Memorandum

From: University Committee on Information Technology and Telecommunications Policy (ITTP)
To: Information Technology Guidance Committee (ITGC)
Subj: Feedback on working group reports
Date: February 8, 2007

The ITTP discussed the ITGC December 2006 working group reports at its February 2, 2007 meeting, and this memorandum summarizes informal feedback from our Committee to the ITGC. We suggest that you seek similar input from the UC Committee on Library, whose area of expertise matches well the Working Group on Stewardship of Digital Assets.

We are delighted that the ITGC is placing emphasis on utilizing enhanced information technologies to improve the academic mission of the University as well as its business services. We believe that there are numerous IT-related opportunities for improving teaching/learning and research, and that expending greater resources in these directions would be cost effective and have significant effects. In particular, some impacts that should be emphasized include making UC

- more renowned,
- more effective in teaching and research,
- more efficient and cost effective,
- an attractor for the very best faculty and students,
- a better place to be a student, and
- a better place to work and spend a career.

Grand Challenges

The Working Group reports emphasize what we should be doing, but we believe there is not enough emphasis on why we are doing them. This is an area where the ITTP can be helpful within the academic realm, and we suggest you seek complementary input from the administrative and business sides of the University as well. We decided that the best way to address the “why” questions on behalf of faculty and students was in terms of a set of grand challenges. These describe capabilities that would emerge over the next ten years or so as a result of IT enhancements stemming from the ITGC process. These or similar grand challenges could be used to test the Working Group recommendations in dimensions like:
• Are they the best and most effective ways to succeed in meeting the grand challenges?
• Are they comprehensive, or are other recommendations needed?
• What is the best way to prioritize and stage the recommendations over time?

Top-Ten Challenges

The following is our list of ten ways in which the University will be a better place in ten years or so.

1. Inter-campus learning
   Compared to a single-campus course, a course team-taught by faculty from three different campuses with students enrolled at all ten campuses is no more difficult or less pleasant to teach, and it offers an educational experience for students just as effective and enriching. As a result, campuses share teaching resources in areas of high specialization, and students on all campuses are afforded unfettered access to educational opportunities across the entire system.

2. Learning communities
   Because of the opportunity for rich collaboration and interaction with a diverse group of fellow students (which might be termed a “learning communities”), as well as improved pedagogy enabled in part by IT, faculty and students consider large-enrollment courses a better and more effective educational experience than small-enrollment courses. Small-enrollment courses respond by creating learning communities with other courses addressing complementary subject matter on the same campus, at other UC campuses, or at other universities around the world. As a result, the UC educational experience is enhanced.

3. Virtual instructional laboratories
   Many (but not all) course-based laboratory and project experiences are conducted “virtually”, meaning they are collaborative with other students, based on modeling and simulation, and draw upon scientific data collected in the research mission of the University. As a result, student laboratory and project experience is more extensive, richer educationally, more cost effective for the University, and requires less space.

4. Friendly online experience
Students, as they roam across degree programs and classes find a uniform set of tools and interfaces in use so that the University presents a friendly and homogeneous face. Students access all educational and administrative resources through a single, unified view. As a result, students spend more time learning and less time “fighting” context switches and differing environments.

5. Well-supported instructors

All instructors have available a rich set of software applications widely used in teaching, modern facilities and equipment supporting these applications, and administrative and technical support in provisioning and using them. Individual students and general-assignment classrooms are equipped to make full use of these capabilities. As a result, instructors do not have to dip into their own pockets or research funds to acquire equipment and software used in teaching and spend less time drawn away from course preparation to deal with technical obstacles. As a result, the new capabilities (like learning communities and virtual laboratories) are more widely adopted and used.

6. Exploding collaboration

Faculty and students use multi-way video conferencing and an integrated set of collaborative tools that are ubiquitous and require no “setup” or technical support. As one result, the Systemwide Academic Senate committees no longer conduct physical meetings in Oakland. The time and dollars devoted to travel is dramatically reduced, and more importantly the level of interaction and collaboration across campuses is dramatically improved in both teaching, research, and service.

7. Preservation of our research heritage

Virtually all scientific data as well as software artifacts collected and created within the University are captured, organized, and stewarded in ways that require little time or attention on the part of individual researchers. As a result, any such data or software can be identified, located and used by researchers in the fourth and fifth millennia, allowing data gathered at considerable expense to be available to future generations of researchers.

8. Geographically distributed mega-projects

Large interdisciplinary, inter-campus and inter-university research projects can be organized and begun in a matter of weeks, without geographic constraints and without the need for anybody to relocate. As a result, many of society’s most vexing challenges, both short- and long-term, are increasingly the targets and beneficiaries of academic research originating at UC.
9. Research grants without a home
Extramural grant proposals and grant administration are paperless and conducted exclusively online. There is no apparent difference to principle investigators when grants and projects cross institutional boundaries (either inside or outside of UC). As a result, current disincentives for interdisciplinary and inter-campus research projects are greatly reduced.

10. Expedited academic administration
Cooperation and sharing of resources among UC campuses in developing and maintaining common applications while accommodating local needs for differentiation or extension are standard and widespread practices. The resulting applications reduce the time faculty spend on grades, course approval, student admissions, academic personnel, other tasks. As a result, the efficacy and efficiency of the academic administrative processes are continuously improved, and both quality and cost effectiveness are improved through campus resource sharing.