



Learned Societies, Academic Publishing, and Transitions to Open Access

10 April 2014

The Initiative for Science in Europe (ISE) is an independent platform of European learned societies and scientific organizations whose aim is to promote mechanisms to support all fields of science at a European level, involve scientists in the design and implementation of European science policies, and to advocate strong independent scientific advice in European policy making.

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AND TRANSITIONS TO OPEN ACCESS**

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Preamble

This paper describes the situation of scientific societies that publish journals in the context of a transition from subscription-based economics to open access publishing models. It reflects input from 19 European learned societies, federations and other organisations that are joined in the Initiative for Science in Europe and that cover the breadth of research from social sciences and humanities to mathematics and the natural sciences. Together as individual and umbrella societies, we represent at least 330 000 individual researchers. Counting all subsidiary societies, we jointly publish hundreds of scientific journals. ISE member organizations directly supply around 5.5 million euro to supporting science and researchers.

We provide here background for individuals or organisations involved in making decisions on the transition to open access publishing. The aim of the document, rather than making recommendations on open access, is to provide information on the role that journal publishing has for scientific societies and their activities and equally, about the contribution of societies to academic publishing and the scientific community. We consider how a change to open access could affect these activities and roles of learned societies.

This document does not contain a comprehensive review of open access or an analysis of all possible positive and negative impacts for all stakeholders. Other aspects are treated in position papers of the individual societies and in the conclusions of a joint seminar on open access organised by the European Physical Society in April 2013. These contributions can be found in the references.

We do not assume that open access will necessarily be the only mechanism for the presentation of scientific data, nor necessarily the predominant one. We do, however, anticipate that at least some journals published by learned societies will make this transition. It is thus incumbent on us, as learned societies, to articulate complications that may arise from this transition, and to share this information widely with decision makers.

Analysis

Learned societies have long taken responsibility for the distribution of research findings by organizing professional meetings, through the provision of ongoing education for their members and other scientists, and by publishing professional journals. This last activity may be the most visible endeavour of a professional society, and has been the subject of much discussion over the last several years with respect to the rapidly changing system of scientific publishing.

The values of professional society publishing have themselves evolved over time, but the main goals, such as to assure the quality of the published paper and to bring the best and most interesting research to the attention of the research community, remain at the core of their publishing missions. Learned societies advance the goal of quality within the realm of publishing by recognizing and sometimes soliciting interesting and important work for publication, assuring the highest-quality assessments of the work by identifying the most relevant scientists to carry out peer reviews, and adding scientific value to the papers by providing professional graphics support. In addition, the professional editors at learned society journals are among the most aware in all of the research community of current rules and guidance concerning the manipulation, presentation, and preservation of data, and are critical resources to researchers in this regard. Further, these journals can create a sense of community cohesiveness, a critical factor for the robust and responsible advancement of research.

Learned societies vary greatly in the financial situations of their journals. Some learned societies count on their journals both to keep the journals running or to keep the price of subscriptions low, and to finance other activities, including some operating costs of the society. On the other hand, some of these journals do not necessarily break even. Most are in the middle, using some journal revenues for some activities. Subscription revenues from libraries and individuals for these journals have been used by learned societies to fund the operation of the journals themselves, and to fund these other activities of the societies. For years now, scientific publishing has been undergoing several significant changes that may jeopardize these revenue streams.

The critical change in publishing is the transition to open access; that is, access to scientific journals, individual papers, and/or data that is free to the reader. The push for this change started with librarians, who began to see subscription fees for key journals increasing far more rapidly than inflation and their budgets. New publishing business models, including some requirements to take on journals in bundles, sometimes exacerbated the budget problem. Later, research administrators and governments began expressing interest in open access mechanisms as a way to make research information more widely available to everyone with an interest in this information, including researchers themselves.

In open access, subscription fees are not paid by the user (library or individual) to the provider (the publisher, which sometimes can be the learned society itself). Rather, under the most prominent model, the costs of publication are covered in principle through a payment from

the author (or a proxy for the author, such as the author's university) to the publisher. This payment, the Article Processing Charge (APC), varies widely across journals. The most extensive study looked at the full list of journals in the Directory of Open Access Journals and found an average APC of about \$900 (US dollars), with a nominal low end, and up to \$3900 (Solomon and Björk, 2012). The Finch Group Report (2012) used data from this study and looked at subscription and some so-called hybrid journals as well. Commercial, subscription-based, professionally edited journals had the highest APCs (for example, journals from Cell Press, with APCs up to \$5000).¹

The potential inability of under-resourced laboratories or even nations to provide the funds needed for open access presents a problem without a simple solution. Currently several journals waive APCs for the poorest countries and on a case-by-case basis. However it is impossible for journals to give full consideration to the financial resources of the authors or their proxies. Financial disincentives to publish in certain journals may thus lead to a further discrimination of researchers and institutions that have limited access to funding. This is an aspect of the transition to open access that needs more attention from the research governance community.

Further, under current models of open access, APCs rarely cover the full costs of publishing a journal, and certainly not those of high-level, selective journals of the sort produced by learned societies. This problem arises from the costs associated with publishing these types of journals, including the use of professional (paid) editors, the need to cover "front-end" (editorial) content, the inherent costs of having to reject papers, etc. In the extreme, Phil Campbell, Editor-in-Chief of Nature (the flagship journal of a for-profit publisher), has estimated that making the journal fully open access would require an APC of between GBP 20 000-30 000 (\$32 000-49 000) (Van Noorden, 2013).

The parameters of "open" are evolving but there are some standard, accepted definitions to describe how the open state is achieved. Gold open access articles are immediately available from the publisher at the time of publication with no cost to the reader or library. Green open access confers free availability after an embargo period, and articles may be stored in a repository not run by the publisher. The use of Green open access preserves an initial income stream from those who want immediate access to new papers, while allowing free access later to those who are willing to wait. Many journals use combinations of these models, for example, subscription journals that allow immediate access to specific papers by the payment of APCs by the author. Finally, in the Diamond open access model, the costs are borne by an extra-party funder(s), and thus with no cost to the author, reader, or library.

Learned society journal revenues flow back to science. A significant issue for learned societies then arises with respect to financing their other activities with journal revenues. Learned societies are not-for-profit organizations, reinvesting their revenues (from journals, meetings,

¹ Publishing costs could in principle be covered through other schemes such as advertising, increased membership fees, or donations. eLife, a fully open access journal, is funded by the Howard Hughes Medical Institute, the Max Planck Society, and the Wellcome Trust and is currently not collecting APCs. None of these alternative mechanisms is robust or sustainable, and eLife specifically has noted it will likely need to collect APCs in the future to maintain the sustainability of the journal.

courses, etc.) back into the activities of the society. Members of these societies (and non-members as well) widely agree that professional societies carry out essential services contributing to the advancement of science.

The transition to open access has in fact been happening for some time now, but this is a critical moment for learned societies, policy makers, and the wider community that is interested in research to think about what happens to the activities of learned societies if the revenues from publishing are reduced or eliminated. A number of intertwined points are in play here:

- What is the range of activities that learned societies carry out and how dependent are they on financing with journal revenues?
- What happens to these activities if subscription revenues drop significantly or disappear?
- What are the alternatives to subscription revenue?
- What can learned societies contribute to the current discussions about scientific publishing?

Although the issues here are primarily economic, at least some of the issues around transitioning to open access are instead about values. The value of open access of scientific publications to the research community, to other stakeholders, and to society as a whole cannot be overstated. With few exceptions, attaining universal open access to the outputs of research is everyone's objective. For the moment though, the research community is in the process of a sometimes-messy transition. As noted, the critical factor is money. Many of the economic concerns arising from transitions to open access and potential mechanisms to achieve them may conflict with other values of the research community. In general, learned societies have as goals the wide and barrier-free distribution of scientific knowledge; the sustainability of the scientific enterprise; and the contributions that the learned societies make to the advancement of scientists and the development of the careers of individual scientists. Attaining these goals while restructuring a major source of income for such activities will certainly require some trade-offs. The knowledge of how to manage these trade-offs is a resource that needs to be shared more widely with all stakeholders in research endeavours.

As implied above, learned societies are able to transmit these values by the use of revenues from their publications, usually subscription journals, but sometimes monographs or other society works. Thus, a disruption to the flow of revenues may mean a need to reduce or eliminate programmes or activities, staffing, or, in the worst case, the entire learned society itself.

Our own organisation, the Initiative for Science in Europe (ISE), is an independent platform of European learned societies and scientific organizations whose aim is to promote mechanisms to support all fields of science in Europe, involve scientists in European policymaking, and to assure independent scientific advising to European policymaking bodies.

We currently have 19 member organizations representing at least 330 000 individual scientists (some directly; some as umbrella organizations). Many of the ISE societies, and the organizations they represent, publish journals and rely on at least some journal revenues to finance

activities. The membership of ISE includes learned societies in the sciences, social sciences, and humanities and as well includes organizations that are not learned societies, but that are concerned about the governance of research and the role of the learned societies. The Member organizations of ISE are representative of learned societies as a whole, ranging from relatively small and focused organizations to very large umbrella societies. There is thus no “average” learned society; rather, we represent a wide range of interests.

Thus, the specific uses of journal revenues may vary by society, but in general the types of activities supported by journal income are similar and familiar in research communities, and we outline them here as a summary of the types of contributions that learned societies, like those of ISE, make to researchers. The activities listed are not necessarily fully funded by income from journals. However, almost all of the activities listed would lose at least some, and in some cases all, of the funding if journal income were to be reduced or eliminated.

In summary, the range of uses among the learned societies of ISE is as follows:

- Fellowships/scholarships/start-up grants
- Workshops
- Congresses/annual meetings
- Travel grants
- Laboratory exchange
- Cooperation/cross-border activities
- Childcare support at meetings

Collectively, ISE Member societies provide at least 150 fellowships (long- and short term) per year, and at least 25 grants for new faculty who are setting up their laboratories. At least 80 courses and workshops in Europe take place as a direct result of ISE’s societies’ efforts. Most of the societies (or the organizations they represent) hold a congress either annually or every other year, collectively attended by over 20 000 researchers. It is important to note that scientists who participate in these sorts of activities act as amplifiers to their wider scientific communities, bringing back, e.g., new techniques from a course or laboratory exchange, becoming focal points for new networks, and in general promulgating the core concepts of sharing and openness in science.

In total, ISE societies spend around 5.5 million euro per year on services to their members and to researchers more generally. At the same time, scientists serve their learned societies with what is essentially volunteer work toward the goals of the societies (most obviously as reviewers for journals, but in many other ways as well; for example, organizing networks of scientists, mentoring new investigators, and serving on national or international committees).

If not returning revenue to the society as a whole, learned society publishing, especially of journals and monographs, is often at least self-supporting, covering salaries and infrastructure and other indirect costs. The peer review process that the journals support is critical for validating research results; the journals then make the findings available and keep the papers archived stably and accessibly. For some journals, the degree of novelty and broad interest to a

wide readership are selection criteria that are applied above and beyond the scientific accuracy of the work. So especially for these highly selective journals, costs arise not only from the production of the journal per se, but also from forgone income of rejected papers.

Beside these core activities, learned societies may use journal revenues for special projects, for their own organizational memberships (for example in ISE), for society staff salaries other than for journal staff and for basic office maintenance.

The question then is, what happens to these important activities of professional societies if their journal revenues disappear?

Alternatives to subscription revenues. Subscription revenue appears to be extremely difficult to replace. ISE Member societies identified the following possibilities to make up this revenue, or to limit activities; none of these options is especially robust or sustainable.

New revenue to the learned society:

- Increased membership fees (but may result in lower overall participation, especially from younger researchers and less well funded researchers)
- Increased fees to attendees for annual meetings or congresses, workshops, courses (but may limit the participation of young researchers and less well funded scholars)
- Direct funding from governmental or non-profit agencies (but may influence the independence of the society)

New revenue to the journal(s):

- Increased APCs
Learned societies could calculate an APC that would cover both journal activities and also society activities; i.e., everything that is currently funded through subscription fees. It remains to be seen whether this is something that authors, or more likely, their funders, would be prepared to support, as governments and funders are currently doing indirectly by paying for journal subscriptions.
- Licensing more value-added journal content

Cuts to the journal(s) or to the learned society:

- Reduction in the use of or elimination of professional editors
- Limitations of society work
Likely to cut activities or specific programmes first, then salaries and other office expense

Opportunities for learned societies in the transition to open access. With these impending changes to publishing models and thus potentially to models for funding activities within learned societies, we note here areas where the learned societies themselves will be able to contribute significantly to policy-setting processes.

Many discussions about how to transition to open access have focused on funders and researchers. Specifically, suggested mechanisms for transition include both incentives and penalties put forth by funders to recommend or mandate that their grantees publish their works so that they are available as open access. Because learned societies are representatives of scientists as well as stakeholders themselves, we should be a primary source to decision makers in such deliberations.

Learned societies will be indispensable in demonstrating exactly how to convert specific journals from subscription to open access. Very few individual journals have undergone a successful changeover.² Learned societies could be a focal point for understanding the factors needed to make these conversions successful, as we are likely to need to do this for at least one selective journal in each professional society.

Thus, we urge both decision makers and representatives from learned societies to be tightly engaged on this issue and encourage open and wide-ranging conversations about our shared values. While identifying those commonalities does not automatically result in policies that are embraced by all parties, it does allow for more robust analyses and thus eventually decisions and policies that are acceptable to everyone. This engagement also allows eventually for much better implementation of proposed policies, as obstacles will be identified earlier rather than later in the process. For ISE at least, we encourage communications between stakeholders, and we would be delighted to convene a meeting of these parties at any time.

IV. References

Finch Group Report (Working Group on Expanding Access to Published Research Findings). 2012. Accessibility, sustainability, excellence: how to expand access to research publications. Available at <http://www.researchinfonet.org/publish/finch/> (accessed 10 April 2014).

Solomon DJ, Björk B-C. 2012. A study of open access journals using article processing charges. *Journal of the American Society for Information Science and Technology* 63: 1485-1495. (Pre-print/accepted available at <http://www.openaccesspublishing.org/apc2/preprint.pdf>, accessed 10 April 2014).

Van Noorden, R. 2013. Open access: The true cost of science publishing. *Nature* 495: 426–429 available at <http://dx.doi.org/10.1038/495426a> (accessed 10 April 2014).

² EMBO, an ISE member, is one organisation that has done this for a selective journal (EMBO Molecular Medicine). EMBO is happy to share the lessons of this transition with all interested parties.

V. Statements and editorials on scientific publishing from ISE Members

[1] Eppenschwandtner W. 2013. Challenges for Learned Societies in the Transition to Open Access Publishing. Euroscientist May 2013. <http://euroscientist.com/2013/05/challenges-for-learned-societies-in-the-transition-to-open-access-publishing/> (accessed 10 April 2014).

[2] European Mathematical Foundation Board of Trustees. 2013. Editorial: EMS Facts and Policies on Journal Publishing. Newsletter of the European Mathematic Society, June 2013. Available at <http://www.ems-ph.org/journals/newsletter/pdf/2013-06-88.pdf>, pp. 3-4 (accessed 10 April 2014).

[3] European Physical Society and EuCheMS. 2013. Managing the Transition to Open Access Publication, Statement. Available at http://www.eps.org/resource/collection/B77D91E8-2370-43C3-9814-250C65E13549/EPS_Managing_the_Transition_to_Open_Access_Publication.pdf (accessed 10 April 2014).

[4] Gesellschaft Deutscher Chemiker (GDCh). 2013. Positionspapier zu Open Access: Zur Zukunft des wissenschaftlichen Publizierens (Position Paper on Open Access: On the future of Scientific Publishing). <https://www.gdch.de/service-information/nachricht/article/positionspapier-zu-open-access.html> (accessed 10 April 2014).

[5] Leptin M. 2012. Open Access: Pass the Buck. Science 335: 1279. Available at <http://www.sciencemag.org/content/335/6074/1279.full> (accessed 10 April 2014).

About ISE

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