Reshaping Scholarly Communication

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For academic libraries and librarians it is impossible to know the future landscape of scholarly communication. But it is necessary to wonder about it, and imperative to act. By now many of the facts are known. There is mounting evidence of the economic unsustainability of current scholarly communication systems.[1] Unhappiness about the trends and a desire by all parties to have a healthy system for disseminating and managing the results of scholarship are leading to an amazing variety of actions. Witness the parliamentary investigations, the flood of speculation and pontificating, reports in the popular press, the deployment of actual new business models for publishing, and, most telling, faculty resolutions and editorial revolts.[2]

Principled, Thoughtful Action

It is by now clear that significant pieces of the landscape are crumbling and that change is needed. What is more difficult is to focus the energy of speculation and the imperative to contribute in a way that leads to principled, thoughtful action.

Like many of you and your institutions, for years the University of California libraries have been engaged in these issues and working for change. However, recent events, unprecedented faculty support, and clear successes for our eScholarship publishing infrastructure have led us to consider an even more explicit and collective scholarly communication program.

UC recently received attention for the unprecedented result of its negotiation with Reed-Elsevier at the end of 2003. That outcome – including more favorable terms on base costs, annual price increases, and preservation copies of journals – gave UC continuing access to materials we otherwise would have been forced to cut. It provides necessary budgetary flexibility for journals from other publishers that represent a closer alignment between price and value. And, if nothing else, it bought time to more deeply consider a

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[1] The extreme disjunction caused by the triple whammy of escalating prices, expanding volume, and limited library buying power for published scholarship are perhaps best represented by the ARL Creating Change graphic at http://www.createchange.org/librarians/issues/silent.html.
[2] Expressions of the certain need for healthy systems that support the production and spread of knowledge and of starting points to maintain that health are found in a growing number of faculty resolutions calling for attention, if not always action. Peter Suber maintains a list of such resolutions at < http://www.earlham.edu/~peters/fos/lists.htm#actions >.

situation that had led, prior to the negotiation, to spending 50% of the UC's online materials budget for journals that received only 25% of the use.

But beyond providing a small economic breather, the negotiation and surrounding context revealed profound passions of librarians, faculty, administrators, and other partners. Tapping that passion clearly yielded support for the tactics of that one negotiation. ("Passion" can be used in this context in both its common sense of "strong emotion" and the recently revived one based upon the Christian etymology, i.e. of "suffering.")

More than that, it reaffirmed that the libraries must take a key programmatic role in the university's response to the need for structural change in scholarly communication systems. At UC the cumulative effect requires us to move from one-time battles and tentative publishing innovations to programmatic efforts based on evidence, guiding principles, and action priorities.

The result is the articulation of a UC libraries scholarly communication program guided by principles and focused by a set of related priority actions.[3] Those principles and priority actions currently include:

Principle: Action must be based upon deep understanding of the factors, dynamics, economics, and the needs of stakeholders in scholarly communication systems.
Action: Extend and deepen understanding through applied research and thoughtful outreach efforts. Share this understanding with faculty and use it in library decision processes.

Principle: Seek economies of effort; leverage individual and collective effort.
Action: Create a network of highly engaged and informed library staff to shape and support systemwide as well as campus-based efforts. Pursue inter-institutional service developments, including partnerships with peer institutions beyond UC.

Principle: Use the libraries' market position to influence the economics of scholarly publishing toward sustainability.
Action: Establish and operate according to selection principles that account for scholarly value and economic sustainability.

Principle: Authors of scholarly work should carefully manage the copyrights inherent in products of their scholarship. Only through retention of some rights, and care in the assignment or exchange of others, can the author influence or control the associated economic advantages or future uses inherent in possession of the rights in their work.
Action: Provide the knowledge and tools for faculty to retain and use copyrights. Create a robust publishing infrastructure that encourages innovative dissemination of their scholarly output, including but not limited to that in which they have retained copyright.

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[3] The UC libraries' scholarly communication activities are represented at
http://libraries.universityofcalifornia.edu/scholarly/

Extend Understanding

There are at least two faces to the principle that action must be supported by deep knowledge. The first is to admit that there are a great many issues about which we need to know more. These range from fine-grained information about the economics of publishing practices within disciplines and sub-disciplines or between commercial and non-profit publishers, to the priority needs of scholars under their different roles as authors, editors, society members, reviewers of peers, and library users. UC has a five-year history of focus groups with faculty on these topics and is mounting an applied research program to increase both quantitative and qualitative information.

As the recent Reed-Elsevier negotiations demonstrated our faculty have a hunger for information that can guide their individual and collective action. The second face, then, of deepening knowledge is to share it. The UC libraries are extending a communications campaign that fosters understanding among the stakeholders in library decision processes and that will engage their support in those processes (e.g., journal cancellations). We plan to provide that information consistently – perhaps by integrating it with end-user services such that users can see it at point of resource discovery and use. We believe sharing such data, along with the challenges of key negotiations, will deepen awareness to the point of inciting action.

Work Collaboratively

We need to turn our attention to both internal and external partnerships. There is significant expertise and deep awareness of scholarly communication issues available at UC, as there is also across the U.S. and beyond. Among the obvious benefits of identifying, and coordinating UC expertise will be the lowered costs of distributed rather than redundant effort, and the ability to adapt centrally-managed knowledge, created through actions related to the first principle, for greatest local effect.

Similarly, while efforts within UC will be important in a limited context, real impact will require a critical mass of leading universities to make institutional commitments to changing the economics of scholarly publications and to collaborating on supporting infrastructure and services. We have recently begun discussing with colleagues around the world, for example, about the possibilities of creating federated search services of post-print repositories. Such a service will be necessary to ease discovery and use of institutionally housed, open-access versions of articles that also appear in commercial publications.

Use Library Buying Power

An important complement to deepening our understanding, sharing that understanding, and collaborating for action, is for libraries to direct some of their scarce dollars away from over-priced journals and towards innovation. This speaks to the effective use of buying power as a guiding principle to effect change. We support ventures sponsored by SPARC, university presses, societies, and experimental business models like BioMed Central and Public Library of Science, even without complete confidence, but certainly with hope, that they themselves will be sustainable or will catalyze the needed change.

We do not shy away from rigorous negotiations and deselection because we have seen them feed librarians' dialog with faculty about the continuing crisis in scholarly communication.   Further, our faculty economists advise that we must discriminate between the good and the bad to affect prices, that we must reduce the inelasticity of the marketplace.

Because sustainability is a key value and an operational necessity, the UC libraries increasingly preference materials and publishers/vendors that provide the greatest value. At this point "value" is an imprecise metric. We believe, however, that it must be based on relevance and high quality at reasonable (sustainable) costs. And it must include elements of service such as measures and mechanisms for persistent access and for integrating access into the rich mix of our collections and services (e.g. through robust linking and adaptable user interfaces).

Refining our understanding of value and translating the principle of economic sustainability into guidelines will not be easy. We will have to consider, for example, that UC faculty editorial participation, even in major roles, will not necessarily be a factor in favor of addition or retention of a title. We will need to propose that UC will actively cancel titles whose editorial boards announce that they have quit expensive commercial publications and launched an equivalent journal under a different title with a new, lower cost publisher.[4]   These refined selection guidelines could be reinforced by more sophisticated measures of value. So, we are exploring the possibility of constructing new multi-variant value metrics – incorporating impact factor, use, price-per-page/citation, and the like – that quantify value and can be used, in addition to traditional subjective judgment, to inform selection decisions.

Support authors' management of copyright
In discussions with faculty we have been asked time again for clear, practical, easy-to-use information about the reasons for retaining rights and the methods to do so. This is leading us, not uniquely by any means, to include such information on our websites and to carefully watch and support efforts like the RoMEO/SHERPA database on publisher copyright policies, or the Create Change and Creative Commons templates for modifying publishing agreements.

But we are also actively extending an already successful infrastructure that gives many options to scholars who want to disseminate their work in novel and non-commercial ways.

eScholarship, the UC libraries' programmatic vehicle for experimentation in scholarly publishing, is hosted by the CDL and was launched in response to faculty need for dissemination and publishing tools and services. It was prompted by declarations within the library community of the need to influence scholarly communication even before the

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[4] There are, of course, numerous examples, including Elsevier's *European Economic Review* (now *J. of the European Economic Association—JEAA—*from MIT Press) and *Journal of Algorithms* (now *Transactions on Algorithms* from the ACM).

dysfunctions were felt as acutely or as broadly across the academy as they are now. The eScholarship Repository is an open access system at the heart of the initiative that offers UC faculty a central, online location for everything from technical reports to peer-reviewed journals and edited volumes. In slightly less than two years, the repository has seen almost 500,000 full-text downloads, i.e., downloads of entire papers or articles.

The program seeks to demonstrate a reliable and sustainable model as part of the effort to improve all areas of scholarly communication—creation, peer review, management, dissemination, and preservation. It includes the following publishing services and venues.

Working Papers and Research Reports
The eScholarship Repository http://repositories.cdlib.org/escholarship/ provides UC departments, centers, and research units direct control over creation and dissemination of the full range of scholarly output, from pre-publication materials through journals and peer-reviewed series, and—beginning in May 2004—legal posting of any UC author's digital copy of commercially published articles.

The repository, which debuted in April 2002, enables easy upload of papers into a centralized, managed location that makes the content freely available. UC faculty units are responsible for the review, selection, and deposit of the content, including editorial support for journals and peer-reviewed series; the CDL is responsible for maintenance of the digital record. The technical expertise required to upload and publish papers is minimal. Documents can be provided in a variety of formats (Word, RTF or PDF) and associated materials such as pictures, data sets, and PowerPoint presentations can be posted with the article.

Each program or department has its own uniquely branded site complete with logo and links. Web search engines such as Google can easily crawl and index information about the papers, since each paper is represented by a static web page will the relevant descriptive information. This information is also available for harvesting through the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH), to enable discovery services which we hope will be built to provide one-stop searching of hundreds of similar repositories.

Journals and Peer-Reviewed Series

The eScholarship Repository's includes peer-review capability allowing UC faculty another alternative to publishing their research in for-profit journals. The CDL expects the number of peer-reviewed papers and journals to grow substantially in coming months, with the addition of scientific monographs and other content from the University of California Press. A number of journals sponsored by departments at several UC campuses are in the pipeline, including the new *InterActions: UCLA Journal of Education and Information Studies* and *Comitatus*, a 34-year-old journal sponsored by the UCLA Center for Medieval and Renaissance Studies.

Compared to the sum of published scholarship the eScholarship Repository is an admittedly modest effort. Yet its growth in all dimensions has been exponential over the course of its first few months, and now includes 2,800 papers in the categories mentioned above, and over 10,000 paper downloads per week. Although a few papers tend to be quite popular, usage is spread fairly evenly across the repository, with about 75% seeing at least one download in any given week. A UC research institute director has noted that "many papers are getting more readers from this source than we would expect them to get in the best professional journals."

Post-Prints

A new service is being launched in response to the recent liberalization of publisher policies regarding the posting of electronic reprints, aka "post-prints." A section of the eScholarship Repository has been designated specifically for deposit of previously published articles. These articles will be searchable and browseable alone or in association with other eScholarship Repository papers, and they will be fully discoverable alongside their commercially published twins.

Books

Books are central to the scholarly enterprise and form the core of UC library collections. In keeping with our mission to support the research and instructional activities of the University, eScholarship is also engaged in a suite of digital book projects that build on the enormously productive collaboration between CDL's eScholarship program and the University of California Press. The partnership was forged with the launch of eScholarship Editions, an XML-based service for publishing books that currently includes 1500 University of California Press monographs and 500 additional books in process.

The UC Press *eScholarship Editions* have been greeted enthusiastically by faculty, librarians, and the public, and CDL now has an opportunity to leverage the investment made in developing a robust infrastructure by acquiring other digital book collections and extending our technical and service capabilities. We are exploring e-commerce models and the idea of licensed access to an expanded package of offerings. Such a package might include monographs from other university presses and groups within the university who currently publish their own monographs but could gain both prestige and efficiency by joining our efforts.

Scholarly Communication Landscape Architecture

The University of California Libraries are committed to joining others as assistant architects of the scholarly communication landscape. In their 2004 strategic plan they declare that *influencing the development of new forms of scholarly communication* is one of five key strategic directions that must be pursued collectively. [5]

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[5] *Systemwide Strategic Directions for Libraries and Scholarly Information*. University of California, Systemwide Library and Scholarly Information Advisory Committee. Prepared for SLASIAC by the UC

Increasingly, we understand that this form of architecture requires its own principles, tools, and action plans. And, increasingly, we glimpse the possibilities of a world in which scholars and institutions of higher learning regain control of the landscape itself.

Ultimately, we hope the landscape is well-matched and flexibly evolves to meet the needs of scholars, their societies, libraries, university presses and other publishers—the creators and keepers of the scholarly record within the academy. For now, we are excited and committed to contributing to that evolution.

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