



UNIVERSITY OF CALIFORNIA
INFORMATION TECHNOLOGY
GUIDANCE COMMITTEE

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ITGC Members

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Michael Witherell, Vice Chancellor, Research, UCSB

Peter Yellowlees, Director, Academic Information Systems, Medical School, UCSD

Colleagues,

I am pleased to present you with the draft recommendations of the UC Information Technology Guidance Committee, which I appointed in February 2006 to engage in a consultative UC-wide planning process to identify and recommend strategic directions to guide investments in information technology (IT) and the academic information environment.

These recommendations come at an opportune time, contributing to and strengthening an emerging vision for the University. That vision, captured in the phrase “the power and promise of ten,” sees the University working as a single institution, bringing together the complementary strengths of its ten campuses in a creative, interconnected, focused approach that summons the total impact of the system to confront its challenges while better serving the people and the state of California.

This vision applies nowhere better than to the opportunities that grow out of a more deliberate, strategic, and coordinated approach to the investments UC makes in its information technology.

To implement this vision we will, to be sure, need to learn how to act better as a system. We certainly have good experiences on which we can draw – the California Digital Library and IT Strategic Sourcing are but two examples – as well as a variety of proven collaborative models that can be applied, including:

- Multi-campus initiatives, where a subset of campuses agree to collaborate on a system or service, or to adopt a solution developed by one campus
- Functional collaborations, where groups responsible for a particular function at some or all campuses get together to develop or adopt a shared solution that serves their functional need
- System-led initiatives, where campuses request UCOP to provide collaborative leadership in developing or implementing a shared solution or a uniform UC-wide solution is imperative for cost, fiduciary, or other reasons.

Finally, we realize that our success will require us to think hard about how best to plan, review, fund, organize, and govern ongoing collaborative efforts, and about the Office of the President’s role in support of them.

These are no small challenges, but we are confident we can meet them successfully in the deployment of our information technology resources and in other areas. We are as confident that by doing so, we will strengthen the University of California, sustaining its pre-eminence as a catalyst for academic innovation, enhancing its ability to prepare the knowledge workers required in an increasingly global economy, and extending its service to the people and state of California.

Sincerely,

Wyatt R. Hume

*Provost and Executive Vice President, Academic & Health Affairs
Chair, UC Information Technology Guidance Committee*



UC IT GUIDANCE COMMITTEE OVERVIEW

CHARGE

UC Provost Rory Hume launched the UC-wide IT Guidance Committee in February 2006 to meet the following charge:

- Identify **strategic directions for IT investments** that enable campuses to meet their distinctive needs more effectively while supporting the University's broader mission, academic programs and strategic goals.
- Promote the deployment of information technology services to **support innovation** and the enhancement of academic quality and institutional competitiveness.
- **Leverage IT investment** and expertise to fully exploit collective and campus-specific IT capabilities.

WHY?

There are good reasons to do UC-wide IT planning:

- Position for competitive advantage - because increasingly innovation in research and teaching will be tied to innovation in cyberinfrastructure
- Improve business processes, reduce risks, gain efficiencies (in cost and space)
- Minimize irrational diversity & redundancy (of systems and information)
- Upgrade basic IT and systems infrastructure capability. Acting independently, the costs and development efforts are enormous
- Attract great talent – good cyberinfrastructure will become like good labs and grad students – a selling point for recruitment and retention of great faculty

Working together is our future – but there are challenges, such as how to:

- Leverage the benefits of collective action without losing local distinctiveness
- Balance collective needs and local imperatives
- Develop decision-making mechanisms that facilitate meaningful UC-wide action but are also responsive to campus needs

ITGC TIMETABLE

Launch the ITGC	February 2006
Campus visits	Summer 2006
Work Group reports	December 2006
ITGC draft recommendations	January-May 2007
Campus consultations	May-June 2007
Consultations with University-wide governing bodies	April-June 2007
Summary report to Provost	July 2007
Review and comment	July-August 2007
Presentations to President, COC, Regents, Academic Council	September 2007

RESOURCES & MORE INFORMATION

For more information or to provide input:
www.universityofcalifornia.edu/itgc/



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RESEARCH & SCHOLARSHIP

The new reality of the research enterprise is reduced federal funding and greater reliance on large, distributed multi-disciplinary teams. UC must act to sustain a research environment that competitively advantages research faculty and staff in the recruitment and retention of colleagues and graduate students, in attracting funding, and in participating in high-profile, multi-institutional initiatives.

WHERE ARE WE?

- The networking requirements of UC's research communities continue to grow and evolve at a rapid pace.
- Nationally and internationally, research networks are implementing higher bandwidth capacities and new connectivity models that surpass UC's current capabilities. In some cases, this is made possible by state, federal and private support.
- In 2002, UC operated 4 out of the top 10 supercomputers in the world, and 7 out of the top 25; in 2006, UC operated 2 out of the top 10, and 3 out of the top 25.
- UC is increasingly challenged by the growing space, power, cooling and support requirements of distributed research computing technologies located throughout the University. Peer institutions are developing managed services as an alternative.

UC faculty and researchers across disciplines require access to a cyberinfrastructure of supported computing resources and services that enable them to perform their work in the context of the University's academic mission.

Research data need to be collected, transmitted, mined and interpreted in increasingly sophisticated ways. Researchers require services for data storage, management, shared access, standards and security – all of which loom large on the horizon for IT service providers.

The University should join forces to develop a UC-wide cyberinfrastructure to ensure its continued research leadership and to support faculty needs for reliable and accessible computing, networking and data management services.

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WHERE MIGHT WE GO TOGETHER?

Potential steps include:

Substantially enhance UC's advanced network services.

Vision: All UC institutions will have the network connectivity required to support their strategic activities.

- Approach:**
- Complete the intercampus optical data communication network by extending a connection to UCSC.
 - Upgrade every campus's primary high-speed network connection to support advanced research requirements (to a minimum of 10 Gbps Ethernet).
 - Satisfy short-term needs and explore long-term requirements for advanced, fiber optic network services within and among UC campuses, and to external entities.
 - Implement technologies and services to ensure end-to-end reliability of network services.

Create UC Grid.

Vision: All faculty will have access to research cyberinfrastructure services delivered via UC Grid, a UC-managed infrastructure that enables sharing of resources throughout the University, as well as providing a gateway to resources around the world.

- Approach:**
- Extend grid access infrastructure to all UC campuses, and expose existing computing resources to the UC Grid for contributing to and accessing computational, data storage, and visualization resources.
 - Add new computing resources to the UC Grid.
 - Develop strategies to encourage appropriate sharing of critical resources, such as data center space and system administrators, as well as computing and storage resources.
 - Develop a set of secure storage services that support collaboration, long-term preservation, and large-scale computation.



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TEACHING, LEARNING AND STUDENT EXPERIENCE

An enormous amount of potential remains untapped for information technology to support and advance teaching, learning and the student experience. A UC-wide coordinated approach offers the potential for leveraging one campus's efforts for the benefit of all, as well as developing new programs and activities that no single campus could create or sustain on its own.

WHERE ARE WE?

- Today's UC students expect to learn, work, and communicate using the web, mobile technologies, the Internet and software.
- Faculty have developed a wealth of instructional content that is largely locked away – all but invisible except to the individual instructor and students currently enrolled in the course.
- We have very few discussions about how UC could strategically use IT to meet its educational goals.

Every campus is struggling to meet service demands and expectations of students. The UC community should be encouraged to continue its efforts to identify how the University can work together to better use IT to interact with and engage students.

UC campuses are increasingly “opening” up instructional content, primarily through podcasting, webcasting and open course ware. We can work together to maximize these efforts and increase their impact.

Innovative faculty often turn to IT to help them improve their teaching. Similarly, the University has the opportunity to innovate from an institutional perspective – to use IT to help reach its educational goals, for example, enhancing faculty-student interaction amid reduced state funding.

Working together presents the best opportunity to leverage our instructional and technology expertise for the benefit of all UC faculty and learners, and to continue to provide an exceptional experience to current and future generations of students.

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WHERE MIGHT WE GO TOGETHER?

Targeted initiatives to realize this potential include:

Courses without Borders

Vision: Increase the breadth and access of curricular offerings to every UC student by using information technology to provide cross-campus courses and facilitate UC faculty team teaching inter-disciplinary courses with colleagues on other campuses.

Approach: Create the IT infrastructure, services, systems, and support necessary to enable faculty to teach UC courses that enroll students from across campuses and are delivered through a variety of technology-mediated approaches, such as online, hybrid (combination of online and classroom experiences), and videoconferencing.

Open Access

Vision: As a land-grant institution, UC makes a unique contribution to the education of the California public. IT presents an opportunity to make an even greater impact by giving faculty the opportunity to free up their instructional content to benefit UC students and faculty as well as California's K-12 community and general public.

Approach: Implement a UC program to find, surface and share course materials, akin to MIT's OpenCourseWare program.

IT in the Student Experience

Vision: Optimize the use of information technology to support the student experience where possible and practical, and develop strategies to address our students' expectations.

Approach: Identify common needs and solutions throughout UC and support promising multi-campus demonstration projects that show potential for improving IT in the student experience across the system.

Create a nexus for Educational & Student Technology

Vision: Essential to the success of us working together is the creation of a locus for leadership, coordination and support for UC collaborative efforts that use IT to support teaching, learning and the student experience.

Approach: This nexus, which will combine campus and system leadership, will improve UC's ability to respond to new opportunities and challenges quickly, attract external funding, and provide leadership in those areas in which UC is uniquely positioned.



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UNIVERSITY - WIDE BUSINESS & ADMINISTRATIVE SYSTEMS

Information Technology is an integral component of University-wide business & administrative systems and processes that will enable us to achieve maximum effectiveness and efficiency in pursuit of UC's mission.

WHERE ARE WE?

In the absence of a coherent University-wide approach to critical administrative systems, UC today navigates a number of significant hurdles, including:

- multiple, incompatible campus administrative systems (e.g. financial, human resources, student administrative services);
- complex and outdated Payroll Personnel System with minimal human resources information system capabilities;
- increased demands for transparency and accountability and requirements for comprehensive workforce data that the University can only produce manually

As business complexity and information security demands grow, and we continue to deliver more business transactions via the Web, the University must take advantage of technology to simplify and standardize our business processes and systems.

We're making progress:

- A Human Resources Information System (HRIS) strategy has been developed to improve the quality of employee data and provide a broad range of payroll and human resources services to UC locations.
- A three-campus partnership (with UCOP support) is implementing the Quali Financial System (KFS), developed in conjunction with higher education partners. It will be made available to other UC campuses.
- UTrust, a federated identity management framework, facilitates secure business operations and transactions among UC institutions and with key stakeholder organizations such as the federal government.

UC administrative and IT leadership, working in close partnership, can significantly improve UC's business and administrative functions.

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WHERE MIGHT WE GO TOGETHER?

Potential steps include:

Develop a 21st Century Administrative Systems Blueprint

Vision: Develop a blueprint for the design, acquisition and implementation of next-generation, shared administrative and business systems and practices.

Approach: Implement new administrative systems (e.g., Human Resources Information System), exploiting new technology architectures and development approaches in an incremental manner that reduces risk, promotes standards, and leverages UC's current IT investments.

Leverage the "Power of Ten"

Vision: Identify and act on new opportunities for inter-campus collaboration to develop critical solutions to UC business problems.

Approach: Capture lessons learned from recent successes and create a framework to promote inter-campus partnerships, such as the development of the Effort Reporting System and inter-campus disaster recovery partnerships which could be extended University-wide.

Streamline IT Operations

Vision: Rethink the configuration and location of UC information technology infrastructure to pursue opportunities to consolidate technology platforms and streamline operations.

Approach: Take maximum advantage of UC's advanced network and computing infrastructure to design and deploy managed services that reduce central IT expenditures and increase the quality, reliability and accessibility of IT services to the community.

Improve Stewardship of the University's Assets

Vision: Take strong measures to protect the University's information assets.

Approach: Promote responsible stewardship activities and implement services such as UTrust, to secure business operations and transactions among UC institutions and with external stakeholder organizations.