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## 10.3 Standard IIC: Technology Resources

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

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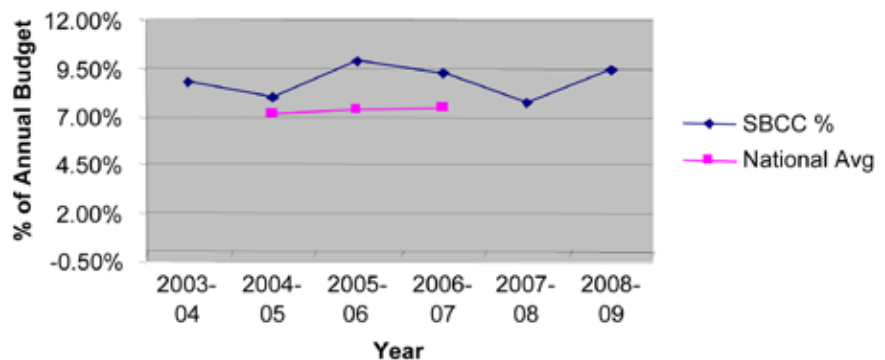
### C. Technology Resources

Significant technology activity has taken place over the last five years at Santa Barbara City College (SBCC). This activity is reflected in the level of funding for technology resources. When compared to the national averages for community colleges, as reported in the EDUCAUSE Core Data Service Summary Reports (IIC.1), SBCC has been consistently higher than the national average for two year colleges in every year reported (Table IIC.1). Although EDUCAUSE started including this statistic in the 2004-05 survey, the results of the 2007-08 are unavailable. If the national percentages remain relatively stable and the current economic recession does not disproportionately impact California Community Colleges, SBCC should continue to stay ahead of the national average in the 2007-08 and 2008-09 academic years as well.

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Table IIC.1

IT Budget, as a % of Total College Budget, Compared to National Average



As noted in Table IIC.1, the percentage allocated to Information Technology (IT) had an upswing in the 2005-06 and the 2006-07 budget years, reflecting the additional costs of implementing the SunGard SCT Banner Enterprise Resource Planning (ERP) system. Since the bulk of this implementation effort and expenses were seen in those two years, by 2007-08, the percentage spent on IT had returned to 7.7%, very close to the pre-implementation 2004-05 level of 8%. The technology allocations at the College are actually higher than shown since,

unlike many of the other higher education institutions listed in the national statistics, we do not include telephone services and print and duplicating services in our technology budgets; they are part of the Business Services Division.

A team of experienced professionals is supporting Information Technology at SBCC. Staff members include 33 from Information Technology, 15 from Educational Programs, and seven IT support persons reporting directly to department chairs or deans. This team provides support for 1,300 faculty and/or staff workstations, 1,400 student lab workstations, 123 central servers, over 60 enterprise applications (IIC.2), wireless (WiFi) access in all public student areas as well as in many conference rooms and classrooms, and support for a campus network that includes the Main Campus, two Continuing Education centers, SBCC's off-campus Kinko's Early Learning Center, as well as the College's off-campus Cosmetology Program (IIC.3).

The College's ample technology funding allows every full-time instructor to have his or her own computer and small groups of adjunct instructors to share clusters of computers. Every computer is on a four-year replacement cycle. Additionally, a computer is provided to each staff member who requires one as part of his or her job function. These are also placed on a four-year replacement cycle. To provide the best possible learning environment for our students and to ensure a current platform for constantly evolving instructional software, computers in student labs are also refreshed on a four-year cycle. Computers that exit the cycle are not recycled for other uses within the College due to the significantly increased support burden that this practice would place on the organization.

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## 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.**

Through the College consultative process, as well as its Program Review resource request process, the College has been very diligent in identifying, planning and deploying its technology infrastructure. For example, the implementation of the SunGard SCT Banner Student System in April 2007 focused not only on the systems supporting traditional data processing by College staff, but also targeted student needs for online services including admissions applications, registration, access to grades and transcripts, and the consolidation of these services into a user-friendly portal system. For faculty, the new system provided online access to class rosters, schedules, reports, and student transcripts necessary for advising. It also provided a variety of communication tools that allow faculty to disseminate announcements to specific classes or groups of students. Similar to the student interface, these faculty services have been consolidated into a single portal, providing a simple and intuitive interface by which faculty may access all available online services.

Each year the College evaluates the effectiveness of its technology initiatives in meeting the diverse needs of its target audiences. These evaluations are driven by several evaluative measures: (1) campus-wide technology satisfaction surveys; (2) helpdesk query resolution trends; (3) responses to College needs developed in the weekly Educational Programs, IT Coordination groups; and (4) discussions in technology-related committees including the Instructional Technology Council, the District Technology Council, the Committee on Online Instruction, the

Portal Steering Committee, the Banner Steering Committee and the Committee on Teaching and Learning. Over the last five years we have continued to add computers on campus faster than our enrollments have increased, reducing the ratio of students to computers from 10.2 to 8.5 (IIIC.4). At the same time, the average age of our computers at replacement has been reduced from 4.6 years to 4.1 years (IIIC.4). Equally important to the broad range of on and off-campus constituencies, SBCC's server uptime ratios have improved from 98.6% in 2003-04 to 99.95% in 2007-08, reflecting improvements in our ability to provide a highly reliable infrastructure (IIIC.4).



SBCC has consciously and methodically embraced modern day technology advancements, which fuel institutional efficiency and access, organizational development, and contemporary pedagogy. College faculty, students and staff members represent their constituencies and alert technology-related committees to ensure that evolving needs are recognized and met by evolving technologies. These discussions inform the Program Review process from which the resource requests arise. Resource requests from the program reviews are ranked by the Vice President, Information Technology and are then discussed within the College Planning Council and assigned an institutional ranking for inclusion in the annual budget development process. As of January 2009, the main impediment to improving technology resources at the College is not planning, but rather, funding. With the state budget reductions already in place and the broader fiscal uncertainty that looms across all California Community Colleges, SBCC will continue to act cautiously and find ways to provide the best possible use of technology resources at the most reasonable cost.

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### C.1.a

### **Technology services, professional support, facilities, hardware, and software are designed to meet the needs of learning, teaching, college-wide communications, research, and operational systems.**

#### **Descriptive Summary**

The following narrative explores in more detail the infrastructure as well as the planning and governance processes that brought our newer systems into existence over the past five years.

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## Network Infrastructure

The College technology infrastructure provides a modern wide area network (WAN), spanning three campuses and two remote locations, and an extensive local area network (LAN) on the Main Campus, supporting myriad instructional and administrative applications. The Main Campus network consists of fiber WAN links supporting the two Continuing Education campuses; a dedicated leased circuit to the Kinko's Early Childhood Learning Center; and a sophisticated multi-core, multi-gigabit LAN connecting all the buildings on the Main Campus. The Main Campus LAN provides over 2,200 10/100 megabit connections within all campus buildings and 10/100/1000 megabit connections in the digital arts labs; provides over 50 WiFi access points covering all public areas and meeting rooms, supporting laptops, PDAs and smart cellular phones; and has over 123 servers supporting both instructional and administrative applications (IIIC.3).

With the addition of new campus buildings as well as the recent growth in wireless devices on campus, the number of connections to our network continues to grow. In January 2009, the College recorded over 2,800 unique wireless-enabled devices connecting to the campus network (IIIC.5), largely connecting to the Luria Library, the Learning Resource Center, and the Campus Center.

The main data center located in the MacDougall Administration Center was upgraded in 2005 with redundant air conditioning systems, upgraded redundant uninterruptable power supply (UPS) equipment, and the installation of a new automated backup generator that provides uninterrupted electrical services regardless of the intermittent service provided by Southern California Edison. This data center hosts all of the College's onsite enterprise applications.

Server configurations for most of our mission-critical applications employ an N-Tier model (i.e., separate servers for presentation, application, and database) with multiple load balanced Web/application servers front-ending clustered database servers. This configuration provides high availability and a very scalable solution for quickly ramping up additional capacity in response to increases in demand. Where feasible, the front-end servers are configured as Virtual Machines in our VMware clusters. These Virtual Machines can be cloned rapidly and the clones brought online behind the load balancer when more capacity is required.

Data storage needs are supported by two EMC Storage Area Networks (SAN) providing over 8 terabytes of disk capacity for our enterprise applications. Although somewhat expensive, SAN storage provides very high reliability. Moreover, the SAN snapshot capability allows our system administrators to make quick and frequent backups of our production data as required. The SAN snapshots also streamline the production of tape backups by allowing the database to be offline only for the few minutes that the snapshot requires. The snapshots can then be written to tape independently without interfering with the activities of the production system, thus minimizing the amount of time our production systems need to be offline for archival backup to tape.

The College has recently upgraded the primary telephone system to support Voice over Internet Protocol (VoIP) services. This has resulted in the distribution of new VoIP handsets on the Main Campus allowing us to converge both phone and data connections. In addition, this capability has also enabled us to provide expanded services to our satellite campuses and the Kinko's Early Learning Center. At the remote sites, the College was able to replace aging Key systems with VoIP

handsets connecting to satellite PBXs over existing data circuits. This initiative enhances communication services with clearer and more reliable technology while lowering annual costs by eliminating the Key systems and some of the dedicated local phone services that they previously required.

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### **Enterprise Applications**

The College is approaching the end of a multi-year implementation of a new Enterprise Resource Planning (ERP) system (IIIC.6). To begin this process, a request for proposal (RFP) was disseminated in December 2004, with a January 21, 2005 deadline. Two vendors, Datatel and Sungard SCT, were selected as finalists and invited on campus for extensive demonstrations of the functionality of their systems. The College devoted extensive time and effort to develop business scenarios which were provided to the two vendors in advance of the on-campus demonstrations. These demonstrations were conducted in February and March 2005. More than 100 faculty and staff were involved in these demonstrations. All functional areas of the College as well as technical staff participated actively in the selection process. Follow up on-campus sessions on specific service delivery areas were conducted by both vendors in April and May 2005. After extensive analysis, the College decided to implement not only a new student system, but an entire integrated system, including the Finance, Human Resources, Financial Aid, and the Luminis Portal modules. The College selected SunGard SCT Banner as its new integrated system and the work on the implementation began in June 2005 with a planning phase. Table IIIC.2 outlines the implementation timeline for the SCT Banner major modules.

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**Table IIIC.2**

**SCT Banner Implementation Timeline**

Area of Implementation	Completion Date
SCT Finance	December 2006
SCT Human Resources	January 2007
SCT Admissions	January 2007
SCT Financial Aid	March 2007
SCT Registrations and Records	April 2007
Luminis Portal Integration	April 2007

Each of these targets dates were achieved with the exception of the payroll component of the Human Resources module. A significant portion of this module has been implemented but the institution is still working on the payroll integration with the county.

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### **Additional Portal Integrations**

With the implementation of a fully integrated ERP system, the College chose to extend this level of integration to many of the other enterprise applications that are supported on campus. The center of this integration is the campus portal which is an integrated part of the SCT Banner ERP. The SCT Banner portal, Luminis, provides a single sign-on front end to features built into the Luminis portal as well as access to Banner Finance and Student Records. As part of the Banner implementation, the College has also begun the integration of other enterprise systems using the integration tools provided by the Luminis portal. The first integration was with the Blackboard ID Card system. The College integrated ID card production with Banner as well as the debit card features

available from within the Luminis portal. Since the SCT Banner implementation, the College has integrated a number of other applications into the Luminis portal (IIIC.7). These include, but are not limited to: (a) DARS, a degree audit application for students; (b) Job Connection, a job placement service for students; (c) Xythos, a web file storage solution for students and faculty; and (d) Moodle, the new learning management system on campus (IIIC.8). The SCT Banner Luminis portal, known on campus as Pipeline, can be viewed at <http://pipeline.sbcc.edu/>. Upon signing in, students, faculty and staff have access to a personalized portal providing e-mail, timely campus and personal announcements, featured items, dates and deadlines, registration and student records, course planning, the online edition of the College newspaper, and a variety of services, resources, and information.

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### **Technology for Teaching and Learning**

Technology accommodates the College's curricular commitment to all classroom-based and online modalities of student learning. The IT Department supports a total of 157 media classrooms on the Main Campus. Faculty, staff, and administrators in the Instructional Technology Committee selected 68 classrooms to be retrofitted with a new standard of media-enhanced technology and identified an additional 89 classrooms that did not require retrofitting. The new standard, based on faculty best practices for multimedia pedagogy in the 21st century, includes a computer teaching station with broadband Internet connectivity integrated with a VCR/DVD player supporting closed-captioning, audio and video controls, an LCD projector, stereo speakers, and a soon to be implemented emergency communications system.

Through the College's Media-enhanced Classroom Initiative (IIIC.9), a total of 19 rooms were retrofitted with multimedia teaching stations as of June 2008 at a total cost of \$237,500, yielding 69% of the IT-supported classrooms available for multimedia-supported instruction on the Main Campus. This initiative, resulting from a dialog between faculty and administration, is intended for completion by June 2011 when an additional 49 classrooms will be retrofitted with the current multimedia standard for a total added cost of \$472,500. The continued financial uncertainty resulting from the state fiscal crisis has delayed phases two and three of this project.

To support faculty and student interest in reusable learning objects, the College joined the Carnegie-Mellon Socrates Project (IIIC.10) in 2007 and signed an agreement to implement the Panopto CourseCast classroom capture system (IIIC.11). CourseCast is a server-based software/hardware system enabling video and audio capture of classroom sessions. The sessions are then compressed by the system and uploaded to a streaming server for viewing on-demand. Since every Banner-generated class also auto-generates a Moodle course shell, faculty members can embed the classroom capture link into their Moodle courses for students to review at their convenience. Students can either view entire sessions or search keywords to jump to sections of interest. The Socrates Project allows educational institutions to implement the CourseCast classroom capture system developed at Carnegie-Mellon University without the licensing costs associated with its proprietary competitors such as Echo360™, Tegrity™, or Apreso™. SBCC also joined the California Community College EduStream consortium (IIIC.12) by which all streaming media, including classroom capture, can be uploaded to remote servers for streaming on-demand without adding additional

bandwidth traffic to the campus backbone. To ensure redundancy and failover, in fall 2008 the College invested an additional \$10,000 into a streaming media server that is hosted, maintained and supported in-house. The College is planning to deploy the media-enhanced platform to all classrooms on its three campuses, to implement a pilot study for lecture capture in up to ten classrooms, and if judged successful by annual survey results, will expand the deployment of the lecture capture system to a minimum of fifty Main Campus classrooms in the next planning cycle.

In view of the successful 2006-2007 student response system (i.e., classroom clickers) pilot (IIIC.13) and the subsequent recommendation by the faculty, staff, and administrators on the Instructional Technology Committee (IIIC.14) to expand this pilot, funding permitting, the College also plans to outfit a total of 10% of its Main Campus classrooms with a standardized student response system by 2011. Through student and faculty response to pilot studies, SBCC will thus assess the efficacy of full implementation in the next planning cycle of a scalable, continuously-evolved media-enhanced classroom standard augmented with both a student response system in the physical classroom and lecture capture component for online streaming on-demand.



Main Campus classrooms are currently supported by WiFi technology (IIIC.3). The Technology Plan 2008-11 addresses extending wireless services to the Schott and Wake campuses as well.

Distance education (IIIC.15) at SBCC is also undergoing rapid changes in accordance with student demand for increased interactivity and social presence in their online classes (IIIC.16). This campus-wide project began in 2007 and is being undertaken in three phases.

In the first phase, which took place throughout the 2007-2008 academic year, the College conducted a thorough examination of proprietary and open-source course/learning management systems (IIIC.17) including a review of the research literature (IIIC.18), surveys of and discussions with other colleges, and an institution-wide dialog. Following this research and discussion, the Committee on Online Instruction (COI) voted in favor of migrating from the costly WebCT/Blackboard course/learning management system to a customized enterprise-level integration of the open-source system known as Moodle (i.e., Modular Object-Oriented Dynamic Learning Environment). Their recommendation (IIIC.19) was approved by the Academic Senate in spring 2008.

In Phase II (IIIC.20) of this initiative, which began after the Academic Senate approval in spring 2008, faculty cohorts began a continuous process of Moodle training through the one-month CCC@One online course and the series of four-day intensive on-campus Moodle training classes provided through the Faculty Resource Center (FRC). Faculty members follow this training by working with Faculty Resource Center staff to redevelop their classes with the full feature support of Moodle version 1.9. The College also invested \$25,000 into a Moodle production server and expanded storage area network (SAN) space which was deployed in fall 2008. IT staff then began the integration of Moodle with the campus student information and the campus portal. By summer 2009, all courses previously taught at the College in WebCT/Blackboard would have been transitioned to Moodle (IIIC.15), allowing the College to reinvest up to the approximately \$1.3 million projected for Blackboard licensing and server costs through 2015 to be reinvested towards development and support of a Moodle environment for students, as well as the requisite training and support of faculty for course design, development, and teaching with a high level of synchronous and asynchronous interaction.

Phase III (IIIC.15) of this initiative begins in fall 2009 and continues through 2011. There will be three outcomes of this phase. First, every course in Banner will automatically generate a Moodle shell, allowing every faculty member the opportunity to teach technology-enhanced classes. Second, all classes will appear prominently in the role-based Pipeline portal profiles for easy access by students, faculty, and staff. Third, the Moodle environment will contain interactive and rich media technologies. These technologies include Web 2.0 tools including: 1) streaming video; 2) podcasting and vodcasting; 3) on-demand streaming of lecture capture; 4) voice boards that will allow students to interact audibly in the discussion threads; and 5) voice-over-Internet protocol (VoIP) supporting synchronous communication among students, between students and their instructors, and between students and college student support services.

This three-phase project plan will allow the College's distance and technology-enhanced educational initiatives to scale and evolve in accordance with the increased demands and expectations that students have already shown for remote and hybrid educational experiences (IIIC.16). Moreover, with the Moodle-Banner integration and ensuing auto-generation of course shells for all courses offered, the College will unify support of their teaching and learning efforts under a, flexible, consistent learning interface for students in online, hybrid, and Web-enhanced classroom-based instruction. This will expand access and provide a consistent level of quality in an engaging, rigorous learning environment for all SBCC students. An online orientation to distance learning is being developed to help students succeed in this new environment. Additional programs shown to improve student success in their online classes will be tied to these efforts. These include an automated customer relationship management approach to contacting all distance education students to ensure that they are engaging in their required first-time orientation and in their online classes and augmented support for nights and evenings, when College helpdesk logs show that many students are engaging in their online classes.



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## College-Wide Communications

In response to requests from students, faculty, and staff for additional functionality, the Portal Steering Committee (IIIC.21) established a design team in 2007 to experiment with improvements intended to increase the Portal's consistent use by a broader campus constituency. As a direct result of this work, by spring 2008 the portal has evolved from a largely static interface to a rich media tool that includes RSS feeds, streaming media, integration with the Campus Card and Xythos web file sharing, dual-language support, a campus announcement blog, access to campus news and events, and a host of additional features. Consequently, Google Analytics shows an unprecedented increase in Portal usage. In the seven-day period between January 26 and February 1, 2009, 30,556 unique users made 102,203 visits to the Portal, viewed 396,495 unique pages and spent an average of 07:23 minutes on each visit (IIIC.22). With the migration of Continuing Education payroll to the SCT Banner payroll system, all Continuing Education adjuncts are now in the SCT Banner HR database and consequently have a campus portal (Pipeline) account and can access campus web-based resources. The Portal also provides a link to the faculty "Flex" site where faculty can record their professional development activities. Additional Portal integrations include Moodle and the Job Connection. Future modifications to the Portal will focus on a customized Portal experience based upon roles, which will provide a distinctive experience based upon the needs and interests of faculty, staff, and students.

The Marketing Department, in collaboration with the Web workgroup and IT, will launch a new College Web site in the 2009-2010 academic year. This site is specifically designed to provide individual academic and administrative departments tools to create their own college-branded content using the OmniUpdate content management system and through the support of the Extensis Portfolio digital asset management tool. The new site has been designed to better showcase the SBCC student experience, to deliver information to current and prospective students in a more relevant and contemporary fashion, and to allow faculty, staff and administrators the ability to continuously update their respective sites. Additionally, the site navigation will communicate the breadth of student support services and swiftly deliver information and content each visitor seeks.

College-wide communications are also supported by telephony (landline, cellular, and VoIP), Pipeline and GroupWise e-mail, instant messaging, and digital signage. In 2008, the College doubled its e-mail throughput by outsourcing its spam filtering to Postini, a 100% hosted message security and compliance solution.

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## Continuing Education

Continuing Education has recently upgraded its computer infrastructure and implemented Lumens, an online student information system. The Lumens system is a hosted Web service developed for the continuing education market and is in use in a number of other Continuing Education Divisions across the California Community College System. The College also signed a collaborative agreement with Augusoft, the company which owns and operates Lumens, to develop California Management Information System (MIS) reporting elements within Lumens that will help the College capture data for state reporting. The

registration component of this system went live on December 1, 2008, capturing registrations for all of the Continuing Education winter courses. The College will continue to work with Augusoft to complete the contracted MIS reporting elements and to develop additional tracking elements that we anticipate will be required in the future by the California Community Colleges Chancellor's Office.

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### **Backup and Disaster Recovery**

The College provides multiple levels of backup and archival storage for enterprise digital resources. Nightly SAN snapshots capture complete backups for enterprise servers, allowing rapid restoration of files that have been inadvertently deleted. Nightly backups are also written to tape. A weekly tape is moved off-site for archival storage on a four week rotation. Monthly tapes are also stored off-site on a six-month rotation.

The campus data center, located in the MacDougall Administration Center, has redundant air conditioning, redundant Uninterruptable Power Supplies, and has generator backup for longer term power outages. The server rooms are located on the inner core of the second floor of the building. Access to the server rooms is restricted to Information Technology staff only.

### **Self-Evaluation**

The College meets the standard. The inception of the media-enhanced classroom initiative and the institutional transition to single support for a customized, consistent Moodle course/learning management system to support fully online, hybrid, and Web-enhanced classroom-based instruction, the judicious use of technology to support teaching and learning has begun to crystallize into a rich teaching and learning environment for students, faculty and staff. Upon this foundation, the College continues to expand options for working students to complete certificate and degree programs through online and hybrid modalities.

### **Planning Agenda**

None.

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## **C.1.b**

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

#### **Descriptive Summary**

Three primary groups are served by the Information Technology department at SBCC: (1) students; (2) faculty; and (3) administrators/managers and classified staff. The following section details the ways in which quality technical training is delivered to each campus constituency.

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#### **Information Technology Training for Students**

Information technology training is initially provided to students at their first point of contact in the Admissions and Records Office. It is here that students receive training and support for online registration and enrollment. Admissions Outreach offers a variety of personal technology training services to students bilingually in English and Spanish that are designed to coincide with registration and other high-impact periods. Other departments such as ESL and EOPS also provide customized training for students. These departments provide

individual, small and large group training. After their initial contact at the point of admission, student cohorts receive additional training in the Cyber Center through the student help desk known as Student Technology Support. Information covered includes but is not limited to the following:

- Appropriately using technology resources
- Accessing and navigating the Pipeline campus portal
- Using the campus debit card features
- Accessing the GoPrint pay-for-print stations
- Using the Xythos Digital Locker file storage system
- Connecting to the campus WiFi network.

Students also receive ongoing training and support in the Cartwright Learning Resource Center and the Luria Library, including training in the following areas:

- Enhancing computer skills
- Using technology resources to achieve better test results
- Using the Internet
- Employing presentation applications such as PowerPoint
- Accessing media, research, and reference databases

Additional one-on-one assistance is provided by Student Technology Support for the duration of a student's enrollment at SBCC. The effectiveness of this training is continuously evaluated through several evaluative measures such as the attainment of student learning outcomes and student surveys. Training improvement and enhancement is also formed via input from technology committees such as the Information Technology Committee, the Committee on Online Instruction, and the Faculty Professional Development Committee. The Student Senate is also actively engaged in providing feedback, while the Information Technology - Educational Programs workgroup continuously reviews new and proposed enhancements.

Continuing Education students at the Wake and Schott Centers are provided training through the Learning Center. Here students are offered customized computer assisted instruction to help them reach their GED and Adult High School academic goals. The two campuses also have a community computer center that provides on-demand basic computer skills workshops to assist students in their individual projects. Continuing Education computer centers also provide opportunities for students in computer courses to practice and finish their class lessons.

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### **Information Technology Training for Faculty**

The College provides faculty myriad opportunities for technology training throughout their teaching careers at SBCC. New adjunct faculty members can participate in an intensive two-day series of training seminars and workshops on the campus enterprise systems such as the use of Pipeline, SCT Banner, Xythos Digital Locker, Moodle, campus WiFi network, and the College's Media-enhanced classrooms (IIC.23). New contract faculty members are provided an even more in-depth three-day series of training seminars and workshops (IIC.24)

on a broader range of campus student information and other systems. Both new adjunct and new contract faculty members are then invited to attend the semi-annual faculty in-service days, during which time a broad range of technology training opportunities are presented (IIIC.25). In addition, new faculty members participate in monthly Teaching and Learning Seminar workshops throughout their first year at the College.

When faculty members become department chairs, (IIIC.26) they are offered additional training on the specific campus technology systems they will depend upon in their new roles. In addition, faculty attend a two-day symposium-style series of workshops throughout the Fall and Spring In-services. During these workshops, they learn about principles for universal design, disaster preparedness, using OmniUpdate and Extensis Portfolio, teaching in Moodle, using GroupWise, accessing the Financial Reporting System, using Active Directory and a host of enterprise campus applications. Human Resources also trains faculty, most notably, in their one-on-one training for accessing and utilizing the People Admin software system.

The Faculty Resource Center (FRC) is central to ongoing training at the College for full-time and adjunct faculty. The FRC, comprising two Main Campus buildings and six full-time staff members, provides in-person, online, synchronous, and asynchronous training. This training is available through a series of scheduled workshops and classes each semester, by appointment, and on a drop-in basis. Examples of training provided by the FRC (IIIC.27) include:

- Diversity at SBCC
- Introduction to Online Teaching
- Working with Difficult Students
- Technology and Accessibility
- Adding Multimedia to Your Moodle Courses
- CCC Confer
- Reading and Critical Thinking
- Adding Media to PowerPoint
- Strategies for Using Moodle to Improve Classroom Retention
- PowerPoint I
- Classroom Assessment Techniques
- Using Turnitin
- Creating an Electronic Grade book using Micrograde
- Introduction to Pipeline/Banner

The Faculty Professional Development Committee (IIIC.28) plans and organizes technology training through its “Flex” site, its workshops, its symposia, its Student Success Grants (IIIC.29), and numerous additional activities. Faculty members are also encouraged to take training online, such as through the CCC@One classes in subjects including podcasting, Moodle, Photoshop, and other technical teaching tools. In addition, departmental activities and conferences occur continuously throughout the academic year. The Faculty Professional Development Committee,

comprised of faculty, staff and administrators, meets semi-monthly during the academic year to plan, coordinate, and oversee these activities. Additionally, this committee is responsible for overseeing the Flex site, where faculty report their required annual professional development activities (IIIC.30). Full-time faculty members are required to complete 60 hours of professional development per year. Adjunct faculty members are required to engage in as many hours of professional development activities as the number of credit hours they teach per semester. The effectiveness of this training is continuously modified and enhanced through feedback on faculty surveys, analysis of helpdesk calls, and input from faculty technology committees such as the Information Technology Committee, the Committee on Online Instruction, and the Faculty Professional Development Committee. Further, direct faculty perspectives are disseminated to the Director of the Faculty Resource Center, the Dean of Educational Programs, Technology and the Vice President for Information Technology. As mentioned earlier in this section, the Information Technology - Educational Programs workgroup reviews new and proposed systems that incorporate the abovementioned feedback.

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### **Information Technology Training for Administrators/Managers and Classified Staff**

Administrators/managers and classified staff are also provided technology training via regularly scheduled Management meetings, subsidized Continuing Education courses, and an annual Management Retreat. Additionally, workshops, conferences, symposia, Webinars and other online resources, such as Enterprise Training's My SkillSource are offered routinely. Cohort and self-paced distance education courses, such as the sexual harassment training, are offered annually to administrators/managers. In addition, the Staff Resource Center (IIIC.31) provides individual one-hour sessions by appointment in PC GroupWise e-mail. In collaboration with the accounting department, the Staff Resource Center provides training on budget tracking and reporting. The Professional Development Center is another technology training resource for administrators and staff. The Professional Development Center provides coordination and administration for credit-based, short-term workplace training delivered in half-day and one-day training formats including topics such as technical writing, project management and Microsoft applications. Similar to the previously listed sections, the effectiveness of Information Technology training is evaluated through direct faculty feedback to the Dean of Educational Programs, Technology and the Vice President for Information Technology. It is also measured via the analyses of helpdesk calls, input from Human Resources and Legal Affairs, discussions at Management meetings and by the review of new and proposed systems that generate from the Information Technology - Educational Programs workgroup.

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### **Information Technology Support for Students, Faculty and Staff**

Just as Student Technology Services and the Cyber Center support SBCC students, the Information Technology Help Desk provides telephone and online support to faculty, administrators/managers and classified staff. The IT Help Desk also provides one-on-one training for faculty, administrators/managers and classified staff that need additional assistance using a variety of enterprise applications such as Xyθος, Banner, GroupWise, and Pipeline.

### **Self-Evaluation**

The College meets the standard. The College provides effective training in current and emerging technologies for students, faculty members, administrators and staff. Efforts are made by the entire campus community to remain informed of the latest technologies, to integrate them into institutional practices, and to communicate these practices through ongoing pre-announced training opportunities to all constituents. While some baseline data regarding training needs for the campus community have been developed, additional data will be required to retool programs, analyze their effectiveness, and work towards their continuous improvement. In the future, a universal attendance system will be developed to track personnel enrollment figures in Information Technology training programs.

With the advent of 3G mobile devices and their increasing market share over PDAs, calculators, GPS and other hand-held and Web-capable devices, training in the use of mobile broadband handsets may help speed and integrate communication among students and College personnel. Additionally, the College will continuously survey the technology usage patterns of its diverse student body to inform strategies that institutionalize best practices. For example, students are increasingly engaging in social collaboration and networking through Web-based rich media applications such as YouTube. Thus faculty will benefit by learning how to produce and upload Web videos to their Moodle class shells.

### **Planning agenda**

1. By Fall 2010, the Vice President for Information Technology will form a task force to establish and gather baseline data on the information technology training needs of the campus community, analyze this data, and develop training improvement plans.
2. Educational Programs staff will study the feasibility of expanding its existing support for students and faculty from a five-day per week 8:30 a.m. – 4:30 p.m. service, to one that includes nights and weekends in recognition of the 24 hour, seven day a week nature of contemporary higher education.

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## **C.1.c**

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

#### **Descriptive Summary**

Since 2001, the College has committed at least \$1.2 million annually to refreshing computer technology and infrastructure. The District Technology Committee (IIC.32), in consultation with the Instructional Technology Committee, developed a long-term technology refresh procedure that governs all student, faculty, and staff computing equipment. Annually, the District Technology Committee and Instructional Technology Committee review any modifications to the campus standards for hardware and software and approve the standard systems for that year (IIC.33). As mentioned, campus student computer labs, numbering almost 1,400 desktop computers, are on a four-year replacement cycle. Lab replacements are done over the summer or during winter recesses in consultation with the academic departments and lab support staff. Faculty and staff computers are replaced on four- and five-year cycles. Servers, printers, and network equipment are replaced at or within manufacturer's end-of-life schedules.

Goals and objectives within the District Technology Plan 2008-11 are given priority and are funded through Educational Programs or Information Technology department budgets as well as through the resource requests identified through program reviews. All hardware purchases that meet institutional requirements are included in the technology refresh cycle funded by the College refresh budget. Projects requiring additional funding are prioritized through the program review process and submitted to the College Planning Council for review and final priority assignment.

#### **Self-Evaluation**

The College meets the standard. Over the years, SBCC has provided adequate resources for the replacement of aging computers, workgroup printers, servers, and network infrastructure. The College systems are highly reliable, exceeding 99.8% availability on a regular basis and follow industry best practices for disaster recovery.

#### **Planning Agenda**

None.

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### **C.1.d**

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

#### **Descriptive Summary**

Technology is a widely infused essential resource across campus. Decisions over resource use and distribution stem from the program review process and Information Technology initiatives that are directly tied to the District Technology Plan 2008-11. Requests for new technology resources are prioritized by the College Planning Council and recommended to the Superintendent/President for inclusion within the annual budgeting process. The following narrative describes some of the major technology initiatives that have either been recently completed or are currently in progress at the College.

As part of the implementation of the SCT Banner ERP, the College followed SunGard's Unified Digital Campus philosophy (IIC.34) to provide seamless access to electronic resources to students, faculty, and staff. The campus portal (<http://pipeline.sbcc.edu>) is the gateway to almost all campus electronic resources, providing single sign-on to student information, reporting, file sharing, campus debit card features, and e-mail. It also provides a central location for messaging and updates to current events from the Channels, SBCC's online student newspaper, and FaST News, a publication for College employees authored and distributed by the Public Information Officer.

The College enables a standardized Central Authentication Service (CAS) (IIC.35) as the authentication mechanism, providing global credentials that can be recognized across all campus electronic systems. When students or employees log into the campus portal, a credential is created in their browser that identifies them to other CAS aware applications. Therefore, as users move from one site to another no additional authentication is required.

Portal accounts are created automatically for students and employees. The portal directory serves as the directory of record for third-party applications as well, providing simultaneously provisioned role-based access to all applications linked to and from the portal. As soon as a student receives an acceptance e-mail from

the College, his/her account on the portal is created by an automated process and he/she can access privileges based upon the configured student status. Employee accounts are also automated and are created subsequent to their employment. Employment termination by HR also results in those accounts being de-provisioned, thereby removing their access privileges.

Campus wireless access is ubiquitous, requiring Web sign-on using the same authentication schema used elsewhere at the College. The number of connections to campus WiFi access points is closely monitored (IIIC.5) and additional access points are scheduled for installation when the average load on an individual access point exceeds 60% more than 20% of the business day. Access to the GoPrint print release stations was made available to users of the campus wireless network during spring 2009. This allows students on the wireless network to print to network printers in our public areas just like the permanently wired lab computers. The wireless network also supports MAC address enabled connections providing seamless connectivity for PDAs and smart phones once registered with the IT Help Desk.

Debit privileges, enabled as part of the upgrade to our campus ID card system (IIIC.6), allow the use of the campus ID card for payment for almost all campus financial transactions including food service, bookstore, vending, pay for print, library fines, and van pool fee payment. A Web interface is also provided for parents, allowing them to add value to their student's campus card from off-campus, and also allows the parent to restrict the funds to specific areas such as bookstore, dining, or campus printing.



As mentioned earlier, all students and employees have access to the Xythos Digital Locker Suite, a Web-based file storage that is available both on and off campus. This permits students and employees the ability to save their work to their personalized digital locker from any place on campus and then access these very files offsite. Additionally, faculty can share assignments with students, create digital drop boxes for assignments, and track student use of online materials.

For its distance education programs, the College has relied upon the WebCT course learning management system since 1998. When the new Dean for Educational Programs with responsibility for the Online College joined the College in July 2007, it was determined that this dependence on a proprietary



for-profit system was unsustainable for pedagogical, institutional and financial reasons. Pedagogically, Blackboard products are limited by the company's closed-source model that blocks integration with SBCC enterprise systems and external third-party applications. Blackboard has also proven to be slow to market responding to student need for effective contact through high-touch Web 2.0 practices adopted elsewhere on the Internet. This well-documented, broadly-communicated decision was reached in reaction to Blackboard's practices including its legal challenges to competitors such as Desire2Learn, its refusal to negotiate consortium pricing with the California Community College System and the pressure it has placed on faculty and administrators to unify their campuses on its system. Over the last several years, Blackboard's services have also come under scrutiny at the College due to its poor delivery of hosted services, exemplified by its consistent inability to provide timely back-ups to the College. This issue alone has negatively impacted the institution, both in terms of our ability to provide faculty timely course rollover and our requirement for data archival. Of equal importance to the organization are the financial ramifications of continuing with Blackboard course learning management system products and hosting services. Projected costs for the College's dependence upon Blackboard through 2015 were in excess of \$1.3 million. Following a lengthy campus-wide discussion, in spring 2008 the College began transitioning to the open-source course learning management system known as Moodle through the re-allocation of Online College funds formerly used to support Blackboard WebCT with a net savings to the institution by 2015 and a significant long-term savings after that year.

### **Self-Evaluation**

The College meets the standard. During the implementation of the District Technology Plan 2005-2008 (IIC.36), the College made considerable progress towards meeting client expectations for expanded and effective use of technology in instruction and College operations. Within the last four years the College has:

1. Implemented a new ERP
2. Continued the refresh of College desktop computers
3. Expanded the deployment of campus WiFi access
4. Upgraded and expanded the installation of multi-media equipment in classrooms
5. Integrated the campus portal with the new ERP
6. Provided seamless access to third-party applications
7. Provided easy to use Web file storage

The College also transitioned from an externally hosted legacy version of the Blackboard course/learning management system to an internally-hosted, customized version of Moodle, bringing ease of use to faculty, students and staff regardless of the physical distance between them. Significant enhancements to all these systems are contained within the District Technology Plan 2008-2011 (IIC.37) to meet the College's rapidly growing technology expectations.

### **Planning Agenda**

None.

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**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**

Technology planning is guided by three-year District Technology Plans: 2005-2008 (IIIC.36) and 2008-2011 (IIIC.37). These plans are part of the overall strategic planning activities and provide direct support for the College Plan 2008-11 (IIIC.38). The six major goals in the current District Technology Plan come directly from the College Plan 2008-11. These goals all have direct or indirect requirements of technology which are more clearly defined in the District Technology Plan.

The District Technology Committee, charged with the development and implementation of the Technology Plan, is chaired by the Vice President, Information Technology, and has representation from all campus groups. The District Technology Committee also oversees planning for the purchasing and replacement of all campus technology. Approximately \$1.2 million has been allocated annually by the College for replacement of outdated technology. The District Technology Committee has approved a standard replacement cycle of four years for student laboratory computers, four years for faculty and staff PCs, and five years for Apple computers. Network hardware, network printers, and multimedia equipment are on five to ten year replacement cycles dependent upon vendor life cycles.

Departmental planning is integrated into the annual Operational Program Review with linkages made to the District Technology Plan and the College Plan. Monthly reports by departmental representatives are presented during meetings of the District Technology Committee on all College technology projects, including Continuing Education. Additional input on instructional technology activity is provided by the Instructional Technology Committee, which is an Academic Senate committee. The Instructional Technology Committee chairperson and four other faculty members also serve on the District Technology Committee. The District Technology Committee reports their progress and activities to the College Planning Council and the Superintendent/President.

The governance structure for technology planning is designed to enable decisions regarding technology initiatives to be made by those most closely affected by technology advancements and initiatives. Decisions regarding IT initiatives are evaluated with respect to each of the following five factors: (1) customer needs and expectations; (2) empowerment of the individual; (3) efficient and effective operational processes; (4) maintaining a competitive edge, (5) and relevance to both the College Plan and the District Technology Plan. In order to facilitate the planning and decision-making process, members of the Information Technology and the Educational Programs organizations serve as technical support and resources to units of the College that are responsible for using technology to serve their clients (i.e., students, faculty, staff, and community-based organizations).

### **Self-Evaluation**

The College meets the standard. Institutional projects, driven by the District Technology Plan, are reported regularly to the Instructional Technology Committee and the District Technology Committee and are compared to the metrics of success contained in the Technology Plan. The College Planning Council, in allocating new resource recommendations for technology projects, uses the strategic plans to help make their recommendations in addition to the standard criteria for all campus resource requests. Funds are allocated annually for the refresh of College owned technology equipment, an integral part of the College budgeting process. Departmental requests for new technology resources are embedded in the annual Program Review process, reviewed by the area Vice President, and submitted to College Planning Council for review and assignment of an institutional priority prior to the preparation of the College draft budget for the next fiscal year.

### **Planning Agenda**

None.

### **References**

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- IIC.2 Administrative Systems Support Matrix
- IIC.3 Infrastructure Survey, February 6, 2009
- IIC.4 Institutional Effectiveness Report 2007-2008
- IIC.5 WiFi Usage Report, January, 2009
- IIC.6 Banner Implementation Documents
- IIC.7 Luminis Documentation
- IIC.8 Moodle Documentation <http://www.moodle.org>
- IIC.9 Media Enhanced Classroom List
- IIC.10 Carnegie Mellon Socrates Project Agreement
- IIC.11 Panopto Course Cast Lecture System
- IIC.12 California Community College Edustream consortium,  
<http://www.edustream.org/>
- IIC.13 Student response systems pilot 2008-2009 ITC Agenda,  
February 27, 2009
- IIC.14 ITC Minutes May 8, 2009
- IIC.15 Substantive Change Proposal April 2009
- IIC.16 Online College Student Experiences Survey 2007-08
- IIC.17 Course Learning Management Systems Literature Review
- IIC.18 COI Handouts Learning Management Systems Bibliography
- IIC.19 Learning Management System Resolution
- IIC.20 Moodle Training in FRC: <http://frc.sbcc.edu/>
- IIC.21 Portal Steering Committee Agenda February 5, 2009
- IIC.22 Portal Google analytics Report, January 26 to February 1, 2009
- IIC.23 New Adjunct Faculty Orientation Agenda Spring 2009
- IIC.24 New Contract Faculty Orientation Agenda Fall 2008
- IIC.25 In-service Agenda Fall 2008
- IIC.26 New Department Chair Orientation

- IIC.27 FRC Training Schedule <https://flex.sbcc.edu/Catalog.aspx>
- IIC.28 Faculty Professional Development  
<http://www.sbcc.edu/facultydevelopment/>
- IIC.29 Student Success Grants 2007-08
- IIC.30 Faculty Flex <http://flex.sbcc.edu>
- IIC.31 Staff Resource Center <http://www.sbcc.edu/staffresourcecenter/>
- IIC.32 Computer Refresh Procedures, District Technology Committee  
Minutes December 1 and December 15, 2006
- IIC.33 District Technology Committee Minutes April 21, 2006
- IIC.34 SunGard HE Unified Digital Campus  
<http://www.unifieddigitalcampus.com/>
- IIC.35 Central Authentication Services
- IIC.36 District Technology Plan 2005-2008
- IIC.37 District Technology Plan 2008-11
- IIC.38 College Plan 2008-11