

Standard III.C TECHNOLOGY RESOURCES

III.C.1

Technology services, professional support, facilities, hardware, and software are appropriate and adequate to support Los Angeles Mission College's management and operational functions, academic programs, teaching and learning, and support services.

Evidence of Meeting the Standard – Local Campus:

- Local campus technology support is centralized in the Information Technology Services (ITS) department of the college, supporting over 1,200 computers, laptops and portable devices. ITS is headed by the Manager of College Information Systems, who reports directly to the Vice President, Administrative Services, of the college ([IIIC.1: link to organization chart of ITS](#)).
- ITS staff ensure the protection and stability of software and equipment on its computer systems. Computer workstations are installed with the most updated software available. Administrative, staff, and faculty computers along with all academic laboratory computers are configured to download the most updated versions of anti-virus, registry-protection, operating system and application software to avoid time-consuming repairs and outside threats
- ITS is staffed with technical professionals; competent to provide desktop user support, network maintenance and audio/visual equipment support. It is composed of the following sub groups:
 - **Microcomputer Support** provides front-line microcomputer support to College's user community (students, staff, faculty, and administration). IT analysts and computer technicians conduct ongoing maintenance and upgrades of hardware and software for both administrative and academic computing.
 - **Software Development** plans, implements, maintains, and supports all District wide administrative systems. Additional systems supported by the Software Development group include SARS GRID (appointment/scheduling), Microsoft Outlook Exchange (employee e-mail), Office 365 (student e-mail and cloud based storage) and development of the College's public website, <http://www.lamission.edu>.
 - **Media Services** provides technical support for audiovisual equipment in classrooms and meeting rooms (link to functional org chart for ITS and Media Services). Specialized services can be accessed through service contracts administered by ITS and are also managed through the CMMS work order program.

Evidence of Meeting the Standard – District Office IT Services:

- For district wide technology infrastructure and systems, LAMC receives IT support from the District Office of Information Services (DOIS), which is staffed by more than 40 full-time and part-time employees under the direction of the Chief Information Officer. They plan and maintain a reliable and robust infrastructure for local area inter- and intra- campus networks, as well as institutional access and

security to the public Internet.

- DOIS provides a comprehensive enterprise level administrative system capable of recording, storing and reporting on data for student, financial, academic, and administrative transactions. They provide the development, deployment, and support of centralized administrative functions and "middleware" platforms necessary to support connectivity between software services delivered by other District resources.
- District wide technology standards: The District and its nine colleges work in collaboration to develop standards for data centers, network cabling, data storage, desktop computers, printers, servers, and projectors. These standards have played a crucial role in all Bond A/AA and Measure J related technology projects.

DOIS IT Infrastructure and District wide projects:

- Student Information System (SIS) (<https://eweb4.laccd.edu/WebStudent/signon.asp>). Will be migrated to Oracle's PeopleSoft Campus Solutions in late 2016: (<https://www.laccd.edu/sismodernization/Pages/default.aspx>)
- ESC (Educational Service Center): Central offices supporting the entire district. The main data center is located in the ESC.
- Electronic Curriculum Development (ECD:) System: allows users to create courses for academic programs as well as modify, reinstate, and archive courses.
- Student Email System (<http://www.lamission.edu/it/studentemail.aspx>) Microsoft Office 365 provides an easily accessible and reliable email system.
- SAP: a human resources, accounting, procurement, and finance enterprise system that includes a centralized accounting and human resources database.
- CMMS: Computerized Maintenance Management System. An SAP based trouble ticket system for tracking and responding to technology related issues. CMMS allows users to request technical support from ITS and have their requests automatically queued and prioritized for response. (link to CMMS PowerPoint evidence)

Technology is integral to learning, teaching, research, communications, and operations at Los Angeles Mission College. Technology needs are continually evolving at LAMC and are integrated into many areas of the school ranging from students who use technology for registration, completing coursework, communicating with faculty and peers to faculty who use technology to deliver instruction, communicate with students and manage overall classes. Many of the facilities infrastructure and campus physical security also have a technology component to them so that systems can be monitored and controlled remotely using the campus technology infrastructure.

The 2010-2015 Technology Master Plan (TMP) (link) is fully integrated into LAMC's Strategic Master Plan, supports the Educational Master Plan, is consistent with the Facilities Master Plan, and aligns with the District Technology Strategic Maser Plan. The TMP outlines technology solutions within the College and is supported by the Technology Committee. The committee promotes student success by providing access to instructional resources, updates to the College infrastructure, long-range budget and planning for technology needs, and annually reviews and revises the effectiveness of the Technology

Master Plan. In Fall 2015, the committee agreed to update the TMP by Spring of 2016, pending the update of the Strategic Master Plan and Education Master Plan (Evidence to meeting minutes)

Highlights of ITS Technology Initiatives:

- Wireless Network infrastructure consists of 95 access points throughout campus providing convenience and ease of access to local campus systems, district systems and the public Internet. (<http://lamission.edu/it/docs/wirelessMap.pdf>) A 30% Increase in WiFi coverage is planned in the 2015-2016 academic year, which will provide higher density and improved connectivity.
- Cisco system VOIP based phone system is in use throughout campus for voice communications and is kept current and supported by Cisco through renewal of service contracts.
- LAMC has 103 Smart classrooms and 17 labs. Smart classrooms come equipped with overhead projectors, amplified sound and integrated wall controls, allowing computers, laptops, DVDs and other media sources to aid in the instruction of courses.
- The ratio of computers to students is 1:10.
- ITS develops and maintains the LAMC website which is used to provide students, faculty and staff general information on the College including classes, student services and events. Portions of the website are integrated with DOIS systems including SAP and the Student Information Database. A student portal is provided to access their student email. A faculty/staff portal is provided to access resources such as the Program Review system and the Student Learning Outcomes Assessment System (evidence)
- LAMC is currently in the process of making its website compatible with mobile devices and implementing a new content management system called Kentico
- In 2010 Student Learning Outcomes Online System was implemented and is continuously reviewed and updated. It has been used by faculty since then to record course, program, and institutional outcome assessments and changes implemented.
- A Program Review Online System was implemented in 2007 and has been used by all Academic and Administrative departments in the college. It is currently in the process of being redesigned and is due to be completed before the next Program Review cycle in 2016.
- Etudes is the current learning management system used for distance education courses.
- BlackBoard Connect, an Outreach and Emergency Notification System, is used to communicate with students via email, text messages and automated voice calls. The system has the ability to send up to 10,000 messages in two minutes.
- The campus has a fully redundant fiber network infrastructure that links the Main Campus with the East Campus, and links all buildings together. The connection of future buildings was anticipated when the fiber was installed in 2009.
- LAMC has been active on Facebook since 2013 and is used for public outreach to students.

• **Assessment Testing Lab**

Comment [PM1]: Expand to a full sentence.

- Microsoft Office 365 is a cloud based system used by students and staff which offers 1 TB of cloud based storage for any type of computer document, free installation of Microsoft Office Suite 2013 on personal devices, a Web based version of the Office Suite, Web based email and email filtering.
- Media Services (hardware)
 - The College's instructional media staff provide and maintain the audio/visual technology, equipment and services to support the courses, instructional activities and academic events at the College.
 - Services include faculty instructional media support and training, including audio/video technology, video recording and editing, video-conferencing, graphic presentations, document scanning, digital signage, new technology research, and implementation of all classroom A/V technology.
 - The staff offers video production services to faculty and staff for instructional purposes.

Analysis and Evaluation:

The evidence demonstrates the college meets this standard. The Educational Master Plan (EMP) establishes the academic direction and priorities for the college; the Facilities Master Plan and Technology Master Plan identify the buildings, infrastructure, equipment and software needed to support the EMP user requests for tech support are handled through a new automated work order system, CMMS, while technology support to the campus is provided by skilled professionals in the College's ITS, Media Services and Computer Science departments and by contractors engaged by the College.

The College regularly evaluates its technology services, professional support, facilities, hardware and software to ensure they are adequate in supporting the College's managements and operational functions, academic programs, teaching and learning, and support services in several ways.

- In the Fall 2013 Student Survey (http://www.lamission.edu/irp/docs/Fall_2014_On-Campus_Survey_Results.pdf), a high percentage of the 2,965 LAMC respondents indicated favorably that the College is doing an adequate job of serving the technology needs of its students.
- In the Fall 2013 Faculty/Staff Survey (link to evidence), a sizable majority of respondents either strongly agreed or agreed that the technology and related support services provided at the College, allows them to effectively perform their required duties.
- A DE Student survey was conducted in Fall, 2014 (http://www.lamission.edu/irp/docs/Fall_2014_DE_Survey_Results.pdf) and was completed by 154 LAMC students.

These survey results indicate that the College is doing an adequate job of serving the technology needs of its students, faculty and staff.

The Information Technology Services department is on a three-year Comprehensive Program Review cycle. The first year is a comprehensive program review followed by two years of updating the initial review. This process includes revisiting the mission statements, assessing achievement of unit objectives and Service Area Outcomes (SAOs), and analyzing the effectiveness of the services provided to students. After review and validation, the results are sent to the College Council for further review, recommendations, and/or implementation (Evidence).

The new SIS system will transform the way the District delivers services to students, faculty, and staff with enhanced functionalities by allowing access from anywhere at any time via its Web-based services. The District leads the development, deployment, and support of centralized administrative functions and “middleware” platforms necessary to support connectivity between software services delivered by other District resources, District IT service plans and maintains a reliable and robust network for local area inter- and intra-campus networks as well as institutional access to the public Internet and the World Wide Web. (Link to LACCD SAP System Architecture).

- Continue to look into technologies that provide lower Total Cost of Ownership (TCO), using components that have longer life cycles and lower management requirements and in particular cloud based systems rather than on premise.

ACTIONABLE IMPROVEMENT PLAN

After further study, the College found that there are areas to improve upon the use of the data collected from student, faculty and staff surveys. By Spring 2016, the Technology Committee will create an improved process to include student and faculty surveys to better assess the technology related needs of the College. The process in turn will aid in further developing the Technology Master Plan and the Technology Replacement plan.

ACTIONABLE IMPROVEMENT PLAN

By Fall of 2016, the Technology Committee will have a fully developed Disaster Recovery Plan that addresses major outages and large scale catastrophes.

ACTIONABLE IMPROVEMENT PLAN

By Spring of 2016, the Technology Committee will update the Technology Master plan, aligning with the College's Educational Master Plan. The committee will review and update the Technology Replacement Plan on an annual basis.

III.C.2

The institution **continuously plans for, updates and replaces technology** to ensure its technological infrastructure, quality and capacity are adequate to support its mission, operations, programs, and services.

Evidence of Meeting the Standard:

PLANNING, UPDATES AND REPLACEMENT

- New and replacement technology facilities, infrastructure, equipment and software are planned and prioritized as part of the college's Five-Year Technology Replacement Plan allowing for continuous improvements in computing technology.
- The annual online program review system is used to request and plan for replacement of infrastructure, equipment, software and other technology enhancements.
- Agreements with multiple vendors including Microsoft, Adobe, Cisco and Palo Alto Networks are in place which ensure prompt support and regular updating of software.
- LAMC takes advantage of the District's Microsoft and Adobe Professional Agreements, which allows the college to stay current on the latest versions of Windows, Office, Creative Cloud and other common software.
- Updates for Etudes, the campus Course Management System updates are done on a regular basis (?). The College is evaluating and considering moving to Canvas.
- The DOIS has established a standard for smart classrooms which incorporate projectors, switching and associated Extron and Crestron controls. Lamp-based projectors are being replaced with LED based ones, reducing maintenance and interruption of classroom instruction.
- Peoplesoft - will replace the current Student Information System, DEC, in 2016 (<https://www.laccd.edu/sismodernization/Pages/default.aspx>).
- New assets are planned and procured through the College's bond-funded capital construction program, which is integrated with the College's Facilities Master Plan (link to FMP and Strategic Execution Plan). In turn, both the Technology Master Plan and Facilities Master Plan support the College's Educational Master Plan (link to EMP).
- Virtual Desktop Infrastructure (VDI): The college has an infrastructure of 70 VDI endpoints. In 2015, ITS researched VDI technologies and presented findings to the

Technology Committee. After realizing the reduced TCO and longer refresh cycles, an additional 135 endpoints were added to the campus infrastructure. In 2015, ITS successfully deployed 50 repurposed desktops that had exceeded their prior lifecycle (8 years old), by converting them to VDI endpoints. Their new, anticipated lifecycle will be an additional 5 years. (evidence)

- CMMS: the Computerized Maintenance Management System is used to inventory assets and track life cycles of equipment.

Analysis and Evaluation:

Los Angeles Mission College systematically plans, acquires, maintains, upgrades, and/or replaces technology infrastructure and equipment to meet the institution's needs through a well-developed process that involves the College Technology Committee (<http://www.lamission.edu/facstaff/technology/default.aspx>), a shared governance body that recommends technology needs to the College Council. The College Technology Committee ensures that the technology-related activities of the Strategic Master Plan and the Technology Master Plan are being implemented. ITS is responsible for the overall selection, installation, maintenance, update, and upgrade of all technology infrastructure of the College. At the District level, the District Office of Information Services (DOIS) is actively involved in all tasks related to network security and District wide systems.

To continue fostering the LAMC's technological integrity, advancing its mission, and improving institutional effectiveness, the Technology Committee meets on a monthly basis to elicit input for the goals and objectives of the college. A five-year (2014-2019) Technology Replacement Plan (TRP), adopted in 2013, identified the associated costs to replace various technologies including computers, printers and audio/video equipment. Equipment life cycles and projected growth determine when upgrades and replacement would be necessary, and thus insuring that technology is kept current. The TRP is reviewed multiple times throughout the year, and is updated annually by the Technology Committee.

Individual departments use an annual program review system to request and plan for replacement infrastructure, equipment, software and other technology enhancements. (Evidence)

ITS staff attend conferences and district technology meetings to learn and discuss current industry standards to consider at the institution. This allows collaboration with colleagues and vendors to ensure current technologies are evaluated and considered for LAMC. (evidence to CISOA, Ignite)

(Summary)

LAMC meets this standard. The Five-Year Technology Replacement Plan, part of the Technology Master Plan, and the program review process drive the acquisition of new technology assets and assist in making decisions about the manner in which technology assets are refreshed and replaced. The TRP is aligned with the various institutional strategic plans, prioritizing technology in areas that directly impact student instructional support.

LAMC depends on restricted funding sources such as block grants and specially funded programs to fund the initial acquisition of technology and service. One challenge ITS is faced with is sustaining the ongoing expense of maintaining this equipment as there are times, insufficient funds available for ongoing maintenance and upgrades. To address this, ITS maximizes cost savings on technology by making purchases through District agreements whenever possible. In addition, ITS is constantly seeking ways to lower the Total Cost of Operation (TCO), such as using virtual desktop technology when possible.

Actionable Improvement Plan:

- ITS will continue to explore emerging technologies that may offer lower TCO, longer refresh cycles and ease of management.

III.C.3

The institution assures that technology resources at all locations where it offers courses, programs, and services are implemented and maintained to assure reliable access, safety, and security.

Evidence of Meeting the Standard:

ACCESS

- Technology resources are accessible for users and mainstream the process for everyone (from the application process forward).
- Single Sign-on: LDAP (TT p. 3) and Active Directory allow students and faculty to securely access multiple services online without having to remember multiple credentials. They are used on many systems including access wireless networks, Office 365, and District wide systems.
- Student ID: the College is moving to a statewide, Federated ID, which will allow for easier access into systems. It is a pre-school through university standard.
- With the new Student Information System (SIS), students will have a common Web portal that connects them to their email, SIS and Learning Management Systems (LMS).
- Students and Faculty are provided individual email accounts, accessible both on and off campus. Off-campus access is provided through a Web interface and through industry standard Smartphone email applications.

SAFETY AND SECURITY

- Security Cameras are located throughout campus, both indoor and outdoor. (Evidence: campus maps)

- Emergency call and mass notification stations are located throughout campus and are used for immediate communication with campus security and for a public address system in emergency situations. (Evidence: campus maps)
- The network infrastructure protected by the enterprise firewall system is jointly supported and maintained by local campus IT and District Office.
- All local campus systems run Microsoft System Center Endpoint Protection to protect against viruses, malware and other threats.
- Wireless Network: Users are required to authenticate against a user database to verify that they have an active account. Users are able to roam between access points and are limited to 10 hours per session before having to re-authenticate.
- Anti-spam, virus and malware email filter: In 2014, ITS implemented Microsoft's Exchange Protection Service, a cloud-based email filter that blocks emails containing potential threats or unsolicited advertising thereby effectively reducing the number of email threats arriving in user mailboxes.

BACKUP AND REDUNDANCIES

- The N+1 model is an industry standard method of creating resiliency and redundancy and is used on critical servers, infrastructure components and other high availability systems. (*evidence to systems that are redundant*)
- The College has two data centers, one located on the main campus and another on the East campus. Critical systems are replicated between these two data centers so that in the event one of the data centers has an issue, the system in the other data center is able to continue providing services.
- Storage Area Network (SAN) = HP Lefthand and Nimble SAN systems are used to provide increased storage performance and availability.
- Virtual Servers: 50% of servers run on HP Blade systems using VMWare virtual technologies, allowing for greater flexibility, management and recovery in the event of a failure.
- Virtual Desktop Infrastructure (VDI) is used on approximately 25% of student computers, allowing ITS to centrally manage computers, provide better security and increase longevity of hardware.
- All systems have UPS battery backups.
- Essential District systems are N+1 redundant, including battery backup and air conditioning systems.
- Backups: District and the local campus have continuous backups of all systems.
- All buildings on the main campus are connected to the Primary Data Center by a redundant fiber optic ring. The ring was configured for fail over in the Intermediate Distribution Facilities (IDF).

Analysis and Evaluation:

Los Angeles Mission College utilizes a number of technologies and models to assure that systems are consistently available, reliable, safe and secure. The College has two self-sufficient data centers located about a mile apart. The Primary Data Center (PDC) is located on the main campus and the Secondary Data Center (SDC) is located on the East Campus.

The SDC is not just a redundancy of the PDC, it also reduces the workload of the PDC. The redundancy feature of PDC and SDC provides the business continuity and disaster recovery to meet mission critical needs in the learning and teaching environment. Currently, all critical data such as email, student database, and website content is stored at the District Office Data Center with additional archive and backup copies stored off site. Further plans call for all LAMC data to be replicated offsite either in a new, shared data center located at Los Angeles Valley College (<http://www.lavc.edu/revitalizingvalley/projects.aspx#odc>) and/or on third party Cloud solutions (Office 365 and Microsoft Azure).

Action Plan:

- Information Technology Services (ITS) will continue to explore emerging technologies that may offer lower Total Cost of Operation (TCO), longer refresh cycles and ease of management.

III.C.4

The institution provides appropriate instruction and support for faculty, staff, students, and administrators in the effective use of technology and technology systems related to its programs, services, and institutional operations.

Evidence of Meeting the Standard:

Training Provided

- The Eagles Nest Center (<http://libguides.lamission.edu/EaglesNestFacultyResources>)
 - The Center provides instructional technology support to faculty teaching. The Center offers individual, hands-on training on the latest tools and equipment used in the classrooms. Lecture capture systems, smart room technology, student response systems, Web development, and online course management are some of the trainings that have been offered.
 - The Center also provides workshops on both instructional and administrative software used at the College, and researches new technologies that can improve the quality of instruction, whether delivered face-to-face or online.
- Microsoft IT Academy: The College maintains a subscription to Internet-based training of Microsoft products and is available to all staff and faculty. Training topics include both Office related software and IT related systems including Microsoft Exchange, Windows Server and SQL Server.
- Technology conferences: ITS staff attend conferences throughout year to stay up to date in the field.
- ITS staff attend Vendor conferences and online events throughout the year
- Technology Flex Activities on contractual obligated flex days: The College ITS department and staff provide technology training to students, faculty, staff, and administrators.
- Etudes Self-Orientations are provided.

Training Needs

- Training is determined by the number of faculty that are using a technology and the demand for instruction.
- Software updates and new systems trigger new training.

Training Assessment

- Faculty must achieve the standards established by the DE Committee to obtain DE certification.

Analysis and Evaluation:

The College provides extensive technology support and training through numerous modalities to ensure that faculty have convenient and regular access to training that is customized to meet their needs. In addition, faculty have the opportunity to seek training through the College's online training resources (<http://www.lamission.edu/it> and Microsoft Academy).

Action Plan:

The College has determined that there is a need to obtain additional feedback from faculty and staff that have received technical training and to use this information to determine future training needs. Additional training evaluations will be conducted immediately following a training session.

III.C.5

The institution has policies and procedures that guide the appropriate use of technology in the teaching and learning processes.

Evidence of Meeting the Standard:

The College has policies and procedures developed either at the District level or local campus level that guide the use of technology in education and ensure its reliability, safety and appropriate use. These policies and procedures are reviewed on a regular basis in order to maintain their effectiveness.

- The Distance Education (DE) Committee has developed several policies related to online teaching and learning. Once approved by the DE Committee, the policies are sent to the Educational Planning Committee (EPC), which is an Academic Senate Committee.
- The Work Environment Committee (WEC) develops policies that govern the use of technology as it relates to their application in the workplace. The Work Environment Committee reports to the American Federation of Teachers (AFT). Once the WEC approves technology-related policies, the policies advance to the College Council for final approval.

Comment [ARG2]: Include as a procedure on how decisions are made, referencing earlier sections above.

How does the institution make decisions about use and distribution of its technology resources?

What provisions has the institution made to assure a robust and secure technical infrastructure, providing maximum reliability for students and faculty when offering its DE courses and programs.

- The District has established several administrative regulations regarding the use of email, computer systems, college networks and use that the college has implemented and enforced.

Analysis and Evaluation:

The District Technology Council, comprised of the Chief Information Officer, and IT managers from the nine campuses and the District Essential Services Center (ESC) is responsible for recommending network policies, standards, and for driving details of the discussion about District wide projects which are implemented across all the nine campuses. The College has established policies through its Academic Senate and College Council to ensure that the use of technology is appropriate in the teaching and learning process. The college committee approval process ensures that the campus has the opportunity to engage in dialogue regarding the implementation of policies related to technology use and gives an opportunity to those who will be affected by the policies and opportunity to provide input.

LIST OF EVIDENCE

IIC.5-2-Policy for Online Grading and Roster Submission
IIC.5-3-Email Policy
IIC.5-4-District and College Computing Policy
E76(<http://www.laccd.edu/About/Documents/AdministrativeRegulations/B-27.pdf>)
Network security policies
(<http://www.laccd.edu/About/Documents/AdministrativeRegulations/B-28.pdf>)
IIC.5-5-District E9
IIC.5-6-District E100
IIC.5-7-Board Rule XX Distance Education
IIC.5-8-Percentage Load DE Policy
IIC.5-9-Email as Official Communication Policy
IIC.5-10-All Students Have Email Policy
IIC.5-11-E-Portfolio Active Student Policy;
IIC.5-1-Distance Ed Policies
IIC.5-11-Distance Ed Absenteeism Policy
IIC.5-12 – District E105 policy, student privacy rights in accordance with FERPA:
<http://www.laccd.edu/About/Documents/AdministrativeRegulations/E-105.pdf>

Formatted: Font: Times New Roman, 12 pt

Formatted: Normal, Indent: Left: 0.25", No bullets or numbering