An Introduction to Overlay Journals

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Introduction

An overlay journal performs all the activities of a scholarly journal and relies on structural links with one or more archives or repositories to perform its activities.

This paper offers a briefing on the contribution overlay journals can make to scholarly communication. It explains what 'overlay' services are, how overlay journals have evolved and what makes their contribution to scholarly communication so valuable.

What is "overlay"?

Overlay 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 extra service layer, is an overlay on this information structure.

 Overlays are today everywhere and have never had a greater impact on scholarly communication.

They are useful because they:

- Create services that can cut through the mass of online data
- Save researchers time and effort by pointing them to a particular kind of information
- Offer new ways of packaging and exploiting information

Examples of successful overlay services:

 OAIster[1] is an overlay which provides a unified access point to online Open Access (OA) content in digital repositories.

RePEc[2] is an overlay which draws together bibliographic information about publications within the subject of Economics.

These services are basically concerned with bibliographic data. They do not address the quality *of the content they describe or locate.*

Some overlay services can address issues of quality. Citation indices (such as Scopus[3], or Web of Knowledge[4]) are overlay services on bibliographic databases. By measuring citations, they claim to

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[1] http://www.oclc.org/oaister/
[2] http://www.repec.org/
[3] http://www.scopus.com/home.url
[4] http://www.isiwebofknowledge.com/

be measuring a proxy for quality, namely 'impact'. However, this claim is not uncontroversial[5] which is why there is still a premium on research that has been directly quality assured using peer review.

Research has shown that most researchers regard peer review as the single most important activity of academic journals (Polydoratou and Moyle, 2009, p185).

What distinguishes the overlay journal from other overlay services is its active participation in quality assurance: it either offers peer review of its content or offers an additional layer of quality assurance, based on relevance or significance.

The history of overlay journals shows that they are neither 'just another service' nor 'just another journal', but a distinct and interesting phenomenon within scholarly communication.

The evolution of overlay journals.

There are various ways of defining or describing overlay journals:

> *"An open access journal that takes submissions from the preprints deposited at an archive... and subjects them to peer-review"* Peter Suber (2003)

> *"A quality assured journal whose content is deposited to and resides in one or more open access repositories"* Repository Interface for Overlaid Journal Archives (RIOJA) project[6] definition

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"* Herbert Van de Sompel *et al* (2006)

What these models share is:

- 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.

What makes a service an 'overlay' is its structure, the way it relates to other services.

What 'makes' a journal is its activities. These are:

1. **Registration** (of an idea as one's own),
2. **Certification** (of the quality of the idea),

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[5] See the discussion that led to the current Research Excellence Framework proposals. The International Mathematical Union weighed in with a good account of 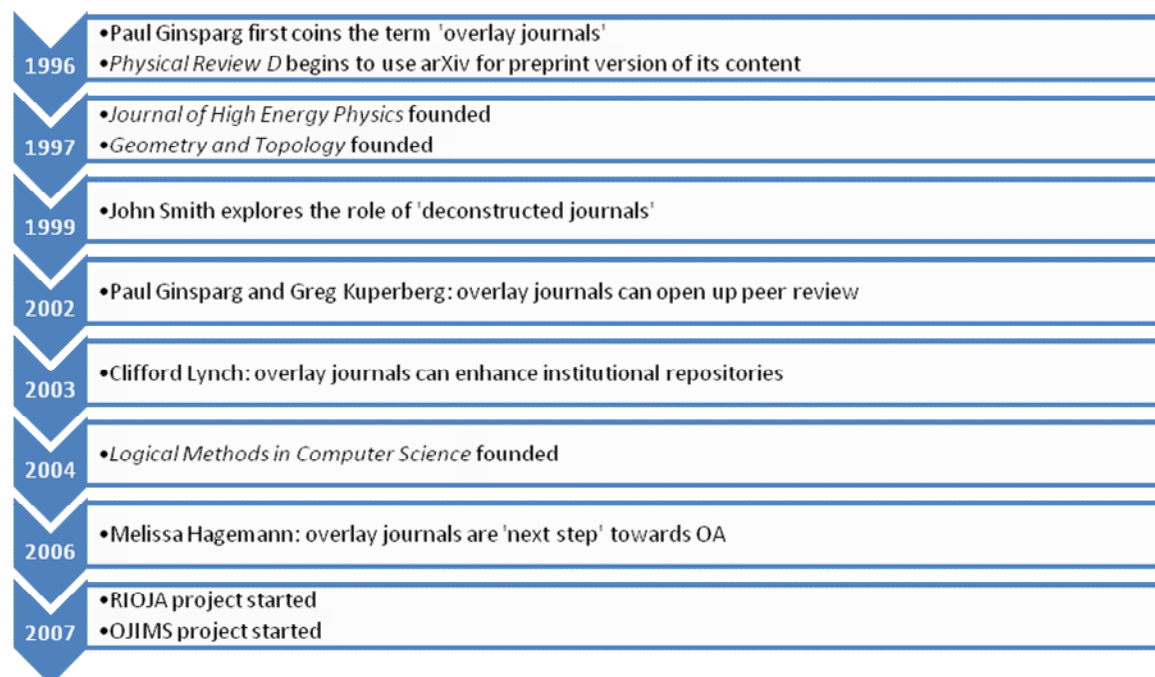the limits of citation analysis, which is available at http://www.mathunion.org/fileadmin/IMU/Report/CitationStatistics.pdf
[6] http://www.ucl.ac.uk/ls/rioja/

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.

(Cavalli (2008); Rosendal and Guerts (1997))

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

The timeline below shows some of the defining moments in the evolution of overlay journals:

1996
- Paul Ginsparg first coins the term 'overlay journals'
- *Physical Review D* begins to use arXiv for preprint version of its content

1997
- *Journal of High Energy Physics* founded
- *Geometry and Topology* founded

1999
- John Smith explores the role of 'deconstructed journals'

2002
- Paul Ginsparg and Greg Kuperberg: overlay journals can open up peer review

2003
- Clifford Lynch: overlay journals can enhance institutional repositories

2004
- *Logical Methods in Computer Science* founded

2006
- Melissa Hagemann: overlay journals are 'next step' towards OA

2007
- RIOJA project started
- OJIMS project started

Discussion of the concept of overlay journals began with Paul Ginsparg (1996). Also in 1996, the first 'partial' overlay journal, Physical review D, began to use arXiv to disseminate a 'preprint version' of its content (Cassella & Cavali, 2009). In 1999, the potential of overlay journals was explored further by John Smith (1999) with his paper on 'deconstructed journals'. The turn of the century saw the foundation of the first 'true' overlay journals, such as the *Journal of High Energy Physics*[7], *Logical Methods in Computer Science*[8] and *Geometry and Topology*[9], all clustered around the arXiv repository.

The accessibility of pre- and post-peer review versions of the articles in these journals by their relationship with arXiv created further discussion about the potential role of overlay journals in opening up peer review (Ginsparg (2002) and Kuperberg (2002)). The importance of overlay journals to the potential for institutional repositories to contribute more actively to scholarly communication was outlined by Clifford Lynch (2003), an assessment echoed by Melissa Hagemann's (2006) suggestion that overlay journals could be a 'next step' towards achieving open access.

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[7] http://www.iop.org/EJ/journal/1126-6708
[8] http://www.lmcs-online.org/index.php
[9] http://www.msp.warwick.ac.uk/gt/2010/14-01/

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.

Other overlay services:

Van de Sompel's definition of an overlay journal describes an existing group of journals and services. These include the *Virtual Journals in Science and Technology* series[10] and the *Current Cites*[11] service. These services act as lenses on the current literature, with editors gathering together the best articles in their specialism from the range of scientific journals in each issue.

These examples are certainly true overlay services, and they certify the quality of their content, since they form a second, additional layer of peer review for the literature in the field in which they operate. This kind of current awareness service is of great value to the communities that benefit from it, but it can be argued that they do not fulfil all the roles of the academic journal listed above. They certify quality, raise awareness and reward authors of work, but they do not register or archive the work, and as such could be called 'quasi-journals'.

However, it is worth looking at these services because their activities make it clear that a single repository can interact with multiple journals (e.g. arXiv) and that a single journal can interact with multiple repositories (e.g. the *Virtual Journals*). These options mean that the partners in an overlay journal can pick and choose the level and nature of their contribution to a greater degree than with 'traditional' journal models.

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[10] http://www.virtualjournals.org/vjs/
[11] http://lists.webjunction.org/currentcites/

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 (Polydoratou and Moyle, 2009). 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)[12] software and arXiv.
- The Overlay Journal Infrastructure for the Meteorological Sciences[13] (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
- 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 publishers:

Casella and Calvi (2009, p8) describe 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. 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.

Conclusion: opportunities and challenges.

There are certainly obstacles to overcome in building new overlay journals. Repository managers and journal editors will have to find suitable arrangements for dealing with versions of articles, to give just one example. However, there are practical solutions already used by existing overlay journals and tools that have been created by overlay projects to address these potential problems. Even allowing for the challenges that remain, the many possibilities offered by overlay journals could be positive for stakeholders across the scholarly spectrum. James Hendler (2007, p3) described

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

overlay journals' impact on scholarly communication as 'Win-win-win-win', for publishers, repositories, authors and readers. As he went on to remark: "How often do you see that?"

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