The Economics and Management of Digital Resources in a Multi-campus, Multi-library University: the Shared Digital Collection

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Institutional Background

In contrast to many state systems with one or two "flagship" campuses, the University of California is a ten-campus system in which each campus has significant academic stature. Over the last forty years, university administration and then funding has been increasingly decentralized to the campus chancellors. Line items in the state budget for UC libraries have disappeared in favor of complete campus control over resource allocation.

History of planning and collaboration. Throughout this time**,** collaboration in collection building and resource sharing has occurred both voluntarily and as a result of systemwide funding and initiatives. Earliest efforts focused on intercampus transport of materials[1]. A "master plan" in 1977[2] brought the system the concept of "one university, one library", a union catalog of holdings, shared regional library facilities, and a small fund taken "off the top" for shared purchases of expensive items—initially spent primarily on microform sets and eventually on locally loaded databases.

The University's current library planning framework and the California Digital Library (CDL) emerged from the budget crisis of the 1990s. Although mitigated by robust resource sharing arrangements, increasing quantities of knowledge and high inflationary costs found all UC libraries providing an ever-shrinking portion of knowledge to its faculty and students. Librarians, led by Richard Lucier of San Francisco, engaged faculty and administrators to launch a new planning process that is ongoing. Among the recommended strategies in the 1998 Library Planning and Action Initiative Task Force Report: "The University's knowledge network includes robust campus collections supporting the core academic programs of each campus, specialized collections distributed among the campuses to support the advanced research and teaching needs of the University, and a single digital collection to serve the University's common and specialized information needs."[3]

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[1] For discussion of the earliest systemwide planning efforts, see Kerr, Clark. *The Gold and the Blue: a Personal Memoir of the University of California, vol. 1, Academic Triumphs*. Berkeley: University of California Press, 2001, p. 362.
[2] *The University of California Libraries: a plan for development, 1978-1988*. Berkeley: Office of the Executive Director of Universitywide Library Planning, University of California Systemwide Administration, 1977.
[3] *Library Planning and Action Initiative Advisory Task Force Final Report, University of California.* Oakland: University of California (www.slp.ucop.edu), March, 1998. p. 10.

Role of central infrastructure and funding. With much better economic conditions, and in spite of the overwhelming institutional preference for campus funding, the foregoing report resulted in the establishment and funding of the California Digital Library as a collaborative library of the ten campuses. A new organizational infrastructure built upon the existing one that had been created for the union catalog and shared databases. Some new funding is used to catalyze collective investments and is critical to the successes that the system has realized in building a shared digital collection through co-investment.

Licensing strategies

CDL funding enabled establishment of a small organizational infrastructure for consultation, licensing, acquisitions, and cataloging. Licensing electronic journals by publisher—all UC subscribed titles for all campuses—became the primary strategy for resource sharing of journal literature. Continuing to build shared databases and other resources complemented this effort but this paper focuses on journals because of their complexity in a collaborative and mixed print and digital environment. The philosophy behind this strategy is that all UC faculty and students should have access to the resources they need. It is not as easy, in fact, to share digital content as it is to share physical items because of licensing restrictions. A second objective was to try to stabilize costs. Finally, given the university's size and clout, we deliberately set out to influence the marketplace. The CDL and campuses have also made access to digital archives (e.g., JSTOR) a priority even when the content is widely held in paper. These backfiles contribute to users' convenience and offer potential space savings for campuses. The University is facing a "tidal wave II" of increased enrollments, exerting extreme pressure on state and campus capital resources.

Licensing principles[4]. The CDL has followed a number of licensing principles that were first developed by the all-campus Collection Development Committee and refined over time. Some of the most important are:

> Electronic pricing should be independent of print: Prefer electronic and access pricing independent of print, with print available at a discount. Cost of electronic *should* be less than the cost of print. Maintenance of print subscriptions in order to access the electronic product should not be required. These principles are consonant with ICOLC's preferred practices[5]. There has been substantial variation in results, depending on such factors as the extent of historic print holdings.

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[4] See "Checklist of Points to be Addressed in a CDL License Agreement", http://www.cdlib.org/about/publisher_info_pub/

[5] See http://www.library.yale.edu/consortia/2001currentpractices.htm

Important and non-negotiable:

- Perpetual license and archiving: Permanent rights to use information paid for and ability to copy data for purpose of preservation. Especially critical for ejournals.
- Linking to and from content. To maximize the value of content, linking at the citation level in abstracting/indexing databases has been critical.
- Completeness of content. Include all editorial content found in print equivalent (e.g., incomplete content is one of the reasons that CDL still has no contracts with some priority society publishers). To increase overall sustainability of scholarly resources, we do not want to invest in the same content multiple times, e.g., print and electronic. Adhering to this principle will be particularly difficult in fields such as art where there is user demand for online versions but they are incomplete, often without images or perpetual ownership.
- Interlibrary loan (by at least printing out and mailing).
- Walk-in users--to library facilities--must be allowed (in addition to all UC faculty, students, and staff regardless of their location).
- Site definitions. A single site is no less than a campus.
- Indemnification. The UC Regents require indemnification.

Co-investment. As previously noted, additional new funding was critical to launching a collaborative model so quickly. All agreed that we could maximize the impact of systemwide funding by using it as a catalyst, a strategy summarized as follows:

- *The CDL uses funds strategically to further the goal of creating a shared digital collection that is available to all UC faculty, students, and staff regardless of their campus affiliation*. For an expensive digital resource with no print counterpart, the CDL negotiation and contribution enables large campuses to participate to advantage over single campus pricing and small campuses to acquire otherwise unaffordable resources.

- *Campus collection decisions are integral to all investments; there is no systemwide collection without co-investment*. The CDL advisory structure assures that CDL funding is aligned with campus priorities and sufficient in specific cases to reach the goal above. Co-investment models are devised by the campuses and are generally proportionate to library materials budgets.

- *CDL uses its funds to facilitate campus decisions in transition from print to electronic*. For example, the CDL funds the systemwide “electronic premium” when e costs are based on campus library print investments.

This mitigates the difficulties of paying for print and digital content simultaneously.

- *CDL uses its funds to promote sustainability.* To maximize flexibility in CDL funds, they are often used for one-time purchases to reduce ongoing access fees to campuses.

By using CDL funds strategically in conjunction with campus co-investments, we have maximized the overall shared digital collection. Secondly, decisions are best when those closest to users confirm their interest with funding. The overarching goal of CDL's efforts has been for everyone—students and faculty on all campuses—to have access to all resources recommended for the shared digital collection.

Although all agree on the general principles of cost sharing, applying them is an art. The models have generally followed some kind of proportional share based on the size of materials budgets often combined with each campus's "historic expenditures".

University of California Libraries Cost Sharing Models

Primary goals:

- To allow as many UC users as possible to benefit from centrally licensed electronic information;
- To divide costs fairly and reasonably according to criteria on which all participants can agree;
- To take into account the diverse size of the campuses, their libraries, academic programs, budgets, and potential use of electronic resources.

Among the variables considered in these discussions were:

- Current costs for equivalent content or potential cancellation savings;
- Relative campus size as measured by collection budgets or FTE;
- Potential or actual use of the resource, based on estimates or experience;
- Availability of systemwide funds at the CDL level;
- Hybrids combining any of the above.

Cost Sharing Model endorsed by Collection Development Committee

- If the cost for any campus is less than $1,000, or if the total systemwide cost is less than $10,000, the actual cost will be paid by each campus.

Otherwise:

1. Costs of licenses for digital resources will be shared among participating campuses in proportion to size of the collection budgets.
2. No campus shall pay more than the amount it would pay via independent negotiation with the provider.

3. In cases where the systemwide discount is not high enough to satisfy principle 3, CDL may contribute the difference, dependent on funds available and the strategic importance of the resource.
4. For resources that are already widely held, a "base" cost, roughly equivalent to the minimal campus cost for the content, in print or CD-ROM, will be subtracted from the total amount to be shared BEFORE the proportional campus shares are calculated.

A campus that does not contribute its share to the systemwide license of a given resource, will not be given access to that resource, unless the potential demand from that campus is likely to be minimal for programmatic reasons, e.g., UCSF (UC's health sciences campus) in many cases, generally negotiated to a zero cost.

There have been limits to the strategy. Appropriate resources, recommended for systemwide access, are not available to some campuses because of the "no contribution, no access" policy.

Results

Nearly 7,000 journal titles from some 30 publishers are now licensed as a shared collection and are generally available for all campuses. Some large publishers and societies remain on the list of priorities but are problematical because of pricing, content, or other aspects. Although the systemwide licensing began with STM publishers, social science and humanities publishers were added to priorities by 2000 as more of this content became digital.

Added content and imputed value. If UC holds five subscriptions of each of the ~7,000 titles, then the subscriptions gained by campuses would total 28,000[6]. CDL has generally only negotiated for *UC-held* titles (and in fact this was an initial principle), but there are a number of cases in which UC has access to all of the publisher's titles. For other digital purchases, central negotiations and leveraging the total size of the institution resulted in discounts from "list prices" for single campuses.[7]

Price caps. In a number of cases, we have agreed to multi-year contracts in order to win some predictability and control of price increases. Some of the large ejournal contracts include price increase caps of 5-8%.

Electronic pricing/print savings. Most prices for systemwide electronic access to journals are based on UC's "historic spend". A number of contracts have been "flipped" and now have electronic pricing with print available at a discount. It is a CDL goal to include the option of receiving a single print archive as part of electronic pricing, and there are a number of such contracts. Realizing these potential savings is tied closely to collaboration of print collections and is of course not a sustainable solution, but in the short term offers some fiscal relief.

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[6] This is a hypothetical figure, not actual. Presently there are nine campuses.
[7] Campus staff also use the CDL organizational infrastructure, tools, and principles for multi-campus negotiations.

Co-investment. CDL contributions to ejournal packages have benefited both large and small campuses. Sometimes CDL funds a systemwide charge for extension of all subscribed content to all campuses. As noted above, a value could be imputed for the added content for smaller campuses (and even for large) and CDL's contribution might appear to benefit small campuses most. In other models CDL contributions constitute a kind of "e premium" that even a single campus might incur, and CDL is "paying the difference" between the electronic pricing and the print. In those cases, the CDL contribution in straight dollars is clearly much larger for large campuses than for small.

With co-investments from CDL and the campuses, the ejournal contracts comprise, for print and digital commitments, a sizable proportion of UC materials expenditures**.** They do not comprise the same proportion of each campus's budget because of the effect of "historic spends" on the cost-share models presently in place. Patterns of historic investment are fairly proportionate for large and diverse packages such as Elsevier but for premier society publishers (e.g., American Physical Society, IEEE), historic expenditures were similar across all campuses regardless of size. The effect is that smaller campuses have a larger proportion of their total budgets committed to co-investments. The assumption is that small campuses have always had a higher percentage of their budgets allocated to serials and to "core" materials, but there is a perception of increasingly limited flexibility because of these contracts.

Use. We are only beginning to learn about the new dynamics of information use in the electronic arena and have not yet used it as a factor in cost sharing. It is proving very time consuming to analyze, especially the use of ejournal titles. With 35 pieces of information for every title in a recent analysis of selected publishers and nine campuses, working further with these data is daunting. It appears that convenience stimulates use of journal articles but there are still many unknowns about use—should we be adding HTML to PDF use, perhaps the same person uses both versions of the same article? We also have to trust the publishers for the use data. Use data by campus and title and interlibrary loan trends suggest that systemwide licensing has been an effective resource sharing mechanism.

Interlibrary loan trends. Licensing priorities included publishers that were well represented in interlibrary loans amongst campuses. The early 1990s had produced high and steady increases every year in the sharing of journal articles. In 1999, the CDL introduced an automated patron-initiated request system to its core databases, expanded since through use of SFX technology. During this time, intercampus book (returnable) borrowing rose by 43% while intercampus photocopies (non-returnables) declined by 6.5% to a total of 62,822. The "Request" service is blocked if full-text is known to be available. These patterns suggest that systemwide licensing of ejournals has mitigated demand that might otherwise have occurred for intercampus journal article requests.

Challenges of the shared digital collection

Interdependency. As noted above, there is no shared digital collection without co-investments from all campuses and the size of that fiscal interdependency is now quite large, both in total dollars and as a proportion of total materials budgets. Ejournal packages, especially as titles move in and out, new titles are created, and pricing is tied to print subscriptions, also entail a staggering amount of detailed serials work on a large scale. A number of challenges have arisen that have been or must be dealt with collectively. The University's Collection Development Committee has generally agreed that the benefits of collaboration outweigh the difficulties and has committed itself to collective decision-making.

New titles. How does a collective select new titles within packages? Campuses have agreed on principles and decision-making practices that allow for agility and ultimate savings but are not automatic. In many cases, the CDL has negotiated terms for brand new, "start-up" journals that collectively are favorable. New electronic only titles should be some percentage (at best 75%) of the average number of "historic" subscriptions in UC. Thus, we should be able to add new titles to the shared digital collection at lower cost than if the "normal" number of campuses placed subscriptions. The CDL can initially fund such titles in order to activate them quickly.

Deselection. Budget outlooks are very poor and because of the decentralized budgets, the severity of the downturn may be unevenly experienced by campus libraries. How are we collectively going to trim costs? There are at least two challenges: First, inevitably there will be resources to which everyone has contributed and that continue to be of high value to users that campuses most pressed by funding shortfalls will want to drop out of. This is not a buying club. Such action could have serious implications to other campuses, may not lower overall costs to the university, and will incur the costs of renegotiation for a subset of campuses. It will make little sense to eliminate content from the shared digital collection for which the remaining campuses on their own might spend collectively more than the previous shared total expenditure. Related to this issue is the challenge of appropriate cost-sharing models as more and more pricing is for digital content. Will we maintain shares, partially based on print expenditures in the year of the first contract, forever? Can we handle some disagreements over what to retain in the shared digital collection by sharing costs differently? At this point materials budgets have been fairly close to enrollment proportions but they may increasingly diverge. How can we assure that each institution funds its "fair share" of shared collections and what are the factors to consider—enrollment, enrollment growth, faculty growth?

For journals, the old way of savings was to cut journals, title by title, at each campus, often with some communication amongst campuses lest we cancel the

only copy of something deemed important for our shared collections and resource sharing. If we are to drop titles from packages these will have to be collective decisions. To that end, the Collection Development Committee is beginning to work on principles of deselection by analyzing title-by-title use data. This exercise sounds simple but has significant costs because of complex bibliographic details such as title changes and inconsistent use data. The cost of each title to the system is somewhat artificial—it is an artifact of the historic expenditure. When pricing is for e content, will it matter what the system spent in 1996? Or is it whatever we can negotiate?

Decisions to trim content, especially from packages, are complicated by a number of factors including whether it is worth it in terms of cost for remaining content. There will also be substantial collection development, technical and public services costs incurred by deselection of titles in the shared digital collection. Any decisions to drop titles from a shared digital collection must be accompanied by the will and coordination to trim print subscriptions as well or the publisher may gain rather than lose revenue. These are issues on which agreement may be more difficult to obtain than our decisions to make initial commitments.

Print archive. The relationship of a shared digital collection to print subscriptions has already been alluded to above in discussion of the interdependence of business models and the possibility of subverting a digital cancellation strategy by campus print subscription behavior. It is becoming increasingly difficult to make both collective and individual decisions without coordinating a shared print collection. Many contracts are now available for the electronic with print available at a discount. Some electronic only subscriptions include an archival print copy. Other business models for electronic only compare favorably to total system expenditures for print but can only be affordable if substantial print cancellations occur. Without an infrastructure to build a journal repository, receive issues, house and make them available, it is impossible to accept the free print archive, to make decisions on some shared digital models, and for individual campuses to make their decisions on print cancellations.