Overlay Journals, repositories and the evolution of scholarly communication.

Abstract:

This paper examines the part overlay journals can play in developing new roles for repositories in the scholarly communication process. This requires that we answer some outstanding questions about the overlay journal model:

- How are overlay journals distinct from other overlay services and other journals?
- What business models are applicable?
- What opportunities do overlay journals offer to repositories?

And, perhaps most importantly:

- What value can an overlay journal bring to the process of scholarly communication?

As a result of the answer to the first of these questions, this paper gives a definition of an overlay journal as an entity that performs all the activities of a scholarly journal and relies on structural links with one or more archives or repositories to perform its activities. It finds that the overlay journals that already exist use a variety of business models, which means that repositories can engage with overlay journals in many different ways. Research and practice show that overlay journals offer new possibilities for publishers, repositories, authors and readers alike, and as such have a great deal to offer to scholarly communication.

What is an 'overlay journal'?

In order to address the first question, it is necessary to answer the slightly vexed question of what an 'overlay journal' is or could be. Some of the most prominent figures in the open access movement have offered differing definitions of an overlay journal as:

> *"An open access journal that takes submissions from the preprints deposited at an archive... and subjects them to peer-review"*[1]
>
> "*A quality assured journal whose content is deposited to and resides in one or more open access repositories"*[2]

These definitions emphasise the relationship with Open Access (OA) repositories. Other definitions point to different models:

> *"An overlay journal is a journal that does not publish any original articles but rather selects articles that exist elsewhere, adds certain value to the selection, and publishes the results as a service to its user base"*[3]

What these models share is:

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[1] Suber, P. (2003) Guide to the Open Access Movement. [online] Available at: http://www.earlham.edu/~peters/fos/guide.htm [Last accessed 10/12/09]

[2] Repository Interface for Overlaid Journal Archives (RIOJA) project definition. http://www.ucl.ac.uk/ls/rioja/

[3] Van De Sompel, H.; Rodriguez, M.A. & Bollen, J. (2006) The convergence of digital libraries and the peer-review process. Journal of Information Science, 32(2), pp149-159.

- an overlay ***structure***, in which the journal forms an information service built on existing services and data
- the idea that the journal imprimatur, just as in a traditional scholarly journal, acts as a ***guarantee of quality*** of its content.

Overlay as a structure.

Overlay as a concept is a modern version of an old phenomenon. We are all familiar with the idea that a library contains books, creates descriptive records for them, and then links the records together to create a searchable catalogue. Essentially, a union catalogue, which draws together the records from a number of libraries to create an additional service layer, is an overlay on this information structure.

Overlays, when seen in this way as a structural class of information service, are today everywhere and have never had a greater impact on scholarly communication[4]. However, overlays such as OAIster[5] or RePEc[6] basically gather bibliographic data. They do not address the *quality* of the information they provide. Some overlay services, such as citation indices[7], claim to measure quality by using impact as a proxy. Even these though do not directly assess the quality of scholarly content.

Journals and quality assurance.

Traditional journals perform peer review of the content they publish. This directly assures its quality and is the most important activity of academic journals to researchers[8]. They also perform a number of other functions:

1. **Registration** (of an idea as one's own),
2. **Certification** (of the quality of the idea),
3. Raising **awareness** of the idea,
4. **Archiving** its expression and
5. **Rewarding** the author by affording them the benefits of citations and ensuing recognition.[9]

It is clear that an overlay journal offers all these services, either on its own or through interactions with OA repositories.

The argument presented here is that what makes a service an 'overlay' is its structure, the way it relates to other services. What 'makes' a journal is its activities. What distinguishes the overlay journal from many of the other overlay services available is its active participation in quality assurance: it either offers vital peer review of its content or offers an additional layer of quality

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[4] Enger, M. (2005). The concept of 'overlay' in relation to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). MSc Thesis, University of Tromsø.
[5] http://www.oclc.org/oaister/
[6] http://www.repec.org/
[7] See for instance http://www.scopus.com/home.url or http://www.isiwebofknowledge.com/
[8] Polydoratou, P & Moyle, M. (2009) "Exploring aspects of scientific publishing in astrophysics and cosmology: the views of scientists" in Sicilia, M & Lytras, M. (Eds) (2009) Metadata and semantics. Springer US, pp179-90.
[9] Roosendal, H.E. & Guerts, P.A.T.M. (1997) "Forces and functions in scientific communication: an analysis of their interplay" in Proceedings of the conference on 'Co-operative research in information systems in physics', University of Oldenburd, Germany, September 1-3, 1997.

assurance, based on relevance or significance. They are distinguished from traditional journals which also offer quality assurance by their structural relation to other data and information services, hence the need to treat them as neither 'just another service' nor 'just another journal', but as a distinct phenomenon within scholarly communication.

Overlay Journals in practice.

Overlay journals and repositories:

Institutional or subject repositories perform four out of the five functions of a journal listed above. They do not assure the quality of the content they make available. However, by adding an overlay to their services, in which peer review is performed, they can participate in academic publishing and extend the services they afford to the scholarly community.

Overlay journals and repositories can interact in many different ways, for example:

- The repository is used for submissions and archives preprints *e.g. Annals of Mathematics*
- The repository handles submissions and hosts the final versions *e.g. Symmetry, Integrability and Geometry: Methods and Applications.*
- The repository is used as the basis for the journal's online presence *e.g. Logical methods in Computer Science*

Overlay journals can be open access, or can use a subscription model for their final versions. The arXiv repository supports overlay journals that use these differing interactions and business models, which shows the flexibility of the overlay model. Different levels of interaction between a journal and a repository are possible, up to 'full' overlay in which the two are linked at every stage of the publication process.

Exploring overlay journals:

Various Joint Information Systems Committee (JISC) funded projects have explored and enhanced overlay journals:

- The RIOJA project explored the attitudes of academics in physics and astronomy to journal publishing and the overlay journal model. RIOJA developed a set of Application Programming Interfaces (APIs) to link journal and repository software in support of the peer review of papers stored in Repositories, and demonstrated them using the Open Journal System (OJS)[10] software and arXiv.
- The Overlay Journal Infrastructure for the Meteorological Sciences[11] (OJIMS) project created the basis for a subject repository for meteorological science and a peer-reviewed data journal overlaid upon it.

The work of these projects has:

- shown that ***a number of business models are applicable***
- ***helped repositories to fulfil their potential*** as scholarly resources

[10] http://pkp.sfu.ca/?q=ojs
[11] http://proj.badc.rl.ac.uk/ojims

- developed technologies to support ***new mechanisms of peer review***
- shown that the model can be ***academically and financially viable***
- created ***new forms of journal*** using the overlay model.
- demonstrated that the ***overlay concept enhances repositories*** by increasing their usefulness to researchers and improving their sustainability with value-added services.

Overlay journals and scholarly communications:

There are numerous ways in which publishers could exploit the overlay model to offer innovative services and products, including extending peer review, adding navigation or semantic discovery services, supporting archiving and administration, bibliometric services and impact and usage analysis[12]. They could charge for these services individually or as a package. This would mean libraries and scholars could build more flexible services with their subscriptions. By linking these services to the innovative emerging harvesting, web 2.0 and community services that are being developed by repositories, overlay journals will be able to offer a suite of new possibilities to scholars and students.

The link between repositories and overlay journals means that pre- and post-prints can be made available if so desired, alongside datasets and peer review notes to open up quality assurance to new scrutiny[13] and to help improve scientific communication[14]. Overlay journals have been described as the 'future' of open access[15] and as a 'win-win-win-win' for repositories, publishers, authors and readers[16].

Overlay journals also offer the means for institutions or groups of institutions to engage directly with specific subjects and disciplines using their existing repositories to develop and populate journals.

In conclusion, it can be seen that overlay journals offer the possibility for repositories to take on new roles within the scholarly communication process, and offer substantive possibilities for innovation in publishing, peer review, data publishing, and open access. There are projects, services and ideas emerging which will fuel the creation of new journals and strengthen existing repositories and scholarly communication as a whole.

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[12] Cassella, M. And Calvi, L. (2009) New journal models and publishing perspectives in the evolving digital environment. World Library and Information Congress: 75th Ifla General Conference and Council, Milan, Italy 23-27 August 2009 [online] Available at: http://www.ifla.org/files/hq/papers/ifla75/179-calvi-en.pdf [Last accessed 4/12/09]

[13] Ginsparg, P. (2002) Can peer review be better focussed? Science and Technology Libraries, 22(3-4), pp5-18.

[14] Kuperberg, G. (2002) Scholarly mathematical communication at a crossroads. Nieuw Archief voor Wiskunde, 5(3), pp3262-4.

[15] Hagemann, M. (2006) SPARC Innovator: Melissa Hagemann (December 2006). [online] Available at: http://www.arl.org/sparc/innovator/hagemann.shtml [Last accessed 8/12/09]

[16] Hendler, J. (2007) Reinventing academic publishing: part 2. IEEE Intelligent Systems, Nov/Dec 2007, pp2-3.