

A. Background/process details

1. Charge and membership

The ITGC, through its Focus Area on Stewardship of Digital Assets, will:

- evaluate from a risk management perspective the possible roles and responsibilities of the University with regard to the management of both academic and administrative digital information assets;
- make recommendations about the University's role in managing these assets and how it might go about planning for and funding any effort as may be recommended.

Chair: Brian E.C. Schottlaender, University Librarian, UCSD

Consultants: Gary S. Lawrence, Director, Systemwide Library Planning, UCOP (Academic information); Connie Williams, Manager, Records Management Services, UCOP (Administrative information)

ITGC Liaison: Daniel Greenstein, Associate Vice Provost for Scholarly Information, UCOP

2. Work plan and consultation strategy

The leaders of this focus area recognize that:

- The importance of information in digital formats for the University's core academic and administrative functions is substantial and growing.
- There are significant differences in the issues involved in, and the strategies that may be suitable for, the academic and administrative domains. Notwithstanding, there are likely commonalities in the infrastructures, policies, and practices that might be employed for the long-term management of academic and administrative digital assets.
- Understanding of the issues, problems, opportunities, and viable strategies for long-term institutional management of digital assets is limited and unevenly distributed among key academic and administrative stakeholders.

In view of these factors, the leaders of the focus area plan to proceed by:

- Sponsoring preliminary investigation into the types, characteristics, location/distribution, and volume of digital assets, especially in the academic domain, held within the University; and, the perceived and actual needs regarding stewardship of those assets, including:
 - Discussions with a small number of UC faculty in data-intensive research areas in a variety of disciplines (largely completed)
 - Discussions with directors of data-intensive UC multi-campus research units (in progress)
 - Discussions with managers of existing campus programs that have responsibility to provide data stewardship and management services (in planning)
 - Identification of exemplary external institutions, organizations, or programs (ongoing)
- Convening initial Universitywide meetings of key informants and stakeholder to review issues and identify candidate institutional strategies. Meetings on academic and administrative assets are scheduled for September 29, 2006 and December 5, 2006, respectively.

- Determining, based on outcomes of the initial meetings, and in consultation with key stakeholders, whether additional invitation meetings and/or working groups are needed. Identified stakeholders in this area include, for example, data stewards (records managers, librarians, archivists), providers of supporting services (CIOs, data center administrators) and policies (Vice Chancellors, research administrators, controllers, risk managers), producers of digital information assets (faculty, research units, administrative officers) and the users of these assets (faculty, students, senior managers, the Regents).

3. *Candidate proposals*

There are no specific proposals to bring forward at this time.

B. Analysis

1. *Current UC environment*

In the academic domain, a diagnosis of the needs and opportunities for institutional initiatives related to the long-term management of the digital information resources produced by or needed for research, teaching/learning, or service is influenced by:

- Differences among academic disciplines and their cultures. In some scientific fields (notably, genetic research, astronomy and astrophysics, and most subdisciplines of physics), both the need to manage and share research data and published findings and the technical means to do so are well developed; in others (notably chemistry and basic biological sciences) investigators traditionally hold private their primary research data. Many social sciences have a long history of using, contributing to, and sharing large data sets, but in others the concept of active and ongoing management of research data is just emerging. While some notable efforts at collaborative management and sharing of research data have appeared in the humanities, these disciplines have only recently arrived at an understanding of the importance of digital information as a product of and resource for research, and the tradition of the independent investigator remains strong.
- The distributed research support environment. The organization of the research enterprise—characterized by multiple and diverse funders and distributed responsibility—complicates any effort at developing consistent campus- or university-wide strategies.
- Multiple and overlapping policy domains and responsibilities. In addition to academic needs, decisions about best practices are influenced by (a) legal requirements (e.g., confidentiality), (b) other UC policies and administrative practices (e.g., patent), (c) compliance with the requirements and expectations of funders, and (d) availability and cost of supporting services (e.g., networks, computing and data storage), among other factors. The importance of, and interplay among, these factors, can vary by discipline. Some disciplines are currently supported by sustainably-funded national and international centers and databases that support deposit of and access to research data. These factors also interact unpredictably with the diverse and distributed nature of responsibilities for the University's research enterprise, making it difficult to discern viable institutional strategies. For example, responsibility for custody of primary research data generally rests, at least initially, with the investigator and/or his/her department or research unit, while the institutional administration is generally accountable for compliance with legal and grant/contract requirements.

Management of the published results of research, also increasingly in digital form, is strongly influenced by copyright law and associated University policies, and by the business practices and revenue requirements of publishers (including scholarly societies and university presses). In this realm, a growing movement favoring unconstrained access to research publications has led to development of new “open access” policies by funding agencies (notably, the National Institutes of Health and the Wellcome Trust), proposed federal legislation (notably the Cornyn-Lieberman Federal Research Public Access Act of 2006), and a landmark proposal from the UC Academic Senate to revise UC policy to encourage faculty to retain and manage the copyrights in their works, grant UC a non-exclusive license in them, and place them in open-access repositories. Published materials created for and used in teaching are also affected by copyright law and policies, as well as by the emergence of learning management systems that specifically support the teaching/learning enterprise.

By contrast, the development of policies, practices, and systems related to administrative records appears more straightforward. However, the day-to-day administration of those policies is highly distributed, and mechanisms to ensure compliance are not strong. Considerations of cost, control, compatibility of systems, and staff training are paramount in this area, and administrative practices intersect with academic interests when records reach the end of their administrative life cycle and must be evaluated for their archival value as sources for research and documentation of institutional history.

2. Emerging issues, opportunities, and challenges

Planning for stewardship of digital assets must acknowledge key relationships with other ITGC focus areas, especially Advanced Networking Services, Common IT Architecture, High Performance Research Computing (where the concept of a UC Research Grid incorporating replicated data storage and preservation as well as computational facilities promises rich opportunities to address stewardship issues), and Instructional Technology. It is not yet evident whether it would be more productive, after specifying needs and opportunities, to (a) develop digital stewardship strategies independently or to (b) follow these other ITGC efforts closely, focus on the results of that work that relate to and can be leveraged to support digital stewardship needs and, where possible, steer that work toward outcomes that support digital stewardship.

In view of all these complexities, it appears that there are three general directions in which work on digital stewardship might proceed: (a) framing the issues and the associated roles and responsibilities in a way that can foster an extended dialog within the University; (b) cultivating communities of interest and practice among those on the campuses who are actively engaging with digital stewardship problems; and (c) identifying a small number of key initiatives (perhaps based upon and extending the work of other ITGC focus areas) that provably meet what is likely to be a limited number of commonly-perceived needs. While these approaches are not mutually exclusive, in view of the limited time and resources available to fully explore all the relevant factors and their interactions, an understanding of which emphasis is likely to produce results that are useful to the ITGC would be helpful in planning the course of work in this area.

Post-meeting supplement

A. Key questions presented to ITGC for discussion

The discussion with the ITGC preceded a pair of systemwide meetings scheduled in September and December to explore digital stewardship issues and opportunities; thus the ITGC presentation and discussion were intended to inform thinking and development in this area, rather than to declare and test specific ideas and recommendations.

1. *Steward What?* Among the questions to be considered are: What kinds of assets? Located where? How many? Of what value? At what risk? With what stewardship challenges (e.g., technical, cultural, political, legal)
2. *What Do You Mean, Steward?* Among the potential functions that might be included in “stewardship” are: Creation; acquisition; management (cataloging/identifying; naming); determining extent (e.g., include links?); refresh/forward migration; storage; preservation
3. *Steward How?* Among the possible methods that might be adopted are: Campus repositories; the California Digital Library (including its Digital Preservation Repository); other UC repositories; domain (e.g. disciplinary) repositories; 3rd party repositories (e.g., C/LOCKSS, Portico, Chronopolis)
4. *Who “Owns” Digital Stewardship?* Among the parties who might claim or assume responsibility for various components of stewardship are: Individuals; campuses; UC; disciplinary domains; consortia

Outcomes from ITGC discussion

ITGC raised the following points for further consideration in this focus area:

- Provisions for software as stewarded digital assets, both as a product in its own right (i.e., executable programs) and as essential mediator for software-dependent data
- UC’s potential roles as (a) an institutional curator and (b) a disciplinary curator for national/international disciplinary communities
- The relationships between capture/curation and access to stewarded data
- Strong potential relationships with other ITGC focus areas, particularly high-performance research computing, common infrastructure, and instructional technology
- Data security and privacy issues
- User support issues (also of concern for high-performance research computing, advanced networking, and instructional technology)
- Suggested strategies for ongoing work:
 - Focus on functions and roles within a stewardship “system,” and accounting for the natural life-cycles of academic information, rather than the specific types of data and their uses
 - For the purpose of facilitating the upcoming systemwide meetings, focus on either a broad, well-facilitated discussion of general principles or on a very specific proposal to which the community can react

- “Survey ahead” to construct a compelling vision of the roles and affordances of institutional stewardship in the future
- The “unfunded mandate” view of stewardship may present the most compelling rationale for attention and action.

B. Next Steps

ITGC’s advice will be carried into the planning for invitational Universitywide meetings on stewardship of academic digital information (September 29) and administrative records (December 5). In these two discussions and ensuing work, planning will be informed by the needs (a) to build consensual understanding of some key principles (e.g., what do we mean by “stewardship” in this context, what would constitute “success” and what are the obstacles to achieving it) and (b) to articulate one or more concrete proposals and supporting rationales that can be used to test these principles and provide a foundation for ITGC recommendations.