

Changing patterns in scholarly publishing: interim report on an ARC funded research project

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Abstract:

This paper reports on the progress of a three year ARC funded research project that is exploring issues associated with ongoing business models for digital scholarly publishing. While the ARC project itself is exploring broad changes within the publishing environment, this paper focuses on issues associated with open access publishing. The paper provides an overview of the research focus and its methodology and then broadly discusses issues of ongoing sustainability, and the impact of policy change on access and potential changing patterns of usage of digital scholarly content. These issues form the basis for the ongoing research project.

Background

In defining open access publishing, the Open Society Institute suggests that open access publishing aims to achieve three criteria:

1. The article is universally and freely accessible, at no cost to the reader, via the Internet or otherwise, without embargo.
2. The author or copyright owner irrevocably grants to any third party, in advance and in perpetuity, the right to use, copy, or disseminate the article, provided that correct citation details are given.
3. The article is deposited, immediately, in full and in a suitable electronic form, in at least one widely and internationally recognised open access repository committed to open access and long-term preservation for posterity.

(Open Society Institute 2005)

While there is much debate about open access publishing, it has recently been suggested that open access scholarly publishing is now an established medium and is complementary to traditional publishing processes. Gass and Doyle (2005) argue that:

“It is time to move beyond rehashing tired arguments about whether open access poses a threat to publishers, professional societies, or research budgets. We should begin to discuss how best to use what open access gives us: the unfettered availability of scholarly literature. The strongest evidence that open access to peer-reviewed articles is here to stay, at least in the life sciences, comes from two developments: the increasing number of agencies and foundations that have begun to require or encourage free online access to publications based on research they have helped finance; and the growing number of journals that allow authors to make their papers freely available.”

(Gass and Doyle 2005)

Within the scientific community, they suggest that the open access publishing movement may in fact be forcing the development of new policies on the dissemination of scholarly material.

“Quite a few experts are clearly betting that open access will not precipitate the collapse of scholarly publishing. In fact, the case could be made that a consensus in favor of open access is emerging among scientific and policy-making institutions -- as well as individual scientists -- around the world”

(Gass and Doyle 2005)

The open access movement has the potential to impact on the various actors or parts of the scholarly publishing supply chain. This is particularly important within the Australian environment, as there has been an increased development of open access projects, especially Australian collaborative projects.

The School of Business Information Technology at RMIT University is completing an Australian Research Council (ARC) investigation into the changing patterns and business models for digital scholarly publishing. This paper presents an overview of the project and a status report on the issues that the research is focusing on.ⁱ

Competition and collaboration

The ARC project is titled “Competition and Collaboration in the Market for Digital Publishing” and has as its broad focus the exploration of the current digital scholarly publishing arena. This is being completed within the context of emerging business models for an industry that is both competitive and collaborative. The competition and collaboration notion stems from the processes of scholarly publishing that are certainly competitive within the commercial market place, but are also demonstrating collaborative processes. These collaborative processes include the nature of how scholars and researchers participate in editorial and peer review processes; how partnerships have formed for the development of aggregation content services and how open access initiatives (especially repository development) have developed through partnership projects such as Australian Repositories Online to the World (ARROW) and Australian Partnership for Sustainable Repositories (APSR).

This research project has two specific foci. The first is related to identifying new publishing models to assist in the transfer of knowledge between the creator and seeker of scholarly information. This first focus is applying knowledge management and communication theories to the publishing process. Viewing scholarly publishing as a communication process between the author (creator) and reader (seeker), new models and technology for achieving this communication process will be explored. The second focus is specifically exploring the process of open access publishing, with an emphasis on the ongoing sustainability of this publishing model. This paper focuses on the latter issue of open access publishing.

The open access movement

The open access publishing movement has developed two broad publishing models or processes.

One model is based on digital archiving or publishing content on servers that are open to the web. This process is an extension of Harnad’s notion of scholarly skywriting that is using digital communication channels as a way to freely disseminate scholarly content (Harnad 1990; Harnad 1991). This has developed into the process of pre and post print servers that allow for content that is being prepared for commercial publication to also be made available freely. This, so called green publishing, has a number of models associated with it that include:

- the archiving of the original version of scholarly content on the archive server of the author’s home institution prior to the commercial publication of the article;

- the archiving of the edited copy of the commercial article on the author's server in tandem with the commercial publication by an scholarly publisher,
- the hosting of a post print copy after an embargo period of between six to twelve months by the commercial publisher.

The second broad model is that of professional journals being made 'freely' available through web access. These journals maintain professional process including peer review, editorial control and marketing processes, but shift the cost of this process away from the reader. In many instances, this cost is shifted to the author; as the author, their parent institution or their research project pays for the process of publication.

In between these two broad models are other processes that facilitate a more open approach to publishing. Willinsky (2003) identified nine business models for the development of open access content. These models include:

1. Eprint archive – authors archive pre or post prints in an open access archive
2. Unqualified – immediate and full open access to a journal
3. Duel mode – both subscription based print edition and electronic open access edition made available
4. Delayed open access– open access edition made available some months after the commercial edition has been published
5. Author fee – Authors pay a fee to have their article published in an open access source
6. Partial open access – some articles in an edition are open access
7. Per Capita – open access content made available to a country on a per capita basis; especially to developing counties that could not pay commercial access costs
8. Abstract – open access to journal abstracts and table of contents
9. Co-op – institutional members support open access journals
(Willinsky 2003)

In 2003, the Australian government allocated twelve million dollars to four projects aimed to establish infrastructure for increasing access to Australian research (McGauran 2003). These projects are leading to the development of incubator test infrastructures that are based on institutional pre and post press repositories. The aim is to foster models for the development of Australian-wide research repositories. This suggests that government agencies are viewing open access processes as a means to broaden the dissemination of research and scholarly output. Assuming that these projects will not remain centrally funded by government grants, there is the need to explore the question of what business models will support sustainability for these and other open access projects.

Aims of the research project

Obviously open access publishing supports a philosophical viewpoint that scholarship and research output should be disseminated as widely as possible. This is illustrated by IFLA's statement on open access:

IFLA affirms that comprehensive open access to scholarly literature and research documentation is vital to the understanding of our world and to the identification of solutions to global challenges and particularly the reduction of information inequality.

Open access guarantees the integrity of the system of scholarly communication by ensuring that all research and scholarship will be available in perpetuity for unrestricted examination and, where relevant, elaboration or refutation. (IFLA 2004)

However, there is considerable interest and debate within the library, information and publishing communities regarding open access initiatives. This debate is summarised in Horwood and Sullivan's (2005) paper on open access models. They indicate that libraries and governments support the notion of open access and dissemination of scholarly content and research. However, traditional publishers are presenting mixed reactions to the movement, with some attempting partial open access 'experiments', while other publishers are critical of the sustainability of open access publishing (Horwood and Sullivan, 2005).

While this movement is not going to undermine the larger commercial publishing processes, the movement will impact on how we disseminate access and use scholarly content. This impact is the basis for part of this ARC research project.

Specifically the project is addressed the primary questions of:

- What is the long-term sustainability for existing business models for open access scholarly content?
- What impact (immediate and potential) do open access publishing models have on authors, traditional publishers, intermediaries and aggregators?
- What are the emerging access patterns for digital scholarly content and information?
- What are the user needs and usage patterns in relation to digital scholarly content?

While these questions will obviously be refocused as the project continues, the broad issues that are being addressed relate to:

- Issues of sustainability
- Issues of impact on access
- Issues associated with potential changes in content aggregation

The focus of these questions has been partly tested through informal discussion with different representations of the scholarly publishing process.

Methodology

The research is based on “grounded theory research” in that the data source is primarily qualitative and is being collected so as to determine ongoing business models for open access publishing. The methodology and data collection techniques will include the use of:

- Targeted focus groups
- Questionnaires
- Longitudinal study of ePress developments

The aim of the methodology is to determine the current state of play within the Australian digital publishing processes. By drawing on opinion, viewpoint and data from the different players involved in scholarly publishing, the project will assist in collating the various driving forces and issues impacting on open access delivery and development. The later stages of the methodology include a scenario building forum that aims to project the issues ahead in time and to determine where the open access movement and the broader scholarly publishing processes may be heading. One of the main outcomes of this research is the comparative analysis of the views and issues of the various industry stakeholders. This will be reported through the academic literature.

Current issues in open access

The ARC research forms part of recent debates associated with sustainability of open access publishing as well as trends in the perceived increase of use of content sourced from open access resources. This is particularly evident in observed use of the open web as a primary source of content, by students, for their academic work. Some of the issues associated with the emerging publishing models are outlined below.

Author funded publishing

Any publishing process comes at a cost and the financial sustainability of open access publishing needs to be investigated. Various models exist for the financing of such publishing, one of which is the transfer of the publishing cost to the author. This model operates from the notion that publicly funded research should be publicly distributed. That is, if research has been funded from grant money, then this funding should also cover the cost of dissemination of the resulting research. This means that the “public purse” is not paying for the research twice – that is to fund the actual research and then to pay for access to it through a commercial publishing process. This business model has been questioned, especially from the viewpoint that many academics do not have extensive government funding opportunities and therefore the individual is forced to cover

the cost of their publishing endeavours. As the competition for research funding intensifies and as the Commonwealth Government “Higher Education Reform” processes potentially change funding models for different university environment, the ability for the individual Australian research to fund their own publishing processes seems difficult.

Even where authors cover aspects of the publishing process, this contribution and cost varies from journal to journal.

The cost of publishing a journal article varies greatly by field, publisher and journal. Prestigious journals that reject most submissions claim that this figure may be close to \$10,000 or even higher. BioMedCentral currently holds the author fee for most of their journals at \$525 per article, but costs are highly subsidized by institutional membership fees. The company is still losing money. The Public Library of Science (PloS) charges \$1,500 per article to publish in its flagship journal, *Biology*, but this fee is also based on institutional support and a large foundation grant. (Davis 2004 p.8)

Davis suggests that this variation is based on the range of subsidisation that can be provided by the publisher, parent institutions and professional associations. Part of the debate between the traditional publishers and the open access movement is that actual true costs of the publication process are difficult to determine or agree on, as much of the publishing process (for example editorial and peer review) is completed on a non-commercial model. There have been efforts in the UK to determine the true cost of the scholarly publishing process, and part of the outcome of this research initiative is to determine such costs within the Australian environment. The aim here is to ascertain what the current ‘in kind’ contribution the university environment is already giving to the scholarly publishing processes and determine what ratio, therefore, this is in relation to the actual hard costs associated with the dissemination processes (that is the commercialised processes).

Institutional funded publishing

An alternative to the individual research funding the publishing of their research output is the notion that these costs should be institutionally funded by the researcher’s organisation, parent body or professional association. In this model, the open access publishing processes become a university overhead cost. Some consideration has been made to determine the viability of transferring the funding the university library uses for commercially published material, towards a university library based e-publishing process, especially a cooperative approach between different universities.

Cornell University Library have prepared a first report that has mapped the economic impact for the library if the University moved funding away from the purchase of scholarly material, through the library, and instead funded the author creation of content through author funded open access publishing. The first report states that the

“Task Force has concluded that what appears at present to be the most viable route for sustaining Open Access to peer-reviewed scholarship – a model in which institutions pay for their faculty to publish in refereed OA journals – would not bring about cost savings for Cornell. In fact, taking into account the number of articles published by Cornell researchers each year and the average cost to publish a single refereed article, CUL would likely see its serial expenditures *rise significantly* if the library used its current subscription funds to pay for author fees instead – even in scenario in which the majority of publishers switch overnight to a producer pays OA business model” (Davis 2004 p. 5)

The impact of shifting budgets is contentious. However, investigations such as Cornell’s study are important to determine actual impact on scholarly communication processes, as budget allocations change, research funding models change and as Universities determine models to support sustainable e-press or archive processes.

Student access to scholarly content

While scholarship is obviously published to assist in the dissemination of research and knowledge, such publication also forms a key part of the actual delivery of teaching and learning processes. While academic libraries provide students with access to this scholarly content through their subscription to aggregation services and online content, observation of how students actually access scholarly material tends to suggest an ongoing reliance on the open web as a primary source of content. This is certainly confirmed by the students of undergraduate courses at the School of Business Information Technology and it is assumed that this is a common process for other students in other courses.

While academics may complain that the resources that students access from the open web do not always represent scholarly authored content, initiatives such as Google Scholar are providing filters to the web that can assist searchers in locating scholarly published content. As such web filters continue to develop, there is a need to monitor, test and evaluate the synergy between the development of initiatives such as Google Scholar and the increasing availability of open access content.

”Google, of course, indexes entries in Institutional Archives! Whether EPrints or DSpace, these OA repositories are providing grist to Google's mill. So the Google scholarly search engine is a welcome addition to the arsenal of services that researchers use to mine the literature - but it is still OA Institutional Repositories that provide the best chance of getting readable copies of those papers into Google!” (Carr 2004)

If open access journals and repositories continue to increase and if Google Scholar can position itself as a scholarly filter or search engine, then what will this do to the current aggregation services of commercial scholarship? Will Google Scholar become the new aggregator? Again,

the long term monitoring of these development and assessment of their use by the questioning of users forms an ongoing basis for this research investigation.

Open access or public domain

The perception of ownership has also been identified as an emerging issue for open access content. In the early support for institutional repositories, Harnad (1990) proposed that issues associated with handing over copyright of an article to commercial publishers could be addressed by submitting the pre-print article (that is the original non-edited article) to the repository, as the copyright in this version remains with the author. Recently, many commercial publishers acknowledge the repository process and actively support the submission of content to such repositories, though under different time embargos. Within the open access journal process, the use of “author friendly” publishing agreements, such as the Creative Commons agreement attempt to protect the authors intellectual property, yet still allow greater freedom of access to the content.

However, concern has been raised that such processes may lead to the misconception that there is no original ownership of the intellectual content of open access published material. Gadd (2003) raises concern that open publishing could be misinterpreted as being within the public domain; that is, outside of copyright ownership. Gadd (2003) suggests that fully available open access content could:

“leave the scholarly journal literature facing the same problems that other open-access web pages have faced since the birth of the Internet, namely, the misunderstanding that ‘publicly available’ means ‘in the public domain’.
(Gadd 2003)

Copyright and licensing processes will legally prohibit the misuse of intellectual property, however Gadd may be identifying an issue of perception that could possibly be true for a generation of users who access music and other content through web based downloading. Do such users differentiation the validity and ownership of scholarly content and what is their perception of use of such material?

Research Quality Framework

Scholarly publication forms only part of the measurement of academic performance; however, there continues to be conflict between performance measurement and the philosophy of freely disseminating scholarship. The Australian Government is reviewing research funding by developing new research performance measures as part of the “Research Quality Framework - RQF” (Commonwealth of Australia 2005). While the measurements for research output are being developed, there is the need that such measurements should include open access publishing process as a valid recognition of research output. The emerging measurements reflect the process of comparative ranking and traditionally, in relation to published output, this is based on publication in the top rated international journals. Such journals tend to be established commercially published journals. While this is not the only measurement of research output that will form part of the RQF, it is a measurement that seems in conflict with other government

initiatives of developing collaborative institutional archive processes. As the framework is developed and established, it should recognise the citation advantage of open access publishing processes. At the moment, the status of open access repositories (pre and post print archives) is difficult to determine under such scholarship measurement.

Traditional versus open access debate

Issues associated with how open access processes, especially that of repository content, threaten or complement traditional publishing continue to be debated. While, at one level, it seems that both traditional publishing processes and open access initiatives are surviving together, the debate of 'treat to revenue' and 'replacement business models' does continue to emerge. This is illustrated by recent debate regarding the Research Councils UK statement "RCUK position statement on access to research outputs". The statement recommends that:

"Where research is funded by the Research Councils and undertaken by researchers with access to an open access e-print repository (institutional or subject-based), Councils will make it a condition for all grants awarded from 1 October 2005 that a copy of all resultant published journal articles or conference proceedings (but not necessarily the underlying data) should be deposited in and/or accessible through that repository, subject to copyright or licensing arrangements" (RCUK 2005).

However, this statement has been criticised by some of the UK based publishing bodies as being an attempt to force an alternative mode of publishing and thus potentially undermining the review flows of these scholarly publishers. Harnad suggests that the UK STM (International Society of Scientific, Technical and Medical Publishers) and ALPSP (Association of Learned and Professional Society Publishers) responses to this position statement highlight a belief that open access repositories are a threat to the traditional publishing environment (Harnad 2005). While it is recognised that Harnad represents the RCUK, the debate that has occurred and the rebuttals to public statements around this debate, highlight a sense that open access may still be perceived as a threat to traditional publishing.

It is suggested that a clearer understanding of how users access scholarly content may determine whether the treat is being cause by reader preference for access and that securing scholarship behind commercial processes will not stop of hinder this threat.

Open access scene and perceived outcomes of the research project

Scholarly publishing has the potential to exploit the current and emerging communication technology. Hirshon states that "higher education and scholarly inquiry sit at the nexus of four important factors: communications technology, the communications business, e-content

development, and the e-content business” (Hirshon 2005). He predicts that as technology devices continue to converge, then “the time for e-content will be always, the place will be everywhere, and the demand will become insatiable” (Hirshon 2005). The Research Council UK suggests that ““Publication” may thus be seen as a series or continuum of distinct activities (peer review, ‘kite marking’, editing, promotion, printing, distribution, placing in repositories, long-term curation...) undertaken according to circumstances by different players, thereby blurring the distinction between the roles of these players’. (RCUK 2005)

The scholarly and professional publishing environments are changing and have the potential to provide new ways to increase and improve how scholars share information and how readers access this information. In many ways, the open access publishing movement models the processes of traditional publishing. That is, the scholarly writing style, peer review processes and authority control are similar to that of commercially published scholarship. What is different is the access model – that is a model that shifts the actual costs of production away from the reader. However reading and access models will impact on how the publication of scholarship continues. The open web seems to have developed a mindset that assumes that it becomes a first starting point for search and retrieval needs. Students in particular reinforce the net as being a primary source for academic evidence. Informal surveying of students at RMIT suggests that the net is their starting point for scholarly material and this is then reinforced through the use of commercial aggregators. RMIT Library, just as other academic libraries, is determining how to integrate Google Scholar into the information literacy processes and their search and retrieval support for the RMIT community. Open access publishing has the potential to provide suitable research and scholarly content that these types of access patterns will retrieve.

This research project attempts to explore this changing pattern of scholarly dissemination and retrieval. The outcomes of this exploration will be:

- Understanding of the ongoing viability and sustainability of open access initiatives
- Determine the impact of open access publishing on retrieval of scholarly content
- Determine the take up and use of open access publishing processes by Australian academic community

Ultimately, this research study aims to map this changing environment so that providers of scholarly content (whether commercial or open access) can work towards ongoing sustainable business models that maintain a focus on actual reader needs. There is no doubt that there is great philosophical support for processes that allow for freely disseminated scholarly content. There are also projects that are starting to provide the infrastructure for such open access processes. However, such projects tend to be specially funded. We need to determine models for ongoing support for these projects at a time when Australian universities’ teaching and research funding is pressured by other influences, including changing patterns of student participation in higher education and further restrictions on government funding processes.

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Endnote

ⁱ At the time of preparing this paper, the first data collection process was just commencing. While the results of this initial focus group cannot be presented in this formal paper, they will be discussed during the conference presentation.