



Integrated Information Technology Strategic Plan

Information Technology Council

October 30, 2008

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Executive Summary

Information Technology Strategic Plan

This Integrated Information Technology Strategic Plan is the result of ongoing agreement and consensus of representative faculty, students, and professional information technology staff to serve client needs within the scope and mission of the University of Utah.

The University's Information Technology mission is (1) to provide timely, secure, reliable and ubiquitous access to information and on-line services, (2) to support the University's education, research, patient care and community service goals, and (3) to extend University services to a diverse constituency without regard to time and place.

Information technology (IT) will support students and faculty in the teaching *and* learning; research *and* discovery processes.

Information technology will expand outreach efforts. Traditional IT focuses on transporting, processing and storing information. This plan envisions systems and services, which will engage our served community on a personal, individual level.

Strategic Drivers for Information Technology

The primary role of IT leadership is to ensure that Information Technology is aligned with the mission, vision, and goals of the organization it serves. Through an ongoing IT project prioritization process, described later, several strategic themes have emerged which may serve to direct and prioritize IT investments and to maximize the use of limited campus IT resources. These themes tend to group under the following categories:

Support the Mission of the University

This suggests that the use of limited IT resources should be prioritized based on the broadest possible reach into the University's academic, research, and public service missions. President Young has outlined strategic objectives and initiatives that include:

- Increase competitiveness in attracting top quality students, faculty, and researchers
- Achieve national prominence in research and creative activities.
- Increase external grant funding.
- Increase the diversity of our campus population.
- Improve student learning, engagement, and recruiting.
- Foster interdisciplinary teaching and research.
- Encourage international student experience.
- Incorporate instructional technology.
- Assess performance and value of programs.
- Improve operational, financial efficiency.

Improve Customer Service

This broad theme encompasses the needs of individuals and campus organizations. Projects may be prioritized based on improving service to customers in terms that include, but are not limited to the following:

- Impact the broadest possible scope of customers/users (students, faculty, staff, patients, visitors/patrons, etc.).
- Improve customer service and responsiveness.
- Enhance the end-user experience.
- Empower end-users with self-service functionality.
- Facilitate easy and reliable access to resources and information.
- Make it easier to get work done.
- Provide services and resources to support teaching, scholarship, research.
- Provide tools for management and decision making.
- Assist in defining and accomplishing academic goals (students and faculty).

Improve Communications and Collaboration

This driver supports academic and administrative, internal and external communications and collaboration. The focus is on connecting people to the people and resources necessary to accomplish individual, departmental, and institutional goals.

- Reduce or eliminate the learning curve for new communication technologies.
- Integrate solutions into current work habits and preferences as appropriate.
- Enable archiving and retrieval
- Improve search and results for information
- Provide fast, reliable self-service whenever possible

Optimize Campus Resources

This addresses the concept that limited IT resources should be managed for a maximum return on the University's past and future investments, and may include but not be limited to the following:

- Build on or take advantage of existing IT capabilities and solutions.
- Enable new capabilities and solutions.
- Take advantage of existing knowledge and skills.
- Enhance solution provider relationships.
- Improve business processes.
- Reduce redundancy.
- Reduce costs and cycle time.
- Generate revenue.

Manage Compliance and Risk

This acknowledges our responsibility to protect the University as an institution and as a body of individual students, faculty and staff.

- Adopt proven, reliable, and sustainable solutions whenever possible.
- Avoid negative impact on existing solutions.
- Conform to accepted technical architecture, standards and best practices.
- Adhere to regulations and organizational policies and guidelines.
- Improve the privacy and security of individual information.
- Enhance trust in the Institution.

Improve Data and Information Access and Management

This theme addresses the need for appropriate and secure access to reliable and accurate data and information to support institutional, departmental and individual requirements.

- Improve data and information integrity.
 - Availability
 - Timeliness
 - Accuracy
 - Quality
 - Usability
- Make data transportable for use in different applications.
- Facilitate efficient collection and storage of data and information.
- Provide complete data and information.
- Support information openness and transparency of operations.
- Secure private and sensitive data and information.

Governance and Planning

Governance and Planning coordinate plans, policies, infrastructure, services and processes that support end users in the accomplishment of the University's mission.

Governance

Campus IT will be governed by committees and councils that represent the interests of academic, administrative, research and health sciences organizations.

The Information Technology Executive Committee (ITEC) consists of campus IT leaders and data stewards. ITEC prioritizes major IT projects that consume limited human and financial resources. ITEC is the “core” IT planning group that prepares the campus strategic IT plan for approval by ITC. They act in accordance with the Institutional Data Access and Management Policy to ensure that the University’s IT assets are optimally and securely used in service of the University’s mission.

The Information Technology Council (ITC) is the primary IT policy and planning group on campus and consists of representatives from academic and administrative departments appointed by Deans and department heads. ITC addresses policy and strategic planning issues as well as the disposition funds. ITC receives reports and recommendations from centralized IT organizations and from ITC subcommittees that address specialized areas of concern such as distance education, access to institutional data, and the appropriate use of student computing fees. ITC acts upon the committee recommendations, offers course corrections, and otherwise steers campus IT efforts.

Under the direction of ITEC and ITC, technical committees are organized to address enterprise architecture and standards for development and management of IT infrastructure, systems, and information.

Planning

Plans are developed based on our ability to (1) assess the needs of the campus community, (2) develop solutions to those needs that have broad campus support, (3) justify the plan based on sound business cases, (4) define project plans that will succeed, and (5) communicate the solutions and services to the campus community to facilitate adoption. Evaluation of the plans and resulting projects takes place at several steps in the process, not the least of which is the determination of end-user satisfaction with the results.

Policies are developed to address specific needs. The ITC focus has been to identify solutions to problems and to provide support to colleges and departments, rather than to develop additional policies. Policy is developed when necessary to ensure compliance with laws, regulations and best practices, or to protect the assets of the University, including its people. Our policies will empower, not deter the adoption of new technologies and the development of centrally provided and distributed client services. Information Technology policies will mesh seamlessly with official University policies.

The development of enterprise architectures, standards and best practices is an important component of IT planning. Whenever possible, IT objectives and projects should adhere to architectures and standards that are developed through the cooperation and consensus of campus information technology professionals. Good architecture acknowledges the campus’s diverse IT environment while striving to provide a common framework for the development of interoperable solutions and systems, and data/information structures and definitions.

Products and services are developed based on end-user requirements, approved architecture, adherence to policies, and the technology environment that is available to serve those requirements. Products and services will be listed in catalogs which are available to all members of the campus community.

Plans, policies, architectures, standards, and product/service catalogs will all be reviewed by ITEC and ITC and technical subcommittees where appropriate.

Core Enablers and Objectives

Core Enablers and objectives include architectures, infrastructure, services and processes that support end users in the accomplishment of the University’s mission.

Network Architecture, Infrastructure and Services

We will deliver core and specialized network services to every campus entity, according to their unique requirements. The network will be continually upgraded to ensure capacity, reliability, and redundancy and efficiency. Building wiring will be upgraded as resources allow. Infrastructure plans will continue to address the adoption of wireless technology and standards, video services, voice over IP, and other new technologies. These

emerging technologies and services will be integrated with the University's installed technology base as they become available *and* as client needs are identified.

Academic and Research Infrastructure and Services

We will deliver Internet connectivity and appropriate electronic tools to every campus classroom to enhance the teaching and learning process. This will be prioritized based on criteria established by an ITC subcommittee.

This committee will also recommend infrastructure to support remote learning, electronic classroom support, improved course management tools, video capture and streaming technologies, and any other technology tools and methods that may improve access to the University's academic programs. An important component in this infrastructure is sufficient staff with the level of expertise necessary to support the academic community.

We will coordinate with campus computing laboratories to ensure that required resources are available. In response to increased mobile computing, we will test new methods to facilitate the delivery of academic software applications to mobile computing devices, i.e., laptops.

The University's Cyber-infrastructure committee will guide the improvement of network and computing resources, including increased bandwidth to support collaborative research, a permanent data center to house critical systems and infrastructure, and more powerful computing clusters to support research endeavors. The committee will also strive to align the University's research with the national research agenda.

Operations Improvement

We will adopt Information Technology Infrastructure Library (ITIL) process improvement framework to improve service delivery, management processes and customer service. We will focus on strengthening our disaster recovery and business continuity plans and processes. We will deemphasize IT culture based on technology and increase focus on a service-orientation. This will be done through measured steps to implement new processes with emphasis on improving Service Desk, Incident Management, Change Management, and Service Level Management functions and processes.

Web, Applications, and Data Architecture

We will engage creative IT experts across campus to develop standards for software/applications development such that (a) applications may be shared across campus, and (b) data and information that is created within departments can be consumed by other departments and enterprise management systems when appropriate. Through defined policy and procedures, administrative institutional data will be made available to colleges and departments where it is needed to accomplish the business of the University.

We will develop data warehousing resources to make institutional data available while protecting the integrity of valuable data resources. The data warehouse effort will also focus on the development of tools to support executive and operational decision making (below). Also included in data warehouse planning should be feedback processes to improve the integrity and reliability of the data.

Identity Management Data, Systems, Technology

Identity Management has broad meaning, including (1) the ability to have sufficient information about clients to provision and de-provision access to services and applications, (2) the ability to support electronic approval processes required to automate business processes, (3) the ability to ensure the security of valuable IT assets as well as critical and sensitive information, and (4) the ability to customize content and services to offer clients what is needed based on their specific identity and roles at the University. Identity Management systems must be based on architecture that considers the broad array of services and applications and the diversity of roles that are held by users of those services and applications.

Identity Management Architecture is a critical component to ensure the security of IT resources. IT Security is evolving to include much more than the management of access to information and resources. IT Security now entails risk management and therefore must be proactive in understanding threats and the necessary defensive strategies. IT Security must balance the defensive aspects of risk related to unauthorized access to systems and services with the risks associated with not providing data and information where it is needed within the campus organization.

Unified Communications and Collaboration Architecture

We will pursue strategies that will integrate next generation wired, wireless LAN, cellular networks, and campus e-mail/calendar/collaboration systems with a vision of empowering seamless voice and data communications across all University departments serving students, faculty, staff, and patients. Unified communications and collaboration architecture must incorporate the communications strategies that are an integral part of people's on-campus and off-campus lives. IT also envisions integration of traditional voice and electronic communications with content and service delivery systems, such as portals, wikis, blogs, multimedia conferencing systems, etc.

Workplace Architecture and User Experience

Workplace Architecture comprises the interaction of other people, processes, and technology in a physical environment as individuals and teams go about their daily work. IT can play an important role in the workplace to the extent it contributes to a good experience for the student, faculty or staff member as they accomplish their work and school goals and objectives. Although IT has typically been focused on improving efficiency in completing routine tasks, the goal of good workplace architecture is to help workers be more effective at some of the more non-routine tasks – to learn, discover, innovate, team and lead.

Interacting with technology is a major component of workplace architecture; students faculty and staff are all required to use various tools and applications to complete their work. Younger workers are demanding certain productivity tools be available to them. Examples of technology in the workplace include search, messaging, portals, content management, search, collaboration and other role-based, specialized applications (registration, finance, HR, IRB, etc.). The goal of workplace architecture is to allow the worker with various roles to be more effective because information and services are delivered in context without regard to time and place.

Interacting with process is another major component of workplace architecture; students, faculty and staff are all required to complete certain processes to accomplish their work. The goal of workplace architecture is to improve common processes to help the worker be more effective. Paper-based and online processes should be analyzed and improvements made to more accurately reflect the way campus members go about their work.

The goal of workplace architecture is to improve the effectiveness and experience of workers. In addition to providing the best technologies and processes, workplace architecture must account for individual attributes and working styles (such as known generational differences in the ways technologies are used or the degree to which an individual compartmentalizes work life and personal life). Recently this has been labeled as the “process of me.” Designing to accommodate multiple user profiles and user scenarios will make the workplace more useful to students, faculty and staff member.

We will develop standards and processes to evaluate the quality of the user experience. We will create a model for ensuring a high quality user experience for faculty, staff, and students. An online library of best practices will be created that will include elements such as standard interactions for navigation, style guide for naming conventions, usability test plan templates, university-branded templates, FAQs, facility for contributing code and suggestions, etc. We will make key performance metrics and indicators public and transparent.

Business Process Improvement

We will study existing business processes, many of which are paper based and seek ways to improve them. The goal of business process improvement is not to automate existing processes but to improve and sometimes replace existing processes to better align with the goals and objectives of the institutions and the needs and requirements of individuals.

Business Intelligence

We will provide access to data and information in context to support executive and operational decision making. Business intelligence tools organize data according to the needs of the decision maker, with the assumption that the decision maker understands what data is needed to influence his/her decisions. For example, the identification of key metrics and performance indicators, with historical and current data, should provide the ability to track enrollment trends and assist in making decisions that could possibly change trends. In this example, a decision maker could determine that important data elements should include student survey results, tuition increases, labor statistics, community demographics, etc. These elements could be provided to the decision maker, as charts and graphs, dashboards, or other formats that support decision making.

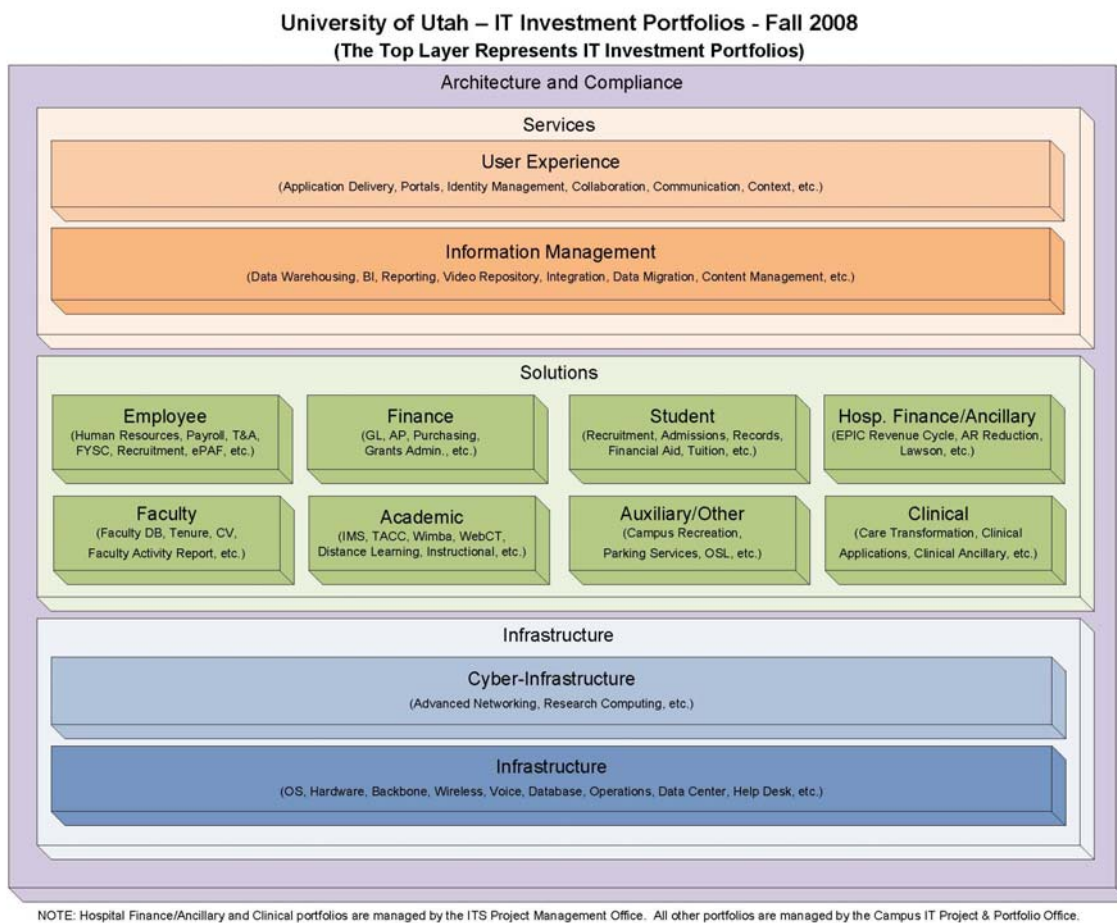
Project/Portfolio Management

A significant number of IT projects fail or are not completed on time because of poorly defined objectives and scope creep. The purpose of portfolio management is (1) to identify and prioritize projects, (2) to identify and allocate the resources necessary for successfully complete projects, (3) to complete projects on time and on budget, and (4) to make sure that IT resources are focused on projects that align with the University's mission.

Information Technology Investment Portfolios

Information technology resources, including IT professionals, physical infrastructure, systems and software are assets to be managed for a maximized return on those investments. As of September, 2008, asset portfolios have been organized to address three general areas: infrastructure, solutions and services. These three general areas rest on enterprise IT architectures. Each portfolio will be managed under the direction of an executive sponsor with key stakeholders participating in the prioritization of resources to accomplish projects in support of strategic objectives.

The following illustration describes the organization of portfolio teams as of September 30, 2008.



Portfolio Management teams meet regularly to prioritize the use of limited IT resources to ensure that strategically aligned projects are identified and implemented.

Portfolio Initiatives and Projects

Project requests can come from any individual or department on campus. The portfolio management process strives to ensure that IT resources are focused on projects that align with the strategic drivers, plans and policies, end-user requirements, strategic objectives and core enablers. The following are potential projects, grouped within portfolio

teams, which may be prioritized by the portfolio and project management process. The actual project lists that emerge from the portfolio management process, as well as project status reports, will be available electronically.

Infrastructure Portfolio

- ITIL maturation projects
- Technology standardization projects
- Cost reduction projects
- Service level metrics
- Data center infrastructure
- Disaster recovery

Cyberinfrastructure Portfolio

- Data center connectivity
- National cyberinfrastructure initiatives
- Enhance network connectivity to support research
- Define research computing requirements to reside in new data center
- Storage and storage protocols

Faculty Portfolio

- Faculty profile and activity report
- Personal web pages
- CV writer
- RPT writer
- Find a researcher/faculty member database
- College and department directories
- Course files
- Research database
- EPAF to include paper inputs related to faculty
- Improve reporting (data integrity)
- Definition of faculty “roles and characteristics”

Academic Portfolio (including libraries)

- Facilitate communication and collaboration (integration of Wimba and Blackboard)
- Course management and electronic portfolios
- Media on demand infrastructure and services
- Faculty training on academic technologies
- Sharepoint services for RPT
- Vignette content management system adoption, including ability to access Vignette database tools.
- Electronic records management
- Digital preservation

Employee Portfolio (Staff)

- Position Management
- Implement data to facilitate roles based services and info (role info vs. employee info)
- Phase 2 improvements to EPAF
- Cobra replacement
- Benefits Administration
- Improve data integrity (reliability, accuracy)

Finance Portfolio

- Improve access to financial information to support decision making and reporting
- Business process improvement
- Improve efficiency
- Ensure compliance

Student Portfolio

- Graduation guarantee initiative
- Provide data/information to support student academic career decisions
- Recruiting – customer relationship management
- Student portal improvements and integrated services

Auxiliary Portfolio

- ADD INFO HERE

Information & Knowledge Management Portfolio

- Identity management
- Campus directory
- Data access
- Information services architecture
- Data warehouse / data resource center
- Business intelligence tools and reports

User & Workplace Experience

- Projects that facilitate communication and collaboration (WIKIS, Blogs, Web 2.0 Technologies)
- Roles-based information and services delivery
- Unified portal experience
- Assistance to webmasters
- Centrally provided tools, search, maps, etc.
- Support marketing techniques (stealth marketing)
- ADA accessibility
- Business process improvement projects

Client-Focused Plan

We will continue to evaluate technology needs and opportunities in terms of student, faculty and staff needs in line with administrative imperatives. We will continue to focus on issues of common concern among the many campus organizations, strive for consensus in addressing those concerns, and focus scarce resources to the benefit of those we serve.

We will continue to provide services that are driven by end-user expectations for increased access and control of IT resources, the demand for simple and transparent services, the elimination of unproductive procedural and process controls, and an increasingly sophisticated student population and staff which are unwilling to accept trailing edge technology.

We will expand upon steps already taken to provide the means by which faculty, staff, patients, traditional and non-traditional students may customize and control their information technology environment according to their specific personal needs.

We intend to empower, not inhibit departments from serving the needs of their students, faculty and staff. We have identified centralized technologies and services that will free departmental IT professionals to focus on the specific needs of their students and faculty. We will strengthen core infrastructures that connect individual organizations to each other, and to the broader worldwide educational arena. This will be accomplished within the context of central coordination and local control.

In summary, our Integrated IT Plan is “people and mission centered,” using current technology to serve institutions and individuals. It is designed to (a) improve the student’s academic experience, (b) strengthen faculty/student relationships, (c) improve efficiency, (d) support research and the creation of new knowledge, and (e) extend personalized services to the broader University community.

The plan focuses on addressing IT issues from the perspective of those who ultimately consume IT services.

The recommendations of this plan are drawn from:

1. A constantly evolving University IT environment;
2. An identification of University IT issues, strengths, weaknesses, opportunities, and threats;
3. Ongoing assessment of the needs of campus IT professionals and the faculty, staff and students whom they serve.

The plan was developed with an understanding of the distributed nature of campus IT and the need of local organizations to serve their constituents. The policies, technologies, and services to be implemented in this plan were developed through a consensual process involving the voices of IT professionals, college and department representatives, and the students, faculty and staff who are the ultimate consumers of campus IT services.

PRODUCTS AND SERVICES			
PROJECTS AND INITIATIVES (visible via UplanIT)			
PORTFOLIO MANAGEMENT PRIORITIZATION PROCESS			
Objectives / Enablers	Workplace and User Experience Architecture	Business Process Improvement	Business Intelligence
	Web, Application, & Data Architecture	Identity Management Architecture	Communications & Collaboration Architecture
	Network Architecture, Infrastructure, & Services	Academic & Research Infrastructure & Services	Operations Improvement
Planning	POLICIES & PLANS	ARCHITECTURE & STANDARDS	USER & PRODUCT REQUIREMENTS
Governance	IT COUNCIL	IT EXECUTIVE COMMITTEE	ARCHITECTURAL COMMITTEES
Strategic Drivers	SUPPORT THE MISSION OF THE UNIVERSITY	IMPROVE CUSTOMER SERVICE AND EXPERIENCE	IMPROVE COMMUNICATION AND COLLABORATION
	OPTIMIZE CAMPUS RESOURCES	MANAGE COMPLIANCE AND RISK	PROVIDE ACCESS TO DATA AND INFORMATION

Information Technology Executive Committee

Chair

Stephen Hess, Chief Information Officer

Members

Kenning Arlitsch, Associate Director for Information Technology Services, Marriott Library

Paul Brinkman, Associate Academic VP, Budget and Planning

Norm Chambers, Assistant VP of Administrative Services, Auxiliary Services

Steve Corbato, Director, Cyberinfrastructure Office of Information Technology

Tim Ebner, University Registrar

Julio Facelli, Director, Center for High Performance Computing

Stephen Hess, Chief Information Officer

David Huth, Director, Enterprise Architecture

Philip Johnson, Associate Vice President, Human Resources

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Paula Millington, University Web Master, Office of Information Technology

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Joseph Taylor, Executive Director, Administrative Computing Services

Kevin Taylor, Director, Planning and Policy, Office of Information Technology

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Jeff West, Associate VP Finance and Accounting

Information Technology Council Members

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Joyce Mitchell, Biomedical Informatics Chair, School of Medicine

Tony Murillo, Director, Computing and Technical Operations, Huntsman Cancer Institute

Ken Nye, Director, Business Services, Facilities Management

Joyce Ogburn, University Librarian and Director of the Marriott Library

Larry Okun, Professor, Biology Department, College of Science

Brent Park, Facilities Coordinator, College of Health
Jim Parker, Director, Purchasing, Assistant Vice President, Finance
Rita Reusch, Director, S.J. Quinney Law Library
Stephen Reynolds, Associate Dean, College of Social and Behavioral Sciences
Brent Schneider, Associate Dean, College of Fine Arts
Antonio Serrato-Combe, Professor, Graduate School of Architecture
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Top Issues Facing IT Leaders

Surveys and studies are conducted each year by respected academic and information technology organizations, journalists and consulting firms. All of these trends, issues and concerns have an impact on IT and can be addressed by IT efforts. This plan deals directly with some of these issues proactively and sets a direction for addressing others.

Many of these issues fall under the general category of ensuring that IT efforts align with and support the mission and vision of the University.

Educause Top 10 Current Issues

1. Security
2. Administrative / ERP / Information Systems
3. Funding IT
4. Infrastructure
5. Identity / Access Management
6. Disaster Recovery / Business Continuity
7. Governance, Organization, and Leadership
8. Change Management
9. E-learning / Distributed Teaching and Learning
10. Staffing / HR Management / Training

Chronicle of Higher Education – Emerging Trends

1. Collaboration and consolidation among colleges and IT vendors
2. Rising competition from for-profit colleges
3. Increasing collaboration between two- and four-year colleges
4. Increasing government regulation of campus computing environments
5. Increasing identity theft, online stalking, and cyber terrorism
6. Increasing willful disruption of campus networks
7. New teaching and learning technologies addressing different learning styles
8. Making the CIO a cabinet-level appointment
9. Increasing planning for disaster recovery
10. Increasing impact of cellular technologies

CIO Insight's Annual IT Survey

1. Strategy
 - a. Process improvement becomes a top priority
 - b. Web sites are made more engaging
 - c. Customer service is further refined
 - d. Business data is put to work
2. Management
 - a. IT organizations keep growing
 - b. Managers struggle to find business-savvy technologists
 - c. Outsourcing growth slows
 - d. IT leaders struggle to demonstrate ROI
3. Security and Risk
 - a. Security threats and incidents increase
 - b. Security morphs into risk management

- c. Compliance spurs process improvement
- 4. Technology
 - a. New Architectures are developed
 - b. Enterprise applications become less appealing
 - c. IT reluctantly embraces Web 2.0
 - d. IT professionals feel increasing dissatisfaction with vendors

Campus Computing Project Top Concerns

1. Assuring network security and data security
2. Facilitating instructional integration of IT
3. Upgrading/replacing ERP systems
4. Providing user support
5. Financing the replacement of hardware and software

Situation Analysis

Background

The Campus Integrated Information Technology (IT) Plan is directed by the campus Information Technology Council under the authority of the President of the University. It is a working document that focuses on the mission of the University and evolves to take advantage of developing technologies to meet organizational and individual needs.

The management and governance of IT resources transcends the Office of Information Technology, which is but one partner in a larger governance entity. The Office of Information Technology works to establish an environment in which common and shared information is the basis of consensual decision-making. This plan represents the result of this consensual effort. Campus organizations, which have participated in the development of these plans, include the Information Technology Executive Committee, the Information Technology Council, the All Managers Committee (department IT administrators), the President's Cabinet, the Academic Leadership Team, and the Council of Academic Deans.

This Integrated Information Technology plan is not a collection of college and departmental information technology plans. The plan does integrate the information technology needs of departments and colleges. The plan enables departments to pursue diverse technology solutions in an integrated IT environment. It details core enabling technologies, plans, and policies, which will allow colleges, departments and off-campus entities to cost effectively, create, share, and communicate information to accomplish the University's mission.

Past to Present

The University of Utah was one of four original pioneers of the ARPANET education and research network (1969), which evolved into the Internet as we know it today and has continued to be a leader in electronic communications and information services.

As information processing changed from a centralized, mainframe environment to a distributed computing (PC) environment, information technology resources have developed in close proximity to those who are served by these resources. The result is a highly distributed computing environment staffed with extraordinarily talented information technology professionals.

The campus backbone network evolved to serve this distributed computing environment. It enables campus wide collaboration, delivers administrative services, and provides access to the Internet to serve the University's academic, research and service missions.

Demands on the campus backbone network have expanded to include voice, data, and video information. Networks that primarily served the research community now carry essential services such as e-mail, administrative services such as payroll, finance, accounting, registration, and academic services such as library services, online courses, and access to vast resources of the World Wide Web. Administrative applications have expanded to include hundreds of applications. Information technology is a central element in serving the patrons of our health sciences organizations. Every college, department, and division relies on information technology to accomplish their missions.

The demand for these applications and services is not limited to the University's physical campus. End-users remotely access stored information and applications to collaborate with other individuals or organizational entities, from wherever they may be. Services once confined to time, place and paper are now provided anywhere and at anytime. These electronic services are now as essential to the core mission of the University as buildings.

Information technology security continues to be a major issue because, with wide accessibility, "hackers" still attempt to intrude into campus networks and information systems, defacing web sites and compromising important information resources. The integrity of academic, administrative, and research data is critical to the successful accomplishment of the University's mission.

University leadership for central IT planning, policy, and operations is under the direction of campus Chief Information Officer (CIO). Libraries and Health Sciences have oversight for enterprise wide academic, and health sciences content and information respectively. These organizations coordinate their efforts with the Office of Information Technology to provide leadership in the development of IT plans, policies and procedures. All of these efforts are guided by the campus Information Technology Council. The IT organizational structure provides a framework for continued interdepartmental coordination and the integrated and centralized management of core IT functions that are necessary to ensure efficient and secure access to communications and information technology resources.

Today, the University finds itself in an environment in which higher levels of network, systems, and information services and organizational collaboration and institutional alignment will be necessary to serve its mission to support learning, patient care, research and community service in a cost effective, ubiquitous and secure manner.

Environmental Scan - Internal

STRENGTHS

The campus has an excellent fiber optic and IP network infrastructure that provide gigabit Ethernet speeds over the campus backbone network. Significant investment has been made in administrative systems and application software providing powerful centralized information resources.

The University has invested in a campus e-mail, calendaring and collaboration systems that enhance the personal productivity participating members of the campus community.

The Utah Education Network (UEN) provides networking connectivity to all public schools, colleges, applied technology centers and universities. In addition to making the University the primary network hub in the state, UEN provides additional expertise and support of campus systems.

The University continues to improve its ability to support research with connections to the National Lambda Rail and Internet 2. The Center for High Performance Computing and the Super Computing Institute support a vibrant research community.

The libraries on campus have worked to increasingly provide electronic library resources both on campus and statewide.

Colleges and departments employ extremely talented and creative IT professionals who are able to program customized solutions to support the requirements of their clients. When working collaboratively and developing services based on software and data standards, their contributions can become a part of campus wide IT solutions.

President Young outlined an institutional vision that includes more interdisciplinary, international, and technology transfer collaboration in academics and research, more student engagement and outreach, and an increased focus on development. All of these goals will rely heavily on robust IT resources.

The University recently acquired a new facility that will be transformed into a state of the art data center.

The University of Utah placed 3rd in PC Magazines rankings of America's top-wired universities.

WEAKNESSES

Although considerably narrowed, the University has its own digital divide. Some departments and colleges have very good networks, applications, IT talent, and physical infrastructure; others do not. Those that have less expertise don't necessarily benefit from the expertise and experience that exists in other departments.

Campus software and digital content standards and architecture and standards have not been fully defined so that it is not always possible to take advantage of the considerable IT expertise that exists on campus along with the systems, software and services that these professionals develop. In other words, capabilities developed in a department, which the entire campus would benefit from having, do not always transport well from department to department or system to system.

Distributed network infrastructure on campus is not managed such that enterprise level, converged, unified communications can be delivered reliably throughout the campus.

Funding for all higher education endeavors, including IT initiatives continues to be limited and comes from multiple sources. The ability to retain quality IT staff is threatened by competition with commercial employers.

While significant investment goes into building, utility and IT infrastructure, a proportionate investment does not typically occur to make sure that the full capabilities of the infrastructure are realized. Examples:

- The ability to capture classroom video and make it available to students exists. The demand for such services exists and is growing. But, the human resources necessary to provide these services is extremely limited with no currently identified budget to expand these capabilities.
- Infrastructure has not matured to allow sharing applications and content management services. Human resources necessary to support such activities are not factored into staffing levels.

The lack of balanced coordination between centralized and departmental IT can result in increased IT costs, duplicated efforts, non-standard solutions, decreased sharing of creative solutions, and the inability to make data and information useful across the enterprise.

The University needs to focus on improving the availability, timeliness, accuracy, quality, usability, documentation and overall integrity of data and information.

The University lacks certain critical technology and information components to support workflow for business process improvement.

IT professional salary inequities exist from one University department to another. This creates a situation where some departments are continually exporting IT professionals to departments and outside entities that can offer better salaries.

IT functions are not clearly defined and dedicated to support application development and competing maintenance activities. As a result, focused development efforts are often interrupted by maintenance “firefighting” activities. IT functions dedicated to usability, quality, change and release management are not readily identifiable.

Data structures have not yet been fully identified or developed to support directory functions – including functions as seemingly simple as telephone directories.

Environmental Scan - External

OPPORTUNITIES

Campus infrastructure allows IT professionals to focus, as a team, on organizational and individual needs. A focus on the client will result in the development of integrated, multi-media networks that remove barriers to productivity, creativity, research, or service to the community. There is an opportunity to coordinate wireless services, cell phone use, e-mail and next generation voice services to achieve campus-wide, unified communications. To accomplish this and other goals, ‘role-based’ identification, authentication, authorization procedures, and digital signatures must be available to the campus community, both on and off campus.

The availability of on-line course modules that can be shared across the Internet will change the way faculty teach and students learn. More paper transactions are moving to the web providing students, faculty, and staff with materials and transactions at the time and place of their choice.

Personally customized managed knowledge services are possible and can improve instruction and the academic experience of our students. Information resources can be customized, individualized, and transportable. Video/multimedia -on-demand will further enhance communications and will provide rich media content for instruction and training.

The development and proliferation of Optical Networks will significantly increase bandwidth resources.

THREATS

The quality, stability, and usefulness of the University’s network are highly dependent on vendor products and services. IT leadership must perform a proper business case when purchasing information technology resources.

Open standards, appropriate purchasing regulations, and strict attention to contract negotiations should result in highly competitive and functional vendor provided solutions. The adoption of “bleeding edge” technology has been costly to the University.

It should never be the intent to restrict the purchase of products and services, which may provide specific benefit to a college or department. However, it may be necessary to pool the buying power of campus organizations to lower costs, improve the quality of available services, and adopt a common architecture or infrastructure

Without fully functioning networks and IT services, it will be more difficult for the University to attract quality faculty and students, and maintain its position as the state’s flagship institution and leading regional research university. The University may lose faculty and the opportunity to recruit top students if competitive IT services are not available.

Threats to system security require constant vigilance. Campus organizations and individuals must adopt new security policies to ensure that University resources and the personal information of our students, faculty, staff and patients are not compromised. Identity theft is an increasing threat. The University must communicate these threats effectively to the campus community.

IT industry consolidation will continue. While there may be significant benefits that come through mergers and acquisitions there also is a potential threat due to decreased competition.

The improving economic environment has caused increased competition for skilled IT professionals. It is now more difficult to attract and retain staff based on potential pay and benefit differentials.

Students have more choices regarding their education. Private and public higher education institutions are providing distributed campuses, remote access to classes, and rich multi-media experiences. The University must maintain its competitiveness in this area.

Consumer technology will drive what new campus technologies are introduced and supported.

Needs Assessment

Building on past studies, organizational and individual needs assessment is an ongoing process. Early assessments focused heavily on technology and infrastructure improvements. A philosophy of viewing information technology from the end-user's perspective is now the primary driver of campus IT plans. This "from the outside, looking in" approach brings focus to the needs of students (prospective and existing), faculty, staff, and IT professionals. This does not eliminate the need for a focus on specific infrastructure improvements and institutional needs, but clarifies the reasons why investments and improvements should be made and new services should be developed.

While the intent of early needs assessments was to assess needs for future backbone upgrades, it has become apparent that the division between backbone, college networks (LANs) and information technology in general is, in many respects, artificial. Consistently, end-users indicated that they perceive networks as extensions of their computer. They desire a seamless integration of IT resources.

Student Needs

Today's students are "digitally" different than those just a few years ago. Students enter the University with what some have called "birthright" expectations. What this means is that students arrive at school immersed in technology that has been a part of their everyday life. They have a digital identity that includes their cellular connection, text messaging, instant messaging, e-mail, gaming, recreation, social networking, etc. They expect these same capabilities to be found at school, and for that matter, everywhere they go. For the University to be successful we must digitally meet students on their terms.

1. They want all of their information, administrative and academic services and "electronic stuff" to be easily found in one self-defined, customized electronic location that integrates with their existing digital identity. They want 24x7 access to these services from any location, wired or wireless.
2. They want single starting point and a direct route to find and use student services and other functions. For example, a student would like to see their status toward graduation while they are choosing and registering for classes, and have the two functions interact with each other to show how selected classes impact the graduation goal.
3. They are mobile. They want their information and services to be available from home, on campus, or when traveling.
4. Students want their information to be presented based on their roles at the University, i.e., their major, their year in school, graduate or undergraduate. They want to organize and customize the information.
5. They expect classrooms to be well equipped with the appropriate technology to support their academic goals. Increasingly this means that their instructors must have be able to use technology for several purposes, for example, to capture and stream class lectures and activities. They expect electronic course materials to be easily accessed, reliable, and integrated with other electronic services. Podcasting is quickly becoming a "birthright" expectation for students.
6. When students need help with computers or networks, they want help to be easy to access and available around the clock.
7. Students want more on-line courses and more on-line support for classroom courses.
8. Students want more on-line access to research and reference resources.
9. They want to use collaboration tools and social networks to learn from other student's experiences and to share opinions with them.

10. More students are entering school with laptops and other portable computing devices in hand. They want to know where and how to connect (wired and wireless). There is an increasing expectation that wireless connectivity will be ubiquitously available. They expect that whatever mobile device they select will be supported, i.e., PC vs. Mac.

Faculty Needs

Faculty members share many of the needs of their students. Adding to the student list of needs, faculty members express the following:

1. They want to focus on teaching and research. They want technology to support not hinder their goals.
2. They want assistance in developing electronic resources to support their academic strategies. They want electronic tools to be easy to use. They want to retain control of whether or not technology is applied to courses.
3. They want administrative systems to be easy to use and to provide more information.
4. They want to incorporate more video resources and streaming into their courseware.
5. Researchers require increasing amounts of bandwidth to support collaborative research and to share computing power (grid computing).
6. They need an efficient means of communicating faculty profile information to other departments, institutions, researchers, and potential business partners
7. They require the ability to collect, manage, and store large amounts of data.
8. They require collaboration tools to allow interaction with students, researchers, and other faculty. These must be capable of connecting to local, national, and international on-line communities (students, researchers, etc).

Staff Needs

Staff members share similar needs with students and faculty. Staff members also indicate that they need the following:

1. Staff members want more and easier access to institutional databases. Many centrally provided administrative functions are shadowed to provide local control and access to information.
3. Staff members would like to eliminate common, paper-based administrative processes and use electronic services in their place.
4. Staff members need personal productivity tools such as integrated calendaring and scheduling services. Some need visibility to more calendars. They also need training to optimize the use of these services.
5. Research administrators need software solutions to assist them with federal compliance issues
7. Staff members want electronic access to administrative services, including Human Resources and benefits information.
8. Staff members are mobile and need their mobile devices (laptops, PDAs, cell phones, etc.) to integrate with other University electronic services.

IT Professional Needs

While IT professionals are “staff” their IT needs are more specialized.

1. IT professionals need better communication among their peers.

2. They need professional development and training opportunities.
3. They need access to centrally provided services and utilities, and the ability to control local systems and accounts.
4. They need assistance in improving network and systems security.
5. IT Staff members want better software development tools. IT staff need software development standards to make locally developed software programs shareable and their content consumable by enterprise systems.
6. IT professionals need policy and process enabled access to institutional databases to provide accurate data for local applications.
7. Webmasters need assistance in providing electronic, web based services and transactions. They need to offer products and electronic services with flexibility and ease.
8. Staff members are mobile and need their mobile devices (laptops, PDAs, cell phones, etc.) to integrate with other University electronic services.
9. IT professionals need ways to present the increasing amount of information content to others.
10. IT professionals need help in interpreting and understanding IT policies and regulations.

Institutional Needs

President Young outlined an institutional vision that includes more interdisciplinary, international, and technology transfer collaboration in academics and research, more student engagement and outreach, and an increased focus on development. All of these goals will rely heavily on robust IT resources.

Institutional needs include basic infrastructure and electronic services.

1. All students, faculty, and staff members expect that their personal and confidential information will be managed and stored securely, and that their reasonable expectation of privacy will be honored.
2. There is a need for a formative evaluation, performance metrics, and ongoing assessment of existing processes and business practices to guide the development of secure on-line transactions.
3. There is a need to preserve the integrity of institutional data and prevent and/or reduce the creation of redundant "shadow" systems across campus.
4. The focus on interdisciplinary academic endeavors highlights the need to share information across college and departmental boundaries.
5. There is a need to prioritize what electronic services and functions will be the most successful 'Net ready' applications that will improve operational efficiency and attract and retain students and faculty to the institution.
6. Demand for environmentally appropriate machine space is consistently growing. Administrative, academic and research computing is constrained by space availability. There is a need for a long term solution to the demand for machine room space. There is a critical need for a permanent campus data center.
7. There is a need for improved utility infrastructure and capacity.
8. There is a need for roles based identity and position management to facilitate business process improvement.
9. There is a need for business information and intelligence to support decision making and improve business operations and services.

Plan Recommendations

The recommendations of this plan are provided within a broad context, which includes

1. The University IT internal and external environment.
2. A compilation of individual and institutional IT needs.

PURPOSE

The purpose of the Campus Integrated Information Technology Plan is to outline core enablers and objectives which align with the University's strategic goals, and will facilitate the development of the University's IT and electronic transaction infrastructures, resources, services, and applications. These enablers include policies, processes, funding, staffing, and technology infrastructure and services to support accomplishment of the University's mission. This plan communicates an "outside/in" philosophy that will allow the University to serve its local and global constituents based on the end-user's perspective of their needs.

MISSION

The University's Information Technology mission is (1) to provide timely, secure, reliable access to information and on-line services, (2) to support the University's education, research, patient care and community service goals, and (3) to extend University resources to a diverse constituency without regard to time and place.

VISION

Information technology will empower the University to create new knowledge and communicate information, in all of its forms, by whatever means is conducive to the accomplishment of the University's mission. The value of information will increase through its widespread, appropriate, and secure use. Information technology will evolve to meet institutional and individual needs and will be a valued asset.

VALUES

We focus on the needs and requirements of our clients.
We do not judge, but support the academic intent of our clients.
We solve problems through a consensual, collaborative, best practices approach.
We provide secure, reliable access to information and services.
We embrace the principle of central coordination and local control.
We respect our clients' reasonable expectation of privacy.
We provide high quality services over high quality systems.
We are leaders in the adoption of information technology and services in support of the University's mission.
We follow through on commitments made.
We value teamwork and the contributions of the campus IT community.
We value creativity and entrepreneurial behavior.
We value solutions that save time and money.
We value open, honest communications.

GOVERNANCE

Governance and communication define the decision making and consensus building processes that are necessary to support the implementation and adoption of IT services.

The Information Technology Executive Committee (ITEC) consists of campus IT leaders and data stewards. ITEC prioritizes major IT projects that consume limited human and financial resources. ITEC is the “core” IT planning group that prepares this plan for approval by the ITC. They act in accordance with the Institutional Data Access and Management Policy to ensure that the University’s IT assets are optimally and securely used in service of the University’s mission. They communicate IT issues, solutions, policies, recommendations, strategies, etc., to the University’s executive leadership team.

The Information Technology Council, as empowered by the University President, will continue as the legislative driver of IT policies and plans. The ITC will receive technical advice from the Information Technology Advisory Council, will originate campus IT initiatives, review and approve certain budgets, and will review and approve plans, policies, projects brought by the ITEC.

Architecture teams operating under the direction of ITEC and ITC will focus their efforts on the development of architecture standards for systems, software and information/data structures. These architecture standards, to be approved by ITC, will improve collaboration among IT managers, encourage local creativity, and ensure that departmental developments can be shared, and that resulting content can be consumed on an enterprise level if appropriate.

The Office of Information Technology will organize and cooperate with campus IT entities to implement the direction of the ITC.

The Chief Information Officer will advance ITC recommendations for review and approval by the President’s cabinet.

The Office of IT will coordinate with standing and ad hoc IT committees to disseminate information, deliver training, and seek the input of the overall campus community.

PLANNING

Integrated policy, planning, architectural and standards development are key components of a successful IT strategy. IT policies must include sustainable funding, financing, and pricing strategies. Policies must provide clear identification of roles, responsibilities, and procedures.

Strategy, policy and architecture development process will be iterative, end-user focused. Strategies, policies and architectures will be developed, tested, implemented, and improved. The measure of quality will be the extent to which technology supports or hinders accomplishment of the University’s mission. The result will be the implementation of communications, transaction and information technologies to accomplish specific goals derived from the assessed needs of individuals and organizations.

Under the direction of the Information Technology Executive Committee, we will implement the Institutional Data Management Policy to reflect today’s administrative and academic computing environment and the need for access to institutional data.

1. We will “operationalize” knowledge management, including plans that address technical issues as well as the proper use of resources.
2. We will identify the resources that are required to support the increased demand for media capture and delivery, including podcasting. We will do this as a component to a more comprehensive distance learning plan.
3. We will coordinate with the Human Resources department and the Office of General Council to improve the web presentation of the University Policy and Procedures Manual.

4. We will re-focus on compliance issues to ensure that we are compliant with federal/state rules and regulations, as well as campus policies.

CORE ENABLERS AND OBJECTIVES

A sound information technology (IT) infrastructure is essential to a healthy academic organization and its ability to fulfill its core missions of teaching, research, and service. Yet, maintaining a sound IT infrastructure poses interesting organizational and operational challenges. The infrastructure is largely invisible when it is working; it has a high degree of complexity below the surface; and it must continually keep pace with new technologies. The Information Technology Council believes that to meet these challenges, Information Technology must be viewed as a system of core enablers, which allow people to do work, to create, access, and communicate information, and to receive services over integrated IT resources.

Campus information technology will develop based on end-user needs and will evolve as a result of enabling policies, processes, professional skill, targeted infrastructure investments and delivery of end-user focused services. Core Enablers are a means to an end. The “end” goal is to enable an environment that allows the University’s faculty, staff, and students to *effectively create, share, and communicate information to accomplish the University’s mission.*

Network Infrastructure and Services

The campus backbone network infrastructure should be viewed as a strategic asset of the University. The cost of the campus backbone network has been disaggregated from charges for wired telephone services.

1. We will continue the upgrade of the campus backbone network to provide for the growing demand for backbone bandwidth capacity. Replace aging and obsolete technology. The final phase of a 4 year plan was completed last year. A new three to five year plan will be developed, approved by a University architecture committee and presented to ITC.
2. We will continue to upgrade building wiring based available funding to support the highest possible levels of network connectivity.
3. We will continue the development of wireless strategies to support campus wide accessibility and roaming. Support the goal of “ubiquitous wireless” as defined by ITC, which is “Ubiquitous wireless is defined as campus-wide encrypted and authenticated wireless coverage providing persistent connections in transit.” Work toward this definition within an operational context that includes a multi-vendor environment.
4. We will develop network infrastructure strategies that will enable the delivery of unified communications services to the end-user location.

Academic and Research Infrastructure

The Education Technology Committee will recommend infrastructure to support remote learning, electronic classroom support, improved course management tools, video capture and streaming technologies, and any other technology tools and methods that may improve access to the University’s academic programs. An important component in this infrastructure is staff expertise and availability to support the academic community.

We will coordinate with campus computing laboratories to ensure that required resources are available. In response to increased mobile computing, we will test new methods to facilitate the delivery of academic software applications to mobile computing devices, i.e., laptops.

We will identify resource requirements to increase the delivery of video capture and pod casting services to support classroom instruction

The University’s Cyber-infrastructure committee will guide the improvement of network and computing resources, including increased bandwidth to support collaborative research, a permanent data center to house critical systems and infrastructure, and more powerful computing clusters to support research endeavors.

1. We will establish long term strategies to provide data center space to all campus entities that depend on such facilities to accomplish their mission and include these strategies in the campus five year plan. We will specify interim as well as long term plans. We will proceed with the building out of newly acquired Data Center space located in Salt Lake City (West Temple and 900 South).
2. We will determine the means for assessing appropriate storage and archive strategies based on business requirements, including data criticality.
3. We will support UEN in its efforts to increase the statewide network capacity from 1 Gig to 10 Gig. We will participate with a statewide cyber-infrastructure committee to determine whether or not research bandwidth needs to be dedicated (not shared with other traffic) in order to guarantee availability of capacity for research needs.
4. We will improve business continuity and disaster recovery plans for researchers. We will expand back-up capabilities in the data center in Richfield, Utah to support researchers.

Operations Improvement

We will adopt Information Technology Infrastructure Library (ITIL) process improvement framework to ensure the stability of core services and to improve service delivery and management processes. We will deemphasize IT culture based on technology and increase focus on a service-orientation. This will be done through measured steps to implement new processes with emphasis on improving Service Desk, Incident Management, Change Management, and Service Level Management functions and processes.

1. We will enhance monitoring capability to improve our ability to manage potential risks and to allow proactive identification and resolution of system problems.
2. We will continue the development of disaster recovery and business continuity plans and the necessary preparations that result from such planning.
3. We will enhance software development and testing infrastructure to ensure clean software implementations and to support others who may need such resources.
4. We will develop baseline service expectations and for critical systems and service level agreements that define customer service expectations. We will develop key performance metrics and measure our progress in meeting them.
5. We will ensure that all campus projects are defined by a Project Plan (Appendix B). We will incorporate projects into the project/portfolio management process. We will focus on improving the process of estimating and prioritizing projects and will increase accountability for project results.

Web, Applications, and Data Architecture

Under the direction of ITEC and ITC, IT Architecture Committees will organize key IT professionals to identify standards that will allow software programs and services to be shared and interoperable across the enterprise. This will include standards that define content and data structures that will enable data and content to be readily consumed by other departments and by enterprise systems, such as the campus portal and content management system. The effort will also include the definition of applications interfaces that allow secure interaction with enterprise administrative, academic, research and health care programs. The effort will also support the enterprise continuum which includes systems development, test, and production environments.

1. We will establish a task force to develop policy and procedures for the management of research data.
2. We will develop data warehousing and an information services architecture to make institutional data available while protecting the integrity of valuable data resources. This effort will also focus on the development of tools to support executive and operational decision making and the ability to consume information and data by applications that are developed in a centralized and distributed fashion. While data warehouse and information services are being developed, we will establish interim solutions to provide access to institutional data.

3. We will develop processes to define data and information life-cycles.
4. We will define standards and processes to ensure data integrity.
5. We will provide support to help individual units to move their content to enterprise web content management system where desired and appropriate. (High priority deliverables include: Authoritative Faculty Database, Brain Institute Site, Marriott Library Site, The University home page, two college sites, two service-based organizations (such as OIT, Student Affairs, Administrative Services)).

Identity Management Data, Systems, Technology

Campus identity management functions must protect individual and organizational privacy and the information assets of the University. Preventative measures must be implemented to safeguard against security breaches and attacks on University assets. Security audits should ensure departmental compliance with the information resources and security policies of the University.

Identity management infrastructure is necessary to provide supporting capabilities that will enable existing and emerging end-user applications, decision support and analysis, and academic and research computing. Access to end-user services must be secure, reliable and ubiquitous.

1. We will architect a common, centralized authentication and authorization system for roles-based authorized access to customized, personalized electronic services.
2. We will define electronic (digital) approval methods to enable Electronic transactions and automated administrative processes. We will monitor national efforts toward the establishment of standards for digital approval methods.
3. We will create data structures and roles information that will facilitate improvement of on-line campus directory services.
4. We will facilitate timely provisioning and de-provisioning of services.

Unified Communications & Collaboration Architecture

Next generation voice systems, cellular services, and wireless LANs are becoming integrated to provide “anytime/anywhere” access to IT resources including e-mail, calendaring and collaboration services. New voice systems are currently being implemented that use Internet Protocol (IP) for campus and global connections. Coordinated efforts will enhance the functionality of these resources and make them more universally available. All of this requires a more clearly defined architecture that sets a path to accomplish these goals.

Unified Communications and Collaboration (UCC) architecture is highly dependent on the general campus network architecture. Currently, it would not be possible to guarantee the availability of UCC capabilities across campus. Service levels cannot be guaranteed across disparate networks where it is not possible to monitor and troubleshoot network and applications performance. The UCC architecture must address these issues through the development of technology and network management standards and operational procedures.

1. We will continue the implementation of next generation voice systems, including Voice over IP technology to address the specific needs of departments and end users. Voice over IP technology is an increasingly important component of the UCC architecture.
2. We will integrate unified messaging capabilities with existing Centrex telephone systems.
3. We will continue the implementation of the campus e-mail system (U-Mail). We will define the next set of U-Mail features to be implemented.
4. We will work to improve cellular service coverage across campus. We will implement distributed antenna systems to provide a broad service foot print for all cellular providers.

5. We will identify existing and emerging collaboration tools and develop a coherent product strategy to support collaboration for faculty, staff, students, and researchers.

Workplace Architecture and User Experience

The primary goal of Workplace Architecture is to improve the user's experience and their effectiveness, whether they are students, faculty or staff members. Workplace Architecture comprises the ways we interact with people, processes, and technology in our physical environments as we go about our daily work. The high performance workplace requires matching technologies with the natural ways people want to accomplish their work. IT has typically been focused on improving efficiencies in completing routine tasks; in contrast, workplace architecture can be designed to make the faculty, staff, or student more effective at some of the non-routine tasks in higher education. A high performance workplace allows people to learn, discover, innovate, team, and lead in more effective ways. Designing this type of workplace requires an understanding and accommodating each generation of students, employees, patients, and others who enter the University community. For example, younger generations use cellular phones, which were invented to facilitate wireless voice communications, but their primary is becoming text and instant messaging. Another example is that many patients and their visitors expect to stay connected and blend their private and professional lives through wireless connections. Workplace Architecture takes all of these evolving trends and aligns technology to maximize effectiveness in their digital lives.

Workplace Architecture results in the improved delivery of services and content. Users expect that transaction services will be secure and be available 24x7. They also expect that we will make academic, administrative, medical, and research information and services available in a secure way without regard for time or place. Individualized, role-based portal services will be used to support academic strategies of both faculty and students. These tools will support the recruitment of high quality students and provide a communication conduit to our valued alumni. The capabilities of separate portals and other delivery systems will be combined where possible to improve student, faculty and staff member interaction with the University.

Well-designed workplace architecture will provide enterprise level systems and applications to support the core services expected by the University community; it will provide core applications and services to support the individual productivity of each member of the campus community; and it will support the delivery of roles-based applications and services to support specialized work. Both content and information will be available "in context" to maximize effectiveness of students, faculty and staff members.

Workplace architecture also improves common business processes. Many commonly used processes are paper based, even though forms may be found on-line. Selected paper-based business processes should be analyzed to determine whether or not they may be automated through the use of appropriate directory and identity management infrastructure and electronic workflow tools. For example, these may include academic applications such as the graduate school application process, and administrative functions such as processing travel requests and reimbursements. The intent may not be to automate existing paper processes, but the intent should be to improve processes to more accurately reflect the way campus members conduct business, and insure against breakdowns in business processes.

Progress in creating a high performance workplace will require accomplishing the following types of strategic objectives.

1. We will define our workplace architecture strategy and create processes to ensure that technology and processes in the workplace enhance the effectiveness of students, faculty and staff.
2. We will create tools and processes to assess user needs and experience, document user preferences and attributes, create user profiles and scenarios, and document best practices and standards to integrate tools and processes that result in a good experience in the workplace for users and consumers of our content and services.
3. We will develop personal storage strategies and technologies (digital locker capabilities). We will co-develop tools to improve the efficiency of e-mail storage.
4. We will continue the development of student portal services to deliver information and services based on the individual needs of each student as determined by surveys, focus groups, and cooperation with student

organizations. The portal will transition to a knowledge management tool through the implementation of enterprise portal and web content management software.

5. We will develop faculty, staff, and patient portal services to deliver information and services based on each individual's needs and job requirements. We will partner with the Brain Institute to evaluate a collaboration suite.
6. We will build and maintain the infrastructure (hardware, software, database, taxonomy) for enterprise web content management, including tools to create, edit, classify, approve, and publish content on the web. The content will reside in a content repository that will allow the content to be published in any number of web endpoints.
7. We will develop plans for the creation of an institutional data repository and an interim solution for faculty data to be used in conjunction with faculty web pages, find-a-researcher functionality and annual faculty activity reports.
8. We will develop hosted survey tools to allow different campus departments access to these resources.
9. We will develop hosted web statistics and analysis tools to provide better web site management information to departments.
10. We will deliver a campus telephone/contact directory.

Business Process Improvement

A "workflow" committee was established to determine what is needed to facilitate business process improvement/workflow. Three infrastructure projects are necessary to realize the full potential of automated workflow. 1. Identity Management Infrastructure to facilitate on-line authentication and authorization of processes. 2. A project to identify the role of "ORG" in the workflow process. 3. Implementation of "position management" in the Peoplesoft HR system to allow approvals to be tied to position vs. a particular person (emplid) who may have multiple positions. While these projects are underway, the workflow committee will identify pilot projects that will focus on improving the end-user experience with certain business processes. The first of these projects will focus on the process by which individuals are authorized to access HR, finance, and student services administrative systems and functions.

Business Intelligence

We will provide access to data and information in context to support executive and operational decision making. Business intelligence tools organize data according to the needs of the decision maker, with the assumption that the decision maker understands what data is needed to influence his/her decisions. For example, the identification of key metrics and performance indicators, with historical and current data, should provide the ability to track enrollment trends and assist in making decisions that could possibly change trends. In this example, a decision maker could determine that important data elements should include student survey results, tuition increases, labor statistics, community demographics, etc. These elements could be provided to the decision maker, as charts and graphs, dashboards, or other formats that support decision making.

PROJECT/PORTFOLIO MANAGEMENT

We will develop a strategy and methodology for the use of portfolio management systems, and acquire software tools that will facilitate project and portfolio management. We will use these tools to manage campus IT resources and prioritize and manage an appropriate mix of IT projects to meet the University's mission given constrained resources. We will use the tools to assist in determining which organizational structures make best use of our IT professional expertise. Under the direction of the IT Executive Committee, we will coordinate and prioritize enterprise level projects using these tools.

APPENDIX A - PROJECT PLANS

Refer to UplanIT reports

APPENDIX B - PROJECT PROPOSAL REQUEST FORM

**INFORMATION TECHNOLOGY
PROJECT PROPOSAL REQUEST FORM**

I. General Information	
Project Requestor:	
Project Name:	
Project Sponsor:	
Project Manager:	
Project Deadline:	
Estimated Project Hours:	

II. Project Overview: Describe the product or the service of the proposed IT Project. (The reason for the project.)

III. Project Objectives: Describe the overall objectives of the project and what factors will determine the success of the project.

IV. Project Justification: State the reason this project is needed and what problem/issue the project will resolve. Describe the impacts to the organization if the project is not approved.

V. Resource Costs/Estimates: Provide the cost estimate if known, including monies already expended such as the feasibility study and/or consulting time.

VI. Attachments: List any attachments to the project proposal request here.

VII. Project Scorecard: Utilizing the IT Scorecard System self-score this project proposal request.
Project Sponsor: _____ Date: _____ Project Manager: _____ Date: _____