The Future of Scholarly Journal Publishing among Social Science and Humanities Associations

REPORT ON A STUDY FUNDED BY A PLANNING GRANT FROM THE ANDREW W. MELLON FOUNDATION

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The study described in this report grew from recommendations for an investigation into journal economics by the National Humanities Alliance Task Force on Open Access and Scholarly Communications. Since experiments are underway to understand and enable a range of options for a shift to an open access (OA) business model for publishing some scientific, technical, and medical (STM) journals, the question arises, Do these same options exist for a similar shift within humanities and social science (HSS) journals? Findings are reported from detailed analyses of the publishing economics, including all revenues and all costs, of eight flagship US journals across a number of different HSS disciplines. Using actual business information from their association publishers for each of the years 2005, 2006, and 2007, these findings clarify that for this sample of journals, an OA business model based only on revenue from the research article author or producer would not be sufficient to sustain these journals. The research articles published in these journals were longer than typical STM journal articles, and the percentage of non-article content (e.g., book reviews and other scholarly content) was greater. Information-gathering tools and methodologies that enable like-for-like comparison of journal revenues and costs were developed and are described in the report. As an initial in-depth business review of a sample of HSS journals, the report further clarifies some of the key differences between STM and HSS journals, articulates recent journal performance, makes tentative conclusions based on this sample, and proposes further questions that need to be answered to support a shift to OA business models that are sustainable across HSS journal publishing.

Journal of Scholarly Publishing April 2010 doi: 10.3138/jsp.41.3.257

Keywords: National Humanities Alliance, open access, humanities and social science (HSS), journal economics, business models, US association publishing

EXECUTIVE SUMMARY

1. Within US-based humanities and social science (HSS) societies and associations, there is concern about the lack of current, comparable information on the similarities (and dissimilarities) between scientific, technical, and medical (STM) journals and HSS journals at a time when STM journals are increasingly heading toward an Open Access (OA) business model. There is a lack of availability of benchmarks on publishing performance in HSS and a shortage of best-practice guidelines for journal publishing in scholarly humanities and social science organizations large and small.
2. This initial Future of Scholarly Journals Publishing among Social Science and Humanities Associations study involved collaboration by eight leading US-based associations and set out to build and test some tools and methods to help address the lack of business information on scholarly journal publishing at a pivotal time when financial models are changing.[1]
3. The journals selected for this initial study cover a broad range of subject disciplines, with 'humanities' represented by modern languages, history, and religion and 'social sciences' by economics, sociology, anthropology, politics, and statistics. Clearly this is not a homogeneous group of scholarly journals. Information about the eight journals is found in Part 1 and Part 2 of the report.
4. The journals included in this study are also different from most STM journals in a number of fundamental ways. Where appropriate, comparisons are made between this group of eight HSS journals and the thirteen STM journals included in the 2005 JISC report,[2] which used a similar method of analysis.[3]
5. Part 2 describes in some detail the methodology for developing the journal data inputs to the templates (see Appendix 1 and Appendix 2) that are used for the business analysis. Information was collected for three complete years, 2005 through 2007.
6. Circulation patterns over the three years are reviewed in Part 2. Member circulation is relatively flat overall. Total institutional

subscription numbers reported increased by 1.8 per cent; a drop in print subscription numbers was more than compensated for by an increase in online and print + online subscriptions.

7. *Journal costs*, analysed on a per-journal and per-page basis, are summarized; the data indicate wide differences in the cost base for the group of journals in this study. Cost per page published in 2007 ranged from $184 to $825 (mean: $526). When the variable costs of print are removed, these costs fall to a range from $90 to $652 (mean: $360).
8. Total costs increased by 6 per cent ($370,000) over the three years under review. Print manufacturing and production costs fell slightly, despite a small increase in the number of journal pages published (+5.4 per cent) and a 1 per cent increase in print circulation.
9. Despite these small cost increases, the revenue increased, as did the net margin per page, because the average publishing cost per page remained remarkably stable.
10. The total number of articles published also seems stable for this group of journals.
11. *Journal revenues*, reviewed in Part 2 of the report, increased by $800,000 (+10 per cent); the bulk of this increase came from institutions.
12. Institutional subscription revenues, including site licences and consortium revenues, provided 58 per cent of total revenues and 72 per cent of subscription revenues in 2007.
13. Total revenue from institutional subscribers increased by 12 per cent in this period, with the greatest increase from the bundled print and online subscription category. The drop in revenue from print only institutional subscriptions is noticeable. During the study period, three publishers began offering online-only as an option to institutions, and one additional association reported starting this option in 2008; pricing models and product offerings to institutions are clearly shifting.
14. Revenue from member dues was allocated to five of the journals and accounted for 28 per cent of total subscription revenues for these five journals. Three journals did not allocate member dues to the journal. Member copies represented more than 85 per cent of total subscription copies fulfilled in 2007.

15. Revenue per institutional subscriber across all versions of seven of the journals in 2007 was $225; revenue per member was $11.
16. Overall business performance of the journals, addressed in the 'Surplus or Deficit' section of the report, shows the surplus steadily increasing during the period as costs held steady and revenues grew.
17. The eight journals are managed and used by their associations in quite different ways, at one extreme to generate income for association activities and at the other as a community-building tool for members. Differences in business philosophy drive financial performance at the individual journal level.
18. Any exploration of an alternative business model for HSS journals that might permit broader access to the scholarly content must presume that model is, or will become, financially sustainable, so that the association and the journal continue to thrive.
19. Part 3 of this report articulates the finding that a shift to an entirely new funding model in the pure form of OA (author/producer pays), in which the costs of publishing research articles in journals are paid for by authors or a funding agency and readers have access free online, is not currently a sustainable option for any of this group of journals, based on the costs provided. The sources of external funding required for such a model are also not clear, and such sources may not be available even as broadly as in STM disciplines.
20. Only a small amount of primary information is available about the publishing economics of journals in the humanities and social sciences, and, with the exception of this report, much of it seems out of date.
21. Publishing costs are affected by a range of factors particular to a journal within a discipline, such as submission and acceptance ratios and amount of editorial work.
22. An assessment of non-cash costs was not within the scope of this study, but at the workshop in December 2008 (see Part 2) there was discussion among participants of the numerous in-kind contributions made by universities and by faculty to support scholarly journals' infrastructure and operations.

23. Institutional sales subsidize association member copies. The publishers in this study felt quite strongly that a printed copy was an essential regular, physical reminder to members of the value and community of association membership.
24. Revenues from the print version deliver a considerable proportion of the surplus generated by the journals included in this study, and a speculative assessment is made of the impact of removing print revenues and costs from the group of journals. The result would be a drop in net surplus.
25. For many of these publishers, online pricing does not yet reflect the broader usage and utility of the online version; rather it is based on the original print version, and so is undervalued.
26. Even this study, which focused on a small and committed group of associations, ran into issues around the political and administrative will to provide all the requested data. In any future work, it will be essential to require at the outset an explicit commitment to provide specific types of data not only from individual societies and associations but also from their publishing partners.
27. All of the information requested is proprietary and was treated in utter confidence, even within the context of meetings and exchanges between active members of the participating publishers. Such an approach is essential and, of course, leads to data quoted in the report that are built on 'average' and 'mean' numbers, which often do not reflect the true differences and trends hidden within the primary data.
28. Part 4 of the report, which deals with *questions requiring fuller answers*, includes a brief discussion of core issues that the results of this study have been unable to address adequately, including the differences between STM and HSS journals and which OA model(s) may be sustainable for HSS publishers. At the heart of this section is a basic question: Are the costs, revenues, and surplus from this broad group of eight association journals typical?
29. The need for a full research project is evident from the results of this study, which deliberately focused in some depth on just eight journals from associations in eight distinctly different disciplines. The topics identified for further investigation through a multi-title and multi-publisher study of small, medium, and large associations and societies include the following:

- How are humanities and social science journals different from each other and from STM journals?
- Is the 'gold' OA model sustainable for a subset of existing HSS publishers?
- Where would the money come from to support 'gold' OA in HSS journals?
- Are other 'non-gold' OA models sustainable for HSS publishers? If so, which and how?
- If HSS articles are posted to OA repositories ('green' OA), how long should the embargo period be?
- Are results from OA experiments helpful in the understanding of society/association publishers of HSS journals?
- How can case studies be used to articulate the particular aspects of the journal(s) within the context of the society/association and encourage study participation?
- Are the costs, revenues, and surplus from this broad group of eight HSS association journals typical?

Such a study should enable some meaningful segmentation and modelling by discipline and by features of the association/society publisher and the journal.

30. Gaining the trust of the society/association publishers involved and ensuring participation of a sufficiently wide sample to provide a broadly representative picture across types of publisher and journal, as defined by the sampling framework, will be a key success factor.
31. 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.

1. OVERVIEW OF THE PUBLISHERS INCLUDED IN THIS STUDY

Background

Recent research on the business and financial aspects of peer-reviewed journals has focused predominantly on scientific, technical, and medical (STM) journals, with little or no information available about association journals published in the humanities and social sciences (HSS), where

journal publishing differs substantially from the STM paradigm. Within US-based HSS societies and associations, concern is expressed about this lack of current, comparable information on the similarities (and dissimilarities) between journals, the lack of benchmarks on publishing performance, and the absence of best-practice guidelines for journal publishing within scholarly humanities and social science organizations large and small. The overarching purpose of this project is to address these concerns by defining the current situation and recent trends in scholarly journal costs and revenues, taking into account the business models deployed and the particular academic traditions and publishing practices extant within a broad selection of HSS disciplines.

The information and data that provide the basis for the study of HSS journal economics described in this report were provided by the following eight associations, with support throughout from the respective executive directors and their senior publishing and finance staff:

- American Anthropological Association
- American Academy of Religion
- American Economic Association
- American Historical Association
- American Political Science Association
- American Sociological Association
- American Statistical Association
- Modern Language Association

Information provided at the beginning of this study about the eight journals selected by these active HSS associations is summarized in Table 2.

Features of the Journal Sample

All eight journals are available online as well as in print; five are published quarterly, and the remaining three are published bimonthly or five times per year. The journals cover a broad range of subject disciplines: 'humanities' is represented by modern languages, history, and religion, and 'social sciences' by economics, sociology, anthropology, politics, and statistics. A number of important differences between these journals are articulated in this report, in addition to the more obvious differences between the scholarly communities served. In sum, this is not a homogeneous group of journals, but it is also not an atypical group.

The business information provided by the participating publishers is proprietary, and so throughout the report averages are referred to across the group of titles. Inevitably, averages obscure a broad range of different approaches to pricing models, pricing, and publishing that are visible only from the individual data.

Importantly for this study, the business philosophy underlying the role of the publication has an important impact on the financial performance observed by examining one journal from one association. Some participating associations publish each journal as a distinct entity and manage the journals so as to achieve break-even or a modest surplus; for others, the journal is a flagship for the association and may be published at a net loss as part of a portfolio of publications, which roll up into a publishing venture that returns at least a small surplus. The selected journals differed fairly obviously in their print circulation: 15,500 was the average circulation across the group for the study period, but circulation numbers ranged from 5300 to more than 34,000.

Journals published for the STM scholarly communities have been much more widely studied, quoted, and discussed than HSS journals, and at the outset some points of comparison that this group of journals exhibits should be noted. The journals included in this study differ from most STM journals in a number of fundamental ways:

1. Most striking is the reduced amount of peer-reviewed content per issue compared with most STM journals. These HSS journals publish more pages of varied scholarly content, such as book reviews, meeting reports, and other editorial materials.
   - Peer-reviewed content accounted for an average of 62 per cent of the pages published across all eight journals (range: 23–97 per cent).
2. Although the number of articles published is lower than in a typical STM journal, the length of each article within many of these journals is typically longer.
   - Average peer-reviewed article length for the eight journals is nineteen pages (range: twelve to twenty-eight pages per article). It was noticeable that in the disciplines that are closer to scientific and technical fields, the average article length is somewhat shorter (e.g., twelve pages).

3. The ratio of article submission to publication is also distinctly different, and since these journals publish fewer peer-reviewed articles, they are often highly selective. Selectivity through peer review takes both in-house staff time (included in the study) and external reviewers' time (not included in the study), and drives costs up.
   - Taking three consecutive years of submission and publication data together, five of the eight journals published less than 10 per cent of the articles submitted to them.
   - The percentage of articles submitted that are published across all eight journals is just 11 per cent, reflecting the quite high level of selectivity of these journals, several of which are the flagship title in their respective discipline for their publishers.
4. Advertising income is discussed within the financial overview of *journal revenues* in Part 2.
   - Advertising pages in print accounted for some 8 per cent of the total pages published over the three-year period and across all journals (range: 0–18 per cent of pages published).
   - While some of these advertising pages are devoted to house and publisher partners' advertising, most are fully paid for; print advertising accounted for some 9 per cent of total revenue across all journals in 2007. This level of advertising was unexpectedly high, given the frequency of these journals (most are published quarterly or bimonthly, which is a frequency often not favoured by advertisers looking for more regular and insistent opportunities to present their products to readers); it speaks to the value advertisers place on individual journals' readership of the print version.
5. STM publishers regularly record and report on the country of residence of the corresponding author of articles published. Such data are further reviewed and discussed by agencies such as the National Science Foundation (in the Science and Engineering Indicators series of reports, published in alternate years.[4]
   - This group of association publishers had collected relatively few data on this topic. Several commented that they believed most of their authors were from the United States, and this belief was borne out by a random review of the country of residence of corresponding authors for twenty-five articles published in 2007 by each journal (shown in Table 1).

TABLE 1. Country of residence of corresponding author for twenty-five articles published in 2007 in each of eight HSS journals

Association	Title	US	UK	Can	Mex	Aus	Belg	Ger	Nor	Swe	Israel	Italy	China	Taiwan	Sing	Peru	S. Africa	Total
American Anthropological Association	*American Anthropologist*	19	3	2		1												25
American Academy of Religion	*Journal of the American Academy of Religion*	23		1		1												25
American Economic Association	*American Economic Review*	20	2	1				1	1									25
American Historical Association	*American Historical Review*	20	1		1	1												23
American Political Science Association	*American Political Science Review*	23	1			1												25
American Sociological Association	*American Sociological Review*	21		1						1	2							25
American Statistical Association	*Journal of the American Statistical Association*	18		2			1					1	1	1	1			25
Modern Language Association	*PMLA*	19		2		2										1	1	25
Total by country	All journals	163	7	9	1	6	1	1	1	1	2	1	1	1	1	1	1	198

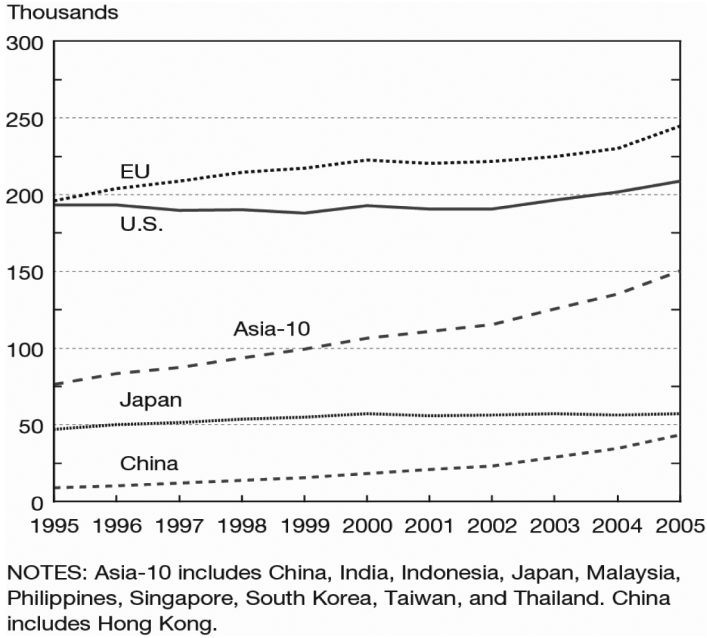


FIGURE 1. Trends in productivity (number of scientific and technical articles in peer-reviewed journals), 1995–2005. *Source:* NSF *Science and Engineering Indicators 2008.*

- Compare this with Figure 1, which shows a drop in the number of scientific and technical articles from US authors, a rise in authorship from the European Union (also corresponding with an increase in the number of EU countries), and a significant increase in the number of authors from the 'Asia 10' (defined in the figure caption).
- A comparison of Table 1 and Figure 1 suggests that peer-reviewed articles in HSS disciplines are less international in authorship than those in STM fields.

6. Fierce competition for research funding and authors intent on priority of reporting research findings drive the speed of publication in many of the very active STM research areas. One example is the Optical Society of America's *Optics Express,* an OA journal in the physical sciences that has galvanized the community of authors and reviewers to enable an average time lag of only fifty-six days

(seven to eight weeks) from article submission to publication (online only and by the article).

- Speed of publication appears to be much less of an issue for this group of HSS association journals; publishers reported 'around 18 months' and 'a safe average (which is not mathematically based, but intuition based) might be to say 5 months before submission to vendor and then 3 months in production.' Data were collected by one of the publishers; for this journal, time from receipt to publication averaged 130 weeks in 2007.
- The pace of advancing knowledge and its integration within the community seems to be slower in HSS relative to certain fields of STM.

Trends in the Online Scholarly Journals Business, 2005–7

Looking broadly at the scholarly journals market over the past three to five years, some noticeable trends were reported in September 2008 from a sample of 400 publishers, 124 of which publish exclusively in the arts and HSS.[5]

Open Access

There has been a dramatic increase in the percentage of publishers offering optional OA to authors, from only 9 per cent in 2005 to 30 per cent in 2008. This applies to a total of 1871 titles. Fifty-three per cent of these publishers have enabled an OA option for all their titles, but uptake of the OA option is low: of those publishers that have offered this option for two or more years under an author-pays model, 52.9 per cent had $\leq$1 per cent uptake, 73.5 per cent had $\leq$5 per cent uptake, and 91.2 per cent had $\leq$10 per cent uptake. The author fees set by these publishers range from less than $500 to more than $3000, but the majority (69 per cent) charge between $1000 and $3000. Bo-Christer Björk et al. calculate that of the estimated 1,350,000 journals articles published in 2006, 19.4 per cent are freely accessible (4.6 per cent OA immediately on publication, 3.5 per cent freely accessible after an embargo, usually at least one year; and 11.3 per cent through self-archiving).[6]

Back Volumes

95.7 per cent of publishers make their journal back volumes available online.

Copyright

In 2003, 83 per cent of publishers required copyright transfer; in 2005, the figure stood at 61 per cent. In 2008 this has dropped to 53 per cent, and those that only require a licence to publish have increased from 17 per cent to 20.8 per cent.

Numbers of Journals Published

From 1700 to the present day, growth in active journal titles has been consistently about 3.5 per cent, despite hugely varying socio-economic and technical regimes in scholarship over the last 300 years.

In July 2008, 21,787 peer-reviewed scholarly and scientific journals were in publication, compared with 19,681 in 2005 and 17,981 in March 2003.[7] As the output of articles from the research community increases, new journals are spawned; an increase of around 100 new peer-reviewed papers a year worldwide results in the launch of a new journal. Ulrich's Periodicals Directory indicates that there are presently around 23,500 scholarly peer-reviewed journals from some 9900 publishers, and, despite all the threats that abound, the number continues to increase steadily; 1506 of these journals are OA.[8]

Publishers

About 55 per cent of scholarly journals appear to be linked with non-profit organizations (some of these published under contract by commercial publishers), although this may be an underestimate. The average number of journals per publisher, perhaps surprisingly, does not vary greatly between those associated and those not associated with non-profit organizations, although the four largest publishers alone—all of them commercial—publish about 25 per cent of all journals, of which less than 27.5 per cent are associated with non-profits.

It was in the context of these changing times in the scholarly journal business environment that the study participants set out to determine the answers to key business questions affecting the journals published by these HSS associations.

2. THE STUDY

Each of the eight participating HSS publishers was asked to select one journal for detailed review as part of this study. Information about the journals is summarized in Table 2.

TABLE 2. The associations and journals participating in this study

Association	Title	Frequency	Business/ funding model	Versions	Page/ trim size	Content	Online hosting by	Self-/co-published?
American Anthropological Association	*American Anthropologist*	Quarterly	Subscriptions and display advertising	Print; print+online; online only	8.5 × 11″	Peer-reviewed and other editorial material; book reviews; meeting reports	Wiley Interscience	Co-published with Wiley Blackwell
American Academy of Religion	*Journal of the American Academy of Religion*	Quarterly	Subscription revenue (institutional subscriptions, consortium subscriptions), non-subscription revenue (sale of individual copies and back issues, digital archive revenue, secondary rights, advertising revenue)	Print+online	6 × 9″	Peer-reviewed articles, book reviews, advertising	Oxford UP	Co-published with Oxford UP
American Economic Association	*American Economic Review*	Quarterly	Memberships, subscriptions, and site licences; subsidized by EconLit, Copyright Clearance Center, pay-per-view, job ads, art submission fees	Print+online	7 × 10″	Peer-reviewed articles; meeting reports; society financial information	Atypon	Self-published
American Historical Association	*American Historical Review*	5×/year	Subscriptions, membership advertising, rights and permissions revenues	Print+online	7¼ × 10¼″	Peer-reviewed articles, book reviews, letters to the editor, advertising	Atypon through U of Chicago P	Co-published with U of Chicago P

American Political Science Association	*American Political Science Review*	Quarterly	Advertising and subscriptions—individual members, institutional subscribers, and consortia	Print + online; online only	8¼ × 11″	Peer-reviewed articles, editors' notes, letters to the editor, perspectives	Cambridge UP platform	Co-published with Cambridge UP
American Sociological Association	*American Sociological Review*	Bimonthly	Subscriptions (members and libraries), site licences, subsidy from endowment, grant, etc.; advertising; online database royalties (e.g., EBSCO, JSTOR); document delivery; mailing lists; reprints	Print + online; online only	7 × 10″	Mostly peer-reviewed articles, with occasional editors' notes and comments/reply	Ingenta	Self-published
American Statistical Association	*Journal of the American Statistical Association (JASA)*	Quarterly	Individual and institutional subscription revenue; site-wide and individual licences	Print + online; online only	8 × 11″	Peer-reviewed articles and book reviews	Ingenta (Atypon from January 2009)	Self-published
Modern Language Association	*PMLA*	6×/year	Members' dues and other association income, including revenue from library subscriptions and advertising	Print + online	7½ × 10½″	Peer-reviewed articles, invited pieces, letters to the editor, professional information	Atypon; archive also appears on JSTOR	Self-published

Methodology

To ensure that data for the study were gathered in a consistent and comparable manner, participants were asked to provide detailed information about their selected journal for the past three complete years (2005–7 inclusive) in two templates provided to each association after an initial telephone conference. One template (see Appendix 1) pulls together information about readers and authors, and so includes figures on subscriptions, pricing, and consortia as well as data on levels of research article submissions over the three years. The other template (see Appendix 2) includes revenue and cost information; it is essentially a profit-and-loss statement for the journal. To complete the template shown in Appendix 2, participants were explicitly requested to include all the costs of publishing their journal, that is, both direct and indirect costs; this means that for staff working on the journal as all or part of their job, 'salary, benefits, and office costs' are included. 'Office costs' includes all the 'on' costs of employing an in-house staff member: office space, computer, supplies, telephone, and so on. It does not include a portion of other staffed departments, such as finance or human resources, which are shown separately in the 'publishing support' category on the template. Participants developed their own 'office cost' numbers, and these are integrated into the results of the study. The association publishers were asked to develop and include in the template submitted a complete set of costs for publishing the journal selected; to put it another way, if there were a change in the journal's business model, what costs would need to be met in order for that new model to be sustainable? The range of methods used by the publishers to develop the overhead figures is summarized in Box 1.

As an aid to communication within the group, each of the nominated primary staff publishing contacts and executive directors of the participating societies and associations was subscribed to an e-mail discussion list hosted by the National Humanities Alliance. This central communication conduit proved most helpful and ensured that everyone was kept up to date on the questions and comments arising across the group of twenty or so individuals as they worked on the templates. In addition, there was e-mail and telephone interaction between the consultant and each participating society, dealing with the particular journal business issues and the specific data provided. Most participants completed the compilation of their data on the journal within the four weeks scheduled.

BOX 1

Three steps were required to complete the allocations needed for the P&L template.

Step 1: Office costs

The costs of employing full-time in-house staff include salary, benefits, and additional 'office costs' associated with each staff member (office space, computer, supplies, telephone, and Internet access) that are somewhat independent of salary.

To assess office costs, study participants took the overall cost of running their society offices and divided this by the number of FTEs to arrive at a per-FTE office cost.

Step 2: Allocation of staff costs to the selected journal

For a publisher with a portfolio of publications worked on by a team of people, we needed to know the proportion of in-house staff time, and thus cost (salary + benefits + office costs), for the journal included in the study.

There were several methods used here:

1. Some publishers periodically ask their staff to keep *time sheets* for this purpose, and several participants used this direct method of assigning cost/time/effort to the journal.
2. One publisher's auditors required a detailed allocation of functional expenses (salaries, professional expenses, benefits, etc.) by business unit (Publications, Annual Meeting, Fundraising, etc.), and this provided the information needed for the study.
3. Salary cost allocations for a journal can be based on *percentage of total publications revenue.*
4. Allocation of costs and revenues to a journal can be based on *the number of pages* published per year. In this case the total pages published and the total staff costs for the publishing department were developed. Notes on the discussion list to help participants were as follows:
   - Take annual salary + benefits + office costs for each member of staff working in production (for example) on the journals.
   - You know the total number of pages published across this and other journals or publications any particular staff group works on.
   - Costs can be assessed based on the percentage of the total number of pages this journal contributes to the total pages worked on by the production group (in this example).
   - You can then use this percentage figure to estimate the staff costs in production for this journal.

For example, if 20% of the total pages published were in this journal, then you would take 20 per cent of the total staff costs within each category (production, editorial, etc).

Step 3: Allocation of costs between print and online versions

Staff costs were again the main area requiring allocation, since many publishing staff work on both print and online formats. The percentage of pages published in each version (print and online) was used to drive these allocations. If the numbers of pages published were the same in print and online, this meant simply splitting the total staff costs (salary + benefits + office costs) fifty/fifty between print and online.

Number of pages published gives a measure of the inputs required to a publication because this measure is fairly consistent and absolute, especially since all these journals are published in print and online. As a measure of publishing cost, it avoids any bias through variations in numbers of issues published, differences in the size of issues published, or length or number of articles in a particular journal, all of which vary widely across the sample.

There are some obvious problems with the per-page method of cost allocation. For example,

- It does not account for the additional time and expertise needed to serve online customers versus print customers, and so may not account fairly for actual time and staff involved here.
- It may not be appropriate for online-only publications.
- It does not account for differences in time taken over different types of published information (both by editorial and production), such as the free-to-members society newsletter, which will require different inputs and time compared to a peer-reviewed journal. We did not resolve this issue but should consider it in planning the research strategy for any future study that incorporates 'bundles' of published content from a society publisher.

The methodologies described here are considered a reasonable method of assessment of the cost categories.

On 3 December 2008, the American Anthropological Association hosted a workshop for all study participants at its offices in Virginia, and representatives from all the participating societies attended. The purpose of the workshop was for the consultant to receive feedback on the process required to complete the templates, to briefly review the data submitted in the templates, to clarify any inconsistencies, and to assess what further information was required. The group also discussed issues that arose from the initial information submitted and started to consider the questions answered or posed by the results of the study so far, as well as considering how the information provided and the templates could be refined or simplified.

Some further completion of data from participants continued through December, and by 24 December complete sets of data for both templates had been provided.

Circulation Patterns

Print and Online Trends

Publishers varied in their subscription offerings over the three-year period reviewed (see Table 3), some offering online only, some print *or* online, and some print *and* online (bundled subscription). All publishers were producing online versions of the journals surveyed throughout the three-year period (2005–7). Members are provided with a print copy of the journal *and* online access by seven of the eight participating societies. The associations described dual access as an important aspect of retaining the member base. Pricing models to institutions changed over the three years, as did purchasing behaviours; this is made clear by changes in circulation by version and by customer segment described below. Circulation data by subscriber category were available for all eight journals.

- The number of print copies provided as a member benefit ('member subscriptions') essentially remained flat through the three-year period under review.
- Print-only institutional subscription numbers fell 15 per cent (−1351).
- Print + online institutional subscription numbers rose 15 per cent (+1523) over the same period.
- The combined total for institutional subscriptions in print and online is up some 1.8 per cent over the three-year period.

TABLE 3. Overview of circulation and pricing patterns

Feature	Number of publishers ($n = 8$)
Online available to members	7/8 1 publisher provides print only to all members
Changing numbers of member subscriptions	Fairly flat numbers across the three years; most have shifted from print only to print + online as a member benefit.
Falling institutional print subscriptions	3 of 4 offering print subscriptions; drop of 15 per cent over three years
Increasing institutional online subscriptions	2 of 2 offering online-only subscription
Increasing institutional print + online subscriptions	2 of 6 offering print + online subscription; 4 are losing subscribers, but 2 of these are now selling to consortia, and reductions in single subscriptions are most likely being subsumed into consortium deals.
Unbundled pricing for institutions 2005–7 (i.e., separate print and online price)	2
Only bundled pricing 2005–7	3 offered only print + online for one or more years in this period
Site licences	1 offers a site licence
Consortium sales	2; for each, publishing partner sells to consortia on association's behalf
Individual non-member subscribers	1 offers this; for the others, 'we do not sell the journal to non-member individuals'

- Site-licence numbers certainly grew through the period, but only one publisher was offering institutions this option in 2005–7. Consortium numbers also grew for the two publishers whose journals are sold to consortia.
- It was noticeable that associations self-publishing their journals are often not engaging with the institutional market by offering site licences or consortium sales. Association publishers often have

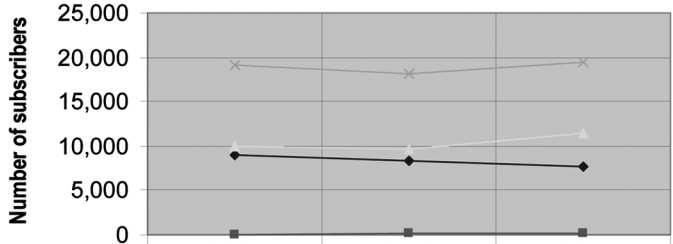
limited sales and marketing resources of their own, and so site-licence and consortium sales, which are time consuming and require specialist staff, need to be handled by a third party, either a publishing partner or, through other out-of-house agreements, an independent sales agent. There was also some confusion over the number of institutions versus consortia served by the publishing partner, and as these arrangements develop they appear to become more complex to unravel and more difficult to state crisply at the individual journal level.

Subscribers

Members: Member subscriptions (or copies of the journal going to paid-up members) accounted for more than 87 per cent of all subscriptions, combining subscription numbers for all participating journals. None of the associations offer online-only access as their member benefit; all provide a printed copy of the journal to every member, for total of some 134,000 printed copies distributed for the eight journals combined.

Three of the societies did not allocate income from member dues to the journal revenue line. For the remaining five association journals, member dues allocated to the journals combined accounted for 28 per cent of the total subscription revenue received for these five journals, but members represented more than 85 per cent of total subscriptions fulfilled in 2007. The result is a clear imbalance between revenue received and costs incurred for this subscriber segment. Such a policy is widespread in association publishing, especially in the United States.

Institutions: Institutional subscription counts represent 13 per cent of all subscriptions for the eight journals combined. As the model for selling to institutions evolves steadily from individual subscriptions to more site-wide licensing and consortium purchasing becomes more prevalent, the notion of '*an* institutional subscription' becomes less well understood as a measure of market penetration or access. Only three of the eight participating societies were either selling site licences or selling to consortia during any part of the period 2005–7. Institutional subscription revenues, including site licences and consortium revenues, accounted for 58 per cent of total revenue and 72 per cent of subscription revenue in 2007.



	2005	2006	2007
Print	9,064	8,351	7,713
Online	55	129	221
Print & Online	9,920	9,581	11,443
Total institutional subscriptions	19,039	18,061	19,377

FIGURE 2. Total number of institutional subscriptions, 2005–7, by version (eight journals)

The pattern of change for all institutional subscriptions to the eight journals is shown in Figure 2.

Total institutional subscription numbers reported increased 1.8 per cent, with a drop in print subscription numbers more than compensated for by an increase in online and print + online subscriptions.

Two associations were offering online-only subscriptions, and the number of these increased over the three years studied, as shown in Figure 2. Although several of these associations are experiencing a downward trend in their overall institutional subscription numbers, for two this could be attributed to increasing access via consortium sales, which in one case were defined broadly by the publishing partners as number of consortia, rather than number of institutions, receiving the journal.

Non-member individuals: Only one association offered non-member individuals a price point for subscribing to their journal; for the other seven societies, the position was quite cleanly articulated as 'individuals *must be society/association members to receive the journal*.' This approach is quite typical and speaks to a strategy of focusing on recruiting members and offering them access to the journal as one benefit of membership. For publishers in areas where a number of individual practitioners are not academics, individual subscriptions can prove a sound additional revenue line (academics have journal access through their institution).

Financial Overview

Journal Costs

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

Fixed costs involve both content creation and publishing support activities:

- *Content creation or 'first copy'* costs are all the costs associated with preparing the editorial content for publication. Thus, content creation (first copy) activities include the editorial office costs of salaries and space for work on both peer-reviewed articles and non-article content such as letters to the editor and book reviews, all in preparation for print and online distribution. For peer-reviewed content, they include manuscript receipt and processing, initial acceptance decision making, and, for those manuscripts selected as acceptable, identifying reviewers or referees, review processing, and manuscript processing; for those manuscripts accepted for publication, there follow substantive editing, formatting, copy-editing, processing author approval, page preparation, preparation of illustrations or special graphics, indexing, coding for SGML/HTML/XML, proofreading, preparation of images, and final composition.
- *Publishing support* costs include marketing, advertising sales, human resources, finance, and administration, including management costs and the office costs of these activities.

Variable costs include

- *Manufacturing*: paper, printing, and binding
- *Production* of the online version, including repackaging 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 attributable to each additional subscription—such as printing, distributing, and maintaining the subscriber file for one subscription. Societies often price or cost out their member copies based on incremental or run-on costs, presuming that institutional subscribers will pay the full publishing costs for the journals they receive plus the non-incremental costs of member copies.

The costs for all 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. In every case the costs include the full costs, direct and indirect, of publishing the journal, as explained above under 'Methodology.' Where appropriate, comparisons are made between this group of journals and the STM journals included in the 2005 Joint Information Systems Committee (JISC) report,[9] which used a similar method of analysis. Appendix 2 (the P&L template) provides an itemized list of the costs included within each cost category (e.g., content creation, manufacturing and production, distribution and fulfilment, publishing support).

Note that publishers participating in this study were able to provide three complete years' worth of data for each of the eight journals reviewed; for the purpose of the comparison shown in Table 4, however, data from the most recent year (2007) were used.

Table 4 shows total fixed and variable costs by association publisher, with publisher names replaced by numbers for anonymity. Notice the cost per journal per year in 2007, which ranges from $212,000 for a quarterly journal from Publisher 2, with a total print circulation of 10,860, to $2.2 million for a journal from Publisher 3 printing 18,600 print copies and publishing 2700 pages per year in 5 issues. Analysis of these actual cost figures based on pages published shows a range from $184 per page to $825 per page, with the average for this group of journals at $526 per page—higher than the average for the STM journals reviewed in the 2005 JISC study, which was £144 (=$266) per page.

In previous analyses of predominantly STM journals, some comparison of costs and revenue per peer-reviewed article has been used by this author and others.[10] For the HSS journals included in this study, such a comparison seemed less relevant, because peer-reviewed article pages amounted to just 62 per cent of total pages. By contrast, in typical monthly, bimonthly, or quarterly STM journals, peer-reviewed articles make up 90 per cent or more of journal content. Comparisons of per-article cost and revenue are also often misleading, as the article length varies across journals. For example, in this sample of journals the length of articles published in 2005–7 ranged from twelve to twenty-eight pages, with an average article across the eight journals of nineteen pages. Cost and revenue *per page* is therefore preferred to compare the journals included in this study. The cost per article shown here is *only for*

TABLE 4. Total fixed and variable costs in 2007 for eight HSS journals

	2007 Costs ($)									
	Publisher 1	Publisher 2	Publisher 3	Publisher 4	Publisher 5	Publisher 6	Publisher 7	Publisher 8	Total	Average
Frequency (/year)	4×	4×	4×*	5×	4×	6×	4×	6×		
Content creation	224,594	24,810	1,191,525	481,782	205,262	149,703	162,867	648,558	3,089,101	386,138
Manufacturing & Production										
Print	86,426	63,269	285,428	190,296	94,220	79,912	75,418	441,235	1,316,204	164,526
Online	9707	13,101	47,153	10,500	31,232	4206	3969	36,304	156,172	19,522
Distribution & Fulfilment										
Print	110,018	45,259	188,619	133,110	110,600	34,630	54,673	181,227	858,137	107,267
Online	31,259	9269	86,496	28,583	10,723	57,761	6124	35,091	265,306	33,163
Publishing support	21,346	56,223	460,488	18,604	78,040	63,217	71,476	146,729	916,123	114,515
Total costs	483,350	211,931	2,259,709	862,875	530,076	389,428	374,478	1,489,144	6,600,992	825,124
Peer-reviewed articles published, 2007 (*n*)	47	27	101	24	50	45	121	26	441	55
Text pages published, including advertising, 2007 (*n*)	875	1149	2738	2028	984	1096	1,530	2152	12,552	1569
Print circulation, 2007 (*n*)	12,688	10,860	18,681	17,166	16,897	9570	5322	34,376	125,560	15,695
Cost/page published	552	184	825	425	539	355	245	692		526
Average pages/ article (*n*)	12	25	26	28	16	22	12	16		
Cost/article	6624	4600	21,450	11,900	8624	7810	2940	11,072		

* Five issues published

TABLE 5. Variable per-page costs of print manufacturing and production, distribution, and fulfilment in 2007 for eight journals

	Publisher*									
	D	E	F	G	H	A	B	C	Total	Average
Print manufacturing and production ($/page)	99	55	104	94	96	73	49	205	775	97
Print distribution and fulfilment ($/page)	126	39	69	66	112	32	23	84	551	69
Total print manufacturing and distribution ($/page)	225	94	173	159	208	105	73	289	1326	166
Publishing cost/page minus print ($)	328	90	652	266	331	251	172	403	− 1326	360

* Association publishers are identified differently in Tables 4 and 5 to preserve confidentiality of proprietary data.

peer-reviewed journal pages—it does not include (or cover) the cost of publishing non-research content or advertising pages.

Figures derived for cost per page published do confirm that an immediate switch to the OA (author/producer pays for publication of peer-reviewed article) publishing model now being deployed more broadly in STM publishing would not be sustainable for this group of journals, if author fees are expected to cover the publishing cost per article. Even if authors paid a per-page charge related directly to the costs of their own articles, the average article length and cost per page make this prohibitive. For example, based on the figures shown in Table 4, publication of an 'average' nineteen-page peer-reviewed article at the 'average' cost of $526 per page would require author fees of some $10,000. Even the journal with the lowest publishing cost per page ($184) could not move to an OA (author pays) model, since, with an average article length of twenty-five pages, author fees would need to be close to $5000 per article to cover the journal's costs. But these costs include all the costs of producing the print version.

In assessing OA fees, most OA policies refer to online-only content. For this reason, Table 5 shows the variable costs of print, as defined at the beginning of this section, for the eight journals; in an OA (author/producer pays) publishing model, these costs would be removed.

If print costs are removed, the publishing costs per page for these journals now average $360—or, at an average article length of nineteen pages, average author fees of $7000. For the journal with the lowest publishing cost per page ($90) and an average article length of twenty-five pages, author fees could be set at $2500 to provide full cost recovery on the *peer-reviewed articles published*. Since just 59 per cent of this particular journal's pages are peer-reviewed content, however, OA payments from authors would still not sustain the journal.

It was not possible to assess whether the distinct differences in cost bases for the group of journals were due in part to disciplinary differences. This could productively be one outcome of a study of a more extensive sample of journals. Previous studies have shown some evidence that the total number of articles published in seven life sciences journals exceeded the number published in journals in the physical sciences; the cost per article was lower for the life sciences journals than the physical science and technology journals, because while the cost per page was higher for the life sciences journals (averaging £182/$337), the article length was shorter (averaging 7.8 pages); for the physical science journals, the average cost per page (£100/$185) was lower, but the articles were longer on average (16.4 pages).[11]

To develop a sense of how typical or representative the costs developed in this section are, Table 6 gives some comparisons based on my own experience and a model developed by Carol Tenopir and Donald King[12] and including a breakdown by broad discipline or country of publication for the journals in this study. Despite the global nature of scholarly journal publishing, the country of publication does have an impact on the overall journal business philosophy, especially within the non-profit sector. These average figures (Table 6) provide an independent sense of proportion to the major expenditures.

Print and Online Versions

Print and online publications have distinctly different cost bases, with some cost lines irrelevant to print (e.g., online hosting, site maintenance); some related only to print (e.g., printing and mailing costs), and some applying to both media (e.g., content creation, 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.

TABLE 6. Typical cost ratios

	Fixed costs (%)		Variable costs, print + online (%)	
	Content creation	Publishing support	Manufacturing, paper, and printing	Distribution and fulfilment
Average scholarly journal (after Tenopir and King 2000)*	37	30	19	14
Biology journals—US society publishers (2003), $n = 12$**	24	38	30	7
Biomedical journals—US society publishers 2004), $n = 11$†	57	7	23	13
JISC study—life science journals, US and UK (2005)**, $n = 7$†	35	20	31	14
JISC study—physical science and technology journals, US and UK (2005)**, $n = 4$	33	35	22	10
Mellon Planning Grant study—HSS journals, US (2007), $n = 8$	47y	14	22	17

* Carol Tenopir and Donald W. King, *Towards Electronic Journals: Realities for Scientists, Librarians, and Publishers* (Washington, DC: SLA Publishing 2000)

** Mary Waltham, 'JISC: Learned Society Open Access Business Models' (Joint Information Systems Committee, 2005), available at http://www.jisc.ac.uk/media/documents/themes/infoenvironment/learnedsocietyoabusinessmodels.pdf

† Proprietary report by author

The costs of online archiving are not included in this analysis, but maintaining an online journal archive is clearly an additional, growing, and recurring cost of publishing any journal. Seven of the journals included in this study participate in JSTOR, and this initiative provides a revenue line from back-issue content licensing to libraries that accounted for some 2 per cent of total journal revenues in 2007.

Content creation or 'first copy' costs are incurred irrespective of whether the product is published in print, 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 from each other—as they are in a number of scholarly disciplines.

Publishing support activities will be incurred for both versions. As online increasingly becomes the version of choice for researchers and

the preferred method for actively promoting and selling the publications, it is reasonable to presume that fixed costs, like revenue, must naturally make a transition from a predominantly print cost base to a more balanced allocation.

One of the publishers in the study does not allocate costs by version (print and online) and so could only provide overall cost numbers for print and online versions combined. Plainly, this limits the ability to assess the performance of the journals according to version. Where appropriate, I have made allocations for this journal based on my own experience, the overall profile of the journal, and the relative amounts reported for other journals in the study.

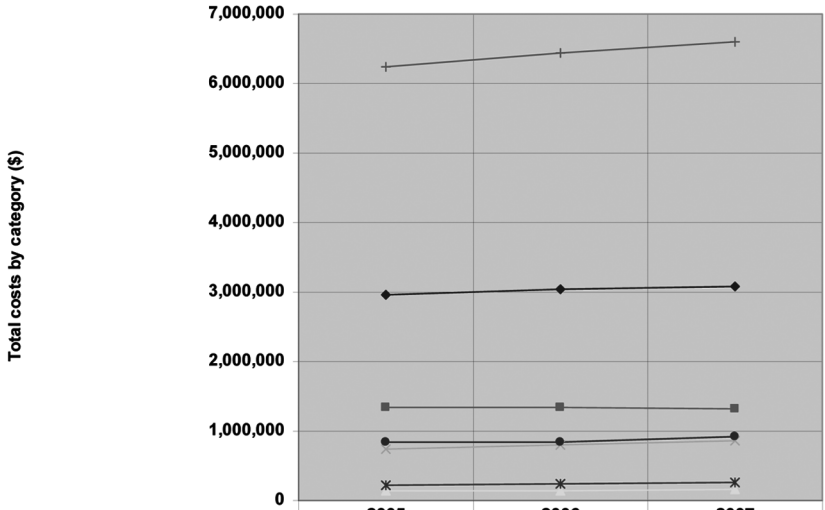
Trends in Cost Categories, 2005–7

Analysis of publishers' expenditures based on the categories described here provides insight into the overall cost base for the differing journals programs. Figure 3 provides an overview of total costs by category for the three-year period under review for the eight journals.

The overall increase in costs was $370,000 (6 per cent), with the steepest dollar increases in the fixed cost of content creation (up $120,606 or 4 per cent) and the variable cost of print distribution and fulfilment (up $120,674 or 16 per cent). Print manufacturing costs fell a modest $14,000, but online manufacturing and production costs increased $25,000, more than offsetting this drop. Online distribution increased by $33,000, and publishing support by a further $85,110.

Print manufacturing costs were relatively easy for the publishers to capture from printing bills supplied by their printers, and print distribution (postage) is also a discrete and accessible number. Fulfilment and customer service for an association's publishing operations are often part of a larger member services centre. All but one of the participating associations supplied an allocation of the proportion of customer service costs to print and online versions separately. The changes in print manufacturing costs over time are shown in Table 7.

Print manufacturing and production costs fell slightly over the study period, despite a small increase in the number of journal pages published and a 1-per-cent/year increase in print circulation across the journals (see Table 8). Print costs are directly influenced by total pages and copies published.



	2005	2006	2007
Content creation PRINT & ONLINE	2,968,495	3,044,574	3,089,101
Manf & Prod PRINT	1,338,682	1,348,649	1,324,379
Manf & Prod ONLINE	131,039	139,582	156,172
Distribution & Fulfilment PRINT	743,538	806,259	864,211
Distribution & Fulfilment ONLINE	226,349	246,881	259,181
Publishing Support PRINT & ONLINE	831,012	844,212	916,123
Total all journal publishing costs	6,239,114	6,430,157	6,609,168

FIGURE 3. Changes in costs (US$), 2005–7, for eight journals

While the total number of pages published in these eight print and online journals increased by more than 5 per cent in the three years under review, the number of pages of peer-reviewed content increased by 8 per cent. This increase seems to be attributable to longer articles, because the total number of articles published fell by 1 per cent over the study period, as shown in Table 9. The total number of articles published seems remarkably stable for this group of journals, in contrast to STM publishing, where page and article counts are growing as research productivity swells.

Publishing support costs include many of the fixed operating costs, as described at the beginning of this section. During this study, discussions with participants about applying management, marketing, and other

TABLE 7. The costs of print publication for eight journals, 2005–7

Year	Print manufacturing costs ($)	% of total costs	Print distribution and fulfilment costs ($)	% of total costs
2005	1,338,682	21	743,538	12
2006	1,348,649	21	806,259	13
2007	1,324,379	20	864,211	13

TABLE 8. Change in number of print pages published and print circulation for eight journals, 2005–7

Year	Total print pages published	Change year/year	Total print circulation	Change year/year
2005	11,898		150,510	
2006	12,284	+3.20%	151,811	+1%
2007	12,552	+2.20%	153,223	+1%

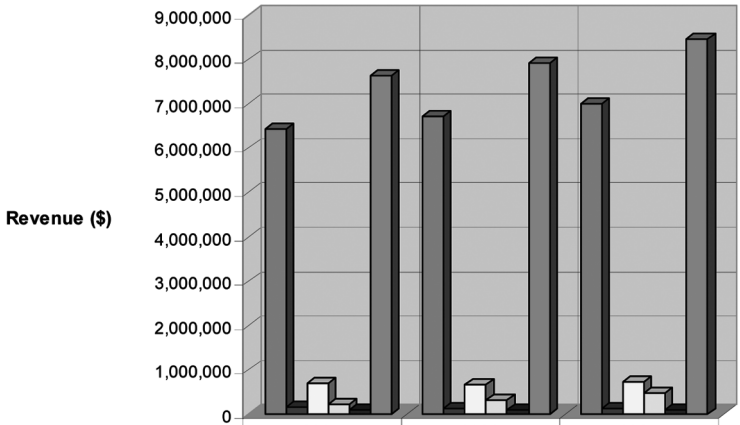
central publishing costs to the individual journal were especially interesting, and certainly some of the associations had not recently completed this exercise in full at the journal level.

Notice in Table 10 that while the number of pages published increased by more than 5 per cent over the three-year period, the revenue, and thus margin per page, increased, because the average publishing cost per page was again remarkably stable.

For many of these association publishers, the journals included in this study are published as part of a portfolio of titles that includes some excellent performers and some that may be losing money yet make an important contribution to the scholarly literature.

Journal Revenues

Total revenues for the eight journals are shown in Figure 4.



	2005	2006	2007
Subscribers	6,444,348	6,707,226	6,990,265
Authors	169,443	142,226	140,109
Advertisers	696,422	664,320	745,261
Other sources e.g.reprints,royalties,back copies	232,855	316,932	467,595
Grants & endowments	102,519	99,917	102,955
Total revenue	7,645,586	7,930,622	8,446,185

FIGURE 4. Changes in revenue sources (US$) for eight journals, 2005–7

TABLE 9. Change in number of peer-reviewed articles published in eight journals, 2005–7

Year	Total articles published	Change from 2005
2005	444	n/a
2006	443	0%
2007	441	−1%

Throughout the study period, subscription revenues accounted for between 83 and 85 per cent of total journal income and, as the major source of revenue for the journals, increased by $546,000 (+8.5 per cent) through the period. The increase in total revenue of $800,600 (+10 per cent) over the three years is also due to increasing income

TABLE 10. Change in costs, revenues, and margin per page for eight journals, 2005–7

Year	Pages published	Average revenue per page ($)	Average cost per page ($)	Average net margin per page ($)
2005	11,898	643	524	118
2006	12,284	646	523	122
2007	12,552	673	527	146

from advertising, up $50,000 (7 per cent), and a combination of 'other sources'—smaller revenue lines, including reprints and royalty income, that together increased by $235,000 (100 per cent). Revenue from authors includes article submission fees charged by three publishers during the study period and page charges from two of the journals, but author revenues decreased; one publisher stopped charging submission fees, and for several societies page charges are optional payments. None of the participating journals currently offers the OA (producer/author pays) option for peer-reviewed articles. Revenue from grants and endowments was a small proportion of the whole (1.2 per cent) and was reported for only one journal in the study.

A complete listing of journal revenue types is shown in Appendix 2.

Non-subscription Online Revenue

As Table 11 shows, sources of non-subscription online revenue rose steeply during the study period for publishers offering these products.

Advertising

Print advertising was a revenue line of $27,000 or more in 2007 for seven of the eight publishers and represented from 4 per cent of revenue for one journal to 45 per cent of revenue for another with the largest circulation. All of the self-publishing associations employ in-house staff to sell and manage print advertising on a full- or part-time basis, while publishing partners take on this role for the remaining three societies. Advertising income grew steadily over the three-year period for five of

TABLE 11. Non-subscription online revenues over time ($)

	2005	2006	2007
Online reprints	1460	3097	3729
Online pay-per-view	9221	5049	60,081
Royalties (e.g., from EBSCO, JSTOR)	42,124	146,178	179,904
Other online: permissions	14,001	6232	12,092
Total	66,806	160,556	255,806

the journals and fell for the remaining two. This level of advertising revenue for quarterly print journals emphasizes their visibility in this format to the community served.

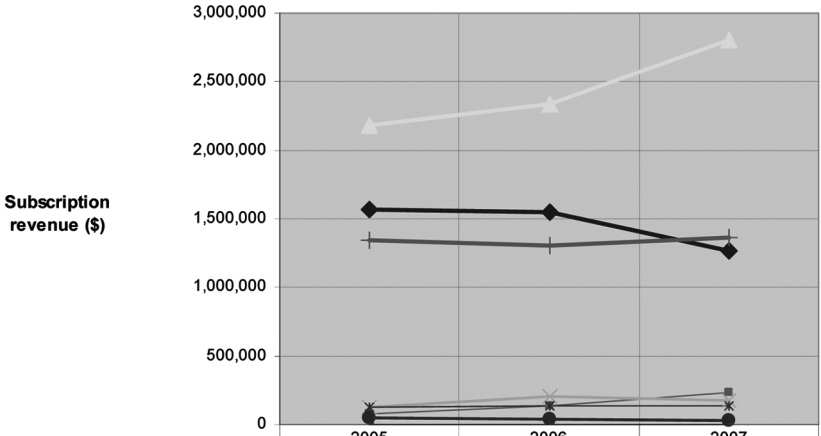
Subscription Revenue by Subscriber Category

As noted above, subscription revenue contributed between 83 and 85 per cent of total journal income during the study period. Seven of the participating journals separated their subscriber income for the study into the categories (shown in Figure 5, which depicts the changes in the sources of that revenue over three years).

Total revenue from institutional subscribers increased by 12 per cent in this period, with the greatest increase from the bundled print + online subscription category. The drop in revenue from print-only institutional subscriptions is noticeable. During the study period, three of these seven publishers began offering online-only as an option to institutions, and one additional association reported launching this option in 2008; pricing models and product offerings to institutions are clearly shifting.

In contrast, total revenues from member subscriptions increased by less 0.5 per cent ($6000); Figure 6 illustrates the overall *flat and steady* journal income from members and the minimal shift in the versions provided over the three-year period.

Notice the relatively small amount of revenue attributed to member online subscriptions; these numbers are from one association publisher.



	2005	2006	2007
Institutional print	1,565,784	1,550,271	1,265,756
Institutional online,site licenses & consortia	80,707	138,648	235,429
Institutional print & online (P&O)	2,182,227	2,334,940	2,800,644
Digital archive/backfile revenue	123,044	204,573	175,662
Member print	131,032	135,347	140,772
Member online	51,064	38,391	28,084
Member P&O	1,339,826	1,306,870	1,359,067
Individual Non-Member Print	1,230	639	464

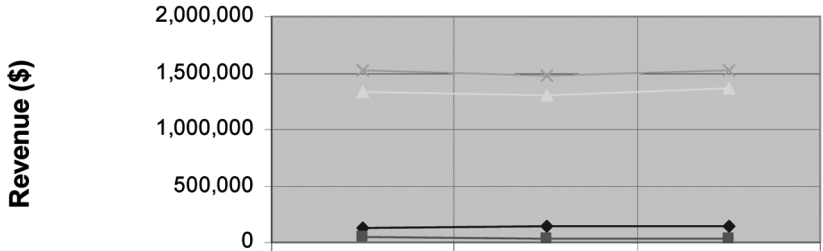
FIGURE 5. Subscription revenue (US$) by subscriber category, 2005–7, for seven journals

Print + online is offered by six of the societies to their members as a benefit of membership; for one association publisher, reporting no revenue from member dues allocated to their journal, all members receive a print copy but no online access.

Revenue across all versions in 2007 was $225 per institutional subscriber and $11 per member subscriber.

Surplus or Deficit

In measuring overall journal publishing performance, a net surplus/profit year on year is viewed as one sign of success, in addition to other indicators such as the number of high-quality submissions and the journal's impact factor. Oxford University Press explains the particular



	2005	2006	2007
Member Print	131,032	135,347	140,772
Member Online	51,064	38,391	28,084
Member P&O	1,339,826	1,306,870	1,359,067
Total	1,521,922	1,480,608	1,527,923

FIGURE 6. Member revenue, 2005–7, for seven journals

position for a university press, which the participating associations agreed is typical of a not-for-profit publisher:

> For [*Journal*] to remain viable we need to receive sufficient revenue to cover both direct costs and indirect costs. In addition, we need to make a surplus, which, as a university press, we reinvest into further publishing developments, and directly into the academic community via contributions to our parent university.

Overall business performance of the eight journals in this study is shown in Table 12.

Surplus steadily increased during the period as costs held steady and revenues grew. For the journals included in this study, average, high, and low net surplus/deficit for 2005–7 are shown in Table 13.

Average figures plainly mask a wide divergence in business performance. In addition, the participating journals are managed and used by the societies in quite different ways—at one end to generate income for the association, and at the other as a community-building tool for members. Differences in business philosophy drive financial performance at the individual journal level.

The ways in which the participating association publishers viewed the journals they selected for the study were quite variable. For some, notably the smaller associations, the journal was a free-standing entity that generated a surplus used to support other association-specific and

TABLE 12. Revenue, cost, and surplus per page published for all journals, 2005–7

	2005	2006	2007
Total revenue ($)	7,645,586	7,930,622	8,446,185
Total costs ($)	6,229,834	6,420,867	6,600,992
Surplus ($)	1,415,752	1,509,755	1,845,193
Total pages published	11,898	12,284	12,552
Revenue/page ($)	643	646	673
Cost/page ($)	524	523	526
Surplus/page ($)	119	123	147

TABLE 13. Net surplus patterns for eight journals

Year	Highest net surplus (%)	Average net surplus (%)	Largest deficit ($)
2005	61	18	(627,000)
2006	64 (2 journals)	19	(627,000)
2007	64 (2 journals)	20	(714,000)

member benefit activities, not necessarily related to publishing. For other, larger associations, a single journal was viewed as part of a broader publishing portfolio, including, for example, other journals, newsletters, and discipline-specific literature databases and book programs. This portfolio was managed to create an overall surplus for the association to use for other non-publishing activities to benefit the association membership. In this context, it is no surprise that an individual journal may lose money. Yet overall these associations provide a wide range of services to scholars and scholarship, including annual conferences, professional

development opportunities, recognition of scholarly excellence, and statistical information on such matters as enrolment and employment in their fields, in addition to their publishing programs.

Plainly, if publishing activities do not generate a surplus, additional association activities will at least need to be curtailed, and in some cases the association will no longer be able to exist without the injection of financial support from its publishing surpluses. Therefore, funding for essential professional and scholarly activities would be jeopardized by a mandated shift to free-to-user OA.

Any exploration of alternative business models for HSS journals that might permit broader access to scholarly content must presume that the model is, or will become, financially sustainable, so that the association and the journal can continue to thrive.

3. DISCUSSION AND CONCLUSIONS

Open Access

Analysis of the journal costs provided for this study confirms that a shift to an entirely new funding model in the pure form of OA (author/producer pays), in which the costs of publishing research articles in journals are paid for by authors, or by a funding agency, and readers have free access to these publications, is not feasible for this group of journals. Longer articles are characteristic of these journals, as is the relatively high proportion of non-peer-reviewed content, and both of these features mean that the 'gold' approach to OA that is being experimented with in the STM journal market would not be sustainable for these journals, either on a case-by-case basis or based on average costs. A summary of current author-pay fees charged by some leading STM journals can be seen on the BioMed Central site;[13] these charges range from $600 per article (Hindawi Publishing Corp.[14]) to $5000 per article, with variants such as charging per-page rather than per-article fees and charging additional fees for colour and figures. Some of the large STM funding agencies in the United States and elsewhere have now agreed to pay OA publication fees at these levels. In the humanities and social sciences, however, such a broad level of support for publishing research may not be available, so a key question is, Where will the money come from to support OA (author/producer pays) as a business model? The answer to this question requires further investigation.

In the United Kingdom, two leading funding agencies—the Economic and Social Research Council and the Arts and Humanities Research Council—have adopted the line taken by all the other UK research councils: they regard payment of fees for publications *produced during the period of a grant* as a legitimate expense to be included in the direct costs that can be applied for at the grant-application stage, and that universities can include provision for the payment of publication fees in general in calculating the indirect costs that they add on to those direct costs.

Other options do exist as a path to OA for research articles. For example, two of the humanities journals in this study publish less than 35 per cent of peer-reviewed content in their journals. If these articles were made OA on the journal's Web site, would institutional subscriptions fall? Of course, this is an experiment of which publishers want to know the results before going forward; but without some experimentation, the result is an unknown. As the Association of American University Presses notes,

> Bypassing this laboratory stage of experimentation and development and plunging straight into pure open access, as attractive as it may sound in theory, runs the serious risk of destabilizing scholarly communications in ways that would disrupt the progress of scholarship and the advancement of knowledge.[15]

One participating journal has offered 'gold' OA for peer-reviewed articles since 2005 and has seen a steady decline in institutional subscriptions ever since. Although the shift to an OA policy is unlikely to be the sole cause of the decrease, the publisher noted that the decline continued a longer-term trend; this speaks to the need for a clearer understanding of the potential risks of OA for journals in HSS disciplines.

Author archiving of peer-reviewed research in an online repository is another route to OA that was not explored in this study. This so-called green approach rests on the principle that publishers permit authors to self-archive in an institutional or subject-based repository and that, as a result, the scholarly content is available free, even if the journal requires a subscription. This approach is also under active experimentation and, of course, requires a parallel infrastructure of digital repositories to accept, store, and maintain the content. There is speculation that the availability of articles in digital repositories results (or may result) in

readers' going to this version instead of the subscribed version, even when they have access to the latter (the cost of which is invisible to the end user). This has been called the 'Google effect': a user does a Google search and clicks on the link to the repository rather than going to the library's subscription. One study that has investigated this point further focuses on the particular situation of article deposits from four mathematics journals in the subject-based arXiv repository.[16]

Starting in October 2008, Publishing and the Ecology of European Research (PEER), supported by the European Union, is investigating the effects of the large-scale systematic depositing of authors' final peer-reviewed manuscripts ('green OA,' or Stage 2 research output) on reader access, author visibility, and journal viability, as well as on the broader ecology of European research. The project is a collaboration between publishers, repositories, and researchers and will last from 2008 to 2011 (the project report is due in 2012). The aim of PEER is to build a substantial body of evidence by developing an 'observatory' to monitor the effects of systematic archiving over time. Participating publishers will collectively contribute 300 journals to the project. The International Association of Scientific, Technical and Medical Publishers (STM), the European Science Foundation, Göttingen State and University Library, the Max Planck Society, and the Institut National de recherche en informatique et en automatique (INRIA) will collaborate on PEER, supported by the SURF Foundation in the Netherlands and the University of Bielefeld in Germany, which will contribute the expertise of the EU-funded DRIVER project.[17] However, the focus of this research is STM journals in European research settings.

In the mean time, funding agencies around the world are mandating OA for the research they support, and by February 2009 there were thirty-one such funding-agency mandates in fourteen countries, as well as twenty-seven university mandates in sixteen countries.[18] All funding-agency OA mandates allow delays between the publication of a work and its OA release to the public, primarily to give publishers a chance to recoup their expenses. The appropriate length of an embargo before permitted posting to an OA repository is a matter requiring rigorous review; this is a central discipline-specific question because of differences in research article uptake and use by the research community. At present, all medical funding agencies with OA mandates use six-month embargoes, except the National Institutes of Health in the United States, which

uses a twelve-month embargo. An EU pilot project uses different embargo periods for different fields, ranging from six to twelve months. The European Research Council currently uses a six-month embargo but says it is very much aware of the desirability of shortening the embargo period.[19]

'From the beginning, OA moved more slowly in the humanities than [in] the sciences,' writes Peter Suber, an OA enthusiast. Suber has described OA developments within the humanities in 2008 in the *SPARC Open Access Newsletter*;[20] many of these developments originated from European institutions.

Given the longer active life of much research in HSS relative to research in STM (and especially biomedicine), the length of the embargo period before research articles appear in an OA repository is a key concern that requires further investigation. Accepting the embargo periods that are becoming established for biomedical journals could seriously damage and threaten the sustainability of HSS journals.

Data Available on Journal Publishing Economics

Estimates of journal publishing costs across all disciplines vary widely, with sketchy or incomplete data to support figures proposed and poor definition of each step of the publishing process. The results of a review of the data available on scholarly journal economics shows a strong trend in recent years for authors to publish 'reports on reports' that lack primary publishing data provided by publishers. With each successive year, as online publication and the use of online technology across the journal publishing process become the norm across scholarly journals, these older data become less useful and more generally flimsy as a basis for framing the issues. One common problem within this literature is the copying of inaccurate bibliographical references from one report to another.[21] Another measure is the date of articles cited as the basis for cost and revenue information included in recent reports: many of them were published before 2000. Further, on reading any such report it is important to clarify the original data referred to, which not uncommonly are not included.

Most of the published studies focus squarely on STM or on a specific STM field. Few primary data are available on the publishing economics of HSS journals, and, with the exception of those collected for this report, these data largely seem out of date. The rather jaded view presented

informally by some agencies and individuals is that discussions of a new study gathering real data from publishers are always derailed by the feeling that publishers would be unwilling to share this information. This was plainly not true for this study. Others remark that because publishers rarely divide things up or describe things in the same way, any comparison is not valid. The approach and templates used to collect data for this study, however, have largely prevented such a result.

Factors Affecting Publishing Costs

The average per-article or per-page publication cost for a scholarly journal will depend on a number of factors that much of the literature on the topic has not addressed, including

- overall submission and rejection rates: the higher the submission rate, the higher the cost per published article, because increased numbers of submissions and rejections take time and money to handle;
- length of article: long articles cost more to publish than short articles, since content creation costs are driven by volume of content processed; and
- the number and complexity of mathematical typesetting and special characters, figures, and illustrations, as well as the amount of colour used in articles: the more of any of these an article contains, in general, the more that article costs to publish.

The additional start-up costs of publishing online as well as in print predate this study, but these include the technological infrastructure to host and distribute an online version and the need for more technically qualified staff to work with the online version. When the publishing support costs of marketing and selling an online version globally to, for example, library consortia are added, many small society publishers become overwhelmed and decide to partner with a commercial or not-for-profit publisher that can manage and implement much of the complex work associated with producing and selling the online version.

Differences in business philosophy drive financial performance at the individual journal level: flagship journals that cost the most to publish may be subsidized by other products offerings within the association's publishing portfolio, but this cross-subsidy cannot be seen by analysing a single journal from that association.

Non-cash Contributions from Academia

An assessment of non-cash costs was not within the scope of this study, but at the December 2008 workshop participants discussed the in-kind contributions made by universities and by faculty to support the scholarly journal infrastructure. One association noted that although it pays each of its editors some $40,000 per year, and pays its reviewers $100 for getting their reviews completed on time, these amounts are still not adequate to cover all the time spent working on the journal at a pay rate equivalent to these individuals' university salaries; inevitably, some of this work is done pro bono. Associations and journals rely on contributions made by faculty in the name of professional responsibility. Other societies may ask universities for space to accommodate journal activities and for *course relief* for editors; the primary support most institutions give to their journals is to reduce the editor's teaching load by one-third to one-half the institution's norm.

In these and other examples, non-cash costs are incurred in the production of the journal, and while it would be possible to estimate an average amount of time spent on each process for each journal, this would be very hard to reduce to a dollar figure. Associations publishing scholarly information often focus on keeping the costs to institutional subscribers down, and this is especially evident in HSS. In 2007, six of the eight journals in this study charged less than $270 for each bundled print + online institutional subscription. Presented another way, for a total price of $1301, these six journals delivered 9610 pages in print and online versions to institutional subscriber, for an average cost to each institution of $0.14 per published page.[22]

Academic Library Subscriptions and Member Copies

Like many scholarly publishers, the study participants rely heavily on institutional subscription revenue to support their journals. The number of institutional subscriptions is stable even as these publishers are shifting their offering from print only to print + online and, most recently, online-only. The price 'charged' to association members (or allocated from member dues) for their journal subscriptions generally does not cover the costs of providing the journal (note also that three of the participating associations do not allocate any member dues to funding the journal subscriptions provided to members); as a result, institutional

TABLE 14. Rough estimate of impact of removing print-only revenues and costs (seven journals)

	2005	2006	2007
Online *and* print + online revenue ($)	4,115,635	4,426,122	5,097,756
Online expenses ($)	3,816,336	3,917,819	4,099,512
Surplus ($)	299,298	508,302	998,244
Revenue per page published ($)	396	422	463
Cost per page ($)	321	319	327
Surplus (loss) per page ($)	75	103	136

sales subsidize member copies. Online-only member subscriptions would reduce the cost to an association, but the study participants felt quite strongly that a printed copy was an essential regular physical reminder to members of the value and community of association membership. Since none of the publishers reported any costs for market research[23] to investigate this perception, it is not clear whether their assessment of the value ascribed to a print copy of the journal is legitimate, especially as associations' membership starts to include more 'digital natives.'[24] However, other reports on publishing trends and the shift to online format for library subscriptions confirm that print is supplied primarily to meet the requirements of certain subject areas, notably in the arts and humanities.[25]

Retaining Print

Revenues from the print version deliver a considerable proportion of the surplus generated by the journals included in this study. All of these journals publish both print and online versions; if print-only variable costs and print-only revenues are removed for the three years under review, the results are as shown in Table 14. These data are presented purely for illustrative purposes; plainly, 'P&O revenue' includes a proportion of income that *should* be allocated to the print version.

Comparing the revenue, cost, and surplus per page here with the same data shown in Table 12 clarifies the substantial revenues to these journals from print. If print is 'removed,' as in the rough estimate in Table 14, the combined journal surplus falls steeply. Notice, however, that the surplus per page in the 'online-only' condition (Table 14, last row) increases steeply over the three-year period.

Although there would doubtless be savings and efficiencies within the publishing system from removing print, it would need to be removed entirely for those savings to be realized. In the mean time, HSS readers use journals online but, unlike their counterparts in a growing number of science disciplines, are reported by association leadership to continue to use print versions heavily. A 2006–7 UK survey showed that three-fifths of researchers in the arts and humanities (compared with one-fifth in the life sciences and physical sciences) still rate print versions of current issues as very useful for their research.[26] One participating association surveyed their members in 2008 and specifically asked which version (of a journal *not included in this study*) was read; the majority of the respondents — 64 per cent (10 per cent of the membership) — read only the print version, while 33 per cent stated that they read both print and online versions. Print advertising sales account for some significant revenues for seven of the eight journals in this study; at one extreme, the journal with the largest print circulation (35,000) derived some 45 per cent of revenue from advertising sales in print during the study period.

Journal Pricing

For many of these publishers, online pricing does not yet reflect the broader usage and utility of the online version; rather, it is based on the original print version, and so is undervalued. One publisher was using a tiered online pricing model that does attach value to the scale of the institution, and thus of its user base; another charges institutions double the print-only price for access to both print and online versions; and a third reduced their institutional print + online price by 10 per cent between 2006 and 2007.

Data Collection and Confidentiality

Providing the detailed financial and circulation information needed for the cross-publisher comparison central to this study required

considerable staff time and effort. Even this study, which focused on a small and committed group of associations, ran into issues around the political and administrative will to provide all the data requested. In any future work, it will be essential to require at the outset an explicit commitment to provide specific types of data not only by individual societies and associations but also by their publishing partners. Derivation of the in-house staff expenses proved by far the most challenging for participants to provide, and some more explicit guidance (such as that shown in Box 1) should be provided in future studies. The templates shown in Appendices 1 and 2 could be strengthened through embedded formulae, as an aid to the person completing the figures, and some more notes for guidance within the templates would be helpful.[27] All the information requested is proprietary and was treated in utter confidence, even within the context of meetings and exchanges between active members of the participating associations and publishing partners. Such an approach is essential, but, of course, the result is that the results reported here built on average and mean figures that often do not reflect the true differences and trends hidden in the primary data.

The analysis cannot be perfect, and so, in approaching this study, we have considered what provides the best achievable measure that is useful and replicable.

4. QUESTIONS REQUIRING FULLER ANSWERS

How Are HSS Journals Different from STM Journals?

A number of observed differences between HSS and STM journals have been pointed out in this report; these are summarized, for the two samples of journals for which primary data are available, in Table 15. Of course, these data cover a small sample across a wide range of disciplines in STM and HSS. What is not clear is to what extent the particular HSS journals included in this study are typical.

In general, the differences between STM and HSS journals have been summarized as follows:

- Journal prices are much higher in STM than in the humanities.
- Much more STM research than HSS research is funded and government funded.

TABLE 15. Some observed differences between samples of STM and HSS journals

	STM sample: 13 STM society journals, 11 UK (1 OA), 2 US*	HSS sample: 8 HSS association journals**	Comments
Acceptance rate (%)	42	11	
Change in articles/pages published	Articles +25%; all pages +35% (2002–4)	Articles −1%; article pages +8%; all pages +5% (2005–7)	Number of articles published in STM journals is rising steeply, based on numerous database reviews by this author; research funding drives article growth, especially in certain applied sectors.
Frequency	≥12 issues/yr	4–6 issues/yr	
Speed of publication (days from submission to publication)	Often a critical success factor; 56 days achieved	Not critical to success	Important 'cultural' disciplinary differences exist for author expectations on the speed of the editorial process; in general, technological change has speeded up the process for all journals.
Ratio of peer-reviewed to non-peer-reviewed pages	95:5	62:38	
Average article length	10 pages (2004)	19 pages (2007)	More and shorter articles are published in life sciences than in physical sciences; humanities articles may be longer than articles in social sciences.
Illustrations, photos, figures	Often many illustrations	Often few; pages text-only	

Tables, data, and links to databases	Typically many	Often few	
Trim size of journal, text layout	8.5 × 11″ or A4, double-column text layout	Smallest: 6 × 9″, largest: 8.5 × 11″; both single- and double-column layouts observed	Trim size and layout are more uniform in STM than in HSS
Country of origin of first/corresponding author of peer-reviewed articles	EU has overtaken US, and Asia is catching up fast	82% US	
Average institutional price/page (print + online)	$0.43 (2004)	$0.28 (2007)	
Author revenue (page charges, colour figure charges, OA fees) as % of total revenue	6 (2004)	1.65 (2007)	
Institutional subscription numbers	Falling overall; −22%, 2002–4	+1.8%, 2005–7	

* Mary Waltham, 'JISC: Learned Society Open Access Business Models' (Joint Information Systems Committee, 2005), available at http://www.jisc.ac.uk/media/documents/themes/infoenvironment/learnedsocietyoabusinessmodels.pdf

** Data in this column are drawn from the present study.

- In many science disciplines, the cost of research is greater than the cost of publication; the reverse may be true in HSS disciplines.
- Urgency of publication to establish priority is greater in STM fields than in HSS, where the pace of the advance of knowledge is generally slower and the half-life of articles generally longer.
- Use of and demand for journal articles in HSS disciplines drops off more slowly after publication than demand for articles in STM fields. This affects the question of whether a journal would lose subscribers and revenue by offering open access after an embargo period of a certain length.
- Journal articles are the primary literature in STM fields; in the humanities, journal articles tend to report on the history and interpretation of the primary literature, which is often in books.
- 'E-publication and open access initiatives, and general awareness of the key issues and debates, are much less advanced in the arts and humanities than in the sciences.'[28]

In some fields, more cutting-edge research is presented first at conferences and then in journals; in other fields, the reverse is true. The need for copy editors is greater in some fields than in others (e.g., to compensate for language deficiencies in submissions by non-native speakers, to minimize academic obscurities for a less specialized audience, or simply to present a clearer and more professional text). It is not clear to what extent these last two points are essential differences between STM and HSS journals and to what extent they are publisher and field specific.

Which open-access model(s) are sustainable for HSS publishers?

Detailed information collected from the eight HSS association publishers participating in this study clarify that 'gold' OA would not be a sustainable business model for any of the journals represented, even if funding support were available from grant agencies. Based on previous experience in STM publishing, the 'gold' OA model may be sustainable for small society journals, given considerable contributions in kind from institutions and individuals and presuming the availability of funds for modest author fees; it is less suitable for larger flagship titles. A vivid recent example can be seen in the results from the first five years of the Public Library of Science (PLoS). In 2002 the Gordon and Betty Moore

Foundation granted PLoS US$9 million to fund the first five years of operations. The two flagship, fully OA monthly journals *PLoS Biology* and *PLoS Medicine* launched in 2003; in addition to an academic editor and the usual journal infrastructure, high-quality in-house staff worked on a well-developed 'front section' for each journal to mirror the interpretive content of *Nature*, *Science*, and the *New England Journal of Medicine*. Not surprisingly, both titles have failed to become sustainable on a title-by-title basis with the 'gold' OA business model. Author fees for OA in *PLoS Biology* and *PLoS Medicine* have risen steeply and are now at $2900 per article. PLoS has in the meantime launched five more OA journals that do return a surplus, the greatest being from the least selective, *PLoS ONE* (OA fee: $1350). This publisher seems to be pursuing a portfolio approach whereby journals cross-subsidize one another. Would the same model function for multi-journal (and book) HSS publishers? Only a rigorous review of a complete publishing program over time can answer this question. Note also that there is no equivalent of PLoS or BioMed Central, another fully OA publisher (recently acquired by Springer), in HSS.

There are many different forms of OA, as summarized in Table 16.

Where would the money come from to support 'gold' OA in HSS journals?

This study did not include a review of potential funding sources for OA within HSS journals. Some funding agencies within the arts, humanities, and social sciences have already developed policies on access to research they fund, and mostly centred around deposit in OA repositories. Several study participants noted that a single article may be the result of multiple sources of funding and run over quite a long period, in contrast to the typical situation in STM. One association publisher of a flagship title in their discipline estimated that about one to two articles (out of about eight) per issue are supported by external funding, and suggested that this observed average for a single title could well hold up in other general research journals in this discipline. Sub-disciplinary journals would be expected to receive funding at the same level or less. There has been no formal review of HSS funding agencies' policies or responses to requests for funding of OA publication; we believe that such a review is required.

TABLE 16. Some of the flavours and colours of open access (modified after Willinsky 2003*)

Model	What is it?
E-print archive	Preprints archived by author(s)
'Green' OA (publisher)	Author can self-archive article post-print
'Pale green' OA (publisher)	Author can self-archive article pre-print
'Gold' OA (publisher)	Immediate and full OA publication of journal
Dual-mode OA	Print — subscription; online — OA
'Author pays'	Author pays fee to support OA publication
Partial OA	Some articles published are OA
Per capita	Journals are made OA based on income per capita
'Membership'	Institution pays fee that entitles their authors to discounts on fees under 'Author pays' model
Delayed OA	Articles available OA after embargo period

* J. Willinsky, 'The Nine Flavours of Open Access Scholarly Publishing,' *Journal of Postgraduate Medicine* 49, 3 (2003): 263–7

If HSS articles are posted to an OA repository, how long should the embargo period be?

As noted earlier, use of and demand for HSS journal articles typically drops off more slowly after publication than demand for articles in STM fields. This fact has a significant impact on the effect of embargo periods. The length of the embargo period before deposit of research articles in an OA repository is a key concern that requires further research through analysis of a combination of, for example, citation half-life,[29] article download data by year and by discipline from JSTOR and Project Muse, and article download data by year and by discipline from the main online journal hosting vendors, such as Ingenta and Highwire. Support from these third parties should be forthcoming, given appropriate public acknowledgement of their input to the research.

The SHERPA/RoMEO Web site funded by the JISC in the United Kingdom[30] is one source of information on the self-archiving policies

or 'colour' of some of the publishers included in this study, as shown in Table 17.

Are results from OA experiments with STM journals helpful in the understanding of society/association publishers of HSS journals?

Several STM publishers are currently engaged in 'gold' OA experiments, and these are providing some insight into the specific communities covered by particular journals. Oxford University Press (OUP) has contributed significantly to this effort; the results of the OUP experiments are discussed by Claire Bird.[31]

Generalized lessons have yet to emerge, but some themes run across the results I have observed within STM journals; these are included here for information.

Within certain well-funded disciplines, notably biomedicine, if the journal is central and near the top of its field, with a high impact factor, 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.

As Sally Morris wrote 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.'[32]

If there is already good access to the content as a result of delayed OA policies, uptake of the 'author pays' model may also be low.

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. An example is the Entomological Society of America's journals, where uptake of the OA PDF reprint has reached 62 per cent and authors also pay page charges.

David Prosser writes that 'the publication charge should be set at or near the total required for online publication of the paper';[33] the current fees charged to authors by the Entomological Society of America do not meet this requirement.

Within the physical sciences and in other disciplines where there is a tradition of posting online preprints centrally, OA may be virtually redundant: readers can find and view new research outcomes before formal publication, and this early preprint version may be 'good enough.' An example is the recent low response to hybrid OA offerings by physical science societies.

TABLE 17. HSS association publishers' author-/self-archiving policies as of January 2009*

Publisher	Colour	Policy	Date of latest SHERPA/RoMEO record
American Anthropological Association	Green	Author can archive preprint and post-print	7 January 2009
American Economic Association	Green	Author can archive preprint and post-print	18 January 2008
American Sociological Association	White**	Author archiving is not formally supported	4 December 2009
American Statistical Association	Blue†	Authors can archive the final draft post-refereeing	1 June 2009
American Historical Association, American Political Science Association, American Academy of Religion, Modern Language Association		No records in database	SHERPA/RoMEO continue to add new publishers to the database.

* Data source: SHERPA/RoMEO, http://www.sherpa.ac.uk/romeo/

** Definition: Author can archive post-print (final draft post-refereeing) or publisher's version/PDF.

† Definition: Author archiving is not formally supported.

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, the number of new OA journals in chemistry in the ISI (Thomson Reuters) database is low compared with the numbers in physics, life sciences, and medicine.

Of course, OA has grown dramatically since 2006. In September 2006, there were 2400 journals listed in the Directory of Open Access Journals; today there are more than 3700. Many publishers have introduced OA options since 2006, and OUP's Oxford Open has begun decreasing subscription prices to reflect revenue from this source. The number of OA mandate policies has increased to more than fifty today, and so the extent of the OA movement moves forward steadily.

The results of the PEER project (described above) and of numerous other initiatives in STM journal publishing will doubtless shed further light on the issues confronting scholarly journal publishers, and some of these will be of value to some HSS association publishers.

Can case studies be used to articulate particular aspects of the journal(s) within the context of the society/association?

Results of this initial study of eight journals in various HSS disciplines support the view that each publisher and each discipline is somewhat different and distinct. Taking an average of any particular parameter across this broad range of a small sample of journals is likely to obscure some of the key similarities and differences between publications, associations, and disciplines. I have tried to point these out and at the same time to present an overview of the HSS journal economics. Case studies of individual journals and publishers, such as those completed for the JISC study, provide further nuance and depth to the particular situation each publisher faces in trying to move to OA.[34] Importantly, providing customized and independent case-study reports to participating publishers provides a positive incentive to participate in a study such as this; it clearly encouraged the JISC study publishers to take part and gave them a tangible benefit.

Are the costs, revenues, and surplus from this broad group of eight HSS association journals typical?

Within each of the disciplines represented, are these journals typical, or do they represent single anecdotes? Although the term 'STM' is used

in a blanket manner, it describes a wide range of different types of journals; not all of them are highly international. Because of drug regimes and prescription requirements determined at the national level, primary-care medical journals can be highly country specific, while science and engineering journals tend to be more international. While similar distinctions may separate humanities journals from social science journals, it is not clear what impact, if any, this has on journal economics within each group.

Does journal frequency drive costs?

The JISC (2005) report draws the tentative conclusion that "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.'[35] Comparing the STM journals in the JISC report with the HSS journals in the present study is truly an apples-to-oranges comparison, and more data are needed to verify or refute this tentative conclusion. Certainly, based on 2007 data, the quarterly HSS journals in this study cost more to publish than the quarterly STM journals, even taking into account inflationary increases in costs.

What is the value of the publication(s) to society/association members? Can this value be quantified? How?

A whole range of policies have been enacted here; some societies charge nothing for 'member subscriptions,' others plainly print a member subscription price on their journal, and some include their policy on dues in the journal (e.g., '$X from member dues go to support the journal'). For the purposes of this study it was important to know what (if any) revenue from member dues is included in each journal's financial statements and whether this applied to print, online, or both versions—in sum, how much revenue (and expense) for the journal is attributable to members. Institutions currently pay the bulk of publishing costs and continue to subsidize association members' copies of the journal(s), and this approach may be unsustainable. Societies should be encouraged to develop a policy that quantifies the value of each publication in attracting members and assigns the costs appropriately.

Does self-publishing or co-publishing with a publisher partner yield a higher surplus for a society/association? Are there other benefits to either arrangement?

The sample of publishers in this study includes four journals self-published by the association and four co-published with either a not-for-profit or a for-profit publishing partner. The self-publishing group included the journals with the highest surplus and the highest deficit; none of the co-published journals were operating at a loss. Given the increasing complexity and cost of both online platform development and global sales and marketing activities, many association publishers are opting for a publishing partnership that brings with it a single online customer platform from the partner, a professional global sales network addressing consortia and site licences for institutions, and often some guarantee of financial return on the journal.

Do society/association publishers with larger publishing portfolios benefit from economies of scale for their journal publishing?

The study sample included single journals from each association publisher. For three of the participating associations, this is their only journal; the other five associations publish three or more journals each, and several also publish books series, CDs, and bibliographical databases. From the data collected it is not clear whether a group of journals (self- or co-published) or a single journal (self- or co-published) is the more cost- and time-effective option for an association.

5. What are the needs for a full research project?

This study focused on eight journals published by eight association publishers in the humanities and social science. Because of the limited sample size, care should be taken not to generalize too broadly. The results, however, may be representative of other HSS journals, and further studies are needed to confirm these results. The topics identified for further investigation include the following:

- How are humanities and social science journals different from each other and from STM journals?
- Is the 'gold' OA model sustainable for a subset of existing HSS publishers?

- Where would the money come from to support 'gold' OA in HSS journals?
- Are other 'non-gold' OA models sustainable for HSS publishers? If so, which and how?
- If HSS articles are posted to OA repositories ('green' OA), how long should the embargo period be?
- Are results from OA experiments helpful in the understanding of society and association publishers of HSS journals?
- Can case studies be used to articulate the particular aspects of the journal(s) within the context of the association and encourage study participation?
- Are the costs, revenues, and surplus from this broad group of eight HSS association journals typical?

Further studies could focus on a broader range of disciplines within HSS, and thus include more journals. A larger data set composed of more journals from small, medium, and large associations within the disciplines represented here (and others) would provide a more accurate basis for the investigations listed above. Data giving ranges of journal costs and revenues by discipline, frequency, extent, and circulation will most accurately reflect the true complexity of supply-side costs and revenues.

Some comparison between single-journal and multi-journal associations and, within those groups, between those that self-publish and those that partner with a publisher would help considerably to clarify the true economic picture here. Only through a larger-scale analysis can we develop a range of options to enable the broadest access to scholarly information in the humanities and social sciences going forward.

A multi-title, multi-publisher study would enable some segmentation by discipline and by features of the publisher and the journal.

The participants in this study have had some initial discussions on the scope and scale of the journal sample for a full research project, considering the need to determine an appropriate sampling framework. The sample needs to be large enough to define the desired market segments, and so be representative, but not so large that the costs are prohibitive and results simply repetitive. Questions and issues raised include the following.

US or US and International Publishers

Should we broaden our research to non-US publishers? There are geographical differences in the way journals are published, especially in the not-for profit publishing sectors (as noted above; see Table 15), and, in addition, national funding agencies tend to go in quite distinct directions. Should we add geography of publisher as another layer of sampling breadth, or focus on US society/association publishers?

Size of Publisher

We could define publisher size by (a) overall revenue from journals *or* of all publications, and/or (b) number of journals published, then sample, for instance, small (one or two journals, revenue $<$\$X), medium (5–10 journals, revenue $<$\$Y), and large (11 or more journals, revenue $>$\$Z) publishers.

How many and which disciplines should be included in the sample?

The disciplines represented by one journal each within the present study are

- Modern languages and literatures
- History
- Religion
- Anthropology
- Economics
- Politics
- Sociology
- Statistics

One approach is to go deeper within these disciplines and sample more journals within each. Following this strategy would clearly make further use of the results of the present study and would define the extent of the research, but it would also restrict the disciplines covered, and there may be important segments missing in this list.

How many journals in the sample?

There are some 23,500 peer-reviewed scholarly journals published across all disciplines around the world.[36] The Thomson Reuters Journal Citation Report database in social sciences for 2007 included some 1866 journals, but this coverage is not considered to be comprehensive within

the core social-science disciplines. The precise size of the sample will be driven by the total number of peer-reviewed journals and the degree of similarity of journals within each discipline selected.

Should we include a sample segment of some existing OA journals in HSS?

What can we learn about the costs, support, and business models of existing OA journals in the humanities and social sciences, and should we include these as a separate segment in our sample for a full research project?

The development of an appropriate sampling framework for a full research project will be an integral part of development of next stages in this work.

Gaining the trust of the society/association publishers involved in the next stage of work and building vigorous participation of a sufficiently wide sample to provide a broad and representative picture across types of publisher and journal, as defined by the sampling framework, will be key success factors.

MARY WALTHAM founded her own consulting company (www.MaryWaltham.com) to help scholarly publishers confront the rapid change that the networked economy poses to their business models and to develop new opportunities to build publications that deliver outstanding scientific and economic value. Mary has worked at a senior executive level in science and medical publishing companies, including *Nature* and *The Lancet*, and across a range of media including textbooks, magazines, newsletters, journals, and open learning materials.

NOTES

1. For an overview of this report see Mary Waltham, 'Humanities and Social Science Journals: A Pilot Study of Eight US Associations,' *Learned Publishing* 23, 2 (April 2010): 39–46.
2. Mary Waltham, 'JISC: Learned Society Open Access Business Models' (Joint Information Systems Committee, 2005), available at http://www.jisc.ac.uk/media/documents/themes/infoenvironment/learnedsocietyoabusinessmodels.pdf
3. The JISC study was predominantly of UK journals, and the results were reported in UK currency. The currency exchange rate of US$1.85 = £1 used throughout the report is the average exchange rate from January 2004 through January 2009.
4. See National Science Board, *Science and Engineering Indicators 2008,* http://www.nsf.gov/statistics/seind08/.

5. John Cox and Laura Cox, *Academic Journal Publishers' Policies and Practices in Online Publishing,* 3rd ed. (Shoreham-by-Sea, UK: Association of Learned and Professional Society Publishers 2008), http://www.alpsp.org/ngen_public/article.asp?aid=24781. More than half the publishers surveyed (54 per cent) publish five journals or fewer; 11 per cent were quite small (six to ten titles), 16 per cent small to medium (eleven to twenty-five titles), 8 per cent medium (twenty-six to fifty titles), 4 per cent medium to large (fifty-one to 100 titles), and 7 per cent large (100+ titles). The sample is weighted to the United Kingdom and North America, with the highest proportion of respondents from the United States: 32.5 per cent are UK-based, 10.8 per cent in mainland Europe, 46.8 per cent in North America, 4.4 per cent in the Asia-Pacific region, and 5.5 per cent in the rest of the world. As to business model and scope, 76.4 per cent of the sample are not-for-profit, and *31 per cent of respondents publish exclusively in the arts and humanities and social sciences*, while 53.7 per cent publish exclusively in STM.
6. Bo-Christer Björk, Annikki Roosr, and Mari Lauri, 'Global Annual Volume of Peer Reviewed Scholarly Articles and the Share Available via Different Open Access Options,' *Proceedings ELPUB 2008 Conference on Electronic Publishing, Toronto, Canada, June 2008*, http://elpub.scix.net/data/works/att/178_elpub2008.content.pdf. For a quite thorough overview of the fees charged by mostly STM publishers for open access see BioMed Central, 'Comparison of BioMed Central's Article Processing Charges with Those of Other Publishers,' http://www.biomedcentral.com/info/authors/apccomparison/.
7. Sally Morris, 'Mapping the Journal Publishing Landscape: How Much Do We Know?' *Learned Publishing* 20, 4 (October 2007): 299–310
8. See *Ulrich's Periodicals Directory*, http://www.ulrichsweb.com/ulrichsweb/.
9. Waltham, 'Learned Society Open Access Business Models'
10. Ibid.
11. Ibid.
12. Carol Tenopir and Donald W. King, *Towards Electronic Journals*: *Realities for Scientists, Librarians, and Publishers* (Washington, DC: SLA Publishing 2000); see also Donald W. King and Carol Tenopir, 'Economic Cost Models of Scientific Scholarly Journals' (Paper presented to the ICSU Press Workshop, Keble College, Oxford, 31 March–2 April 1998), available at http://www.bodley.ox.ac.uk/icsu/kingppr.htm.
13. BioMed Central, 'Comparison of BioMed Central's Article Processing Charges'
14. Hindawi Publishing Corporation, http://www.hindawi.com/
15. Association of American University Presses, AAUP Statement on Open Access (February 2007), http://www.aaupnet.org/aboutup/issues/oa/statement.pdf

16. Philip M. Davis and Michael J. Fromerth, 'Does the arXiv Lead to Higher Citations and Reduced Publisher Downloads for Mathematics Articles?" *Scientometrics* 71, 2 (May 2007): 203–15
17. Digital Repository Infrastructure Vision for European Research (DRIVER), http://www.driver-repository.eu/
18. See ROARMAP (Registry of Open Access Repository Material Archiving Policies), http://www.eprints.org/openaccess/policysignup/
19. See 'The European Commission's Open Access Pilot for Research Articles: Frequently Asked Questions' (MEMO/08/548, 20 August 2008), http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/548
20. Peter Suber, 'Open Access in 2008,' *SPARC Open Access Newsletter* 129 (2 January 2009), available at http://www.earlham.edu/~peters/fos/newsletter/01-02-09.htm#2008
21. The same phenomenon has been documented in other research areas; see, e.g., David Henige, 'Mis/Adventures in Mis/Quoting,' *Journal of Scholarly Publishing* 32, 3 (April 2001): 123–35.
22. The average price per page for STM journals in the JISC study was $0.43 at 2004 prices. Waltham, 'Learned Society Open Access Business Models.'
23. See row 97 of P&L template in Appendix 2.
24. The term 'digital native' describes a person who has grown up with digital technology (e.g., personal computers, the Internet, mobile phones, and MP3 players), as opposed to one who has learned to use these technologies in adulthood, a 'digital immigrant.'
25. See, e.g., Anthony Grafton, 'Apocalypse in the Stacks? The Research Library in the Age of Google,' *Daedalus* 138, 1 (Winter 2009): 87–98, 94: 'Some social scientists continue to be dedicated consumers and producers of books: the best empirical work on the current condition of the academic research library has been done by the Chicago sociologist Andrew Abbott. On the whole, though, humanists form the majority of those who still see the library as vital in their day-to-day working lives, especially the smaller group of humanists that librarians label, a little worryingly, "heavy users," most of whom are either faculty members or students completing dissertations.'
26. Sheridan Brown and Alma Swan, Researchers' Use of Academic Libraries and Their Services: A Report Commissioned by the Research Information Network and the Consortium of Libraries (RIN/CURL 2007), available at http://www.rin.ac.uk/files/libraries-report-2007.pdf
27. For example, for 'Editorial salaries,' a note such as 'Please calculate and include the portion of editorial salaries subsidized through course reduction.'
28. Malcolm Heath, Michael Jubb, and David Robey, 'E-Publication and Open Access in the Arts and Humanities in the UK,' *Ariadne* 54 (January 2008), available at http://www.ariadne.ac.uk/issue54/heath-et-al/

29. This measure is based on the Institute of Scientific Information's Journal Citation Reports. The journals in this study that are indexed in the Social Science Citation Report all have a citation half-life in excess of ten years.
30. SHERPA/RoMEO, http://www.sherpa.ac.uk/romeo.php
31. Claire Bird, 'Oxford Journals' Adventures in Open Access,' *Learned Publishing* 21, 3 (July 2008): 200–208
32. Sally Morris, 'Open Sesame,' *Learned Publishing* 16, 2 (April 2003): 83–4, 83
33. David Prosser, 'From Here to There: A Proposed Mechanism for Transforming Journals from Closed to Open Access,' *Learned Publishing* 16, 3 (July 2003): 163–6, 165
34. Waltham, 'Learned Society Open Access Business Models,' Appendix 2 ('Case Studies of 9 Learned Society Publishers')
35. Ibid., 13
36. *Ulrich's Periodicals Directory*

APPENDIX 1: READER AND AUTHOR TEMPLATE (SOURCE: MARY WALTHAM)

	2005	2006	2007	Comment
Publisher:				Please complete all information relevant to this journal for each year.
Title of journal:				
SUBMISSIONS				
Number of submissions received				
Number of peer-reviewed articles published				
Total pages published				
Number of text pages published				
Number of peer-reviewed article pages published				
Number of non-peer-reviewed editorial pages published				Include here all other pages (e.g., book reviews, meeting reports, letters to the editor, member information, obits, book reviews, media reviews, perspectives, etc.), but not advertising.
Number of advertising pages published				
SUBSCRIPTION/CUSTOMER NUMBERS				
Number of institutional subscribers				
Print				
Online				
Print + Online				
Number of site licences (not included within online subs above)				
Number of consortium deals				Do you provide print or online or both formats to consortia?
Number of member subscribers				Does membership *include* one or more journal subscriptions? Are these in print or online or both?
Print				
Online				
Print + Online				

Number of individual non-member subscribers				
Print				
Online				
Print + Online				
PRICING				
US institutional price ($)				
Print				
Online				
Print + Online				
Site licence				Do you use a tiered pricing model? If so, please provide a separate summary of tiered prices for 2005–7.
Member price ($)				
Print				
Online				
Print + Online				
Non-member subscriber price ($)				
Print				
Online				
Print + Online				
Please contact me if you have any questions: mary@marywaltham.com				

APPENDIX 2: P&L TEMPLATE (SOURCE: MARY WALTHAM)

Publisher:				
Journal:				
Please contact me if you have any questions: mary@marywaltham.com	2005	2006	2007	Comment
Revenue Summary	$	$	$	Please complete all boxes that are relevant to your journal
SUBSCRIBERS				
Institutional print subscriptions				
Institutional online subscriptions and site licences				
Institutional Print + Online (P + O) subscriptions				
Digital archive/backfile revenue				If separate from other institutional revenue (e.g., JSTOR)
Member print				'Member subs revenue' typically includes an allocation from member dues.
Member online				
Member P + O				
Individual non-member print				
Individual non-member online				
Individual non-member P + O				
TOTAL SUBS REVENUE				
AUTHORS				
Article submission fees				
Page charges				
Colour fees				
Non-subs print revenue, e.g.:				
Advertising print display				Do you employ journal ad sales staff or out of house?
Advertising print classified/job				
Print reprints				
Back copy sales				

Royalties (e.g., CCC for photo-copying)				
Other print: please identify				E.g., mailing-list revenue
Non-subs online revenue, e.g.:				
Advertising online display				
Advertising online classified/job				
Online reprints				
Online pay-per-view				
Royalties (e.g., from online aggregators, EBSCO)				
Other online: please identify				
TOTAL NON-SUBS REVENUE				
Revenue to this journal from grants or endowments				
Total all revenues				
Total text pages published (includ-ing advertising)				
Cost Summary				Comment
				Cost summary rows: please show individual cost lines OR subtotals for each category—whichever is most convenient to tabulate.
Content Creation—Print + Online, for example:				
Journal editors				Fees/honoraria and expense for academic Editors
Editorial Board meetings/ expenses				
In-house editorial staff salaries and benefits and office costs				How do you develop office costs? (e.g., percentage of salary or review of all current actual costs/employees or other method?)
Peer review—online and/or print				E.g., cost of online peer-review system
Copy-editing, proofreading, etc.				Additional costs for freelance support

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; they are often combined by suppliers.
Print page composition				
Subtotal Content Creation Print				
Content Creation — Online only, for example:				
SGML/XML/PDF page composition				Is there content hosted on the journal Web site that is not published in print? If so, please identify what it is.
Subtotal Content Creation Online				
Total content creation costs				
Manufacturing & Production — Print only, for example:				All print manufacturing and production costs
In-house production staff, including salary, benefits, and office costs				
Paper				
Printing and binding				
Press work				
Storage of back issues				
Paper reprints				
Subtotal Manufacturing & Production — Print				
Manufacturing & Production — Online only, for example:				
In-house production staff including salary, benefits and office costs				Make an allocation between print and online if staff work on both formats.
Online production such as upload and processing of journal, and subscription data				If you *can* separate out uploading of data from distribution costs (e.g., journal hosting) please do so; they are often combined by suppliers.

Subtotal Manufacturing & Production—Online				
Total Manufacturing & Production costs				
Distribution & Fulfilment—Print only, for example:				
Postage and Distribution (includes set-up and preparation)				
In-house subs fulfilment / customer service, including salaries, benefits, and office costs				
Print subscription fulfilment / customer service				
Back- / single-issue postage				
Bank / credit-card fees for print subs				Make an allocation between print and online if subs are P + O.
Subtotal Distribution & Fulfilment Print				
Distribution & Fulfilment—Online only, for example:				
Online hosting and content distribution				E.g., cost of online hosting service
In-house subs fulfilment / customer service, including salaries, benefits, and office costs				Make an allocation between print and online if staff work on both formats.
Online subscription fulfilment / customer service				
Bank / credit-card fees for online access				
Subtotal Distribution & Fulfilment Online				
Publishing support—General & Admin, for example:				N.B.: May mean allocation to the journal from central society overhead, as appropriate.
Executive Office: salaries including benefits and office costs				
Finance Office: salaries including benefits and office costs				

Marketing: salaries including benefits and office costs				
HR Office: salaries including benefits and office costs				
Promotion costs (non-staff marketing)				Includes journal renewal and new business
Information Technology services, including salaries, benefits, and office costs OR flat fee per staff on journal				
Advertising: salaries including benefits and office costs OR service/commissions if out of house				
Research and development costs for editorial or business aspects of journal				E.g., market research with authors or customers
Site-licence sales agents' commissions				
Other contract services: please identify				
Subtotal Publishing Support—General & Admin				
Total all expenses				
Surplus				