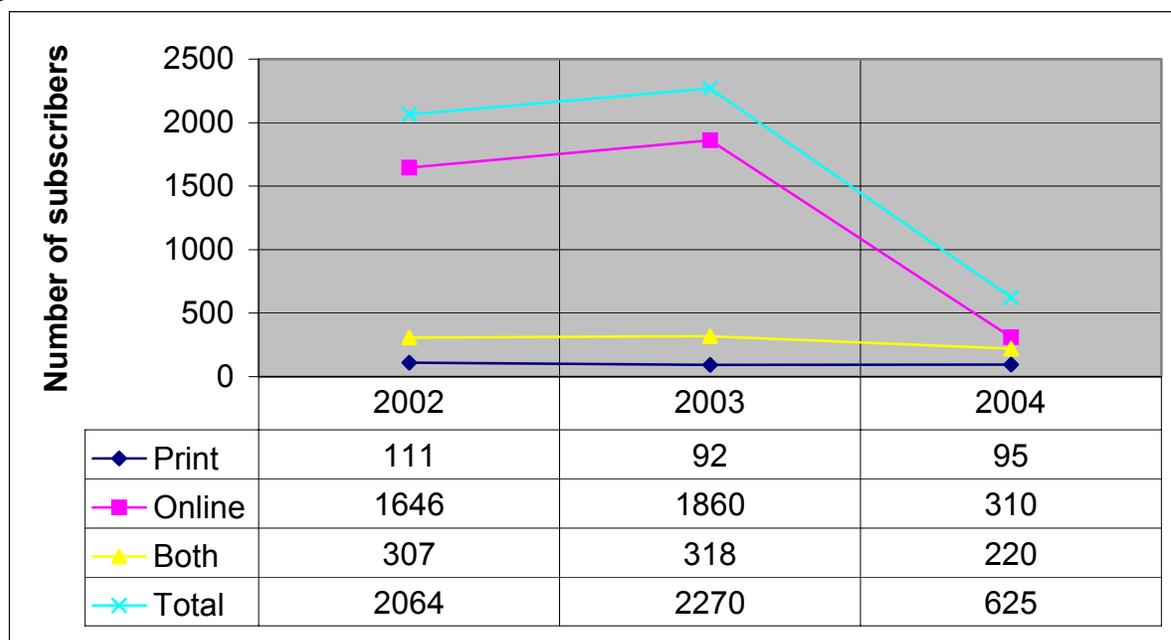
Table 3.4: Institutional subscriptions by country

Country of publisher	End 2002	End 2004	Change	% Change
US (2 journals)	1108	1029	-79	-7%
UK (10 journals)	12,330	8,251	-4,079	-33%
Total	13,438	9,280	-4158	-31%

Non-Member individuals

Just 4 of the 8 publishers offered Non-Member individual or personal subscriptions and this category represented just 2% of the total paid subscriptions in 2004. Typically a learned society may not offer this price category preferring to focus on recruiting Members and offering them discounted subscriptions as a benefit of Membership. Non-Member individual subscription numbers fell dramatically (minus 70%) as shown in **Chart 3.5**. Three of the publishers offered online only to Non-Member individual subscribers through the period.

Chart 3.5: Total Non-Member individual subscriber numbers 2002 to 2004 by version: 12 journals



Background

A steady fall in the numbers of print subscriptions to all journals has been taking place in the past 25 years and most steeply in the past 5 years. The reasons for this are numerous but include:

- Increasing *price* of periodical subscriptions particularly to institutions.
- Increasing *numbers* of journals with more “twigging” into specialist fields where the potential number of subscribers is often small.
- *Fewer non-Member personal subscriptions* since these subscribers are most sensitive to pricing and most affected by the increase in publication prices and now also have more widespread online institutional access.
- Increasing *availability of online versions* of print journals that because they are immediate, searchable, and linked into other relevant online information sources result in productivity gains for the end user.
- Libraries cancelling multiple print copies with the growth of online access.
- Libraries adopting a policy of online only if print and online are available, due both to budgetary restraints and user preference, especially in science.

The current rate of attrition in periodicals subscriptions year on year is in the range of 3% to 5%. Many large publishers often actively promote more dramatic swings as they make all their information available online at an institutional price that favours purchasing the entire database versus individual titles. The current trend, which is also driven by budget shortages, is for more customized groupings of titles rather than the entire collection. However, researchers working within any institution, whether academic, corporate or government lab, are now able to access all the information they may have considered buying in print for themselves, through their library network.

4. The journals business

What are the costs?

Publishing costs can be divided into two component categories: *fixed* costs that are incurred regardless of the number of subscribers and *variable* costs that are associated with each subscription.

Fixed costs involve both content creation and publishing support activities:

- Content creation costs are all the costs associated with preparing the editorial content for publication. It includes the editorial office costs of salaries and space and reviewing, editing, SGML/HTML/XML coding and composition of both articles and non-article content such as letters to the editor, book reviews and advertising all in preparation for print and online distribution.
- Publishing support activities are journal costs such as marketing, advertising sales, finance, and administration, including management costs and the office costs of these activities.

Variable costs include

- Manufacturing and paper, printing, and binding. Production of the online version including re-packaging of content.
- Distribution costs of the physical publication or as an online product. Order fulfilment - subscriber file maintenance and customer service for all subscriber types.

For reference *Incremental costs* (or run-on costs) are those just attributable to each additional subscription – such as the printing, distribution, and subscriber file maintenance of one subscription. Societies often price their Member copies based on incremental or run-on costs.

The costs for all the journals included in the study have been sorted as accurately as possible from the data supplied by the publishers according to these fixed and variable categories.

Note: One of the journals included is fully Open Access and online only and so there are no print manufacturing, production or order fulfilment costs incurred. Two of the publishers of two of the 13 journals were either unable to provide the full three years of data or to separate content creation costs from manufacturing and production costs. These two journals were therefore excluded from all the year on year cost (and revenue) comparisons in the report. To make the cost analysis clear the number of journals included in each part is provided here.

Table 4.1: Total fixed and variable costs in 2004: All journals

2004: Costs in £,000 to nearest £1,000															Total	Ave
Publisher	3	3	3	3	4	5	6	7	8	9	1	2	2			
Frequency	12 x	12 x	12 x	24 x	12 x		4 x	12 x	12 x	12 x	24 x	6 x	6 x			
Content creation	118	114	133	207	31	82		73	113	196	428	78	47	1,620	135	
Manf & Prod PRINT	89	115	79	162	65	online only		31	125	80	418	8	25	1,197	100	
Manf & Prod ONLINE	² n/a	n/a	n/a	n/a	5	19		n/a	12	6	65	5	5	117	10	
Distribution & Fulfilment PRINT	30	33	39	76	23	online only		15	77	61	161	18	10	543	45	
Distribution & Fulfilment ONLINE	6	7	8	11	8	7		0	n/a	11	n/a	4	4	66.3	6	
Publishing Support	81	83	145	118	63	132		48	216	62	126	31	22	1,127	94	
Total Costs	324	352	404	574	195	240	64	167	543	416	1198	144	113	4,734	364	
Articles published	155	182	181	507	140	203	66	129	317	233	631	292	165	3201	246	
Cost/article (£)	£2,090	£1,934	£2,232	£1,132	£1,393	£1,182	£970	£1,297	£1,713	£1,785	£1,899	£493	£685	18,805	£1,447	
Pages published	2,788	1,871	3,611	2,944	1,632	3,695	912	1,593	1,511	2,048	6,546	2,220	1,212	32,583	2,506	
Cost/page (£)	£116	£188	£112	£195	£119	£65	£70	£105	£359	£203	£183	£65	£93	£1,874	£144	

Table 4.1 shows total fixed and variable costs by publisher with publisher names replaced by numbers for anonymity.

Notice the cost/journal/year in 2004 which ranges from £64,000 for a quarterly journal from publisher 6 with a total print circulation of 700 of which 91% are industry sponsored subscriptions, to £1.2 million for a journal from publisher 1 publishing just under 1,000 print copies and publishing over 6,500 pages per year in 24 issues per year.

Analysis of these actual cost figures based on pages published shows a range of from £65 per page for an online only journal to £359 per page for a print and online journal.

From this data the cost per article and cost per page appear also to be driven by journal frequency because the quarterly and bimonthly titles have among the lowest total per article and per page costs.

The variable costs of print as defined at the beginning of this section are shown for 11 of these journals in **Table 4.2**.

² n/a= separate costs not available - included within other lines

Table 4.2: Variable costs of print manufacturing and production; distribution and fulfilment per article and per page in 2004 for 11 journals (£)

Publisher	V	V	V	IV	VII	VIII	X	III	VI	V	X	Ave
Print Manf/prod/article	574	632	320	394	343	662	27	240	464	436	152	386
Print Dist /fulfil/article	194	181	150	243	262	255	62	116	164	215	61	173
Total Print Manf & Dist/article	768	813	469	637	605	918	89	357	629	652	212	559
Print Manf/prod/page	32	61	55	83	39	64	4	19	40	22	21	40
Print Dist /fulfil/page	11	18	26	51	30	25	8	9	14	11	8	19
Total Print Manf & Dist/page	43	79	81	134	69	88	12	29	54	33	29	59

In order to assess whether there may be different costs for the journals based on broad discipline, the journal cost categories were sorted into life sciences and physical sciences and technology and these are shown in [Table 4.3](#).

Table 4.3: Total fixed and variable costs life sciences journals and physical sciences journals in 2004 for 12 journals

	Life Sciences (£)	% Total	Phys Sci + tech (£)	% Total
	n=7		n=5	
Content creation	1,183	35	437	33
Manf & prod PRINT	933	28	264	20
Manf & Prod ONLINE	93	3	24	2
Distribution and Fulfilment PRINT	436	13	107	8
Distribution and Fulfilment ONLINE	37	1	29	2
Publishing Support	658	20	469	35
Total Costs	3,340	100	1,330	100
Articles published	2,327		808	
Cost/article	1,435		1,646	
Pages published	18,352		13,319	
Cost/page	182		100	

The total number of articles published in the 7 life science journals well exceeds those in physical sciences and the cost per article is lower for life sciences than physical sciences. The reason for this lies in the cost per page data where the reverse is true reflecting the longer articles published in this group of physical science and technology journals (average 16pp/article) compared to the life sciences group (average 8pp/article).

CONFIDENTIAL

To develop a sense of how typical or representative these costs are, [Table 4.4](#) gives some comparisons based on my own experience and a model developed by Tenopir and King (2000) and including a breakdown by broad discipline or country of publication for the journals in this study.

Table 4.4: Typical cost ratios

Cost category	Learned journal - University press (2001)	Journal with advertising-commercial publisher (2003)	Biology journals – US society publishers (2003)	Biomedical journals –US society publisher (2004)	Science journals (2004)	JISC study life science journal	JISC study physical science and technology journals	Average scholarly journal (after Tenopir and King 2000)
Fixed~ Content creation	30%	26%	24%	57%	45%	35%	33%	37%
Fixed ~ Publishing support	28%	33%	38%	7%	16%	20%	35%	30%
Variable ~Manufacturing, paper and printing: Print + online	25%	26%	30%	23%	24%	31%	22%	19%
Variable~ Distribution and Fulfilment: Print + online	17%	15%	7%	13%	15%	14%	10%	14%

Ref: Tenopir and King, *Towards online journals: Realities for scientists, librarians and publishers* ISBN 0-87111-507-7 (2000) and see also: <http://www.bodley.ox.ac.uk/icsu/kingppr.htm> "Economic Cost Models of Scientific Scholarly Journals" by the same authors.

The exact allocation of these costs will vary by publisher and by product type but these average figures provide an independent sense of proportion to the major expenditures.

Print and online publications have distinctly different cost bases with some cost lines irrelevant to print, such as online hosting and site maintenance - some only related to print, such as print and mail costs - and some costs applying to both media, such as content creation and customer service. The cost base is also changing as the online version becomes the publication of record and additional or supplementary information may be incorporated which increases content creation and archiving costs. The costs of online archiving are not included within this analysis but clearly maintenance of an online journal archive is an additional, growing and recurring cost of publishing any journal.

Content creation costs sometimes called "first copy costs" are incurred irrespective of whether the product is published in print or online or both. All publishing activity incurs content creation costs. The cost base here will clearly change if the print and online versions become distinct – as they are in a number of scholarly disciplines.

Publishing support activities will be incurred for both types of product. As online increasingly and inevitably becomes the medium of choice for end users and the method used for active promotion and selling of the publications, it is reasonable to presume that like revenue, fixed costs must naturally make a transition from a predominantly print cost base to a more balanced allocation.

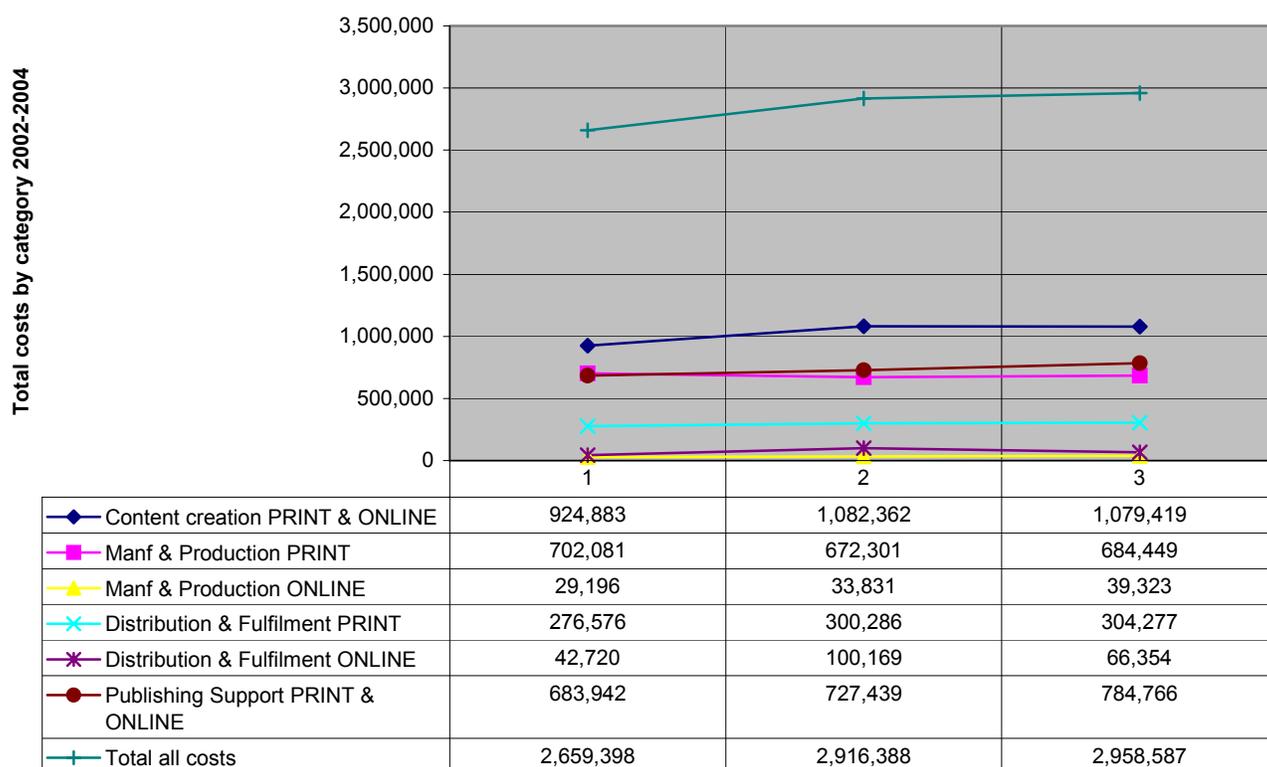
Several of the publishers in the study do not allocate costs by version (print and online) and so could only provide overall cost numbers, which relate to print and online versions combined. Plainly this limits the ability to assess clearly the performance of the journals according to version.

Trends in cost categories 2002 to 2004

Analysis of publishers' expenditures based on the categories described here provides insight into the overall cost base for the differing journals programs. Sketchy data on version specific (i.e. print: online) costs were a feature of several of the publishers in this study and so the analysis that follows focuses on information that was available.

[Chart 4.5](#) provides an overview of total costs by category for the three-year period under review for 10 journals published by 6 different publishers.

Chart 4.5: Changes in costs (£): 2002-2004 for 10 journals



The overall increase in costs was £300,000 or 11% with the steepest increases in the fixed cost areas of content creation (up £155,000 or 17%) and publishing support (up £101,000 or 15%). Print manufacturing costs fell a modest £18,000 but print distribution and fulfilment increased by £28,000 to more than offset this. Online manufacturing costs increased by £10,000 (35%) and distribution and fulfilment by £24,000 (55%).

Table 4.6: The costs of print (£): 2002 to 2004 for 10 journals

Year	Print manf. costs	Print manf. as % total costs	Print distribution and customer service costs	Print dist & cust. service as % of total costs
2002	702,081	26%	276,576	10%
2003	672,301	23%	300,286	11%
2004	684,449	23%	304,277	11%

While print manufacturing costs were relatively easy for the publishers to capture from print bills supplied by their printer, these may also include some online preparation costs, which it was not possible to extract for the individual publishers. It is recommended that publishers keep print and online as separate cost lines going forward, however this is not simple to do as third party suppliers frequently bundle the price of services, which apply to both print and online versions. Print distribution (postage) is also a discreet and accessible number. Customer service for the publishing operations within a learned society is often part of a larger Member services centre and so the costs for some of the society and association participants proved hard to isolate.

Two of the publishers were able to supply an allocation of the proportion of customer service costs to print and to online separately.

Print manufacturing and production in costs fell at the end of 2003 by 4% despite an increase in pages published (see [Table 4.7a](#) below) but rose again by 2% for this group of 9 journals with a print version by the end of 2004. Distribution costs for print increased sharply at the end of 2003 by some 9% compared with 2002 and then moved up by another 1% at the end of 2004. Since print costs are strongly and directly influenced by total pages published [Table 4.7a](#) shows the change in pages published over the three years for this group of journals. Note that the pages published in the online only journal have been removed from this total figure.

Table 4.7a: Change in print pages published 2002-2004 for 9 journals

Year	Total print pages published	Change year/year
2002	16,185	
2003	18,599	+ 15%
2004	19,919	+ 7%

Pages published in the 9 print and online journals have been increasing steeply and this is mirrored in a considerable increase in the total articles published over the period as shown in [Table 4.7b](#).

Table 4.7b: Change in articles published 2002-2004 for 9 journals

Year	Total articles published	Change year/year
2002	1,664	
2003	1,840	+11%
2004	1,984	+8%

Publishing support costs include much of the fixed publishing operation costs and there was a broad range of cost levels attributed by the publishers for this area. Several of the publishers operate the journals on a very low overhead or very little is in fact attributed to the journals program and thus the costs are lower than a true accounting may permit. This can make the journals' performance look much better than it actually is, a point that is shown further in analysis of the surplus generated.

Table 4.8: Change in costs, revenues and margin per page 2002-2004 for 10 journals

Year	Pages published (print/online and online only)	Average revenue per page (£)	Average cost per page (£)	Average net margin per page (£)
2002	17,700	194	150	44
2003	21,014	171	139	32
2004	23,614	160	125	34

Notice in [Table 4.8](#) that as pages published increased by 33% over the three-year period, the revenue, cost and margin per page all fell.

For many of these learned society publishers, the journals included in this study are published as part of a portfolio of titles which will include some excellent performers and

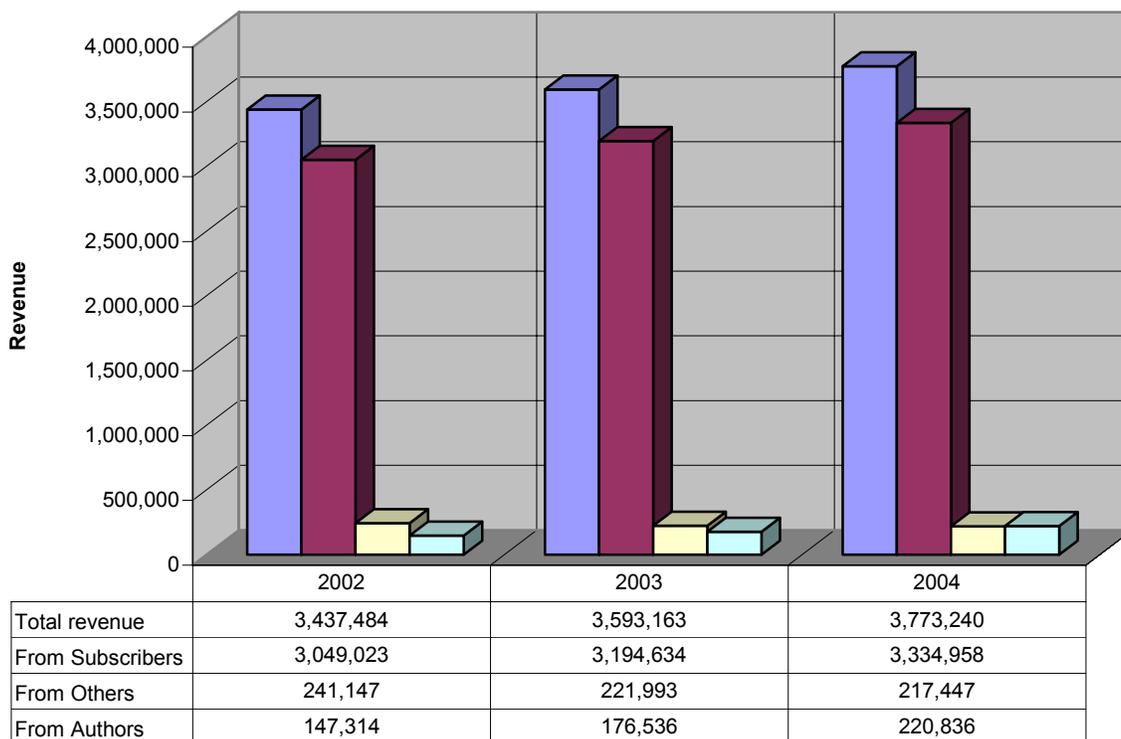
CONFIDENTIAL

some much weaker that may be losing money but may make an important contribution to the scholarly literature.

Where do the journal revenues come from?

Total revenues for the 10 journals where three complete financial years of data were available from the publishers are shown in [Chart 4.9](#)

Chart 4.9: Changes in revenue sources (£): 2002-2004 for 10 journals



Subscription revenue, revenue from authors and revenue from other sources

[Chart 4.9](#) also shows the changes in three core categories of income to the 10 journals over the period 2002-2004. Revenue from authors includes payments for their articles to be made Open Access, page charges, and colour figure charges. Revenue from other sources includes print advertising, reprint sales, back copy sales, photocopying fees (e.g. from CLA), commercial supplement income, online pay-per-view and royalties from online aggregators. A complete listing of revenue types included in these three categories is shown in [Appendix 1](#) within the profit and loss template.

Table 4.10: Revenue changes as a proportion of total revenue 2002-2004 for 10 journals

Year	Revenue from subscribers as % of total revenue	Revenue from other sources as % of total revenue	Revenue from authors as a % of total revenues
2002	89	7	4
2003	89	6	5
2004	88	6	6

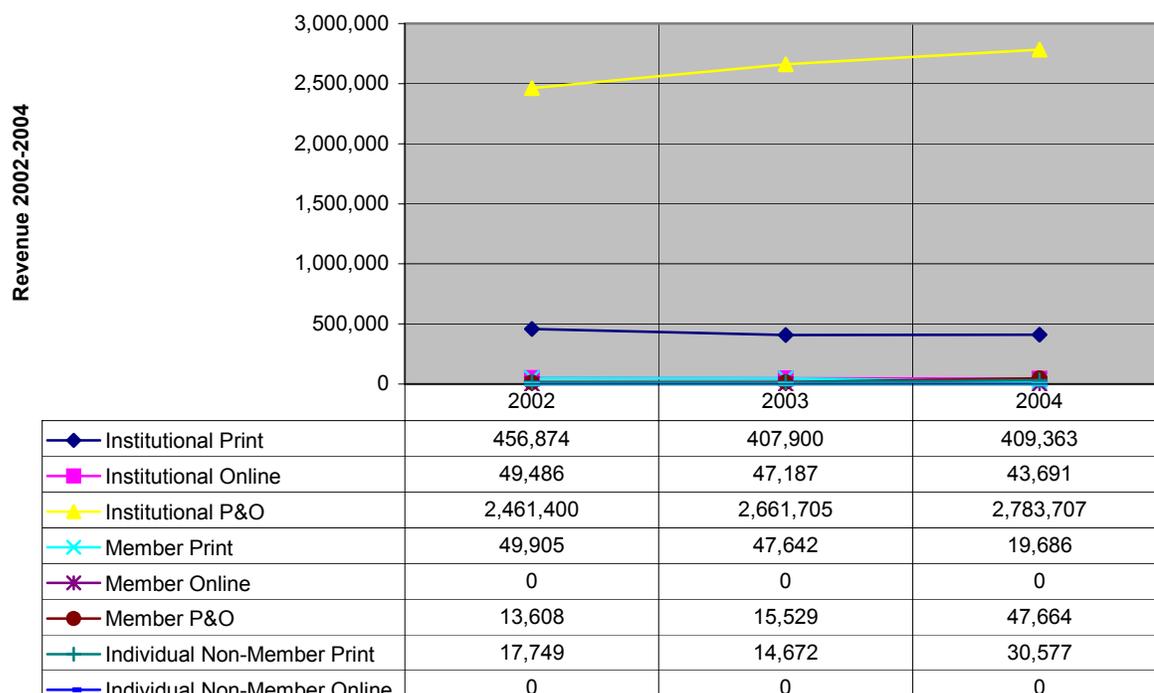
Two of the ten journals are published by a US learned society and this society publisher derived 32% of the combined journal revenue from these two journals for 2004 from

authors. This is a typical level of support from author payments to journals that charge authors for pages published and for fees for colour figures. One journal is fully Open Access and relies on author payments and independent funding for all of its revenue.

Subscription revenue by subscriber category

Subscription revenue contributed 88-89% of the total income to the 9 journals selling subscriptions through the period 2002-2004. [Chart 4.11](#) shows the changes in the sources of that revenue by subscriber category.

Chart 4.11: Subscription revenue (£) by subscriber category 2002-2004 for 9 journals



Total revenue from institutional subscribers increased by 9% in this period with the greatest increase from the bundled print and online subscription category. Total revenues from Member subscriptions increased by 6% with a marked swing to Member print *and* online subscriptions. Revenue per institutional subscriber across all versions in 2004 was £328 and per Member subscriber £3.80.

Table 4.12: Total revenue in 2004: All journals

Publisher	i	i	i	i	j	k	l	m	n	o	p	q	q	Total	Ave
Frequency	12 x	12 x	12 x	24 x	12 x		4 x	12 x	12 x	12 x	24 x	6 x	6 x		
Total revenue (£,000) to nearest £1,000	443	516	515	535	323	79	36	436	813	567	1,448	209	117		
Articles published	155	182	181	507	140	203	66	129	317	233	631	292	165	3201	246
Revenue/article (£)	£2,858	£2,835	£2,845	£1,055	£2,307	£389	£545	£3,380	£2,565	£2,433	£2,295	£716	£709	24933	£1,918
Pages published	2,788	1,871	3,611	2,944	1,632	3,695	912	1,593	1,511	2,048	6,546	2,220	1,212	32,583	2,506
Revenue/page (£)	£159	£276	£143	£182	£198	£21	£39	£274	£538	£277	£221	£94	£97	2,518	£194

Table 4.12 shows total revenue and revenue per page and per article for all 13 journals where information was provided by publishers for 2004. Notice the range in revenue per journal per year from £79,000 for one online only journal which relies on author fees and grants for revenue, to £1.4 million for a journal published 24 times per year with subscription revenues and a low level of OA author fees. Revenue per article is also varied with the highest for two journals publishing entirely commissioned review articles and the lowest for the online only OA journal. Per page revenues do not follow exactly the same pattern with the highest revenue per page for the clinical journal.

Surplus

In measuring overall journal publishing performance, generation of a net surplus/profit year on year is viewed as a sign of success. As the case studies (see [Appendix 2](#)) make clear for learned societies their publishing surplus is used to support other activities. Without this surplus additional activities would need to be at least reined in and in some cases the society would cease to be able to exist without the injection of support from publishing surpluses.

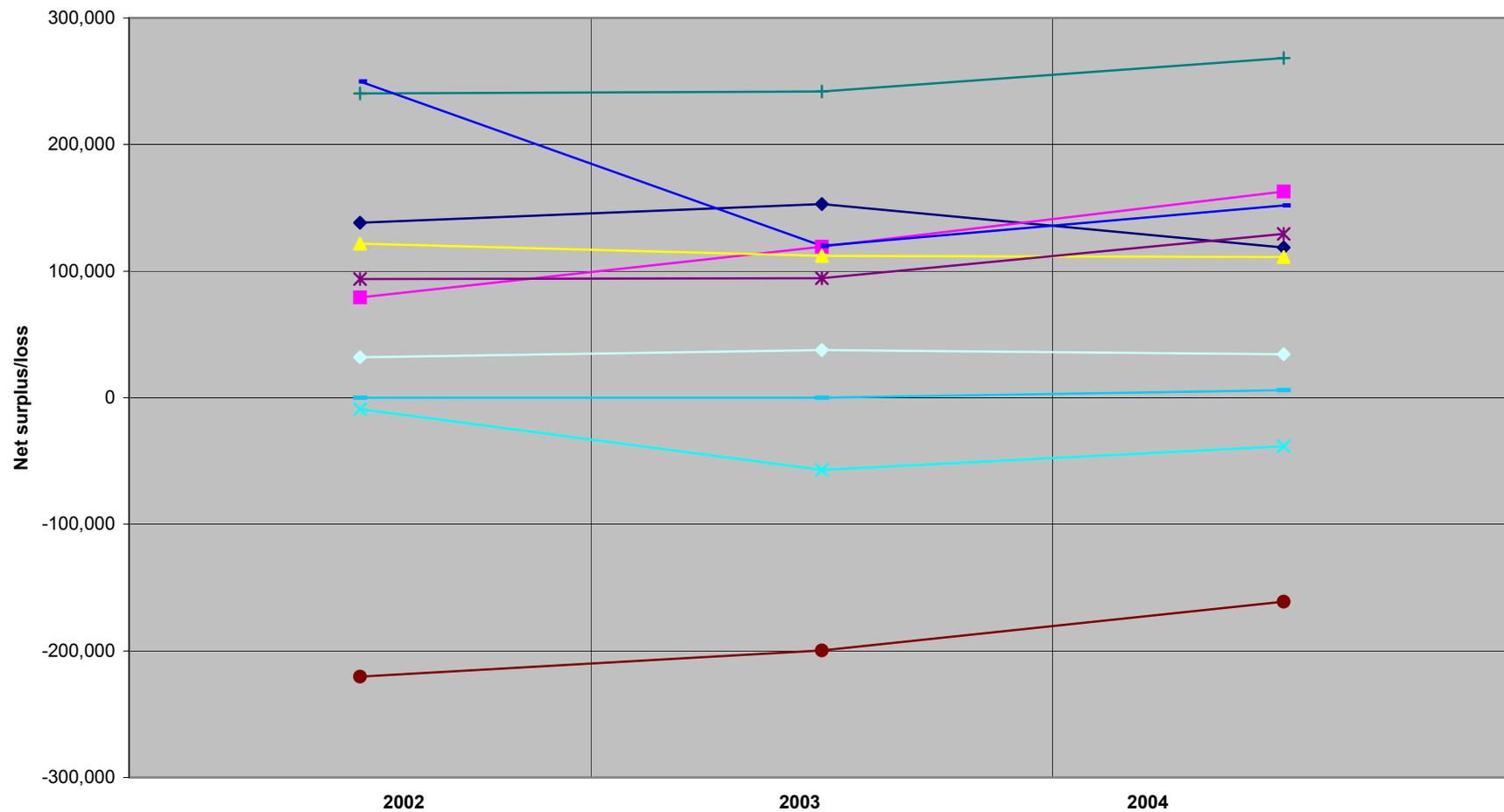
For the publishers included in this study average, high and low net surplus for 2002-2004 are shown in [Table 4.13](#).

Table 4.13: Net contribution patterns – 10 journals

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

Average figures plainly mask a wide divergence in business performance as is clear from [Chart 4.14](#) which shows the range of net margin/surplus for the 10 journals where 3 consecutive years of complete information was available.

Chart 4.14: Changes in net surplus (£) for 10 journals 2002 to 2004



5. Open Access experiments

- **What have we learned from the experiments so far?**

During the past two years a broad variety of publishers have been and continue to experiment with approaches to the Open Access producer pays business model for some or all of their journals. [Table 5.1a](#) and [Table 5.1b](#) provide a brief summary of the results that are available.

Table 5.1a: Some results of recent OA hybrid experiments

Publisher	Journal	Fee/article for immediate OA	Take up	Comment
US National Academy of Science	PNAS	\$1,000 if not a subscriber	20%	Risen from 16% at beginning of 2005
American Institute of Physics	4 x journals	\$2,000	low	
Springer	All journals	\$3,000	9 articles by April 2005	"surcharges for colour, oversized articles, and other factors (in print) may apply"
American Physiological Society	Physiological Genomics	\$1,500	11% in 2004	Now moved to page charges + \$750 for OA
OUP	Nucleic Acids Research	\$1,500 for 9pp article if not subscriber/"Member"	92% in 2005	Now fully OA

Table 5.1b: JISC funding of UK author fees: uptake in 2005

Publisher	Journal	Take-up YTD 2005	Comment
Institute of Physics Publishing	New Journal of Physics	25 articles	
OUP	Nucleic Acids Research	15 articles (Dec '04-> April '05)	Now fully OA
OUP	Journal of Experimental Botany	23 articles (Jan-> June)	
International Union of Crystallography	8 journals	168 articles (1 July-> December 2004): 86 articles (Jan -> March 2005)	If any named author is from the UK then article qualifies for OA fee support
BMJ publishing group	Journal of Medical Genetics	9 articles (Jan-> July) limit is 20 in 2005	Excellent follow-up analysis will take place see: http://jmg.bmjournals.com/cgi/content/full/42/2/97

Generalized lessons have yet to emerge but some themes run across the results so far and are presented here for further discussion.

a) Within certain well funded disciplines notably biomedicine:

If the journal is central and near the top of its field with a high rank within the impact factor ratings, funds are forthcoming from authors.

Examples include Proceedings of the National Academy of Science and Nucleic Acid Research where there is quite fierce competition to be published. Compare this with the fully Open Access BioMed Central journals, which published an average of 10 articles per year in 2003.

*"It is difficult to envisage authors preferring to publish in a less well known journal which is freely accessible to readers, but for which payment has to be made, rather than in a better known journal for which payment is not required."*³

If there is already good access to the content as a result of delayed Open Access policies then the uptake of the author payment model may also be low.

b) Within less well funded research disciplines such as ecology and the environmental sciences:

If the fees charged are relatively low, author uptake will show growth over time. For example the Entomological Society of America journals where uptake of the Open Access pdf Reprint has reached 62% and authors also pay page charges.

*"..the publication charge should be set at or near the total required for online publication of the paper."*⁴

The current fees charged to authors by the Entomological Society of America do not meet this requirement.

c) Within the physical sciences and in disciplines where there is a tradition of posting online pre-prints centrally:

Open Access may be virtually redundant in well-defined fields where readers can find and view new research outcomes before formal publication, and this early pre-print version may be 'good enough'. Examples include the recent response to the American Institute of Physics experiment (see [Table 5.1a](#)). Consider also *New Journal of Physics*, which has been slow to meet its direct costs. In order to do so a key assumption is that "The number of published articles increases by 150%, from the present level (2003) of 161 to 400 per annum". See:

<http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/399we157.htm>

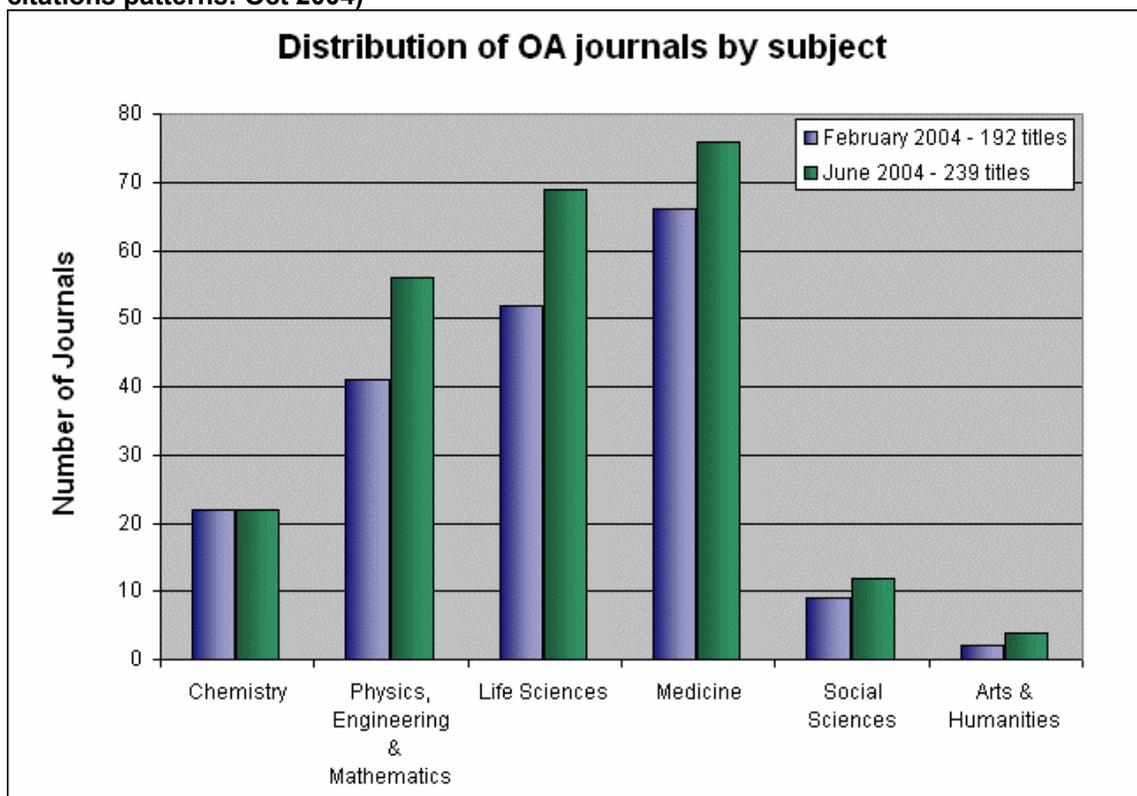
d) Within certain disciplines there may be some resistance to shifting to a producer pays model because of enduring scholarly traditions and/or questions of quality.

For example in [Table 5.2](#) compare the number of new OA journals in Chemistry in the ISI database with the numbers in physics, life sciences and medicine.

³ Learned Publishing Vol. 16 No 2 April 2003 pp83: **Open Sesame**, Sally Morris

⁴ Learned Publishing Vol. 16 No 3 July 2003 pp165: **From here to there: A proposed mechanism for transforming journals from closed to open access**, David Prosser

Table 5.2: Change in coverage of OA journals within ISI JCR from February 2004 to June 2004: (Source: McVeigh: OA journals in the ISI database: Analysis of Impact Factors & citations patterns: Oct 2004)



Is the Open Access model sustainable?

In order to remain active as publishers the learned societies must choose a business model that enables them to cover the costs incurred in producing their publications. This means that their choice of business model is affected by financial sustainability, which in turn profoundly affects the ability of such publishers to provide continuity to the scholarly literature over the longer term.

In order for the condition of financial sustainability to be met most learned societies should not rely on a business model that depends entirely on one-off and potentially irregular subsidies (look at the case study **Appendix 2** and financial results for **Publisher D** to clarify the impact on surplus of an irregular source of revenue). If subsidies are discontinuous they will have a negative impact on both financial sustainability and continuity of the research literature.

The business model selected should be capable of generating sufficient surplus/profit to encourage continued innovation. The surplus may be used to invest resources back into the journals for new and required customer-driven services of enhanced content or functionality, to launch new journals that meet new community needs, and to finance the ongoing upgrades to the technology infrastructure as this evolves and new opportunities arise.

The costs of publishing and then maintaining a digital journal are different from a print journal. The digital cost of an article is primarily when the article is published but unlike print it is ongoing in perpetuity and will require continuous investment to keep it hosted, linked and searchable well beyond the initial period post-publication. This ongoing investment will need to be paid for by any business model. The difficulty is how a single one-off payment can cover the online lifetime costs of the article and also return a surplus for investment.

As yet we have not seen a strong and firm 'pull' from the author community towards an Open Access model for the journals they choose to publish in. This may change very slowly and only as more research funding agencies encourage their researchers to commit to Open Access to their research reports on publication by supporting OA fees. Alternatively, funding agencies may simply require their researchers to deposit reports on research they have funded in an open access database/repository at some fixed period after first publication.

A competitive market is emerging in the level of producer pays fees that publishers are charging to authors. This is not a weakness within any market since value will be determined over time by the customer base, which in this OA model will be the authors. However, there should be concern about the future of learned societies as publishers because with downward pressure exerted on author fees by the competitive market, the publishing of research articles will become a low margin commodity business. If so it will not be attractive to commercial entities and is likely to become the domain of learned society publishers pursuing their mission, operating on small margins and with low investment ambitions. Commercial publishers with greater investment resources to call on have the freedom to move into the more highly valued and expensive services sector based on a subscription model. Perhaps such a market development is inevitable but it could result in a range of unintended consequences and have a negative impact on learned society publishers.

If the Open Access producer pays business model is to thrive and develop then the open market for choice of journal to publish in by authors whether OA or not will also need thrive.

6. Steps towards Open Access

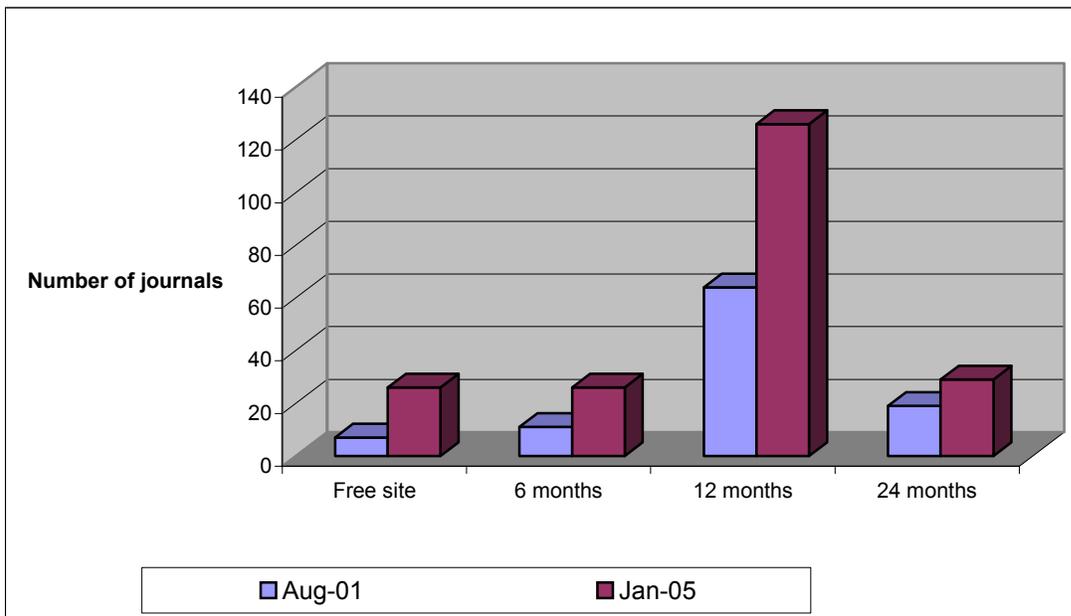
If a publisher wishes to move to an Open Access (producer pays) business model there are some key questions that must be asked and answered rigorously of the society, the journal and the community served. These include: -

- Are authors able to pay for publication of their articles?
- Is the community served by the journal actively interested in OA for their articles?
- If the publisher moves to a hybrid OA model what is the likely impact on other revenue lines?
- What will be the long-term impact if there is a reduction in revenue on the journal and the society?
- What are the competitive opportunities and threats for this journal in this community if it offers OA?
- What infrastructure will need to be put in place to collect author fees and how can that be integrated into current financial systems?

Delayed Open Access

In this model the research article content of the journal is made available free online after a particular period. Before this time, access to the title is sold on subscription in the usual way. The embargo period is set by the publisher and will depend on the field covered by the publication. Consider the delayed OA practiced by the High Wire Press publishers shown in [Chart 6.1](#). Over time 12 months has continued to be the most common time period for implementation of delayed OA by this group of publishers.

Chart 6.1: How soon are High Wire publishers permitting free access?



Citation half-life is often used as a measure for helping to determine the embargo period that is likely to affect subscription revenues the least. The information shown in [Fig 6.2](#) from Oxford University Press (OUP) provides practical information about this topic in one field.

Fig 6.2: Average subscription circulation trend for 8 OUP journals with free back issue archives (source: Martin Richardson OUP: UK Serials Group meeting April 2005)

Free Archive (months)	Number of journals	Circulation attrition 2002-2003
6	2	- 6.1%
12	8	- 2%

Other publishers report varying levels of attrition as a result of delayed OA. For example, the journal PNAS, which was making content available free after 4 weeks moved this embargo period back to 6 months because of the negative impact of the brief embargo period on subscription numbers. In 2001 the American Society for Cell Biology (ASCB) opened up access to the content of their journal Molecular Biology of the Cell after just two months and report an increase in subscriptions, as well as article submissions and online downloads of the content. However the change to the access policy coincided with other significant changes to the publication including investment in a new marketing programme, and changes to the Editorial Board and so the increased subscription numbers cannot be viewed as the result of simply opening-up access to the journal content earlier. Each publisher must reach their own decision on the appropriate length of embargo if they decide to move to delayed OA.

Hybrid Open Access

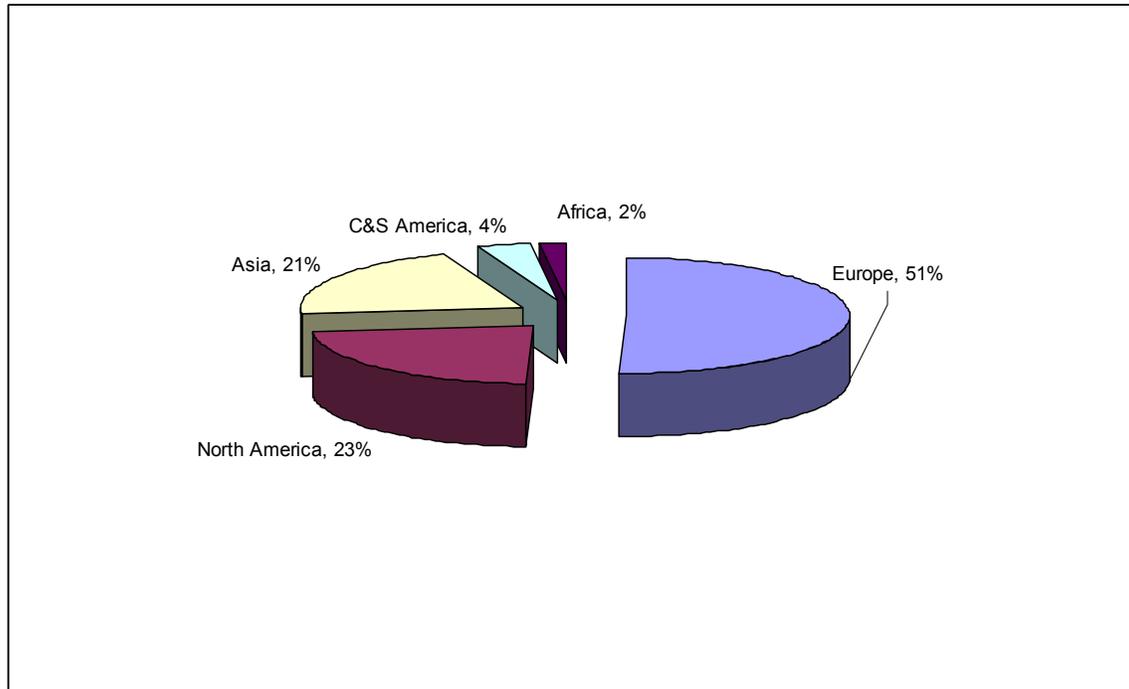
Hybrid OA is used here to refer to publishers providing authors with the choice of whether they wish their article to be OA from the date of first publication in return for a fee. It has become a popular testing option with publishers wishing to assess OA uptake. Turning to the publishers who agreed to provide their information for this study we will consider each in turn and assess factors they might consider in deciding whether and how to make a transition to a hybrid Open Access business model. Several of the publishers already have a delayed OA policy.

Publisher A Considerations

Publisher A provided information about 4 journals. Two of these are review-based titles often publishing themed issues and all of the content is commissioned from specialists within the field who either propose topics for consideration by the Editor or they are invited to contribute. Charging authors fees for such contributions is most unlikely to be a successful strategy. In due course external funding could be sought to support these two journals if required.

The other two distinctly research based journals focus on the physical sciences (Journal 3) and life sciences (Journal 4) respectively. All Publisher A's content is delayed OA after 12 months. The author base for journal 3 and 4 is shown in [Fig 6.3](#).

Fig 6.3: Publisher A: Geographical base of authors by region: Journals 3 and 4 in 2004



Journal 3

Articles published in 2004: 181

Publishing cost/article in 2004: £2,232 but average article length is 20 pages

Surplus returned to the society in 2004: £126,000

Author revenue: Authors pay for extra pages if their article is more than 20 pages long.

Colour fees are charged but these can be waived at the discretion of the Editor.

Pages published increased by 19% 2002-2004

Submissions increased by 14%

Article acceptance rate: 43%

Possible actions

Costs per article are high for this journal largely because articles are longer than is typical for the group of journals included in the study. This may be a particular requirement of the community served by Journal 3 but as a result it had the highest cost/article of all the journals included in the study.

- a) An assessment needs to be made of the level of interest from this author community in paying for their articles to be Open Access since at the current average article length, fees would need to be set in excess of £2,300.
- b) Reducing the number of pages for a typical length of article to 16 pages, and charging fees of at least £112/page above that. The current per page charge of £90 is not covering Journal 3's costs per page and the maximum article length of 20 pages quoted in the instructions to authors appears to have become the average.
- c) Increasing colour fees so that they do cover the costs of printing colour OR offer authors the option of free colour for online only colour reproduction and a colour fee for the printed version.

Journal 4

Articles published in 2004: 507 (Includes articles within a supplement now published as a new journal)

Publishing cost/article in 2004: £1,132

Surplus returned to the society in 2004: £13,000 (was £40,000 in 2002)

Author revenue: Authors pay for extra pages if their article is more than 6 pages long, most of this revenue currently comes from authors based in the USA.

Colour fees are charged but do not cover costs. Authors are asked to *contribute* to the costs not to pay them {Costs are quoted as £300 plus VAT for 1-3 figures and £600 plus VAT for 4-6 figures}

Pages published increased by 22% 2002-2004

Submissions increased by 12%

Article acceptance rate ~ 28%

Possible actions

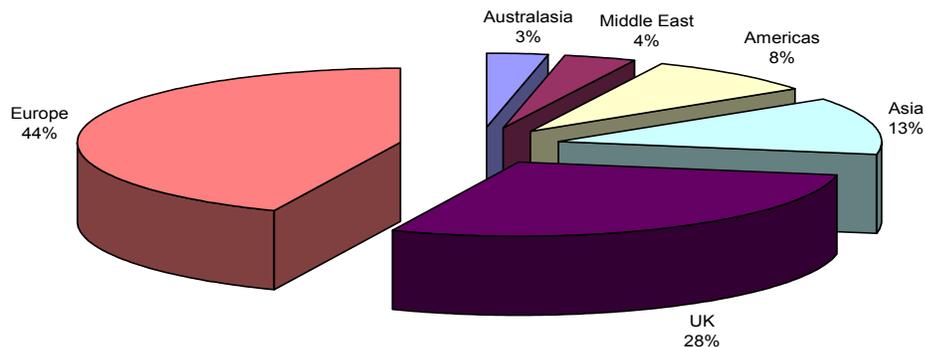
- a) Reducing the number of pages for a typical length of article to 6 pages, and charging fees of at least £195/page above that
- b) Increasing colour fees so that they do cover the costs of printing colour OR offer authors the option of free colour for online only colour reproduction and a colour fee for the printed version (Publisher B offers this).
- c) Journal 4 could consider offering authors an Open Access option for their published article at the rate of £1,350 (\$2,500) and at the current cost base would still retain the surplus returned to the society in 2004 if 100% of authors chose OA and paid.

Publisher B

Publisher B provided information on one research based technology journal, which also publishes review papers.

The author base for the journal by broad geographical region is shown in [Fig 6.4](#) below.

Fig 6.4: Publisher B: Authors 2004 by region



Articles published in 2004: 140

Publishing cost/article in 2004: £1,393

Surplus returned to the society in 2004: £129,000

Author revenue: Colour figures are made available in colour in the online version only and appear in greyscale in the print version. Authors can pay for colour reproduction in print but none are doing this.

Pages published increased by 74% 2002-2004

Submissions increased by 6%

Article acceptance rate ~ 56%

Possible actions

Cost per article is close to the average for all the journals included in the study and while some reduction in costs is always possible, this journal is run on a modest cost base and the subscription price is reasonable for a monthly journal in this sector.

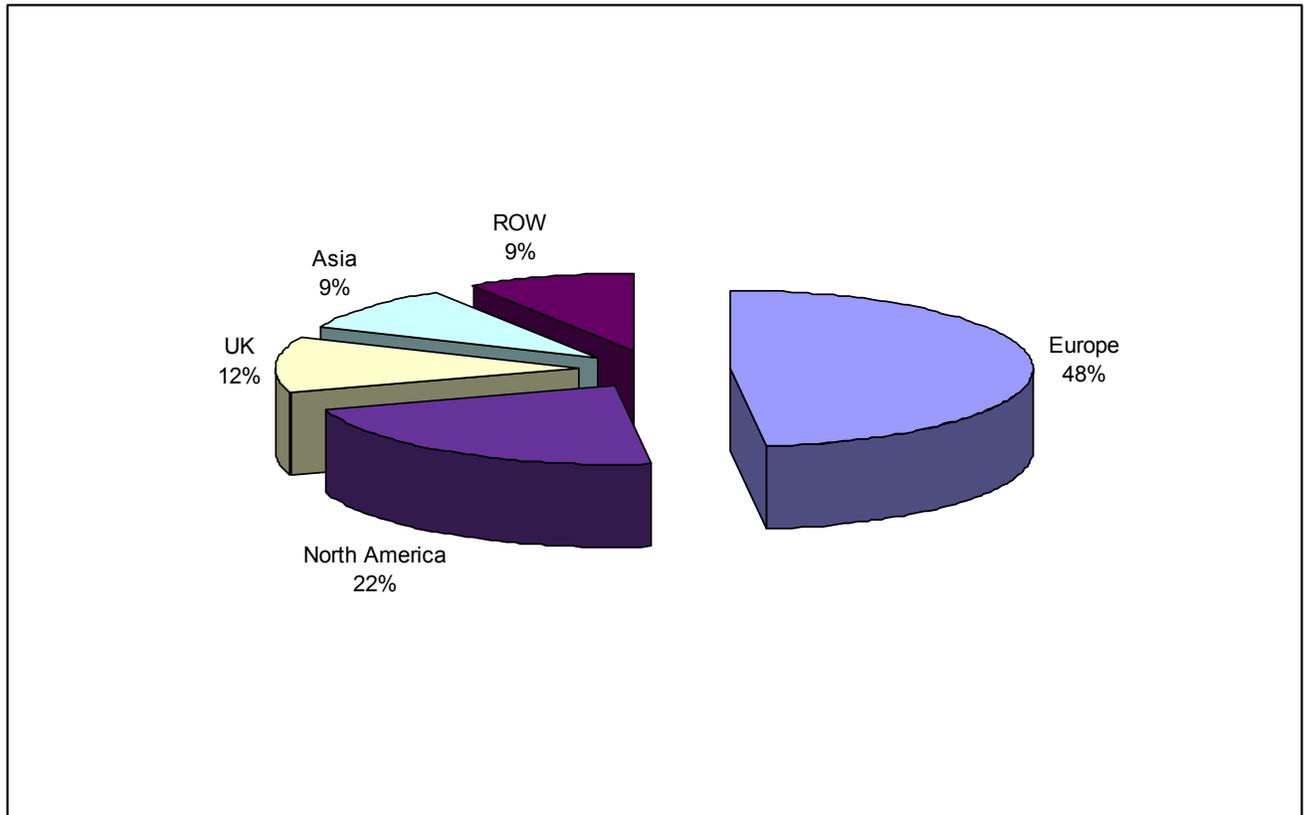
Will the authors who are based in academic and industry settings in countries shown in [Fig 6.4](#) be prepared to pay the £2,350 fee required for Publisher B to return a similar level of surplus to the society from an author pays model as it currently does from the subscription model. I think not. The publisher needs to assess the ability and willingness to pay author fees from this community before proceeding to make a transition since the society is very dependent on the surplus generated by the journal.

**Publisher C
Considerations**

Publisher C provided information about one fully open access online only journal in the physical sciences and technology which expects its revenue to grow to meet direct costs in 2008 if certain key requirements are met. These requirements include an increased number of published articles, increased numbers of authors paying their OA fees and increased fees per article.

The author base for the journal by broad geographical region is shown in **Fig 6.5** below.

Fig 6.5: Publisher C: Authors 2004 by region



Articles published in 2004: 240

Publishing cost/article in 2004: £1,182

Surplus/loss returned to the society in 2004: minus £161,022

Author revenue: Authors are charged a flat rate fee irrespective of the length of their article, the average article length in 2004 was 18 pages.

Pages published increased by 144% 2002-2004

Submissions increased by 77%

Article acceptance rate ~ 42%

The total costs for publishing this journal and the costs per article are below average for the group of journals and clearly there are savings associated with an online only journal, which this demonstrates. However, author fees in 2004 only covered about half

of the total costs of publishing each article and as a result the journal is losing money and being subsidized by the publisher using surplus from its other subscription-based titles. Author pay-up of the (small) publication fees has been low – and Publisher C has been unwilling to rigidly impose this requirement through concern over losing good articles to existing well established journals. Pay-up is improving. Article length averages 18 pages and it is hard to limit this with the expectation that page count is unlimited online. However every page is costing £65 to publish and at a fee of £600 to authors this would cover articles that averaged 9 pages not 18.

Possible actions

- a) Limit article length to 9 pages for a £600 fee with the option to pay extra for additional pages. Current guidelines to authors suggest that 20 pages is appropriate and states that *"Articles should not normally be longer than 18000 words (an A4 size journal page contains an average of 900 words)."*
- b) Increase the publication fees to authors from the current £600 to meet the costs of publication plus a modest surplus over time.

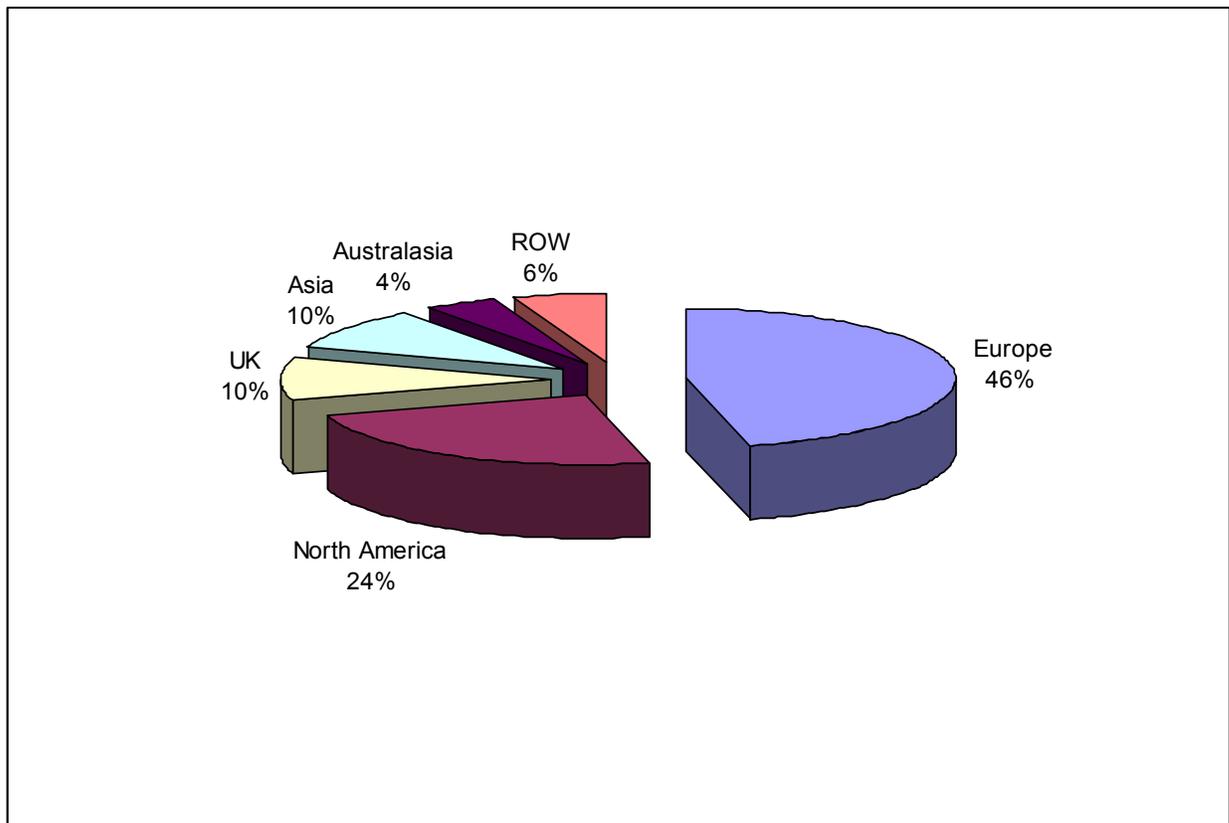
**Publisher D
Considerations**

Publisher D provided information about one quarterly journal that it is actively being considered for a hybrid Open Access model experiment. The journal publishes review and research articles. The overall strategy, which is proving successful, is to increase the submissions and impact of the original research article content. There has been a surge in submissions and an increase of 230% in the pages published and as a result the cost base for the journal has increased and there is a time lag before the publisher can generate the income to offset this.

Currently the journal relies heavily for its revenue on income from industry in the form of sponsored supplements and bulk subscription sales. These 'special' sales, which can be lucrative, are not stable and for this reason and because of increased costs the journal ran at a loss in 2004 because of extra pages published and poor special sales in that year. This is not always the case because in 2003 the journal broke even and in 2002 it made a small surplus.

Authors submitting to the journal by geographical region are shown in **Fig 6.6** below.

Fig 6.6: Publisher D geographical base of authors submitting to the journal 2004



Articles published in 2004: 66

Publishing cost/article in 2004: £970

Surplus/loss returned to the society in 2004: minus £28,000

Author revenue: A small amount of revenue from colour figure charges.

Pages published increased by 230% (from 276 to 912 pages) 2002-2004

Submissions increased by 207% (from 46 to 141)

Article acceptance rate ~ 47%

Possible actions

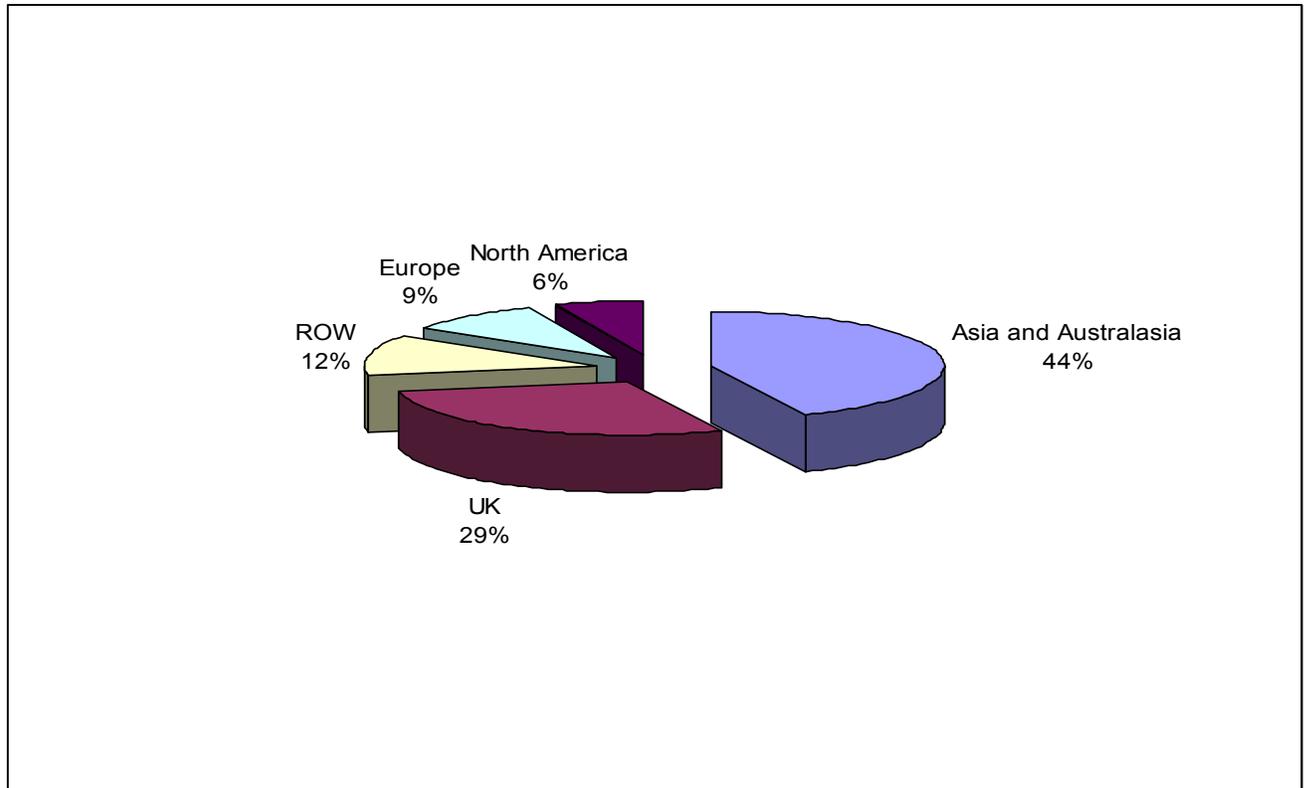
Publisher D would find it helpful to understand the costs associated with content creation versus manufacture and production of the journal for print and online in order to develop an appropriately competitive level of fees to set for author payment in migrating to a hybrid Open Access model. This information was not separable from the data provided. In the meantime fees can be set to cover both formats and all cost categories since the overall cost base for the journal is low and there are few paid subscriptions so the journal is ideally placed to experiment by offering authors the option of Open Access. A charge of £1,250 (\$2,350) per article would cover the cost of publishing each research article in this journal and return a modest surplus to the publisher. A move to the producer pays model has the potential to stabilise this journals' revenue streams.

Publisher E

Publisher E provided information on one monthly technology journal, which publishes research that demonstrates solutions to industrial problems. This journal yielded the highest surplus of any of the journals but it is part of a suite of journals published in many parts each focussing on particular aspects of the technology sector. As such this journal supports other journals in the collection, which perform less well.

The author base for the journal is shown in **Fig 6.7** below.

Fig 6.7: Publisher E: Author base by geographical region 2004



Over the past 10 years there has been a deliberate and steady internationalisation of the author base with particular emphasis on growth in Asia and this clearly has worked well.

Articles published in 2004: 129

Publishing cost/article in 2004: £1,297

Surplus/loss returned to the society in 2004: £268,000

Author revenue: A small amount of revenue from colour figure charges.

Pages published increased by 25% 2002-2004

Submissions increased by 24%

Article acceptance rate ~ 55%

{Circa 95% of accepted articles are only accepted after revision}

Possible actions

Publisher E produces the journal at a lower cost/article than the average for this group of journals and has one of the highest revenues per article. As a result the journal is highly profitable. Publisher E explained that the author community for this title has

CONFIDENTIAL

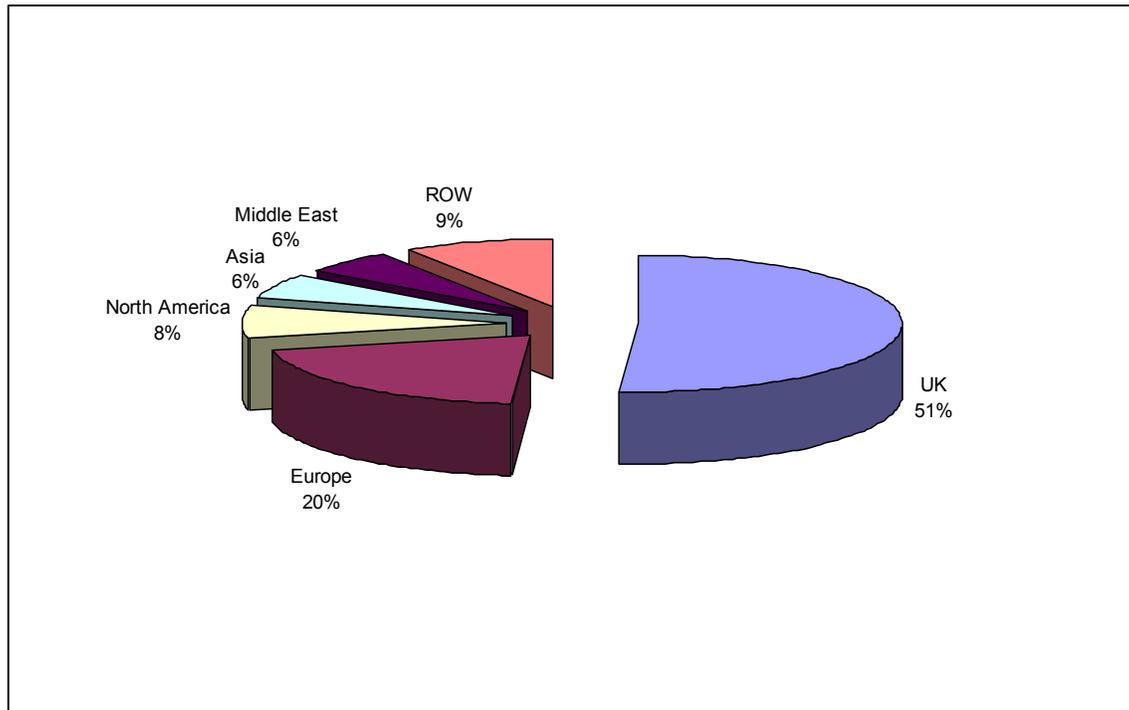
shown little interest in Open Access publishing options and were 'very anti' being charged for publishing.

If the publisher wished to make a transition to OA on the current cost and revenue base for this journal then author publication fees would need to be at least £3,400 per article to ensure the same net return to the society.

Publisher F

Publisher F provided information about their monthly journal in a clinical specialty that is co-published with a commercial publisher. Due to changes in the way the journal is published, a full three years of information was not available for all the areas requested. The author base by geographical region is as shown in **Fig 6.8** below

Fig 6.8: Publisher F: Geographical base of authors by region 2004



More than half of the authors are from the UK and many of these are based in clinical settings not in academic research establishments.

Articles published in 2004: 317

Publishing cost/article in 2004: £1,713

Surplus/loss returned to the society by the commercial publishing partner in 2004: £426,000

Author revenue: Colour figures are not charged to the author provided the Editor thinks the image is worth having.

Pages published increased by 3% 2002-2004

Submissions increased by ~ exact numbers are not available but are substantial since online submissions became possible.

Article acceptance rate ~ 28%

Possible actions

Publisher F is already taking part in an Open Access experiment, which is being conducted by their commercial publishing partner. Authors are able to choose to pay a fee for their article to be made Open Access immediately on publication. It is too early to assess the uptake of this option by the community this journal serves.

The publishing cost per article for this journal in 2004 is quite well above the average for the group of journals in this study and attention is going to be paid to reducing this.

CONFIDENTIAL

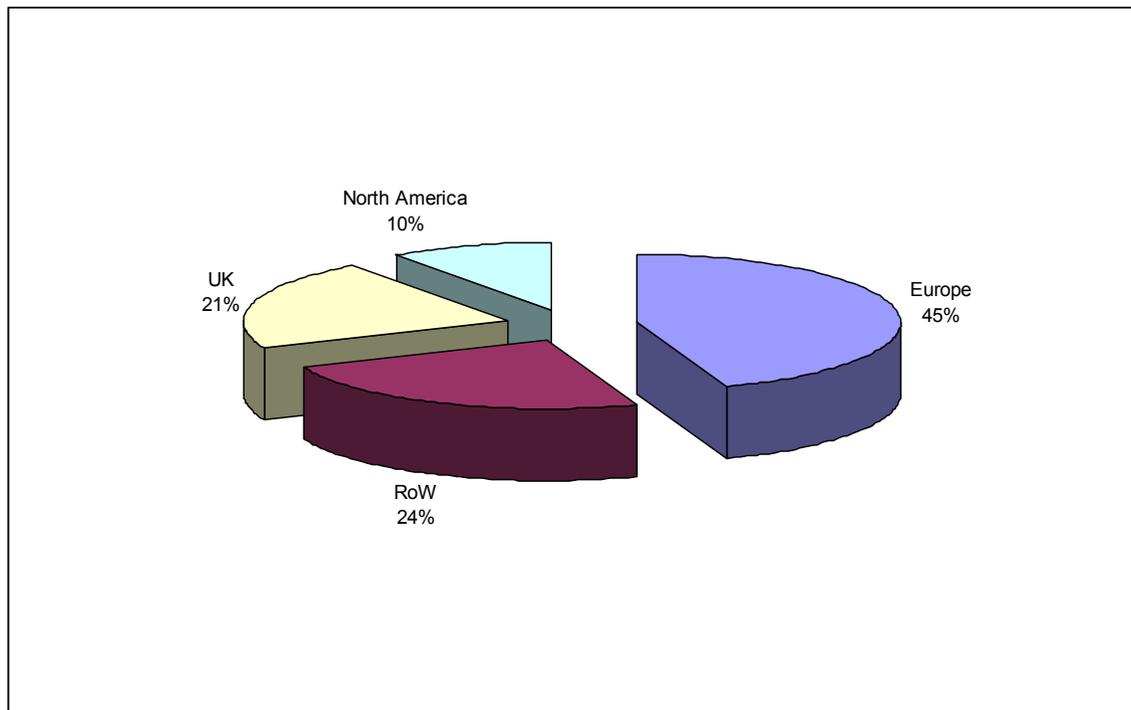
Since the journal returns a surplus to the society it is important to note that the fee being used in the OA experiment would not cover the current costs incurred in producing each article in print and online 2004. However if all print costs for manufacturing and distribution were removed then the fee would be adequate. The publisher considered that the uptake of the Open Access option may be limited by the ability of their UK based authors, who are the largest geographical group, to obtain funding for their research publication.

Publisher G

Publisher G provided information about one monthly research journal it publishes for a society in the applied life sciences. The society is interested in the possibility of Open Access but needs a coherent business case for it. A significant amount of the journals revenue is derived from industry sponsored theme based supplements.

The author base by geographical region is shown in **Fig 6.9** below. Membership of the society is some 77% within the UK whereas only some 21% of authors are UK based.

Fig 6.9: Publisher G: Geographical base of authors by region 2004



Articles published in 2004: 233

Publishing cost/article in 2004: £1,785

Surplus/loss in 2004: £151,795

Author revenue: Costs of colour figures are charged to some authors at the Editors discretion.

Pages published increased by 38% 2002-2004:

Submissions increased by 66%

Article acceptance rate ~ 43%

Possible actions

The publishing cost per article for the journal is above the average for this group of journals. For the society to pursue an optional Open Access offering to authors and continue to receive the surplus it relies on from the journal there will need to be a reduction in the costs of the journal for a competitive fee to be offered to authors. Content creation costs are the primary source of high costs and these are incurred by the society not the publisher. In order to return a similar surplus to 2004 the fee

CONFIDENTIAL

charged to authors would need to be some £2,400 per article, which for this journal in this particular market segment is unlikely to be attractive to the existing predominantly UK and European author base. If all print manufacturing and distribution costs were removed this fee could drop to £1,800 presuming 100% pay-up. Again for this journal in this market segment, print is likely to be still an important component.

Publisher H

Publisher H provided information about one biomedical journal that is published 24 times a year. This journal publishes at the greatest frequency of the group and published double the number of pages of any of the other journals in the group. The journal has a substantial review and commentary section and an in-house professional editor who works on the journal in addition to the editorial board. The journal has already been experimenting by offering authors the option of Open Access. The author base of the journal is shown in **Fig 6.10** and the authors who paid for OA of their article also by geographical region is shown in **Fig 6.11**.

Fig 6.10 Publisher H: Geographical base of authors by region 2003- 2004

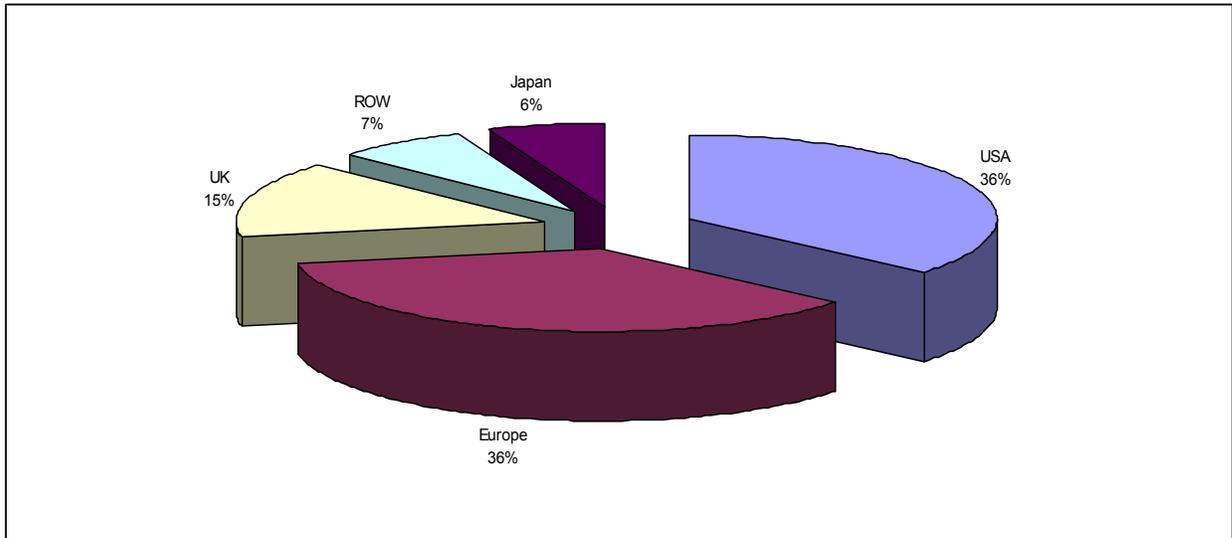
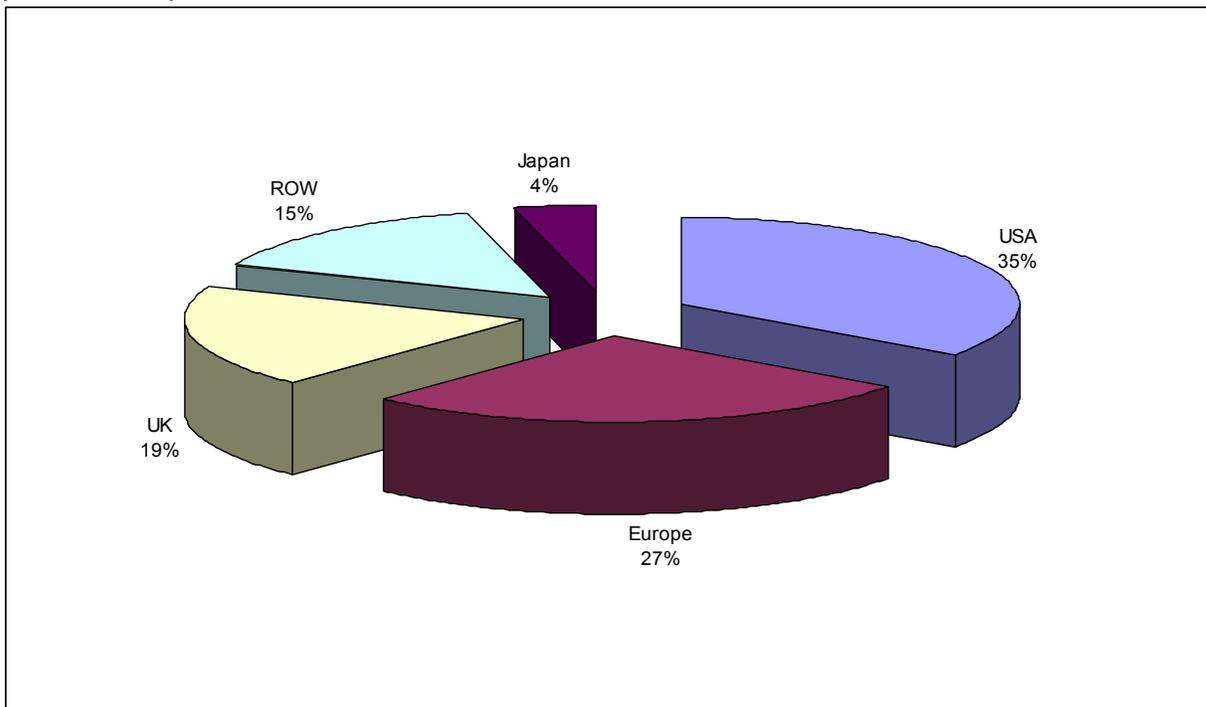


Fig 6.11: Publisher H: Geographical base of authors who paid for OA by region 2003- 2004 (n=26 articles)



Comparison of **Fig 6.10** and **6.11** shows that to date the geographical base of authors seems to have little impact on ability and willingness to pay for the Open Access option provided by this publisher. Authors in Europe and Japan were less likely to pay for Open Access than authors in the UK and Rest of World. This may partially dispel some myths that payment of publication fees, both the ability and the willingness to pay, is a particular feature of the US research community in biomedicine but this one example may not be typical as uptake will depend on the competitive environment the journal is publishing in.

Articles published in 2004: 631

Publishing cost/article in 2004: £1,899

Surplus/loss in 2004: £249,197

Author revenue: Author fees received for Open Access accounted for just over 1% of revenue in 2004.

Pages published increased by 30% 2002-2004:

Submissions increased by 31%

Article acceptance rate ~ 42%

Possible actions

Publisher H has already experimented with the hybrid OA model and the author base has not rushed to take advantage of this despite a subsidised fee per article at the outset, which is now at over £1,000 per article. The journal has the highest cost per article for print manufacturing and production costs of the group of journals included in the study which in part may be a feature of the particular demands for reproduction and presentation of the content but this area bears further scrutiny based on the costs incurred by the other journals in this study.

If the considerable costs of print manufacturing and distribution of this journal were removed then the fee to authors (at 2004) costs could be some £1,400, which would cover the costs of professional in-house editing staff and still return a surplus to the society. Note that Publisher H has been publishing more and longer articles through the period 2002-2004 and revenue/page has been falling as a result.

Publisher I

Publisher I is a learned society publisher based in the United States⁵. Publisher I provided information about two of its journals both of which are published 6 times a year. The society has made considerable changes in its publications in recent years to ensure break-even or better performance in most years. Throughout the three year period 2002-2004 authors could choose to pay to have a PDF of their article made available Open Access online at publication. In addition the publisher charges all authors page charges for every page published.

Author base: For the two journals included in this study some 70% and 53% of authors respectively are from the US. No more detailed analysis was available.

Articles published in 2004: Journal 5: 292 Journal 6: 165

Publishing cost/article in 2004: Journal 5:£493; Journal 6: £685

Surplus/loss in 2004: Journal 5:£34,000; Journal 6:£6,000

Author revenue: Journal 5: Total revenue from authors for page charges, Open Access fees and colour figure charges were 29% of total revenue in 2004. Of this author revenue Open Access fees were 26% of that total. Journal 6: Total revenue from authors for page charges, Open Access fees and colour charges were 38% of total revenue. Of this author revenue Open Access fees were 17% of that total.

Pages published increased by 61% and 24% respectively 2002-2004:

Submissions increased by 22% and 17% respectively

Article acceptance rate ~ Journal 5: 58% %; Journal 6: 58%

Possible actions

Although author revenue as a percentage of total revenue for both journals is increasing over time, in 2004 author revenue per article still only accounted for £206 (Journal 5) and £269 (Journal 6) that is less than 50% of the costs of publishing the articles. The Open access fee charged to authors is too low and some 62% of authors are now choosing this option so the publisher should increase that fee with the prospect of the journals becoming fully Open Access over time once author desire to pay for Open Access reaches + 90%.

Publisher I already has all the systems in place to invoice individual authors for page charges and so the additional (too small) charge for an OA PDF is simple to collect and administer alongside this.

⁵ **All financial data has been converted into pounds sterling at the rate of \$1.88 = £1**

Removing print

It takes an artificial situation to force the impact of removing print from the costs and revenues provided by the publishers. If we assume all print only revenues (not print and online bundled revenues) are removed from the combined revenues for these 9 journals for 2004, then total revenue would drop by some £633,000. If all print⁶ costs for all print copies that is copies sold as print subscriptions and print plus online subscriptions are removed, then total costs would drop by some £989,000. Print only subscriptions are 33% and print and online bundled subscriptions are 67% of the subscription categories that require production and distribution of a print copy. Therefore 33% of the total print costs can be allocated to print subscriptions, this is £326,370. The remaining £662,630 should be allocated to the print costs of fulfilling bundled subscriptions.

These costs for print are almost certainly overstated as they include overall charges made by third party suppliers for print and online combined services which the publishers participating in this study could not separate out, and so the cost savings would be less if print publication ceased completely.

With print only revenues reduced by £633,000 and costs by £326,000, plainly surplus would decrease by £307,000 across all 9 journals. This represents a decrease in surplus from 22% to 14% for the combined 9 journals currently publishing print versions. From their combined costs and revenues these 9 journals would have delivered less surplus in 2004 if there had been no print subscriptions. Of course some fixed costs may fall as a result of removing print but these could not be identified from the information provided.

This analysis does not take account of the revenues derived from bundled print and online subscriptions, which in 2004 were some 29% of the total subscription numbers to the 9 journals included here and 75% of the total revenue.

[Table 4.2](#) shows the print costs per article and per page in 2004 for 12 journals. [Table 6.12](#) shows the total publishing costs per article and per page for these journals if the costs, which include print (manufacturing and production; distribution and fulfilment) are subtracted from the total publishing costs. The result for this set of journals is a per article saving of on average £491 and per page of £47 based on the information provided. Remember that this number is overstated as it includes some online only costs, which would not be removed. Notice that the average publishing costs/article fall below £1,000 in this (optimistic model) and the costs per page to £97. Notice also that varying numbers of pages per article are a key driver of costs of both editing and production and distribution, and so a cost per page is a more precise measure than per article across these STM disciplines and journals.

Table 6.12: Costs per article and per page for 12 journals with all print costs removed: 2004

Publisher	12	12	15	16	18	19	20	12	13	17	20	12
Cost/article (£)	1121	663	970	940	1180	981	473	1323	764	1076	404	1580
Cost/page (£)	109	114	70	76	134	95	64	74	66	226	53	79

⁶ **Print costs are for print manufacturing and production, distribution and order fulfilment.**

7. Conclusions and recommendations

1. Based on information provided by the nine learned society publishers participating in this study, 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 digitization
 - New journal launches for example in the emerging inter-disciplinary research areas
 - Other society activities for example meetings
 - 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.

2. The Open Access business model is attractive in principle to each of the publishers who participated in the study but there was deep concern expressed over the financial sustainability of a switch to this model across the board.
3. Research output is increasing expressed as article submitted and published by this group of publishers and both are driving up the fixed and variable costs. Higher Education is not in a position to pay for these increased costs.
4. The costs of publishing each of the journals 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.
5. 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 which pre-dates 2002. The fixed costs of publishing have been a primary source of the increased cost levels across this group of publishers and these are costs that are not reduced by falling print runs. Total costs of the 10 journals for which 3 consecutive years of information was available increased by £300,000. 2002-2004 or 11%.
6. The publishers are not all separating print and online costs in a way that would be 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 parties 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 will become essential for publishers to understand their distinctly print, distinctly online and shared print and online costs and revenues. The profit and loss template included as [Appendix 1](#) is provided as one tool to support this.
7. Costs per article are driven by a number of features of the content irrespective of version and these include the length of the article as well as the number and type of figures, tables and illustrations. The first language of the author can also affect the extent of post-acceptance editing of an article that is required. As

- research output grows in Asia, editing of articles from this region will be more costly for publishers. For example, Publisher E that has the highest percentage of authors from Asia noted that 95% of articles are accepted after at least one round of revisions post-review.
8. Total revenues for the same 10 journals (as in 4. above) increased by £336,000 or 10%. This means that the surplus generated by these 10 journals combined increased by £36,000.
 9. There is heavy reliance 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 journal. Online only Member subscriptions would reduce the cost and some publishers are implementing this change.
 10. Net margin/surplus for all the 10 journals combined was 23% in 2002, 29% in 2003 and 22% in 2004. This combined figure masks a quite wide variation in performance as shown in [Table 4.13](#).
 11. It was not possible to assign print and online revenues precisely because 5 of the publishers offered only print and online subscriptions bundled for the 3 year period. The allocation of costs and revenues to bundled subscriptions varies by pricing strategy and by publisher.
 12. Where print and online revenues were separable, print revenues (including non-subscription print revenues) fell by £110,000 (minus 15%) while online revenues increased by £16,000 (22%). Print and online combined revenues from bundled subscriptions increased by £357,000 (14%) 2002-2004.
 13. Although average numbers mask the quite profound 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).
 14. 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 is clear from the information included in this study.
 15. In order to cover the average online only costs for a 10 page article and deliver the average surplus these 13 journals delivered to their societies, the OA fee per article for 2004 would need to be set at £1,166.
 16. Journal costs for the US publishers' journals which are published in print and online are lower in every fixed and variable cost category than the UK publishers journals published in print and online. This could be due in part to the weak dollar to sterling exchange rate but overall costs are among the lowest of all the publishers on a per article and per page basis. It could also be due to this publishers strategy of outsourcing as much of the publishing operations as possible while continuing to self-publish.
 17. If the US publishers' costs are removed from the group of learned society publishers' costs then the cost/article for the UK publishers only in 2004 increases to £1,602 and per page £156. This figure only takes account of costs and does not cover the surplus delivered by the UK learned society publishers to their societies.

18. 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 as is clear from the analysis here.
19. Revenues from print deliver a considerable proportion of the surplus generated by the journals included in this study. For the nine journals publishing both print and online formats and providing information about these costs, if print only variable costs and print only revenues are removed for 2004, surplus is reduced by over £300,000 and overall net surplus falls from 22% to 14%.
20. None of the publishers could see substantial savings from moving to an OA publishing model and most pointed out the additional costs incurred for administering and collecting author publishing fees and the additional costs of marketing to authors versus institutions i.e. many individuals versus a few institutions.
21. Value Added Tax 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 Value Added Tax but for reasons articulated in the report 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.
22. For many of the publishers, online pricing does not reflect the broader usage and utility of the online version rather it is based on the original print version.
23. 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 those from PLoS 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 publishing community for reference.
24. 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? 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.
25. 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.

Appendix 1: Information gathering tools

Authors and readers template

	2002	2003	2004	Comment
Publisher:				Please complete all relevant information for each year
Title of journal:				
SUBMISSIONS				
Number of submissions/year				
Number of articles published/year				
When/did you introduce an online article submission system?				
AUTHOR PAYS				
Fee/article on submission				
Fee/article on publication				
Number of articles published where authors paid a fee/year				
SUBSCRIBER PAYS				
Number of Member subscribers				
Print				
Online				
Both				
Number of institutional subscribers				
Print				
Online				
Both				
Number of personal but non-Member subscribers				
Print				
Online				
Both				
Number of site licenses (not included within online subs above)				
PRICING				
Member price (£)				
Print				
Online				
Both				
UK institutional price (£)				
Print				
Online				
Both				
Site license				
Non Member subscriber price (£)				
Print				
Online				
Both				
Please contact me if you have any questions				
Mary@marywaltham.com				

Profit and Loss template

Print and Online P&L				
Journal:				
Please contact me if you have any questions mary@marywaltham.com	2002	2003	2004	Comment
Revenue Summary				Please complete all yellow boxes that are relevant
AUTHORS				Revenue from authors if the journal receives any
Author fees received for article to be OA				
Page charges				
Colour Figure charges				
SUBSCRIBERS				Number of subscriptions to each version and subscriber type
Institutional Print				
Institutional Online				
Institutional P&O				
Member Print				
Member Online				
Member P&O				
Individual Non-Member Print				
Individual Non-Member Online				
Individual Non-Member P&O				
TOTAL SUBS REVENUE				
Non-subs print revenue e.g.				
Advertising Print				
Reprints				
Back Copy Sales				
Royalties e.g. CLA for photocopying				
Other print: please identify				
Non-subs online revenue e.g.				
Online Pay-per-view				
Royalties e.g. from online aggregators				
Other online: please identify				
TOTAL NON-SUBS REVENUE				
Total all revenues				

Total Pages Published				
Cost Summary				Comment
				Cost summary rows: please show individual cost lines OR subtotals for each category - whichever is most convenient to tabulate.
<u>Content Creation ~ Print & Online for example:-</u>				
Journal Editors				
Inhouse Editorial including office costs				
Peer review - online and/or print				
Copy-editing, proof reading etc.				
Subtotal Content creation ~ Print & Online				
Content Creation - Print only for example:-				If you can separate out print and online page creation costs please do so
Print page composition				
Subtotal Content Creation Print				
Content Creation -Online only for example:-				
SGML/XML/pdf page composition				
Subtotal Content Creation Online				
<u>Mfg & Production - Print only for example:-</u>				All print manufacturing and production costs
Inhouse production staff including office costs				
Paper				
Printing				
Press work				
Storage				
Reprints				
Back Issues				
Subtotal Mfg & Production -Print				
<u>Mfg & Production - Online only for example:-</u>				
Inhouse production staff including office costs				Make an allocation to online if staff work on both versions
Online production such as upload and processing of journal, and subscription data				
Subtotal Mfg & Production - Online				

Cost Summary (continued)				Comment
Distribution & Fulfilment -Print only for example:-				
Postage				
Inhouse subs fulfilment/ customer service including office costs				
Print subscription fulfilment/customer service				
Subtotal Dist & Fulfilment Print				
Distribution & Fulfilment -Online only for example:-				
Web hosting + maintenance + Cross Ref				
Inhouse subs fulfilment/ customer service including office costs				Make an allocation to online if staff work on both versions
Online subscription fulfilment/customer service				
Subtotal Dist & Fulfilment Online				
Publishing support - General & Admin for example:-				
Executive salaries including office costs				
Office rental/occupancy				
Finance Office				
Marketing -				
Promotion costs				
Information Technology Services				
Advertising Service/Commissions				
Telephone/communication costs non-editorial				
Contract services				
Subtotal Pub Support -G&A				
Total all expenses				

Appendix 2: Case Studies of 9 learned society publishers

Publisher A

Thumbnail

Context within the society

Publisher A is active in the biological and physical sciences. All Members of the society can select either one print journal or access to all the journals online. Many but not all are now selecting the online only option. There is no strong pressure to move to OA from the society executive, nor from the publishing side although there is some individual support for it from the elected officers of the society. The key issues discussed internally are how to match the political interests of wanting broad visibility and access to the content published with the financial realities. In fact this publisher has 'delayed OA' with all content free online 12 months after it is published.

Publishing surplus contributes to the society but is not the primary financial mainstay. Most significantly the publishing surplus can be used in any way to support the societies goals – which is not true of most of its other grants and funds- and so this surplus is viewed as particularly important for the flexibility it provides.

Impact of OA

The publisher has done some modelling of the financial outcomes of either going entirely OA – all authors pay - or moving to a hybrid model where authors can choose according to their access to funds and willingness to use them for publication fees. The outcome from these two separate models "looks quite different". As a result this publisher is likely to go the author choice – hybrid route for Open Access- and anticipates that this is likely to affect the journals in the biological sciences more than in the physical sciences where the particular disciplines covered may have neither the funds nor the interest to pursue OA yet, if ever. For a producer pays business model the charge to authors would need to be "\$2,000-ish".

Publishing policies

The journals have been full text online since 1997. All are only offered as bundled print with online primarily because of VAT issues. Pricing policies have been rather unusual with price not based on frequency or page numbers as one would expect. Price per page is low. The page budget is fixed year on year and currently reduces the flexibility of this publisher to acquire more market share of articles published even if submissions increase and are of a high standard. Authors are required to sign over copyright to the publisher – but this is being examined with a view to moving to an exclusive license to publish rather than copyright assignment to the publisher.

Publishing operations

Academic editors out-of house are supported by a solid group of in-house editorial staff who implement the peer-review process. Although much of the publishing activity is outsourced there is still plenty of in-house checking with a high premium attached to absolute thoroughness and accuracy of the post-acceptance editorial production process. In contrast the resources devoted to sales and marketing have been minimal and ad hoc with some third party agreements in place but little focused activity. One part-time marketing manager is responsible for all the journals and this activity is now being diverted from institutional marketing to author marketing. Business information

provided to the publishing group has been weak but is improving. The publisher views their key competitive advantage as a best of breed author and referee service.

Business development

Publisher A has been launching new titles and does this based on business plans which show a reduced level of surplus returned to the society in the year of launch and onwards. Investment in new titles comes from the surplus provided by the current publishing business which is subscription based.

Ability to pay

Some 30% of this publisher's authors are UK based (and 30% from the USA; and 40% from the rest of the world) and so any change in policy by UK funding agencies would have an effect on the feasibility of an author pays model. Since there is no culture of paying anything for publication in the UK – this publisher viewed the step to paying publication fees by authors as a substantial one. With the current subscription model some 45% of revenues are from the USA institutions. Because this society does not rely heavily on the publications for financial stability, there would be the opportunity to try OA and to do something "quite radical" if required. However two of the journals comprise only commissioned review type articles and so could not be supported by author fees. There was clearly a willingness to experiment with OA on a small scale coming forward from this publisher in an effort to test the business model and assess its viability. Society officers have expressed "genuine concerns over the future of scholarly communication" and as a science based learned society any changes "need to be evidence-based."

Data provided by the publisher

Number of journals: Total of 4 reported on - two in the biological sciences and two in the physical sciences.

Submissions: Two of the journals consist of commissioned articles only and so the number of articles submitted is equal to the number of articles published.

Indicators for 2002-2004

	Journal 1	Journal 2	Journal 3	Journal 4
Number of pages published	-4%	+ 5%	+ 19%	+ 22%
Articles submitted	All commissioned	All commissioned	+14%	+12%
UK institutional subscription price	+ 17%	+ 16%	+ 18%	+ 25%
Number of institutional subscribers	- 14%	- 5%	- 10%	-5%

P&L information for 2004- for all four journals combined

Revenues as a % of total revenues	Journal 1	Journal 2	Journal 3	Journal 4
Subscription based revenues	96	95	96	88
Non-subscription-based revenues	4	5	4	12
Costs as a % of total costs				
Content creation	36	32	33	36
Manufacturing and production in print	28	33	19	28
Manufacturing and production online	Included above	Included above	Included above	Included above
Distribution and fulfilment in print	9	9	10	13
Distribution and fulfilment online	2	2	2	2
Publishing support	25	24	36	21
Net margin/surplus	27	32	31	2

Publisher B

Thumbnail

Context within the society

Publisher B is active in a well defined technology sector with a total of 3 journals, a member magazine and a small books publishing programme which are all handled by the publishing group of 13 staff. Membership of the society is now growing as a direct result of a strong push internationally especially within the Asia Pacific region. Student recruitment is also a Membership priority. The Society accredits university courses outside the UK and this provides an additional reason for broadening the scope and reach of the group. The society is interested in where Open Access is going and it is discussed at Editorial Board meetings.

Publishing surplus contributes powerfully to the activities of the society to the extent that if there was none the society would cease to exist. There is no contingency plan for such a loss of income – but the society has offered Members an online subscription option for the first time in 2005 at half the price of a print subscription. It is too early to know the full impact of this but there is solid uptake. This move is part of an overall strategy to build an increasingly international customer base with online only access.

Impact of OA

This publisher has not done any detailed analysis of the impact of an OA producer pays model on the revenue generated and costs incurred by the journal for which data was provided.

Publishing policies

The journal has been full text online since 2000 and has been offered at a print and online bundled price throughout the period 2002-2004. From 2005 onwards it is unbundled. Authors assign copyright to the publisher and are allowed to use the article PDF for any non-commercial use including deposition of published articles in institutional repositories and free public e-servers. The journal has increased in frequency through the period and both submissions and numbers of articles published have increased. The journal has become increasingly more international as a result of connection with a key international federation.

Publishing operations

An external Editor and international editorial board take full responsibility for peer-review, and accepted articles are copy-edited and proofed by freelancers. This publisher works hard to keep staff costs down and much of the publications work is outsourced. A part-time member of staff (3 days/week) is responsible for all the publications sales and marketing, and subscription fulfilment is out-of house. The society does retain the Member database.

Business development

As the journals have become more successful this publisher has been investing in new services and initiatives which include an online archive of content to be made available to all university departments, and in 2006 a new online only journal focusing on educational issues within the profession. Both of these initiatives are funded by the surplus generated by the publications. The international focus of the publisher is

growing and proving most successful for example the institutional circulation of the journal included in this study has grown by 7% over the period 2002-2004, at the same time as it has increased in frequency from 8 to 10 to 12 issues and increased in price by 60%.

Ability to pay publication fees

This publisher was not sure whether all authors would be able to pay publication fees if the journal moved to an OA model. Certainly many of the UK and US authors could find the funds but as the journal is so international this becomes more complex and it seems unlikely that one price in UK sterling will fit the entire author base given their varied access to financial resources. Published authors are based in 39 countries including those in economic transition such as India and China.

Publisher B has an active interest in finding out more about OA and would like to be part of any new move in that direction.

A key strength is the quality and depth Publisher B offers within a niche market which is otherwise dominated by large publishers.

"We are keen to stay as publishers and do not want to lose our brand".

Data provided by the publisher

Number of journals: One in the technology sector of the society.

Indicators for 2002-2004

	Journal from Publisher B
Pages published	+ 74%
Articles submitted	+ 6%
UK institutional subscription price	+ 60%
Institutional circulation	+ 7%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	97%
Non-subscription-based revenues	3%
Costs as a % of total costs	
Content creation	16%
Manufacturing and production in print	34%
Manufacturing and production online	2%
Distribution and fulfilment in print	12%
Distribution and fulfilment online	4%
Publishing support	32%
Net margin/surplus	43%

Publisher C

Thumbnail

Context within the society

Publisher C is active within the physical sciences and technology with a number of journals and magazines. Membership of the society is growing and Members are entitled to a reduced price on individual subscriptions to the societies' journals although few take advantage of this. The journal for which data was provided is already fully Open access. The society wants to be involved in the OA discussions but still wishes to protect the final published version from being available free forever. There is scepticism within the society about the viability and sustainability of the OA model and this has been informed by direct recent experience of both publishing an online only OA journal, and becoming the publisher of an OA journal which needed to be converted to the subscription model in order to continue publishing.

Publishing surplus contributes importantly to the activities of this society but if the publishing surplus disappeared the society could draw on reserves in order to survive for an estimated 2.5 years.

Impact of OA

Based on the journal for which data was provided, this publisher would be unable to move to an OA model for its journals. Note that the journal for which information is provided has some unusual features:

- It is very broad in scope and competes with all the major journals across the discipline.
- Some 40-50% of the articles published in the journal have already been posted on a pre-print server.
- For the initial 3 years of publication the journals was under resourced as key staff were shared with other journals.

However the journal is online only and as such provides an excellent example of the cost savings associated with the single online format. Current fees to authors are £500 and funding agencies are increasingly permitting authors to pay these out of their research grants. Members of the society and a number of associate organizations qualify for a 10% discount on author publishing fees. Pay-up of these fees has been low from 44% in 2002, 60% in 2003 and now up to 69% in 2004. In order for the publisher to just break even in 2004 at the 69% pay-up rate, charges to authors should have been £1,718 not £400 which was the actual fee set. Chasing authors for their fees has meant a lot more work for the publisher to get the money in.

The publisher thought that in order to survive within an OA business model the fees charged to authors would need to be "close to £2,000". There is considerable competition within this sector for the best authors, and the publisher surmised that the nearest competitor could well be charging just \$2,000 for authors to have their articles OA and so price competition would ultimately take over.

Publishing policies

This journal is the only one this publisher has fully OA. It has been full text online since its launch and there is no print edition. The publisher permits authors to post their published articles to their own institutions' site and there are no restrictions put on

where the article can be posted. The journal has built more submissions quite rapidly over the past three years and alongside this the number of articles published has doubled and the impact factor has increased.

Publishing operations

External editors are involved in selection of articles to publish but this publisher manages all of the peer-review process and sees this as a key part of their competitive advantage which has been described to them as "*..Speedy, fair and courteous..*" compared to their closest competitors. The publisher has a full scale in-house publishing operation with considerable control over all aspects of the publishing value chain including a well developed sales and marketing operation and online web technology group.

Business development

Growth of new products and services is financed out of the surplus made by the publishing group. There is a steady stream of new journal launches from this publisher as the discipline expands and diversifies.

Ability to pay

The publisher has not examined in detail whether and which authors would be able to pay publication fees.

Data provided by the publisher

Indicators for 2002-2004

	OA journal from Publisher C
Pages published	+ 144%
Articles submitted	+ 77%
Articles published	+ 101%
Circulation	n/a

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	0
Non-subscription-based revenues	100%
Costs as a % of total costs	
Content creation	34%
Manufacturing and production in print	0%
Manufacturing and production online	8%
Distribution and fulfilment in print	0%
Distribution and fulfilment online	3%
Publishing support	40%
Net margin/surplus(loss)	(203%)

Publisher D

Thumbnail

Context within the society

Publisher D is active within biomedicine with a total of 3 society journals and two in related areas published for external clients. Membership of the society is fairly static. The society executive has assessed that publishing is a core competency for the society. A subsidiary publishing company has been set up wholly owned by the society and which publishes for other groups. There is no strong pressure to move to OA coming from the Membership more the society staff and Publications Committee are very sympathetic to the principle of Open Access (producer pays) because they believe it would correct the dysfunctional market. The group is concerned about how the theory of OA would actually work for them and other publishers but has strong awareness that there is a need to take the producer pays model seriously in the current publishing system where there is no direct link between price and value.

Publishing contributes substantially to the society and is the largest single source of revenue to it. However the society would not go away if publishing stopped generating surplus and reserve funds would be sufficient to pay the society's costs for 2 years or so.

Impact of OA

This publisher has explored the impact of a shift to a hybrid OA model for all of their society journals in some depth by developing scenarios that portrayed the impact of the level of fee charged to authors on overall uptake by authors and in turn the price of subscriptions given that level of uptake. These scenarios varied from the "highly positive" to the "really scary" depending on the assumptions made and so the range of risks was broad. In each case one assumption was that print would continue – and print subscriptions would need to be paid for at cost plus. In turn there would be few if any savings as a result of moving to OA. In fact additional costs would be incurred by this society faced with dealing with the real practicality of interfacing a payment system for published articles with the societies' accounting system, and also increased costs of marketing directly to authors will be required. This publisher is planning to start an OA hybrid experiment later in 2005 with the journal included in this study.

The impact of moving to a hybrid model could be zero if no author's can or will pay for their article to be OA, or it could provide a new revenue stream and wider visibility for the journal selected. The publisher viewed either outcome as positive and helpful for understanding directly how and if such a change in business model was feasible.

Publishing policies

The journals have all been full text online since 1998 and have recently moved to a new technology provider as part of providing more value to online users; the costs of doing so are higher. The publisher requires copyright assignment from authors at least in part because much of this journals' revenue comes from special sales to industry. Authors are not allowed to put their articles on institutional repositories although it would be impractical to consider actively policing this. Page numbers have been growing in recent years and as a result of working on the strategy for this journal to raise its editorial profile, submissions have increased and so has the Impact Factor. Review articles are the backbone of the journal – and these are all available free full text online unlike many

other journals where original articles may be free but review articles access controlled. The publisher has not yet assessed the costs of publishing a review article compared to a research article and they are simply clear that reviews are a key source of citations and must be highly visible. Journals are sold as tailored bundles by the distributor for the society.

Publishing operations

External editors are responsible for the overall content of the journal with tracking and administration of peer-review conducted in-house by the publications group. Freelance copy editors work on accepted articles and then much of the subsequent publishing process is outsourced including printing, online hosting, fulfilment and distribution. Sales to industry are a key revenue line and an in-house Business Development manager is responsible for sales of sponsored subscription and bulk commercial reprints.

Business development

Currently Publisher D has no new plans for journals or new services to the community served and in general there needs to be a clear sign of money coming in from outside to support any new initiatives in order for them to move ahead.

Ability to pay

Publisher D has not looked in detail at the ability of authors to pay publishing fees out of their research grants and feels that the process of building the producer pays business model will be iterative and will grow from relatively small beginnings.

Analysis of the geographical base of submitted articles shows that 45% of submissions are from Western Europe, 24% from North America and 10% from the UK.

Data provided by the publisher

Number of journals: One in the biomedical sector

Indicators for 2002-2004

	Journal from Publisher D
Pages published	+ 230%
Articles submitted	+ 206%
Articles published	+ 247%
UK institutional subscription price	+ 81%
Number of institutional subscribers	- 9%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	74%
Non-subscription-based revenues	26%
Costs as a % of total costs	
Content creation	14%
Manufacturing and production in print	n/a
Manufacturing and production online	n/a
Distribution and fulfilment in print	10%
Distribution and fulfilment online	5%
Publishing support	72%
Net margin/surplus/(loss)	(80%)

Publisher E

Thumbnail

Context within the society

Publisher E is active within a well defined technology sector with several journals and magazines all handled by an in-house staff. Membership of the society has been falling slowly and the age profile increasing. The society accredits courses on an international basis. In general the Members are not very interested in the activity of the publications group and have not followed the OA debate as closely as in other disciplines. Recently the President put Open Access on the agenda for the society trustees – a first move in this direction.

Publishing surplus contributes but not heavily to the society and it clearly supports other activities such as meetings and events run by the society. Within the P&L, charges made to the journals effectively support the costs of the offices run for the Chief Executive and the society finance department and so there are hidden benefits of publishing for the society. There is no contingency plan if publications ceased to provide a surplus to the society although the recent downturn in advertising that supports the magazines published forced this issue onto the agenda and the society responded by selling some assets.

Impact of OA

Publisher E has not done any detailed modelling of the impact of moving to an OA model for the journals but “£3,000 per article” seemed likely if print does not completely disappear. There would be no savings from OA unless the printed copy went away and in fact Publisher E anticipated that costs would increase with the need to chase individual authors for payment and to understand and implement clear criteria for not paying. “Would this be based on country of origin of first author – or what?”

Publishing policies

The journals have been full text online for many years. All are offered as bundled print with online due to VAT issues. As a result all customers have a full run of print copies and thus addressing the online archive issue has been less pressing for Publisher E. In common with several of the publishers included in this study there was no separation of print and online revenues or costs. Total pages published have increased over the three year period (up 25%) although special issues can distort these patterns. Members are entitled to a discounted subscription paid for separately from their annual Membership fees. Copyright assignment is required of authors although this publisher is considering moving to an exclusive licence to publish. Posting on institutional repositories has not been an issue but is permitted if requested.

Publishing operations

Although the journals have external Editors the decision to publish is largely made in-house by the Managing editor based on reviewers’ reports. Publisher E has considerable control over the journal content before and after peer-review and although copy-editing is outsourced page composition is done in-house. Print and online publication is outsourced to third parties as is customer service. There is no sales force but a marketing department does some direct marketing and manages relationships with third party sales groups globally.

Business development

New publications and services are financed entirely from within the P&L and the publisher cannot dip into the society's reserves in order to develop new initiatives. For example the cost of digitization of the full journal archive was paid for from the surplus generated by the publishing operations. The society agreed to accept a lower contribution from publications over the period while this cost was being incurred.

Ability to pay

In 1996 some 62% of submissions to this journal came from authors based in the UK, and 22% from Asia Pacific; in 2004 this has shifted to be 25% from the UK and 42% from Asia Pacific. North American submissions have remained quite flat at 6-7% although absolute numbers have increased for this region too. The geographical profile of authors published in the journal fairly closely mirrors submissions. This raises the issue of whether authors of articles in this journal can or will pay for publication. Publisher E felt this community was against being charged for publishing and that moving to a hybrid model could alienate parts of the community, but the publisher would be considering it. Funds would need to be earmarked explicitly for this purpose in order for the money to flow through.

Publisher E was positive towards the notion of OA in particular noting that scholarly publishers "*Have seduced ourselves into thinking that libraries are the market when in fact they are intermediaries*". OA could be a creative and innovative approach, but Publisher E remarked that many publishers with a portfolio of journals have some strong performers that support the weaker ones. Will the weak ones be forced to close as a result of a shift to an OA business model?

Data provided by the publisher

Number of journals: One in the technology sector.

Indicators for 2002-2004

	Journal from Publisher E
Pages published	+ 25%
Articles submitted	+ 24%
UK institutional subscription price	+ 22%
Number of institutional subscribers	- 11%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	99%
Non-subscription-based revenues	1%
Costs as a % of total costs	
Content creation	44%
Manufacturing and production in print	18%
Manufacturing and production online	n/a
Distribution and fulfilment in print	9%
Distribution and fulfilment online	0.21%
Publishing support	29%
Net margin/surplus	62%

Publisher F

Thumbnail

Context within the society

Publisher F is active in a well-defined segment of clinical medicine and in addition to the journal included in this study publishes a range of professional development materials. Membership is declining slightly with half of Members based in the UK and half outside the UK mostly in former British Commonwealth countries. The society acts as an examining and regulatory body for the profession with the international development side growing in emphasis for the society and in turn a broader mix of content in the publications.

The journal included in this study is published on behalf of the society by a commercial publisher and will be part of that publishers' exploration of the hybrid producer pays model offering authors Open Access for their article if they pay a publication fee.

The surplus generated by the journal contributes less than 10% of the income to the society but is important, as it is the major earner within the publishing programme and a valuable asset. If the journal stopped making a financial contribution to the society then all other commercial publishing would be at risk. There is no explicit contingency plan if the journal ceases to return a surplus.

Impact of OA

Since Publisher F is participating in the publishers' experiment there clearly is a real willingness to find out more about the impact of OA. The proposed author charge would seem to cover the costs for publishing this society's journal quite well according to the publisher. Savings may not be achievable through OA and Publisher F was not convinced that OA would result in any. Publisher F has reservations about the ethical issues surrounding acceptance of articles. There is no way the Editor will not know that the authors of a particular article can pay for publication – since all research articles acknowledge funding sources and so it will be obvious who can pay and this may have an impact on the article acceptance. In particular this is a small field where individual research groups tend to be well known and recognisable. Being part of the OA experiment was seen as important for understanding what is happening within this community and not being left behind. Philosophically this publisher wanted users to have free access to the information published and indeed the more access there is the higher the impact factor should be!

Publishing policies

Publisher F has a thriving commercial reprint business and so asks for copyright assignment by authors. An exclusive license to publish – including reprint rights would also work fine and there is an openness to this approach. The publisher has fended off requests for posting published articles on institutional repositories, and will not release the final pdf's for such a purpose. The journal has been full text online since 2001 and recently the publisher opened up the online archive of content to make it free after 12 months. There is a page budget for the journal but the number of pages published has moved around in recent years in part to clear a backlog of accepted articles. The acceptance rate for the journal is close to 28% at present. The commercial publisher

partner tends to propose price increases to which Publisher F responds; a 5.5% price increase is typical.

Publishing operations

An out of house Editor for the journal is supported by in-house staff that monitors and chases up the peer review process. All post-acceptance work on the journal is done by the commercial publisher although Publisher F deals with copyright permissions and some licensing issues.

Business development

Publisher F is coming to the conclusion that much of the society’s publishing output aimed at professional development would be better done online. Pricing policies already reflect that with the opportunity for Members and subscribers to select an option which gives them full access to all the online material published by the society not just discreet publications one at a time. Various new services are in the planning stage, and in general these are funded from the publishing surplus or require relatively little investment. If the risk looks big then Publisher F asks the society Member enthusiasts for money upfront, but this is rare.

Ability to pay

Publisher F had not looked in detail at the funding of research by authors published in the journal but felt that hospital based clinical research groups would not have the funds to support publication. If the NHS agreed to fund research publication fees then “.We would change to OA overnight!” Analysis of the geographical base of authors whose articles are published in this journal shows that in 2004 some 50% of accepted articles were from UK based authors with North America next at 8% and the next 16% of accepted articles coming in almost equal numbers from the Netherlands, Australia and Sweden. Brazil, China and India accounted for 2 accepted articles each in the journal in 2004 but submissions were received from a total of 59 different countries.

Data provided by the publisher

Number of journals: One in clinical medicine.

Indicators for 2002-2004

	Journal from Publisher F
Pages published	+ 74%
Articles published	+ 20%
UK institutional subscription price	+ 5%
Number of institutional subscribers	- 41%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	70%
Non-subscription-based revenues	30%
Of which :- Advertising in print	18%
:- Special supplements and reprints	10%
Costs as a % of total costs	
Content creation	21%
Manufacturing and production in print	23%
Manufacturing and production online	2%
Distribution and fulfilment in print	14%
Distribution and fulfilment online	n/a
Publishing support	40%
Net margin/surplus	33%

Publisher G

Thumbnail

Context within the society

Publisher G publishes the journal included in this study for a society that is active in the applied life sciences. The journal is one of four published for this society. The Membership of the society is growing and Members are entitled to a discount on the full institutional price of the journal. Interest in Open Access is being driven by the Society although plainly a business case will need to be made in order to move in this direction because more than 50% of the societies' activities are funded by the publications' profit share with the publisher.

If the surplus from publishing disappeared then the society would have to look for other sources of income – such as industry sponsorship – or cease certain activities such as society meetings. Given the professional discipline covered by the society, increased industry sponsorship could lead to some ethical issues.

Impact of OA

The publisher has done some analysis of the fees that would need to be charged to authors in order to implement a producer pays model – these do vary by journal from £1,000 to £3,000 with the average close to £2,000. Moving to a hybrid model where OA is optional and depends on the ability of authors to pay would most likely cost more in administration – dealing with individual author payments and of course the criteria for waiving author fees would need to be very well articulated. However, this journal is a possible candidate for an OA hybrid experiment. The society that owns this journal did not consider there would be any savings from moving to OA although there could be some savings on sales and customer service there would be increased costs associated with author marketing to keep up the visibility of the journal and attract the best authors.

If this journal moved to an OA business model then it might have higher visibility and it is assumed that the level of citations would increase and certainly the mission of the society would be fulfilled more fully. At the same time the society would need to find replacement revenue.

Publishing policies

All of the content of this journal is free online 12 months after publication and has been online since 1998. There is only 12 months of content to sell at any one time. Since 2000 authors sign an exclusive license to publish their article rather than assigning copyright, although the publisher wonders if many authors appreciate the difference. The society permits authors to post their article to an institutional repository. An annual page budget is agreed each year and this has been growing as an online submission system was introduced and this has increased submissions and in turn the number of articles published (see below). Pricing of the journal is quite low, with online pricing based on a small addition to the print price for the addition of online access as a site license.

Publishing operations

The society organizes and supports all aspects of peer review and content selection for the journal and also copy-editing and proof reading. The publisher then carries through from final accepted and edited article onwards through print and online production with an in-house department for handling subscription fulfilment. Sales and marketing are implemented from the publisher's office with some third party agreements in place covering particular geographical territories.

Business development

The society is not planning any new products or services but has recently decided to digitize the archive and this will be made available free. The production of the digital archive has been funded by the society.

Ability to pay

It is believed that some authors would be able to pay fees required for publication and it is possible that funding would be forthcoming from industry to support these – although it would raise serious ethical issues. Currently there is commercial support for some supplements of the journal and notably these issues are often highly cited. There has been no in-depth analysis yet of the ability of authors to pay out of their research grants. The geographical base of authors is some 45% from Europe and 21% from the UK although the Member base is predominantly based in the UK.

Data provided by the publisher

Number of journals: One in the applied life sciences

Indicators for 2002-2004

Change 2002-2004 in:-	Journal from Publisher G
Pages published	+ 38%
Articles submitted	+ 66%
Articles published	+ 37%
UK institutional subscription price	+ 9%
Number of institutional subscribers	- 15%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	89%
Non-subscription-based revenues	11%
Costs as a % of total costs	
Content creation	40%
Manufacturing and production in print	28%
Manufacturing and production online	1%
Distribution and fulfilment in print	16%
Distribution and fulfilment online	2%
Publishing support	14%
Net margin/surplus	27%

Publisher H

Thumbnail

Context within the society

Publisher H publishes several journals and some books. There is no captive Membership base for the publications although the publisher operates in ways that are similar to a learned society in that a modest surplus from publishing is used to provide grants within the community. The communities served are in the well-funded areas of biomedical research.

Publisher H is most interested in an Open Access model since "the goals of OA are the same as our goals." but many of Publisher H's staff are sceptical about the feasibility of OA. The Board of Publisher H is keen on the idea to the extent that an experiment with the hybrid OA model which has been running for some time now was perceived to be at 'no-risk'.

Publishing surplus is used to fund other activities but Publisher H would be prepared to accept reduction in surplus if there was a demand for Open Access because the publisher clearly wishes to be part of and engaged with its community. There is no contingency plan for the complete loss of surplus from publications, and if the journals failed to break even the society would need to dip into its reserves in order to continue to publish.

Impact of OA

Publisher H has been experimenting with the hybrid OA model by offering authors the option to publish their articles entirely Open Access for a fee which is now above £1,000. Take up has been low at around 5% of all articles published. Publisher H is surprised by this since the area of research covered by the journal is one where research is well funded and continues to expand and so in theory most authors will be able to pay but presumably are not willing to. The original expectation was that there would be much greater uptake than the 5% observed so far. The fee charged to authors does not cover the full cost of creation and production of research articles or the commissioned reviews published by the journal. These reviews are commissioned by staff in-house and authors of reviews are paid a fee, review articles are the most cited and the most downloaded journal content. If Open Access took off, Publisher H would be faced with having to increase the author fee to be able to support the content that has the greatest value.

So far the impact of OA on this publisher has been negligible although Publisher H believes there could perhaps be a rapid shift ".But are there people who want access to our content that are not getting it?" Publisher H expressed concern that the OA model shifts the balance of publishing so that journals end up being published for authors not for readers and that this could affect acceptance rates.

Publisher H does not anticipate that there would be any savings from moving to Open Access.

Publishing policies

All Publisher H's journals have been full text online for almost a decade. Initially this work was done in-house but now it is outsourced as the publisher needed more help and sophistication than a small operation could provide. All of the journals' content is free six months after publication. There are no colour or page charges to authors and reviewers are paid a small fee for their work. Submissions and articles and pages published increased 2002- 2004 as the journal has published more. Authors retain copyright and grant Publisher H an exclusive license to publish their article. Authors are allowed to put the published article on their own website after publication but must provide a link to the journals' site.

Publisher H does not deposit the final edited typeset and proofed articles on PubMed Central but will not be preventing authors from depositing their accepted versions as NIH requests.

Publishing operations

Academic Editors work with Publisher H's full time in-house Executive Editor on all aspects of peer-review and content selection. Considerable emphasis is put on the added value of copy-editing and proofing and all of this work is completed in-house as well as page make up. Colour reproduction and accuracy of half-tones is especially important for the articles published in the journal included in this study. Binding and mailing are outsourced. Maintenance of the subscriber file, marketing and sales activities are all done by Publisher H.

Business development

Publisher H is not considering any new publications or services specifically at this time but is likely to be investing and re-investing in technology and this is financed from the publishing surpluses.

Ability to pay

Since Publisher H has been experimenting with Open Access the geographical spread of all authors published in the journal over the past 18 months compared with the spread of authors who paid for their article to be Open Access is especially interesting and is shown in Table H below:

Table H: Geographical spread of all authors and all OA authors (source; Publisher H)

Region	% published authors	% of authors paying for article to be OA
USA	36	35
Europe	36	27
UK	15	19
Rest of World (ROW)	7	15
Japan	6	4

Notice the increased uptake of the OA option by authors based in the Rest of World and to a lesser extent the UK compared with the USA and Europe.

Data provided by the publisher

Number of journals: One in biomedicine
Indicators for 2002-2004

Change 2002-2004 in:-	Journal from Publisher H
Pages published	+ 30%
Articles submitted	+ 31%
Articles published	+ 23%
UK institutional subscription price	+ 18% (print) + 22% (online)
Number of institutional subscribers	- 7.5%

P&L information for 2004

Revenues as a % of total revenues	
Subscription based revenues	96%
Non-subscription-based revenues	3%
Open Access fees from authors	1%
Costs as a % of total costs	
Content creation	36%
Manufacturing and production in print	35%
Manufacturing and production online	5%
Distribution and fulfilment in print and online	13%
Distribution and fulfilment online	Included above
Publishing support	11%
Net margin/surplus	17%

Note that Publisher H has been publishing more and longer articles through the period 2002-2004 with the result that revenue/page has fallen more than cost/page.

Publisher I

Thumbnail

Context within the society

Publisher I is based in the United States and publishes four journals in the applied biological sciences plus a Member newsletter, some technical handbooks and two online only publications. Membership of the society is relatively flat and aging. A real effort is made to recruit students and they comprise 22% of the Membership. Student membership fees are heavily subsidized. The publisher does not receive any allocation of Member dues from the society to support the publications operational cost.

This society has been interested in opening up access to its journal content since 1998 and introduced a model which permits authors to pay for their article to be Open Access in PDF some years ago. The society leadership are in support of this strategy as it provides wider visibility and use of the journal content as is aligned with the society's mission.

Publishing surplus for the journals is modest but it contributes vitally to the society and if it were to disappear the society would be in serious trouble. Revenue to support the society comes from 3 sources – the annual meeting, Membership fees and the publications. There is no contingency plan in place in case the journals failed to provide a surplus to the society.

Impact of OA

Publisher I has projected the impact of the current OA fees to authors and if 100% of authors took up the option then the journals would not break-even if subscription fees were eliminated. So far author uptake of the OA option is at 62% and seems to have settled around that level over the past two years or so.

Publisher I could see some savings from a fully OA model because of less expenditure on subscription management and access control. Because this publisher is already handling page charge fees to authors the practicalities of collecting money from authors was much less daunting "We are already doing the collections activity."

Publishing policies

The journals have been full text online since 1999. All are offered unbundled with print and online sold separately throughout the period 2002-2004. The current business model is based on subscriptions, page charges, reprints and Open Access fees from authors. Requests for waivers to the author based fees for page charges are small at less than 4% of the total revenue derived from authors for both of the journals included in this study. Members receive a discount on their page charges when they publish in the society journals (\$48/page versus \$75/page) and 80% of published authors are society Members.

Subscription prices were increased some years ago by 10% when the publisher realized that prices were too low, but now the average increase is close to 5% per year.

Publisher I requests copyright transfer from authors, excluding Government employees, and after two years authors may post their published article on their institutional web

site. The long embargo period is because of the long citation half life of articles in this discipline. The society is considering making all the journals free online after two years.

Members are provided with the online versions of all the journals as part of their Membership, and they can then pay for a print subscription in addition if they wish to.

Publisher I publishes journals with the most citations in the field covered, the subscription prices are most reasonable, the quality of peer review is high and authors are given a considerable amount of help with their papers.

Publishing operations

The editorial activities for all the journals are done by volunteer Members with every attempt made to keep the overall workload under control. For example there are 15-25 subject editors for each journal and they each receive less than 20 articles per year. An online article submission system is in place and this increased the number of submissions when it was introduced. As much as possible of the post-acceptance publishing activity is outsourced including copy-editing, proof-reading and all pre-press, pre-online production work. The online version is hosted on two different sites – BioOne and an online aggregator. The society's Member services department was outsourced recently but this may have to be reconsidered as it is not working as well as expected. One person is responsible for all Member services and journals marketing and as a result "We don't do a whole lot" (of sales and marketing)

Print and online revenues are tracked separately but this is more difficult for the costs. Since much of the publishing activity is outsourced and suppliers are bundling their services to encompass print and online deliverables separating online costs from print is often not possible. Print subscriptions and demand have been falling with online subscriptions and access increasing slightly. Publisher I will continue to provide print "As long as institutional subscriptions can cover the cost of it."

Business Development

Publisher I is not planning any new journals but there are four handbooks in the pipeline which will be co-published because the society cannot afford to publish them alone. Much more of all of the society activity is being conducted online – for example Membership renewal is now fully online.

Ability to pay

The current fees charged by Publisher I for Open Access to published articles is not adequate to support the journals over the longer term if there is a further shift to authors paying for OA. The publisher had not assessed the level of fees required recently but estimated that their current fees would need to increase by 3 times the current page charges for the model to work. Publisher I thought it may be necessary to look for grant support of the journals if this became necessary since the fees they would need to charge authors and run the journals would probably just not be available from the authors' funding agencies (NSF principally). For the two journals included in this study some 70% and 53% of authors are from the US. Since the online article submission process was implemented the number of non-US submissions has increased, notably from China.

For Publisher I the Open Access business model is already in place and now they need to be able to prove that it is sustainable if subscriptions fall away entirely.

Data provided by the publisher

Number of journals: Two in applied biology.

Indicators for 2002-2004

	Journal 5	Journal 6
Pages published	+ 61%	+24%
Articles submitted	+22%	+ 17%
UK institutional subscription price	+ 7%	+7%
Number of institutional subscribers	-6%	-8%

P&L information for 2004

Revenues as a % of total revenues	Journal 5 & 6 combined
Author based revenues	32%
Subscription based revenues	43%
Non-subscription + non-author-based revenues	25%
Costs as a % of total costs	
Content creation	44%
Manufacturing and production in print	22%
Manufacturing and production online	5%
Distribution and fulfilment in print	10%
Distribution and fulfilment online	4%
Publishing support	18%
Net margin/surplus	12%