

THE CALIFORNIA STATE UNIVERSITY

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**Expanding Academic  
Technology in the CSU:  
Getting Started**

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# Expanding Academic Technology in the CSU: Getting Started

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# Expanding Academic Technology in the CSU: Getting Started

## I. EXECUTIVE SUMMARY

### *Why Now?*

The campus and system leadership of the California State University intends to move the institution to the cutting edge of supporting quality teaching and learning with technology. The significant and planned investment in technology that is guided by the Integrated Technology Strategy is largely in place and has become a state-of-the-art technical and administrative support foundation. The plan for how technology applied to the academic mission can leverage this foundation is now in place as well. The time has come to implement this “academic technology plan” to fulfill our commitment to students and faculty by providing them a tangible CSU advantage. The importance of moving forward now is heightened by the impact of the current budget, our commitment to student access and success and the growing expectation and capacity of students to use technology to enhance all aspects of their college experience. It is clear that future enrollment pressure cannot be accommodated without the assistance of technology.

### *How Did We Get To This Point?*

After a year of planning initiated by the Executive Council in June of 2002 a set of outcomes, principles and initiatives were developed by a planning committee based on interactions with all 23 campuses and a review of best practices in other leading institutions. This draft document was discussed thoroughly at the June 2003 Executive Council retreat where the eight initiative areas were endorsed and further clarification of implementation approach was requested. This implementation framework is now ready and specific feasibility study reviews and detailed implementation planning can begin.

### *What Exactly Are We Planning To Do?*

Eight initiatives have been identified that best meet the guiding principles and selection criteria as well as the four overarching objectives to:

1. maintain and improve CSU’s **high quality education**,
2. meet the **access requirements** of Californians eligible for admission.
3. achieve **high student satisfaction** for both education and student services, and
4. provide mechanisms for the **redesign of faculty workload**.

Four of the eight initiatives are being recommended for immediate implementation while the remaining four may begin somewhat later. Two of the initiatives are campus-focused with system support and will address immediate needs in addition to providing early benefits. These are:

- Supporting Student Excellence and Success in the CSU
- Technology-enhanced Teaching and Learning and Foundation Skills Support

Two other initiatives are system-focused with campus support and should also commence immediately as they form a support environment and acquisition structure for the other six. These are:

- The Academic Technology Shared-Services Environment
- The CSU Digital Marketplace

The other four initiatives are:

- Supporting Shared Development of Digital Learning Materials
- CSU Support for Research and Application of Effective Practices in Academic Technology
- Professional Development for Faculty, Staff, and Administrators Involved in Academic Technology
- System Support for Academic Technology Development Teams

### ***What's Next?***

Each initiative will begin with the formation of a Management Team and the development of a Feasibility Study Review and detailed Implementation Plan. An Academic Technology Coordinating Committee, incorporating the membership of the Provosts' Technology Steering Committee will oversee the implementation process and report regularly to the Academic Council and the Executive Council through the Technology Steering Committee. The Management Teams and the campuses will also identify any policy, practice, or institutional culture issues that may impact the progress of their initiative. Clearly, the alignment of faculty reward structures with the expansion of technology use will also need to be addressed.

Each initiative was chosen from many competitors of great merit because it would make a significant difference in the quality of what the CSU has to offer its students and faculty. A small number was chosen to ensure that tangible benefits could be achieved in reasonable amounts of time without spreading scarce resources too thinly. These initiatives are all do-able and build upon the significant technology and human resources that stand ready to begin. The planning is ready to give way to the doing.

## II. INTRODUCTION AND BACKGROUND

Bringing the California State University to the cutting edge in using academic technology to support quality teaching and learning has been the focus of a major initiative undertaken by the California State University in the academic year 2002-03. The goal of this effort is to use the CSU's prior investment in the technology infrastructure as the basis for a significant expansion of academic technology to improve teaching and learning, help provide increased and more effective access for students, and upgrade services to students as well as faculty and staff.

The seeds for this systemwide effort to promote the use of academic technology were first sown in the 1990s. In 1995, the CSU launched its Information Technology Strategy (ITS), which was designed to provide the campuses with a state-of-the-art technology environment to support personal productivity, excellence in learning and teaching, the quality of the student experience, and administrative productivity and quality. Excellence in learning and teaching was addressed through several ITS initiatives such as the Multimedia Repository, the Electronic Core Collection, and Distributed Learning and Teaching. Student Friendly Services (the improvements to the CSUMentor program) was the major focus area of the Quality of the Student Experience goal. However, over the past several years, the ITS has concentrated on technology infrastructure to address key prerequisites in support of teaching and learning such as developing and connecting all campuses to a broadband network, installing baseline hardware and software, and providing IT support and training for faculty, staff, and student users.

In the spring of 2001, noting the imminent completion of the specific infrastructure projects, the Academic Technology Advisory Committee (ATAC) made a series of recommendations to Executive Vice Chancellor David Spence to use this infrastructure in a significant expansion of academic technology. This proposal addressed faculty professional development and training, the establishment of instructional development support teams, released time for faculty to convert and redevelop courses and curricula, and continued improvements to the infrastructure, in particular classroom renovation and instructional development support facilities (see Appendix A). These proposals were presented and discussed at a spring 2002 systemwide conference held in San José and attended by campus academic technology teams.

At the same time, Chancellor Charles B. Reed and the campus presidents, acting through the Technology Steering Committee and the Executive Council, began to focus on the applications and uses of these infrastructure investments in ways that respond to the latest and best research on student learning to support and improve teaching and learning, student and administrative services, and personal effectiveness. Discussions within the Executive Council resulted in a decision to begin a planning process to apply technology to four overarching goals.

### **Overarching Goals of the CSU Academic Technology Program**

- 1. Maintain and improve the high quality of education provided by the CSU;**
- 2. Meet the access requirements of California residents eligible for admission to the CSU;**
- 3. Provide high levels of student satisfaction with both the education they receive and the student services that support instruction; and**
- 4. Provide a mechanism by which the faculty of the CSU, both individually and collectively, can redesign their workload.**

To oversee this effort, the Executive Council authorized the appointment of the Academic Technology Planning Committee (ATPC), a group that included faculty, a student, provosts, a vice president for student affairs, chief information officers, a faculty development director, and a director of libraries. The ATPC was charged with developing a plan for the expansion of academic technology that addresses the overarching project goals and that can be implemented by campuses with system support. A project team from the CSU Chancellor's Office provided support for the ATPC, as did an independent consulting group, Collegis.

In order to identify specific projects to meet academic technology goals, the ATPC pursued three interdependent routes to gather information and to generate ideas. First, the team conducted a series of focus groups on CSU campuses to identify teaching-and-learning and student-services issues that could be addressed with technology. Second, a survey was conducted to identify CSU campus academic technology projects currently underway. Finally, the entire ATPC participated in a series of planning exercises to articulate common goals and build consensus among members. From these activities, the ATPC generated a collection of initiatives and projects that coalesced into the plan described in its final report, *Expanding Academic Technology in the CSU*, June 2003.

### **III. WHY IS THE CSU DOING THIS?**

If the overarching goals of the CSU Academic Technology Program and their resonance with the traditional mission of the CSU were not compelling enough, events playing out in the state of California concurrent with the development of this implementation plan add a new set of imperatives. For one of the rare times in the history of the California State University, the California Legislature has prescribed an enrollment cap for the 2004-05 budget year. In the midst of Tidal Wave II, this will prevent the CSU from admitting some 10,000 to 15,000 new students who under normal circumstances would have been accommodated. If past experience is a guide, the vast majority of these students will enroll in community colleges and will attempt to transfer to the CSU two or three years later. Thus the CSU can expect greatly expanded enrollment pressure during the last one-third of this decade.

At that time, even if the state revenue situation and the CSU budget have returned to normal, many of our campuses will be unable to accommodate this enrollment bulge using traditional methods. An expansion of the use of academic technology is one of the few options available to forestall a serious crisis in meeting the needs of these prospective students.

**IV. WHERE ARE WE IN THE PROCESS?**

The CSU is currently entering the second phase of a four-phase process to expand the use of academic technology. These four phases are:

1. Report of the Academic Technology Planning Committee (completed June 2003)
2. System implementation planning
3. Initiative implementation planning
4. Project implementation management
5. Project operation and assessment

The implementation planning phase is expected to end with the approval, by the Executive Council, of a broad implementation plan at its meeting in late August, 2003.

**V. PROJECT FOCUS**

The report of the Academic Technology Planning Committee (ATPC) proposed eight broad initiatives for the expansion of academic technology in the CSU. The initiative numbers and titles are summarized below in Table 1.

*Table 1: Proposed Initiatives*

<b>Initiative Number</b>	<b>Initiative Title</b>
1	Supporting Student <b>Excellence and Success</b> in the CSU
2	Technology-enhanced Teaching and Learning and Associated Support Services for <b>Foundation Skills</b>
3	Supporting Shared Development of <b>Digital Learning Materials</b>
4	CSU <b>Support</b> for <b>Research</b> and Application of Effective Practices in Academic Technology
5	<b>Professional Development</b> for Faculty, Staff, and Administrators Involved in Academic Technology
6	System Support for <b>Academic Technology Development Teams</b>
7	The <b>Academic Technology Shared-Services</b> Environment
8	The CSU <b>Digital Marketplace</b>

The implementation of each of the proposed initiatives will involve a combination of effort at both the campus level and at the system level. Indeed, the set of initiatives can be roughly divided into two categories for implementation planning, first, those initiatives that are largely

campus-focused with system support, and second, those initiatives that are largely system-focused with campus support<sup>1</sup>.

***Initiatives Largely Campus-focused***

Table 2 identifies the initiatives that will be largely implemented on the individual campuses.

***Table 2: Campus-focused with System Support***

Initiative Number	Initiative Title
1	Supporting Student <b>Excellence and Success</b> in the CSU
2	Technology-enhanced Teaching and Learning and Associated Support Services for <b>Foundation Skills</b>
3	Supporting Shared Development of <b>Digital Learning Materials</b>
5	<b>Professional Development</b> for Faculty, Staff, and Administrators Involved in Academic Technology
6	System Support for <b>Academic Technology Development Teams</b>

Most campuses have already made considerable progress in developing materials and services appropriate for these initiatives. Several campuses have developed degree-audit systems, on-line new student orientation programs, and on-line help services to support initiative 1. Many mixed-mode and on-line courses have been developed that will support initiatives 2 and 3. Most campuses have had academic technology professional development programs for faculty and staff in place for many years and most campuses provide some degree of staff support to faculty in developing technology-based courses and materials (initiatives 5 and 6).

However, the intent of these new initiatives is to provide system-level support to expand existing campus efforts by coordinating multi-campus, discipline-based projects to identify existing and develop new educational and development materials that can be shared with confidence within regions or across the system (initiatives 2, 3, and 5). The focus on common identification, development, and sharing can have a meaningful effect upon redesigning faculty workload.

The academic technology development teams envisioned in initiative 6 will exist on individual campuses. However, the system can support these campus efforts by developing guidelines for the composition of these teams including position descriptions for the range of skills required.

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<sup>1</sup> Initiative 1, Supporting Student Success in the CSU appears in both Table 2 and Table 3. This initiative involves a number of individual projects, several of which (e.g., on-line new student orientation, on-line academic advising support and degree audit services, and on-line access to campus information and services) must be uniquely implemented on each campus and several of which (e.g., admission application submission and processing, and transfer student pre-admission advising and course articulation) have already begun on a systemwide basis.

*Initiatives Largely System-focused*

Table 3 identifies the initiatives that are primarily system-focused.

*Table 3: System-focused with Campus Support*

<b>Initiative Number</b>	<b>Initiative Title</b>
1	Supporting Student <b>Excellence and Success</b> in the CSU
4	CSU <b>Support</b> for <b>Research</b> and Application of Effective Practices in Academic Technology
7	The <b>Academic Technology Shared-Services</b> Environment
8	The CSU <b>Digital Marketplace</b>

The initiatives in this category all require a high degree of coordination at the system-level. That is not to say that these initiatives must all be managed at the Chancellor's Office; they could be implemented using a lead-campus approach. However, they tend to involve activities that must reasonably be standardized according to common formats or use common procedures or software (initiatives 1 and 7). They also include activities that should not be inefficiently reinvented or duplicated on each individual campus (initiatives 4 and 8).

*Management of Initiatives*

The distinction between campus-focused initiatives and system-focused initiatives has implications for the initiative implementation process. Management of the campus-focused initiatives will more likely occur through active individual campus leadership and organization. System support of campus-focused initiatives will be implemented through coordinating groups that will take a more passive role, responding to the needs and requests of campus leadership.

Management of system-focused initiatives will be more centralized, located either at the Chancellor's Office or a lead campus. Sound organization for implementation of these initiatives will likely delegate lead responsibility to appropriate staff members working with advisory committees composed of relevant campus liaison personnel. These campus liaison personnel will have the responsibility for providing campus input for systemwide implementation decisions and for providing communication back to their campus constituencies about the initiative.

## VI. INITIATIVE IMPLEMENTATION NARRATIVES

### **Initiative 1: Supporting Student Excellence and Success in the CSU**

Project Focus: Mixed - System-focused with System Support and Campus-focused with System Support

#### ***Initiative Description***

This initiative intends to improve the means by which students interact with the university. It will combine several of the ideas generated by campus groups into an overall focus on facilitating the accessible and seamless use of the technologies in ways that contribute to a student's success throughout his or her university experience. This initiative will result in a complete range of services for prospective students, admission applicants, newly admitted students, currently enrolled students, and alumni. To the greatest extent possible, the projects in this initiative will be integrated into the Student Administration module of the Common Management System project.

#### ***Expected Campus Outcomes***

1. Prospective students will have easy access to campus information regarding academic programs offered, admissions requirements, and steps to take to become eligible for admissions.
2. Applicants for admission will be able to apply on-line, trigger the submission of official transcripts and test scores, and receive much faster notifications of eligibility and admission.
3. Newly admitted transfer students will have precise information before they enroll as to which of their transfer credits have been accepted and how those credits will apply to their educational objective.
4. All newly admitted students will have on-line access to campus orientation materials to supplement the in-person orientation programs currently being offered on campus.
5. Enrolled students will have access to degree audit services that inform them of the progress made and requirements remaining for the completion of their educational objectives.
6. Academic advisors will have on-line access to student degree audit information so as to efficiently and effectively advise students in the completion of their educational objectives.
7. Enrolled students will have easy on-line access to campus information and to academic, student, and administrative support services.
8. Enrolled students will have anywhere, anytime on-line access to appropriate academic help services.
9. Enrolled students will have the ability to create electronic portfolios of their academic and creative work for use in their future academic or career lives.

Expected System Outcomes

1. Students will be able to proceed toward their educational objectives with as few institutional impediments as possible.
2. Student retention and graduation rates will improve.
3. Students will be able to complete their educational objectives with fewer unnecessary units in shorter periods of time thus providing greater access opportunities for new students.
4. Student satisfaction with their educational experience will increase.

Assessment of Outcomes

Many of these outcomes lend themselves to periodic assessment including retention and graduation rates, which should increase; total units completed at graduation, which should decline; time to degree for graduates, which should decline; and student satisfaction surveys, which should show improvements.

**Proposed Projects**

Admission Application Submission and Processing (System-focused with Campus Support)

This project already exists in the form of *CSU Mentor*. *Mentor* provides information to all levels of prospective applicants about CSU campuses, academic programs, admission requirements, and financial aid opportunities. It currently allows students to apply for admission and financial aid on-line. Since acceptance to many CSU admission categories is objective (e.g., first-time freshmen are admitted on a combination of high school grade point average and SAT or ACT score) this project should eventually implement automated application processing and admission notification.

Transfer Student Pre-admissions Advising and Course Articulation Audits (System-focused with Campus Support)

This project also currently exists as *Project ASSIST*. *ASSIST* is California's official statewide repository of transfer information, offering easy access to a single database. *ASSIST* can help students determine if and how they will receive credit for courses completed. It should be expanded and supported to provide advising and course articulation audits for all inter-segmental and intra-segmental transfer possibilities within the state.

On-line Academic Advising Support and Degree Audit Services (Campus-focused with System Support)

As students progress through the university, these on-line services should be able to provide access to grades and transcripts. The same technical infrastructure used to create these on-line services for students would provide similar support services to faculty and administrators with responsibilities for advising students about program concentrations, course selection, and career choices. Degree audit capabilities will allow students and faculty advisors to quickly determine where a student is in his or her degree path and what remaining requirements need to be completed for graduation. Although the degree information will be campus-focused, these capabilities will largely be implemented through the Student Administration module of the PeopleSoft software used in CMS.

*On-line New Student Orientation (Campus-focused with System Support)*

One aspect of this project will address the special challenges of new and transfer students. An on-line orientation module will be developed. It will include the tools deemed necessary to ease the transition to higher education. These could range from providing maps and service guides, to electronic links to feeder high schools and community colleges, to helpful information for parents and families. The system can support this project by creating a template or framework of campus-specific orientation materials that could be provided.

*On-line Access to Campus Information and Services (Campus-focused with System Support)*

Once students are registered in the CSU, a campus-based on-line system will provide access to information and services. The on-line system will recognize the roles that an individual plays in the institution and will differentiate access to systems, programs, and information accordingly, as well as tailor the views based on the individual's needs and role. The system should interface with the campus learning management system. Once again, the CSU system can support this project by developing a taxonomy of services that ideally should be included in a campus-based system.

*On-line Help Services (Campus-focused with System Support)*

In the 21<sup>st</sup> century world of 24-hour, 7-day access to the Internet and on-line resources, help in using those resources must also be available 24 by 7. An important aspect of the Student Success initiative is creation of a 24 by 7 help-desk function. The goal of this service is to augment local campus help desk support by providing support on appropriate topics to students on campus and remotely on a 24 by 7 basis.

This aspect of the Student Success initiative would address the resources/staffing, "services/business model," processes, infrastructure, and costs associated with providing high quality services to callers seeking assistance to be effective learners and to efficiently participate in their campus activities and processes on-line. This service would be coordinated and integrated with local campus support functions. While the scope of this project focuses on student support, the infrastructure created to support students should be integrated so that it can be used to support faculty and staff as well.

The project will enhance existing or traditional help-desk services because it will augment the services concept to:

- add a capability to address the "first tier" questions such as network access, software/hardware problems, and typical "forgot my password" issues that often overwhelm local help desks. The project will explore requirements to deliver capabilities, explicitly prescribed and pre-determined by faculty input, that assist students by logging and, where possible, acting on requests about faculty intent concerning course or syllabus requirements, the posting or delivering of assignments, or satisfying test or assignment requirements,
- support via web-posted Frequently Asked Questions (FAQs), supplemental documentation, or knowledge base, to provide a means for students to resolve on their own a substantial number of typical or recurring questions,

- create an effective, multi-tiered, regionalized, or systemwide delivery strategy for implementation, and
- design the means and processes to track context-based “troubles” using knowledge management tools and make this information available to support professionals and end users.

### On-line Student Portfolio Services (Campus-focused with System Support)

Online tools for accessing and managing an electronic portfolio of the work the student accomplishes during his/her studies is also an important goal. This can be a marketing tool for the student as he or she seeks employment and/or admission to graduate school. A portfolio template could be created as a system effort to support this project. The systemwide evaluation and adoption of portfolio software should be explored.

### ***Proposed Implementation Strategy***

#### Management Structure for Implementation

Because the projects described in this initiative include both campus-focus and system-focus, a dual management structure will be necessary. A systemwide implementation group including appropriate technical and functional specialists should be created to manage the system-focused projects and to coordinate system-support for the campus-focused projects. In turn, each campus should establish a parallel implementation group to manage the campus-focused projects.

#### Constituent Group Involvement in Implementation Planning

Since this initiative deals with student success, the needs and desires of students must be foremost in the evolution of projects. Therefore, students must be actively involved in the system and campus implementation groups. Much of the implementation responsibility for these projects will be assigned to academic and student affairs administrators and their staffs. These key individuals must be involved in implementation planning as well. Since faculty have a key role in setting admissions requirements for impacted and graduate programs, and in advising students, their views need to be fully represented.

#### Priorities, Timelines, and Milestones

By virtue of the investments, system and campus, that have already been made, the projects focused around CSU Mentor, ASSIST, and the PeopleSoft degree audit module should receive the highest priority. These projects address areas of great need and, in most cases, have already demonstrated value. Campuses awaiting conversion to the PeopleSoft Student Administration software should continue to improve their existing degree audit capabilities. Campuses should set their priorities based upon the degree to which they are already engaged in one or more of these projects. Given the current state budget situation and the slim opportunities to provide new money for these projects, this initiative is likely to require several years for completion.

#### Anticipated Project Costs

These are projects that can carry hefty price tags for both development and operation. It is likely that this initiative if fully implemented could cost the CSU several million dollars per

year. The CSU has made these investments in the past on system infrastructure. The full return on those past investments cannot be realized unless the CSU is willing and able to complete this initiative.

*Current Resources Available*

The Chancellor's Office currently spends several hundred thousand dollars per year supporting CSU Mentor and ASSIST. The campuses also spend a comparable amount in supporting their projects related to student success. Where funds are currently earmarked for these projects, these commitments should be continued and expanded when possible. In addition, ways should be found to leverage current expenditures by sharing programs across campuses.

*Future Resource and Funding Requirements*

Plans for the implementation or expansion of each of these projects should be completed so that they can be pursued as soon as new funding becomes available.

## **Initiative 2: Technology-enhanced Teaching and Learning and Associated Support Services for Foundation Skills**

Project Focus: Campus-focused with System Support

### ***Initiative Description***

This initiative is designed to provide accessible technology-enhanced teaching and learning materials designed to improve basic skills in critical thinking, English language facility, writing, reading, mathematics, computer literacy, and information competencies as a student progresses toward a degree. These materials will be developed using sound research-based practices related to student learning and skills development, as well as appropriate integration with traditional pedagogies.

These materials will have a strong student diagnostic component. They could be used by students throughout their academic careers both to develop and refresh essential skills. Learning modules including these materials could also be designed by discipline faculty to address the specialized learning required for student mastery of discipline-based skills needed for attainment of a degree. Such modules should also address accessibility requirements for students with special needs and disabilities.

Materials used for this initiative would have a wide variety of uses in addition to student self-paced learning of skills. The material would be valuable to student support services in reinforcing skill development and increasing students' academic expectations through programs such as EOP, TRIO, academic advising, first-year programs, career services, tutoring, and counseling. They can help high school students gain university entry-level subject area skills. This initiative will also serve as the anchor point of the CSU strategy to address the digital divide.

The material would be useful for CSU Learning Centers and Summer Bridge Programs. Furthermore, they would be especially helpful in CSU early-assessment projects, which should be implemented in collaboration/consultation with K-12 schools and community colleges to assist students achieve proficiencies necessary for success in the CSU.

### **Expected Campus Outcomes**

1. Enhanced capability to assist high schools' instruction and student preparation
2. Improved success for at-risk students
3. Improved student progress towards graduation
4. More flexibility in the deployment of campus funds and faculty

### **Expected System Outcomes**

1. More efficient use of system resources
2. Research and studies on the effectiveness of various forms of on-line instruction

Assessment of Outcomes

Data on student preparedness for baccalaureate-level work (includes pass rates for ELM, EPT, Early Assessment); lower credits-to-degree; improved graduation rates.

**Proposed Projects**

Technology-enhanced Teaching and Learning for Pre-baccalaureate Mathematics Proficiency

Of all the proposed projects, one area in particular stands out as a likely first investment and pilot project: pre-baccalaureate mathematics. Although there are efforts already underway in several of the other projects, the most fully developed project thus far is on-line modules in pre-baccalaureate mathematics proficiency. A key reason for the importance of this area is the CSU Early Assessment Program, in which high school 11<sup>th</sup>-graders have the chance to demonstrate that they have the skills for baccalaureate-level work. Those who cannot show proficiency must take the ELM and, eventually, pass the ELM, before they can be matriculated in the CSU. An on-line tutorial, used in conjunction with more traditional methods of instruction and coaching, can help these high school students improve their mathematical skills and be prepared to pass the ELM. If the tutorial works and if the students pass the ELM, it will reduce the number of CSU students who must take remedial courses. A second key reason for the importance of this area is that at least three computer-based software packages have already been developed and proven to be successful in certain settings: Academic Systems, Plato, and ALEKS.

Technology-enhanced Teaching and Learning for College-level English Comprehension and Writing

Many CSU faculty members have experimented with on-line composition courses with some success. These courses, however, are not self-paced tutorials. Developing these on-line tutorials would form the basis for this project.

Technology-enhanced Teaching and Learning for Information Competency

These modules were developed for use by the CSU system in 1996 by Cal Poly San Luis Obispo. The modules were both tutorial and diagnostic; they covered the fundamentals of finding information and doing research; and they were used by many institutions across the country. The CSU, in partnership with ETS, and a group of eight institutions or systems from around the country are currently undertaking an updating of information competence modules. Because of the advanced work of this group, if there are funds for two projects, information competence might be viewed as a good choice for further development.

**Additional Projects for Future Consideration**

Technology-enhanced Teaching and Learning for Pre-baccalaureate English Comprehension, Reading, and Writing Proficiency

The Diagnostic Writing Service has been useful as an assessment tool; tutorial modules need to be added.

Technology-enhanced Teaching and Learning for Critical Thinking

Technology-enhanced Teaching and Learning for College-level Mathematics

*Technology-enhanced Teaching and Learning for Computer Literacy*

***Proposed Implementation Strategy***

*Management Structure for Implementation*

The assumption here is that the pre-baccalaureate mathematics proficiency project will be considered as the first “pilot” project to be initiated. Because student preparation is a systemwide issue, and because the CSU is collaborating with California’s secondary schools, this particular project has a system focus, and some efforts will likely be coordinated by the system office. The campuses, with their mathematics faculty and connections to feeder high schools, will be essential in implementing the project.

*Constituent Group Involvement in Implementation Planning*

The ELM committee and the Mathematics Council will both be involved in overseeing the implementation and assessment of the teaching and learning materials and support.

*Priorities, Timelines, and Milestones*

Because the tutorials in pre-baccalaureate mathematics have already been developed, this project will focus on the assessment of the modules, through pilot tests, the dissemination of information about the strengths and weaknesses of the three diagnostic/tutorial programs, the necessary modifications, and an information campaign to alert high school students and future CSU freshmen about the tutorials.

*Anticipated Project Costs*

- Project director
- Staff support
- Data collection, entry, and analysis
- Training of teachers and faculty to make optimum use of materials
- Providing students access to the materials and support
- Providing students access to the ELM

*Current Resources Available*

Many CSU mathematics faculty are already familiar with Academic Systems, Plato, and ALEKS. Some CSU campuses have already completed studies of the on-line modules used in CSU remedial courses.

*Future Resource and Funding Requirements*

Because the tutorials have already been developed, and because some are already customized to the CSU, future funding would not include hefty start-up costs, but would include maintenance, upgrades, contracts with vendors, faculty training, and the salary and O & E costs of running pilot studies.

### **Initiative 3: Supporting Shared Development of Digital Learning Materials**

Project Focus: Campus-focused with System Support

#### ***Initiative Description***

This initiative is designed to support the collaborative identification, development, and sharing of accessible digital learning materials within and among disciplines. The initiative is intended to support the faculty-driven identification and development of materials by teams at the campus level as well as regional and systemwide collaborations. The initiative will help facilitate the collection, organization, and dissemination of information about faculty and staff expertise that would be useful in collaborative project development, especially the pooling of faculty knowledge.

The initiative will provide start-up funding to support systemwide faculty-driven efforts that are coordinated through disciplinary councils or other ad hoc faculty teams to identify appropriate academic program needs and content areas for shared development projects. Development in this context includes both the identification of existing materials and the creation of new materials that address program needs. Successful faculty projects such as the Core Alignment Projects are producing common lower-division major preparation curriculum patterns that are a possible source of content for shared development of digital curricular materials. Faculty teams working on graduation roadmaps designed to support and encourage retention and graduation are another potential source for project development.

The success of this initiative is directly linked to the projects that provide faculty development and the support infrastructure.

#### **Expected Campus Outcomes**

1. Enhanced discussion of student learning outcomes
2. 24-hour, 7-day access to learning materials for faculty and students
3. Increased likelihood of students achieving their learning objectives if they have high quality learning materials that are easy to find and use
4. Greater student satisfaction
5. Greater size and range of electronic core collection of learning objects
6. Facilitation of the process of future on-line course development through the use of a disciplinary and interdisciplinary content repository

#### **Expected System Outcomes**

1. More efficient use of system resources

#### **Assessment of Outcomes**

- Count of faculty and students using the learning materials
- Survey of student and faculty satisfaction
- Higher course grades

### ***Proposed Projects***

There are potentially an almost infinite number of projects, given the wealth and variety of academic disciplines in the CSU that could benefit from high-quality digital materials for teaching and learning. They can be grouped into two approaches to digital materials: those already existing and those still to be developed.

#### *Identification and dissemination of e-learning materials already extant*

In this project, faculty discipline groups would review possible e-learning materials (curriculum content, instruction format, support needs, cost, etc.); work with Digital Marketplace (Initiative #8) to procure materials; identify a process for support of materials; identify a process for disseminating information and for informing faculty about materials; and finally, disseminate the information.

#### *Identification of e-learning materials that need to be developed*

There are at least three possible processes for identifying materials that need to be developed: (1) follow the RFP model developed by ITL in which discipline faculty from across the CSU campuses identify and work on a teaching-and-learning issue in the discipline; (2) focus on disciplines that have been successfully involved in the Core Alignment project and have thus indicated an interest in aligning curricula; and (3) use institutional research data to identify, across the system, courses with the largest enrollments so that the greatest number of students could benefit from high-quality learning materials.

### ***Proposed Implementation Strategy***

#### *Management Structure for Implementation*

Because this initiative is potentially quite vast, a top level of management structure should be small (one director, reporting to the Senior Director for Academic Technology), and most of the oversight should come from leaders of the various discipline groups working on digital learning materials. The top level should provide funding allocations and budget oversight and should monitor the progress of the discipline committees. The director would develop an overall template for the identification of the learning need, the identification of learning outcomes, module development, and dissemination. The director would help to assemble the support team of instructional designers computer programmers, and technical experts.

Each discipline group would identify its own chair, who would report to the director.

#### *Constituent Group Involvement in Implementation Planning*

Many disciplines within the CSU have formal and informal structures by which they communicate and disseminate information, usually through listservs or meetings. These groups should be involved, as should the academic deans, who, like the discipline groups, have formal and informal governance structures.

Priorities, Timelines, and Milestones

It would be possible to begin this initiative right away with two or three disciplines identified, using one of the methods outlined above. The optimum strategy for the discipline group would be to create a work group of course-specific faculty tasked with identifying the learning problem to be solved with technology; identify learning outcomes desired; plan modules to be developed; create specifications; create module with assistance of CDL (or Initiative #6 staff); create a plan for sharing and disseminating materials; and distribute and disseminate materials developed. This process would be monitored and assessed for insights into how to improve the process for future disciplines.

Anticipated Project Costs

- Reassigned time for faculty
- Support for technical staff (Initiative 6)
- Resources for dissemination: conferences, workshops, print materials
- Storage and management of e-learning materials

Current Resources Available

- ITL – model for RFP process in bringing together discipline faculty
- CDL – model for developing e-learning materials
- MERLOT – repository of already existing materials
- Core Alignment Project – model for aligning curricula and finding common areas of interest

Future Resource and Funding Requirements

Funding for a director, technical staff (Initiative 6), faculty reassigned time, storage and dissemination of digital learning materials.

**Initiative 4: CSU Support for Research and Application of Effective Practices in Academic Technology**

Project Focus: System-focused with Campus Support

***Initiative Description***

This initiative proposes to provide accessible services and support for CSU faculty to be informed about the results of research on academic technology and to create new knowledge on teaching with technology. Based on the teacher-scholar model in the CSU, the initiative will encourage and provide models for the scholarship of teaching and action-research projects. The initiative will thus provide support for sponsoring new academic technology research, collecting existing academic technology research, and disseminating research results within the CSU. This initiative will also provide support for collecting and disseminating examples of effective practices for developing and integrating academic technology in ways that help to lessen faculty workload. Another aspect of this initiative will seek to leverage CSU funding through grant applications to other funding agencies and cooperation with national organizations.

*Expected Campus Outcomes*

1. Faculty seeking to expand their use of academic technology will have access to a systematic database of research results, a set of occasional papers that summarize the results of research in a variety of areas, and workshops that present good practices in applying academic technology.
2. Faculty conducting research in the uses of academic technology will have opportunities to compete for CSU grants to support their work.
3. Using these sources, faculty will be able to adapt good practices to their circumstances without repetitive experimentation thus saving time and effort.

*Expected System Outcomes*

1. CSU faculty will be provided with both primary and secondary research on the uses of academic technology and with the experience of other users that identify good practices thus making the expansion of academic technology appealing from both a workload perspective and an educational quality perspective.
2. The CSU can develop a reputation for leadership in using academic technology to enhance its mission as a public university system.

*Assessment of Outcomes*

A number of quantitative measures can provide at least a sense of the achievement of outcomes over time. These would include the number of “hits” on a Web-based database of research results, the number of “subscriptions” to the series of occasional papers, the attendance at dissemination workshops, and the number of faculty applying for academic technology research grants. Ultimately, the best measure of this initiative (and the overall academic technology initiative) will be the growth in FTES in courses and programs that use technology-based or supported pedagogies. It is assumed that growth cannot and will not

occur unless faculty and students recognize that such methods either maintain or improve the levels of educational quality established with more traditional approaches.

### ***Proposed Projects***

#### *CSU Database of Research on Academic Technology*

This project would create a CSU Database of Research on Academic Technology. It could operate using a lead-campus model or as an addition to the existing CSU Institute for Teaching and Learning. At optimum operation, it should employ a director and one or more Ph.D.-level research associates to describe and evaluate extant research plus staff to maintain a database and server. The database would require an efficient search engine to allow faculty to easily access materials relevant to their needs.

#### *CSU Academic Technology Research Grants*

In time, as the CSU Database of Research on Academic Technology expands, gaps in the research are likely to be identified. These gaps could be filled in by offering research grants to CSU faculty for focused research in designated areas.

#### *CSU Occasional Papers Summarizing Research and Good Practices in Academic Technology*

Once the research database has been created and populated with a significant amount of research results, the danger exists that multiple studies will present seemingly conflicting results. The CSU should be prepared to sponsor secondary research by interested CSU faculty to evaluate the research in given areas and summarize the results in ways that will be meaningful and useful to CSU faculty

#### *CSU Workshops on Good Practices in Academic Technology*

An extension of the series of occasional papers, the CSU and/or its campuses should be prepared to develop regional or systemwide workshops that disseminate good practices in the use of academic technology. These workshops could be sponsored as part of the professional development effort in Initiative 5.

### ***Proposed Implementation Strategy***

#### *Management Structure for Implementation*

This initiative should be established under the existing CSU Institute for Teaching and Learning. The ITL is currently governed by an Advisory Board that can be charged with responsibility for project oversight. The Faculty Director of ITL, who reports to the Assistant Vice Chancellor, Academic Programs, could be given initial responsibility for implementing the initiative. However, a separate Director of Research in Academic Technology position should be established as early as possible and assigned primary project implementation responsibility.

#### *Constituent Group Involvement in Implementation Planning*

The ITL Advisory Board is composed of both faculty and administrators, from both the campuses and the Chancellor's Office. Since the focus of this initiative is delivering information, early and frequent communication about the initiative to multiple constituencies will be vital to its success. These constituencies include academic senates and the wider faculty corpus through their discipline groups, academic administrators, campus librarians,

directors of campus professional development centers, and academic technology development staff members.

Priorities, Timelines, and Milestones

Establishing the database of academic research should be the first priority of this initiative. This should include procedures for the review of current research for addition to the database and the development of an appropriate search engine to allow faculty to retrieve research results in heuristically logical ways. Once established, projects that summarize, evaluate, and disseminate the content of the database can be pursued.

The logical and physical structure of the database and search engine should be established within one year. It should be reasonably well populated with research results by the end of the second year so that projects focusing upon summarization, evaluation, and dissemination can be initiated. The project for funding further research in academic technology by CSU faculty should be the last priority, but ought to begin by the third year of the overall initiative.

Anticipated Project Cost

If implemented under optimum circumstances, this initiative would incur costs for a research director, one or two research associates drawn from the faculty, and the clerical and technical staff sufficient to develop and maintain a Web database. Funding for research grants should be obtainable from private foundations or federal sources.

Current Resources Available

Academic Programs in the Chancellor's Office has begun to collect research conducted by CSU faculty on academic technology. The resources to continue this effort and to begin the development of the logical and physical database can be found within current resources.

Future Resource and Funding Requirements

Eventually, funding for a permanent director, one or more research associates, and technical staff will be required. Funding for research grants will also be needed in three to four years.

**Initiative 5: Professional Development for Faculty, Staff, and Administrators Involved in Academic Technology**

Project Focus: Campus-focused with System Support

***Initiative Description***

This initiative supports ongoing professional development programs for faculty and for those involved in supporting and managing accessible academic technology on the campuses. In addition to faculty, constituents would include IT staff, faculty development directors, librarians, and administrators.

*Expected Campus Outcomes*

1. Faculty, librarians, and administrators interested in applying academic technologies to teaching and learning will have access to enabling programs/courses/instruction.
2. Programs will be developed to ensure that IT staff have the skills to assist faculty and administrators in creating and disseminating pedagogically sound learning materials.
3. Creation of teams that both assist faculty in the creation and/or use of materials and provide ongoing support.
4. Assist faculty in the redesign of their workload by allowing them to concentrate more on the content and less on the mechanics of academic technologies.
5. Increase in the number of courses using academic technologies. Potential to improve access by creating more on-line courses or course components.

*Expected System Outcomes*

1. An increase in on-line or hybrid courses has the potential to improve access through better space utilization.

*Assessment of Outcomes*

The success of this initiative should be evident in an increase in the number of academic technology professional development programs offered on campuses and/or sponsored by the system, and an increase in the number of faculty who have participated in these professional development programs. Eventually, the results should be evident in the appearance of new curricular projects implemented as a result of campus development projects, and more and better hybrid courses and on-line programs.

***Proposed Projects***

*Summer Development Institute*

One component of this initiative would develop a summer institute designed to bring groups of faculty members together to learn the technology necessary to develop electronic resources for their courses while planning and beginning the development of shared curricular materials. Faculty development and academic technology support personnel would attend the institute to assist in the training offered and to gain the requisite skills for providing ongoing support to faculty. This institute could be incorporated into the current ITL Teacher-Scholar Institute to derive economies of scale for both efforts.

Development Information Clearinghouse

Another component would create an information clearinghouse for faculty members and administrators. The clearinghouse project would include self-diagnostic tools, web-based tutorials, case studies, and best practices in the use of instructional technology. In addition to supporting effective teaching and learning practices, the clearinghouse would promote practices that help faculty better manage workload issues.

Cooperative Program Development

A third component would seek cost savings through cross-campus support of advanced, specialized, or train-the-trainers training to include, but not be limited to, specialized training for IT staff.

***Proposed Implementation Strategy***

Management Structure for Implementation

This initiative should be managed by the campus director of faculty development but will depend heavily on the involvement of the CIO. The creation of cross-discipline teams will be critical in ensuring that faculty can access and be supported in their attempts to infuse academic technologies into learning and teaching. System support should be provided through the Institute for Teaching and Learning in conjunction with the Office of the Senior Director for Academic Technology. Support should be focused on providing collaborative opportunities for the campuses, either through the CDL or a lead campus.

Constituent Group Involvement in Implementation Planning

The involvement of the ITAC and COLD should be sought during implementation planning. To the extent that academic policy barriers are uncovered, they should be referred to ATAC for resolution.

The Faculty Development Council would be another important resource for this initiative. This group has already developed a website on teaching at a distance and has expertise that would be helpful in the implementation planning.

Priorities, Timelines, and Milestones

Every campus has some level of faculty development in academic technology underway. Absent significant resources, priority on campuses will likely be given to the creation of cross discipline teams which could yield immediate benefit in faculty workload, by freeing faculty to work less on the how and more on the what and why of academic technologies.

Anticipated Project Costs

The current ITL Teacher-Scholar Institute, upon which the Summer Development Institute project is modeled, costs approximately \$100,000 per year and enrolls approximately 240 faculty members. An initial effort at a Summer Development Institute, offered in conjunction with the ITL Teacher-Scholar Institute could, in time, cost an additional \$100,000. The Development Information Clearinghouse should not require significant additional funding, as it can be incorporated into Initiative 4 using the same computer and staff resources.

The Cooperative Program Development project could require several million dollars to launch. However, once appropriate faculty and staff training programs have been developed, the cost to maintain them should be vastly reduced. The costs of presenting these programs should be incorporated into the faculty professional development and staff training budgets of the individual campuses.

Current Resources Available

Existing faculty development staff. Potential re-purposing of IT staff who may have been providing services that have migrated to the central data center for administrative applications.

Every summer the Institute for Teaching and Learning holds one- or two-day cross-campus workshops, some of which focus on using technology in instruction.

Future Resource and Funding Requirements

As funds become available or are redirected, increases in both the faculty development and IT staffs will be required. CSU had identified the need for a \$20M project in Professional Development but state budget realities have made that impossible. As the budget improves, CSU should have plans in place to request and allocate those funds, or more, to specific campus/system projects in professional development that have the highest potential for replicability throughout the system. However, until the CSU budget situation improves, funding of this initiative will depend on funds made available by the campuses.

## **Initiative 6: System Support for Academic Technology Development Teams**

Project Focus: Campus-focused with System Support

### ***Initiative Description***

This initiative proposes the creation and management of integrated services teams that would support faculty content experts in the development of accessible on-line learning materials or courses. Development teams would consist of staff with expertise in instructional design, interface design, media production, programming, project management, and other skills as needed for each project. Development teams would work collaboratively with one or more faculty to identify appropriate topic areas and develop pedagogically sound materials or tools that can be shared within the discipline or across disciplines. Where possible, the resulting materials will be used as prototypes to leverage resources for additional development from outside sources.

Development teams will engage in sound practices in the development of applications including definition of the learning problem and outcomes to be achieved, research of existing solutions, selection of pedagogically appropriate technologies, and user-centered design processes in developing the application. These teams could be the means of supporting the work in other initiatives in this plan, including Initiative #2: Technology-enhanced Teaching and Learning and Associated Support Services for Foundation Skills, and Initiative #3: Supporting Shared Development of Digital Learning Materials.

The scope of this initiative addresses the facilities, software, hardware, staffing, structure, and cost associated with providing high quality on-line development services across some, and eventually all, of the twenty-three CSU campuses.

### **Expected Campuses Outcomes**

1. Campus academic technology development projects would produce high quality on-line learning materials and/or courses in a timely and cost-effective manner. The requirements of “high quality” include: accessible, usable, instructionally effective, and valid content.
2. Campus faculty and staff would acquire specialized skills and knowledge in developing high quality on-line learning materials and/or courses in a timely and cost-effective manner.
3. Campus faculty and staff will spend significantly less time in developing high quality on-line learning materials and/or courses.
4. Campuses will have reliable and effective processes for identifying, evaluating, and selecting academic technologies that best suit their needs.
5. Campuses will be more effective in deploying and sustaining academic technologies.

Expected System Outcomes

1. Students, faculty, staff, and managers will have greater opportunities to learn and share a common set of best practices in the development and delivery of academic technologies, which could expand collaborations across campuses.
2. CSU System will be recognized by campuses as providing critical value to their academic technology programs. The value to campuses will be in terms of leveraging budgets, deploying reliable, and quality processes, reducing duplication of efforts, and increasing sustainability of academic technologies.
3. CSU System will be in a better position to develop improvements and customizations of academic technologies that serve CSU needs.
4. Significantly improved communications between campuses and system will reliably inform system level decisions.

Assessment of Outcomes

1. Campus capacity to develop academic technologies
2. Campus satisfaction with the value of academic technologies
3. Campus and system costs
4. Technology usage by students, faculty, staff, and administrators
5. Improved student learning, retention rates, and graduation rates

***Proposed Projects***

System Centers for Academic Technology (SCAT):

The CSU Center for Distributed Learning (CDL, currently housed at Sonoma State) will review and revise its strategic plan and operations to function as the management center for system support for academic technology development teams. The CDL has repeatedly been recognized nationally as a center of best practice in academic technology and expanding the deployment of CDL's services would enable timely progress on this initiative. The CDL will also coordinate the integration of services from: 1) other existing academic technology centers serving CSU system needs, including the CSULB Center for Usability in Design and Assessment (CUDA), and 2) other existing campus-based academic technology centers. New centers can also be proposed to serve strategic CSU needs, such as accessibility. Currently, expertise and services are diffusely distributed and the CSU needs a well-coordinated and responsive center for accessibility issues. The CDL will develop, disseminate, and deliver a comprehensive plan for SCAT.

Webservice Tools

Timely and comprehensive consultation will be critical for the successful selection, development, and deployment of academic technologies. Asynchronous, on-line tools for managing and implementing SCAT at all stages of the development and deployment will enable a large number of campus members to participate in the development, decision-making, and deployment processes cost effectively. The CDL would use MERLOT and other

tools (such as IDEAS) as its knowledge management tool for sharing the products, guidelines, services, etc.

*Focusing on High Enrollment and High Risk Courses*

There are a number of high enrollment courses where many students have significant learning difficulties. These high enrollment courses are often offered on many (if not all) CSU campuses. Developing and deploying academic technologies to increase student success in this high enrollment and high-risk courses will serve a strategic need in the CSU.

*Interdisciplinary Resources for Teaching and Learning*

The CSU CDL and San Jose State have initiated the IMAGE project which provides both the content and the tools for cataloging a digital collection of images in the arts and architecture. Tools and processes for building digital collection of images can be applied to disciplines in natural sciences, engineering, humanities, health and human services, and social sciences and can make the vast collections of images that faculty have developed for their individual courses and research available to other CSU faculty and students within and across disciplines.

*Implementing MERLOT in the CSU*

The CSU has established MERLOT (Multimedia Educational Resource for Learning and Online Teaching at [www.merlot.org](http://www.merlot.org)) as an internationally recognized resource for supporting academic technology development and use. Faculty, staff, librarians, students, and administrators are finding materials in MERLOT that they can use immediately rather than having to develop on their own (no need to reinvent the wheel). Materials in MERLOT can also become models for developing new on-line materials. The CDL would coordinate a major outreach and training program to increase the awareness and skilled use of MERLOT as a resource for campuses and system projects.

*More CATS*

The CSU CDL has established CATS (Community of Academic Technology Staff) as a nationally recognized model for sharing best practices, professional development, and ongoing support services for campus-based academic technology projects. CATS would be expanded and tailored to serve the on-going support needs of system and campus academic technology teams.

***Proposed Implementation Strategy***

*Management Structure for Implementation*

This initiative should be established under the existing Information Technology Services (ITS) Department at the CSU Chancellor's Office. The Senior Director of Academic Technology Support, who reports to the Assistant Vice Chancellor, Information Technology Services could be given responsibility for directing the initiative. The Director of the CSU CDL would be assigned primary project implementation responsibility.

### Constituent Group Involvement in Implementation Planning

Academic technologies affect distinct constituent groups within the campus community. Representatives from ITAC, Directors of Academic Technology, CSU Faculty Development Council, Directors of Academic Technology, Community of Academic Technology Staff (CATS), and CSU discipline and deans councils would provide comprehensive analysis and recommendations.

### Priorities, Timelines, and Milestones

Expanding the deployment of current system support should be the first priority of this initiative. Campuses can benefit immediately from the best practices that currently reside in the CSU. A plan for the expanded deployment would be delivered by end of first semester in year 1 with implementation beginning in 2<sup>nd</sup> semester of Year 1. Concurrently, the CDL, in consultation with a wide range of constituents, would produce a plan for the System Centers for Academic Technology by the end of Year 1. Year 2 would begin the new organizational infrastructure for supporting existing projects. Planning new projects (High Enrollment and High Risk; Strategic projects for strategic priorities) would be initiated.

### Anticipated Project Costs

Approximately \$2 million per year in the next 3 years would support the staffing, facilities, and operational costs, including shared support for campus participation in projects.

### Current Resources Available

The CDL has many segments of the required expertise to support academic technology development teams and is already doing so. The CDL is funded by ITS and is currently available for implementing a number of projects to some degree. CUDA has the facilities and expertise available to support the assessment and evaluation of the usability and design of CSU projects.

### Future Resource and Funding Requirements

Although some academic technology initiatives will result in on-line materials or courses that could have significant commercial value, most of the return on investment for the CSU expenditures will come in the form of improved retention and graduation rates, and less time spent on materials development. It is anticipated that the level of system-level support required for academic technology teams will decrease over time as the technology becomes more usable and the campus communities become more skilled.

## **Initiative 7: The Academic Technology Shared-Services Environment**

Project Focus: System-focused with Campus Support

### ***Initiative Description***

This initiative would plan, develop, and implement an accessible CSU e-learning architecture or “e-learning framework” design. This framework is a conceptual model that would describe the kinds of hardware, software, and middleware technologies and specifications necessary to establish a fully integrated and interoperable system. This system would collect, store, access, and distribute collections of multimedia, digital academic content, and services ranging from instructional materials and resources to complete course modules and/or complete courses to library learning materials for the CSU.

The support staff and facilities required for sustainable operations and the governance processes required to develop and deliver digital collections and services that serve the teaching and learning needs in the CSU will also be important elements of the project. The e-learning framework would identify common standards for file formats and data transmission protocols to ensure that instructional and library learning materials developed or procured anywhere in the CSU could be made available and used anywhere else in the system whether they contain text, alpha-numeric data, graphics, photographs, sound clips, video, other media, or interactivity.

In establishing systemwide, if not national, standards and open resources, the project would also facilitate the purchase of commercial products necessary for overall system implementation. (Development of proprietary products, while less desirable, could be undertaken in specific cases.) It would also support the continued development and delivery of existing and new systemwide electronic core collection of academic materials, resources, and services to support and facilitate course and curricula activities throughout the CSU. It continues to make sense economically to provide central financial support for these resources to spread the cost evenly over more than 400,000 users. The CSU Libraries’ Electronic Core Collection, Pharos Interface, MERLOT, and processes for managing the resources and services provide excellent models to guide the planning of the project.

### **Expected Campus Outcomes**

1. A user-centered approach for provision and utilization of all components and support services for teaching and learning that can be achieved or enhanced with technology.
2. A cadre of colleagues on the campus and on every other CSU campus who are familiar with and use the same shared-services environment.
3. The achievement of learning outcomes with a minimum of process impediments.

### **Expected System Outcomes**

1. Establishment of a set of quality standards for technology support for teaching and learning that can be leveraged systemwide.

2. The provision of shared support for those elements of the services environment that are common among the campuses and will relieve campuses of the need to provide such support locally.
3. The capability to leverage the buying power of the total CSU to acquire hardware, software, and expertise to support and enhance the shared services environment.

Assessment of Outcomes

1. Customer satisfaction surveys of faculty and students via the Measures of Success program
2. Adoption of systemwide standards for course sharing and utilization
3. Widespread adoption of campus portal technology and interoperability of campus portals throughout the system
4. Increase in acquisition of proprietary products with corresponding decrease in unit costs for campuses

**Proposed Sub-projects**

Interoperability standards development

Campus portal minimum baseline standards

Statement of Shared Services Environment framework benefits

Survey of best practices for campus portals

Survey of existing standards (IMS, etc) for CSU adoption

**Proposed Implementation Strategy**

Management Structure for Implementation

Implementation planning would be supported by the ITS organization within the CO in conjunction with the campus CIO group (ITAC) and a set of implementation planning teams populated with campus staff and faculty. Heavy utilization of campus Academic Technology staff is envisioned by capitalizing on the existing “CATS” organization.

Constituent Group Involvement in Implementation Planning

Primary constituent group involvement would come via ITAC, CATS, Directors of Academic Technology, and ATAC. Faculty and academic administrators will need to be included to provide information about requirements for teaching and learning.

Priorities, Timelines, and Milestones

Initial work would begin with the survey of best practices and existing standards that would jump-start much of the foundation components of the Shared Services Environment. This would be followed by the development and adoption of standards and guidelines for the Environment which are prerequisite to the specific implementation projects that would need

to be completed for the Environment to be in place. Finally, those projects would be undertaken and completed and become the accepted best practices for shared use of user centered academic technologies. This process should take between 2 and 3 years from inception, but benefits could begin to accrue as soon as standards and guidelines are adopted and utilized with existing services.

Anticipated Project Costs

Primary costs will be in the reassignment of existing staff to survey work, standards development, and project implementation. It would not make sense to hire staff or consultants to do this work since the experience gained will be needed in the development and maintenance of the new Environment.

Some funding will be required to acquire software and some hardware that is not currently in use at the CSU. The cost of these acquisitions has not yet been estimated.

Current Resources Available

Most of the resources required are currently available in campus IT and academic technology staff as well as in the CO. Again, the issue is the need to reassign these individuals to work on this project until it is completed.

Future Resource and Funding Requirements

It is anticipated that existing staff will take on the majority of activities required both for the development and the maintenance of the Shared Services Environment. Many of these staff have current duties and skill sets similar to what will be required for this project in the future. Also, campuses have permanent budgets that support hardware and software acquisition today, and these funds will be used in the future to support new acquisitions according to the standards and guidelines. These funds should “go further” in the future, as they will benefit from CSU-wide acquisitions.

## **Initiative 8: The CSU Digital Marketplace**

Project Focus: System-focused with Campus Support

### ***Initiative Description***

The initiative will develop and deploy accessible administrative services that enable individuals and organizations of faculty, staff, and students to (a) identify and describe their academic technology needs, (b) find and procure academic technology solutions cost effectively, and (c) deliver academic technology solutions easily, efficiently, reliably, and accessibly.

The CSU Digital Marketplace and Services initiative will develop the capability and means to deliver the following types of capabilities for the CSU campuses:

- Identify systemwide opportunities for currently used and new academic technology products and services with a view towards providing campuses with academic technologies in a cost-effective manner.
- Act as a collaborative function to provide leverage with vendors for campus academic technology products and services, resulting in reduced costs through “volume” negotiations with vendors. The collaborative function would also reduce campus assessment and procurement time and costs by coordinating expertise and resources in the procurement processes.
- Serve as the CSU center of academic technology information and expertise through a repository (database) of product/vendor/service information. The CSU Digital Marketplace and Services will provide centralized information on campus experiences with academic technologies, demonstration services for campuses to learn about new academic technologies, and guidance on implementing academic technologies and vendor relations.
- Provide a one-stop, web-based shopping service for the procurement and distribution of academic technology products and service, resulting in the coordinated development and delivery of academic technology products and services on a systemwide basis. Strategies and best practices for disseminating and educating campus communities about the availability and use of academic technologies would be important features of these services.

### **Expected Campus Outcomes**

1. Affordable academic technology products and services will be readily available to support faculty and students in achieving their teaching and learning objectives and to support managers and staff in achieving their administrative objectives.
2. Campuses will have reliable and effective processes for identifying, evaluating, and selecting academic technologies that best suit their needs.
3. Campuses will be more effective in deploying and sustaining academic technologies.
4. Campus staff will have a significantly reduced workload in negotiating and managing academic technology contracts.
5. Campuses save on procurement of academic technologies.

### **Expected System Outcomes**

1. Students, faculty, staff, and managers will have greater opportunities to share a common set of available academic technologies, which could expand collaborations across campuses.
2. Funding streams to manage the CSU Digital Marketplace will be derived from the contract savings and will not deplete campus funds.
3. CSU System will be in a better position to demand improvements and customizations of academic technologies that serve CSU needs.
4. Significantly improved communications between campuses and system will reliably inform system level decisions.

### Assessment of Outcomes

1. Campus savings
2. Campus satisfaction with value of academic technologies
3. System costs
4. Technology usage by students, faculty, staff, and administrators

### **Proposed Projects**

#### Campus Consultation Network and CO support:

The success of this initiative will be dependent upon campuses' abilities to: 1) articulate the needs of their campus that can be addressed by academic technology, 2) evaluate candidate technologies for serving their needs, and 3) commit to the acquisition and deployment of the academic technologies. Each campus must establish its campus coordinator for communications and decisions in this initiative. A team of campus and CO people will be required to administer the Digital Marketplace and integrate campus input into acceptable plans, priorities, and processes. Developing the organizational infrastructure within and between campuses and the CO is the goal of this project.

#### Webservice Tools

Timely and comprehensive consultation will be critical for the successful procurement, deployment, use, and management of academic technologies. Asynchronous, on-line tools for managing and implementing the CSU Digital Marketplace at all stages of the procurement and deployment processes will enable a large number of campus members to participate in the decision-making processes cost effectively.

#### Consolidating Existing Contracts For Lower Costs

Campuses' current academic technology contracts would be examined for possible consolidation to improve the pricing and level of services for participating campuses.

### ***Proposed Implementation Strategy***

#### ***Management Structure for Implementation***

This initiative should be established under the existing Information Technology Services (ITS) Department at the CSU Chancellor's Office. ITS is currently advised by ITAC (Information Technology Advisory Council - Campus CIO's) and COLD (Council of Library Directors) and these council's currently participate in the planning and implementation of systemwide procurements. ITS also works closely with the CO's Department of Grants and Contracts. The Senior Director of Academic Technology Support, who reports to the Assistant Vice Chancellor, Information Technology Services could be given initial responsibility for initiating the initiative. However, a separate Director position should be established as early as possible and assigned primary initiative implementation responsibility.

#### ***Constituent Group Involvement in Implementation Planning***

Academic technologies affect distinct constituent groups within the campus community. Representatives from ITAC, ATAC (Academic Technology Advisory Committee), CSU Faculty Development Council, Directors of Academic Technology, COLD, Community of Academic Technology Staff (CATS), and the bookstores would provide comprehensive analysis and recommendations.

#### ***Priorities, Timelines, and Milestones***

Building the campus consultation network and administrative team should be the first priority of this initiative. Once the organizational infrastructure is established, along with policies and procedures for governing the initiative, web-based tools can be designed or selected to meet the needs of the people and the initiative. With the people and tools in place, the CSU would be ready to effectively and efficiently procure and deploy selected academic technologies in a reliable and effective manner. The organizational infrastructure can be developed in the 1<sup>st</sup> semester of year 1 and the majority of the web-based tools completed by the end of year 1. Development and negotiations of systemwide contracts would begin starting in year 2. The CSU Digital Marketplace would be in full operation by the end of year 2, with both contract consolidation and strategic technologies subprojects producing beneficial, systemwide contracts for academic technologies.

#### ***Anticipated Project Costs***

Developing or contracting for webservice tools and CO staff support will be the major costs.

#### ***Current Resources Available***

Some staffing and tools are currently available but are not configured to conduct the planning and implementation for the CSU Digital Marketplace. SEIR (Systemwide Electronic Resources) department, and Grants and Contract department in the CO can provide some staff support.

#### ***Future Resource and Funding Requirements***

Eventually, funding for the CSU Digital Marketplace will be self-funded/sustained through the accumulation of administrative fees for developing, negotiating, and managing the academic technology contracts.

### **VII. POLICY, PRACTICE, AND CULTURAL IMPEDIMENTS TO IMPLEMENTATION**

Much effort, nationally and within the CSU, has gone into the study of obstacles or impediments to the use of technology to support teaching and learning. Much of this work has offered conclusions that fail to clearly identify obstacles and impediments for fear of alienating the groups or individuals responsible for or associated with their existence. Thus, the recommendations offered for their removal tend to be equally non-specific and unworkable.

Any new effort to identify and remove impediments must start from the premise that these impediments exist in our formal policies and our informal practices, and are embedded in the culture of our campuses. Everyone on a campus and within the system has contributed to the creation of these impediments and everyone must participate in their elimination. Thus, each campus should conduct an audit of its current AT projects to determine the policy, practice, and cultural impediments to the use of academic technology that exist on that campus. The format for the campus audits should be developed by the systemwide coordinating group described below to insure comparability of findings. The results of these audits can then be collected by the Academic Technology Advisory Committee (ATAC) and collated into a report with specific recommendations for change.

### **VIII. ALIGNING THE REWARD STRUCTURE WITH THE EXPANSION OF ACADEMIC TECHNOLOGY**

Closely connected to the challenge of addressing and removing impediments to the use of technology to support teaching and learning is the need to create incentives for such use. Whether incentives are focused on entire institutions (campuses), units (colleges or departments) or individuals (faculty), they can only have positive effect if they are aligned with goals for improving performance. That is, it must be clear that the behaviors that are being encouraged and incentivized benefit the users in the accomplishment of their work. For entire institutions, for example, those benefits must map to such strategic goals as fostering student success and improving progress to degree. For individual faculty, for example, the benefits must relate to considerations of educational quality and the distribution of personal workload.

Moreover, offering incentives also means providing proof that what is being sought – that is, the greater use of technology to support teaching and learning – strengthens abilities better to fulfill institutional goals and plans and to equip faculty with pedagogical tools and resources. It is not enough, for example, merely to claim that instructional technology will “substantially free faculty from the tasks of course preparation and delivery thus providing more time for individual interaction with students and instructional design, development and production activities” or that it will “make learning experiences more productive and efficient for students” (CSU Report, “Removing Obstacles to the Use of Instructional Technology,” August, 1995). Any attempts, in particular, to incentivize the transformation of faculty roles and responsibilities with respect to the use of academic technology require willingness on the part of the faculty and evidence of positive consequences for themselves and their students.

There are several “readiness” measures and commitments that the CSU and its campuses can undertake in order to strengthen the prospects for both the greater use of academic technology and the teaching and learning transformations that can occur from it. These include:

- Ensuring that the starting point is teaching and learning, not technology
- Informing faculty of the potential and benefits of academic technology for teaching, learning and workload; this particularly involves the articulation of a technology vision that is clearly linked to strategic goals and priorities and that flows from broad buy-in and an inclusive decision process
- Designing policies and practices to support faculty who want to use technology in the delivery of their courses, including recognition of the efforts associated with gaining comfort and expertise and how such activity relates to the “scholarship of teaching” and professional development in RPT criteria and processes
- Providing the e-learning infrastructure and appropriate support services for faculty who are delivering mediated instruction and/or redesigning their courses and improving their pedagogical skills through the use of new technology
- Communicating models of success and emphasizing scalability (but not necessarily commonality) as a factor in considering projects/initiatives to be supported
- Utilizing “leverage” points to support the technology vision, including the design and construction of new facilities, the design and development of new curricula, the recruitment and support of faculty, the recognition and reward of campus leaders (faculty, staff, administration) who advance academic technology

There is no doubt that both institutions and individuals will be affected and motivated by different incentives and arguments. Money, for example, is not the only “carrot.” Nor will the “case” for academic technology be so self-evident that it will sweep aside all skeptics and defenders of the status quo. An academic technology plan must not only be strategic in terms of goal and vision mapping, but also to the steps to get there. Incentives to encourage activity and to reward positive outcomes are integral steps of a strategic approach.

### **IX. STRATEGIES FOR IMPLEMENTATION GOVERNANCE**

The Executive Council has expressed the desire that the implementation of the plan to expand academic technology in the CSU be the administrative responsibility, at both the campus and system levels, of the CSU Vice Presidents for Academic Affairs/Provosts. Accordingly, the Academic Council has created a Provosts’ Technology Steering Committee (PTSC) to perform the leadership function in this arena that the Technology Steering Committee (TSC) performs for the Executive Council. This group, responsible to the Academic Council and to the Executive Council through the TSC, would be the management group for the project.

The plan for expanding academic technology in the CSU was developed by the ad hoc Academic Technology Planning Committee (ATPC). This group represented the key constituencies concerned with the application of academic technology to teaching and learning. To provide the communication and feedback necessary for a systemwide priority initiative, the overall implementation advisory process should be coordinated through a group similar to ATPC.

Therefore, it is recommended that the ATPC be reconstituted as the Academic Technology Coordinating Committee (ATCC) with the same constituent representation as ATPC, but including all members of the Provosts' Technology Steering Committee. By including members of the PTSC as well as representatives from the vice presidents for student affairs, the Academic Senate, ATAC, ITAC, the Faculty Development Council, the Council of Library Directors, and the California State Student Association, this group will be able to receive broad input in coordinating the implementation of various projects.

The implementation of each individual initiative should begin with the appointment of an Initiative Management Team with composition appropriate to the campus or system focus of the initiative. This team should begin its work by developing an Initiative Feasibility Study that would clearly define the scope of effort and resource requirements for that initiative. This should be followed by the development of a detailed Initiative Implementation Plan that should address expected outcomes, timelines, funding sources, and assessment plans for the project. These plans should be completed as expeditiously as possible based upon implementation priorities.

#### **X. CAMPUS PROJECT MANAGEMENT STRUCTURE**

Each CSU campus is at a slightly different place in using academic technology to enhance teaching and learning. The campuses also differ on the relationship between academic affairs and information technology services. There are further variances in how faculty professional development is organized and managed on each campus. For these reasons, campus project management structures will be unique to each campus.

Nevertheless, there are commonalities in these management structures that should appear. On each campus, the vice president for academic affairs/provost will be the leader and champion of the expansion of academic technology. In addition, the implementation process will work through and respect the normal governance processes on each campus.

#### **XI. RECOMMENDATIONS**

1. Given budget constraints and resource limitation, immediate implementation of this program should focus upon four of the eight proposed initiatives. Two of these are primarily campus-focused with system support and will consolidate existing projects, address immediate needs, and provide early benefits to the campuses and the CSU system. These initiatives are:
  - Initiative 1: Supporting Student Excellence and Success in the CSU
  - Initiative 2: Technology-enhanced Teaching and Learning and Associated Support Services for Foundation Skills

The other two initiatives recommended for early implementation are system-focused with campus support. They will establish an e-learning framework and acquisition structure to support the other six projects. These initiatives are:

- Initiative 7: The Academic Technology Shared-Services Environment
- Initiative 8: The CSU Digital Marketplace

2. Implementation planning should begin for the other four initiatives so as to encourage the continuation of existing efforts that support these projects and so that they can be accelerated as soon as new resources are available. These four projects are:
  - Initiative 3: Supporting Shared Development of Digital Learning Materials
  - Initiative 4: CSU Support for Research and Application of Effective Practices in Academic Technology
  - Initiative 5: Professional Development for Faculty, Staff, and Administrators Involved in Academic Technology
  - Initiative 6: System Support for Academic Technology Development Teams
3. The Academic Technology Planning Committee should be reconstituted as the Academic Technology Coordinating Committee (ATCC) and augmented by the members of the Provosts' Technology Steering Committee (PTSC). ATCC should be assigned the responsibility for oversight of the implementation process and should report regularly to the Academic Council and the Executive Council through the Technology Steering Committee.
4. Implementation of each initiative should begin with the formation of an Initiative Management Team that would begin its work by developing an Initiative Feasibility Study and a detailed Initiative Implementation Plan. These studies and plans should be presented to ATCC within six months for the first priority initiative and within one year for the second priority initiatives.
5. Campuses should be expected to complete within one year, an audit of current academic technology projects to determine the resources that could be made available to support the initiatives in this plan. In addition, the policy, practice, and cultural impediments to the use of academic technology should be identified. This report should be submitted to the Academic Technology Advisory Committee, which would then be responsible for collating and analyzing the results and making recommendations for changes to remove significant impediments.
6. Each campus should be given the flexibility to organize its academic technology project management structure in ways that are appropriate to the culture of the campus and the progress it has already made. That said, each campus should also engage in a comprehensive analysis of its readiness to significantly expand academic technology including evaluation of its physical facilities, its staff expertise, its curricular requirements, its faculty's vision for the use of technology, and its recognition and reward structures for faculty, staff, and administration who advance academic technology.