



European
Commission

Alternative Open Access Publishing Models: Exploring New Territories in Scholarly Communication

**Report on the workshop held on 12 October 2015 at the European Commission
Directorate-General for Communications Networks, Content and Technology
by Adam Smith**

December 2015

European Commission funding - This report has been produced within a contract with the European Commission.

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1. Introduction

The European Commission joined many other research funders in 2013 when it announced that one central requirement of future research grantees of Horizon 2020 would be that their research publications be made freely available to all. The Commission's vision is open access for research outputs, as announced in its 2012 Communication. This states: "Information already paid for by the public purse should not be paid for again each time it is accessed or used, and [...] should benefit European companies and citizens to the full."¹

The Commission has no preferred model for how to achieve open access. It is searching for innovation wherever it may be found, from traditional commercial publishers, new organisations, distributed academic networks, and research libraries. The goal of achieving open access is a public one that sits above private interests. This sometimes means that businesses are obliged to evolve and adapt in light of the project to move towards open access.

The move to open access scholarly publishing has been accelerating for many years. It is driven by many factors, including: the emergence and expansion of the internet, which enables the fast and free dissemination of research outputs; the fact that many academic libraries are reporting the rising cost of subscription journals and the declining number of journals they can subscribe to; a moral case that publicly funded research should be freely available for all to see; and a case that more dissemination of knowledge will lead to more innovation and therefore economic growth.

To reach its vision of freely available research outputs, the Commission is not only mandating open access for publications arising from Horizon 2020 grants, it is now also running a Pilot on Open Research Data in Horizon 2020². Regarding publications, the Commission realises that it is time to look into publishing models that help to make the transition to sustainable open access.

Discussion around how to achieve open access has already gone beyond the classic Green and Gold models. (Green means depositing articles in an online repository and granting open access after any embargo lifts; Gold means paying scientific publishers a fee upfront to provide open access on publication.)

The Commission held a workshop³ on 12 October 2015 in Brussels to collect information about the alternatives to Green and Gold open access, including how the alternatives work, how they have evolved, whether they work well, and what challenges they don't manage to tackle.

The workshop was addressed by Jean-Claude Guédon, a professor of comparative literature at the Université de Montréal and an expert in open access publishing, and Roberto Viola, Director-General of DG CONNECT, as well as librarians, academics and publishers who presented their novel publishing models.

The Commission also encouraged discussion beyond the walls of the workshop, by webstreaming the event and encouraging comments there and on Twitter (#AlterOA), and, since the workshop itself, on the Digital4Science platform, which is still open for comments and discussion on alternative open access publishing models.

This report synthesises the presentations and discussions from the workshop on 12 October 2015. It should not be understood as a transcript of proceedings, but rather as an analysis of existing trends and issues relating to alternative open access publishing models. Brief summaries of the individual presentations are available in the annex. This report is split into three main sections: the challenges for the European Commission, the pressures on researchers, funders and librarians that are caused by today's system of academic publishing and the resulting themes emerging from the alternative open access publishing models.

1 https://ec.europa.eu/research/science-society/document_library/pdf_06/era-communication-towards-better-access-to-scientific-information_en.pdf

2 http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

3 DG CONNECT wishes to thank DG Research and Innovation for its support regarding the conception and organisation of the workshop.

2. Challenges for the European Commission

The European Union (EU) has bold ambitions for how the internet and digital technologies can improve the way people interact, whether they are buying a small item from another Member State or collaborating on a complex research project involving multiple facilities across the region. There is an underlying principle that technology should make any interaction between people in different countries effortless.

There is a related principle that has taken hold among researchers, funders, librarians and politicians: that access to scientific literature can now be effortless too. The internet can be used to post and distribute open access articles, sparking more interactions and removing the barriers that may stop a person from using research results. And yet this principle has led to controversial discussions regarding the sustainability of scientific publishing. It has entailed a situation in which commercial scholarly publishers have been forced to adapt their business models⁴.

Research funders such as the Commission have imposed open access mandates on researchers that often set embargo periods during which publishers can recoup their publishing costs before articles can be made freely available. This kind of imposition poses several challenges for the EU, which is trying to remove barriers to business as part of its plan, announced in May 2015, to create a Digital Single Market (DSM). The aims include removing the regulatory walls that now stop companies from selling their goods across national borders. At present only 15% of EU citizens buy online from another EU country.

In his opening remarks at the workshop, DG CONNECT's Director-General Roberto Viola said that open access to publications is part of the larger policy area of open science which is central to what the EU is trying to achieve with the DSM. Focusing on the broader context of open science and the DSM, he explained that Europe plans to build a European 'science cloud', or a single cloud-based network of data processing and data-storage facilities to serve scientists across Europe. Viola said that Europe wants "to make sure each researcher, each publisher, each university library in Europe is connected to the science cloud", adding that the Commission will soon publish a Communication on the subject. There is certainly a challenge here in how the EU can support blossoming open access publishing models as part of its wider strategy of establishing a DSM and methods of improving scientific communication, such as the science cloud.

Some EU Member States are making their own attempts at supporting open access and open science. As the Netherlands prepares to assume the Presidency of the EU for six months as of January 2016, the Netherlands' Undersecretary for the Ministry of Education, Culture and Science Sander Dekker has said he plans to prioritise helping researchers and librarians to avoid subscription-based models and choose open access options instead.

It is clear that the debate on open access in scientific publishing is the result of human contest, with different groups with different interests trying to shape technology to their own advantage, Jean-Claude Guédon, professor of comparative literature at the Université de Montréal, said in his keynote. Guédon encouraged delegates to shake off the desire to "preserve the past" and instead create a system of scientific publishing that results in the most effective way of distributing knowledge. He said the system of scientific communication is not merely about distribution; it is also about the setting and pursuit of research questions. "Our survival as a species may depend on the knowledge we create in the next few decades, so if we don't create the best way [to distribute knowledge] then we may not have the best knowledge we need." He added: "Why is it that our current scientific system was faster at creating Viagra than a vaccine for Ebola? Is that the way science should proceed?"

Guédon's challenge to the research community to create the best publishing system was echoed by Viola. He also said that while there are already classical open access models— Green and Gold — the workshop's ambition was to go beyond these.

4 Digital4Science: <https://ec.europa.eu/futurium/en/content/what-future-open-access-publishing>; Workshop website: <https://ec.europa.eu/digital-agenda/en/news/save-date-12-oct-ec-workshop-alternative-open-access-publishing-models>

As these opening remarks hinted, the open access debate is bigger than how to fiddle with existing publishing models. It requires bold, radical thinking and bold, radical technology. There are many big changes that will need to happen in this shift. Guédon mentioned two that are particularly pertinent for policymakers:

First, the evaluation of research must be separated from its means of dissemination. As journals have come to reflect distinct, disciplinary groups of scientists, and as they have been driven by commercial and competitive business models, they have become a proxy for research quality in a given discipline. This has led to people making decisions about researchers and their work based on the journals they are published in. “We judge people less by the content of what they write than on the basis of where they publish,” said Guédon. “In doing that we are just subsuming the whole issue of scientific evaluation to the question of journal competition and that leads to very large problems.”

Second, a political entity that funds research, such as the EU, needs to align its scientific priorities with the systems that are used to pursue them. Guédon calls for a “Mode 2” production of knowledge, after Michael Gibbons (1994)⁵ which underlines a multidisciplinary and problem-oriented approach for research. In this way, the EU would select problems and set interdisciplinary questions and then organise not just the work but also the dissemination of the work around those problems and questions. This approach would make it very clear that journal-based publishing models (versus article-based) can block this development. Many publishers would correctly assert that this kind of research is already happening and published through the existing academic publishing system.

Guédon’s examples signal that big changes may need to happen. Ralf Schimmer from the Max Planck Digital Library, in his presentation, noted how such a shift does not necessarily have to cost more money than the amount in the system already. Data from several countries has led Schimmer and colleagues at the Library to set forth that it is possible to shift the money spent on publications away from subscriptions and towards article processing charges (APCs) — meaning a shift away from Green and towards generalised APC-based Gold open access. This could be a cost-neutral shift, he said, or even result in a saving.

5 <http://www.schwartzman.org.br/simon/gibbons.pdf>

3. Pressures on academic publishing

“The subscription model is very sustainable for publishers but not for universities and libraries,” said Gerard Meijer, president of Radboud University, during his presentation on why Dutch universities are collaborating to challenge the academic publishing business model. It is a sentiment shared by senior university administrators and librarians across the EU.

3.1 The serials crisis

For some years now universities have been reporting that they are spending more and more money on subscriptions to academic journals, while having to cut the number of journals they subscribe to (reported by the League of European Research Universities⁶). Libraries are having to make tough decisions about which journals they can no longer afford—and therefore which disciplines their institutions may no longer support. In more recent years, universities have been paying fees to publishers so that their researchers can publish articles open access under the Gold model—while still subscribing to the same journal. Some publishers have taken steps to offset subscription prices with the fees they receive as Article Processing Charges (APCs), but many have not.

3.2 Administrative burden

Libraries or other centralised services in universities have found themselves administrating APCs and having to ensure their researchers comply with funder policies on open access. There are as many open access policies as there are funders. The picture is therefore very complex. For many libraries, especially those that are new to managing the payment of APCs, it is very difficult to comply with all these different policies, and it is impossible for most to track the total cost of publishing.

3.3 Publish or perish

Meanwhile researchers’ appetite and the pressure on them to publish is intensifying. The number of researchers has continued to grow but, moreover, the business model of scholarly communication has made the process much more competitive, as researchers compete to be published in the ‘top’ journals, not least because the number of journals outside the top tier that libraries can afford to subscribe to is declining (see 3.1). Scholarly communication has long been the circuitry system of the research process. But, as Jean-Claude Guéron said in his keynote, the balance of power in this system shifted out of the hands of learned societies and into those of publishers—either commercial companies or spin-outs of the learned societies. This led to the introduction of hierarchy: with the growth of a commercial imperative in publishing, the enterprise became more competitive, which led to only some science and some projects being seen as essential, or core, and others seen as on the outside.

As publishers following Robert Maxwell (who built the major scientific publishing house Pergamon Press, which later became part of Elsevier) sought to establish a commanding position within ‘core’ science, publishers and their journals began to be seen as proxy measures of research quality. This endures; in some countries researchers are given cash bonuses by their academic institutions if they are published in top journals such as *Nature*, as reported by Jufang Shao and Huiyun Shen⁷.

Abel Packer from SciELO said in his presentation that many funders and institutions look for internationally excellent research, which entrenches the use of journal rankings as a proxy for quality, since the highly ranked journals in a given field tend to be international. But some excellent research has only local relevance or application, meaning that the research community is given a false choice: quality set by spurious journal rankings and impact factors, or quality set in a fairer way but a way in which the research will not gain the recognition it deserves. “There is not a clear balance between these two approaches,” said Packer.

It is clear to Meijer that publishers have amassed too much power in research, and they have used this power to subvert some of the central tenets of the process. “We as scientists let this get out of hand, and we have to take it back,” he said.

6 <http://www.leru.org/index.php/public/news/christmas-is-over-research-funding-should-go-to-research-not-to-publishers/>

7 <http://www.ingentaconnect.com/content/alpsp/lp/2011/00000024/00000002/art00003?token=005b1f189879a07166809237e41225f403859576b414c767646257074576b34272c5f7b3d6d3f4e4b34cab6dc54>

3.4 Collaboration or competition

Meijer's call is the kind of statement that many workshop attendees agreed with. And yet researchers still judge each other for jobs on their publishing record—meaning the venue of publication as well as the quality of the research published. As researchers, and their employers, funders and governments use the journal name as shorthand for the level of quality, the process of judging science is accelerated, and so the process of doing science is accelerated in turn. This puts enormous pressure on scientists to publish. The system is also competitive; although science collaboratively orders itself around 'crystals of knowledge' that are known to everybody in the same field (Guédon), the pressure to be the person who grows a new part of the crystal or who starts an entirely new one squeals with tension. Some aspects of the system are trying to make science a collaborative process, and others a competitive one.

Many open access publishing models try to resolve this tension—and they often land on the answer that science should be collaborative not competitive at heart. Indeed, the very principle of open access—that anyone should be able to read and use the fruits of research—can erode the kind of competition for prestige that blocks two research groups from working together. If they both have access to the same literature, neither has an advantage other than in skills and equipment, so they may be more inclined to collaborate. But at the same time it also increases competition by making more research available to more people. For example, PubMed Central is a huge open access repository for any piece of peer-reviewed medical research, no matter where else it is published. This levels the playing field somewhat and no doubt makes it easier for some groups to compete with others. The collaboration model also dismantles the distinction between those researchers who work in institutions that subscribe to journals and researchers or others who do not.

3.5 Questioning traditional publishers

One consequence of many digital technologies and the open access publishing models they have inspired is that the scholarly publishing market is undergoing enormous disruption. Large companies employ thousands of people and generate large amount of revenue: for example, Elsevier made £2.5 billion in 2014 (€3.6bn). Elsevier reported profits of \$1.3 billion in 2014 (€ 1.2bn)⁸. Axel Springer, another large publisher of academic work, turned over €3 billion in 2014. Meanwhile, PLOS, a large open access publisher, took \$48.5 million (€45.8m). There is no fully open access publisher that comes close to the size of organisation or revenue of the large traditional ones, which may be judged by many to be a good thing (see 4.3 on the non-profit imperative). But open access mandates from funders, including state agencies, have begun to shift power away from the large traditional publishers and into the hands of new open access outfits, such as the Open Library of Humanities, which is using public funds given to university libraries to establish a new academic publisher that has begun to attract journals away from Elsevier and others.

So this challenge leads to successful and established businesses finding it hard to adapt to the growing calls for open access publishing and, to a lesser degree, the challenge to the profit motive from scholarly communication. Governments generally seek to help businesses, but in the case of open access, the main objective lies elsewhere: to maximise the impact of public research money via broader dissemination. This can lead to tension between different top-level policy goals.

3.6 Pressure from policymakers

Some politicians in Europe have helped to make open access a political issue. They are using their authority to apply pressure to different stakeholders—but most firmly to publishers. On the day of the workshop, Carlos Moedas, the Commissioner for Research, Science and Innovation, said that publishers need to “adjust their business models to the realities of the 21st century”.

Going further, Sander Dekker, the Dutch Secretary of State for Education Culture and Science, said that Dutch universities are prepared to not sign contracts with publishers unless they offer the kind of open access the universities expect.

8 <http://www.marketwatch.com/story/reed-elsevier-full-year-profit-falls-2015-02-26-2485424>

On the same day, LERU published a statement⁹ condemning the academic publishing system as financially unsustainable, saying even Harvard University can no longer afford to work within the current publishing system. “If one of the wealthiest universities in the world can no longer afford it, who can?” asked LERU in a statement.

Dekker said LERU members were trying to move on with alternatives. “The fact that all LERU members now let go of the old subscription-based models with big deals and clearly choose for models based on open access, perfectly fits with the Dutch open-science policy.”

These pressures from European institutions or EU Member States as well as non-governmental organisations, are likely to grow over the coming years unless there is a significant shift towards open access. The next section of this report sets out in more detail how the models discussed at the workshop are trying to address these challenges.

9 [http://www.leru.org/files/general/LERU%20Statement%20Moving%20Forwards%20on%20Open%20Access\(1\).pdf](http://www.leru.org/files/general/LERU%20Statement%20Moving%20Forwards%20on%20Open%20Access(1).pdf)

4. Themes in alternative business models

This section will describe those ideas and ways of working from the workshop that are common across many or all alternative open access publishing models.

4.1 Partnership

One of the defining characteristics of many novel open access publishing models is that they rely on academics, editors, librarians, and publishers working together in new ways. Moreover, many of these actors are working together in ways that would destabilise a traditional business model.

For example, traditional academic publishers print fee schedules for the costs of subscriptions to their journals. Libraries often negotiate with publishers to buy a package of subscriptions, and the price they ultimately pay can both diverge from the published list price and remain the subject of a Non-Disclosure Agreement (NDA). That the library signs an NDA is a request of the publisher, who wishes to keep the details of the deal confidential so that they can begin a negotiation with another library without that second library knowing how much the first one paid for the same or similar deal.

Libraries are accustomed to sharing information and services—inter-library loans and shared national Information Technologies (IT) systems are obvious examples—so they do not like being blocked from conferring on how much they are each paying for journal subscriptions. At the workshop Meijer called on academic institutions to refuse to sign NDAs. “We should simply no longer do this,” he said.

The Open Library of Humanities (OLH) is one model that stands in sharp contrast to the traditional secrecy between publishers and their customers. As a publishing platform, it not only requires libraries to share information but relies on them collaborating. The OLH is a partnership of libraries, which each receives a seat on the governance board merely by paying into the platform. The traditional model forces libraries to act as competitors by not sharing information, but really libraries do not feel as though they are in competition with each other. So the NDAs favour only the publishers. By cutting out traditional publishers from the publishing workflow, the OLH values and encourages the kind of relationship that libraries have in other aspects of their work—that of partnership.

The same approach is the basis for several other models discussed at the workshop, and indeed others not represented, such as Knowledge Unlatched. Although it is some years away from being realised, the Open Access Network (presented by Rebecca Kennison, from K|N Consultants) relies on a similar level of cooperation between libraries and academic institutions: information sharing, pooled resources, and common goals.

SciELO is much more established than any of these models discussed so far: it is a partnership of 17 years. In essence SciELO makes open access research outputs more visible by indexing and disseminating them through a shared service. They thus receive a higher degree of visibility than they would through only the journals they are published in. The model does not undermine the traditional publishing model in the way the OLH does, but it soon may. In recent years SciELO has been editing and publishing its own articles. The platform already has over half a million articles and about 1,100 active journals. This may yet prove to be enough critical mass so that if it were to become a large-scale publisher in its own right SciELO could have deployed partnership to undermine a more competitive traditional publishing model.

4.2 Vertical openness

Open access publishing is primarily concerned with visibility of research outputs, the final stage in a workflow that begins with data collection and also includes analysis, writing, peer review and editing. The principle aim of many people in the open access movement is to make all research outputs available—a kind of horizontal openness stretching across all outputs. But various publishing models and changing research practices have opened up aspects of research upstream too. This kind of vertical openness was best exemplified at the workshop by the discussion about data journals.

The growing complexity of research data and the fact that they can be distributed easily online has led to researchers sharing ever larger datasets. Researchers have long shared their data with collaborators and colleagues—Charles Darwin had a long list of correspondents whose own research data helped him to develop his theory of the origins of species. But there has been a significant shift in recent years thanks to technology.

This has led to changes in publishing behaviour. The traditional model for a publication is a paper that describes the dataset and the method of its collection, includes some of the data, and features an analysis of what the data shows. The publication of such a report takes place after peer review. However, in recent years researchers have been publishing their datasets as research outputs in their own right, allowing for review, discussion and reuse—before the author goes on to publish their own analysis. This eventual analysis builds on the reviews of the published data.

Datasets are increasingly published in online repositories such as Figshare, and in data journals. As Panayiota Polydoratou said at the workshop, data papers published in data journals complement the final paper; they do not replace them. In this way, the model does not present an obvious challenge to traditional publishing. An archaeologist who reads the *Journal of Open Archaeology Data*, launched in 2011, will still want to read the top and traditional archaeology journals for their more complete analyses. But the traditional journal has lost something unique thanks to the existence of the complimentary data journal. The traditional journal is no longer the exclusive publisher of the data from a study that it reports. Also, in order to be included in the data journal, the data will also be available for free in a repository, for example the Archaeology Data Service. Over time the fact that data is released more widely and earlier on in the publication process could come to undermine the traditional journal.

Although traditional publishers have set up their own data journals, this new market has the shine of novelty to it. They are almost always open access natives, having been founded in the era of APCs, which is how they are usually funded. And data journals are often partnerships between a disciplinary association, a commercial publisher and a repository—this sort of partnership may not be particularly novel—which demonstrates how commercial publishers are having to give away more research outputs than they may have done in the past. A question at the workshop prompted Polydoratou to add that data journals are of interest to funders because they increase transparency of the research process, and therefore give funders a better overview of how their money is spent.

Although pre-print servers were not discussed at the workshop, they are another example of a kind of vertical openness that may come to challenge traditional publishing over time. Pre-print servers, such as the well-established arXiv in physics and BioRxiv for the life sciences, provide a platform on which researchers can publish their papers before peer review. In this way they open themselves to a broader range of peer review and distribute the findings of their research earlier than they would do in the traditional model. Again, this removes some degree of exclusivity from whichever publisher eventually publishes the final product, which arguably makes their offering less attractive over time.

Another example of vertical openness was presented by the Open Access Network. This idea of a centralised organisation brokering deals between research institutions and scholarly societies in order to create an alternative ecosystem for scholarly publishing that does not require market principles brings the potential for transparency of every single stage of the infrastructure, from the creation of research outputs to their preservation.

4.3 The tension over profit

One crucial pillar to a significant proportion of open access models is that they are not-for-profit. Many open access publishers, on the other hand, are for-profit. The founders and representatives of some open access publishers, such as PLOS, make a great effort to ensure that they do not become commercial in the way that traditional publishers have, for example by using surplus revenue to reduce the cost of publication for some authors rather than giving it to shareholders. Resistance to excessive profit is grounded in the anger that many academics, librarians and others feel towards large commercial publishers. For example, profits

for Elsevier are reported to be up to \$1.3 billion in 2014 (€ 1.2bn)¹⁰, and a 34% profit margin is reported for Springer and 42% for John Wiley¹¹.

Like any competitive market, publishing involves the game of attracting a slice of the money in the system by supplying a service. Jean-Claude Guéron noted in his keynote that one way the competition for profit was introduced into scholarly publishing was through the introduction of page charges in learned society journals after World War II. Guéron said it was this thinking that led to APCs, as a new way to make money in an existing system.

Open access academic publishing would perhaps not be such a rich marketplace of business models were it not for the doggedness of traditional publishers. This has led to countless models that seek to find any alternative, with models that seek no or only little profit and that are therefore more likely to get the backing of academics, merely because they stand in opposition to traditional, unpopular for-profit publishers.

Misgivings over excessive profits based on high Article Processing Charges (APCs) and subscription costs underlie all sorts of different projects in the open access publishing arena, from publishers themselves to networks and consortia, and even to experimental methods of price-setting, which have the market potential to turn some corners of academic publishing into profitless but successful enclaves.

The founders of the OLH, Caroline Edwards and Martin Paul Eve, are among the strongest advocates for the notion that academic publishing should not require profit for it to be successful. Traditional publishers say they need profits in order to attract investment from investors who provide funds for innovation but only if they receive a return, which comes through profits—as argued by Arie Jongejan, the former chief executive of science and technology at Elsevier in an article for Research Information¹². Projects such as the OLH say that the people involved in them will innovate simply because they believe in the dissemination of research outputs as a public good. In short, they are motivated by public, not private, gain.

The theme also is present in the mission of UCL Press, the open access publisher established in May 2015 by University College London. “We add value, we are not to make money,” said Paul Ayris, chief executive of UCL Press, at the workshop. “That is our mantra.” UCL Press is part of a public university in the UK, and has used unrestricted public research funds as capital to become established, to hire staff and to cover the costs of UCL academics who wish to publish open access and without having to pay an APC. The press welcomes submissions from non-UCL authors, and it will publish their work for a fee but not one that would enable it to turn a profit.

Misgivings over excessive profit are also present in several other models and ideas discussed at the workshop, such as the SCOAP3 project run by CERN. It is also one potential consequence of the pay-what-you-want model described by Martin Spann from the University of Munich, and already adopted by Thieme for The Surgery Journal. Although this model is neutral towards profit—it is based on customer empowerment, as Spann said: “The customer decides the price, including zero.” Spann began his presentation at the workshop by stating that pay-what-you-want is a radical challenge to neoclassical economics, which expects people to behave rationally for their own gain when it comes to prices—in this way pay-what-you-want can be seen as unsustainable because every customer would choose to pay zero. At the same time it is possible to apply classic market theory to the model and argue that if enough customers want a journal to exist, they will pay for it, and if they want it not to turn a profit, then they will pay at a level that achieves that. Pay-what-you-want does not only turn the job of price setting over to the customer; it may also eliminate profit from the business of any publisher that adopts it through sheer market force.

Open access publishing models that do not pursue profit as much as traditional commercial publishers have come a long way because research funders are also driving for open access, although without the reduction of profit as a goal. Funders are coming to expect certain open access publishing norms from the researchers they support—and even though funders do not try to reduce or eliminate profit from the system, their mandates have led them to indirectly facilitate the development of open access models that do this.

10 <http://www.marketwatch.com/story/reed-elsevier-full-year-profit-falls-2015-02-26-2485424>

11 <http://poeticeconomics.blogspot.be/2012/01/enormous-profits-of-stm-scholarly.html>

12 <http://www.researchinformation.info/riaut03elsevier.html>

Funders want the maximum impact from their spending. This impact includes the broadest distribution of research findings, which gives them the greatest chance of having funded work that became one of Guédon's 'crystals of knowledge', but it also protects the funder politically. If others can see that they are funding important research then they can make the case to continue doing so—in the case of state funders this might mean receiving continued or increased funds.

Carrying this logic further up, it becomes clear why states may be in favour of open access. Although public actors such as governments and generally support growth through industrial profit-making, when they act as research funders they also naturally find themselves supporting non-for-profit business models.

4.4 The changing role of the state

As implied immediately above, governments have a powerful role in shaping the landscape for alternative open access publishing models. A great deal of the money in the scholarly system is ultimately derived from the state: research funding agencies, grants to universities, grants to scholarly societies, and individual research projects.

National policies, such as those of the seven UK research councils and the Higher Education Funding Council for England, have brought about a huge change in scholarly publishing and academics' behaviour. The level of open access outputs is large and growing: the European Commission showed that the proportion of articles published open access in 2011 by the time of a study in 2013 was around 50%. Strong and centralised networks in other parts of the EU, such as CSIC Revistas, have had a big influence on this growth. SciELO could be described as a state-funded research dissemination programme. Now that it is becoming a publisher in its own right, SciELO may move away from direct state funding and become an example of a state spin-out that is so well established and powerful that a private-sector start-up would find it hard to compete with.

This example shows how some open access publishing models are in tension with the principles of the market. Governments want to encourage innovation, economic growth and businesses, and they also want to see the researchers they fund distribute their findings as widely as possible. There does not necessarily have to be an inherent contradiction in this. Indeed, open access publishing means that many more companies and individuals can read research outputs, which can give them more input to innovate. It is true that one particular kind of commercial sector actor—traditional academic publishing—is potentially curbed by the joint aims of growth and wide dissemination. As scholarly publishing continues to evolve into many different forms in the digital age, this tension between the objectives of the state will endure.

4.5 The growing importance of research libraries

One characteristic common to many open access models is the growing importance of the research librarian. No longer are librarians the passive custodians of knowledge or the conduit of money given to them by the state that ultimately goes to publishers, with little influence over how much they get given or the price of the journals they need to subscribe to. As the OLH shows, librarians are becoming cooperative publishers with pooled power. It is also noteworthy that the chief executive of UCL Press, Paul Ayris, is also the director of the university's library services—the most senior librarian in the institution.

This growing importance for librarians means two things. First, they are more sophisticated consumers. For example, in responding to budgetary pressures and increased subscription costs, they have formed consortia to strike better deals with publishers. Second, it means they are taking more control over the means of production, for example by directly joining the governance structures of projects like the OLH or setting up their own presses such as the UCL Press — as librarians are motivated by curating and disseminating knowledge rather than delivering profits to shareholders as in the case of traditional publishers. This represents a significant shift in the publishing models.

5. Conclusion

The workshop on 12 October 2015 in Brussels aimed to collect information about the alternatives to Green and Gold open access, including how the alternatives work, how they have evolved, whether they work well, and what challenges they don't manage to tackle.

The workshop heard 14 presentations, each with a different approach or business model built to move towards open access to scientific publications. The models were of variable ages, some having run for well over a decade (e.g. SciELO) and some only in the very early stages of development (e.g. K|N Consultants' network partnership idea). Some, such as CERN's SCOAP 3 model, have proven to be successful and sustainable already.

The workshop showed that there is no shortage of ideas on how to achieve or move towards open access. The Commission's aim of using the workshop to collect information about these alternative and new open access publishing models can certainly be said to have been met. This report and its annex stand as the record.

There are three possible not mutually exclusive next steps the Commission may now wish to take:

- 1) Continue to collect ideas and views from the community of researchers, funders, publishers, research users and librarians. The Commission may also wish to consider holding a further workshop if there are yet more models to learn about. There may be scope for a similar event or events held beyond Brussels, especially in the Netherlands in early 2016 while that country hosts the Presidency of the European Council and plans to put open access high on the agenda.
- 2) Launch a competition for seed funding. Alternative open access publishing models often need start-up capital in order to become established and sustainable. The Open Library of Humanities has had funding from the Andrew W Mellon Foundation exactly for this purpose, and would not have been able to launch with as many participating libraries as it has without this money. The Commission could consider creating an innovation fund and calling for projects to bid for the funding to help them to develop and grow towards helping the Commission reach its goal of open access.
- 3) Refine the open access mandate for Horizon 2020 grants to encourage specific kinds of business model and disadvantage others that are not favourable. For example, a rule could state that choosing to publish a paper with a publisher that charges the same subscription fee for a journal even if they receive APCs for papers with the same journal ('double-dipping') is not acceptable. Another example would be to state a preference, but not a requirement, for institutional publishing policies to involve their libraries more—recognising that libraries need to be involved in establishing new ways of disseminating knowledge.

As the Commission decides its next steps, it remains in listening mode. It wants to ensure the move to open access is an open process that hears from many stakeholders, and it is therefore hoping to continue collecting views, including via the Digital4Science platform (<https://ec.europa.eu/futurium/en/content/what-future-open-access-publishing>).

6. Annex—Presentations at the workshop

6.1 Institutional approaches to open access

6.1.1 SciELO

Presented by Abel L. Packer, SciELO

What's unique about it?

SciELO is a programme through which open access journals in Latin America cooperate to maximise their reach. Journals that are part of the programme can: share a publishing platform, which keeps their own production costs low; achieve higher visibility than they would be able to achieve alone; gain a seal of quality provided by the prestige of being part of SciELO; and be involved in publishing innovation, such as SciELO's pooled provision of editorial services. The platform includes 15 national journal collections, around 1,100 active journals in total, and over half a million articles.

Business model

SciELO is funded as a research project with contributions from research agencies and ministries across the region.

Plans

SciELO plans to shift its business model away from grants towards supporting itself through its publishing and editing services.

6.1.2 Revistas, Spanish National Research Council, CSIC

Presented by Ramón B. Rodríguez, Spanish National Research Council

What's unique about it?

CSIC is a state agency comprising 131 research institutes and centres and 160 associated units in universities and other research institutions. CSIC publishes 70–90 books and monographs, and 37 journals across all research disciplines each year, in print and in its own online repository (only four of the 37 journals delay deposit in the repository until some time after publication, a policy that is soon to be lifted).

Business model

CSIC views itself as operating the gold open access model without article-processing charges paid for by authors. The Spanish government pays the publishing costs.

Plans

CSIC plans to lift embargoes on the last-remaining journals operating them; discontinue print editions; and find a business model for books and monographs, which are much more expensive than journal articles.

6.1.3 Open Library of Humanities

Presented by Caroline Edwards, Open Library of Humanities

What's unique about it?

OLH is a publisher of journal articles and a publishing platform for journals from across the humanities. Its novelty is that research libraries fund its activities with the aim of cutting down the money they spend on subscriptions and article-processing charges.

Business model

The aim of the OLH founders was to publish open access humanities research immediately but without the author having to pay article-processing charges. Their solution is the Library Partnership Subsidy (LPS), a fee paid by research libraries that covers the cost of publishing and gives libraries a stake in the governance of the OLH. The project is funded by the Andrew W. Mellon Foundation while it establishes its own sustainable business model based on the LPS.

Plans

OLH plans to incorporate altmetrics; encourage more journals to move from their current publisher to the OLH platform; and build technology to allow users to translate and annotate publications.

6.1.4 Data Journals

Presented by Panayiota Polydoratou, Technological Educational Institute of Thessaloniki

What's unique about them?

Data journals publish research data, not full research outputs that usually incorporate data with analysis and discussion. Data journals are similar to conventional journals, with peer review and editorial boards. Outputs in data journals describe the data, which is available in a repository, and suggest how it might be used.

Business model

Different publishers operate different business models for different data journals, although most are Gold open access, with an Article Processing Charge, e.g. Geoscience Data Journal charges \$1,500 (€1,400) per output. Some data journals are formed in collaboration between a scholarly society, a commercial publisher and a repository.

Plans

The rise of data journals raises questions about academic supervision, for e.g., if a PhD student publishes his or her data to welcome critique and input from other scholars, what is the role of his or her supervisor? It also raises the question of how traditional measures of success for journal articles can be applied to data journal outputs, e.g. Does reuse of a dataset constitute academic impact?

6.1.5 UCL Press

Presented by Paul Ayris, University College London

What's unique about it?

UCL Press is the first fully open access university press in the UK. Outputs sit in UCL's repository, UCL Discovery, and are available through the online publishing platform. The press launched in May 2015 and has published three monographs so far, with over 5,000 downloads up to October 2015, already double the target for the first year.

Business model

The press is funded by UCL as an investment in open access scholarly publishing. UCL authors do not need to pay any fees, but authors from other institutions do (€7,000-10,000 per book). Readers can pay to receive print versions of monographs.

Plans

The press plans to publish more books and monographs, including textbooks. UCL Press has already had ten times the expectation of ten book submissions for the first year.

6.1.6 The Open Access Network

Presented by Rebecca Kennison, K|N Consultants

What's unique about it?

The Open Access Network seeks to create a partnership between scholarly societies, university presses and research libraries with the aim of building a jointly funded system that will publish and disseminate research outputs for the primary benefit of use in tertiary education. Launched in May 2015, the network has 40 partners.

Business model

The network aims to raise money from fees paid by tertiary education institutions, relative to the institution's size. It is currently raising seed funding.

Plans

The network aims to raise more seed funding, and eventually to fund the entire scholarly communications infrastructure—from creation to preservation.

6.2 Business models

6.2.1 Freemium

Presented by Pierre Mounier, OpenEdition

Business model

OpenEdition uses the freemium model, under which it gives away some content and services for free, and charges for others. The open access articles on its platforms are published for free in HTML format online. Libraries pay to be able to download the articles in PDF or EPUB formats. Two-thirds of this income goes to the publisher, fulfilling the aim of making open access publishing financially beneficial to publishers. OpenEdition itself is publicly funded.

What's unique about it?

OpenEdition is a collection of four online publishing platforms where journal and book publishers can publish work and benefit from appearing on a website with a broader reach than they would be able to achieve alone. The software is open source, and it allows the author to publish their work in different formats. The aim of the collection is to increase the availability of open access publications, establish a sustainable business model for humanities and social sciences publishing, and increase the reach of open access in research libraries. The platform hosts 137 journals and 50 book publishers, with more than 110 subscribing libraries.

6.2.2 British Medical Journal

Presented by Theodora Bloom, British Medical Journal

Business model

The BMJ is Britain's principal trade magazine for the medical profession, reaching 122,000 doctors a week. It is wholly owned by the British Medical Association, which is a trade union and representative body. Its biggest single source of revenue is print advertising, but it also makes money from subscriptions, online advertising, reprints and publishing fees paid by research article authors. Research articles are open access online, paid for by Article Processing Charges (APCs).

What's unique about it?

Academic journals do not tend to attract advertisers, but because of the BMJ's circulation base among doctors advertising is a feasible business model. The reputation of the journal is high enough for researchers to want to publish in it and to pay APCs to do so. The journal's commitment to open access is also reflected in its campaigns around open research data, especially on clinical trials, such as the AllTrials campaign.

6.2.3 Pay what you want

Presented by Martin Spann, University of Munich

Business model

Pay what you want (PWYW) is a participative pricing mechanism in which pricing power is entirely delegated to customers, who are free to offer any price. Thieme Publishers has implemented this pricing scheme for the open access journal *The Surgery Journal*. Here, authors may pay any amount including zero towards the cost of publishing their research output (article publication fees). Researchers from the University of Munich analyse the data of this ongoing study. While there is some free riding, preliminary results show that voluntary payments can be substantial indicating that PWYW may offer an interesting and financially viable alternative pricing model in open access publishing. There seem to be cultural differences regarding payments, but more data is needed. Taylor & Francis is using the pricing mechanism with some journals in its Cogent imprint.

What's unique about it?

Allowing a consumer to pay what he or she wants for a product is a radical diversion from neoclassical economics. The traditional self-interest model predicts that all buyers will take the product and pay a price of zero.

6.2.4 State deals with publishers

Presented by Clara Eugenia García, Spanish Ministry of Economic Affairs and Competitiveness

Business model

In its ambition to grow the proportion of scholarly output that is published in an open access form, and recognising that funder mandates can only go so far, the Spanish government sought a new deal with traditional publishers. The government wanted publishers to standardise pricing and related information across different universities; to view APCs as ultimately a substitution of subscriptions, not an alternative; and to persuade top journals to flip into open access. Essentially the Spanish government did not create an alternative business model, but rather sought to land on the most cost effective combination of existing business models.

How is this model unique?

It is unusual for a government to take such a strong, centralised approach to negotiating a deal with publishers.

6.2.5 Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3)

Presented by Salvatore Mele, CERN

Business model

SCOAP3 is a global collaboration supported by CERN and established at the demand of the scientific community in the field of high-energy physics (HEP). SCOAP3 allows partner institutions to pool funds to convert established, high-quality, peer-reviewed HEP journals to Gold open access at no cost for authors, irrespective of their affiliation. The vast majority of the funds come from savings in libraries' subscription budgets, as publishers no longer charge for content paid by SCOAP3. A country contributes commensurate with its scientific output in the field. In its first two years of operation, started in January 2014, the project has supported publication of about 9,000 articles in 10 participating journals.

How is this model unique?

SCOAP3 re-uses the collaborative model of CERN (ie, the one of the large experimental collaborations working at the Large Hadron Collider). Some 3,000 partners (libraries, library consortia, funding agencies and research institutions) from 47 countries and Intergovernmental organisations participate in SCOAP3. The model is innovative in that libraries contribute funds they used to spend on subscriptions to SCOAP3 journals that are now open access: the conversion to open access was achieved with mostly existing funds. The collaboration, thanks to its global procurement, centrally pays extremely favourable article processing charges rates (in average of €1,000), researchers from all over the world to publish in open access at no cost and no burden, irrespective of whether they are affiliated to a participating institution. About 20'000 researchers worldwide have already published articles supported by SCOAP3. In its operational phase, the administration of the consortium is extremely lightweight with minimal staffing at CERN.

6.2.6 Transition to open access

Presented by Ralf Schimmer, Max Planck Digital Library

Business model

Research by a team at Max Planck Digital Library shows that there is enough money in the academic publishing system globally and in Germany for it to radically alter the business model by dropping subscriptions and shifting to an entirely open access model. In other countries, for example the UK in 2013 published 111,000 papers from 74,000 corresponding authors. An average APC of €1,300 equals €95m in total; and yet the UK reports a total spend on academic publishing in excess of €400 million. This is not a business model itself; rather it is evidence that the prevalence of subscription models is costing the research system a great deal more than a fully open access model would.

How is this model unique?

It calls for libraries to stop paying subscriptions now, and spend the money only on open access models and publishing services. It does not take into account the resistance that publishers would show towards such a radical overnight change to their business model.

6.2.7 Fair Open Access publishing model

Presented by Johan Rooryck, Leiden University; Natalia Grygierczyk, Radboud University and Saskia de Vries, Sampan academia and publishing.

Business model

LingOA helps existing journals in linguistics 'flip' from subscription to Fair Open Access, which is defined as follows: 1) the journal is owned by the editors; 2) authors own the copyright of their articles; 3) article processing charges are low, transparent, and proportional to the work carried out by the publisher. Authors never pay for APCs. LingOA pays for the APCs in the first 5 years, then payments are taken over by the Open Library of Humanities. Three journals have already joined LingOA with their complete editorial boards and editorial teams: Laboratory Phonology, The Journal of Portuguese Linguistics, and Glossa (formerly known as Lingua (Elsevier)). They will be published by Ubiquity Press as of January 2016.

How is this model unique?

LingOA proposes a model that uses existing networks in a given discipline to encourage editors to 'flip' their journal to Fair Open Access without author-facing APCs. Interested editors invite their publishers to collaborate on conditions of Fair Open Access. Otherwise they move their journal elsewhere. LingOA aims at a new compact between researchers, librarians, and publication service providers. Via OLH, it allows for rechanneling funds formerly used to pay for subscriptions to open access.

7. Programme of the Workshop

7.1 Workshop description

Open access (OA) has come a long way since the Budapest OA Initiative (2002) and the Berlin Declaration on OA to Knowledge in the Sciences and Humanities (2003), two key documents on access to scientific information in the digital age. Many funding bodies across and beyond Europe now have policies on OA to publications, and some on open research data. The EU now mandates open access to all scientific publications resulting from Horizon 2020, and is running a Pilot on Open Research Data which also concerns data underlying publications.

The widespread adoption of OA, however, has yet to overcome a series of implementation issues. One of these is the search for sustainable models supporting a transition to OA. Currently, the most commonly discussed are green open access (self-archiving by authors in repositories, often combined with an embargo period) and gold open access in open access or hybrid journals based on article processing charges (APCs). These models each have their pros and cons, but are not the only possibilities.

Indeed, new and alternative open access publishing models are now emerging that could optimise existing arrangements and put forward new ones. Which models exist? How do they work? Why have they been chosen and how have they evolved? What works well in these models and what challenges still need to be addressed? What model(s) should the Commission support and/or adopt for open access in Horizon 2020 and why? What model(s) could be useful for Europe as a whole and science generally?

This workshop aims to collect information and reflect on each of the models presented with a view to mapping new trends and alternatives in scholarly communication in Open Access. This exercise will form the basis for further policy development by the European Commission. The outcomes of the workshop will be made available online.

Twitter: #AlterOA

Comments: <https://ec.europa.eu/futurium/en/content/what-future-open-access-publishing>

7.2 Programme

- 9:00-9:10 [Opening](#) by Roberto Viola, Director-General, DG CONNECT
- 9:10-9:40 [Keynote speech](#): Jean-Claude Guédon, University of Montreal
[Open Access: A litmus test of scientific publishing and its business plans](#)
- 9:40-10:40 [Public and institutional approaches](#)
 Chair: José Cotta, DG CONNECT / Celina Ramjoué, DG CONNECT
- 09:40-10:00 Abel L. Packer, SciELO
- 10:00-10:20 Ramón B. Rodríguez (Spanish National Research Council, CSIC), Revistas CSIC
- 10:20-10:40 Caroline Edwards, Open Library of the Humanities
- 11:00-12:00 [Public and institutional approaches \(continued\)](#)
 Chair: Celina Ramjoué, DG CONNECT
- 11:00-11:20 Panayiota Polydoratou (Technological Educational Institute of Thessaloniki), Data Journals
- 11:20-11:40 Paul Ayris, UCL Library Services / UCL Press
- 11:40-12:00 Rebecca Kennison (K|N Consultants), Network Partnership approach
- 13:10-14:10 [Testing the waters with alternative business models](#)
 Chair: Jean-François Dechamp, DG RTD
- 13:10-13:30 Pierre Mounier (OpenEdition), Freemium
- 13:30-13:50 Theodora Bloom (British Medical Journal), Mixed Model / Advertiser model
- 13:50-14:10 Martin Spann (University of Munich), Pay what you want
- 14:20-15:20 [New deals with scholarly publishers](#)
 Chair: Jean-Claude Burgelman, DG RTD
- 14:20-14:40 Clara Eugenia García, Spanish Min. of Econ. Affairs & Competitiveness
- 14:40-15:00 Salvatore Mele, CERN / SCOAP3
- 15:00-15:20 Ralf Schimmer, Max Planck Digital Library
- 15:40-16:20 [New deals with scholarly publishers \(continued\)](#)
 Chair: Jean-Claude Burgelman, DG RTD
- 15:40-16:00 Saskia de Vries, Natalia Grygierczyk, Johan Rooryck, Fair open access publishing model
- 16:00-16:20 Gerard Meijer, Radboud University
- 16:20-17:30 [Stakeholder panel on alternative open access publishing models](#)
 Moderators: Jean-François Dechamp (DG RTD) and Celina Ramjoué (DG CONNECT)
 Paul Ayris, League of European Research Universities (LERU)
 Lidia Borrell-Damián, European University Association (EUA)
 Eelco Ferwerda, Open Access Scholarly Publishers Association (OASPA)
 Ruth Francis, Springer Nature / for Int. Assoc. of Science, Techn. & Med. Publishers (STM)
 Elena Giglia, Univ. of Turin / for Scholarly Publ. Acad. Resources Coalition (SPARC) Europe
 Susan Reilly, Association of European Research Libraries (LIBER)
 Natasha White, Wiley, for Assoc. of Learned and Professional Society Publishers (ALPSP)
 Questions and discussion
- 17:30 [End of workshop](#)

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