Standard IIIC: Technology

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

Descriptive Summary

Pasadena City College is committed to using technology to support student learning programs and services and to improve institutional effectiveness. This commitment is reflected in the College's Mission, which states that the College will serve students by "*fostering a dynamic and creative learning environment that is technologically, intellectually and culturally stimulating*" (IIA-136: College Mission Catalog).

Further supporting the mission statement is the College's Educational Master Plan (EMP), which identifies the College's overarching Critical Priorities and Strategies (i-43: EMP Executive Summary). In relation to technology needs, the EMP outlines that the institution will:

C1	Identify and address the technology needs and leadership that support the successful operations of the institution
C2	Identify and address the technology needs that support innovative teaching and learning methodologies
C3	Identify and address the technology needs that sustain all student support services and the library
C4	Identify and address students' technology training needs to prepare them for technology driven professions

Self-Evaluation

The institution is strongly committed to technology in support of student learning and institutional effectiveness, which is reflected in the College's guiding documents -- the Mission and Educational Master Plan. Through collegial ongoing processes, these living documents are reviewed and revised to ensure that current and future technology needs and goals are met. As a result, ongoing technology improvements including the addition of smart classroom technology and new computers including a laptop option for faculty have occurred since the last self evaluation.

The College meets this Standard.

Actionable Improvement Plans

None.

IIIC.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

Pasadena City College ensures that the technology it selects, implements, and maintains supports the teaching and learning needs of its stakeholders. A range of current and future technology needs are identified and evaluated through a variety of planning and review processes. Individual departments and programs identify technology needs via the program review process (i-34: 2013 Program Review Calendar, IIIC-1: 2014 Program Review Calendar), campus stakeholders engage in College-wide technology planning and implementation committees (IIIC-2: College Council Academic Computing and Technology Standing Committee Screenshot, IIIC-3: Academic Senate Faculty Technology Committee Screenshot, IIIC-4: LancerPoint Implementation Committee Screenshot, IIIC-5: DE LMS Evaluation Committee Screenshot), students and employees participate in campus-wide technology surveys (IIIC-6: LMS Survey Results, IIIB-19: 2012 Faculty Technology Survey, IIC-76: 2009 Student Technology Survey), and the institution utilizes third party evaluations/assessments to help identify current and future technology needs (IIIC-7: Strata Information Group (SIG) Technology Final Report, IIIC-8: Business Process Analysis). This allows the College to identify technology needs that may be campus-wide or specific to individual departments or units.

Some areas that significantly depend on technology resources or provide technology services administer independent surveys to evaluate department/program user satisfaction and needs, which is then reflected in unit planning documents and program-level technology implementations. For example in early Spring 2012, the Distance Education Department conducted a survey of faculty and administrators to determine satisfaction with the College's learning management system (LMS) (IIIC-6: LMS Survey Results). Survey results indicated the necessity for a comprehensive LMS evaluation to determine if an alternate system would support College needs more effectively. A committee of campus-wide stakeholders conducted the evaluation, which resulted in the selection and migration to a new LMS, Canvas, in Spring 2012. Overall LMS use and adoption rates have increased significantly since implementing the Canvas system. Figure 1 illustrates the campus-wide desire to adopt a new LMS and Figure 2 demonstrates the level of satisfaction with the previous LMS.

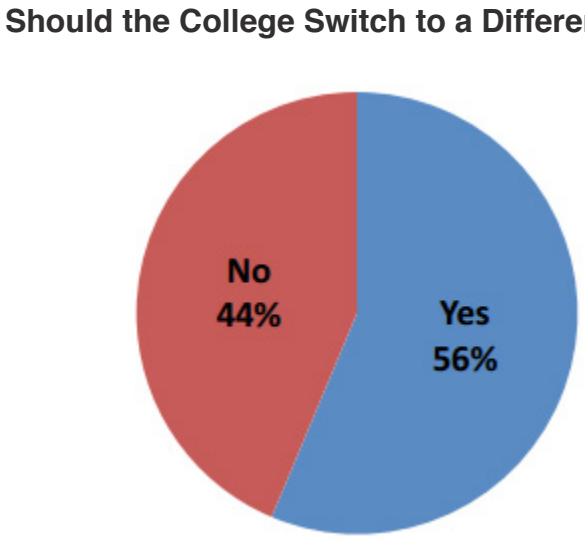

Figure 1 Campus-Wide Desire to Change LMS

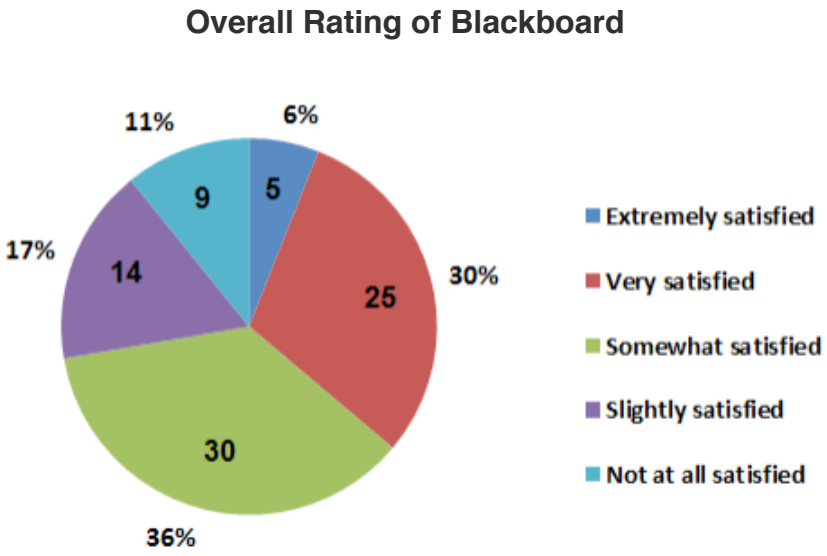

Figure 2 LMS Satisfaction

Institution-wide committees with a cross-section of stakeholders (employees and students) are integral in assuring that the technology the College invests in meets the needs of teaching, learning and overall operations. The College Council Academic Computing & Technology Standing Committee, Administrative Technologies Advisory Committee (LancerPoint Committee), former Learning Technologies Advisory Committee, and the Information Technology Services department use survey and evaluation results to help determine, prioritize, and initiate College-wide initiatives.

The Department of Institutional Effectiveness supports the overall assessment of campus technology needs, experiences, and expectations via a Campus Technology Survey administered to faculty, staff, and students. This Department compiles the data, highlighting areas where the College is meeting technology expectations and areas needing improvement, and publishes the findings on the College website (IIIC-9: Research Findings Website Screenshot). For example, Research Findings #29 addresses the 2009 Student Technology Survey (IIC-76: 2009 Student Technology Survey). Figure 3 demonstrates the types of questions posed to students regarding satisfaction levels with online services and computer systems.

Registration/Adds and Drops	3.06	3.04
Current class schedule	3.42	3.05
Update personal information	3.33	3.23
Update goal, major, and matriculation information	3.21	3.14
Assessment results (placement scores)	3.22	2.99
All previous semesters' academic information	3.37	3.22
Online enrollment verification at Nat. Student Clearinghouse	3.31	3.11
PCC email (campus mail)	2.81	2.77
F.A.S.T. (telephone registration system)	3.08	2.89
Web CT (online classes)	3.39	3.07
Inline Forums (online classes and general discussions)	3.27	3.03
Online Admissions Application	3.32	3.26

Figure 3 2009 Student Technology Satisfaction Survey
(1 = Very dissatisfied to 4 = Very Satisfied)

The College utilizes third party consultants to help assess technology and support services. In 2009 Strata Information Group (SIG) conducted a comprehensive technology evaluation, which has fundamentally served as the College's 5-year Technology Master Plan for 2009-2014 (IIIC-7: Strata Information Group (SIG) Technology Final Report). The plan includes the reorganization of technology leadership and management, increased support for instructional computing, procurement of a new Administrative Information System (AIS), an improved web presence, and streamlined business processes. A 2011 Business Process Analysis (BPA) conducted by SIG helped the College plan for business processes to take full advantage of a new Administrative Information System (IIIC-8: Business Process Analysis). The resulting BPA assessment outlined current business processes, obstacles, and opportunities for improvement in the areas of class schedule development, financial aid and student accounts receivable, hiring and payroll, enrollment, purchasing planning, and academic history. This plan identified the overarching complexity of the College's legacy systems, and outlined the need to improve functional workflows throughout the College's business processes. Part of the process was to develop a plan for procurement of a new Administrative Information System, and lead the RFQ process, which outlined the requirements of a new system (IIIC-10: AIS RFQ).

The College's Information Technology Services (ITS) department helps identify and evaluate technology needs in addition to taking a leadership role in implementation (IIIC-11: ITS Screenshot). The 2012 ITS Technology Functionality Implementation Plan outlined the actionable projects (with budget and timelines) to implement the new Administrative Information System, expand/improve Smart Classrooms, develop a laptop/desktop replacement plan, redesign of the College web site (including infrastructure), and design a desktop/server virtualization plan (IIIC-12: Technology Implementation Plan). To oversee and execute the various components of the plan, College-wide committees and targeted project teams were formed. Each of these projects required substantial planning, communication and coordination across the campus community to ensure the technology met the needs of learning, teaching, College-wide communications, research, and operational systems. The following chart identifies the projects and outcomes of this plan.

Technology Planning Item	Description	Status
Implement a new Administrative Information System (Banner/LancerPoint)	The former AIS was replaced with a more comprehensive, robust, and reliable technology solution.	Mostly complete
SMART 18 Initiative	All PCC classrooms will be upgraded to 'SMART' status. This includes replacing full-time faculty desktops with a laptop and docking station to enhance mobility and utilize the new SMART classrooms.	Completed
PCC Website Redesign	A comprehensive redesign of the College website to improve visual design, user interface, and information architecture.	In progress
Desktop/Server Virtualization	Consolidate the 70+ computer labs across the College while also making lab resources more readily available via the internet	Determined to not be financially viable; investigating alternatives
Network expansion	Investment in the current network infrastructure to address gaps and expand wireless networking.	Upgrade is continuous, but network already significantly upgraded

Self-Evaluation

The College has made significant strides in improving the technology needs of faculty, staff and students and to improve operational efficiencies over the past six years.

According to campus wide surveys and evaluations in 2009, the greatest source of student and employee frustration was the usability, accessibility and reliability of the College's Student Information System, the stability of its underlying infrastructure, and the lack of integration between disparate operational systems. The older technology design and infrastructure could

not support student success projects that required analytics and integrated data, shut down each evening for back-ups and was not available 24/7 for employees or students, was extremely slow and timed out consistently (causing much user frustration), was not 508 compliant, only permitted 500 students to access the system at any given time, and did not support single-sign on between disparate systems. Due to its age, the legacy system could no longer be physically maintained -- which added significantly to the urgency to select and implement a new system. Additionally, statewide technology initiatives relied on certain baseline technologies that the College could not support or integrate. Reporting locally, and to state and federal agencies required a lot of human resources since systems were not synchronized or communicating.

To address these concerns, the institution embarked on an aggressive implementation plan to update the College's Administrative Information System, integrate disparate systems, and improve the overall underlying technology infrastructure for the campus. Between 2011 and 2012, the campus updated the campus infrastructure to support a new AIS (IIIC-13: AIS Teams). For example, the College upgraded wireless, implemented Tipping Point software to manage and monitor network traffic, acquired new servers and built a new server room, and expanded the existing back-up system, CommVault, to support the new AIS. A capacity evaluation determined that the 1 gigabit line provided through the Corporation for Education Network Initiatives in California (CENIC) was sufficient for our College. The College completed a comprehensive RFP and RQ process and selected the Ellucian Banner enterprise solution (IIIC-14: Ellucian Solution by PCC Goal).

An Administrative Technologies Advisory Committee (ATAC), consisting of PCC stakeholders and Ellucian specialists, worked together throughout the development/implementation process as a whole and in functional sub-teams. Disparate systems and services were catalogued and ATAC worked together to create a plan for integration, discontinuance, or stand-alone use (IIIC-15: AIS Integration Report). The College went live with the new enterprise system and many integrated third party software/services in Spring 2012.

The new AIS system - named ***LancerPoint*** - is 24/7, can handle 3,000 simultaneous users, is 508 compliant, is a one-stop shop for all College business, is single-sign on, and allows the College to more accurately and effectively report data (IIIC-16: LancerPoint Metrics). The College met its intended goals and stated timelines to provide improvements in the areas of usability, accessibility and reliability. As with any technology implementation, the College's AIS is an on-going project that requires ongoing support, evaluation, revision and improvement. To address this, the College is developing a comprehensive 5-year refresh cycle.

The College should continue to work on ensuring that all 508 compliance standards for electronic resources, software and services are met. For major technology purchases (e.g. AIS, LMS, Library Databases) the Purchasing Department requires a Voluntary Product Accessibility Template (VPAT), a tool used to identify a product's compliance with section 508 of the Rehabilitation Act, as part of the acquisition process to assure basic accessibility. For smaller subscriptions, purchases and textbook orders, the individual staff member placing the order

is responsible for assuring compliance. Many employees are unaware of 508 compliance requirements and procurement guidelines, resulting in the use of inaccessible instructional materials/resources and non-compliant stand-alone department-level software/services.

Pasadena City College meets this Standard.

Actionable Improvement Plans

To improve institutional effectiveness, the College will develop procurement guidelines, processes, and professional learning opportunities to ensure instructional materials, resources, and software services are 508 compliant.

IIIC.1a Technology services, professional support, facilities, hardware, and software are designed to enhance the operation and effectiveness of the institution.

Descriptive Summary

The Information Technology Services unit provides the overarching technology services, professional support, equipment, facilities, and software to ensure the effectiveness of the institution. Based on a recommendation from the 2009 SIG Technology Report, the area was reorganized in 2011 into major functional areas to better align responsibilities (IIIC-17: ITS Organizational Chart). The Enterprise Applications/Services supports the College's enterprise applications, data and security. Technical Services is responsible for ITS infrastructure and on-demand desktop/lab support for faculty and staff. Figure 4 illustrates the new organizational structure for the area.

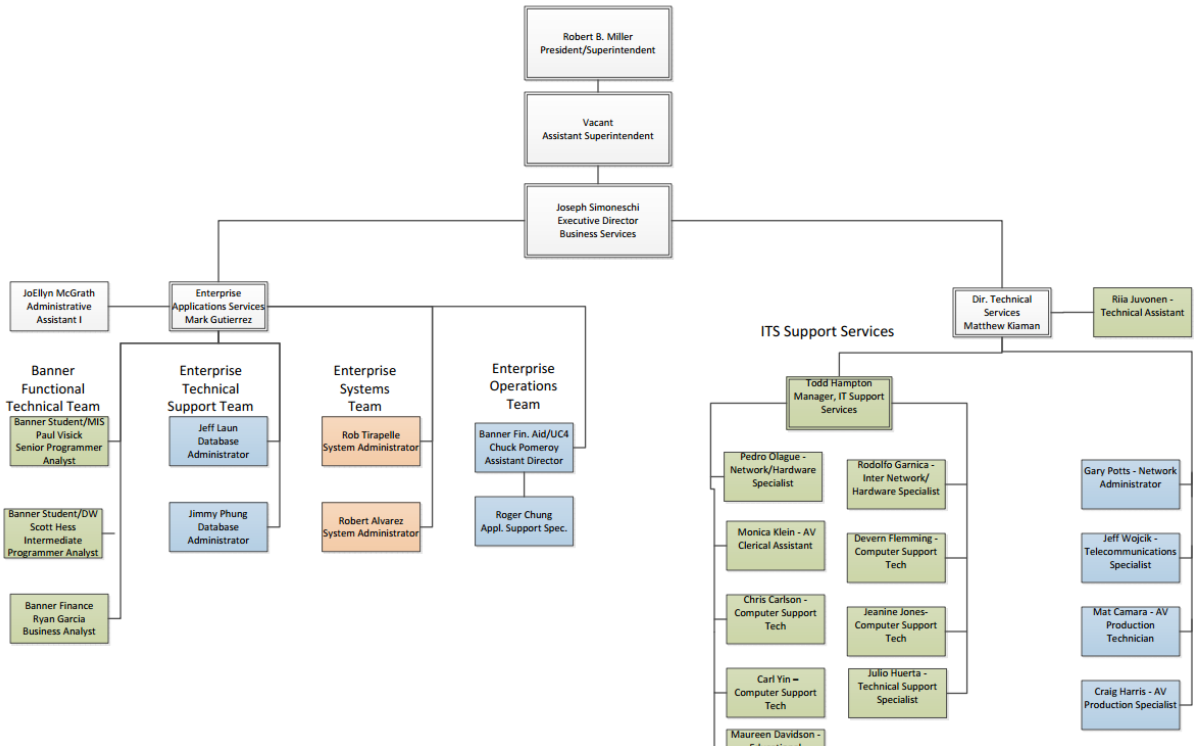

Figure 4 ITS Organizational Chart

College-wide and department/program-level technology implementations are accomplished in close collaboration with and support of Information Technology Services. ITS helps oversee implementation plans, ensure purchases meet current technology standards, assure that acquisitions requiring ongoing institutional support fall into the support and resources ITS can provide. The ITS area also works with purchasing vendors to maximize budget efficiencies, for example with statewide buys.

In addition to LancerPoint implementation, there are many other instances of technology decisions the College has supported to enhance operations and effectiveness. For example, in 2012 the Learning Technologies Advisory Committee was charged to develop a plan for updating classroom technology and faculty computing. The need was identified in the 2009 Faculty Campus Technology Survey and mentioned in the 2009 SIG Technology Report (IIIC-7: Strata Information Group (SIG) Technology Final Report). The committee conducted a revised 2012 Faculty Technology Survey to re-assess need. The committee evaluated the results and developed the Smart Classrooms and Laptop Replacement Program that was thereafter funded and implemented in 2013. The outcome allowed faculty to more easily integrate the use of technology into teaching and learning, which previously was not possible except in a small number of classrooms.

The need to update and revise the College's web site was also identified in the 2009 Faculty Campus Technology Survey and the 2009 SIG Technology Report. There were significant issues with the web site's Cold Fusion platform, employee dissatisfaction with the process for updating

department/program pages using Contribute, and overall usability issues including navigation, design and 508 compliance. In response, a web site redesign committee was established in 2011. Through a two-year process of assessment, stakeholder evaluation and usability testing (by both local and 3rd-party entities), the web site is being improved.

Decisions regarding technology for DE programs and courses follow a similar strategy, where stakeholder input is continuously gathered (both qualitatively/quantitatively and formally/informally) to support technology decisions. For example in 2011, the DE Department noted a general dissatisfaction with the existing learning management system (LMS) from both faculty and students. The department was also investing a significant amount of time and resources administering/supporting the system. In early Spring 2012, the Distance Education Department conducted a College-wide survey to determine satisfaction with the College's LMS. The outcome indicated the need for comprehensive LMS evaluation, which was led by a committee of campus-wide stakeholders, and resulted in the College selecting and moving to a new cloud-hosted LMS, Canvas, in summer 2012.

As more computing occurs in the classroom and throughout the campus, the expectation for ubiquitous and stable wireless service has increased significantly. In 2013, the College expanded the number of wireless access points (using CISCO Meraki) in all campus buildings and key public areas. The service is rate limited in high density areas to ensure the system does not become overloaded and unusable (using a wireless system manager Trapeze). The College also offers an authenticated version for faster performance for certain College programs/services that highly depend on wireless availability.

Self-Evaluation

The College makes appropriate decisions about technology services, facilities, hardware and software to meet the needs of students and employees and improves the effectiveness of the institution. Within the College's technology budget allocations and support services, great strides have been made in meeting the College's technology mission and goals since 2009.

In addition to the successful LancerPoint implementation and the full suite of integrated software/services, the College has implemented many technologies to enhance operations and the effectiveness of the institution. The College upgraded its network and telephone infrastructure in 2007, upgraded its internet lines from DS3 to a GigaMAN fiber connection in 2009, and moved from Pegasus mail to Exchange in 2010. These changes allowed for web based access to employee email. Additionally, student email (Gmail) was implemented in 2013 as a consistent place for communication between the College and students, computer labs began piloting virtualization to reduce manual labor of upkeep, campus software licenses for College-owned desktops were expanded to full Microsoft and Adobe suites to reduce single license purchases, and single sign-on was expanded to most software/services which allows for 24/7 online password reset for all employees and students.

As a result of the Faculty Technology Survey, smart classroom technologies (Smart board, short throw projector, and teacher desktop or docking station) were installed to meet teaching and learning needs as indicated in the 2012 Faculty Technology survey. Additionally in 2013, all full time faculty members received a computer upgrade as a result of the 2012 Faculty Technology Survey/Laptop Replacement Program (IIIB-19: 2012 Faculty Technology Survey). While an improvement, this program did not address the needs of staff, computer labs, or service areas. Refresh is currently handled on as as-needed basis and a comprehensive 5-year cycle of maintenance is being developed.

The College's new web site, soft-launched in Feb 2014, is the culmination of two years of planning and design. The interface is student-centered and focuses on intuitive navigation and ease-of-use on all devices and platforms. In addition to being 508 compliant, it will use templates to help maintain compliance integrity and will allow employees/departments to edit program-level/department information using OmniUpdate. The College is currently assessing the level of resources needed to maintain a dynamic and relevant web site that meets the needs of the College community.

The Distance Education Department has made great technological strides in accommodating the College's curricular obligations for distance learning programs and courses. When the department was formed in Fall 2010, it made a commitment that all technology implementations for distance education would be made available campus-wide regardless of mode of instruction.

Prior to 2010, a small number of faculty members were using the exiting LMS for their online, hybrid and web enhanced courses (~75). With limited staffing, there were no guidelines or procedures for shell creation; faculty had to request course shells each term and rosters needed to be manually loaded. In Spring 2011, course and roster loads were automated from the SIS system and all course sections had a shell automatically generated, assigned to the instructor of record and populated with the class roster with hourly updates. This improved access and increased LMS use significantly College-wide. When the College shifted to Canvas in Summer 2012, course shells continued to be auto-generated and LMS-use skyrocketed. The LMS now has a minimum of 20,000 active unique students and 600+ faculty members using the system in a given term.

The success of the new LMS system is highly attributed to its accessibility and intuitive interface/design in addition to offering many technology features that faculty and students want and need. These include the ability to record audio and video within the system, an integrated captioning feature, embedded social media tools (i.e. Facebook, Twitter) and mobile access to course content and activities. The use of the College's TurnItin subscription also increased significantly with LMS integration. The DE department no longer needs to manually create/manage TurnItIn accounts and faculty can easily utilize TurnItIn via the Canvas system without any initial, external setup. The department now supports an array of technologies and technology services to support online curricular needs. The full listing can be found on the PCC Online faculty resources web site (IIIC-18: PCCOnline Website).

In 2011, the Distance Education Department led the charge in upgrading the technology for College-wide faculty and student evaluations. Per the PCC contract, evaluations are required but online course sections did not have an opportunity to participate because evaluations were only paper-based. In collaboration with the Institutional Planning and Research office and the Information Technology Services Area (then called MIS), the institution is upgrading to a new system which will provide significant cost savings for paper-based on-campus evaluations and the ability to send evaluations securely electronically to online students.

The College meets this Standard.

Actionable Improvement Plans

To improve institutional effectiveness, the College will finalize and implement a clear cycle of regular and ongoing maintenance/refresh and improvement plan for technology resources.

IIIC.1b: The institution provides quality training in the effective application of its information technology to students and personnel.

Descriptive Summary

As College technology applications are implemented or updated, the Institution provides training for College stakeholders. Consistent and accessible technology training is a strategic goal of the EMP (i-43: EMP Executive Summary), a strong recommendation in the 2009 SIG PCC Technology Report (IIIC-7: Strata Information Group (SIG) Technology Final Report), evident in the 2012 Faculty Technology Survey (IIIB-19: 2012 Faculty Technology Survey), and highlighted as a need in the 2009 Student survey (IIC-76: 2009 Student Technology Survey). With an understanding that training is necessary for the effective application of its technology, the College was diligent in ensuring comprehensive training for students and personnel with the recent LancerPoint implementation. During this major technology initiative, College ITS employees received substantial training and guidance from on-site and remote Ellucian consultants. They also attended off-site and online trainings throughout the implementation process and will continue to participate in training opportunities as the system evolves. Functional leads and employees who conduct daily operations using the new system received training and guidance from on-site and remote Ellucian representatives. Additionally, an in-house ITS staff member serves as a primary contact for troubleshooting and ongoing training in key functional areas.

The Academy of Professional Learning (APL), developed in 2013, lead faculty training on how to use the LancerPoint system with in-person workshops, drop-in trainings, an online FAQ, e-mail support, and online how-to videos. The in-person workshops are offered multiple times each week with 30 different workshops scheduled in the first 2 months of the Fall 2014 semester

(IIIC-19: LancerPoint Workshops Fall 2014, IIIC-20: LancerPoint Training Videos Website). Students are provided with online videos, a web-based FAQ, e-mail and phone support, and a walk-in helpdesk. These services are cyclical and ongoing as new students and faculty join the PCC community.

When addressing the needs of specific units or departments, the responsible area for a technology takes a leadership role in providing initial and ongoing training opportunities/resources. For example, Payroll offers training for Kronos, Distance Education offers training for Canvas, Curriculum and Instruction offers training on WebCMS, and the College Helpdesk will work with employees one-on-one as training is needed (IIIC-21: Canvas Training Website Screenshot, IIA-35: 2010 DE Training Opportunities, IIA-36: 2011 DE Training Opportunities, IIA-37: 2012 DE Training Opportunities, IIA-38: 2013 DE Training Opportunities, IIA-39: 2014 DE Training Opportunities, IIIC-23: CEC Kronos Training Announcement, IIIC-24: Fiscal Services Kronos Manual,).

Depending on the technology and the department/program, training may be conducted in-house by PCC personnel or by a contracted vendor. Ongoing training materials and resources vary and may be available through the technology vendor, College HelpDesk, or trained on-site employees (online or on-ground). One major initiative supported by APL is an institutional subscription to Lynda.com, a website with comprehensive technology training tutorial videos, that can be accessed by all PCC employees. The goal is to try to fill the gap in basic technology training that is not offered in any other form to the College's employees (IIIC-25: APL Lynda.com Screenshot).

When the Distance Education Department was developed in Fall 2010, a strategic goal was to create robust and ongoing technology training and support for all end-users. In 2011, the College implemented 24/7 LMS support for employees and students (available via phone, e-mail, and chat), implemented an ongoing program face-to-face technical training workshops for faculty, and increased on-ground technical training/support by one additional full time employee in Fall 2012 (IIIC-26: Canvas Support Screenshot). Additionally many training/support options are available to employees and students on the Distance Education student and faculty resources web sites (IIIC-27: DE Faculty Services Screenshot, IIIC-28: DE Student Services Screenshot).

Self-Evaluation

Pasadena City College provides a range of high quality training opportunities in the effective application of its information technology to students and personnel. In addition to the formal training programs mentioned above, a significant amount of technology training is offered one-on-one/as-needed to employees by the ITS Helpdesk, or by the area supporting a software/service. The recent AIS implementation, Canvas implementation and several technology implementations over the last six years have offered robust options for initial and ongoing support/training for all stakeholders, including students.

Pasadena City College meets Standard IIIC.1b.

While substantial, high-quality technology training is offered, there is always room for improvement. The College has taken huge steps forward since the last self evaluation in the breadth and depth of professional learning opportunities available for employees, including the Academic Senate Flex Day, Classified Days, Academy of Professional Learning (APL), various Management Association Retreats, Human Resources trainings, and the above-mentioned technology trainings. Technology training campus-wide would benefit from a coordinated approach. This would ensure that all campus needs were being met in an ongoing, systematic fashion.

Actionable Improvement Plans

To improve institutional effectiveness, the College will assess and coordinate technology training so that it is ongoing and systematic and the technology training needs of the campus are met.

IIIC.1c: The institution systematically plans, acquires, maintains, and upgrades or replaces technology infrastructure and equipment to meet institutional needs.

Descriptive Summary

The institution plans, acquires, maintains and upgrades or replaces technology infrastructure and equipment based on the College's planning processes. Individual departments identify technology needs via the annual Program Review process, campus stakeholders engage in College-wide technology planning and implementation committees, students and employees participate in campus-wide technology surveys, and the institution utilizes third party evaluations/assessments to help identify current and future technology needs. The details of these efforts are detailed in IIIC.1 of this document.

The ITS Department holds the primary responsibility for determining campus-wide infrastructure and equipment needs. To better support this obligation, the ITS area was reorganized in 2011 into two major functional areas which aligned and streamlined responsibilities (IIIC-17: ITS Organizational Chart). Technical Services is responsible for desktop/lab support and ITS infrastructure. Enterprise Applications/Services supports the College's enterprise applications, data and security. While the primary focus has been the preparation for and implementation of a new enterprise system, over the past six years, the ITS Department has supported a plethora of technology implementations.

Assessment

In 2008, a third party consultant, Strata Information Group (SIG), was hired to assess the College's overall technology and support services. The resulting 2009 Technology Report served as the foundation for subsequent technology planning and implementations (IIIC-7: Strata Information Group (SIG) Technology Final Report). SIG's recommendations include the reorganization of technology leadership and management, increased support for instructional computing, procurement of a new Administrative Information System, an improved web presence, and streamlined business processes.

Upgrades and Maintenance

The 2008 High Availability (N+1) Environment (rev. 2010) Server upgrade plan outlined the equipment and business processes required to support the College's critical ancillary systems, which were incrementally implemented between 2008 and 2014. This allows for automatic recovery of data in case of physical hardware failure. This has been a major improvement and the College could strengthen its preparedness for disasters.

In 2009, PlanNet Consulting conducted a Business Impact Analysis, Risk Assessment and Information Security Assessment of the College's IT environment. The resulting recommendations outlined key planning considerations for the Information Technology Services Department to ensure business continuity in the event of a major disruption, protect the security of the system and putting things into place to mitigate vulnerabilities. This report affected the redesign and implementation of the College's overall infrastructure – from employee desktop, to the network, to external agencies used.

In response to the above recommendations, a 2010/2011 *MIS Recommendations for Technology Infrastructure Update in Preparation for the Academic Enterprise System* was developed, which outline goals and requirements to build an appropriate infrastructure and associated impacts.

Instructional technology needs were also addressed. Computer labs have been upgraded and technology has been added to or updated in instructional spaces. Faculty also received new computers rather than refurbished student computers and are now given an option to select a laptop or stationary PC.

Planning

In 2012 the Information Technology Services department outlined a Technology Functionality Implementation Plan to realize the key strategic technology goals identified by the above planning and evaluation processes (IIIC-12: Technology Implementation Plan). To oversee and execute the various components of the plan, College-wide committees and targeted project teams were formed. Each of these projects required substantial planning, communication and coordination across the campus community.

Self-Evaluation

Since the last self-evaluation, the College has acquired a more appropriate infrastructure to support the operations of a College its size. The former Student Information System, Santa Rosa, was on an HP 3000. The new enterprise system runs on newly acquired equipment/ software. This includes two database servers (Dell/Oracle), three VMWare Hypervisors (which run the enterprise software) and an external SAN (disk space). The entire system is backed up by CommVault. The new enterprise system is far more reliable than the former legacy HP. All hardware is covered under warranty and service plans and the VMWare can handle the loss of a hypervisor or two and still run effectively. Despite these benefits, the College needs to address a disaster recovery plan. If a server goes down (in an emergency or otherwise), the enterprise system will not function until the server is replaced and configured.

ITS is responsible for ensuring that all technology acquired, maintained, or upgraded meets the College's mission and strategic goals. ITS also helps oversee implementation plans, ensure purchases meet current technology standards, assures that acquisitions requiring ongoing institutional support fall into the support and resources ITS can provide. The ITS area works with purchasing vendors to maximize budget efficiencies, for example with statewide buys. ITS continues to service and maintain supported department software (i.e. software that resides on the College's enterprise servers).

Pasadena City College meets this Standard.

Actionable Improvement Plans

To improve institutional effectiveness, the College will implement a comprehensive disaster recovery plan for enterprise systems.

IIIC.1d: The distribution and utilization of technology resources support the development, maintenance, and enhancement of its programs and services.

Descriptive Summary

The institution distributes and utilizes technology resources based on the College's planning processes. By doing so, it ensures that technology directly supports the development, maintenance, and enhancement of its programs and services. Each operational unit on campus has a technology budget to support its technology needs or responsibilities. Augmentations to a budget to fund a growing or new need are requested via the Program Planning Process.

The availability of the enterprise software and services directly supports the development, maintenance, and enhancement of programs and services. For example, data-driven decision-

making is more viable now that systems are integrated and reporting is accessible to programs/units. Students are able to develop education plans and register for classes 24/7. Faculty members are able to enter grades and add/drop students day or night (no more down time for system back-ups). These efficiencies make a considerable difference to all stakeholders supporting operations and student success.

In addition to the successful LancerPoint implementation and the full suite of integrated software/services, the College has implemented many technologies to support the development and enhancement of its programs and services. For example, the College upgraded its internet lines from DS3 to a GigaMAN fiber connection in 2009 for faster internet service, student e-mail (Gmail) was implemented in 2013 as a consistent place for communication between the College and students, computer labs began piloting virtualization so student labs have up-to-date and consistent software across campus, and employees have access to the full Microsoft and Adobe suites to support operations.

Smart classroom technologies (Smart board, short throw projector, and teacher desktop or docking station) were installed to meet teaching and learning needs and all full time faculty members received a computer upgrade as a result of the 2012 Faculty Technology Survey/Laptop Replacement Program (IIIC-29: List of Smart Classrooms Revision).

Distance education technology implementations are available campus-wide to all stakeholders. Implementations include Smarthinking 24/7 Tutoring, the Canvas LMS, 24/7 LMS support, TurnItIn, VoiceThread, Camtasia Relay, among others. A full list is available on the PCC Online Faculty Resources web site and is discussed in IIIC.1b of this document.

The Canvas LMS, in particular, is used for a variety of contexts including online, hybrid and web enhanced courses, communities of practice and professional learning groups, and by College committees. Stakeholder input is continuously gathered (qualitatively/quantitatively and formally/ informally) to assess technology needs and support technology decisions.

Self-Evaluation

Based on the needs defined in the Technology Implementation Plan, the ITS Department is effective in ensuring that all technology acquired, maintained, upgraded or, replaced meets the College's mission and strategic goals (IIIC-12: Technology Implementation Plan). ITS helps oversee implementation plans, ensure purchases meet current technology standards, and assure that acquisitions requiring ongoing institutional support Fall into the support and resources ITS can provide.

Over the past six years, the College has developed a more appropriate infrastructure to support the operations of a College its size. The new enterprise system is far more reliable than the former legacy system. Operational employees across campus use Internet Native Banner, while faculty and students use Self-Service Banner via the LancerPoint Portal (Luminis). All services

are web-based and available 24/7. The College is developing a comprehensive plan to address maintenance on a 5-year cycle.

The availability of the enterprise software and services has allowed the College to develop, maintain, and enhance programs and services in ways previously unavailable because of its disparate systems. For example, the College is now able to access data quickly and accurately to make data-driven decisions for planning purposes. For example, with Argos, administrators now receive a daily enrollment report via e-mail which provides essential data for enrollment management planning and decision-making.

The availability of new laptop computers for faculty and the significant expansion of smart classrooms, which more than doubled between 2010 and 2014 to over 200 classrooms, has supported greater access to computing resources and more innovative teaching practices in the classroom.

When the Distance Education Department was formed in Fall 2010, it made a commitment that all technology implementations for distance education would be made available campus-wide regardless of mode of instruction. The Distance Education Department has met this goal and assures that all technologies acquired are accessible and distributed for campus-wide use.

Pasadena City College meets this Standard.

Actionable Improvement Plans

None.

IIIC.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.

Technology planning is integrated with institutional planning. The College systematically assesses the effective use of technology resources and uses the results of the evaluation as the basis for improvement. In the last six years, the College has developed a program review process for all programs, areas and units to use consistent data sets to evaluate its needs and current use of all resources including technology needs. This analysis becomes part of the program's improvement plan and then informs the area or unit plans.

All program and unit reviews are examined by the College's Institutional Effectiveness Committee (IEC). In addition to informing area and unit plans, technology needs identified in program and unit reviews inform the IEC's annual broad recommendations that are presented to all shared governance committees and the Board of Trustees. This helps the College identify broad needs related to technology resources. For example, the IEC's 2012

Broad Recommendations identify the need to increase the availability and maintenance of Smart Classrooms and the College has prioritized this issue (IIIC-29: List of Smart Classrooms Revision, i-55: IEC Broad Recommendations 2012-2013).

The College's Educational Master Plan (EMP), which identifies the College's overarching technology Critical Priorities and Strategies (i-43: EMP Executive Summary), outlines that the institution will:

C1	Identify and address the technology needs and leadership that support the successful operations of the institution
C2	Identify and address the technology needs that support innovative teaching and learning methodologies
C3	Identify and address the technology needs that sustain all student support services and the library
C4	Identify and address students' technology training needs to prepare them for technology driven professions

These Mission Critical Priorities inform the planning process in relation to technology needs. Additionally, the Technology Master Plan represents the results of a detailed assessment of technology needs related to technology infrastructure required to administer College services and the infrastructure, hardware, software and services needed to support instructional and student support programs. The resulting plan details the required technology for achieving the goals set forward in the Educational Master Plan and for the fulfillment of the College Mission. While similar in structure to the Facilities Master Plan, the technology plan embraces the reality of the rate at which innovation in technology occurs. As such, the plan is updated midway through the plan development and goals are structured to provide flexibility and the ability to adapt to the changing technology trends.

In August 2011 the College hired a Vice President of Information Technology Services (VPITS; position subsequently discontinued in reorganization) that would oversee all technology functions on the campus and review and revise the Technology Master Plan in conjunction with shared governance groups (IB-51: 2006 Technology Master Plan). At the request of the VPITS, two groups formed to provide input into technology planning, the Administrative Technology Advisory Committee (ATAC) and the Learning Technologies Advisory Committee (LTAC) (IIIC-30: College Coordinating Council Minutes April 2012). Working with these two groups, the VPITS focused on refining and implementing the technology planning items in Figure 5.

Technology Planning Item	Description	Status
Implement a new Administrative Information System (Banner)	The former AIS was replaced with a more comprehensive, robust, and reliable technology solution.	Mostly complete
SMART 18 Initiative	All PCC classrooms will be upgraded to 'SMART' status. This includes replacing full-time faculty desktops with a laptop and docking station to enhance mobility and utilize the new SMART classrooms.	Complete
PCC Website Redesign	Comprehensive website design began in 2012 which includes a newly defined Information Architecture and unified, accessible, and friendly voice.	In progress
Desktop/Server Virtualization	Consolidate the 70+ computer labs across the College while also making lab resources more readily available via the internet	Determined to not be financially viable; investigating alternatives
Network expansion	Investment in the current network infrastructure to address gaps and expand wireless networking.	Upgrade is continuous, but network already significantly upgraded

Figure 5 Technology Planning Items

The Administrative Technology Advisory Committee (ATAC) focused on the selection and implementation of a new Administrative Information System, Banner (locally titled LancerPoint). Formerly, PCC utilized the Community Colleges Computing Consortium product referred to as "the Santa Rosa System" (dealing with student systems, rather than fiscal, human resources, payroll, purchasing or other administrative systems) along with "bridging" systems to facilitate the information exchange among the other systems. As the Hewlett-Packard mini-computers that supported these systems aged, PCC experienced limited efficient access to and use of data which hampered efficiency and service. A comprehensive, integrated AIS was acquired to:

- reduce the significant human and financial resources required to provide services and reports, and increase productivity
- reduce frequent errors and failures
- provide better quality of service and experience to students and staff

After review by various campus committees including the Budget and Resource Committee, the Board of Trustees approved the resources needed to acquire and implement the new AIS on September 5, 2012 (IIIC-40: Board Approval of Banner September 5, 2012). The LancerPoint implementation is mostly complete. The following areas are live in LancerPoint: Student, Student accounts receivables, Financial Aid, Finance, and the Portal. Human Resources and DegreeWorks

are in the final stages of implementation. Three final components will be implemented moving forward: BDM (Banner Document Management/Imaging Software), BRM (Banner Relationship Management/Email campaign software) and Banner Workflow (automation software).

The Learning Technologies Advisory Committee (LTAC) was formed in March 2012 to review the Smart 18 initiative. They developed two faculty surveys to guide their work. The first survey, called the Smart Classroom Survey, focused on existing configurations of smart classrooms. The second, the Faculty Technology Survey, was designed to address additional concerns including faculty needs for technology to support various pedagogies as well as technical support. LTAC formalized their recommendations into a report that has guided the Information Technology Services Department in implementing the Smart 18 initiative (IB-54: LTAC Final Report).

The District has allocated needed resources to achieve the Smart 18 Initiative. Based on the LTAC final report, Information Technology Services selected a standard Macintosh and PC option. Faculty were surveyed for their preference (Mac or PC laptop) in Fall 2012. Based on these results, upgrades were completed in Spring 2013. Approximately 250 faculty laptops have been provided. Moving forward all full-time, permanent faculty can request a laptop with docking station in lieu of a desktop.

Many campus classrooms already had technology at the time of the survey. Therefore, Information Technology Services focused their efforts and budget in upgrading the 80 classrooms with no technology whatsoever during Summer 2013. These 80 were upgraded to the new "smart standard" for the district (interactive white boards, short throw projectors, and a new computer). By mid-Fall 2013, all district classrooms were Smart-equipped with at least a computer and projector. From Fall 2013 onward, all new instructional spaces have been equipped with Smart technology. After completing the classrooms with no existing technology, ITS has gone back to the classrooms which had existing technology and began upgrading them to the new standard. By standardizing classroom technology, faculty members interact with equipment with which they are familiar, even if their class sections are scheduled in varying classrooms. Moving forward, ITS staff members endeavors to budget a 7 year lifecycle for classroom technology. With nearly 200 classrooms, they hope to upgrade 1/7th of PCC classrooms each year.

Self-Evaluation

Technology planning is integrated with institutional planning at multiple levels. Technology acquisitions are clearly linked to planning goals and are evaluated. These evaluations, and evaluations of technology needs, are the basis for improvement. ITS ensures that all technology acquired, maintained, upgraded or replaced meets the College's mission and strategic goals. ITS helps oversee implementation plans, ensure purchases meet current technology standards, assure that acquisitions requiring ongoing institutional support Fall into the support and resources ITS can provide.

Pasadena City College meets this Standard.

Actionable Improvement Plans

None.

Evidence List for Standard IIIC

College Mission Catalog	IIA-136
2006 Technology Master Plan	IB-51
2009 Student Technology Survey	IIC-76
2010 DE Training Opportunities	IIA-35
2011 DE Training Opportunities	IIA-36
2012 DE Training Opportunities	IIA-37
2012 Faculty Technology Survey	IIIB-19
2013 DE Training Opportunities	IIA-38
2013 Program Review Calendar	i-34
2014 DE Training Opportunities	IIA-39
2014 Program Review Calendar	IIIC-1
Academic Senate Faculty Technology Committee Screenshot	IIIC-3
AIS Integration Report	IIIC-15
AIS RFQ	IIIC-10
AIS Teams	IIIC-13
APL Lynda.com Screenshot	IIIC-25
Board Approval of Banner September 5, 2012	IIIC-31
Business Process Analysis	IIIC-8
Canvas Support Screenshot	IIIC-26
Canvas Training Website Screenshot	IIIC-21
CEC Kronos Training Announcement	IIIC-23
College Coordinating Council Minutes April 2012	IIIC-30
College Council Academic Computing and Technology Standing Committee Screenshot	IIIC-2
DE Faculty Services Screenshot	IIIC-27
DE LMS Evaluation Committee Screenshot	IIIC-5
DE Student Services Screenshot	IIIC-28
Ellucian Solution by PCC Goal	IIIC-14
EMP Executive Summary	i-43
Fiscal Services Kronos Manual	IIIC-24
IEC Broad Recommendations 2012-2013	i-55
ITS Organizational Chart	IIIC-17
ITS Screenshot	IIIC-11
LancerPoint Implementation Committee Screenshot	IIIC-4
LancerPoint Metrics	IIIC-16
LancerPoint Training Videos Website	IIIC-20
LancerPoint Workshops Fall 2014	IIIC-19

List of Smart Classrooms Revision IIIC-29
LMS Survey Results IIIC-6
LTAC Final Report IB-54
PCCOnline Website IIIC-18
Research Findings Website Screenshot IIIC-9
Strata Information Group (SIG) Technology Final Report IIIC-7
Technology Implementation Plan IIIC-12