

DESCRIPTION OF POTENTIAL INFORMATION TECHNOLOGY DEVELOPMENT PROJECTS FOR 2003-05

In this section, we provide a brief description of each of the information technology development projects, in the order in which they are listed in the table above (i.e., first by status and then by category and functional office).

PROPOSED PROJECTS

IT PROJECT:

Develop digital faculty portfolios in support of the merit and promotion process

Need to be addressed:

Simplify the time-consuming, paper-based task of assembling and reviewing faculty merit and promotion portfolios

Project description:

The academic personnel process in the University of California is one of the most complex of any university system. Periodically our faculty and staff are confronted with the time-consuming task of putting together a paper portfolio representing faculty achievements over merit and promotion intervals. Also, there are some aspects of the faculty merit and promotion process that are determined at the departmental level, such as voting rules and processes. Attempting to account for all local differences in a single merit and promotion system would likely be a complex undertaking with little chance of success. A common aspect of faculty merit and promotion (and many others) is the need to assemble a "portfolio" of information that includes such items as the faculty resume, publications (list and hard copy), courses taught during the evaluation period, teaching evaluations, letters of recommendation, individual faculty comments on the case, the vote of the faculty on the particular case, the departmental letter containing the recommendation, a letter from the chair, the dean's letter, the recommendation from the Academic Senate Committee on Academic Personnel, the recommendation of an Ad Hoc Committee, etc. Some or all of these items (and there may be others) make up the "portfolio" for a merit and promotion case.

By a faculty merit and promotion system we mean a system that supports the creation of an electronic repository or "digital portfolio" to support the faculty merit and promotion process. Such a system would need to provide convenient and flexible input and output interfaces to the "digital portfolio" and the ability to selectively control access to the information contained in the digital portfolio. The portfolio should interface to campus information resources and automatically acquire information that is already available such as course workload, student evaluations, etc.

Functional Office: Academic Personnel, Deans' offices

Category: Business Processes

IT Strategies: I.1; III.3

-

IT PROJECT:

Develop a coordinated online graduate admissions process

Need to be addressed:

Address the growing paperwork burden and workload generated by the growing graduate enrollment

Project description:

Graduate Studies is committed to transforming the application and admissions process for graduate students. As a first step in this transformation, the ability to pay application fees via credit card was added to the on-line application for the current year. This process will streamline workload for program and Graduate Studies staff by reducing the number of paper checks that

are processed. Additionally, modifications made in the way applications and supporting reports are generated at Graduate Studies will reduce the workload of Graduate Studies' staff. Graduate Studies is committed to continued streamlining of the application and admissions procedures in an effort both to improve the business process for our applicants and to reduce the workload for faculty, program staff and Graduate Studies' staff. To that end, they are pursuing three projects. First is the adoption of document imaging and management as a means of handling a growing paperwork burden generated by dramatically increasing numbers of applications and increases in enrolled students. Second will be further automation of the admissions process, including on-line notification of decisions and on-line Statement of Intent to Register. Finally, Graduate Studies is exploring processes to allow program faculty to access, review and evaluate applications on-line, using existing data from Banner. The ultimate goal is to move to a fully electronic application and admissions process. We feel this project will be particularly valuable in reducing workload for faculty and program staff.

Functional Office: Office of Graduate Studies
Category: Business Processes
IT Strategies: I.1

IT PROJECT:

Develop enterprise-wide document management services

Need to be addressed:

Explore the potential use of an enterprise document management system as a solution to document routing, review, approval, and storage.

Project description:

Electronic document management systems are capable of managing a wide variety of electronic documents in addition to scanned documents. A number of campus offices have expressed interest in such capabilities. Recently, the Office of Student Affairs and Information and Educational Technology have selected a document management system extension to the Banner student information system. This system has the potential of recovering a great deal of space that is currently devoted to the storage of paper records. It will also streamline many of the processes within Student Affairs and College offices. Additionally, the Office of the Chancellor and Provost is in the process of evaluating document management systems for handling paper routing within this office and the rest of the administration. These developments will help inform the campus regarding the capabilities of electronic document management systems in support of other campus processes. We are also evaluating a potential role for document management systems in supporting the academic personnel process.

Functional Office: Information and Educational Technology
Category: Business Processes
IT Strategies: I.1; II.2

IT PROJECT:

Implement a human resources information system

Need to be addressed:

Find an effective way of storing and accessing accurate and current information about the campus' workforce.

Project description:

The importance of a human resources information system lies in its ability to store and provide access to accurate and up-to-date information about our workforce, for our own use and for the increasing number of reports that we are being asked to produce. The UC-wide Payroll Personnel System (PPS) is an archaic legacy system for payroll development – it is not a human

resources system. Our PPS decision support system is a modest attempt to bridge the gap between PPS and a full-featured HRIS system. The proliferation of local human resources “systems” is a reflection of the need to make up for these inadequacies. Other institutions, such as UC Berkeley and the UC Davis Medical Center, have installed the PeopleSoft human resources information systems and have successfully interfaced it to PPS.

Functional Office: Office of Administration

Category: Business Processes

IT Strategies: I.1

IT PROJECT:

Implement an e-procurement system

Need to be addressed:

Improve the efficiency and cost-effectiveness of procurement procedures.

Project description:

Purchasing cards have proven to be an efficiency enhancement for low-valued purchases. UCLA has implemented an electronic purchasing system based on Commerce One’s e-procurement system. There are two major benefits from having such a system: simplification of the purchasing process for purchases not covered by our current purchasing card, and secondly, if we were to leverage our purchasing power with that of other UC campuses, we should be able to develop a series of catalogs with outstanding pricing.

Functional Office: Office of Administration

Category: Business Processes

IT Strategies: I.1

IT PROJECT:

Implement an information technology-based contract and grants system

Need to be addressed:

Streamline the process of research proposal submission and administration.

Project description:

As research activity continues to grow rapidly at UC Davis, we need to consider an information technology-based approach to assist the faculty in the preparation of research proposals. Such a system must be able to support the faculty in both the pre- and post-award phases of research contracts/grants; seamlessly link to necessary protocols, federal and state regulations; and support electronic submission procedures. This system must also integrate into the UC Davis middleware infrastructure and seamlessly interface with other local information systems such as DaFIS, the financial information system.

The preparation of a research proposal includes the assembly of all of the information that is needed to fulfill the submission requirements (e.g., description of the proposed research, budget, human subjects protocols, approvals, etc). This also includes specific campus information that is held locally and may not accompany the actual submission. Funding agencies tend to have unique submission requirements (whether electronic or not) that an electronic grants management system must “know” and accommodate.

We would also expect such a system to be able to assemble routine information required by the agency from campus information sources. Such a system would need to provide convenient and flexible input and output for both faculty and staff as well as the ability to selectively control access to the information contained in the proposal as it goes through campus approval processes.

*Functional Office: Office of Research
Category: Business Processes
IT Strategies: I.1*

IT PROJECT:

Develop teaching and learning tools for faculty, staff, and students

Need to be addressed:

Provide an “end-to-end” solution in support of teaching and learning. Includes the integration of classroom support, assessment of teaching strategies, and provision of local educational technology support.

Project description:

The development of easy-to-use and effective teaching and learning tools for faculty and students is becoming increasingly important. The Teaching Resources Center, IET Mediaworks and Classroom Technology Services provide the core of the central campus support for teaching and learning for faculty and students. The coverage includes pedagogy, presentation technologies, support for the development of presentation materials, the classroom support for the presentations themselves, and assessment strategies. The faculty needs the kind of support that provides for an “end-to-end” solution beginning with the development of the content to the presentation in the classroom and delivery over the Web. This project will take on the integration of teaching and learning components such as course management tools, online course development tools, presentation tools, active learning environments, and the next generation of classroom technology. The total support package for the faculty must also include support at the departmental and college level. This project will include the development of an inventory of the educational technology support available to faculty at the departmental and college levels – local support plays an important role in providing “end-to-end” solutions for the faculty.

*Functional Offices: Information and Educational Technology and the Teaching Resources Center
Category: Education/Research
IT Strategies: II.6; III.1; III.2*

IT PROJECT:

Develop a plan to obtain an enterprise calendaring system

Need to be addressed:

Simplify the scheduling of meetings across campus; address the issue of incompatible and proprietary calendaring systems.

Project description:

UC Davis has no single enterprise calendaring system. Multiple proprietary calendaring systems are being used throughout campus, and these systems do not inter-operate. Staff responsible for scheduling meetings are frustrated by incompatible calendaring systems, resulting in an inconvenient and time-consuming multi-modal approach to scheduling – a combination of email, telephone, and calendaring. Standards for calendaring are emerging that will enable interoperability between calendaring systems. Standards-based solutions for calendaring are similar in spirit to email standards and will provide for an enterprise-wide calendaring service that can be accessed by standards-based calendar user agents, including Web browsers.

*Functional Office: Information and Educational Technology
Category: Infrastructure
IT Strategies: I.1; II.1; II.5*

IT PROJECT:

Implement information technology security projects to strengthen campus defenses

Need to be addressed:

Protect the campus against increasing cyber attacks on our systems and infrastructure.

Project description:

It is impossible to imagine not being able to access the information resources and services available to us on the Internet. However, the Internet also provides an environment and opportunity for malicious and potentially devastating cyber attacks. These attacks, which have reached unprecedented levels, include identity theft, fraud, denial of service attempts, misappropriation of computing resources, virus and worm infections, and spam. Our technical staff is spending inordinate amounts of time attempting to prevent and recover from this onslaught. There is no easy solution to prevent these attacks, short of disconnecting from the Internet. The advancement of the UC Davis mission for learning, discovery and engagement is inextricably tied to the availability, integrity and confidentiality of information that traverses the campus data network and the broader Internet community.

Improving computer and network security is a complex and challenging undertaking. The UC Davis IT security architecture is built around four major program components. The architecture recognizes that information security improvements are based on advancing campus progress in each of the following areas:



Four Stages for Managing Security Risks

- Preventive measures to control the number and scope of security incidents
- Security assurance through vulnerability identification and remediation
- Detection and investigation for those security incidents that do occur
- Recovery of any compromised host or network

Over the next two years, the UC Davis information security program must continue to support mandated security requirements, expansion of campus infrastructure security services, and security awareness/education initiatives. In addition, we anticipate the initiation of new information security projects to focus on the following three areas:

Secure Storage – Enactment of recent consumer protection laws requires greater privacy protection for financial information and notification of record holders when there exists a reasonable belief that the record holder’s personal information has been acquired by an unauthorized party. Due to the widespread use of personal information within campus units and the possible loss of personal information from unauthorized data acquisition, enhanced campus measures are needed to provide institutional protection of personal information. In some cases, personal information can be obfuscated or transferred to removable electronic media to reduce the security risks of unauthorized data acquisition. However, where such measures cannot be applied, the personal information must be stored in an electronically secure format and permit access by the authorized staff or faculty member and, under certain conditions, also permit access by campus unit management. A campuswide solution for secure storage will provide information portability and support cost efficiencies. We will soon initiate a campus workgroup to define secure storage requirements. While remaining Internet2 dollars are available to move this project forward, it is not known at this time whether the remaining funds will be sufficient.

Expanded Authentication Services – As recommended in the campus advanced technology project for authentication services, this future project focuses on extending campus authentication to meet broader campus authentication requirements. Specifically, additional authentication development will lead to the support of a single sign-on environment based on authentication levels, integration of the existing campus authentication system with federated authentication systems, Internet2 Web-Initial Sign-On standards and future campus one-card programs for identity authentication, access authorization and electronic wallet functions. Examples of new audiences that will need to be considered as part of this effort include prospective students, parents of students, and UC Davis alumni.

Compliance with HIPAA Security Regulations – The Health Insurance Portability and Accountability Act was passed in 1996. Subsequently, the US Department of Health and Human Services issued supporting privacy and security regulations, respectively in 2000 and 2003. Campus units that provide insurance billing services and administer protected health information must comply with HIPAA security regulations by April 15, 2006. These security regulations affect several campus units, including the Student Health Center, Employee Health Services, School of Medicine, and Crocker Nuclear Lab. The campus must develop a mechanism to ensure compliance with HIPAA security provisions for administrative safeguards, physical safeguards, technical safeguards, policy and procedures, and organizational requirements. It is anticipated that Information and Educational Technology will take a leadership role in the provision of security regulation interpretation, and development and implementation of some HIPAA security compliance measures.

Functional Office: Information and Educational Technology
Category: Infrastructure
IT Strategies: II.1; II.3

IT PROJECT:

Develop a telecommunications Master Plan

Need to be addressed:

Provide the telecommunications infrastructure to support the campus' strategic goals and priorities.

Project description:

The telecommunications network is now a technology foundation that supports the university's academic and business processes. It represents a significant investment upon which many other technology services rest. Major campus capital construction is increasing the need for additional investments in this infrastructure, exhausting campus capacity, and impacting the timeframes in which technology migrations should occur. It is important to evaluate optional deployment and technology models to determine the most cost-effective way to provide the infrastructure to support the campus' long-range development plan and the new services that will run over it. Additional analysis must also be conducted to minimize the risk of large stranded investments in telecommunications infrastructure and to address campus areas that are exposed to potential failures. This analysis will result in a master plan that will guide telecommunications infrastructure capital improvement and replacement cycles over the next ten years with the recognition that it should be re-evaluated every three years because of the rapid change in external trends and outside influences.

Functional Office: Information and Educational Technology
Category: Infrastructure
IT Strategies: II.4

IT PROJECT:

Develop a capital plan for upgrading the campus' building wiring infrastructure

Need to be addressed:

Improve desktop access to high-speed networking by upgrading buildings with sub-standard wiring.

Project description:

The campus data network is capable of delivering 100 million bits per second to the desktop. Most of our buildings (not the newest ones) have antiquated wiring that limits us to 10 million bits per second to the desktop. In four years we should be able to deliver 1 billion bits per second to the desktop. Unless we upgrade the wiring infrastructure in many of our buildings, such improvements will not reach many of our faculty, staff, and students. Moreover, as technology advances, it may be difficult to purchase the slowest network interface cards. If we want to be able to use the newest software and communication tools for instruction, research, and administration, we must develop a plan to upgrade building wiring infrastructure.

Functional Office: Information and Educational Technology

Category: Infrastructure

IT Strategies: II.3; II.4

IT PROJECT:

Expand and coordinate the deployment of wireless networking (for public and departmental use)

Need to be addressed:

Provide faculty, students, and staff with expanded wireless networking capabilities.

Project description:

Many UC campuses have decided to make wireless networking available throughout the campuses, and each has deployed upwards of 200 wireless hubs for complete campus coverage. Many departments and colleges at UC Davis are developing local wireless access for faculty, staff, and students. More and more prospective students are planning on bringing laptop computers to campus and are expecting ubiquitous wireless services. Not having complete campus wireless coverage could put UC Davis at a competitive disadvantage.

Functional Office: Information and Educational Technology

Category: Infrastructure

IT Strategies: II.3; II.4

IT PROJECT:

Develop a system to provide PhotoID cards for faculty and staff

Need to be addressed:

Replace faculty and staff's "blue" identification cards.

Project description:

This could be accomplished by extending the system in Student Affairs that is currently in place to produce photoID cards for students. Initially, obtaining a PhotoID card could be optional for faculty and staff. The development of new services that make use of the PhotoID card could be used to motivate the faculty and staff to obtain a card.

Functional Office: Office of Administration

Category: Infrastructure

IT Strategies: I.1

IT PROJECT:

Develop a Webcasting service

Need to be addressed:

Improve community outreach through the use of live and on-demand video over the Web.

Project description:

This is a proposal to develop Webcasting services for the campus. We are envisioning Webcasting services to include the recording of live events for simultaneous Webcasting and for on-demand replay over the Internet. This service could be used for public events as well as courses. The cost and availability of Webcasting services would depend on the video capture capabilities of the location, demand, and the quality of the technical production. The <http://webcast.berkeley.edu> provides an excellent example of the service that is being proposed for UC Davis.

Functional Office: Office of Public Communications, Information and Educational Technology

Category: Infrastructure

IT Strategies: I.2; IV.2; V.1; V.2

IT PROJECT:

Develop a UC Davis Web communications strategy and the information technology tools to implement this strategy

Need to be addressed:

Strengthen the UC Davis Web presence in terms of image, key messages, and the ability to maintain content.

Project description:

The campus Web pages (administration, colleges, departments, sports, and others) provide our constituents with a view into the UC Davis academic and research contributions, faculty and student life, academic departments and colleges, health system research and services, etc. The campus has a long history of using printed publications as a way of promoting itself. The print publication process is generally highly structured with significant review process. Unfortunately, Web site development is a highly decentralized publication process with minimal controls and accountability. Viewing the UC Davis Web presence one is struck by its unevenness in quality and timeliness, and the lack of clarity in the messages we are sending to our constituents. The campus needs to develop a Web communications strategy that provides guidelines regarding how we want to portray UC Davis over the Web. This is especially important as we get into the Capital Campaign. Also, because Web site management is viewed as technical management, the content is often considered constrained by the availability of technical support. This issue can be addressed by providing easy-to-use tools that enable non-technical staff to have direct control over style and content.

Functional Office: Office of Public Communications, Information and Educational Technology

Category: Infrastructure

IT Strategies: I.3

PROJECTS IN PROGRESS

IT PROJECT:

Identify and coordinate institutional data sources and the development of appropriate decision support tools

Need being addressed:

Improve access to, and the ability to generate reports from, institutional data (Data Digest).

Project description:

In addition to our own use of institutional data for planning purposes, the campus is being increasingly called upon to generate a myriad of reports. Many reports are generated in an ad hoc manner with much difficulty and with inconsistent data, hoarded at the local level due to the lack of a pervasive central facility. Institutional data is contained in largely independent legacy systems including: the student information system, the payroll personnel system, the financial information system, the alumni information system, health system records, etc. The campus needs to develop a taxonomy of its information assets and the corresponding authoritative systems. We have distinct decision support systems for financial, payroll, and student data. Effective, consistent, and efficient decision support is predicated on the existence of a central coordinating framework for institutional data. We need to develop such a coordinating framework and the corresponding cross-system decision support tools. The campus Data Warehouse currently houses information from both the student information system and the payroll personnel system. This is a step in the right direction, but far short of where we need to be. The recently-formed Institutional Research Policy Committee and Work Group will provide for the development of an institutional approach to this problem.

Functional Office: Council of Deans and Vice Chancellors

Category: Business Processes

IT Strategies: I.1; I.2; II.2

IT PROJECT:

Enhance the campus' staff recruiting system

Need being addressed:

Streamline and provide better support for the campus' staff recruitment process.

Project description:

A project has already been initiated to provide support for all phases in the process of recruiting for staff positions. The locally-developed "Job Machine" system is designed to support the staff recruitment process, but the campus is now evaluating the feasibility of using an Application Service Provider, PeopleAdmin, to further streamline the staff recruitment process.

Functional Office: Office of Administration

Category: Business Processes

IT Strategies: I.1

IT PROJECT:

Develop a coordinated, Web-based undergraduate admissions process

Need being addressed:

Streamline the UC undergraduate admissions process.

Project description:

The University of California is committed to having an online-only undergraduate application system by 2005. Currently, all students admitted to UC Davis are mailed an Admit Packet that contains the documents and information that they must have to get started at UC Davis, including their Statement of Intent to Register. An Online Admit Packet would seamlessly guide

the students through the admissions process. It should also provide them with information and guidance on financial aid, housing, special programs and resources. Ultimately, the Online Admissions Web site will serve as the bridge between recruitment (WhyUCDavis) and enrollment (MyUCDavis). This project is underway.

Functional Office: Office of Student Affairs, Deans' offices
Category: Business Processes
IT Strategies: I.1

IT PROJECT:

Enhance authentication, authorization, and workflow services

Need being addressed:

Enhance the campus middleware architecture.

Project description:

All of our information technology applications and services depend on reliable middleware services. This includes a person registry for identity management, a multifactor authentication system, a robust enterprise directory for authentication and authorization. We need to expand the scope of our systems to include communities beyond the current faculty students, and staff. This will require enhancing our middleware and account management services. Workflow is another important component to be included in the campus middleware architecture. The coordination of our administrative systems and the development of new services for faculty, students and staff are critically dependent on the middleware infrastructure. This project is underway.

Functional Office: Information and Educational Technology
Category: Infrastructure
IT Strategies: II.1

IT PROJECT:

Improve the scalability of the central campus email system

Need being addressed:

Enable the campus email services to meet growing capacity needs.

Project description:

The campus email system is being stretched to capacity with the increasing numbers of faculty, student and staff and the burgeoning email traffic, both wanted and unwanted (unfortunately, the latter type is comparable in volume to the former). Moreover the campus is seeking to extend access to email (at least for the purpose of forwarding) to a population of users including applicants for admission, alumni, and friends of UC Davis. The campus provides a central email service based on a multi-processor system architecture. The central system already supports virus and spam scanning services. As the campus population grows and becomes increasingly dependent on email communications, it is essential that we continue to make improvements to this service. Planning efforts are underway to make structural, performance, and reliability enhancing improvements to the campus email servers. These include a more robust and scalable backend system, high-performance clustered front end servers, and security enhancements to the IMAP and POP email services. As we move to a robust and scalable enterprise email service, and the confidence in this service continues to grow, significant savings (reducing opportunity costs) could be obtained by reducing the number of locally run email servers in favor of using the centrally maintained email system.

Functional Office: Information and Educational Technology
Category: Infrastructure
IT Strategies: I.1; II.1; II.5