

Some comments prepared jointly by The Publishers Association, the Association of Learned and Professional Society Publishers and the International Association of STM Publishers on the report

“Economic Implications of Alternative Scholarly Publishing Models: Exploring the costs and benefits”

**by Houghton et al. & Oppenheim et al., commissioned by JISC
(published January 2009)**

As committed scholarly publishers, we acknowledge the efforts of the authors of this report to investigate the costs and benefits of alternative systems of scholarly publishing, and we fully share the objective of its sponsor to extend access to peer-reviewed research outputs as widely as possible. The investments of our industry over the last ten years and longer have already made rapid, widespread and profound progress against this objective while upholding very high standards of quality control, integrity and preservation. Indeed the industry has made substantially more progress than ‘Author-Pays’ or ‘Manuscript-Archiving’ models, which have uptake levels of the order of only 1% and 5% respectively after several years and which are the subject of the report.

Because the report is intended to inform policy making within and outside the UK, and because publishers and their associations were not consulted by the researchers during the preparation of this report, we have provided our comments in this document. We focus on those elements of the report that we consider as essential for policy makers to understand.

Our comments are based on the plain logic that, as independent self-sufficient publishers, both commercial and not for profit, we must operate within sustainable business models capable of earning revenue from those sources available in the marketplace. For scholarly journals published for a global market these sources are, in the main, library budgets. We are not opposed to ‘Author Pays’ as a business model since it has many clear advantages in terms of tracking the increase in R&D expenditure and the concomitant increase in research articles. Most major publishers already provide an ‘Author Pays’ option, although take-up (apart from a few individual titles in specific subject areas) remains consistently low, even after nearly a decade of advocacy from the Open Access movement. We remain sceptical, however, about inadequately researched or underfunded Manuscript Archiving mandates which have the potential to destabilize a system of peer-reviewed, quality-assured, and published research outputs that is evolving organically into a new paradigm based on the kind of internet technology in which publishers are already heavily invested, and which has already led to dramatic improvements in the productivity of researchers.

We remain open to dialogue around the recommendations of this report. In particular we would want to address with the JISC:

- The nature of remaining ‘access gaps’ in the UK: where are they, and how might our industry work with policy makers and fund holders to close them?
- The costs and benefits of a rapid transition to ‘e-only’ delivery: it is not our industry that is holding this back, but the needs and the preferences of our customers.

Analysis of the Report: Executive Summary

The report attempts to quantify the costs and benefits to UK Higher Education (HE) institutions and the UK as a whole of scientific publishing operated under three publishing models: Subscription publishing, Author Pays publishing and Manuscript Archiving. In their analysis of the three models the authors identify hypothetical savings of moving from the existing, largely Subscription based publishing model, to an Author Pays system, or a system reliant on the posting of author manuscripts. The authors attempt to quantify the economic impact of such a transition to supposed savings realized by libraries, publishers, researchers and funding bodies. Separately the report attempts to quantify the broader impact on society from increased researcher access to published literature and increased researcher productivity.

The report concludes that it is beneficial for UK HE to move towards Author-Pays and Manuscript Archiving models, and claims that:

- Open Access [Author Pays] publishing “might result in systems savings of which around £165 million would accrue in higher education.” (p. XVIII)
- With an “Institutional Repositories with overlay services’ [Manuscript Archiving] model... the potential net savings might be around £200 million per annum.” (p. XIX)

In contrast to the report’s assertions that **Author Pays publishing** would bring system savings to UK Higher Education institutions of £165 million, complete adoption of Author Pays would, according to the report’s own analysis, result in UK Higher Education spending 31% (£35 million) more in cash than the £113 million that it spends today on subscription journals. Because UK articles account for only around 5% of global articles the UK would, however, still have to keep paying most of the £113 million on subscriptions to ensure access to non UK-authored articles. So total UK HE spending would increase to around £260 million, more than double what it pays today.

Because it is an additional activity that occurs after publication rather than a standalone publishing model, **Manuscript Archiving** would also result in an increase in cash spend for the UK of around £18 million. HE institutions would pay this on top of journal subscriptions, so that the UK’s spending would increase from £113 million to £131 million.

The hypothesized savings would not, as the report claims, offset these increases in cash expenditures. The authors themselves are tentative in their conclusions, noting only that net benefits ‘might’ or ‘could’ accrue.

- The hypothesized savings that the report claims would offset these increases in cash spend are based on flawed assumptions about the amount of time that librarians, researchers, publishers and funders would save in Author Pays and Manuscript Archiving systems relative to Subscription publishing.
- The assumptions are flawed because the report significantly understates the efficiencies of the current subscription system, in which the vast majority of UK researchers already have electronic access to the vast majority of journals they need for their area of research, and therefore over-estimates the time-savings potential of alternative systems. The report also significantly underestimates the time that would have to be spent on activities associated with non-subscription systems, such as the collection of author fees in Author Pays publishing. These flawed assumptions could have been avoided if the authors had consulted with a representative sample of publishers, which they did not.
- Many of the savings hypothesized in the report would not accrue unless the rest of the world fully adopted Author Pays or Manuscript Archiving. Given that only around 1% of all STM articles are currently published under an Author Pays model and that only 5% of authors post their manuscripts – numbers which have remained constant for the last five years – the 100% adoption of Author Pays or Manuscript Archiving outside the UK is

extremely unlikely. As such, the postulated savings that rely on this assumption would not be realized.

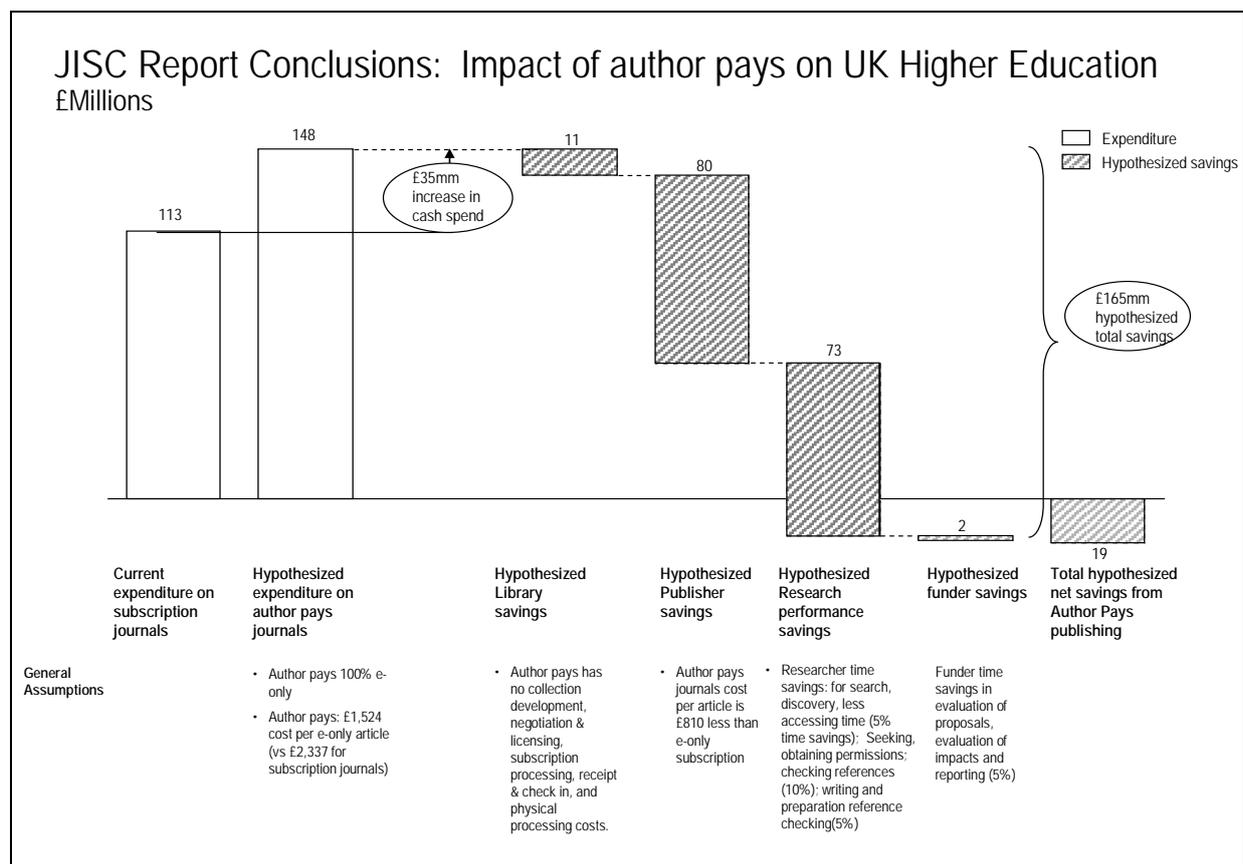
- Even if the hypothesized time-savings were realized, which is highly doubtful, they would only result in cash savings for UK HE if they translated into widespread job losses, e.g. over 200 UK librarian job losses to realize the hypothesized £11 million in 'library savings' alone. To achieve the overall £165-£205 million savings postulated in the report, several thousand UK job losses would have to be incurred.

In summary, according to the report's own data, cash expenditures for UK HE would increase by around £150 million in an author pays system and by around £20 million in one of manuscript archiving. The hypothesized benefits would almost certainly not offset these increases in expenditure, and if they did, it would be due to the loss of several thousand UK jobs.

Analysis of the Report: Detail

a) Author Pays Publishing

The following figure represents the purported economic impact on UK Higher Education resulting from a full-scale shift to Author Pays (based on the data in Figure S-VI, page XIX).



The report's data indicate that the UK would increase its expenditure of £113 million on subscriptions to £148 million in a system of Author Pays journals, i.e. an increase of £35 million or 31%.

However, because a UK-funded Author Pays model would only make available articles resulting from UK-funded research (about 5% of all articles), the UK would still have to pay

to access the remaining 95% of articles published by non-UK authors. As a result, the UK would continue to spend the vast majority of what it currently pays today on subscriptions (£113 million), while also paying £148 million in Author Pays fees, i.e. a total of around £260 million, more than double what it pays today.

The only way the UK would pay the £148 million that the report claims is if the 95% of articles published by non-UK authors were also made available on an author pays basis. Given that only 1% of articles are published on an author pays basis today, a number that has remained constant since 2004, this is highly unlikely.

The report hypothesizes that the increase in cash spend would be offset by £165 million of hypothesized time savings in other key areas of funding and research activity. The result, it claims, would be a £19 million net savings for UK HE institutions.

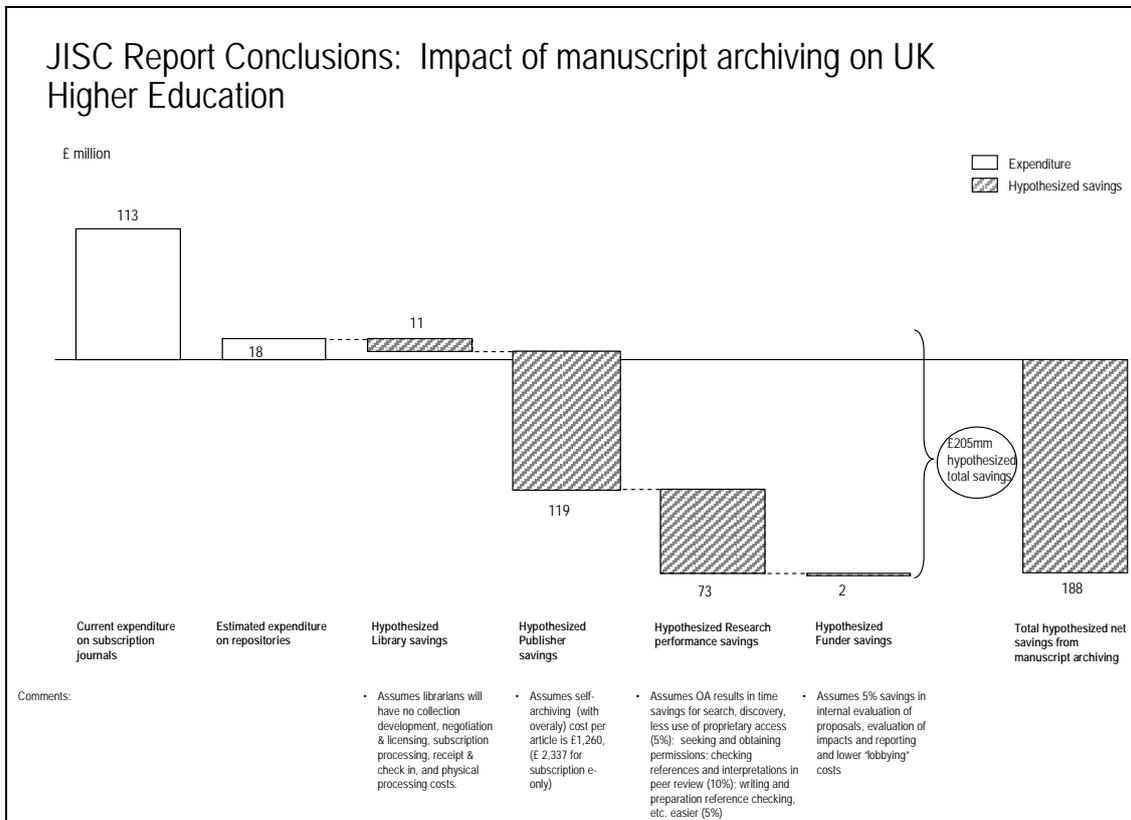
The analysis of savings that could be achieved by saving researchers time, however, is highly flawed and hypothetical. The words “could” “might” and “may” are used frequently. The authors primarily use ‘author estimates’ and consistently overlook or downplay costs incurred by the Author Pays model. We examine each element of their analysis:

- i. **Hypothesized expenditure on Author Pays journals:** The report underestimates what the UK would spend for a full Author Pays system by around £70 million, because it dramatically underestimates the true costs to publish an article. A more realistic figure was provided by the recent independent study by RIN, which estimated that the Author Pays fees for UK Higher Education would be at least £222 millionⁱ.
- ii. **Hypothesized library savings:** The authors suggest that a move to an Author Pays model would result in a time savings for libraries of £11million, suggesting that under the Author Pays model there will not be negotiation and licensing, subscription processing, receipt and check in, and physical processing costs.
 - The authors overlook new costs that libraries or the HE institutions would incur with an Author Pays journals system that would negate the claimed savings of £11 million. For example, Author Pays publishers also negotiate with libraries to establish institutional sponsorship agreements. These costs are not accounted for by the report.
 - The cost savings stated by the report are based on calculating time spent by library staff on activities. To capture these hypothetical savings of £11 million, we estimate that more than 200 UK librarians would have to lose their jobs (based on a rough estimate of £50,000 fully-loaded compensation and benefits costs per librarian).
- iii. **Hypothesized publisher savings:** The authors state that switching to an Author Pays model would result in savings of £80 million for publishers over the current system. Cost savings are attributed to savings in time and money spent on rights management, legal and licensing, pricing, marketing, negotiation, sales, distribution and operating online access and entitlement systems on a per-article basis. As a result of these purported savings, the authors estimate that it would cost £813 less per article to produce an Author Pays article than an e-only subscription article. Based on per author savings the report scales the savings up to UK HE’s output (it appears that the authors estimate that the UK HE output is approximately 98,500 articles per year) to determine the potential UK HE savings. Both the calculation method and assumptions are flawed. The reality is that articles published in the same format at the same quality level will have essentially the same production and distribution costs, as any cost-savings in subscriber pays processes will be off-set by new processes/requirements for Author Pays.

- By performing erroneous calculations on a per article level and then multiplying by almost 100,000 articles, the total estimates of Author Pays publishing costs are significantly underestimated. For example the authors assume that online subscription journals cost £120 more per article to deliver online than Author Pays titles costs (no justification is given for this difference and access and entitlement calculations are performed separately). This erroneous assumption alone accounts for £12 million in purported savings (or two thirds of the entire purported net savings from the shift to Author Pays publishing).
 - The authors generally underestimate costs of Author Pays journals relative to Subscription journals with little rationale and no evidence. For example, Author Pays marketing costs are assumed to be one third of traditional Subscription publishing. Again, these assumptions were made without consulting journal publishers.
 - Additional costs present in the Author Pays model are not considered. For example, while the authors do estimate a £10 processing fee for author side payments, there is no detail on the infrastructure required to process 98,500 individual articles' invoices and payments a year, or the time spent by authors, their institutions and funding bodies in managing and accounting for these costs.
- iv. **Hypothesized research performance savings:** In the report, the authors hypothesize that an Author Pays model would lead to research performance savings of £73 million in serving UK Higher Education institutions.
- In evaluating savings potential from research, the authors arbitrarily estimate 'access' benefits ranging from 5% to 50% reductions in time spent by researchers on a variety of activities. These estimates are presented as actual savings, but they are entirely hypothetical and are based on purported time saved by researchers and academics that would still have to be paid for. The only way savings would actually be realized is if these researchers and academics were made redundant as a result of the time saved. There are also no estimates of the potential negative impacts of a shift to such models.
- v. **Hypothesized funder savings:** The report suggests that under the Author Pays model, there would be a saving for funders of UK HE research of £2 million. This saving is attributed to an estimated 5% efficiency saving on time spent on the internal evaluation of proposals, on the evaluation of impact and on reporting. In addition, the authors suggest that under the Author Pays model, funders will gain greater visibility and will have lower "lobbying" costs. Again, these time savings are entirely hypothetical and do not translate to an actual reduction in spending. It is purely conjecture that publishing in an Author Pays journal would increase the visibility of the funding agency.

b) Manuscript Archiving

The following figure shows the report's analysis of the economic impact of a shift from the Subscription publishing model to a Manuscript Archiving model.



In summary, the authors assert that a “Manuscript Archiving system” would require an estimated spend of £18 million on institutional repositories for UK Higher Education. In the report’s model, publishers would perform just a selection of ‘overlay’ services — peer review, editing and proofing, and article hosting — for articles hosted on the repository. This system, the authors speculate (since there is no such system currently in existence), could result in a net cost saving of £188 million for the UK. While the authors do not explicitly claim there would be subscription cancellations, the elimination of the subscription journals is clearly envisaged in this model, and the report notes that “library acquisition costs could be avoided” (p. 181).

As with Author Pays publishing, however, because a UK-funded Manuscript Archiving system would only make available manuscripts resulting from UK-funded research (about 5% of all manuscripts), the UK would still have to pay to access the remaining 95% of articles published by non-UK authors. As a result, the UK would continue to spend the vast majority of what it currently pays today on subscriptions (£113 million), while also spending £18 million on institutional repositories, i.e. a total of around £131 million.

The only way the UK would pay the £18 million that the report claims is if the 95% of manuscripts published by non-UK authors were also made available. Given that only around 5% of articles are posted by authors today, a number that has remained constant since 2004, this is highly unlikely.

The report does not address the grave implications for science and society of replacing the current global system of published journal articles with a global system of author

manuscripts, which frequently contain errors and omissions, posted in thousands of disparate repositories with different operating, security and preservation standards.

The report hypothesizes that the £18 million in cash spend would be offset by £205 million of hypothesized savings in other key areas of funding and research activity. The result, it claims, would be a £188 million net savings for UK HE institutions.

The analysis of savings that could be achieved by saving researchers time, however, is also flawed and hypothetical. We examine each element of their analysis:

- i. **Hypothesized library savings:** Again, the authors claim that a move to Manuscript Archiving could save libraries £11million as they would not spend time on negotiation and licensing, subscription processing, receipt and check in, and physical processing, as is the case when maintaining subscriptions. However:
 - The authors assume that librarians would be likely to maintain subscriptions, so these costs cannot be negated.
 - Although the authors suggest that subscriptions could be cancelled, only 39% of librarians regard an archived manuscript as an acceptable substitute for a journal.ⁱⁱ The system of Manuscript Archiving would therefore not meet most librarians' stated needs.
 - Librarians may have to spend significant time in assisting their researchers in archiving manuscripts and creating appropriate metadata to enable efficient search and retrieval. These costs are not included in the report.
- ii. **Hypothesized publisher savings:** By reducing the role of publishers to just peer review, editing and hosting content, the report disregards and does not account for the value and cost of essential services that publishers provide, and also fails to assess the negative impact and costs that would result from removing services such as:
 - Assisting in search and discovery by associating content with trustworthy publisher brands.
 - Investing in new scientific domains and the development of communities of authors, reviewers and researchers
 - Certifying research in partnership with the scientific community
 - Defending authors rights from plagiarism or distortion
 - Author, editor and reviewer workflow tools
 - Manuscript preparation beyond just editing and copyediting such as verifying references, inserting online tags, preparation of graphics and multimedia files, typesetting, XML coding, visual enhancement, reference linking and indexing.
 - Preserving the Version of Record in perpetuity for researchers and society
 - Managing various 'post-publication' activities, such as updates, corrections and retractions
- iii. **Hypothesized researcher performance savings and funder savings:** The authors use the same calculation for researcher performance savings and funder savings under a Manuscript Archiving model as they do for Author Pays publishing. In addition to the concerns documented above on how this calculation was performed there are additional costs to researchers that are overlooked under the Manuscript Archiving model:
 - Readers are not well served by Institutional Repositories which hold a tiny portion (2%) of the full body of literature. There is no explanation of how this gap will be filled effectively, especially for historic literature.
 - Readers' efficiency will fall if they must spend time locating articles from incomplete Institutional Repository collections fragmented among dozens of repositories operating on different software platforms with varying policies and service levels. It will further be reduced as authors check whether posted versions have been altered since being subject to rigorous peer review. These costs are not included in the report's cost assessment.

- The additional researcher costs (and lack of productivity) that result from lack of article XML coding, indexing and interconnectivity of articles within the research spectrum are not considered in the report.

c) Hypothesized benefits to society from Authors Pays and Manuscript Archiving models

The report deploys simplistic economic models in an attempt to quantify the broader benefits of increased ‘accessibility’ and researcher ‘efficiency’, and estimates what combined increases in these two dimensions would monetarily provide as a return to society. For example, an increase of 5% in each category would supposedly provide a £124 million return to Higher Education, as well as returns to public sector R&D, and government and RCUK funded research. While the conclusion that higher researcher productivity would result in societal benefit is sensible, the authors erroneously begin with the assumption that access and efficiency levels in today’s system are low, and that Author Pays journals or Manuscript Archiving are mechanisms that can improve access and efficiency, without due discipline in their methodology or consideration of the facts.

- The authors report an ‘access gap’ stating that 50% of possible journal titles are not available to UK researchers (and one is led to conclude this represents 50% of research). The authors make the estimate of 50% access by dividing institutional subscriptions by the number of journals published and making minor adjustments. The methodology is deeply flawed.
 - As a result of consortia deals many UK institutions have full access to many journals although they do not subscribe to the specific titles. For example, Elsevier estimates that 97% of UK STM researchers are at institutions that have access to at least 90% of Elsevier journal articles.
 - In the few instances where a researcher does not have a subscription the researcher can obtain the article with little or no payment through interlibrary loan, and can often purchase the article if they require it immediately.
 - The study assumes that it is exactly the same 50% of titles that are missing at all UK HE institutions and that librarians have not developed their collections to suit the requirements of the users at their institution. Further, the actual research content (articles) represented by these “missing” titles will be considerably less than a crude count of titles suggests. As a result the average researcher will have direct access to considerably higher proportion of the research literature than the study assumes
- The authors presuppose that the current peer-review publishing system (which is largely subscription based) does not lead to efficient and productive research. The fact is that due to the e-revolution since at least 1997 (largely driven by publishers) the productivity of researchers has dramatically increased and is at very high levels today. For example, science is the only information sector where the amount of time that researchers spent gathering (vs. analyzing) information decreased from 2001 to 2005.ⁱⁱⁱ Furthermore,
 - The authors attribute benefits to the Author Pays and Manuscript Archiving model citing the so-called “OA citation advantage.” But it is not clear that any such ‘advantage’ exists.^{iv}
 - The authors attribute improvements in research efficiency (e.g. by less risk of duplicative research performed and less risk of pursuing blind alleys) to Author Pays and Manuscript Archiving models, without any supporting evidence.
 - It is assumed that the Author Pays models would reduce the risk of duplicative research, while in fact there is evidence that Author Pays titles have less stringent review standards (ALPSP, 2005), increasing the onus on readers to duplicate reported results to evaluate reproducibility.^v
 - It is assumed that Manuscript Archiving would reduce the risk of scientists going down ‘blind alleys.’ However, archived manuscript content cannot be guaranteed by publishers and frequently differ from the published version.^{vi} This could result in research being developed based on flawed findings.

- It is assumed that Manuscript Archiving would lead to more ‘negative’ results being made available, with no evidence for this assertion. The authors have since clarified that this would be in the form of depositing grey literature that has not been submitted to peer review which (a) would clearly be an additional cost and (b) could be achieved under any of the business models under discussion.

d) Other considerations

- The report hypothesizes that a transition to Author Pays and Manuscript Archiving will likely result in job losses for the UK, but does not quantify how many jobs would be affected, and how much these losses would cost the UK in tax receipts, unemployment benefits, etc.
- The report implies that only publishers will suffer job losses, and neglects to quantify the impact on jobs in the library sector, although it does note (p. 93) that libraries “core activities can be limited...as a result there is potential for substantial cost savings.” We estimate that over 200 UK librarians would have to lose their jobs to capture the hypothesized savings of £11 million ‘library savings.’
- The report fails to assess the impact of different journal publishing models on society that depends on unbiased, high quality, peer reviewed research. For example:
 - Archived Manuscripts contain errors. Medical articles containing typos in, for example, drug dosage information could have serious consequences. There is no consideration given to how procedures (e.g. recalls, retractions) of the current system would be managed and at what cost.
 - The report neglects to consider the negative impact that free online models may have on revenues from advertising, membership fees or reprints. These revenues subsidize the subscription costs for high-end and many society journals.

ⁱ RIN 2008

ⁱⁱ ALPSP survey of librarians on factors in journal cancellation, Mark Ware Consulting Ltd,

ⁱⁱⁱ Outsell I-Market Hot Topics, vol 1, May 6, 2005: “2001 vs. 2005, Research study reveals dramatic changes among information consumers”

^{iv} Moed, The effect of "open access" on citation impact: An analysis of ArXiv's condensed matter section. *JASIST* 58 (13): 2047-2054 (2007); Davis *et al.*, Open access publishing, article downloads, and citations: randomised controlled trial. *BMJ* 337: a568 (2008); Frandsen, The effects of open access on un-published documents: A case study of economics working papers. *Journal of Informetrics* (2008)

^v ALPSP report on “The facts about open access”, Kaufmann Wills Group, LLC, Oct 2005.

http://www.alpssp.org/ngen_public/article.asp?id=200&did=47&aid=270&st=&oaid=-1

^{vi} Goodman et al. Open access and accuracy: author-archived manuscripts vs. published articles. *Learned Publishing* July 2007.