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Systemwide Strategic Directions for Libraries and Scholarly Information at the University of California: Progress Report 2005

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Publication Date

2005

**SYSTEMWIDE STRATEGIC DIRECTIONS FOR LIBRARIES AND SCHOLARLY INFORMATION AT
THE UNIVERSITY OF CALIFORNIA**

Progress Report 2005

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1. INTRODUCTION

Systemwide Strategic Directions for Libraries and Scholarly Information at the University of California (April 2004)¹ was endorsed by the Systemwide Library and Scholarly Information Advisory Committee (SLASIAC) at its February 20, 2004 meeting.² At that time, SLASIAC noted that it “would be interested in learning more on an ongoing basis about what is and is not working in implementation of the strategic directions.”

This report provides SLASIAC with an update on progress in each of the five strategic directions set out in *Systemwide Strategic Directions...* (hereafter, “SSD”). In addition, it reflects on the lessons learned in implementing SSD, and recommends that (a) the original five directions be expanded in scope to capitalize on past successes and embrace increased understanding of problems and opportunities, and (b) two new strategic directions, growing out of experience with the original five but clearly different in focus, be added. To summarize:

- The emergence of three paths for collaborative collection development and management – shared digital, shared print, and more recently mass digital reformatting of print – along with an increased understanding of the interactions between multiformat collection management and planning for library facilities have led to a shared understanding of the importance of developing effective low-overhead strategies for **comprehensive development and**

¹ Available at http://libraries.universityofcalifornia.edu/planning/library_strategy.pdf.

² See http://www.slp.ucop.edu/consultation/slasiac/notes_022004.htm, item 3.a.

management of shared collections in all formats, effectively coordinated with and complementary to campus-based collection development efforts and priorities, and integrated with planning for campus and shared library facilities.

- It is increasingly evident that scholarly communication strategies that focus on the management and dissemination of UC faculty scholarship represent a subset of the broader issues related to the management and **stewardship of UC digital information assets** of all kinds, a topic that is also receiving national attention.
- The UC Libraries' experience with collaborative, multi-factoral planning that both expands cost-effective systemwide collections and services and enhances campus flexibility and distinctiveness suggests lessons that may be applicable to the development of technology-based Universitywide infrastructure and services outside the library domain. At the same time, services that can effectively capture and manage essential UC digital information assets are both dependent on and should influence the planning of such services. For these reasons, it is both timely and useful to launch a formal collaboration with UC's information technology community to foster the **coordinated development of the University's academic information infrastructure**.
- The increasing importance of information technology, and its manifestation in the collection management, digital stewardship, and information infrastructure initiatives discussed above, suggest that copyright is no longer a "background" issue that can be addressed through information, education, and compliance techniques, but has become a central strategic issue for all our initiatives. For this reason, the University must begin a **broadly-based and sustained discussion regarding the operation and implications of copyright** law, policy and technology for the effective production, distribution, stewardship and use of the information resources needed to support and advance the University's academic mission.

2. PROGRESS TOWARD STRATEGIC DIRECTIONS: SUMMARY OF KEY ACCOMPLISHMENTS

This section reviews the main developments in each of the five strategic directions set out in *SSD*. The Appendix provides more detail about developments in each of the five areas, along with a summary of *SSD*'s findings and recommendations for each.

2.1. Collection management and coordination

Over the period of this review, the UC Libraries' shared collections program has expanded dramatically from its initial focus on licensed digital collections to include development of shared print collections and, more recently, the digital reformatting of print collections. These initiatives continue to expand the information resources available to faculty and students while containing costs by seeking systemwide leverage.

By greatly expanding the scope of the shared collections program, the UC libraries have come to understand that cooperative collection development returns greater value to the University than simply cost avoidance for the individual campuses. In particular it extends the breadth and depth of the collections that can be made available in support of research and teaching systemwide while enabling individual campuses more effectively to focus on materials that reflect and support their distinctive academic programs. Specific accomplishments include:

- The shared approach to the collection of online materials continues to return benefits to the UC community. The shared digital collection has grown considerably, notably in hitherto

under-represented arts and humanities areas. Further, acting as a system, the UC libraries have been successful in containing run-away inflation in the cost of online materials in a manner that has saved the university an estimated \$2 million in 2005 alone.

- Shared print collections totaling 43,000 volumes (as of October 2005) have been assembled and processed at the Southern Regional Library Facility, and about 25,000 volumes are added annually. Shared print collections enable campuses to reduce redundancy in the acquisition and management of print materials, particularly for materials that are also accessible online. This introduces economies that are measured both in terms of cost and of shelving space and total approximately \$3 million per annum.
- The long-discussed large-scale digital reformatting of existing library collections is becoming a reality. The UC Libraries became founding contributors to the Open Content Alliance,³ launched in October 2005. As one of over 30 contributors (as of November 18, 2005) that will contribute technology, services, library resources or funding to the project, UC will participate in the organization's governance, and will select for scanning about 15,000 volumes of carefully-chosen public-domain books in American literature drawn from the UC collections.⁴ Participation in a large-scale international digital reformatting activity promises to extend collection breadth: UC will have free online access to materials that are not otherwise available locally while reducing expenditures on vendor products that are based on out-of-copyright and other public domain materials. Digital reformatting also promises potential cost avoidance in the management of highly redundant large-scale print collections (e.g. government document collections); as these materials become accessible online, their printed counterparts become priority candidates for shared print collections, promising additional cost avoidance.

2.2. Shared facilities

The UC Libraries have taken significant initial steps to ensure that the Regional Library Facilities are thoroughly integrated into their strategic planning and collaborative operations. Specifics include:

- Establishment of a single systemwide board to govern the facilities, and creation of a joint task force, accountable to the new board, to develop recommendations to effectively coordinate the two facilities' practices and operations.
- Development and implementation of a policy to ensure that materials electively deposited by campuses in one of the Regional Library Facilities will remain perpetually available and accessible to all UC campuses, thereby allowing campuses to plan and manage their own collections with greater confidence, including electing to dispose of locally-held duplicates of materials previously deposited by another campus in an RLF.
- Incorporating a provision for the SRLF-3 project into the UC 2006-07 five-year capital plan, with a planned project commencement in 2010-11.

2.3. Shared services

Work on shared services, like that on the better integration of the regional facilities, demonstrates at least three benefits that may be derived from coordinated investment in essential utilities (whether conceived of as technology-based services or storage services) that are required by all but not easily afforded by campuses acting independently or in small groups:

³ See <http://www.opencontentalliance.org/>.

⁴ See http://www.cdlib.org/news/press_releases/oca_release_final_20050930.doc.

- Costs are avoided through reduction of redundant infrastructural investment.
- The utilities that are developed are more robust and fully featured because they are developed with more capital (human as well as financial) than any single campus could afford.
- Utilities provided in a coordinated fashion enable rather than impede campus libraries in the development of distinctive collections and services that at once reflect and support local research, teaching, and learning needs and interests.

Work during the assessment period has focused on:

- Development of an underlying common infrastructure at the California Digital Library that can flexibly and cost-effectively support a wide variety of data types and services;
- Consolidation of a variety of disparate initiatives, initially developed by CDL to support specific digital library programs and functions, into a suite of shared service offerings that (i) allow campuses to participate electively and configure local services to their needs, (ii) permit new services offerings to be added quickly and at low cost, and (iii) let services be recombined flexibly and innovatively; and
- Exploration of the potential usefulness of these services to non-library constituencies within UC, as well as possible partners outside the University.

Service offerings, meantime, have focused sharply on supporting:

- Resource sharing, through which libraries give faculty, staff, and students ready access to their collections irrespective of where they are located.
- Publishing, through which faculty, the UC Press and research organizations and departments are able easily and at no cost to themselves to publish their work openly online.
- Digital library development, through which libraries, academic departments, and other information organizations are economically and efficiently able to build and maintain high quality online information services that meet their users' specific needs.
- K-12 and other public use of UC's publicly accessible information resources. The CDL's "Calisphere" site⁵ provides access to digital collections from UC and leading cultural memory organizations in California and the US, and will support K-14 education. Collection strengths include the history, culture, and ecology of California, the American West, and the Pacific Rim.

2.4. Persistent access to digital information

After more than a year of development and testing, the UC Libraries' Digital Preservation Repository began a phased release for use by UC campus libraries on July 14, 2005. Planning is underway both to define and accommodate a variety of additional digital formats for archiving, and to develop strategies for systematic harvesting and archiving of academically-important Web sites. The evolving preservation infrastructure contributes essentially to the shared service environment discussed above. It continues to be emphasized as a key strategic development owing to its cost, complexity, uniqueness, and significance to the University and scholarly community.

⁵ See <http://www.californiadigitallibrary.org/>

2.5. Scholarly communication

Building on the momentum resulting from a series of faculty seminars in Fall 2003 and the substantial Universitywide faculty engagement in the Elsevier contract negotiations at about the same time, the UC Libraries have:

- Institutionalized and coordinated the scholarly communication activities based within the libraries;
- Continued to extend collaborations with the faculty and supported the faculty's own systemwide and campus initiatives;
- Expanded strategic publishing initiatives.

These activities have allowed the University to continue to exert its considerable academic prestige and institutional buying power to influence publishing models and scholarly communication practices (see, e.g., section 2.1 above), and have at the same time led to consideration of the broader issues of institutional stewardship of scholarly digital information and of the importance of the information technology infrastructure that undergirds the research and teaching activities that lead to publication, communication, and sharing of scholarly information.

3. STRATEGIC ISSUES AND OPPORTUNITIES EMERGING IN 2005

The experiences and accomplishments discussed in Section 2 above have suggested areas where (a) our understanding of the strategic directions set out in 2004 needs to be extended to comprehend growth in the scope and scale of our initiatives, and (b) it may be appropriate to define additional strategies that, while growing out of the activities described above, may differ sufficiently in their focus as to be considered new efforts.

3.1. Extending earlier strategic directions

3.1.1. Stewardship of the University's scholarly digital information assets.

It has become increasingly evident that some strategies intended to foster change in *scholarly communication* can be conceived as examples of an emerging understanding of the University's broader responsibility to exercise stewardship over the digital information produced by its faculty, students and staff. This understanding, along with experience with *collaborative collection management*, *shared services*, and *persistent access to digital collections*, point to the need for broader engagement in the problem of effectively capturing and managing the University's digital information assets. To this end, and in response to a charge to SLASIAC from Provost Greenwood, the CDL, Systemwide Library Planning, and the Office of Scholarly Communication have formed a team to conduct an initial inquiry during the 2005-06 academic year to frame the issues and identify alternative institutional responses.

3.1.2. Development and management of shared collections in all formats.

As described in section 2.1 above, the UC Libraries now have three paths for collaborative collection development: shared digital, shared print, and digital reformatting. There are complex relationships among these strategies and in their impact on the ongoing management of the collections, as well as on digital preservation services. Experience with the development, management and financing of shared collections, both print and digital, in *collaborative collection management*, and the evolving planning concepts associated with Universitywide governance of *shared facilities* highlight an increasingly pressing need to develop effective low-overhead strategies for comprehensive development and management of shared collections,

effectively coordinated with and complementary to campus-based collection development efforts and priorities. Among the key elements that must be addressed are:

- a. Strategies to ensure *sustainable campus investment in shared collections and services* and must be expanded to comprehend all collection formats and the relationships among them, as well as the complex relationships between collections, facilities, and services, so that scarce systemwide funds can be effectively employed to multiply leverage, incentivize collaboration, and build shared infrastructure that all can use.
- b. Strategies to *give campuses flexibility* to tailor collections and services to local needs (including new degree programs and research initiatives), to foster multi-campus collaborations that are less than systemwide in scope, and to enhance campus distinctiveness and expand the resource diversity of the University as a whole, without sacrificing the benefits that accrue from shared infrastructure.
- c. Planning to address the increasingly powerful and diverse capabilities of external organizations, in both the public and private sectors, to act as partners and/or suppliers of collection resources.

As an initial step, the University Librarians met with their Systemwide Operations and Planning Advisory Group (SOPAG) on November 17 to begin focused discussion of these issues.

3.2. Additional strategies

3.2.1. Coordinated development of the University's academic information environment.

SSD made a case for library engagement with IT planning to ensure the capacity to cost-effectively deliver the libraries' services. Experience has made it evident that looking at the University's information technology infrastructure solely through the eyes of the library provides an incomplete view of the issues. In the world of technology-enabled collaborative research envisioned, for example, in the National Science Foundation's *Revolutionizing Science and Engineering Through Cyberinfrastructure*⁶ or the National Science Board's *Long-Lived Digital Data Collections*,⁷ it is clear that the technology needed to support library services is only a part of a systemwide infrastructure of information technology services and tools that will be needed to efficiently and effectively support the teaching and research programs and academic aspirations of all 10 UC campuses.

To help the University achieve the strategic economies and advantages that are possible in a coordinated UC information environment, the Information Technology Guidance Committee will oversee and coordinate an appropriately supported 12-18-month planning process that will identify and recommend to the COVC strategic directions that will guide investments in information technology and the academic information environment. Reporting regularly to the COVC, the committee will include 8-10 individuals from throughout the University chosen for their expertise, vision, and passion for harnessing information technologies to key aspects of the academic enterprise. The Committee's role in the planning process will be to:

⁶ National Science Foundation, *Revolutionizing Science and Engineering Through Cyberinfrastructure: Report of the National Science Foundation Blue-Ribbon Advisory Panel on Cyberinfrastructure*, January, 2003. Available at <http://www.nsf.gov/cise/sci/reports/atkins.pdf>.

⁷ National Science Foundation, National Science Board, *Long-Lived Digital Data Collections Enabling Research and Education in the 21st Century*, September 2005. Available at <http://www.nsf.gov/pubs/2005/nsb0540/>.

- Identify and prioritize opportunities
- Communicate formally and informally with UC decision-making bodies
- Design a planning model that is inclusive and responsive

Within the wide-ranging set of issues included within the Committee's charge, there are two that are of particular importance for library strategy:

- Cross-functional multi-campus planning and action. It is increasingly important to build the capacity, at each campus and systemwide, to effectively plan and operate services and implement strategies that cross traditional organizational boundaries. Examples from the UC Libraries' experience include:
 - a. *Shared services* and infrastructure developed for libraries (a) have applicability to other institutional functions (e.g., learning object management), and (b) can benefit from coordination and alignment with other IT infrastructure initiatives (e.g., learning management systems, research cyberinfrastructure) to facilitate development of standards, tools and services common to all.
 - b. *Digital preservation* services developed for libraries have clear applicability to other institutional functions (records management, learning resource management, stewardship of faculty-created digital knowledge assets). Pursuing this opportunity requires fora where stakeholders can explore and achieve consensus on not only technical, but administrative, policy, and budgetary issues.
 - c. *Reshaping scholarly communication* requires continued and expanded engagement with and among faculty. In addition, the institution's capability to support and sustain digitally-based scholarly communication initiatives both depends on and influences the broader domains of stewardship of digital scholarly information assets and the information infrastructure strategy of the University.
- Sustaining shared infrastructure in a decentralized environment. *SSD* spoke to the fragility of financial support for shared digital collections that depends on sustained voluntary co-investment of campus funds for success. As described in Section 2 above, the scope of shared collections has enlarged and become more complex. Further, the complex interdependencies among various formats and strategies for shared collections, and between collections, facilities, and services, have become more evident. As the shared UC information environment grows broader and deeper to encompass more constituencies and services at all levels, the challenges of planning and financing the necessary shared infrastructure will grow more intricate as well.

3.2.2. Copyright issues and strategies.

Experience with *collaborative collection management* applied both to licensed digital collections and the conversion to digital form of existing print collections, with the Digital Preservation Repository as a leading strategy for *persistent access to digital collections*, and with some strategies intended to foster change in *scholarly communication* lead to the conclusion that the University must engage in a broadly-based and sustained discussion regarding the operation and implications of copyright law, policy and technology for the effective production, distribution, stewardship and use of the information resources needed to support and advance the University's academic mission.

APPENDIX. DETAILS OF PROGRESS TOWARD STRATEGIC DIRECTIONS

Collection management and coordination

In *Systemwide Strategic Directions for Libraries and Scholarly Information at the University of California* (hereafter, *SSD*), the success of the UC Libraries' program to acquire digital library materials on a shared systemwide basis was seen as a foundation for extending the shared collections concept to the print realm, and as an opportunity to identify and document the costs and benefits, both to the library system and its users, of collaborative acquisition and management of library collections in all formats. Specific recommendations included:

- *Develop a detailed planning and evaluation framework for shared collections in all combinations of formats that: a) explicitly specifies their key characteristics (e.g., physical location; access and management policies); b) identifies costs and resource needs (e.g., processing, shelving space and environmental requirements, access and delivery services, and requirements for infrastructure services such as bibliographic access and inventory control); c) assesses implications for campus operations, services, preservation strategies, and budgets; and d) identifies the affected user communities and their use of the collections.*
- *Apply the guidance provided by this framework to implement the development of shared collections.*

Consistent with these recommendations:

- In June 2004, Nancy Kushigian was appointed Director of Shared Print, to lead and coordinate planning and implementation of collaboratively-developed shared print collections.
- Principles and practices for collaborative planning and management of shared print collections have been developed, and continue to evolve based on experience.
- Shared print collections totaling 43,000 volumes (as of October 2005) have been assembled and processed at the Southern Regional Library Facility. These collections include a prospective archive for journals that we receive digitally, including journals from Kluwer, Elsevier, American Psychological Society, and others; a complete print archive of retrospective journals from the JSTOR Collection, core science journals, and IEEE Journals; and a project to collaboratively acquire specialized monographs to support research on Anglophone Literature. About 25,000 volumes per year are being processed for addition to the shared print collections. Project assessments will serve to help develop the planning framework.
- Preliminary cost models have been developed to support planning of shared print collections. These models provide estimates of (a) the costs of acquiring or assembling, and of processing and housing the collections, and (b) the resulting cost avoidances to campuses for cataloging, processing and housing locally-acquired copies of the same materials. These models are currently still in development.
- The announcement of the Google Print Libraries program (recently renamed Google Book Search – Library Project)⁸ in December 2004, which proposed the mass digitization of the holdings of five major research libraries, shed an unexpectedly bright light on retrospective digitization as another path for collaborative collection development. After considerable

⁸ See <http://books.google.com/>. A reasonably complete and recent list of documents, press accounts and Internet postings related to this program, and in particular the copyright controversy it has engendered, is available at Charles Bailey's *Digital Koans* Weblog: <http://www.escholarlypub.com/digitalkoans/2005/10/25/the-google-print-controversy-a-bibliography/>, posted 10/25/05.

discussion within the UC Libraries and with potential external partners, the UC Libraries became founding partners in the Open Content Alliance⁹, launched in October 2005. As one of over 30 partners (as of November 18, 2005) who will contribute technology, library resources and funding to the project, UC will participate in the organization's governance, and will select for scanning about 10,000 volumes of carefully-selected public-domain books in American literature drawn from the UC collections.¹⁰ Funding to support the scanning will be provided by Yahoo!. In general, digital book collections developed by the OCA will be freely available.

The significant shared collections that have been made available over the review period, and the supporting development projects, include:

- a. Digitization
 - i. High-volume digitization research (<http://libraries.universityofcalifornia.edu/sopag/High_Vol/Scanning_Charge.htm>, <http://libraries.universityofcalifornia.edu/sopag/High_Vol/Demo_Proposal.htm>)
 - ii. Open Content Alliance (<http://www.cdlib.org/news/press_releases/oca_release_final_20050930.doc>)
- b. Specialized and experimental collections
 - i. American West (<<http://www.cdlib.org/inside/projects/amwest/>>).
 - ii. California Cultures (<<http://calcultures.cdlib.org/>>)
 - iii. eScholarship Editions (<<http://content.cdlib.org/escholarship/>>)
 - iv. eScholarship Repository (<<http://repositories.cdlib.org/escholarship/>>, <<http://repositories.cdlib.org/escholarship/about.html>>)

Shared facilities

The SSD observed that “the emergence of the shared collections and shared services initiatives discussed here will require the University libraries to develop new collection management, public service, and technical service strategies to support them. The regional library facilities, as Universitywide assets, are well positioned to assume new roles in support of these initiatives.” To enable comprehensive and integrated systemwide planning and oversight for library facilities, the SSD recommended:

- *Consolidate the governance of the shared regional library facilities and ensure that they are fully integrated into planning and operations in support of the collaborative programs of the UC libraries.*
- *Regularly review the policies, operations, and resource needs of the regional library facilities to ensure that they continue to support the UC libraries' strategic directions.*
- *Acknowledge that the scope for continued expansion of the regional library facilities is necessarily limited (by site constraints, availability of capital resources in the context of UC capital program priorities, etc.), and begin long-range planning for this eventuality.*

Consistent with these recommendations:

- Pursuant to the recommendations of the University Librarians' Regional Library Facilities Task Force,¹¹ and after review of these recommendations by SLASIAC,¹² in July 2004

⁹ See <http://www.opencontentalliance.org/>.

¹⁰ See http://www.cdlib.org/news/press_releases/oca_release_final_20050930.doc.

¹¹ See http://www.slp.ucop.edu/documents/RLF-TF_Final_Report.pdf.

¹² See SLASIAC February 20, 2004 meeting notes, at http://www.slp.ucop.edu/consultation/slasiac/notes_022004.htm, item 6.

Provost Greenwood established the systemwide Shared Library Facilities Board¹³ and discharged the two existing regional boards that governed their respective Regional Library Facilities (RLFs). The new Board held its first meeting on February 23, 2005.

- Responding to concerns expressed by SLASIAC at its February 20, 2004 meeting,¹⁴ the University Librarians developed a proposed procedure to ensure that materials electively deposited by campuses in one of the Regional Library Facilities would remain perpetually available and accessible to all UC campuses, thereby allowing campuses to plan and manage their own collections with greater confidence, including electing to dispose of locally-held duplicates of materials previously deposited by another campus in an RLF. The statement developed by the University Librarians¹⁵ was subsequently endorsed by the Shared Library Facilities Board, and the issue was turned over to the UC Libraries' Systemwide Operating and Planning Advisory Group (SOPAG¹⁶) to develop implementing procedures. The initial recommendations of that group¹⁷ differ substantially from the conceptual approach proposed by the University Librarians, but the outcome is the same: materials sent to the RLFs would effectively be permanently deposited. The University Librarians have endorsed the SOPAG approach in principle, and have turned the issue back to the group to flesh out a detailed implementation plan.
- Pursuant to discussion of the Southern Regional Library Facility Phase 3 expansion proposal at the March 10, 2005 SLASIAC meeting,¹⁸ and following an endorsement from the Council of Vice Chancellors, a provision for the SRLF-3 project was incorporated into the UC 2006-07 five-year capital plan, with a planned project commencement in 2010-11.¹⁹
- In view of the emerging importance of the RLFs to the collaborative library program and the new requirement to begin identifying and resolving the facility-planning issues for SRLF-3, the Shared Library Facilities Board appointed an Operational Planning Task Force with a three-part charge to (a) recommend alternative methods for long-term allocation of RLF space and processing capacity, (b) develop background information and propose strategies for reducing duplication and assuring physical and academic quality of RLF deposits, and (c) recommend procedural and organizational methods to ensure effective coordination and interoperability of RLF systems and procedures. The Task Force will submit its final report to the Board in Spring 2006.

Shared services

The SSD discussed the importance of moving from an architecture of monolithic and self-contained library systems and services to a “layered” model, built upon a common infrastructure but employing highly flexible tools and services, to empower each campus library to tailor services to its clientele without sacrificing the economies of scope and scale that accompany systemwide provision. Specific recommendations included:

¹³ See <http://libraries.universityofcalifornia.edu/about/slfb/index.html>.

¹⁴ See http://www.slp.ucop.edu/consultation/slasiac/notes_022004.htm, item 6.

¹⁵ See http://libraries.universityofcalifornia.edu/planning/RLF_Persistence_Policy.pdf.

¹⁶ See <http://libraries.universityofcalifornia.edu/sopag/>.

¹⁷ See http://libraries.universityofcalifornia.edu/sopag/RLF_Persistence/Charge.htm,
http://libraries.universityofcalifornia.edu/sopag/RLF_Persistence/Report_070605.pdf

¹⁸ See http://www.slp.ucop.edu/consultation/slasiac/notes_031005.html, item 4.

¹⁹ University of California, *2006-07 Budget for State Capital Improvements*, pp. 182-183 (available at <http://budget.ucop.edu/capital/200607/200607-budgetforstatecapitalimprovements.pdf>).

- *Develop a programmatic framework that leverages the collective resources of the UC libraries to: a) more effectively manage and deliver essential ongoing services (e.g., for bibliographic control and access, and for acquisition, processing and management of collections in all formats); and b) collaboratively develop, deploy, and support advanced user services.*
- *Develop and implement pilot programs to test concepts, refine planning, establish priorities, and clarify resource needs and sources.*

Work during this period has focused on development of an underlying common infrastructure at the California Digital Library that can flexibly and cost-effectively support a wide variety of data types and services, and development and deployment of specific services built upon this platform and/or consistent with this service model. allow (a) campuses to participate electively and configure local services to their needs and (b) new services offerings to be added quickly and at low cost, and (c) services to be recombined flexibly and innovatively owing to compliance with common network standards. Significant examples include:

- The CDL Digital Preservation Repository (see section 2.4 above), which allows campuses electively to submit a variety of digital objects for long-term retention and management, and flexibly tailors the level of preservation service provided to the submitting campus' needs and investment
- The eScholarship Repository, which has proven adaptable as a repository for working papers and preprints, postprints of published articles, monographs, monographic series, and other formats, and is capable of serving as a publishing platform as well as an accessible archive. In early November, the Repository achieved a major milestone: 2 million works have been viewed or downloaded.
- The UC-eLinks service, which provides a way to easily move from an article or book citation to the electronic version of the item, to check to see if the item is available on the local campus, or to request items not available locally. The UC-eLinks service has been integrated successfully with the systemwide Melvyl catalog, externally-hosted commercial abstracting and indexing databases, campus library catalogs, and other online bibliographic resources, and campuses may electively add to the system links to resources that are available only to their local users. The underlying infrastructure also generates campus-specific A-Z lists of electronic journals that can be customized and integrated into libraries' web sites as demonstrated by UCB, UCM, UCR, UCSB, UCSC and UCSF. When Google announced that its Google Scholar service²⁰ (which uses Google technology specifically to search for scholarly literature) was capable of supporting the standards that underlie UC-eLinks, the University was able in a very short period to arrange for a UC-eLinks link to appear in each Google Scholar search result for which UC users have licensed access, whenever the Google user was identifiable as coming from a UC campus.
- UC Image Service:²¹ Following a test period, libraries are in the process of rolling out image services that include 350,000 images illustrating a range of subjects from several licensed collections, UC-owned collections and a number of free collections from other institutions. They are available via the Insight software that provides powerful presentation tools as well as the ability to export to other tools such as Powerpoint, or to HTML.
- Curation and customization: CDL is developing a number of tools to allow libraries and others to select portions of the digital objects it hosts and to customize their presentation.

²⁰ See <http://scholar.google.com/>.

²¹ See <http://www.cdlib.org/inside/projects/image/>.

These capabilities have been used for the CalHeritage at UCB, the British Women Romantic Poets at UCD, and two collaborative efforts among UC libraries, museums and other partners: MOAC at UCB Berkeley Art Museum and Pacific Film Archive, and the Japanese American Relocation Digital Archive. In development are sites at UCI for the Southeast Asian Archive, San Francisco Earthquake and Fire at UCB, the UC-wide CalCultures project and the site for the general public called Calisphere. In each case, CDL provides the search system and the user interface platform; the libraries select the content they wish to showcase and provide the graphics, text, branding and other components of the user interface.

- **Metasearch Infrastructure:**²² Another set of tools for creating customized aggregations of licensed databases, electronic journals, free sites or other materials is in development. “Metasearching” provides a means of searching across diverse resources simultaneously with merged results. These services will allow libraries to create portals tailored to a specific subject, audience or purpose. Prototypes for undergraduate research at UCSC and UCLA and for multidisciplinary research in European integration at UCLA will debut in the spring. Another prototype funded by the National Science Digital Library for earth sciences will test integration of licensed databases with content from NSDL.

In addition to these specific services, and others currently in development, the UC Libraries have appointed a Bibliographic Services Task Force²³ to develop a vision, design principles and implementation proposals for a new bibliographic service environment that overcomes the major inefficiencies of the current bibliographic system and provides a platform cost-effectively to provide better services to end-users and library staff in a collaborative and shared collections environment. The Task Force began its work in April, 2005, and a final report is expected in the first half of 2006.

Persistent access to digital information

SSD acknowledged both the rapidly increasing importance of information in digital form to the academic mission of UC and growing concerns about the longevity of digital information, and encouraged the University to take immediate steps to help ensure the persistence of the digital resources that faculty and students both produce and use for teaching, learning and research. Specific recommendations included:

- *Develop a digital preservation infrastructure in collaboration with national and international efforts that adheres to established standards and open-source practices to: a) centrally preserve the at-risk digital information that we share a common interest in (such as scholarly journals and databases and web-based government information); and b) facilitate the efforts of the campus libraries to preserve digital assets in which they take a unique interest (for example, selected collections of web-based materials, UC dissertations, digital materials produced by faculty for research or teaching, etc).*
- *Investigate the extent to which the digital preservation infrastructure may assist in the preservation or protection of deteriorating print materials.*
- *Coordinate closely with University units responsible for information technology, records management, and other units with a responsibility for the preservation of digital content to foster development of and support for a robust common information technology infrastructure that can meet the University’s needs for the reliable archiving, management, and retrieval of digital information.*

²² See the Metasearch Infrastructure Project (<http://www.cdlib.org/inside/projects/metasearch/>) and the OAI Harvesting Infrastructure (<http://www.cdlib.org/inside/projects/harvesting/>).

²³ See <http://libraries.universityofcalifornia.edu/sopag/BSTF/Charge.htm>.

Consistent with these recommendations, after more than a year of development and testing, the UC Libraries' Digital Preservation Repository²⁴ was released for use by UC campus libraries on July 14, 2005. The four pilot campuses (Berkeley, Los Angeles, San Diego and San Francisco) have already begun using the service, and other campuses are being added as training is completed and systems are configured. Planning is underway both to define and accommodate a variety of additional digital formats for archiving, and to develop strategies for systematic harvesting and archiving of academically-important Web sites. Other projects related to digital preservation include:

- The Web at Risk (<http://www.cdlib.org/inside/projects/preservation/webatrisk/>)
- The California Recall Election Project (<http://www.cdlib.org/inside/projects/preservation/recall/>)

Scholarly communication

SSD reviewed the growing interest by an increasing proportion of the UC academic community in scholarly publishing and communication issues since 1997, culminating in a series of faculty seminars in Fall 2003 and the substantial Universitywide faculty engagement in the Elsevier contract negotiations at about the same time. Building on this growing momentum, SSD declared that “if the University of California Libraries are to continue to provide the high-quality collections and services that their users both demand and deserve it is vital that the economics of scholarly publishing become more sustainable and, concomitantly, that scholarly communication systems evolve in order to continue to support the production of knowledge.” Specific recommendations included:

- *Working collaboratively with faculty, management, the UC Press, information schools, and national associations and bodies, the UC libraries will develop and implement a program to provide leadership in the comprehensive alteration of the scholarly communication process so that it is economically sustainable and ensures the widest possible access to the scholarly record. The program will identify concrete steps and necessary resources, and should evolve along a shared services model, with the appropriate use of centrally-provided services and collaboratively developed campus-based efforts. At a minimum, this program will provide:*
 - *Strategies and services to help faculty manage the copyrights in the works they create, including an expanded publishing services infrastructure, based on the eScholarship program and partnership with the UC Press, to facilitate innovative dissemination of their works.*
 - *Methods for communication and outreach to faculty to inform them about the economics and mechanics of scholarly publishing and their effect on both the distribution of scholarly work and on the quality of service provided by the UC libraries.*
 - *Establishment and operational application of library collection development and selection principles that account not only for scholarly value but also for service and economic sustainability.*
 - *Applied research to identify and gather the data about characteristics of the publishing industry and its products and about UC library operations and costs that are needed to help inform the publishing decisions of individual faculty, as well as the University's ongoing planning.*
 - *Mechanisms to leverage individual, campus and systemwide effort and expertise, resulting in a network of highly engaged and informed faculty, library staff, and academic administrators who can shape, support and effectively coordinate both campus and systemwide endeavors.*

Consistent with these recommendations:

²⁴ See <http://www.cdlib.org/inside/projects/preservation/dpr/>.

- In April 2004 Provost Greenwood established the Office of Scholarly Communication (OSC).²⁵ Working with the libraries, the UC Press, and UC scholars, the Office’s directorate for publishing and strategic initiatives has:
 - extended eScholarship’s Repository services to include open access to new content, notably postprints of UC-authored journal articles;²⁶
 - collaborated with UC Press to create digital-first monographic series;
 - launched or migrated six UC and California-based journals to an open access digital platform;
 - initiated discussions with California-based universities about federating California-based digital repository services.
- The Office of Scholarly Communication’s directorate for policy, planning, and outreach has facilitated discussion and action on administrative and faculty ownership of copyright in UC’s scholarly works and on other key issues, as evidenced by resolutions and whitepapers covering copyright management, preferred market dynamics for scholarly publications, and the role of scholarly societies.
- The UC libraries are actively pursuing collaborative collection practices that reshape the marketplace. Efforts include:
 - renegotiation of several licenses with journal publishers to include more flexible content selection and annual price increases at or below inflation;
 - membership support for alternative publishing models such as the Public Library of Science;
 - construction of value-based pricing models to lead new and renewal content negotiations.
- The UC libraries have established the all-campus Scholarly Communication Officers group through which they advise on and implement components of the libraries’ scholarly communication strategies, including collaborating for the provision of background data and up-to-date analysis of the challenges and opportunities in reshaping scholarly communication.²⁷ The OSC and CDL are partners in this activity.
- The UC libraries, with assistance from the OSC, facilitated UC responses to national debates about open access to NIH-funded research, and the American Chemical Society’s stance on the new PubChem data. These experiences are informing the development of a “rapid-response” capacity within the libraries’ education and outreach program.

²⁵ See <http://osc.universityofcalifornia.edu/responses/osc/>.

²⁶ See, e.g., eScholarship Repository support for publishing seminar series (http://www.cdlib.org/news/press_releases/seminar_series_final_20040913.doc) and eScholarship Repository postprint service (http://www.cdlib.org/news/press_releases/postprints_final_20050223.doc)

²⁷ See <http://libraries.universityofcalifornia.edu/sco/>.