Information Technology STRATEGIC PLAN

DRAFT for comment: *Updated November 19, 2012*

FRESNO STATE

Discovery. Diversity. Distinction.

Introduction

This plan identifies the strategies and goals that will guide Fresno State's investments in information technology for the next four years. It also outlines the technological services, skills, advancements, systems and equipment needed to support the university's Strategic Plan for Excellence IV.

The Information Technology Strategic Plan will assist the university in achieving a number of important results:

- Broaden the use of technology by faculty and staff to better achieve the campus' strategic goals and objectives.
- Expand the number of online and hybrid ("blended") classes. This will give our students more access to courses, while providing the university with opportunities to attract enrollments from new markets and expand global access.
- Expand the integration of technology into instruction to maximize the value of class time and improve students' preparation for their chosen careers.
- Provide easier access to data needed to support decisions, boost student retention and optimize course schedules.
- Enhance the strategic focus of technology departments (i.e. Technology Innovations for Learning and Teaching (TILT) and Technology Services (TS) and support units (i.e. Henry Madden Library (HML)) by increasing collaborative efforts, embracing innovative technology and retraining staff to assume new roles
- Continue to improve the effectiveness, efficiency and transformation of existing campus services.

The Information Technology Strategic Plan is organized around six strategies: Analytics (a method of examining data); Digital Content; Instructional Technology and Learning Spaces; Mobility; Communication, Collaboration and Engagement; and Effective Services. The plan requires that all six strategies make progress in parallel.

We propose to pursue each strategy through several initiatives with associated timelines, lists of major projects and proposed approaches to implementation.

In undertaking the plan, the university must continue refining its governance practices and policies for information technology. This is needed to bolster the organizational and cultural changes that must accompany technology advancements; to recommend annual project priorities; and to share best practices across the campus.

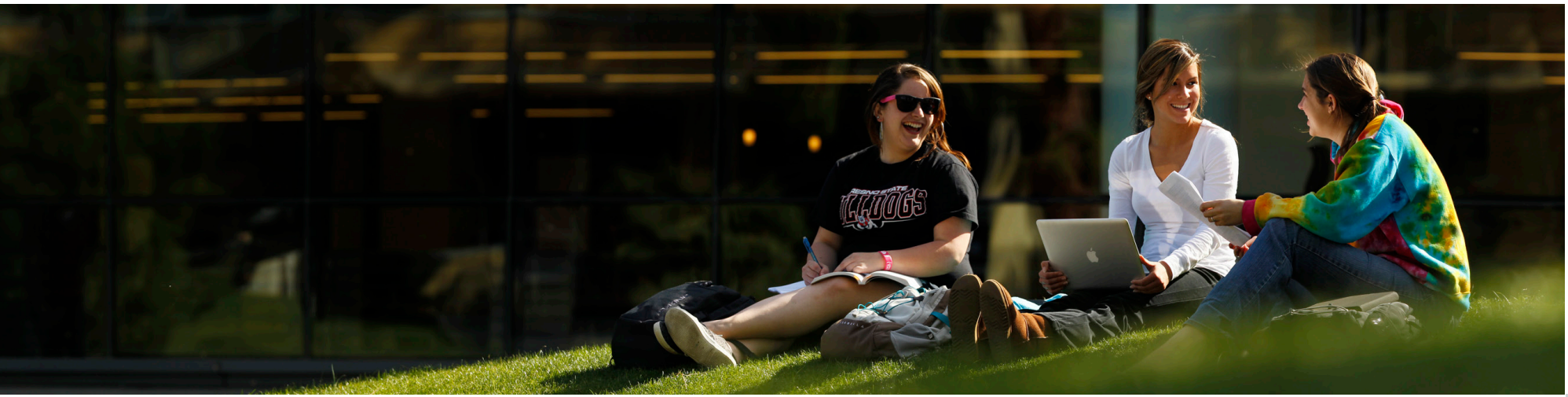
Fresno State also must continue to develop and augment the skills and services of its primary and secondary information technology organizations -- Technology Services and Technology Innovations for Learning and Teaching (primary) and the Henry Madden Library (secondary). Under this plan, these departments will undertake new areas of responsibility, acquire new skills and adjust ways that they provide services and expertise. This will require additional shifts in staff responsibilities and a continued commitment to staff development. The proposed resource requirements are under development pending further review.

Vision Statement

Fresno State will pursue innovative technology initiatives and sources of investment to achieve the institutional priorities detailed in the university's Strategic Plan for Excellence IV.

The Information Technology Strategic Plan will support this objective in the following ways:

- It will expand the number of people at the university who are skilled in effectively using technology in education and who are committed to continuous improvement and innovation.
- Student success will improve by using technology in programs and services to bolster effective teaching, enhance student engagement and support data-driven assessment.
- The university will create a global village by strengthening connections with current and prospective students, alumni, faculty and staff and by establishing new connections with more partners and communities throughout the world.
- The university's technology infrastructure will be able to support the growing demands of research.
- The plan will improve services and implement measures to reduce costs and increase revenues (in areas such as fundraising, research and continuing education) throughout the university.



Guiding Principles

To achieve the objectives detailed in the Strategic Plan for Excellence IV, Fresno State will first pursue initiatives that directly improve services to students. In choosing its priorities, the university also will consider these guiding principles:

- Fresno State will be deliberate and diligent in selecting, investing in and sourcing technology services. It will continue to build a technology infrastructure in which systems are compatible, sustainable and cost-effective.
- Foundational technologies (such as infrastructure, business systems and support) will be supplied through internal and, when feasible and advantageous, external partnerships.
- The full value of our technology investments will be attained by including faculty and students in initiatives and by committing to increased staff development and ongoing support.
- New innovations and solutions will not come at the expense of maintaining essential elements of the university's technology. In addition, solutions will embrace universal design, which ensures wider use and accessibility.
- Technology solutions will support energy conservation and sustainability efforts.
- Implementation of the IT Strategic Plan will not require funding beyond what is currently available for technology infrastructure and applications.

Strategies and Initiatives

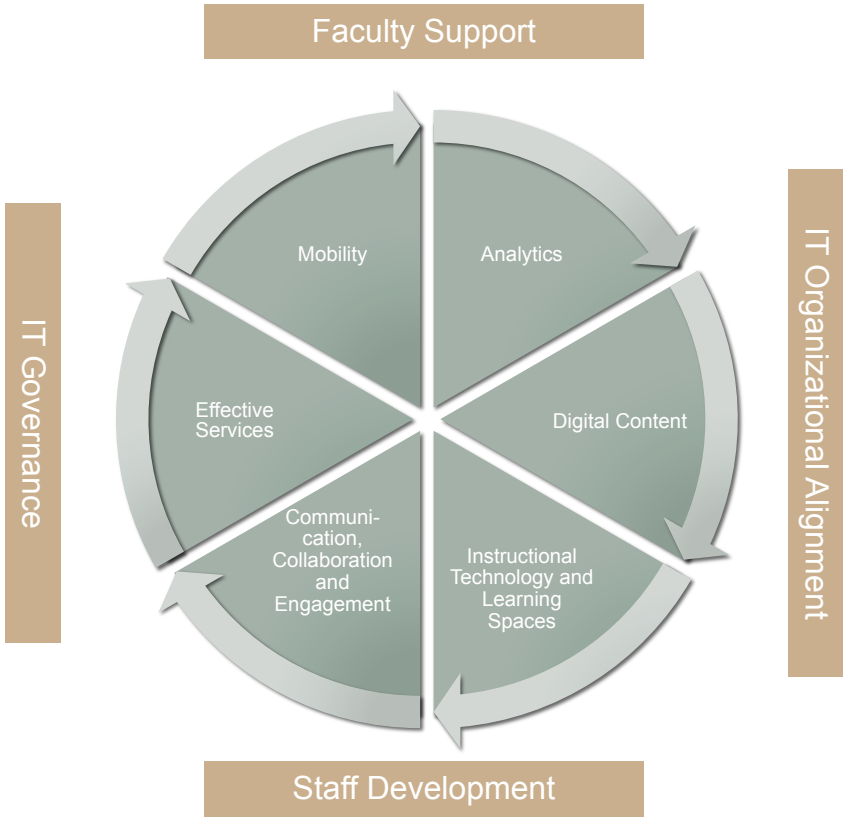
As previously mentioned, the Information Technology Strategic Plan is organized around six strategies, each using several initiatives to achieve objectives and produce ongoing results.

These strategies give the university opportunities to attain significant gains in technology proficiency or to improve substantially its capacity to use technology for an important priority, plan or program. The strategies also include a critical commitment to staff and faculty support.

In addition, Fresno State will continue to hone its governance process related to information technology. The university also will ensure that the skills and services of its information technology organizations align with this plan.

For each strategic opportunity area below, we describe and provide a schedule for the first initiative, or initiatives, the university will pursue in support of that opportunity. For each priority, the key required resources, time to completion, and the opportunity to collaborate with other universities are identified. We will also describe a number of other initiatives that are in development for future action.

Strategic Opportunity Areas & Enablers



Strategy One: Analytics

The use of more sophisticated data analysis will increase the university's capacity to report and analyze enrollment, learning outcomes, financial information, personnel information and other data.

The goals include enhancing campus operations to produce more effective course schedules; improve student recruitment and enrollment; produce more efficient compliance and systemwide reporting; and improve fundraising. More important, it will assist efforts to boost student retention and graduation.

We want to create a culture that values the collection and use of data for effective decision-making and improving outcomes, and we want to provide faculty access to these increasingly sophisticated and helpful tools.

INITIATIVE 1: MIGRATE TO A NEW REPORTING PLATFORM

Points to consider:

Priority should be given to data clean up, and data governance should be created as soon as possible to oversee this initiative.

The purpose is to support two analytic initiatives related to at-risk students and optimizing course schedules (described later in this report). The work in migrating to a new platform will include reviewing shadow systems to understand information requirements and creating additional standard reports for schools and departments using the existing tool set and PeopleSoft data.

In addition, analytical platform and reporting tools should leverage solutions already in use or about to be used as systemwide tools in the California State University system. We note that tools already in use open up the opportunity to share data models, staff or programs.

Governance is a prime part of this initiative. The responsibilities will include recommending priorities in the rollout of future changes; establishing standard data definitions; and recommending policies for data access and use.

Meanwhile, interim solutions should continue for enrollment and retention reports, until a student data warehouse is established.

Resource requirements:

(under development pending further review)

- Assign one to two part-time analysts to support data cleanup and review shadow systems.
- Assign report developers to fill immediate gaps in existing reports for schools and departments.
- Assign a team of two FTE (full-time equivalent) and consulting support for six to 10 months to launch a new analytical platform, receive training and create the initial student data warehouse.
- Funds to license Oracle solution.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Migrate to New Report Platform

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Assess major shadow systems.						
Design & create improved operational reports for schools and departments.						
Inventory existing data sources and publish a list of data sources.						
Devise and implement data governance.						
Transition to new analytical platform and reporting tools.						

INITIATIVE 2: USING PREDICTIVE ANALYTICS TO IDENTIFY AT-RISK STUDENTS

Points to consider:

Work can begin immediately on identifying indicators of a student who is at risk. These risks can involve needing more time to graduate, being in peril of academic disqualification or dropping out. The risk factors should be prioritized based on importance as well as availability of data in a university system.

Priority should be given to creating a student data warehouse, with an at-risk student warning system. Any initial information banked in the warehouse should involve at-risk student data. In addition, it is recommended that the university focus first on student data and processes available via PeopleSoft then expand to include other data sources.

Workflow designs will automatically alert advisers, faculty and others if students are showing early at-risk indicators. Reports are required to alert department chairs, deans and student development staff leaders of trends and patterns concerning at-risk students.

Resource requirements:

(under development pending further review)

- Assign a part-time team led by the Office of Institutional Effectiveness (OIE) to build a predictive model of student success and risk.
- Assign full-time developers and consultants to create an initial student data warehouse.
- Assign part-time developers to create reports spotting trends in at-risk students.
- Assign part-time analysts to develop workflow configurations and automated alerts triggered by actions in PeopleSoft and other systems.
- Assign part-time project manager to oversee the development and establishment of these steps during a two-year period.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVE 3: OPTIMIZE THE COURSE SCHEDULE

Points to consider:

This action will build upon the work in Initiative 1 by establishing an initial student data warehouse. This initiative can be done before, during or after Initiative 2, depending on its perceived value and available resources.

Schools, with facilitation by the Registrar, can begin defining course road maps for undergraduates. At the same time, the Office of Institutional Effectiveness will develop a predictive model to forecast demand for courses and recommend optimal schedules to departments and schools. These outlooks should be based on historical patterns in course registration and analysis of current student academic progress.

It is possible, depending on the breadth of the predictive model, that more data sources may need to be integrated into the student data warehouse. It would be advantageous to include data from the Resource 25 scheduling system to optimize schedules and use of classroom space.

The steps in this initiative will require training department and school staff members. In addition, the warehouse team will develop reports that can be used by academic leaders as they manage potential shortages or overloads as a schedule is built.

Resource requirements:

(under development pending further review)

- Assign a part-time team comprising academic leaders, staff from the Registrar's office and institutional researchers to build the predictive model and optimize problem-solving procedures.
- Assigned staff time to develop and provide training.
- Assign part-time project manager (who could be shared with work in Initiative 2).
- Assign part-time developers to build reports and tools to assist with schedules.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVE 4: EXPAND DATA WAREHOUSE

Points to consider:

This initiative focuses on expanding the existing non-student data warehouse with additional financial and Human Resources information. Ultimately, the university should combine its warehouses to enable more advanced analytical queries. This initiative is largely dependent on a comprehensive strategy proposed by the CSU and the Common Management System (CMS) Executive Committee. Fresno State is poised to be a collaborative partner in implementing the future direction.

This initiative is slated to start after substantial progress is made on development of the student warehouse. Finance and Human Resources users will benefit from the early launch of an improved reporting system. If Fresno State expands the Finance/Human Resources warehouse in parallel with the student warehouse, additional consulting and staff resources will be needed.

The timing of this initiative will be heavily influenced by the proposal for a common Human Resources computer management program for the CSU system. If this common program is installed, it will accelerate the need for Fresno State to develop a Human Resources warehouse to preserve reporting

Resource requirements:

(under development pending further review)

- Assign part-time staff support to develop and train users in the Finance and Human Resources offices as well as employees in future shared service centers.
- Assign part-time data warehouse developers, who will convert the existing warehouse to the new analytical platform. They also will expand the warehouse to include Human Resources and Finance data.
- Consulting support to assist with the transition from the existing warehouse to the new analytical platform.

Time: 12 to 24 months

Resources needed: Staff time

Opportunity to collaborate: Partial

INITIATIVE 5: LEARNER ANALYTICS AND ASSESSMENT

Points to consider:

This approach will develop standard reports that faculty can use to monitor students' understanding of what they are expected to learn in a course. Fresno State should be an early adopter of emerging learner analytic solutions (which essentially collect, measure and analyze data concerning learners). The university should adopt a solution that is maintained by a vendor or is shared throughout the CSU system, rather than create a custom tool.

It's estimated that advanced versions of these solutions will be available in the future. Fresno State should monitor developments from vendors and seek opportunities to influence the course taken by the CSU system. At the same time, Fresno State should develop its own perspective of effective solutions that fit our needs and support our strategies.

If a viable solution is available within three years, the university should make it a priority to acquire it and use it.

Resource requirements:

(under development pending further review)

- Assign part-time resources to monitor development in the marketplace.
- Bring together people interested in learner analytics, holding periodic discussions about developments in the CSU system and other outside areas.
- Assign a part-time team of faculty and staff members to develop a white paper on Fresno State's needs in learner analytics. This will be the basis for a future selection of software and implementation project.

Time: 12 to 24 months

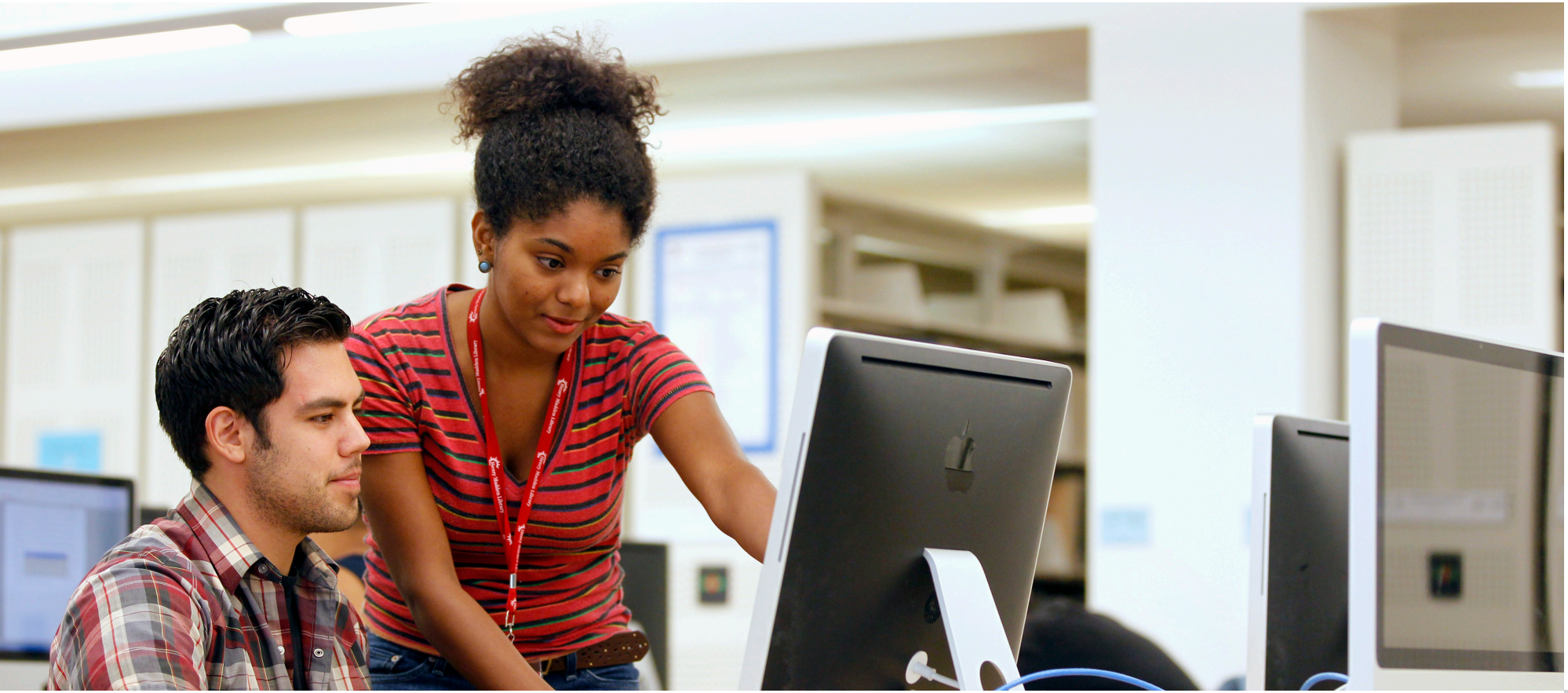
Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Strategy Two: Digital Content

Through this strategy, Fresno State will use multiple aspects of digital content, such as audio and video. This includes creation, analysis, storage, maintenance and re-use of digital content for the purposes of teaching, learning and research.

Our goals are to increase the amount of created content and make it available for use; improve access; reduce the cost of curricular materials; and comply with mandated research data management plans. This strategy will fortify our efforts to prepare students for graduate school and their chosen careers.



INITIATIVE 1: LAUNCH RESEARCH DATA MANAGEMENT SERVICES

Points to consider:

The Henry Madden Library is leading a project that will result in a data management plan to meet federal grant requirements. The university should support this effort as an early phase of the Information Technology Strategic Plan.

We want our faculty to be able to develop and implement research data management plans. Fresno State should first seek collaborative solutions. On-campus storage in the university's data center should fill in gaps between a campus repository and storage supplied through a partnership. Potential partners for large-scale storage include a CSU systemwide collaboration; a multi-campus alliance; and a service delivered via Corporation for Education Network Initiatives in California (CENIC) or a similar private cloud system.

Researchers should be able to use on-campus storage when their needs cannot be met by a collaborative repository. However, collaborative efforts still may be viable for long-term archive needs.

Resource requirements:

(under development pending further review)

- Assign part-time resources to complete the needs analysis and to negotiate access to collaborative data storage systems.
- Assign part-time resources (from personnel such as IT Liaisons and library faculty) to promote awareness of the California Digital Library (CDL) templates for research data management and the process to use consortium storage.
- Funds may be needed to pre-purchase storage space, or to pay for its availability on campus for internally funded research or maintain research projects that are between grants.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Full

Deploy Research Data Management Services

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Complete requirements analysis.						
Adopt COL research data management plan templates.						
Communicate service and promote its use.						
Provision research data storage service for short-term and long-term storage and archiving.						

INITIATIVE 2: CREATE A DIGITAL HUB FOR CAMPUS

Points to consider:

This initiative amplifies the work done in Initiative 1. It steps up the collaboration among TILT, the Henry Madden Library and Technology Services to expand digital creation and management services. It also introduces an institutional repository to store digital content created by students and faculty, as well as the digital records of the university.

In this partnership, the Henry Madden Library and TILT will contribute content support services; curation of content and discovery services; copyright management support; and training. Technology Services will oversee technical infrastructure to provide the repository as well as to integrate the content discovery and display tools with other environments, such as the Learning Management System. The appropriate existing staff will be trained in use of the repository, then provide support to faculty and staff who want to access it.

While the repository would serve Fresno State, the university may decide to provide infrastructure by forming a partnership. Or, to defray expenses, may operate repositories for other schools.

In fact, Fresno State should facilitate these types of collaborations by adopting a repository model already used by other CSU campuses, such as ScholarWorks and Dspace.

Resource requirements:

(under development pending further review)

- Costs of infrastructure to support an increasingly larger repository (including servers and storage), or annual payments to a collaborative partner hosting the repository.
- Assign occasional part-time developer resources to integrate repository search and tools with other institutional tools, such as the Learning Management System or a future document management system.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Create A digital Hub for Campus

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Align storage strategy with repository strategy. Implement additional storage solutions.						
Complete needs analysis.						
Deploy institutional repository solution with associated search and display tools.						
Deploy workflows to move items into the repository.						
Create an organizational collaboration between TILT, TS and the Library to provide digital creation and curation support services.						

INITIATIVE 3: INTEGRATE CONTENT CREATION SERVICES

Points to consider:

This initiative begins with a needs assessment of support services for creation of content, such as audio and video. The assessment will rely on focus groups and a survey of students, faculty and staff. It will include noting the level of current and future demands for the use of multimedia and required areas of support services.

The campus should bring together a team of specialists in content creation from Technology Services, TILT, the Henry Madden Library, Web Communications and other organizations. The team will review gaps and overlaps in services. In addition, a coordinator for content services should be appointed to enhance and integrate services.

A website should be created that allows students, faculty and staff to access content creation tools and services as well as best practices ideas and online training. The content will be augmented as new needs emerge.

The university should designate a room or rooms where students and faculty can seek support for multimedia projects and access to staff expertise and specialized equipment.

As demand grows, we will expand our capacity to provide support for multimedia projects by broadening the skills of existing staff or collaborating with appropriate academic units to benefit students and the campus.

Resource requirements:

(under development pending further review)

- Assign part-time staff member to lead a virtual team of content creation specialists.
- Assign Web developers (from internal or external organizations) to create the website.

Time: Approximately 24 months or more

Resources needed: Staff time

Opportunity to collaborate: Full

INITIATIVE 4: TRANSITION TO E-TEXTS

Points to consider:

E-texts are in a period of uncertainty. How Fresno State proceeds will be influenced greatly by developments in publisher offerings, whether content/hardware companies such as Apple enter this area and whether the CSU system undertakes initiatives to commission custom or open content for courses.

Mobile initiatives position the university to have the technology infrastructure for widespread use of e-texts on any device. Initiatives 1 and 3 in this section provide support services and tools for additional use of faculty-generated content.

Fresno State, while keeping an eye on the broader market, should support the expanded use of e-texts as the university works with faculty to redesign face-to-face courses and creation of new online programs. The university should undertake pilot programs using e-texts, tablet computers and other forms of interactive content. Additional readiness for broader adoption will be achieved through expanded resources for faculty development focused on creating and using interactive content.

Resource requirements:

(under development pending further review)

- Funds to purchase, or subsidize the acquisition of tablet computers for e-text pilot courses.
- Assigned staff time from TILT to create online faculty development experiences involving interactive content.
- Assign TILT instructional designers to support course redesign efforts.

Time: Approximately 24 months or more

Resources needed: Staff time

Opportunity to collaborate: Partial

Strategy Three: Instructional Technology and Learning Spaces

The university will expand the use of technology specifically to improve learning and to provide students improved access to classes; whether face-to-face, online or blended courses. We will also encourage and support faculty members as they increase the ease and effectiveness with which they use technology in teaching.

There are several potential outcomes from this strategy. In addition to fostering skills in this area, this strategy could expand online enrollments, reduce time to graduation and improve learning results. Further, this strategy is the foundation for continued improvement in student, staff, and faculty satisfaction with resources for teaching and learning.

INITIATIVE 1: PROVIDE A CONSISTENT CLASSROOM TECHNOLOGY EXPERIENCE

Points to consider:

The university should build on experience to increase just-in-time support for classroom technology users. Support could include short videos and interactive tutorials developed locally or in collaboration with other campuses and vendors. These videos also could address common features in Blackboard and more advanced classroom technologies, such as streaming video and video conferencing. Priority in developing these videos should be based on the breadth of availability of technologies, on the volume of help requests received by TILT or the Help Desk or reliable feedback from faculty or students. Fresno State also should explore common technologies at other CSU campuses and determine if there are opportunities to collaborate on the development and maintenance of self-help guides.

Fresno State should conduct an inventory of its existing classroom technologies to identify aging technology that could be incompatible with faculty computers or mobile devices (office or home) used in the classroom. The university should consider specific investments to upgrade hardware and software to address major incompatibilities.

Technology support services should expand as class schedules increasingly spread into evenings and weekends. Improved self-help guides and tutorials can prevent some problems. Extended hours at the Help Desk, along with remote support tools, could provide rapid troubleshooting. The university should explore a joint venture with other campuses to operate an extended-hours Help Desk with broad capabilities, including classroom support.

Through all these efforts, the university will provide compatibility between faculty office and classroom technology as well as establish a common technology standard for classrooms.

Resource Requirements:

(under development pending further review)

- Assign instructional designers and multimedia staff to create and maintain how-to videos.
- Internal marketing and communication efforts to promote availability of these guides.
- Targeted investment in new hardware, software and self-help resources to maintain compatibility, consistency and effective support.
- Create solutions that support or provide after-hours support.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Provide a Consistent Classroom Technology Experience

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Assist faculty to learn how to effectively use existing technologies (create video tutorials).						
Rectify significant consistency and compatibility issues due to differences in software, operating systems or hardware.						
Create an online orientation to classroom technology for faculty.						
Align classroom support hours with course schedule.						

INITIATIVE 2: REDESIGN COURSES AND EXPAND ONLINE LEARNING

Points to consider:

The university should establish criteria and a process to select classes and programs that will be redesigned as online or hybrid ("blended") courses. Choosing these courses will be done in collaboration with deans and department chairs and be consistent with campus policies and procedures. This choice should take into consideration factors including enrollment; courses that present significant bottlenecks in progress toward a degree; and courses in which online components offer significant promise to improve student learning and engagement.

Course redesigns should be approached holistically, address learning outcomes and include support for faculty, restructuring of teaching methods, rethinking of curricular materials and the physical and virtual design of learning spaces.

Technology Services will need to increase its hours in order to support faculty and students as online courses and components expand and as the digital initiatives are implemented. Also, TILT, in its efforts to support course redesign, will require the development of more self-help resources for faculty support.

It is assumed that CalState Online will provide the infrastructure and instructional design support for fully online, for-credit programs. However, Fresno State may need to be prepared to support its own online programs.

Resource Requirements:

(under development pending further review)

- Funding for faculty to participate in course redesign efforts.
- Assign additional instructional design staff, depending on the volume of courses being redesigned.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Redesign Courses and Expand On-line Learning

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Create a regular process to identify course redesign candidates.						
Develop a standard methodology to create the capacity to redesign increasing numbers of courses.						
Systematically redesign courses to create blended or online options.						
Provide incentives to faculty to create reusable online content.						

INITIATIVE 3: CLASSROOM OF THE FUTURE

Points to consider:

In association with initiative 1, the university should evaluate existing pilots of new classroom designs. At the same time, Technology Services, in collaboration with TILT, should support faculty in exploring emerging technologies available to support wireless, highly interactive, collaborative, learning spaces. Results of the pilots and the research should be used to develop a proposed design of new technology standards for classrooms. These standards should be flexible to support a range of teaching methods and disciplines.

These classrooms and learning spaces should be managed collectively. While all rooms will not have the same technology, standards should be in place for equipment. These standards include funding for upgrades, maintenance and additional common equipment.

This initiative should take into account the need for specialized spaces for unique teaching methods of certain disciplines (such as simulation rooms for nursing). Priority should be tied to enrollment strategies and areas of anticipated growth in student demand.

Spaces also should be created on campus to support the collaborative work of students. Equipment in these spaces (such as displays, printers and network connectivity) should be able to accommodate devices brought to campus by the student as well as equipment provided by the university.

Finally, the university should develop a funding model for equipment refresh and support.

Resource Requirements:

(under development pending further review)

- Funding to outfit these classrooms of the future and to provide additional equipment in collaborative spaces. Financial planning should cover technology, physical layout and furniture.
- Assign support staff to facilitate the installation, maintenance and support of new technologies. Contract resources may be necessary for installation, depending on the degree of change and pace of upgrades.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: None

INITIATIVE 4: EXPAND SUPPORT FOR FACULTY

Points to consider:

Fresno State should maximize available staff time from TILT to expand support for faculty. Content from workshops should be converted to short videos and podcasts as appropriate. The university also should seek partnerships with other campuses creating content by using similar learning technologies.

The university should provide support for faculty leaders to convene workshops that discuss adopting learning technologies in face-to-face instruction. These faculty members should both host seminars and serve as peer mentors. Support for faculty who teach using technology and conduct assessments of student results could also be awarded.

An online course for faculty interested in developing these skills also would be an opportunity to provide experience and an effective model for online teaching. Fresno State should seek to create this course in partnership with other campuses.

Resource Requirements:

(under development pending further review)

- Funding for support of faculty leaders.
- Budgets for travel and professional development that supports TILT and faculty leaders as they investigate new instructional technologies and teaching methods.
- Create solutions that support production of podcasts and video clips

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Strategy Four: Mobility

Fresno State should facilitate the ability to teach, learn and work on and off campus through mobile technology. The campus should ensure that its infrastructure (hardware, software network and support services) is adequate to sustain the widening use of smartphones, tablets and laptops.

We anticipate this initiative will increase access to information and services from anywhere and on any supported device. Other goals include boosting recruitment and retention of students on campus or participating in online courses; improving efficiency of business processes; and increasing the flexibility and use of academic space, such as computer labs.

We also anticipate that the growing availability of mobile applications will be welcomed by students, faculty and staff.

INITIATIVE 1: EXPAND APPLICATION STREAMING SERVICES

Points to consider:

Data on students' and faculty's use of application software should be used to determine which applications are priorities for streaming.

The university should develop criteria to determine how it will evaluate possible partnership opportunities with other CSU campuses or external partners. In addition, Fresno State should continue evaluating shared hosting options, including partnerships with CSU Bakersfield, CSU Stanislaus and other CSU campuses.

Resource Requirements:

(under development pending further review)

- Assign business analyst to examine survey data, to assess impact on current licenses and to evaluate sourcing alternatives.
- Assign business and technical analyst to identify technical, functional and security requirements and to determine gaps in each area.
- If the university hosts its own virtual labs and application virtualization service, additional expertise in application virtualization technology may be required. We note that the shift to virtual labs and desktops will increase pressure to extend hours of support.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Expand Application-Streaming Services

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Validate data on current and projected utilization of applications by faculty and students.	■	■				
Validate data on existing licenses.	■	■				
Evaluate existing solutions and delivery options (such as hosting, consortium and outsource).	■	■				
Identify gaps in functional, security, and technical requirements.	■	■				
Identify and evaluate new sourcing and investment options.	■	■				
Design and deploy a pilot project to test solutions.		■	■			
Evaluate results.			■			
Scale up and deploy solution campuswide (as appropriate).				■	■	■

INITIATIVE 2: ENSURE INFORMATION TECHNOLOGY INFRASTRUCTURE IS MOBILE READY

Points to consider:

We want to make it easy for our community to use internet-ready mobile devices. This initiative addresses this goal.

Identity management requires the university identify a solution (such as Oracle, Microsoft or open source) as well as a method for federated identity (such as Shibboleth). These policies are required to determine the role-based access rights of individuals and processes when a change in role occurs.

Fresno State should continue investing in the expansion of its wireless network, especially in academic buildings and spaces used for collaborative projects. Emphasis in these areas should be on coverage and capacity. Some outdoor spaces and other common areas may be accommodated by advanced cellular networks. However, it's unlikely these networks will be a primary connectivity method within three years.

The university should consider a cloud application where individuals can store data. They could then use the cloud for file storage, sharing and collaboration.

The university should secure server-based storage and/or device encryption as well as the ability to delete sensitive data remotely when a device is lost or stolen. These services are used to secure data on mobile devices with sensitive or protected data.

Resource Requirements:

(under development pending further review)

- Software licensing costs for identity management solution.
- Consulting support to undertake identity management; to create integration with existing applications for single sign-on; and to define processes for providing and suspending access.
- Assign one to two FTE (this could be shared with another campus) to maintain identity management integration.
- Annual subscription costs for a personal file storage solution for faculty and staff.
- Software for encryption and monitoring sensitive data.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVE 3: ACQUIRE, DEVELOP AND INITIATE STRATEGIC MOBILE WEB PRESENCE AND APPLICATIONS

Points to consider:

Fresno State should make developing mobile applications, or mobile websites, that directly impact students a priority. These programs could include access to Blackboard, campus events/calendar and alumni services. They also could facilitate student services, such as recruitment, admissions, registration and financial aid.

Applications developed by the university should conform to an existing development framework. Examples of these can be found at the Kuali network, UCLA and MIT.

Developments in HTML 5 should be monitored. The university is looking for HTML 5 capability to recognize and optimize websites and mobile applications for a platform and operating system, without requiring completely separate versions of the software to be maintained.

When possible, Fresno State should share mobile apps and mobile Web strategies with other CSU campuses.

Resource Requirements:

(under development pending further review)

- Assign business analyst to define mobile use cases for students, faculty and staff and to analyze sourcing alternatives for desired mobile apps. The analyst should work in partnership with the business analyst leading development of use cases for social media (see Initiative 1 in the strategy for Communication, Collaboration and Engagement).
- Assign technical resource to assess and address potential security issues.
- Assign full-time project manager to oversee tool selection. The manager also will oversee the choice and use of mobile applications and the integration into back-end systems and IT support model.
- Assign programming support to develop mobile applications as appropriate and only if the apps are not commercially available.
- Licensing fees to purchase desired apps.
- Upgrade existing content management system to support the launch of the mobile Web.

Time: Approximately 24 months or more

Resources needed: Hardware, software and off-campus services

Opportunity to collaborate: Fully

Strategy Five: Communication, Collaboration and Engagement

Fresno State should create compelling, interactive and personalized communications to its community on and off campus. It also should adopt or extend technologies and staff expertise to track its constituents' engagement with the university. Also, technology should support faculty, students and staff collaborations without boundaries.

The potential results could include a larger number of local, regional and international partnerships as well as an increase in cultural, social and academic exchanges across institutional and international boundaries.

Other outcomes could be improved student recruitment; better student satisfaction with campus services; and increased engagement of students, alumni and the community with the university.

INITIATIVE 1: INSTALL FILE SHARING/STORAGE SOLUTIONS

Points to consider:

A cloud-based solution should be adopted where individuals can store data currently hosted on campus file servers. This solution should provide easy access from on or off campus and from mobile devices. It should also ensure the security of data stored in the cloud and during transmission to and from user devices.

This initiative will address academic and administrative needs for file storage and sharing. Faculty and staff could then use the cloud for file storage, sharing and collaboration tools

To ensure acceptance and adoption, there should be ample communication about tool selections and appropriate advance and ongoing training.

The security of any new file sharing/storage solution should be reviewed to ensure that it complies with existing security policies. Policy and procedure documents should be updated to provide clear guidance regarding the use of this solution for the storage of sensitive and/or confidential data.

Resource Requirements:

(under development pending further review)

- Assign system/application administration staff to support the solution.
- Assign support staff to review the solution and propose/develop support resources.
- Assign security staff to review the solution and propose updates to policy and procedure.

Time: 12 to 24 months

Resources needed: Blend of staff time and off-campus services

Opportunity to collaborate: None.

Install File Sharing/Storage Solutions

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Inventory current requirements for data storage, and file sharing for faculty, staff, and students on.	■					
Develop use cases by population type and determine technical requirements.	■					
Identify options.	■					
Evaluate options and select solution.	■					
Communicate decision to campus and educate end users on tools.	■	■				
Pilot solution with representative users.		■				
Deploy solution.		■	■			

INITIATIVE 2: IMPROVE SOCIAL MEDIA READINESS

Points to consider:

A full-time social media manager should be hired. This manager would oversee the development of use cases, strategic content, communications strategies and standards that Fresno State will use regarding social media technology across the campus. This manager also will launch pilot programs to increase recruitment, retention and fundraising efforts.

A strategic plan for communications and engagement should be developed to identify high priority opportunities for creation of content and social media sites. These will be used to promote the university, recruit new students and engage students, faculty, staff and the community. These communications will educate the campus about establishing strategic goals for social media use, using best practices in order to achieve these goals and inform units across campus about effective ways of maximizing engagement through social media use.

A social media committee can share internal best practices, which will raise the overall social media capability of the university.

During the next two to three years, Fresno State should seek tools to monitor social media activity in order to measure its impact on communication campaigns. This also will help integrate social media activity with recruitment, retention and fundraising strategies.

Resource Requirements:

(under development pending further review)

- Assign full-time social media manager to oversee and launch this initiative.
- Assign business analyst to support creation of use cases and materials to educate and train the community. This analyst should work in partnership with the business analyst leading development of use cases for mobile applications (see Initiative 3 in the strategy for Mobility).

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVES 3-4: INSTALL COLLABORATION TOOLS; IMPROVE AND REPLACE EMAIL AND CALENDARS

Points to consider:

These initiatives have been grouped together because they are inextricably linked. A business analyst should perform much of the underlying project work on these initiatives. The analyst will be in a position to coordinate consultation with faculty, staff and students.

These initiatives will facilitate and support academic and administrative needs for collaboration tools, such as video conferencing. They also will assess whether email and calendar programs are meeting users' needs and estimate costs if these programs need to be upgraded or replaced.

To ensure acceptance and adoption, there should be ample communication about tool selections and appropriate advance and ongoing training.

Resource Requirements:

(under development pending further review)

- Assign business analyst to develop, issue and analyze a survey of faculty, student and staff that addresses these issues: assessment of current and desired collaboration tools and assessment of current email and calendar solution.
- Assign technical analyst to research solutions and to develop analysis of options for these topics: assess the campus' ability (or "functionality") to meet user needs; study implications of an Information Technology support model; and look at the implications of technical architecture.
- A work group comprising faculty, staff and students who use these types of functions. The group will review survey analysis and market research to develop recommendations on solutions.
- Upgrade video conference equipment, as necessary, and associated software.
- Assign project manager to oversee the application of solutions supported by the project team.
- License fees for email and calendar solution, if replacement is recommended.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVE 5: SUPPORT COLLABORATIVE DATA DRIVEN RESEARCH

Points to consider:

Priority should be given to consulting with faculty to determine their specific needs for research infrastructure and to understand how information technology research infrastructure needs vary among disciplines. The university may want to start with faculty in the hard sciences.

The university should gain a thorough understanding of the current and emerging requirements of grant funding organizations. These requirements should be evaluated to determine future impacts on research Information Technology services.

Once technical infrastructure needs are defined, Fresno State should hold conversations with other CSU campuses to assess opportunities for partnerships.

Unless research shows a need for on-campus computing support, the university's approach should be to provide access to high performance computing as well as to the tools to capture, analyze and store large research data sets through collaborations.

Resource Requirements:

(under development pending further review)

- Assign business analyst to conduct focus groups with faculty. The aim is to understand and analyze current and anticipated technical requirements to support research.
- Assign technical analyst to assess internal and external options for meeting specific storage requirements.
- Assign financial analyst to develop underlying recharge model.
- Assign part-time project manager to oversee application of solutions and a technical team that carries out the solutions.
- Payments to collaborative partners to gain access to research computing infrastructure. In most cases, we should be able to recover these costs from individual grants. However, Fresno State may choose to fund some access as a way to support new research or sustain researchers between grants.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

INITIATIVE 6: SET UP CONSTITUENT RELATIONSHIP MANAGEMENT (CRM) SOLUTION

Points to consider:

Fresno State must determine if a single Constituent Relationship Management (CRM) system can satisfy all user needs. If the campus migrates to a single system, a selection and evaluation process must be initiated.

On the other hand, if the university decides that maintenance of existing systems is deemed adequate, then it will be necessary to make plans for sharing and managing data across departments.

Resource Requirements:

(under development pending further review)

- Assign business analyst to review current CRM systems and to summarize user requirements for each major division. This analyst also will develop a business case outlining options for replacement and/or migration to a common system.
- Assign cross functional team with representatives from Development, Athletics and Student Affairs. The team will look at IT review requirements, assess vendor solutions and determine if the campus can migrate to a common solution.
- Assign project manager to oversee analysis, selection and application of common solution, if recommended.
- Assign taining resources to ensure rapid adoption of the solution and optimal utilization across all units.

Time: Approximately 24 months or more

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: Partial

Strategy Six: *Effective Services*

Fresno State will focus on effectiveness and optimizing technology services provided to student and administrative services. The university will pursue improvements that yield significant cost savings or are needed to support online learners, achieve goals aimed at growth in global access or deliver substantial progress in the quality of service to students.

Goals are to increase student satisfaction; reduce costs and/or increase productivity; and boost online enrollment and global access.

INITIATIVE 1: IMPROVE IT SUPPORT SERVICES

Points to consider:

Roles and responsibilities must be clarified involving central Information Technology, IT Liaisons and departments to optimize Information Technology support. There must be clear delineation between equipment and services that are centrally supported and those that are non-centrally supported. Equipment and services that currently have limited support on campus must be clearly identified.

The university must complete implementation of its Common Ground Initiative to improve consistency, efficiency and quality of Information Technology support services.

A critical component in improving Information Technology services is ongoing communication of the service catalog and service level agreements. Communication should be delivered by leveraging multiple channels from in-person to Web.

Technology Services could expand its analyst team by re-training and/or adding interns and consultants.

A full-time communications position should be established to promote the effective use of technology; raise awareness of Information Technology services and service levels; and market the availability of new solutions. Analysts and communication staff, as shared resources, should support all technology initiatives. This includes such efforts led by TILT, or the Web and social media team.

Resource Requirements:

(under development pending further review)

- Assign business analyst to develop process flows for incident responses and communication among Information Technology units; to assess remote access tools and service level agreements (by device); and to complete development of service catalog.
- Assign technical support to initiate remote access tools and to standardize tools across Macs and PCs.
- Assign project manager to coordinate and communicate all Information Technology initiatives to improve support.
- Assign resources to provide customer service and tools training for all Information Technology support staff.
- Assign full-time communication lead.

Time: 12 to 24 months

Resource needs: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: None

Improve IT Support Services

Activity	2012	2013	2013	2014	2014	2015
	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun	Jul–Dec	Jan–Jun
Clarify scope of support for devices (e.g., personal, state owned and, non-state owned)						
Develop service level agreements for each device type.						
Clarify and standardize roles and deploy common incident response processes and tools across all IT support units.						
Clarify roles and responsibilities and processes to support existing portfolio management tools.						
Define communication processes and hand-offs between IT support units.						
Standardize desktop support tools for both Macs and PCs.						
Identify and deploy remote support tools.						
Complete development of service catalog and project portfolio.						
Provide training on tools, customer service, and common terms.						
Update and communicate IT policies and processes.						

INITIATIVE 2: SUPPORT SHARED SERVICES

Points to consider:

As shared service models are proposed, Information Technology resources should be engaged to develop an understanding of the possible system and impacts of its service delivery. These anticipated impacts include the need to redesign or create new workflows, the alteration of security configurations and the creation of new management reports.

Resource Requirements:

(under development pending further review)

- Assign business analyst to work with administrative units to understand possible implications and requirements for technical support.
- Assign programming support to adjust approval and workflows that support shared service models.
- Assign programming support to create new reports that monitor performance of shared services.

Time: 12 to 24 months

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: None

INITIATIVE 3: IMPROVE WORKFLOWS

Points to consider:

A process must be developed to identify and prioritize the application of BizFlow tools to replace paper forms. This will help to expand self-service to support online and international students.

The university should develop in-house expertise to minimize reliance on external consultants.

Resource Requirements:

(under development pending further review)

- Assign resources to train one to two business analysts on conducting a business process flow analysis and on using BizFlow tools.
- Assign one to two business analysts to prioritize and replace existing paper forms with online forms tied to electronic workflow. Analysts would identify, prioritize and address process areas that would benefit from improved flow.
- Assign business analyst to define requirements for document management system and to evaluate options to upgrade or replace the system.
- Assign part-time project manager to oversee evaluation and launch of new document management system.
- Assign resources to educate and communicate Information Technology staff and users on new services and solutions.

Time: Estimated 12 months or less

Resources needed: Blend of staff time, hardware, software and off-campus services

Opportunity to collaborate: None

Information Technology Governance

Effective Information Technology governance, in keeping with Fresno State's shared governance model, is critical to the cohesive management of technology and the successful operation of Fresno State's Information Technology Strategic Plan.

This type of administration will monitor and adjust strategies; establish annual priorities; lead efforts to change the culture and practices; and encourage continuous exploration of new developments.

Some key elements already are in place; however, the university currently does not have a Chief Information Officer (CIO) to oversee Information Technology. Therefore, the roles of others must be clarified to ensure success with the strategic plan while honoring the campus' culture of consultation and collaboration. We recommend that steps be in place to carry out the following actions:

- Outline key Information Technology decisions and trade-offs to facilitate development of the plan's vision.
- Provide sponsorship for proposed Information Technology strategies that will require organization, process and cultural change.
- Introduce new ideas and set priorities.
- Promote communication and collaboration among all campus Information Technology communities and consultation with the university community.
- Share expertise and best practices across the university to maximize use of existing technology.
- Provide comprehensive information to campus leadership for its consideration.

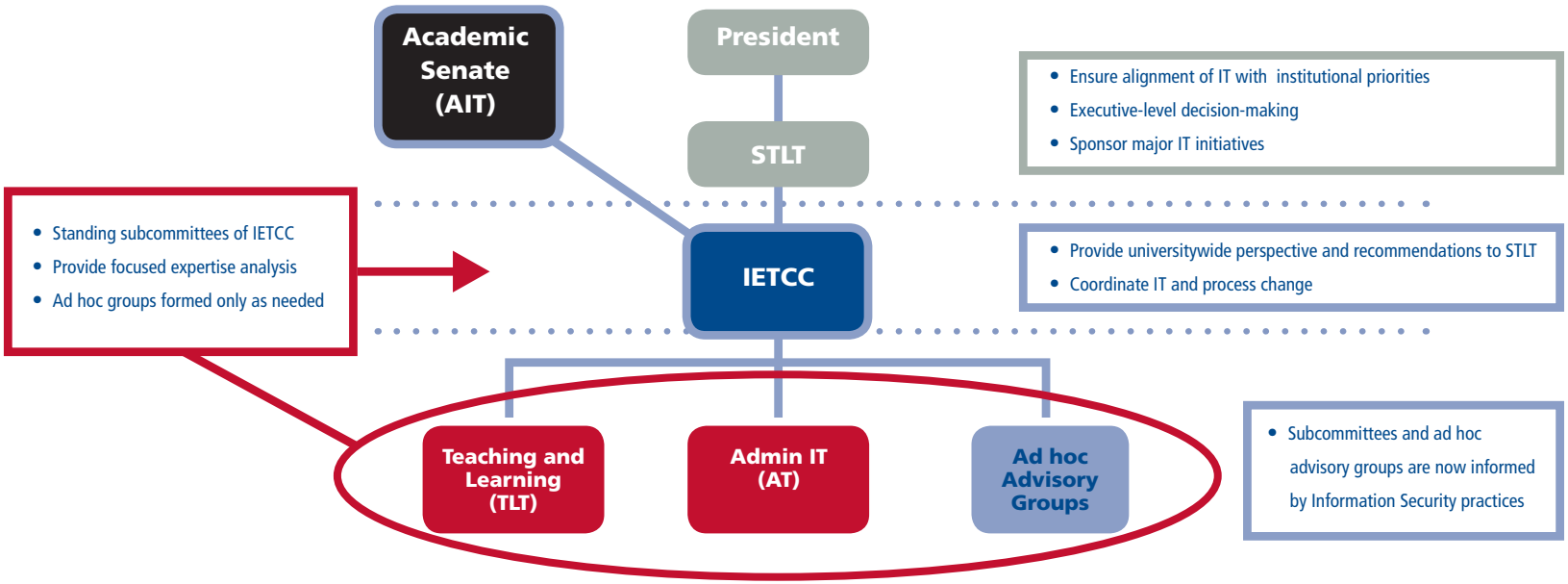
In addition, we recommend that Fresno State conduct routine review sessions that will provide opportunity for assessment and revision, if needed, of progress on the Information Technology Strategic Plan. These sessions also will ensure that Information Technology is aligned with and supports overall institutional goals. To be more specific about the review sessions, we recommend that the university take the following measures:

- Administer a mid-year review of project portfolios to assess progress and resources, making adjustments if necessary.

- Hold an annual retreat for two reasons. One, to review what progress has been made on the strategic plan and to assess priorities. Two, to review and refine the overall Information Technology vision and goals. Some initiatives may be dropped from the list of priorities, while new ones may be added. The university might consider inviting outside experts to provide additional perspective and knowledge.

- The Senior Technology Leadership Team (STLT) should meet monthly, at least for the first six months of implementing the strategic plan.
  The Information and Educational Technology Coordinating Council (IETCC) should meet four times a year and hold an annual planning retreat.

COMPONENTS OF IT GOVERNANCE



COMPONENTS OF IT GOVERNANCE

We recommend Fresno State convene a single governance team that is supported primarily by formal advisory groups and, when needed, ad hoc groups for specific issues. Resources should be identified to support the STLT and all committees and to coordinate the overall implementation of the Information Technology Strategic Plan.

Governance:

The STLT will be the focal point of Information Technology governance, serving as the overall sponsor of the Information Technology Strategic Plan. The STLT will make final recommendations on priorities and ensure adequate resources are dedicated to the plan.

Advisory:

Support will come from one key advisory group: the IETCC. This council will provide direct input on priorities and recommendations to the STLT and will sponsor major initiatives outlined in the strategic plan.

The IETCC will meet to review issues of broad ramifications, such as a change in an Information Technology policy or substantial changes to a service. The council will receive periodic briefings on the strategic plan and discuss any needed revisions.

The IETCC also will have members serve on subcommittees focused on using technology to improve teaching, research, campus services, operations, management and data-driven decision making. These subcommittees include the Teaching and Learning Technology Subcommittee (TLT); the Administrative Technology Subcommittee (AT); and ATI Accessibility.

IETCC members will serve on these subcommittees to enhance continuity and to ensure transparency of the process and its content. Members in other areas, such as the Information Security staff, will be added to subcommittees to provide additional representation and expertise.

Ad hoc Advisory Groups:

When needed, the STLT and IETCC will formally charge working groups to research specific topics and make recommendations. These ad hoc groups will comprise Information Technology and non-Information Technology personnel; Information Security staff; and faculty and students with an interest in an emerging area of technology. They will be sounding boards for IT decisions. They also may identify new technology opportunities and share best practices.

Possible ad hoc groups to consider include Technical Architecture Planning, Data Governance, Mobility, Social Media and Accessibility.

Management Coordination:

Under the direction of the Senior Academic Technology Officer (SATO) and the Vice President for Administration and Chief Financial Officer, the leaders of TILT and Technology Services will meet regularly to coordinate decisions and projects. Periodically, technology leaders from other divisions will participate in these conversations to coordinate the operation of university's strategies, standards and policies.

IT Governance Support:

We recommend that resources be dedicated to support the Information Technology governance committees and a broader set of responsibilities. These include on-going planning, project information and Information Technology policy and communication; including consultation with key campus stakeholders and constituents. Other responsibilities include assistance with agenda planning, meeting communications and creating and posting meeting minutes.

IT Governance Committee

Senior Technology Leadership Team (STLT)

Roles:

- Focus on all significant areas of Information Technology.
- Guide and advise the President on strategic technology directions.
- Approve or recommend to the President annual investment priorities, policies and changes to IT services.
- Monitor the implementation of the IT plan and review formal assessments of progress and outcomes.
- With input from IETCC subcommittees and IT directors, approve semi-annual project priorities.
- Identify creation of ad hoc advisory committees, as needed.
- Sponsor implementation of the strategic IT plan and support efforts to make necessary process and organizational changes necessary to maximize the benefits of IT investments.
- Facilitate points of integration and resolve potential collision between the university's IT organizations.

Membership:

- Provost, Vice Presidents and Senior Academic Technology Officer. Provost and VP, Administration and CFO serve as co-chairs.
- IT Directors and IETCC subcommittee chairs and other members invited to participate as necessary.

IT Governance Advisory Committee

IETCC (Information and Educational Technology Coordinating Council)

Roles:

- Guide and advise the President and STLT on strategic technology directions.
- Review and recommend IT policies or substantial changes to IT services with broad university impact.
- Review and provide feedback on major IT project priorities to validate their alignment with university priorities and the IT plan.
- Provide input and advice on short-term and long-term strategic directions in all areas of IT.
- Receive and deliberate input from TLT and AT groups and other advisory groups.
- Sponsor and support communication and consultation with students, faculty and staff to promote technology projects and initiatives.
- Incorporate two subcommittees (TLT, AT) focused on unique areas or applications of technology to recommend project priorities, provide feedback on potential changes to IT services, and recommend new IT initiatives.

Membership:

- As currently defined.
- Members of IETCC serve as members of subcommittees, as appropriate. Chaired by the President.

IT Governance Committee

Teaching and Learning Technology Committee (TLT)

Roles:

- Focus on technology related to teaching, learning, and research.
- Align educational technology strategy with effective pedagogy, faculty interest and student expectations.
- Provide input to Academic Policy & Planning committee (AP&P) and IETCC on priorities for investment.
- Solicit appropriate input from faculty regarding their teaching and research technology requirements.
- Sponsor initiatives to expand the use of technology in education and research.
- Advise TILT and TS leadership on the selection and adoption of new technologies and services including learning management system and other instructional technologies, classroom and learning space technology, and tools to support assessment.

Membership:

- Chaired by the Senior Academic Technology Officer
- Members include faculty leaders for TILT, one of the TS directors and additional faculty representatives appointed by the SATO in consultation with the Provost.

Core IT Governance Advisory Committee

Administrative Technology Committee (AT)

Roles:

- Focus on technology related to student services, administrative services, advancement, marketing and communications, campus operations and the effective use of data to support decision-making.
- Provide input to IETCC on priorities for investment and identify opportunities for collaboration across administrative areas.
- Serve as customer advisory council to Technology Services providing faculty, staff and student point of view.
- Identify initiatives to improve efficiency and effectiveness through the use of technology.
- Solicit appropriate input from faculty regarding their administrative technology requirements.

Membership:

- IETCC members and representatives of Financial Services, Institutional Effectiveness, Academic Resources, Enrollment Services, University Relations, Auxiliary Services, one Dean, one associate Dean and at least one TS director, Faculty and student representatives. As necessary, invite representative (s) from constituent groups to provide subject matter expertise.
- Chaired by Associate Director of Information Systems.

Core IT Governance Ad hoc Advisory Teams

Ad hoc Advisory/Work Groups

Roles:

- Provide advice and input on emerging areas of interest, policy and/or technology that may have broad campus impact.
- Support implementation project teams or IT staff charged with implementing a particular technology.
- Provide project-based governance, formulate process and policy changes related to a complex technology deployment and provide a forum for significant operational decisions that affect multiple areas of the college.
- Ad hoc advisory/working groups are appointed by STLT. Ad hoc teams exist for a finite duration and are provided with a unique charge and scope of authority. For example, a data governance working group could be established to address emerging business intelligence and data reporting needs and standards. To the extent possible existing committees should be leveraged and assigned the role of analysis and development of recommendations.

Membership:

- Dependent on scope of assignment.

IT Governance Support

IT Governance Support

Roles:

- IT governance support role is part of broader set of responsibilities that includes on-going planning, project in-take, IT policy and communications.
- Supports the STLT in the development of meeting agendas and analyses to frame committee discussions and decisions.
- Work with chair of IETCC and advisory subcommittees to plan agendas and coordinate action items identified by both formal and ad hoc advisory groups.
- Attend AIT, OIT and AT meetings and track issues and follow up items.
- Coordinates agendas and solicits input on topics for discussion from advisory groups and IT directors.

Membership:

- Part-time responsibility supported by restructuring duties of existing IT director and analyst. Estimated workload of .20 FTE of a director and .50 analyst (FTE time requirements will decrease once the IT Governance structure is fully functioning under revised recommendations).

Organizational Alignment

CHANGING EMPHASIS OF IT ORGANIZATIONS

The Information Technology Strategic Plan will require a shift in the roles and skills of Fresno State's Information Technology organizations. These shifts are consistent with broader trends impacting all Information Technology organizations.

These organizations are focusing much more on providing access through technology operated by other entities, rather than developing and operating their own unique institution services.

At the same time, institutions are requiring that their Information Technology staff possess greater knowledge to be able to advise on the optimal use of technology. The by-products of this are consultation support; new approaches to faculty support and staff development; and new roles for analysts and instructional technologists.

Information Technology organizations also are becoming much more involved in on-campus and off-campus collaborations with other entities. Specifically at a university, campus partnerships create cross-functional teams that span Information Technology, libraries, research, faculty support and assessment teams.

FUTURE SKILL REQUIREMENTS

The Information Technology Strategic Plan requires Fresno State expand its technology capacity in several key areas:

- The need for course redesigns and faculty support requires more instructional designers, multimedia content specialists and Information Technology support staffs trained in a broader set of academic technologies.
- Data and analytics infrastructure requires data architects and developers skilled in data warehouse technologies and reporting tools.
- With a rising number of our users engaged in mobile technology, the university needs developers familiar with mobile application development as well as Information Technology support teams available to deliver 24/7 assistance.
- Initiatives aimed at communications and engagement require a number of positions. First, content specialists are needed to develop interactive, media rich content for websites and social media. Second, an information architect, an administrator and Web designers would support the Web content management system. And, third, all staff need enhanced skills to ensure online content is kept current.

FUTURE SKILL REQUIREMENTS *continued*

- Enhanced service requires analysts to understand functional necessities, to identify opportunities in which technology will improve effectiveness and facilitate the operation and use of new technologies. In addition, there is a need for application developers skilled in the use of workflow tools, document management solutions and integration tools.

Collaborations, cloud computing and the need for greater agility will change skill requirements in the future, triggering these responsibilities:

- Project managers will coordinate technology projects on campus and help form multi-institutional collaborative services.
- Analysts will help evaluate, negotiate with, assess and monitor third -party entities that provide technology services to Fresno State.
- Architects, as well as specialists in identity management and data integration, will maintain standards and launch technologies that enable the university to better integrate an increasingly varied set of software applications.
- Information Technology support staff – such as IT Liaisons, desktop support, and the Help Desk – will continue to shift emphasis from "break-fix" work to consultation as well as development of self-help content and the facilitation of multi-organization problem solving.

Summary Impacts

Driver	Enhanced/Expanded Skill Requirements
Course Redesign/Faculty Support	Instructional designers (Hy-Flex with online learners) Multi-media specialists
Analytics	Data architects Warehouse developers (ETL tools, reporting)
Mobility/Always On	Analysts Mobile application developers 24/7 support capacity
Engagement/Communication	Analysts Multi-media specialists Social media expertise Web content management, web development and information architects
Effective Service	Analysts Workflow developers Middleware developers IT Communication specialist
Technology Collaborations, Cloud, Agility	Project managers Architects Identity management Support consultants and advanced troubleshooting

Recommendations

Fresno State must develop greater concentrations of required technology skills without creating new positions. This means establishing collaborations and partnerships; shifting priorities to free up resources or new roles; and changing the way some technologies are provided.

Technology Services should continue to implement "lift and shift

The organizational adjustments to create more project management, analyst, and workflow developer capacity, and referred to as "lift and shift", should continue. Personal professional development plans and on-the-job training will help prepare staff for new roles. The university should anticipate a six- to 12-month transition until staff in new roles attain their usual high level of productivity.

Seek opportunities to share positions or services with other CSU campuses

Fresno State should follow a deliberate strategy to minimize the scale of the on-campus data center that it requires.

The university should study software as a service of preferred option for any new applications. As previously noted, Fresno State should seek a multi-campus data center, or one operated networkwide by the CSU system. These two changes should free up administrators to undertake new roles and to improve responses to emergency situations.

Additional candidates in this section of recommendations include a shared call center for the Help Desk; shared data architect and data warehouse developers; mobile application developers; and identity management.

Support for course redesign and on-line programs will require additional internal collaborations

Library faculty and library Information Technology staff should be engaged in course redesign activities as appropriate.

IT Liaisons should cross-train, developing skills to support additional instructional technologies, as appropriate, in order provide to instructional designers more time to support course redesign initiatives.

The university should provide resources and support to faculty leaders to support the enhanced use of technology in online, hybrid, and face-to-face instruction.

Standardize technology and support mechanisms to allow more staff time to be used in new areas

The university should use virtual desktops and application streaming in classrooms and labs to reduce the level of effort required in classroom support and extend the use of these software titles beyond labs and classrooms. Similar efforts should be undertaken in 24 to 36 months to replace administrative desktops, which also creates further opportunities to free up staff time for other areas.

To the greatest extent possible, Fresno State should use standardized configurations for desktops, classrooms, labs and laptops There should also be broad use of remote diagnostic and repair tools and self-service resources. In addition, a broader knowledge base will allow more staff to transition from support roles to either consultant/analysts or multimedia support specialists.

Curtail demand for less strategic projects and services.

Fresno State should free up application developers to focus on middleware, mobile applications and analytics. To do this, the campus should reduce the number of PeopleSoft projects that are not directly related to compliance requirements or a strategic priority. The university should also receive common Human Resources and common financial functions as delivered.

TILT should focus its resources primarily on course redesign, universal design and learning technologies that can be expanded or upgraded.

Quarterly reviews should be conducted of the project portfolio with the STLT to keep the focus on high priority projects.

Distribute content creation and maintenance responsibilities.

The university should fill the position of Director of Social Media. This person will guide departments in the adoption and use of social media.

The Web content management system should be used to identify and train staff in every department to maintain their particular website content.