

## Standard III.C Technology Resources

### **III.C**

*Technology resources are used to support student learning programs and services and to improve institutional effectiveness. Technology planning is integrated with institutional planning.*

### **III.C.1**

*The institution assures that any technology support it provides is designed to meet the needs of learning, teaching, college-wide communications, research, and operational systems.*

### **Descriptive Summary**

Technology support at the College of San Mateo is designed to meet the needs of a “student-focused, teaching and learning institution” that “educates students to participate successfully in a changing world” in accordance with the college’s Mission Statement (Ref. 4). College of San Mateo recognizes the increasing importance of technology in meeting the ever-changing needs of the students and community that it serves. The college has integrated technology into the student learning process, administrative services, and support activities (Ref. 1).

Information Technology Services (ITS), serving all three colleges, supports CSM’s technology infrastructure and is located at the district office. ITS and the colleges coordinate with each other in making decisions about technology support whenever consensus is needed district-wide.

Distance learning courses at the College of San Mateo consist of more than 75 television and online courses. Telecourses are pre-produced television courses broadcast on KCSM-TV and available on tape in the College of San Mateo Library. College of San Mateo telecourses are transmitted over KCSM-TV, Channel 43, a digital Public Broadcasting Services station, licensed to the San Mateo County Community College District. KCSM is a district-wide resource available to all colleges in the district. Studios are located on the CSM campus, and the transmitter is on Mount Sutro in San Francisco.

Support services for distance learning are located on campus, and staff members are available to answer questions by phone or email during the day. KCSM maintains the distance learning website (Ref. 2). College of San Mateo is committed to increasing its ability to provide services to students through distance education. Indicators of this commitment from the Distance Education Advisory Committee include reviewing hardware and software such as Black Board, eCollege, and Moodle to assist faculty in the development and implementation of online courses (Ref. 33).

At the College of San Mateo, the Center for Teaching and Learning (CTL) is available to administrators, staff, and faculty 24 hours per day, five days a week with accessible door codes; however, the CTL has no dedicated classroom. The Center for Teaching and Learning provides technological support for administrators, faculty, and staff for projects involving instruction and student services. The Center for Teaching and Learning also provides a web-based tutorial service for administration, faculty, and staff along with WebReady online courses available to students (Ref. 3).

District Instructional Technology Services and Support Group technicians maintain, deliver, and set up faculty-requested instructional equipment. With more than 22 new SMART classrooms, equipped with a projector and wireless connection, requests for support services for delivery and set up have declined due to training for faculty provided by the CTL on the use of technology in the SMART classrooms. Use of the centralized dispatch and online help desk customer service center has expedited day-to-day services. Faculty and staff are able to post help tickets online, and these are then routed to the appropriate people who respond to these requests. College of San Mateo has outfitted the science building, Building 36, with fully operational SMART classrooms (Ref. 8).

In addition, the college has district-wide communication capabilities with an employee email distribution list and email newsletter, CSM Internal, (Ref. 30) that includes announcements, calendars, and accomplishments.

The campus decision-making process with regard to technology is evaluated at the district level through Information Technology Services (ITS), which has overall responsibility for administrative functions and which advises on other technological matters. Input on matters related to technology and institutional research are discussed at the District Research Council (DRC), which is comprised of researchers from the three campuses as well as the vice chancellor of education services and planning and representatives from ITS. With the assistance and input from the District Instructional Technology Council (DITC), faculty and staff are able to evaluate specific program technology needs such as content management systems, podcasting, and other emerging technologies. DITC, a district-wide ad hoc committee, is comprised of faculty, staff, and administration; it demonstrates new technology to all three colleges (Ref. 5).

The college makes decisions relating to the investment in general technology for administrative, instruction, and student services functions and general student support through collegial discussions in venues such as College Council and Budget Subcommittee. Equipment allocations are discussed in similar venues. The college generally receives funding via bond money, grants, or instructional equipment funds.

Due to the increasingly integrated nature of technology, the process for selecting and acquiring technology solutions has become more unique. In developing a technology-based response, the college conducts a series of typical activities: program review; preliminary discussions with the end users/departments to clarify the needs and breadth of the project; identification of potential hardware and/or software providers and, if appropriate, demonstrations of technology solutions; and evaluation of alternative solutions involving department/end-users and college and district information technology staff, to ensure that the college meets program goals and that solutions remain fiscally practical. With both equipment/software acquisition and outsourcing to third-party solutions, the college and district procurement processes include review and approval steps to ensure both compliance with the Americans with Disabilities Act, Section 508 and compatibility with college and district networks, systems, and standards. This is an informal process between CSM's purchasing department and ITS.

In addition, the college's Technology Advisory Committee (TAC), formerly the Computer Technology Advisory Committee, which consists of administrators, faculty, staff, and students, meets periodically; it is charged with providing a prioritized technology plan for College Council's concurrence. This plan includes strategies and action steps for each year. The TAC has responsibility for updating the technology plan, originally named Technology for 21st Century Learning, which was created in 1995, revised and expanded in 2002, and most recently reviewed and updated in 2007 (Ref. 6).

The college is primarily PC-based, and CSM has developed and implemented a wide range of technology-based improvements. Notable improvements include an increase in the number of technology-supported, i.e., SMART classrooms and computer laboratories; improvements in the Assistive Technology Center (computer access for students with disabilities); the creation of wireless "hot spots" available in 16 buildings on campus; and a district-wide phone system upgrade in 2005 (Ref. 8).

On campus, the college provides its students and faculty with 16 Macintosh and PC computer-based labs, most of them with access to printers. Faculty and students can obtain information about the computer-based labs at College of San Mateo's website (Ref. 9).

College of San Mateo Library is open six days per week, serving day, evening, and weekend students. Additionally, students and faculty can electronically access the library through College of San Mateo's website 24 hours a day from any internet location. The library provides the ability to answer reference questions in person and at remote locations. For those students who do not have computers at home, the college makes electronic access to the library available on campus from computer labs that have internet access, along with wireless "hot spots" around campus. In addition, the library subscribes to various online database resources (Ref. 10) and belongs to the Peninsula Library System, which includes more than 30 public libraries and branches in San Mateo County.

The college continues to build a strong campus network and technology facilities, and technology will continue to be an important consideration in the planning of additional campus buildings provided for by the passage of two local bond measures in 2001 and 2005 (Ref. 11). In all instructional laboratories, the college employs backup technology that provides images of computer configurations to refresh computers to their original configuration each semester or as needed. Additionally, the college has firewall security between internet access points and campus networks and between instructional and administrative technology facilities and subsystems. The college protects student administrative records in a secure fire-walled district data center along with off-site backups.

In 2005, San Mateo County Community College District was recognized for its ongoing commitment to saving energy and money and protecting the natural environment with a Pacific Gas and Electric Company's Flex Your Power Award. The Flex Your Power Awards originated in 2001 to acknowledge outstanding leadership in energy efficiency that helped California through the energy crisis (Ref. 15). Technology such as the use of networked building controls is a key part of the district's power management.

### Assessment

College of San Mateo partially meets this standard. The college has progressed significantly since its last accreditation in the acquisition and operation of technology in support of its goals and student learning objectives. The college has expanded and improved computing, telecommunications, and fiber optic capabilities. With program and discipline assessment and planning for technology varying greatly, the college has been able to create a truthful overview of the technology needs of the campus. However, for some areas such as the Center for Teaching and Learning, distance education, and faculty computers, CSM does not possess a consistent model of resource allocation and support mechanisms to maintain technological standards. A financial mechanism needs to be implemented to assure annual funding for campus technology needs.

In the area of online instruction and distance learning, training is lacking for faculty, and budget constraints limit purchasing of software and hardware required to implement and maintain online courses. Distance learning staff members provide support services Monday thru Friday, but this support does not include evening and weekend hours.

No interaction to help inform the CSM Technology Plan seems to exist between DITC and TAC. If both committees met and actively interacted, the college's technology plan and its relationship to other technology planning in the district would be clear.

### Plan for Improvement

- Explore ways to assure adequate funding for technology and related needs.

### III.C.1.a

*Technology services, professional support, facilities, hardware, and software are designed to enhance the operation and effectiveness of the institution.*

### Descriptive Summary

Technology-based services, professional support, facilities, hardware, and software are all selected and designed to enhance College of San Mateo's operation and effectiveness as an institution of higher learning. The college views technology as essential to the success of its programs and services (Ref. 5, 6, 12, 13).

The college's operation and facilities have been enhanced by the ongoing introduction of new technology. The recent passage of two facility bond measures (Ref. 11, 14) has created the opportunity to introduce numerous technology-based enhancements, including SMART classrooms with wired and wireless network connectivity, VGA projectors, laptop computers, and VCRs and DVD players; faculty laptops; a new telephone system; and substantial improvements to the campus and college district network such as implementing Gigabit Ethernet and upgrading to Cisco-managed switches. To create a more comfortable learning environment, the college upgraded to an electronically monitored lighting system and heating, ventilation, and air-conditioning (HVAC) system (Ref. 15).

Regarding instructional technology, the 2001 accreditation team report identified limited technical support and maintenance as issues. At that time, faculty and administrators expressed concern that the college needed additional technical support staff. Competition from the private sector for trained personnel and salary differentials continues to make staff recruitment a challenge.

A commitment to creating and advancing a web-based infrastructure, i.e. WebSMART for student services and instruction, has improved access for students, faculty, and staff. The Center for Teaching and Learning (CTL) provides instruction in the use of technology and conducts workshops and drop-in services to aid faculty and staff in the effective use of computers (Ref. 3). In response to privacy concerns expressed by students and staff, the key student/employee identifier in the administrative information system, Banner, was changed in spring 2004 from a social security number to a generated identifier, referred to as a G number.

Information Technology Services (ITS) provides offsite backups for administrative systems such as student, financial, and human resources data. Through an ongoing commitment to use document-imaging technology, a significant amount of paper records has been preserved and indexed. The digitized documents, including admissions and records as well as financial aid documents, are saved on a variety of magnetic media and duplicate copies are stored at a remote location.

The introduction of wireless-based internet connectivity continues to enhance access for students and faculty. An ongoing plan to add Wi-Fi (802.11x) capabilities to all college facilities was begun in 2004 (Ref. 8). As of fall 2006, the new Building 36 and remodeled Buildings 9 and 18 are equipped with wireless technology. There are numerous other wireless hot spots throughout the campus, including Buildings 1, 3, 5, and 17. Through the Facilities Master Plan, all new and renovated buildings will be equipped with wireless technology.

Hardware and software have been adopted to meet the needs of students, faculty, and support staff. Increased network accessibility has meant that faculty can utilize web pages as a means of communication with students. SMART classrooms have enhanced audio/visual support for lectures and presentations.

The college's data network includes firewall technology to protect the system from unauthorized intrusion. Sensitive documents accessible online are password-protected and are only available after successful completion of a log-on process. Software to filter out computer viruses is used at both the server and desktop levels. An increasingly sophisticated spam filter greatly reduces the amount of unwanted email received.

In 2002, a web-based interface was added to the college's Banner administrative system called WebSMART. Since its creation, it has been enhanced many times to include numerous self-service functions for both students and faculty. Students can conduct basic registration functions such as enrolling in classes and paying fees. Recent additions and improvements have also allowed students to request official transcripts and view detailed course information. Faculty use WebSMART to obtain class lists, enter grades, provide census information, and obtain student contact information (Ref. 29).

The district's Enrollment Services Committee (ESC), comprised of admissions and records deans and staff from all three colleges, meets monthly with ITS staff to review, recommend, and implement changes within WebSMART, such as online grading, placement scores, and official transcript requests (Ref. 31). The Academic Senate Governing Council of the college requested that ESC review and re-instate the student waitlist for courses; as a result, an improved waitlist procedure will be implemented at all three colleges in fall 2007 (Ref. 32).

The District Education Advisory Committee (DEAC), comprised of administration, faculty, staff, and students from all three colleges, is currently in the process of evaluating several commercially available course management system (CMS) programs such as Blackboard, eCollege, and Moodle. DEAC was formed as a result of the need to increase online courses and identify training methods for the faculty. DEAC is currently in the process of evaluating several commercially available course management systems (CMS). It is important to select a system that encompasses the functions that are now provided through several individual pieces of software not specifically designed for the purpose of organizing and monitoring course work. This new tool will assist faculty in integrating traditional teaching methods with non-traditional, technology-supported methods.

#### Assessment

College of San Mateo meets the standard. The college must improve its technology-based infrastructure as it adopts new software and hardware standards. As a result of the TAC and ESC identifying, recommending, and implementing improvements to software and hardware to meet college needs, funding for these improvements will be critical.

DEAC has been reviewing content management systems, and a decision on the system that will best meet district needs is imminent. Selecting and implementing a course management system will improve efficiency, help standardize presentation templates, and enhance the learning experience, benefiting both students and faculty.

College of San Mateo has backup systems in place and is using acceptable performance standards for reliability, disaster recovery, privacy, and security.

#### Plan for Improvement

None needed at this time.

#### **III.C.1.b**

*The institution provides quality training in the effective application of its information technology to students and personnel.*

#### Descriptive Summary

Course offerings from basic keyboarding to sophisticated artistic, business, and scientific applications provide information technology training to students. A readiness website (Ref. 3) offers students greater opportunities for success with online, web-based instruction. Many departments require basic keyboarding skills as a prerequisite to entry-

level classes. Several departments, including the Business and CIS (Computer and Information Science) Departments, offer these basic classes (Ref. 16).

College of San Mateo is committed to maintaining the Center for Teaching and Learning (CTL) and the Information Technology Services HelpDesk (Ref. 8) as vital resources for faculty and staff. The Center for Teaching and Learning provides faculty members with hardware, software, training, and technical support to allow them to effectively use technology to improve student learning. Students benefit directly by having knowledgeable and trained faculty and staff (Ref. 3). The ITS HelpDesk allows faculty and staff to receive help and report technology problems.

Although the college allocates space in Building 17 for the CTL to maintain a drop-in laboratory for faculty and staff, it does not currently have a dedicated classroom. CTL workshops must be conducted at the district office or at the other colleges in the district. CSM faculty and staff attendance might be improved with an easily accessible training facility; such a facility has been included in the master facilities plan (Ref. 1).

CTL has conducted surveys with faculty and staff about their technology training needs. The CTL and HelpDesk also track satisfaction levels of the training provided. Information presented at administrative forums is also used as a basis for planning technology workshops (Ref. 27). The Center for Teaching and Learning provides technology workshops on campus for faculty and staff. Workshops on a variety of topics are held on an ongoing basis, and CTL staff members provide training in a small group setting or one-on-one in the CTL lab in Building 17. Examples of workshops that have been offered include Using Dreamweaver, Online Quizzes with Test Pilot, Using WebSMART and Gradekeeper, and Word to Web (Ref. 3).

The Information Technology Services HelpDesk provides effective support for technology issues. With the introduction of a web-based interface in 2003, identifying help needs articulated by administration, faculty, and staff and communicating them to the technicians has been greatly enhanced. It is now possible to keep track of recurring issues and to respond better and quicker to requests for help. Direct communication between the HelpDesk and the CTL has resulted in more appropriate and effective training opportunities such as those offered on the new telephone system.

In 2002 the district's phone system was upgraded. As part of the roll-out of the district's new unified-messaging, IP-based telephone system, numerous training sessions were held. The vendor was contracted to conduct these sessions as no college staff had sufficient experience with the new system to provide the necessary training. The initial training was adequate for introductory purposes. Subsequent to the initial training, the college created a web-based telephone training module.

### Assessment

College of San Mateo meets this standard. Due to low enrollment of faculty and staff in self-directed study and workshops offered throughout the year by the CTL, scheduling these offerings during faculty flex time might encourage increased attendance. CTL surveys show that faculty and staff have requested extensive training that addresses

subject matter in greater depth, as well as more courses offered online.

The basic computer skills of faculty and staff have increased dramatically over recent years as the result of a website designed to assist faculty. The CTL offered Faculty Boot-up Camp in 2002, a program designed to assist new faculty in using technology in the classroom (Ref. 18). The program has been dormant because of lack of demand and limited new faculty hiring; however, it has proved beneficial to past new faculty and should be considered for reinstatement as the college hires new faculty in the future. The CTL regularly receives requests to conduct workshops on a variety of more advanced topics such as designing and maintaining instructional websites, authoring multimedia presentations, podcasting, and blogging.

Since 2001, the HelpDesk has increased its number of staff members and improved its methods of providing services to faculty and staff in a timely manner (Ref. 3, 4, 5, 17).

#### Plan for Improvement

None needed at this time.

#### **III.C.1.c**

*The institution systematically plans, acquires, maintains, and upgrades or replaces technology infrastructure and equipment to meet institutional needs.*

#### Descriptive Summary

The college has planned, initiated, and completed many projects funded by bond initiatives Measure C (November 2001) and Measure A (November 2005) (Ref. 19). The college also uses funds from Vocational and Technical Education Act (VTEA), Trustees' Grants for Program Improvement, lottery fund receipts, and instructional block grants to upgrade computer labs and classrooms. Many academic programs have benefited from some or all of these funding sources.

San Mateo County Community College District's Information Technology Services (ITS) provide hardware and software support to the college. College of San Mateo has built its network infrastructure with the future in mind and has installed a high-speed internet connection with firewall security between instructional and administrative systems. The district's administrative information system, Sungard Higher Education Banner, is regularly updated by ITS as new releases are available and new requirements are added. This comprehensive planning by ITS and close cooperation with college administration guarantees long-term reliability (Ref. 20).

The Technology Advisory Committee (TAC) is a standing committee of administration, faculty, staff, and students that gathers information on the status and needs of technology on campus and provides prioritized lists for the budget process. The TAC reviews the college's technology plan, recommends changes, develops goals, and discusses current and future uses of technology on campus.

In 2005 the San Mateo County Community College District created instructional technology standards and guidelines to serve as a reference for architects and engineers,

to assist with budget planning and cost estimates, and to facilitate service and maintenance. These standards relate to audio/visual systems and communication and network technologies (Ref. 21, 22).

To ensure that faculty, students, and staff have high-performance and reliable access to internet services, the district has installed a dedicated DS-3 (40MB/s) connection to the state-wide CENIC network at each of the three colleges. As part of the network design, the capability exists to implement a manual failover in the event one of the DS-3 connections should fail for an extended period of time. In addition, to provide more widespread and easier access to internet services, Information Technology Services personnel have deployed Cisco wireless access points in most high-traffic areas on all three campuses. Additional access points are added as existing buildings are remodeled or new facilities are added.

In 2006 College of San Mateo equipped several SMART classrooms with state-of-the-art computer and projection systems, wireless internet, and presentation control. Faculty use laptop computers in these new classrooms. Faculty can request laptops and SMART classrooms and are provided with SMART classroom training.

College of San Mateo offers free dial-up internet service to employees. The college library now provides online access, and the college provides wireless hot spots in 16 campus buildings: 1, 3, 5, 6, 9, 14, 16, 17, 18, 19, 27, 29, 33, 34, 35, and 36 (Ref. 8).

To improve reliability of services that are hosted by ITS from the district computer center, the district issued a Request for Proposal (RFP) to acquire an emergency generator to provide backup electrical power for at least 36 hours. A vendor was selected, and the emergency generator is in the process of being installed and will be operational in the summer of 2007.

Providing adequate funding to keep desktop computers used by faculty and staff up to date remains a challenge. At the time the Technology Advisory Committee (TAC) presented a document to College Council stating the need for replacement of faculty computers, more than 200 faculty computers were identified as below minimum standards. The committee also distributed a draft of a document developed by District Instructional Technology Council, Minimum Standards for SMCCCD Faculty & Administrative Computers (Ref. 24), which recommended specific minimum equipment standards for running current software.

Numerous safeguards are in place to protect the college's technical resources, which make it safer for faculty, staff, and students to use technology. To maintain network security, the colleges of the district have deployed a multi-tiered approach. Cisco Pix firewalls are installed at each college to provide protection to the network. The district has a multi-year agreement with McAfee to provide anti-virus protection for all desktops and Windows Servers including the servers supporting Microsoft Exchange for email services. Also installed are redundant Sophos PureMessage anti-spam servers to control email spam.

San Mateo County Community College District's Information Technology Services provide off-site backup for all administrative systems. Information Technology Services has in place a comprehensive backup strategy to ensure that all server-based data is recoverable. An off-site storage company picks up the backups on a weekly basis.

Currently, faculty and staff are responsible for backing up their own data on their desktop systems. Information Technology Services are currently evaluating alternatives to provide network storage to make the backup process for staff faster and easier.

During the fall semester 2005, the district undertook two major projects to improve the network services at each college. The first project was to work with a Siemens network engineer to assist the Information Technology Services staff to completely redesign the network architecture and improve performance and reliability in preparation for the installation of a new voice-over-IP telephone system. To implement this redesign, all network equipment was replaced with new Cisco switches and routers. This network equipment has a life-time warranty from Cisco; in addition, Information Technology Services stocks spare switches to allow immediate replacement of any failed unit.

The Banner system was upgraded to the most current release in October 2006. At that time the underlying Oracle database was upgraded from Oracle 9i to Oracle 10g. Numerous meetings and workshops were held with key stakeholders to test and train on the new and enhanced functionality. In addition, the college participates in the Microsoft Campus License Agreement, which allows ITS to install the most current releases of the Windows operating system, Office, and several other products. Plans are being formulated to upgrade desktops to Microsoft Office 2007 in the summer of 2007 and email servers to Exchange 2007 in the spring of 2008.

ITS routinely replaces and provides preventative maintenance for technology equipment. In 2004 College of San Mateo created a new CIS computer lab, and in summer 2006, it upgraded the CIS networking/computer forensics lab with new computers and networking infrastructure. The college funded and currently supports a new web server that replaced the old server in summer 2006. The new server supports eight existing CIS courses and will allow expansion of the internet programming curriculum, specifically online course offerings.

In 2005 the college replaced the fifteen-year-old ROLM telephone system with a Siemens VoIP telephone system and offered institution-wide training and support for the new system. This new telephone system, purchased with Measure A Bond funds, is a Siemens HiPath 4000 with a node located at each college. More than 2000 voice-over-IP (VoIP) telephones have been installed (Ref. 20).

### Assessment

College of San Mateo meets the standard. In fall 2004 the District Information Technology Committee (DITC) and the Technology Advisory Committee (TAC) recommended specific minimum standards for computers. Since then, all full-time faculty members requesting laptops have received them; according to the vice president of instruction, the continued acquisition of laptops meeting minimum standards remains

a top priority. Faculty laptops are currently purchased with state, district, and college funds (Ref. 23, 24).

While the need for faculty laptops is being addressed, the college needs to provide funding for the purchase and maintenance of computers on an ongoing basis. To meet the future needs of students, faculty, and staff, the college needs to establish a replacement cycle for computers that is annually renewed and adequately funded as well as create an ongoing funding mechanism and maintenance plan to purchase additional laptops or replace outdated ones. Keeping desktop computers for faculty and staff within minimum standards is not consistently achieved. The college has not been able to identify funding for the regular replacement of outdated computers. The current procedure of providing new laptop computers for faculty, especially those who teach in SMART classrooms, has alleviated some of this problem in the short term but does not lend itself to a long-term solution.

In fall 2005 the Academic Senate, the Office of Instruction, and district Information Technology Services (ITS) began development of an inventory database of faculty computers and classroom technology (Ref. 25). This inventory facilitates technical support and also helps to prioritize the order of computer replacements. ITS staff members currently notify individual departments when their computers are four years old and due for renewal. ITS personnel work closely with departments to advise and recommend hardware and software products based on needs; departments/programs/units identify these needs in annual program reviews.

Information Technology Services provides a HelpCenter that faculty and staff can access online or by telephone to request service. ITS staff created an online service request form for department managers and deans. The college now provides an online form for faculty to request laptops and SMART classrooms. The district's Computer Online Research Project (CORP) website displays products and services recommended and supported by Information Technology Services (Ref. 26).

Based on the 2005 accreditation survey of faculty and administrators, the college adequately maintains campus computing technology; 63 percent of the faculty and administrators responding agree or strongly agree that the college maintains and upgrades technology and equipment to meet instructional needs (Ref. 27, question 33); 75 percent agree or strongly agree that computer equipment is adequate to meet their needs (Ref. 27, question 34); 80 percent agree or strongly agree that the college plans and supports technology innovation (Ref. 27, question 35); and 74 percent agree or strongly agree that the college supports technology services to ensure that instructional needs are being met (Ref. 27, question 36).

Clearly, College of San Mateo cannot rely upon adequate financial support from the state. The college must, therefore, form partnerships with individual donors, businesses in the community, private non-profit foundations, and governing funding agencies. As the college solicits these external funds, it must simultaneously re-direct local funds to enhance learning with technology (Ref. 6).

### Plan for Improvement

- Explore alternative funding sources for equipment and technical support through partnerships or sponsorships with foundations, corporations, or individuals.
- Establish a budgetary commitment to ongoing funding for the continued replacement of older technology.

### III.C.1.d

*The distribution and utilization of technology resources support the development, maintenance, and enhancement of its program and services.*

### Descriptive summary

At the district level, the director of Information Technology Services works with the college president and the district chancellor to set the priorities for technology resources. Consultation with faculty and staff occurs at various levels within the college and district to ensure that scarce resources are allocated to the highest priority projects. Recent examples of the maintenance and enhancement of technology resources include the various projects funded by the Measure A bond funds, including complete replacement of all network switches, new VoIP (Voice Over Internet Protocol) telephone system, and the installation of numerous UPS devices to ensure emergency power.

Instructional technology, district-wide, is reviewed and discussed by the District Instruction Technology Committee (DITC), which is comprised of faculty, staff, and administrators. DITC is the forum for faculty, staff, and administrators to discuss, preview, introduce and recommend products and services as these relate to instructional pedagogy. DITC meets monthly and includes representation from the three colleges in the district (Ref. 5). Examples of technology discussed at DITC include tools to create instructional websites, technology for faculty to create podcasts, and demonstrations of SMART classroom hardware.

The distribution of funds to acquire computers for faculty and staff is a college decision that is made in consultation with senior administration and the Academic Senate.

Faculty members are encouraged to submit requests for new computers to their department dean who, in turn, submits it to the vice president of instruction via the Request for SMART Classroom and/or Faculty Computer form. In the case of new building construction, funds have been set aside to equip faculty with laptop computers in order to take advantage of the computer projectors built into many of the new SMART classrooms (Ref. 24).

Technology resources are well distributed throughout the college to serve the development, maintenance, and enhancement of its programs and services. A number of technology advancements have taken place at the college in both instructional and student services areas over the past years, including the following:

- addition of SMART classrooms

- use of technology in the delivery of student services, e.g., online applications for admissions and financial aid; electronic counseling services; and expanded web pages for students to access information about courses, programs, and services
- implementation of the Ad-Astra course scheduling software
- upgrades/enhancements of the district software, SunGard Banner, and web services, which provide faculty and staff with detailed online information, including the ability to obtain detailed course and student data used in research, planning, and program review and allow faculty access to course rosters and course-related information
- use of SARS Grid and SARS Call software
- continuous improvements and expanded features of WebSMART for student access to records, including transcripts, placement test scores, class schedule, catalog, and other records.

The campus network infrastructure has been designed to meet the data needs of the future by providing a minimum of 12 strands of multi-mode fiber to each building with many buildings having an additional 6 strands of single-mode fiber.

The district uses careful planning to maintain and enhance available resources enabling the district to keep the infrastructure up-to-date. Recent examples include the significant network upgrade that was accomplished using Measure A bond funds. The district also replaced all the major components of the wide-area network (WAN). Communication between the three colleges in the district was greatly enhanced with the introduction of a new Opt-E-Man, Metropolitan Area Network (MAN), connection with up to 500MB/s of bandwidth. In addition, the district acquired a silver service level agreement from AT&T to ensure maximum reliability for this network service.

New construction on campus is designed with an emphasis on creating and maintaining a state-of-the art technology infrastructure. Detailed technology requirements are outlined in the Information Technology Services Design and Construction Standards. Each project is reviewed by the Information Technology Services department and the future occupants of the building to ensure that such items as wireless network access and appropriate classroom technology are included (Ref. 28). With the recent passage of Measure C, funds should be available to sustain and maintain a high level of current technical infrastructure for the next ten years.

Departments, informed by outcomes from program review, make decisions about appropriate improvements in technology for meeting their departmental goals. Historically, funding for technology has been limited although the current influx of funds from the passage of the construction bonds has greatly improved the situation. The ITS department provides input and advice to ensure technical needs are met and to guarantee the best use of the limited dollars that are available.

### Assessment

College of San Mateo meets this standard. The college ensures that appropriate decisions about the distribution of technical resources are made by involving members from all levels of the campus community. Detailed requirement specifications are

maintained and utilized in the planning and construction process to ensure that the new infrastructure projects will meet changing technical needs.

#### Plan for Improvement

None needed at this time.

#### **III.C.2**

*Technology planning is integrated with institutional planning. The institution systematically assesses the effective use of technology resources and uses the results of evaluation as the basis for improvement.*

#### Descriptive summary

College of San Mateo integrates technology with institutional planning in a number of ways. Various aspects of college goals initially drive technology planning. These goals are set each year by a consultative process that is initiated in College Council.

Management Council provides input to the goals development process through the president. College goals, recently renamed strategic objectives (Ref. 19), are reviewed and updated during the academic year as necessary and form the basis of decision making related to facility needs and the budget required to meet those needs.

Facilities master planning also impacts technology planning. A facilities master planning process is in place at College of San Mateo, driven partially by the success of two successive bond elections in the past five years. The two bonds passed by county voters are in part attributable to effective planning and decision making related to facilities and technology planning. The additional funding sources, as noted above, have represented an opportunity to substantially improve technology implementation at College of San Mateo.

In fall 2005, College of San Mateo began the development of a comprehensive inventory of classroom technology and faculty computers. The inventory is a database of campus technology that will be maintained and continually updated as new equipment purchases are made. The inventory will serve as a resource for planning future technology needs.

The Technology Advisory Committee (TAC) advises the college's vice president of instruction on the needs of technology on campus and provides a prioritized list of goals, strategies, and tasks for the budget process. TAC's charge is to develop, maintain, and upgrade the college's technology plan, including recommended technology action steps for the College of San Mateo (Ref. 6).

Included in the program review is a component of the technology purchase planning process at College of San Mateo. The recommendations that result from the development of program reviews are used in equipment allocation. The vice president of instruction in conjunction with the college's instructional deans conducts this decision-making process (Ref. 7).

#### Assessment

College of San Mateo meets this standard. In response to a recommendation in the 2001 visiting team report, the college developed a long-range technology plan and a

mechanism for its periodic updating. Progress on this recommendation was addressed in the college's Midterm Report (Ref. 34), which noted that in 2002 a technology advisory committee was established and a technology plan developed. Currently, the college's technology advisory committee is charged with aligning the technology plan with the college's facilities plan.

In the 2005 accreditation survey of faculty and administrators, participants were asked to respond to statements specifically focused on technology needs. Sixty-three percent of the respondents agree or strongly agree that the college maintains and upgrades technology and equipment to meet instructional needs (Ref. 27, question 33); 75 percent agree or strongly agree that computer equipment provided is adequate to meet their needs (Ref. 27, question 34); 80 percent agree or strongly agree that the college plans for and supports technology innovation (Ref. 27, question 35); and 74 percent agree or strongly agree that the college supports technology services to ensure that instructional needs are being met (Ref. 27, question 36). These findings indicate that a high percentage of the respondents believe that support for instructional technology is strong.

**Plan for improvement**

None needed at this time.

**Evidence – Standard III.C**

Ref. #	Title of Document	Source
1	2006 SMCCCD Reports and Plans, Facilities Master Plan	< <a href="http://www.smccd.net/accounts/csmaccredit/resources/smccdreports.html">http://www.smccd.net/accounts/csmaccredit/resources/smccdreports.html</a> >
2	Distance Learning Classes	< <a href="http://www.collegeofsanmateo.edu/dl">http://www.collegeofsanmateo.edu/dl</a> >
3	CTL Online	< <a href="http://www.ctlonline.net/">http://www.ctlonline.net/</a> >
4	College Mission Statement	< <a href="http://www.smccd.net/accounts/csmaccredit/resources/mission.html">http://www.smccd.net/accounts/csmaccredit/resources/mission.html</a> >
5	District Instructional Technology Council	< <a href="http://www.smccd.net/accounts/ditc">http://www.smccd.net/accounts/ditc</a> >
6	Technology Plan 2002-2005	< <a href="http://www.smccd.net/portal/Standard3C/Reference%20Docs/Reference%20docs/techplan2k2_2k5.pdf">http://www.smccd.net/portal/Standard3C/Reference%20Docs/Reference%20docs/techplan2k2_2k5.pdf</a> >
7	March 1 Equipment Allocation Memo	< <a href="http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/March 1 Equipment Allocation Memo.doc">http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/March 1 Equipment Allocation Memo.doc</a> >
8	Wireless Hot Spots	< <a href="http://smccd.edu/accounts/smccd/departments/it services/services/wireless.shtml">http://smccd.edu/accounts/smccd/departments/it services/services/wireless.shtml</a> >
9	Campus Labs and Centers	< <a href="http://collegeofsanmateo.edu/webpages/quicklink.asp?WebPgID=505">http://collegeofsanmateo.edu/webpages/quicklink.asp?WebPgID=505</a> >
10	Library Database	< <a href="http://www.smccd.net/accounts/csmlibrary/databases.shtml">http://www.smccd.net/accounts/csmlibrary/databases.shtml</a> >
11	Bond Measure C (2001) Bond Measure A (2005)	< <a href="http://www.smccd.edu/accounts/smccd/committees/bondoversight/reports.shtml">http://www.smccd.edu/accounts/smccd/committees/bondoversight/reports.shtml</a> >
12	CSM Technology Plan	< <a href="http://www.smccd.net/portal/csmtac/default.aspx">http://www.smccd.net/portal/csmtac/default.aspx</a> >

	Status Report	>
13	Vision Statement	< <a href="http://www.collegeofsanmateo.edu/webpages/default.asp?WebpgID=191&amp;CatID=1">http://www.collegeofsanmateo.edu/webpages/default.asp?WebpgID=191&amp;CatID=1</a> >
14	Itemized Bond Projects, Used for Tracking Expenditures	< <a href="http://www.smccd.edu/accounts/smccd/committees/bondoversight/BOC_Exp_Report_A_2007_03-31.pdf">http://www.smccd.edu/accounts/smccd/committees/bondoversight/BOC_Exp_Report_A_2007_03-31.pdf</a> >
15	2005 Flex Your Power Awards	< <a href="http://www.smccd.net/accounts/facilities/FlexYourPower.htm">http://www.smccd.net/accounts/facilities/FlexYourPower.htm</a> >
16	CSM Majors Course Descriptions	< <a href="http://gocsm.net/webpages/default.asp?WebPgID=367&amp;CatID=8">http://gocsm.net/webpages/default.asp?WebPgID=367&amp;CatID=8</a> >
17	Help Center	< <a href="http://helpcenter.smccd.net">http://helpcenter.smccd.net</a> >
18	Faculty Boot Up Camp 2002	< <a href="http://www.smccd.net/accounts/bootupcamp/">http://www.smccd.net/accounts/bootupcamp/</a> >
19	CSM Strategic Plan, 2006-2008	< <a href="http://www.collegeofsanmateo.edu/webpages/images/strat_plan_06.pdf">http://www.collegeofsanmateo.edu/webpages/images/strat_plan_06.pdf</a> >
20	Vaskelis Report	< <a href="http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/Standard III C Vaskelis.doc">http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/Standard III C Vaskelis.doc</a> >
21	Telecommunications Systems Standards	< <a href="http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/SMCCD_Cabling_Standards_V2.pdf">http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/SMCCD_Cabling_Standards_V2.pdf</a> >
22	Instructional Technology Standards	< <a href="http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/Instructional_Systems_V2.pdf">http://www.smccd.net/portal/Standard3C/Reference Docs/Reference docs/Instructional_Systems_V2.pdf</a> >
23	2K6 Faculty Computer Replacement	< <a href="http://www.smccd.net/portal/csmtac/Faculty%20Computer%20Request%20Form/2K6_%20Faculty%20Computer%20Minimum%20Standards.doc">http://www.smccd.net/portal/csmtac/Faculty%20Computer%20Request%20Form/2K6_%20Faculty%20Computer%20Minimum%20Standards.doc</a> >
24	Minimum Standards Laptop/Computer/ Printer Update	< <a href="http://collegeofsanmateo.edu/csminternal/committees/committees%20file%20folder/cc_minutes.htm">http://collegeofsanmateo.edu/csminternal/committees/committees%20file%20folder/cc_minutes.htm</a> >
25	College of San Mateo College Goals, 2005-06: Final Report	< <a href="http://www.smccd.edu/accounts/csmaccredit/resources/csmreports.html#goals">http://www.smccd.edu/accounts/csmaccredit/resources/csmreports.html#goals</a> >
26	Computer Online Resource Project	< <a href="http://www.smccd.net/corp/">http://www.smccd.net/corp/</a> >
27	CSM Accreditation Survey [Standard III] – Faculty and Administration Fall 2005	< <a href="http://www.smccd.net/accounts/csmresearch/Accreditation%20Related%20Surveys/Faculty/FacultyStd_3.pdf">http://www.smccd.net/accounts/csmresearch/Accreditation%20Related%20Surveys/Faculty/FacultyStd_3.pdf</a> >
28	ITS Design & Construction Standards	< <a href="http://www.smccd.net/accounts/itwirespecs/">http://www.smccd.net/accounts/itwirespecs/</a> >
29	WebSMART	< <a href="https://websmart.smccd.edu/">https://websmart.smccd.edu/</a> >
30	CSM Internal	< <a href="http://collegeofsanmateo.edu/csminternal/">http://collegeofsanmateo.edu/csminternal/</a> >
31	ESC reports	< <a href="http://www.smccd.net/portal/Standard3C/Reference Docs/Forms/AllItems.aspx?RootFolder=%2fportal%2fStandard3C%2fReference Docs%2fReference">http://www.smccd.net/portal/Standard3C/Reference Docs/Forms/AllItems.aspx?RootFolder=%2fportal%2fStandard3C%2fReference Docs%2fReference</a> >

		<a href="http://www.smccd.net/portal/Standard3C/ReferenceDocs%2fESC&amp;View=%7b97BD510E%2d447B%2d4339%2dA2BC%2d80A7A159AC0D%7d">docs%2fESC&amp;View=%7b97BD510E%2d447B%2d4339%2dA2BC%2d80A7A159AC0D%7d</a> (If URL doesn't open, please copy and paste it into a browser window.)
32	Academic Senate Governing Council, Waitlist for Courses	<a href="http://www.smccd.net/portal/Standard3C/ReferenceDocs/Reference%20docs/waitlist_email.pdf">http://www.smccd.net/portal/Standard3C/ReferenceDocs/Reference docs/waitlist_email.pdf</a>
33	DEAC	<a href="http://www.smccd.net/portal/Standard3C/ReferenceDocs/Reference%20docs/DEAC_VisionPlanningFinal.pdf">http://www.smccd.net/portal/Standard3C/ReferenceDocs/Reference docs/DEAC_VisionPlanningFinal.pdf</a>
34	Accreditation Midterm Report	<a href="http://www.smccd.edu/accounts/csmaccredit/archives/midtermreport.html">http://www.smccd.edu/accounts/csmaccredit/archives/midtermreport.html</a>

