Response from Institute of Physics Publishing

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Introduction

This response to the Study on the economic and technical evolution of the scientific publication markets in Europe is in three parts.

Part 1
Is a summary of the Institute of Physics (IOP) and its stakeholder credentials with its not-for-profit publishing activities.

Part 2
Provides commentary on some of the arguments put forward in the study as well as IOP’s response to the recommendations arising from it.

Part 3
Provides more detailed information about the Institute of Physics (IOP) and its publishing services to the physics community. This is designed to establish IOP’s stakeholder ‘credentials’ as a not-for-profit publisher, and its knowledge and experience of many of the issues discussed in the study, including the ‘big deal’ and open access publishing, both of which are covered in some depth in the report.
The Institute of Physics

The Institute of Physics is a leading international professional body and learned society, established to promote the advancement and dissemination of a knowledge of and education in the science of physics, pure and applied. The Institute has a worldwide membership and is one of the biggest society publishers in physics, publishing 42 of the world’s leading research journals.

Over 5000 institutions and organizations in 106 countries subscribe to IOP’s journals. All journals are available on the World Wide Web and receive over 4.0 million views per month.

IOP and access for poor and developing countries

IOP’s electronic journals are made freely available to institutions in poor and developing countries through key programmes. Currently IOP has arrangements with INASP, EIFL and ICTP to service 68 poor and developing countries where our journals are made freely available.

IOP and open access

All IOP journal articles are made freely available to all for a period of 30 days after being posted on our website. Also, IOP publishes three open access journals, namely New Journal of Physics, Journal of Physics: Conference Series and Environmental Research Letters (new in 2006). Each of these journals is free at the point of use and requires some form of payment from the author, the author’s institution or some other body in order to enable publication.

IOP and dissemination

IOP fully supports all initiatives to promote the advancement and dissemination of a knowledge of and education in the science of physics pure and applied.
Some general comments

The underlying costs of the technical evolution

As a study on the economic and technical evolution of the scientific publication markets in Europe, the study is notable for its failure to properly address the underlying high cost of the transition from print to electronic, and the burden this has placed on publishers obliged to maintain both print and electronic versions of journals in a global market that still requires print for cultural or preferred usage reasons.

Such costs arise out of the need for hardware, software licences, in-house programmers, hardware and software upgrades, technical infrastructure, and technical and help-desk staff as well as their associated overhead costs; sophisticated websites must be maintained and updated at the same time as innovative services - such as CrossRef and COUNTER, to name but two of the better known publisher services - are introduced.

At the same time publishers are still required to incur the high ‘first copy’ costs and any minimal cost savings resulting from smaller print runs have been exceeded by the additional cost of creating and maintaining online versions of journals.

Nor has any real account been taken of the investment risk and high cost to publishers of digitizing their archives, a programme that IOP completed in 2003 when it first made its Historic Archive, covering 1874 to the present, available to customers. The digitization of the IOP Historic Archive represented the largest single project in IOP’s publishing history, costing more than €1 million to digitize ca 100,000 journal articles from the period 1874–1991. This significant investment, however, has been a major benefit for scientific research as access to the archive represents more than 20% of all IOP journal usage.

Equally, the study fails to properly address the high cost of the transition from print to electronic for libraries, and the underlying impact this has had on library budgets, including their serials acquisitions budgets.

The analysis of bundled pricing

The study acknowledges that the analysis of bundled pricing is based ‘on prices for individual journals in printed form’, and that ‘given the lack of publicly available data, the report relies on theoretical insights from industrial economics’ (page 8).

This is unfortunate, to say the least, because IOP’s ‘big deals’ provide consortium members with collective discounts averaging more than 60% off the price of the journals made available to them. Since this level of discount is quite common to many publishers’ consortia deals, it is unfortunate that the study fails to take it into account when attempting to shed light on publishers’ pricing behaviour.

Lack of such data and the consequent failure to take the true pricing picture into account undermines the study’s claim to update the state of the art. As the report itself
acknowledges, ‘further analysis based on information about actual bundled prices would obviously be welcome.’

IOP, like many other publishers, offers choice for journal acquisitions. An institution may purchase a bundle of journals if it so wishes. Alternatively, it may continue to acquire single (unbundled) titles. Libraries buy the bundles because they want increased access to content at a lower cost per journal.

The effect of bundling content (via electronic journal packages and consortia licences) has had a dramatic effect on total journal usage. The following graph illustrates the number of print subscriptions for IOP journals from 1996–2005. It also illustrates the huge growth in e-journal subscriptions that exist as a result of such bundles. Access has grown at a much faster rate than income.

The effect of bundling as a deterrent to market entry

The report states that the ‘effect of bundling as a deterrent to entry turns out to be the key problem identified by the industrial economics literature’ (page 9). This is clearly not the case since all new open access business models do not require any traditional acquisitions expenditure on the part of libraries or readers, a fact underlined by the report itself when it mentions the many open access journals that have entered the market in recent years. However, increasingly publishers have introduced ‘membership’ models which are paid for by the library in order to cover the institutional cost of publishing in their open access journals. IOP has some experience of this with institutions in the USA, UK, Germany and China.

Consortia print-based pricing, and FTE and usage-based pricing

Publishers take account of consortium members’ subscriptions when agreeing the annual licence fee for a consortium, in order to establish the ‘base price’ for a deal. Typically, they then add a modest surcharge in return for giving all members online access to all the publisher’s journals, both subscribed and non-subscribed.

Since the ‘base price’ usually takes account of consortium members’ subscriptions in the year prior to concluding an agreement, it is generally considered a fair way to measure both the members’ most recently expressed interest in the
publisher’s journals, and their ability to pay their share of the consortium’s annual licence fee.

Having established the base price and the amount of surcharge as a fair and equitable starting point, the typical agreement between a publisher and a consortium turns the so-called ‘historical print subscriptions’ into an agreed annual licence fee. In turn, this is usually price-capped and many consortia agreements, including IOP’s, provide no-penalty opt-out clauses for both the consortium as a whole and for individual members that wish to leave the consortium.

Thus the standard model for consortium deals allows for increases in FTE figures and increased downloads at no extra cost to the consortium.

With regard to FTE pricing, it should be remembered that systems like the Carnegie Classification of Institutions do not apply in many countries and, in a global market, it would prove very costly and time-consuming to try to obtain reliable figures for FTE-based pricing, assuming the true figures could be agreed in the first place, given the many different interpretations that are placed on such figures around the world.

In the case of usage-based pricing, the fact that usage continues to increase would make it very difficult for librarians to control their library budgets if expenditure were to rise as a result of increased usage. That said, the report does recommend that increased usage over time should not lead to price increases, if publisher costs do not increase as a result of the rise in usage.

However, in view of the fact that faculty numbers, researchers and students are continuing to rise, as governments around the world expand higher education in order to increase the number of ‘knowledge workers’ required to grow their knowledge-based economies, it is inevitable that FTE numbers and download usage will increase over the next few years.

This is not only true of some European countries, but particularly true in countries like India and China which have planned massive expansions of their ‘knowledge base’. In such a rapidly growing global market it is inevitable that publishers’ costs will increase as a result of rises in usage, and it is therefore highly likely that publishers will have to take financial account of the costs of increased usage, whether as a result of the need for increased help-desk support, or customer demand for more e-science-based innovations, for example.

The effect of repositories on journal subscriptions

On page 63 the study states that ‘the availability in arXiv of articles published by the Institute of Physics … has not brought journal cancellations …’. This ‘fact’, often quoted by open access advocates, is not proven partly because librarians do not make a point of telling publishers the reasons (real or otherwise) for journals cancellations.

In fact IOP wrote to Alma Swan to clarify the matter and posted a note of further explanation to the Physics, Astronomy and Maths (PAM) chapter of the Special Libraries Association
in the USA. The text of IOP’s note of clarification was as follows:

‘Recent claims made by some of those who advocate the mandatory deposit of published articles in institutional and subject repositories prompt us to correct and clarify the relationship between physics journals and the physics e-print archive (arXiv).

It has been claimed that because physics publishers have co-existed with the arXiv over the past 14 years, publishers have nothing to fear about the future. We take the opportunity to point out that the past is not always a good predictor of future performance.

Ever since the launch of the physics e-print archive in 1991, authors publishing in IOP Publishing’s journals have had the choice to post their preprints to the service. However, we do note that article downloads from our site are significantly lower for those journals whose content is substantially replicated in the arXiv repository than for those which are not, after usage statistics have been normalized to take account of journal size.

Usage statistics (e.g., Project COUNTER) are now increasingly used as a ‘value for money’ measure in the library community and elsewhere. Clearly, as usage statistics become more commonplace, it would be only natural for cash-strapped librarians to conclude that subscriptions to low-use, albeit high-quality, peer-reviewed journals are no longer necessary. In this situation subscription-based journals published by a learned society such as ourselves would become economically unviable.’

Given the above, logic dictates that as articles become freely available in open archives and search, access and retrieval facilities are enhanced by search engines and interoperability, there will come a tipping point when journal subscriptions will be cancelled because it will no longer make sense to pay for something that is free.

For this reason it can be argued that repositories and open archives will eventually kill the very journals that helped make them possible. And, if and when IOP journal subscriptions are cancelled, it is unlikely to be able to generate the surplus that is covenanted to the Institute of Physics to fund other activities on behalf of physics and physicists.

Aside from the parasitical effect of repositories on journals, IOP also has serious concerns about the problem of multiple versions of papers, the erosion of peer-review standards, and the long-term sustainability of institutional and subject repositories, all of which could be very damaging to the future quality of research in physics and related subjects.

As the publishing arm of the Institute of Physics (which is itself one of the world’s leading guardians and champions of first-class standards for physics research), IOP provides cost-effective and high quality levels of certification, dissemination and archiving services to the research community.

Certification services alone require IOP to maintain a global database of over 30,000 scientists, simply to undertake peer review. And the costs of maintaining such databases and managing the highly complex system of online submission and peer review (including the development and use of a bespoke electronic editing and review systems) is something that does not appear to have been taken into account when institutional and subject repositories are touted as alternative methods of scholarly communication.
Publishers are coping with an increased cost of technology and these costs are not being passed on to customers. In 2005, IOP peer reviewed ca 25,000 papers, more than two times the number of papers submitted just five years ago (2001). Each paper is peer reviewed to the same exacting standards and as a result less than 50% of the papers were accepted for publication in IOP journals. This rapid expansion in submissions is not just the result of effective marketing of the journal brand (or imprint). Much has to do with the rapid expansion of technology as well as the growth in the Higher Education base leading to more institutions using more content and more institutions producing more scientific output.

The real fear is that not only will repositories harm an existing scholarly communication system that has ‘dramatically improved the accessibility of scientific publications for researchers’ – to quote the study itself – but they will actually damage the future of scientific research by eroding the distinction between good and bad research through the loss high-quality journal brands.

(Ironically, it is also likely that many of the institutional repositories that were and are being set up to demonstrate the value of their research and intellectual output to their community will merely succeed in demonstrating the paucity of that endeavour to the very bodies that fund them.)

Quality journals, with their high rejection rates, confer widely recognized authority on the research findings of those scientists who really do make a difference to the growth of the 21st Century’s knowledge-based economies. And, in fact, it is this invaluable brand authority – the single most important ‘value’ in the publishing value chain – that will be lost as a result of mandated deposit in repositories that will, inevitably, have a parasitical effect on journals. This is likely to be highly damaging to future scholarly communication.

**IOP’s response to the recommendations arising out of the study**

**Recommendation A1. Guarantee public access to publicly-funded research results shortly after publication.**

If the existing tried and tested system of scholarly communication is to survive, it is essential that sufficient time is allowed for publishers to recover their costs and make a return on their investment before publicly-funded research papers are deposited in open access repositories.

**Recommendation A2. Aim at a ‘level-playing field’ in terms of business models in publishing.**

While it might seem desirable to allow for experimentation and competition between various possible business models, the evidence to date suggests that alternative open access business models will prove hard to sustain in the long term unless additional funding is made available or other extensive forms of grant support are put in place. Over time this is likely to lead to a more expensive scholarly communications system, because a cost-based system that attempts to archive an increasing amount of publicly-funded research (the bad as
well as the good) will have insufficient returns to invest in future technological innovations, or in market-driven improvements that normally arise out of competition.

**Recommendation A3. ‘Extended quality’ rankings of scientific journals.**

IOP endorses the recommendation that scientific quality should remain the dominant criterion for assessing journal quality, and would welcome increased recognition of many of the practices that constitute good journal publishing.

**Recommendation A4. Guarantee perennial access to scholarly journal digital archives.**

Having made its complete digital archive available in 2003, IOP is exploring ways to provide perennial access in the event that it is unable to continue doing so for reasons outside its control. Please note that IOP already operates a policy whereby institutions are able to acquire a permanent licence to load the entire IOP journals archive on their local servers.

**Recommendation A5. Foster interoperable tools to improve knowledge visibility, accessibility and dissemination.**

Efforts to improve interoperability are very welcome and IOP has done - and is doing - much to improve the overall publishing process.

**Recommendation B1. Promote pro-competitive pricing strategies.**

As explained earlier (on page 6 above) IOP does not have a 'lock in' effect associated with its 'big deals' because, like many publishers, its consortia agreements provide a no-penalty opt-out clause for those who wish to terminate their deal.

Again, for the reasons given on page 6 above, IOP believes that some of the alternative pricing models suggested in the study are not clearly thought through, and that they would not be in the best interests of libraries or, for that matter, of publishers.

It should also be noted that publishers do not force libraries to agree to so-called ‘big deals’, and that it has to be assumed that the libraries enter into such deals for sound reasons of economic and academic benefit to their library users.

Therefore to blame publishers for non-competitive pricing strategies by implying that libraries are not free to choose their preferred bundles, or that journals are not priced individually nor are prices made public, is nonsense.

All IOP journals, and those of other publishers, are individually priced in publicly available journal catalogues and all libraries are free to order their own selection of chosen journals at published prices.

**Recommendation B2. Scrutinize future significant mergers.**

Scrutiny of further acquisitions by large publishers is a matter for the relevant European authorities to consider.
**Recommendation B3. Promote the development of electronic publications.**

IOP heartily endorses any efforts to remove the burden of VAT from all types of scientific information, whether print or electronic, if necessary by introducing a tax refund mechanism for research institutions, as is the case in Sweden and Denmark.

**Recommendation C1. Setting-up an advisory committee.**

This is to be welcomed and IOP would be pleased to volunteer a member for such a committee, if the recommendation is adopted.

**Recommendation C2. Further investigation.**

Clearly further investigation is needed, if the various stakeholders in the scholarly communication process are to agree on a sensible way forward that will be of real benefit to the research community, not only in Europe but also in the rest of the world.
Part 3

The Institute of Physics

The Institute of Physics is a leading international professional body and learned society, established to promote the advancement and dissemination of a knowledge of and education in the science of physics, pure and applied. The Institute has a worldwide membership and is a major international force in:

- scientific publishing and the electronic dissemination of physics;
- setting professional standards for physicists and awarding professional qualifications;
- promoting physics through scientific conferences, education and science policy advice.

The Institute works in collaboration with national and international physical societies, sharing information and working jointly to promote the interests of physics, and makes its educational materials, policy statements and other services available internationally. It plays an important role in transnational societies such as the European Physical Society and represents British and Irish physicists in international organizations.

In Great Britain and Ireland the Institute is active in:

- providing support for physicists in all professions and careers;
- encouraging physics research and its applications;
- providing support for physics in schools, colleges and universities;
- influencing government and informing public debate.

Institute of Physics Publishing

Institute of Physics Publishing, the not-for-profit publishing arm of the Institute of Physics, publishes 42 of the world’s leading research journals in the field of physics and related subjects.

Its award-winning online journals come with a free rolling 10-year full-text archive (in 2006 this runs from 1996-2005 inclusive) and a complete abstract archive, free at the point of use.

The journals offer users an extensive range of customization options and three levels of service: standard, enhanced and remote. In addition to providing links to other publishers’ journals through the CrossRef and SFX initiatives, IOP’s journals also provide links to the INSPEC database and the arXiv preprint server.

Over 5000 institutions and organizations in 106 countries subscribe to IOP’s journals, and over 75% have registered for the electronic journals service since it was launched at the beginning of 1996.
With the launch of its electronic journals service, IOP became the first physics publisher to make all of its journals available on the World Wide Web. It is therefore very experienced in the provision of online information to a high standard. Currently the IOP website receives over 4.0 million views per month.

All surplus revenue generated by IOP’s publishing activities is covenanted to the Institute of Physics and used for the good of physics.

IOP’s consortia experience

Shortly after the launch of its electronic journals, IOP was one of only four publishers invited to participate in the UK pilot National Site Licence that ran for three years from January 1996 to December 1998 inclusive. It was also the only publisher to make all of its journals available electronically to UK institutions at the outset of the pilot study.

Over the past seven years, IOP has concluded agreements with 70 consortia which have benefited more than 1200 institutions in the following 57 countries: Armenia, Austria, Australia, Azerbaijan, Belarus, Belgium, Brazil, Cambodia, Canada, China, Cuba, Czech Republic, Denmark, Estonia, Ethiopia, France, Georgia, Germany, Ghana, Greece, India, Iran, Ireland, Israel, Italy, Japan, Kenya, Kyrgyzstan, Lesotho, Malawi, Malaysia, Moldova, Mongolia, Mozambique, Nepal, Norway, Pakistan, Russia, Rwanda, Senegal, Serbia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Tajikistan, Tunisia, Turkey, Uganda, UK, USA, Uzbekistan and Zimbabwe.

Many of these agreements are with members of the International Coalition of Library Consortia (ICOLC) and a number constitute National Site Licences. The agreements make it possible for institutions, often for the first time, to access all IOP journals content and significantly increase their access to scientific research.

IOP and open access

All IOP journal articles are made freely available to all for a period of 30 days after being posted on our website, and ‘IOP Select’ provides extended free access for 365 days to many notable articles from IOP journals chosen by our journal editors for their novelty, significance and potential impact on future research.

IOP also publishes three open access journals, namely New Journal of Physics (first published in 1998 before the term ‘open access’ was phrased), Journal of Physics: Conference Series (new in 2004) and Environmental Research Letters (new in 2006). Each of these journals is free at the point of use and requires some form of payment from the author, the author’s institution or some other body in order to enable publication.

IOP and access for poor and developing countries

IOP’s electronic journals are made freely available to institutions in poor and developing countries through
programmes run by EIFL (Electronic Information For Libraries) and INASP (International Network for the Availability of Scientific Publications).

Currently IOP has arrangements with INASP and EIFL covering 101 institutions in 26 poor and developing countries. For information about INASP see: http://www.inasp.info/ and for information about EIFL see: http://www.eifl.net/.

For institutions in countries where the lack of bandwidth or technical infrastructure is insufficient to allow online access, IOP offers the eJDS service (electronic Journals Delivery Service) of the International Centre for Theoretical Physics (ICTP) in Trieste. This facilitates access in countries with low bandwidth by making single copies of IOP articles available in the form of attachments to e-mails sent to researchers who request them. For details of the ICTP service see: http://www.IoP.org/EJ/journal/-page=extra.2/jhep. This lists a further 42 countries covered by the eJDS service.

By working with the three organizations mentioned above, IOP makes its journals and journal articles available for free (or in a handful of cases for very low cost) to institutions in a total of 68 poor and developing countries around the world.