

Study on the economic and technical evolution of the scientific publication markets in Europe

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Commissioned by DG Research, European Commission

A Response by the
International Association of Scientific,
Technical & Medical Publishers
(STM)

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0. Executive Summary

STM welcomes the opportunity to comment on the report commissioned by the DG Research of the European Commission.

The science publishing market sector is an extremely important industry for the European Union both in terms of employment (estimated at 36,000 employees in the EU) and its economic contribution (estimated at €3 billion annually). It is remarkably innovative and has embraced technology to such an extent that the efficiency with which research workers use the scientific literature has dramatically increased (they are now able, by a mere click of the mouse, to crisscross seamlessly the literature, thanks to the CrossRef linking service and the by now almost complete ‘retrodigitisation’ of all previously published journal articles—in some cases as far back as 1823). It has also dramatically increased (by at least a factor of 10) the immediate access of researchers to articles of their choice and interest, through the development of innovative business models.^{1,2}

Electronic licensing options introduced by STM publishers offer significant flexibility towards library customers, often with the usual trade-offs available between flexibility and price—thus offering significant pro-competitive benefits to customers.

Customers have reaped significant additional value in the electronic environment and by negotiating as consortia. In addition to the significant savings extended to libraries through digitization and electronic licensing options (the effective price per article has decreased dramatically—in many cases by a factor of 10 or more to below €0.60 per download in some cases), overall price increases have also moderated greatly in recent years. Prices in general, and the growth in journal size and in new journal launches, relate to the continuing increase in research outputs, and are thus the result of genuine cost increases, not some arbitrary, artificial market mechanism.

Public funding of research does not mean that all the publisher added value of managing the editorial and peer review process, organizing distribution and access systems, retrodigitisation, continual improvements and upgrading of necessary hardware and software, *etc.*, should somehow become the property of the funders—copyright provides incentives for innovation and creativity which should not be jeopardized. This principle is enshrined in the EU copyright directive of May 2001 where it is stated that a “high level of protection of intellectual property... will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry...”

¹ These business models have all but eliminated the “Serials Crisis”, a phenomenon most apparent from the mid-seventies through mid-nineties, when the old print-on-paper technology was no longer able to cope with the simultaneous squeeze on library budgets and the extraordinary growth of the research output. In fact, in many cases these new business models (and the dramatically decreasing need for costly activities such as inter-library loan and document delivery) have freed up sufficient funds to allow libraries to pay for new initiatives, such as institutional repositories.

² Indeed, recent studies demonstrate that the main barriers to researcher productivity have to do with bureaucracy, research funding, and research organization, rather than with journal access. (See <http://www.ucl.ac.uk/ciber/ciber.php> and <http://www.publishingresearch.org.uk/>)

Given the remarkable success of science publishing, the enormous pro-competitive and pro-consumer benefits of its innovations over the past several years, it is remarkable that the Study suggests an interventionist approach with mandated business models, an emphasis on cost management, and the like. Science publishing (as the Study itself says) is not like the utility company sector, as energy or telephony are, and, we submit, requires no such regulation.

STM Comments on Study Recommendations

- **Recommendation A1.** The recommendation for guaranteed public access to publicly-funded research is essentially a mandate for either an “author- (or funder-) pays” Open Access business model or direct government funding for scholarly journal publishing. Although STM is agnostic as regards chosen business models, we feel that no credible evidence is presented that such models are inherently better than the current ones employed or that they have the necessary long-term viability
- **Recommendation A-2.** STM supports the proposition of a “level playing field” for business models for scholarly journal publishing, although we believe that many of the models discussed in the Study are unproven. However, if DG-Research intends to promote alternative business models it should ensure that funds are made directly available for publishing fees and at rates relevant for the individual journals in question (one size does not fit all)
- **Recommendation A-3.** It is unclear to STM why alternate means of assessing journal quality are here proposed, given the well-established market indicators and the relative ease and transparency of journal reputations to both librarians and researchers. This recommendation seems unnecessary, although further research into quality issues is welcomed, of course
- **Recommendation A-4.** The discussion about perennial access to scholarly journal archives makes no mention of collaborative efforts already undertaken by national libraries in the Netherlands and Germany working with publishers, nor the private initiatives underway to ensure perpetual access to online content through such providers as Portico: the Study suggests that this had not been thought of before. Needless to say, STM certainly supports increased funding to libraries to create more vibrant and technologically-sophisticated archives

The use of deposit materials under legal-deposit regimes for unrestricted perennial access to the public would be an improper use of such material and such laws. It would make a nonsense of established copyright law principles if deposit libraries could freely copy and make available copyright works in their collections without complying with the Berne Convention 3-Step Test (embodied in Art.5.5 of the Copyright Directive 2001)

- **Recommendation B1.** STM is sceptical of the charges made with respect to Big Deal pricing policies—in fact, we demonstrate the incorrectness of such notions. In view of the immense improvement of the efficiency and economics of the publishing process, it will come as no surprise that we reject the

recommendation of mandated price-controls, which would require a business model based on usage, but with a capped cost/profit—such an outcome has no place other than in the most highly regulated industries. That is not say, that usage based models have no merit (many STM publishers experiment with them), but experience shows, that such models are notoriously difficult to introduce as ‘heavy users’ tend to be ‘penalised’ beyond their budgetary means of that moment (‘light users’ will benefit in the same measure, of course)

- **Recommendation B-2.** STM welcomes any level of scrutiny of significant future mergers as we believe the market is remarkably innovative and works to meet researcher needs—we note however that there has been no supported or serious charge that current competition authorities are incapable of carrying out their current duties
- **Recommendations B-3 and C-1.** STM has long supported the elimination of unfavourable tax treatment of electronic publications, and we encourage further discussions and study of these issues
- **Recommendation C-2.** STM welcomes all investigations and discussions of copyright law, dissemination and technological developments, although as copyright law in the EU has only recently been amended in 2001 to deal with the digital dimension, it is not clear that enough time has elapsed since then (especially since many Member States implementations are not yet finalized) to warrant a re-review

1. Introduction

The International Association of Scientific, Technical & Medical Publishers (“STM”) is a global trade association with approximately 100 member publishing organisations, both large and small, and for-profit and not-for profit, collectively responsible for about 60% of the global output of research articles each year. STM has the following objectives:³

- to assist publishers and their authors in their activities in disseminating the results of STM research
- to assist national and international organisations and communications industries to improve the electronic dissemination, storage and retrieval of STM information
- to work with the International Publishers Association (IPA) and with the national publishers associations and other governmental and professional bodies, international and national, concerned with these tasks

STM appreciates the opportunity to review and respond to the study of scientific publishing (the “Study”) commissioned by DG Research of the European Commission.

We note the recognition in the Study of the innovative and progressive nature of the science publishing market sector and agree with many its recommendations, such as the need for objective research into the sector and the elimination of unfavourable VAT treatment for electronic products. Nonetheless, many aspects of the research outlined and conducted for the Study are flawed, and many arguments made in the discussion of that research are inconsistent. In STM’s view, these considerations seriously undermine the Study as basis for any public policy recommendations.

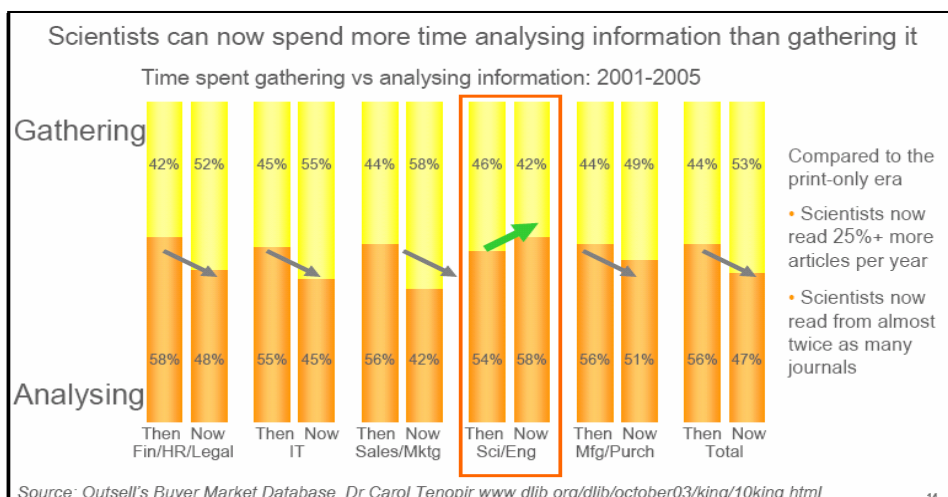
The Study notes that the overriding issues with respect to science publishing for public policy makers are:

- the key role that science has in fostering economic growth
- the role that science journals play in disseminating scientific knowledge
- the question of efficiency in the business models of science journal publishing considering the public funding of many areas of research

STM members are in full agreement with these first two bullet points, namely, the mission of disseminating knowledge and fostering growth and development, which is why STM publishers have invested heavily in electronic publishing and distribution, linking and awareness services (see discussion below). The results of those investments have seen hugely significant increases in researcher access to and utilisation of scientific information over the past decade.⁴ Tellingly, science and engineering is one of the few fields in which researchers have been enabled to spend more time analysing information than in finding it (see chart on the next page, used with permission from Elsevier).

³ See <http://www.stm-assoc.org/>

⁴ Ian Rowlands, Dave Nicholas and Paul Huntingdon “Scholarly Communication in the Digital Environment: What Do Authors Want?” Centre for Information Behaviour and the Evaluation of Research, department of Information Science, City University (now at UCL, University College London), 18 March 2004, see <http://www.ucl.ac.uk/ciber/ciber.php>



The Study, however, seems to be more interested in the third bullet point, that is, the question of the relative efficiency of the science publishing and communication system, and most of its recommendations have to do with business models and pricing controls. Yet, even by using some fairly simple analysis, it appears that this publishing sector is remarkably efficient. The Study notes the R&D expenditure in the OECD countries of something like US\$ 638 billion, and estimates the core science publishing market as between US\$ 7 and 11 billion.⁵ While we believe the latter figures are overly high, probably including products other than journals, even using these figures for the sake of argument, the conclusion is inescapable that the science publishing system costs no more than 1.7%, and—if only journal figures were to be used—probably significantly less than 1%, of the total R&D spend. Considering the importance of the communication of science, this is a remarkably low percentage and suggests a remarkable degree of efficiency.

The science publishing market sector is an extremely important industry for the European Union both in terms of employment and of its economic contribution. It has been estimated that around 36,000 people are employed by the roughly 800 STM publishing companies that are based in Europe. These publishing houses are responsible for around 50% of all STM articles published worldwide and represent an economic contribution to the European trade balance of around €3 billion.⁶

2. Innovations and investments in science publishing

Science publishing has embraced technology and innovations more than any other publishing sector and more than most copyright industry sectors. An enormous number of journal articles are now available online for purchase and access through subscription licences and individual downloads, and the most recent annual study on

⁵ Page 5, executive summary

⁶ See “Submission to DG Research Study on Scientific Publishing Markets in Europe” by Reed Elsevier, January 2005

the number of STM journal articles downloaded or accessed online rose to more than one billion in 2005.⁷

This rich online journal and individual download environment is further supported through initiatives such as CrossRef, which was mentioned only occasionally in the Study (and surprisingly not mentioned at all in the discussion about interoperability). CrossRef is an initiative of publishers through which references in one journal article (recorded as a DOI or Digital Object Identifier) can be immediately linked to another article. As of May 2006, CrossRef has over 1,600 publishers and societies with publishing programmes and over 14,000 journals participating in the linking system, with more than 20m registered DOIs of articles, and linking resolutions of more than 13m per month.⁸

In Chapter 7 of the Study there is a fair amount of recognition of the embrace by science publishers of technology, in the discussion of the number of articles read by scientists increasing, the increase in the number of sources, and the efficiency of new search and navigation tools.⁹

Publishers have also invested in navigation and awareness services, online submission and editorial and peer review support systems¹⁰, online usage reporting systems (Project Counter¹¹), and have organised and licensed organisations such as the Royal Library of the Netherlands (The Hague) and Portico to provide digital archival support for researchers and library customers.¹²

Publishers based or operating in Europe have made the investments noted above in part because of the common acceptance within the European Union of the concept expressed in several of the recitals to the copyright directive of May 2001¹³ that a “high level of protection of intellectual property... will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry...” Science publishers have responded in significant ways, as noted above, to the promise made by the EU that investment and innovation would be rewarded with copyright protection. Recommendations made in the Study for significant changes in copyright law if acted upon would make that promise a hollow bargain.

Another important aspect of innovation in science publishing is the acceptance by publishers of the usage by authors of their own papers for scholarly purposes, for example in educational use and for deposit on institutional repositories. An important

⁷ Estimated from Elsevier downloads (25% market); 400m in 2004 survey for Assoc. Amer. Publishers (see <http://www.publishers.org/industry/index.cfm>, chapter 4, section on scholarly journal publishing), supported also by the STM association, and which covered many major European publishers

⁸ <http://www.crossref.org/>

⁹ Page 59

¹⁰ See ALPSP study on online submission systems, <http://www.alpsp.org/publications/pub10.htm>

¹¹ <http://www.projectcounter.org/index.html>

¹² <http://www.kb.nl/dnp/e-depot/dm/inleiding-en.html>;

http://www.portico.org/about/part_publishers.html

¹³ 2001/24/EC, on the harmonization of certain aspects of copyright and related rights in the information society

resource in this regard is the Sherpa site hosted by the University of Nottingham, which identifies publishers' positions with respect to posting policies.¹⁴

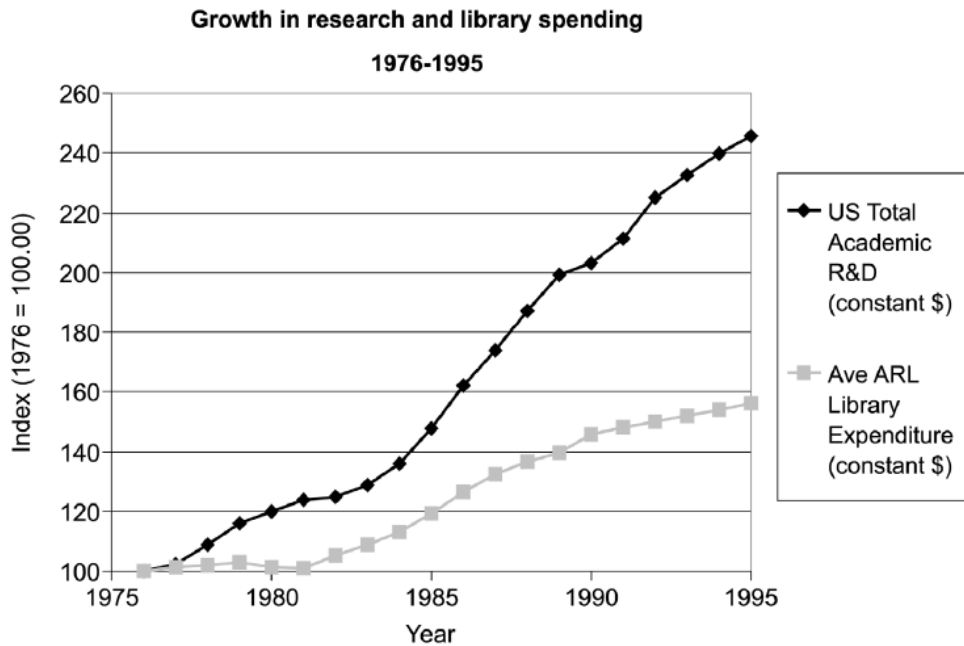
No calculation of the benefits from investments made by publishers in the scholarly communication system would be complete without considering the role played by these activities in the financial support of scientific endeavours. Learned societies are supported through journal publishing contracts with professional publishers; these in turn help support non-publishing activities within societies and non-profit institutions. Publishers directly support journal editors and editorial offices, which invariably involve payment of overhead charges to the host institutions, usually universities. Book and reference work authors and contributors receive direct payments in terms of fees, royalties and expenses. As a result, Europe is receiving a significant financial benefit as well as greater access to and visibility in the scholarly communications system. Unfortunately the Study gives hardly addresses these fundamental points.

3. Discussion in the Study of market sector issues from 1975-1995 and the question of “cost-pricing” v “value-pricing”

It is fundamental tenet in scientific and economic research that any suggested hypothesis or sets of assumptions must be identified and tested rigorously, especially if they are to serve as a basis for public policy recommendations. STM submits that many points of data or research relied upon for the Study have significant flaws, and indeed are at times appear not to be data or evidence at all but merely statements or assertions. The repetition of certain statements or assertions do not make such statements evidence, especially when contrary evidence is not identified or discussed.

The existence of a “serials crisis” in the period ending in 1995 represents a set of issues researched extensively by many researchers including Tenopir and King, cited fairly frequently in Chapter 2 of the Study. The Study does note the general outline of the problem identified by many commentators of a “non-virtuous” cycle of ever increasing research output leading to greater journal volume, increased journal costs from both inflation and volume increases, a failure by institutions to enable library budgets to keep pace with research output, resulting journal subscription cancellations, and price increases intended in substantial part to cover the resulting decrease in revenue. STM noted the phenomena in our discussions with the Study's researchers (including at our meeting with them in March 2005) and it is reflected in the following chart.

¹⁴ <http://www.sherpa.ac.uk/romeo.php>



[Chart published in Mabe & Amin *ASLIB Proceedings* 54(3). 149-57, 2002]

However the Study essentially dismisses the findings of Tenopir and King and other noted researchers in this area, finding instead that the economist McCabe, who was writing with respect to acquisitions and mergers in science publishing, and the work of the Study’s researchers, had identified a more likely explanation of price increases. These are detailed in Chapter 3 of the Study, where they state that higher quality journals have higher subscription prices and that publishers are forcing the “bundling” of high quality journals with other journals, described in the Study as a focus on “value pricing”.¹⁵

Putting aside for the moment the question of the relevance (for the purposes of the Study) of any discussion on the history of price increases before 1995, the dismissing of the extensive research on journal pricing, research output and variations in business models, is surprising. As noted by our economists MiCRA and as detailed by them in Attachment A, it would be more typical in scholarly research to explore first the prior theories and explanations before advancing an entirely new hypothesis, especially one which is unsubstantiated and unreliable.

In any event, McCabe’s theories are based on data that McCabe does not offer to other researchers for verification, and his publication takes the form of a note only. McCabe’s theory could not be replicated in data compiled by the MiCRA economists in their work for Elsevier in connection with the acquisition by Elsevier of Harcourt, who found simply that the pricing policies of acquired journals businesses tend to change upon acquisition to the pricing policies of the acquiring company, in some cases increasing and in other cases decreasing.¹⁶ The 2005 paper by MiCRA refuting

¹⁵ Although it is not germane to this discussion, STM notes that it would not be unusual for higher value products to have higher prices—an unusual feature in scholarly publishing is that journals with higher reputation will have a lower unit price which will be compensated for with higher volume sales and supplementary revenue sources such as advertising

¹⁶ <http://www.micradc.com/news/publications/paper2.html>

the McCabe theory is available on the MiCRA web site and has been submitted for publication in the *American Economic Review*.

At the end of Chapter 2, the Study indicates that although it can be argued that “new [publishing] technologies have provided higher value for money for researchers in the last ten years, the legacy of the previous price increases is still very much there and prices have kept increasing faster than inflation.”

STM submits that research conducted with its support and that of other publishing associations over the past several years by CIBER and the Publishing Research Consortium (PRC)¹⁷ are the most substantial objective evidence currently available of the impact of new technology and new licensing methodologies on researcher productivity, and that such research is far more than an “argument” as the Study describes them. These studies strongly demonstrate, as discussed above, that researcher access to journals, through electronic access, is significantly better now than before the online evolution, that researchers are generally pleased with the amount of content they now have (with variations of course by regions), and spend less time gathering information and more time analysing.¹⁸ The PRC study recently released¹⁹ identifies other far more significant barriers to researcher productivity, including bureaucracy and ongoing funding issues that pose far more significant threats to European R&D productivity than journal pricing.

With respect to price increases over the past two decades, STM submits that the evidence is that the rate of price increases (from the data tables underlying the ARL serial pricing charts), an annualised figure of 7.6% per annum²⁰, is nearly matched by an annualised 3.1% per annum basic inflation (US Consumer Price Index data from the ARL dataset) plus an annualised 3% per annum increase in articles published (ISI data), itself a consequence of research output increases. Although STM believes that scientific journals should be afforded the opportunity (as any other product or service in a free market) to be based on value or reputation, the fact is that science publishers have been reasonably conservative in price increases over the past ten years, and that during that time library customers have gained great value in electronic licensing options. This is hardly a market that requires price and cost controls dictated by government.

The Study concludes Chapter 2 by indicating that although “new technologies have opened the door for new business models [and] lowered the costs of production and diffusion...” that the market is somehow “imperfect” and has not adjusted “efficiently to the new technologies...” These remarks are not observations but conclusions, and the suggestion that the science publishing market sector has not adjusted to technology and facilitated new entry is assumed and not tested. The evidence that STM has provided above with respect to innovation suggest not only an adjustment to changes in technology but a remarkable willingness and capacity to investigate and utilise all aspects of the digital interactive environment. Further, there is no evidence that Big Deal contracts or other purported barriers to entry have slowed the rate of entry of new journals, of new journal business models, and new producers of journals,

¹⁷ <http://www.publishingresearch.org.uk>

¹⁸ See chart on page 6

¹⁹ “Journals and Scientific Productivity” in <http://www.publishingresearch.org.uk>

²⁰ <http://www.arl.org/stats/arlstat/graphs/2004/monser04.pdf>

in any appreciable way, and analysis of ISI (Institute of Scientific Information) and Ulrich's (Periodicals Directory) data on new publishers and new journals will bear this out. We understand that Elsevier will provide such data in its submission; MiCRA discuss this matter in their attachment.

As our economic advisers MiCRA describe in their attached note, the science journals market sector is remarkably un-concentrated and heterogeneous—with many thousands of producers and journals, all of whom are quite unique. The fact that there are a number of publishers who produce a large number of journals does not raise concentration to a level that is normally considered competitively sensitive. Indeed, the Study seems to acknowledge this when it notes “[o]f course, the scientific publishing market is not monopolistic... and nobody is talking about a natural-monopoly-style regulation as in energy, local telephony, or postal services...”²¹ MiCRA notes that the economic model relied on by the researchers for the Study is inapplicable for a number of reasons, including the limited substitutability or highly differentiated nature of individual journals. Based on a thorough and realistic analysis of the industry, MiCRA concludes that the margins from publishing journals are properly characterised as economic rents rather than monopoly profits and that there is no evidence that for-profit publishers have exercised market power by restricting the number of journals, that Big Deal contracts have created barriers to entry, or that any additional entry would lower journal prices and reduce rents.

4. Innovations in electronic licensing options and discussion of the “Big Deal”

A recently concluded survey of a number of the larger scholarly publishers (the “Qualitative Survey”)²², including most of the major European-based houses, notes that virtually all of the publishers surveyed offered a variety of licensing options to library customers. All but one had a discounted rate for institutions that subscribe to all, or some other large set of their journals (this is typically referred to as the “Big Deal” although the Study in describing licensing options in 5.2 confusingly does not clarify its own definition of this term).

The Qualitative Survey identifies a number of licensing options offered to library customers, noting that most publishers offered access on a title-by-title basis (typically not on a discounted basis but at a premium over other options), special collections of titles at a discount, and the like. The Study identified some options offered by Elsevier in its online ScienceDirect programme, but we understand that Elsevier will send correcting the record by providing more accurate descriptions of its licensing options in its own separate submission.

STM notes that within Europe the prevalence of the consortia licensing model is especially strong (as compared to the US), and that Europe has many national licences (Iceland, the Netherlands, Sweden) that have been negotiated centrally, and many model national licences that have been negotiated for use by institutions within a particular EU member nation (the NESLI²³ model in the UK, the Couperin²⁴ model in

²¹ Page 21 of the Study

²² AAP-PSP survey, also supported by the STM association, April 2006, qualitative survey

²³ See <http://www.nesli2.ac.uk/>

²⁴ See <http://www.couperin.org/>

France). The preferred choices pursued by library customers in Europe have tended to be for larger deals that have traded flexibility for volume discounts which include access to traditional journals from a publisher at prices significantly below the level available on an à la carte basis. Customers in the US have tended to opt for greater flexibility over volume discounts, although there are a significant percentage of US libraries in “Big Deal” access contracts for all of a publisher’s electronic journals.

There are clearly efficiencies to be gained for both publishers and library customers in negotiating licences less frequently than once annually, just as there are efficiencies in negotiating for large numbers of journals with volume discounts. It is of course understandable that library customers wish to have both the efficiencies of price discounts and greater choice and flexibility with respect to individual titles and cancellations. In this sense they do not differ from most consumers of most products. The types of options offered by science publishers, however, are pro-competitive and pro-efficiency, and are not substantially different from options offered by most producers of goods and services within the EU.

The Study’s analysis of Big Deal contracts relies principally on one paper from the American economists Edlin and Rubinfeld.²⁵ Edlin and Rubinfeld, however, make a number of assumptions concerning the limitations of options with respect to electronic journal licences provided or chosen by US library customers. A key assumption is that library customers who cancel do not reduce the price of their bundle by the list or à la carte prices of the cancelled journals. In fact, as noted above, institutions can purchase on an à la carte basis, and this option is no more expensive than it would have been in the absence of the Big Deal contract. Indeed, the options and choices made by library customers, perhaps more in the US than in Europe, are significantly varied, and as noted those customers desiring greater flexibility are making those choices in their licensing options.

STM notes that the practices of individual publishers vary with respect to expenditure commitments and cancellation clauses, although it is clearly the case, as noted before, that customers can trade off flexibility for discounts, and that the electronic licensing initiatives that began in the late 1990s have now been re-negotiated and renewed several times, with ample opportunity for library customers to review all licensing options. Customers who preferred greater flexibility have the right, as does any contract party, to review their options and change the nature of their choices at the expiration of the term of their existing agreements. In fact, as Edlin and Rubinfeld noted, some library customers for Elsevier licences in the US did exactly that several years ago, opting for the “Limited” option which provides maximum flexibility on a title by title basis.

The fundamental factual question is whether Big Deal contracts have had any significant impact on new journal entry in recent years. It is important to point out that Edlin and Rubinfeld cited no evidence at all supporting their proposition that “the Big Deal is hindering entry” other than the anecdotal observation that “[l]ibrarians who have signed up for the Big Deal say that they would spend more money for journals from smaller and alternative publishers if they could achieve proportionate

²⁵ Edlin and Rubinfeld, “Exclusion or Efficient Pricing? The ‘Big Deal’ Pricing of Academic Journals”, *ABA Antitrust Journal*, 72(1).128-159, 2004

savings from reductions...” They provide no survey or other statistical evidence to support the proposition that entry has been negatively impacted. The facts are that the launch of new journals and new publishers has been relatively constant for many years, and that the prevalence of licence options in the past 6 years had no significant impact on launches. Recent new entrants have included not only Open Access author-pays model journals but more traditional subscription-based journals as well. Information about new journals can be obtained from the Ulrich’s periodicals directory, the ISI database, as well as subscription agents such as Swets (provider of certain data to the Study’s researchers) and EBSCO (see for example the “new and noteworthy” newsletter from EBSCO²⁶). As the Study also notes, new journals are also being produced by author-pays model publishers such as BioMedCentral²⁷ and the foundation-funded Public Library of Science²⁸ as well. The industry is remarkably vital and productive in launching new offers and organising new publishing efforts, keeping pace with the development of scientific research.

5. Differing business models, “cost” v “value” based pricing

One research result that is prominently highlighted in the Study, that allegedly “[p]rices are positively correlated with quality” and that “prices increase with citation counts while we have argued that costs should tend to fall when citation counts rise,”²⁹ runs counter to reality and common sense. There is an implication in these statements that there is some degree of artificiality in prices and price increases, and consequently some market power created in such activities, described by the Study as an emphasis on “value-based pricing” rather than “cost-based pricing”³⁰—this statement is then used to underline a number of important policy recommendations which are in our view highly interventionist, “central planning” approaches.

STM’s view from long experience in the industry is that different journals have different profiles in terms of circulation and reputation, and that those journals with high circulation/reputation are generally the least expensive journals, as they generate revenue from the larger circulation base and advertising—indeed, the STM view is supported elsewhere in the Study, when it is noted that “some learned societies manage a small number of highly successful long-standing journals, the best in the profession, which they sell for low prices—[serving] the ‘high end of the market’.”³¹ As noted above, there is a significant body of research that supports these propositions including Tenopir and King.

Although STM asked on 5 May 2006 for a copy of the data utilised by the Study’s researchers, and more information about how the researchers adjusted their data analysis to deal with the variations in journal business models (high circulation v. low circulation), the response from the researchers on 17 May 2006 was that they “recognize... that high circulation leads to lower average production costs” and that they relied on “citations (normalized by scientific domain)...” as a “reasonable proxy

²⁶ See <http://www.ebsco.com/home/printsubs/newnotable.asp>

²⁷ See <http://www.biomedcentral.com/>

²⁸ For list of PLoS journals, see <http://www.plos.org/journals/index.html>

²⁹ P 40 of the Study

³⁰ P 11 of the Study

³¹ P 32 of the Study

for circulation.” The researchers noted that circulation data was difficult to obtain and that such information was requested from, but not provided by, Elsevier in particular, a fact which we have checked with Elsevier who were not aware of the information request. The Swets database relied on by the Study’s researchers was not provided to STM on grounds of confidentiality.

Citation information cannot be a proxy for circulation—we were asking what evidence as to business model was employed by the researchers, and how this was controlled for in their analysis. Our conclusion must be that no reasonable basis to control for this was undertaken by the researchers.

We have ourselves undertaken a short survey and analysis of “top” journals by citation counts in 2004 in the 22 categories identified in the Study. Attachment B sets out the list of the top three journals in each category by citation. Although circulation and pricing data are not available for all journals, we did find that a review of the relevant journal or publisher web sites provided useful information and insight into the general question of variable approaches and models concerning journal volume, circulation and pricing. A few general observations can be made in reviewing the list and in analysing the background information.

The majority of these journals are published by scientific societies and university presses (44 of the 66 journals, with another 8 society-owned journals published by commercial publishers on behalf of the societies). These journals often have high circulation, generally by building on their society membership base. There are interesting differences by subject matter—journals in the social sciences publish less frequently and in less volume than do the journals in the physical sciences (and concomitant pricing is different as well). Many of these highly cited journals (especially as noted those other than the social sciences) are also very high volume, some publishing more than once per week, and many publishing at least twice a month. There seems to be a strong correlation between volume/frequency of publication and price. Journals that seem to have high circulation also have significant advertising efforts.

These informal findings are completely consistent with the analysis and common understanding of the science publishing market sector as described (for example) by Tenopir and King. These findings are contrary to the position taken in the Study that high reputation journals are always relatively expensive and are used to create barriers to entry. Such a “reality check” could have easily been done, and should have been done, by the Study’s researchers—this would have been just good common sense as well as appropriate for economic analysis.

As noted, it is clear that in the field of science publishing³², there are a variety of business models used by both for-profit and not-for-profit publishers. The obvious corollary to this is that many science journals are of particular interest only to a small circle of academics, typically referred to as “niche” journals, where the business models are fairly limited and where the publisher will not be able to have a lower unit price that can be compensated for with high circulation volume or advertising. Prices

³² Some of the categories noted in the Study would not be considered in the field of science publishing— as they are more about particular non-scientific fields such as law—perhaps more generally called academic or scholarly publishing

for such journals will be significantly different, both on annual subscription basis or a per-page basis, than other more high circulation journals.

The researchers of the Study have not explained their own methodology with respect to “high reputation” journals, although again STM has requested information on such methodologies.³³ For the reasons noted elsewhere, however, we would be very surprised if a statistical correlation between a high reputation and high institutional subscription prices can be established, and our very cursory review of the “top 3” journals certainly bears this out. The relationship of reputation and pricing seems to be fundamental to the Study in finding a market barrier that requires governmental intervention, and thus is very important to explain and understand fully, given the clear absence of credibility that the Study has on this point.

6. Public funding of research and impact on journals

Given the evidence cited in the Study itself that researcher access has been significantly improved over the past 10 years, it is difficult for STM to understand the demand in Chapter 7 that the articles that result from public funding be dedicated in some fashion to the public and removed from the stream of commerce that enables investments, stable journal management, and innovation. STM publishers are of course intensely interested in distributing their content and making journal information visible and intuitive, and have had enormous success over the past 10 years in doing so. There is considerable question however whether these efforts would be maintained in an environment where the ability to recover investments made in managing the communication process (production, marketing, editorial processes and peer review) and generate profits and surpluses would be limited as the Study recommends.

STM shares the views expressed by many that the public has a right or reasonable expectation that the raw results such as data generated in a particular research project that received significant public be made available without charge to the user. Furthermore STM accepts that public funding should be subject to transparency typical in “good government” initiatives, and that for example research reports from institutions receiving public grants should be made public. STM further notes that through author posting policies of most publishers, some form of draft articles are often available online through Institutional Repository web sites and search engines, as discussed previously. Finally, STM notes that many of its members are experimenting with various forms of “Open Access”, including delayed open access, sponsored articles, author pays models, and the like.

All these areas are we believe fruitful and useful for government to explore, and are likely to have minimal impact on the business models and financial supports for scientific journals.

However the demand that authors post final published versions of articles, with all the added value of the publishing process (peer review, editorial changes, pagination and formatting, indexing and linking, marketing and branding, electronic archiving)

³³ P 36 of the Study

included, constitutes in our view an unreasonable misappropriation of the publisher contributions to science. Such misappropriation will undermine subscription sales of journals, electronic licensing of journal content, and sales of individual articles or rights. Even “Open Access” publishers such as many of the medical societies prefer to have their materials posted or hosted on their own web sites, for context and other business purposes, rather than on a third party site.

Unless government is prepared to provide significant, ongoing and steadily increasing subsidies (to match the normal increase in research output) for publishing activities, then making recommendations that would have such a significant impact on a well-established, highly innovative and highly effective business with a strong European focus would be ill-advised. We note in this respect that even the UK House of Commons report on science publishing, cited frequently in the Study, identified problems in author pays models including problems such as the “corporate free-rider”³⁴ issue and impact on learned societies that rely on publishing surpluses.³⁵

Our bottom line is that we support the general principles of a “level playing field” in this area but note that it must truly be level, and that recommendations to implement Open Access models must not have a negative impact on other traditional models such as subscriptions.

7. STM Comments on Study Recommendations

- **Recommendation A1.** The recommendation for guaranteed public access to publicly-funded research is essentially a mandate for either an “author- (or funder-) pays” Open Access business model or direct government funding for scholarly journal publishing. Although STM is agnostic as regards chosen business models, we feel that no credible evidence is presented that such models are inherently better than the current ones employed or that they have the necessary long-term viability
- **Recommendation A-2.** STM supports the proposition of a “level playing field” for business models for scholarly journal publishing, although we believe that many of the models discussed in the Study are unproven. However, if DG-Research intends to promote alternative business models it should ensure that funds are made directly available for publishing fees and at rates relevant for the individual journals in question (one size does not fit all)
- **Recommendation A-3.** It is unclear to STM why alternate means of assessing journal quality are here proposed, given the well-established market indicators and the relative ease and transparency of journal reputations to both librarians and researchers. This recommendation seems unnecessary, although further research into quality issues is welcomed, of course

³⁴ Companies represent about 20% of subscription income but their research staff are only responsible for about 5% of papers published: a switch to author-pays open access automatically results in a net saving for companies in terms of subscription versus publication charges

³⁵ We also note that the Study frequently cites the report but not the conclusion of the UK government that the report should not be implemented

- **Recommendation A-4.** The discussion about perennial access to scholarly journal archives makes no mention of collaborative efforts already undertaken by national libraries in the Netherlands and Germany working with publishers, nor the private initiatives underway to ensure perpetual access to online content through such providers as Portico: the Study suggests that this had not been thought of before. Needless to say, STM certainly supports increased funding to libraries to create more vibrant and technologically-sophisticated archives

The use of deposit materials under legal-deposit regimes for unrestricted perennial access to the public would be an improper use of such material and such laws. It would make a nonsense of established copyright law principles if deposit libraries could freely copy and make available copyright works in their collections without complying with the Berne Convention 3-Step Test (embodied in Art.5.5 of the Copyright Directive 2001)

- **Recommendation B1.** STM is sceptical of the charges made with respect to Big Deal pricing policies—in fact, we demonstrate the incorrectness of such notions. In view of the immense improvement of the efficiency and economics of the publishing process, it will come as no surprise that we reject the recommendation of mandated price-controls, which would require a business model based on usage, but with a capped cost/profit—such an outcome has no place other than in the most highly regulated industries. That is not say, that usage based models have no merit (many STM publishers experiment with them), but experience shows, that such models are notoriously difficult to introduce as ‘heavy users’ tend to be ‘penalised’ beyond their budgetary means of that moment (‘light users’ will benefit in the same measure, of course)
- **Recommendation B-2.** STM welcomes any level of scrutiny of significant future mergers as we believe the market is remarkably innovative and works to meet researcher needs—we note however that there has been no supported or serious charge that current competition authorities are incapable of carrying out their current duties
- **Recommendations B-3 and C-1.** STM has long supported the elimination of unfavourable tax treatment of electronic publications, and we encourage further discussions and study of these issues
- **Recommendation C-2.** STM welcomes all investigations and discussions of copyright law, dissemination and technological developments, although as copyright law in the EU has only recently been amended in 2001 to deal with the digital dimension, it is not clear that enough time has elapsed since then (especially since many Member States implementations are not yet finalized) to warrant a re-review

Attachment A

MiCRA Submission

(Please see separate file called MiCRA sent
with this response)

Attachment B

High reputation journals (top 3) by number of citations

By category

High Reputation Journals (Top 3) By Citation
By Category

| Category Identified in the Study | Number one journal by citations | Number two journal | Number three journal |
|--|--|---|---|
| Biochemistry and molecular biology | <i>Journal of Biological Chemistry</i> (the American Society for Biochemistry and Molecular Biology) | <i>Cell</i> (Elsevier) | <i>Biochemistry</i> (the American Chemical Society, ACS) |
| Cell biology | <i>The EMBO Journal</i> (Nature Publishing Group on behalf of the European Molecular Biology Organisation) | <i>Journal of Cell Biology</i> (Rockefeller University Press) | <i>Molecular and Cellular Biology</i> (the American Society for Microbiology) |
| Chemistry (multidisciplinary) | <i>Journal of the American Chemical Society</i> (ACS) | <i>Chemical Communications</i> (the Royal Society for Chemistry) | <i>Angewandte Chemie International Edition</i> (Wiley VCH on behalf of the <i>Gesellschaft Deutscher Chemiker</i>) |
| Chemistry physical | <i>Langmuir</i> (ACS) | <i>Journal of Physics Chemistry B</i> (ACS) | <i>Chemical Physics Letters</i> (Elsevier) |
| Clinical neurology | <i>Neurology</i> (Lippincot Williams & Wilkins – part of Wolters Kluwer, on behalf of the American Academy of Neurology) | <i>Stroke</i> (Lippincott WK) | <i>Journal of Neurosurgery</i> (the American Association of Neurological Surgeons) |
| Economics | <i>American Economics Review</i> (the American Economics Association) | <i>Econometrica</i> (Blackwell on behalf of the Econometric Society) | <i>Journal of Political Economy</i> (the University of Chicago Press) |
| Education and educational research | <i>Journal of Research in Science Teaching</i> (Wiley, with society involvement) | <i>Health Education Research</i> (Oxford University Press) | <i>American Educational Research Journal</i> (the American Educational Research Association) |
| Engineering, chemical | <i>Journal of Catalysis</i> (Elsevier) | <i>Chemical Engineering Science</i> (Elsevier) | <i>Industrial and Engineering Chemical Research</i> (ACS) |
| Engineering, electrical and electronic | <i>Electronic Letters</i> (Institution of Engineering and Technology, formerly IEE) | <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> (Institute of Electrical and Electronics Engineers, IEEE) | <i>IEEE Transactions on Information Theory</i> (IEEE) |
| Law | <i>Harvard Law Review</i> (Harvard University) | <i>Yale Law Journal</i> (Yale University) | <i>Columbia Law Review</i> (Columbia University) |
| Materials Science | <i>Chemistry of Materials</i> (ACS) | <i>Advanced Materials</i> (Wiley) | <i>Thin Solid Films</i> (Elsevier) |
| Mathematics, applied | <i>Physica D</i> (Elsevier) | <i>International Journal for Numerical</i> | <i>Computer Methods in Applied Mechanics &</i> |

| | | | |
|-------------------------------|--|---|--|
| | | <i>Methods in Engineering</i> (Wiley) | <i>Engineering</i> (Elsevier) |
| Mathematics | <i>Transactions of the American Mathematical Society</i> (the American Mathematical Society) | <i>Journal of Mathematical Analysis and Applications</i> (Elsevier) | <i>Annals of Mathematics</i> (Princeton University and the Institute for Advanced Study) |
| Neuroscience | <i>Journal of Neuroscience</i> (the Society for Neuroscience) | <i>Brain Research</i> (Elsevier) | <i>Journal of Neurophysiology</i> (the American Physiological Society) |
| Pharmacy | <i>Journal of Pharmacology and Experimental Therapeutics</i> (the American Society for Pharmacology and Experimental Therapeutics) | <i>Antimicrobial Agents and Chemotherapy</i> (the American Society for Microbiology) | <i>European Journal of Pharmacology</i> (Elsevier) |
| Physics, applied | <i>Applied Physics Letters</i> (the American Institute of Physics, AIP) | <i>Journal of Applied Physics</i> (AIP) | <i>Japan Journal of Applied Physics</i> (Physical Society of Japan) |
| Physics, multidisciplinary | <i>Physics Letters B</i> (Elsevier) | <i>Physics Letters A</i> (Elsevier) | <i>Journal of the Physical Society of Japan</i> (Physical Society of Japan) |
| Plant science | <i>Plant Physiology</i> (the American Society of Plant Biologists, ASPB) | <i>Plant Cell</i> (ASPB) | <i>Phytochemistry</i> (Elsevier) (plus society sponsorship) |
| Psychology, clinical | <i>Journal of Consulting and Clinical Psychology</i> (American Psychological Association, APA) | <i>Journal of Clinical Psychiatry</i> (Physicians Postgraduate Press, Inc.) | <i>Psychological Medicine</i> (Cambridge University Press) |
| Psychology, multidisciplinary | <i>Psychological Bulletin</i> (APA) | <i>American Psychologist</i> (APA) | <i>Journal Abnormal Psychology</i> (APA) |
| Sociology | <i>American Journal of Sociology</i> (University of Chicago Press) | <i>Journal of Marriage and Family</i> (Blackwell on behalf of the National Council on Family Relations) | <i>Social Forces</i> (University of North Carolina Press) |
| Surgery | <i>Transplantation</i> (Lippincott WK on behalf of the Transplantation Society) | <i>Journal Neurosurgery</i> (the American Association of Neurological Surgeons) | <i>Clinical Orthopaedics and Related Research</i> (Lippincott WK, society sponsorship) |