Draft Technology Plan 2022-2028 Table of Contents

Introduction

Executive Summary

To be inserted...

Los Medanos College Core Beliefs

Mission
Los Medanos College provides our community with equitable access to educational opportunities and support services that empower students to achieve their academic and career goals in a diverse and inclusive learning environment.

Vision
Los Medanos College will be a leader in providing innovative, dynamic, and equitable educational experiences, support services, and career opportunities that empower students and transform our community.

Values
- Excellence: We strive for EXCELLENCE in the academic programs, support services, resources, facilities, and educational experiences that we provide to our students and community. We continuously work toward performing at the highest level, exceeding standards, and achieving our institutional goals.
- Respect: All members of our campus community deserve – and must be treated with – RESPECT. We honor the attributes, skills, abilities, and contributions of each individual, and are committed to treating one another with dignity, civility, and compassion.
- Diversity: We believe deeply in the important role of DIVERSITY in the success of our students and institution. We recognize that our highest potential – individually and collectively – can only be achieved when we: embrace and celebrate the diversity in our student body and community; hire, support, and retain a diverse and highly-qualified workforce; provide a wide array of diverse course offerings, academic programs, and support services; ensure that diverse perspectives and culturally-responsive practices are reflected in our curricula and learning environments; and advocate for racial and social justice for all.
- Integrity: We demonstrate INTEGRITY in the development and delivery of all programs, services, and operations. As good stewards of public resources and trust, it is incumbent upon us to educate and engage our students, colleagues, and community with honesty, transparency, and accountability.
- Responsiveness: We demonstrate RESPONSIVENESS to serve our students and the community. Through strong collaboration with educational partners, business and industry, community-based organizations, and civic agencies, we are able to effectively address the changing needs and dynamic environment in our service area.

Educational Master Plan Goals

1. Strengthen a culture of equity, diversity, inclusion, and racial justice.
2. Increase and maximize equitable opportunities for students to successfully complete courses and programs.
3. Increase opportunities that will prepare students to enter high-demand and living-wage occupational fields.
4. To better support students in accomplishing their academic and career goals – from entry to completion/transition – and to enhance course-level and program-level achievement, expand and deepen educational, workforce, and community partnerships.
5. Effectively utilize institutional resources to meet the needs critical to the College mission.

Technology Master Plan Mission

Los Medanos College uses technology as a primary focus in enhancing the educational experience, administrative processes, and communication strategies. To further integrate technology across the college, LMC will prioritize infrastructure upgrades to implement cutting-edge innovations and instructional methods to support our students.

Planning Process

Process

The Technology Master Plan for Los Medanos College was developed through a participatory process that involved the various constituencies of the College, which included faculty, classified staff, administrators, and students. The process started with the Education Master Plan that identified the development of a Technology Master as an institutional goal. Additionally, the new Technology would serve as a replacement for existing plans that were aging, while continuing to ensure that the College would continue to meet accreditation standards.

The development of the Technology Master Plan followed a process and structure utilized in the creation of the Educational Master Plan. Therefore, the Technology Advisory Group (TAG), a Shared Governance Council (SGC) subcommittee, was charged with the development of the plan. To broaden representation from various constituencies of the College, the committee was expanded to form a larger Technology Plan Core Group. A [website](#) was created to centralize related information and coordinate the management of the plan's development. During the first Technology Plan Core Group meeting documentation detailing members and their role, a communication plan, a timeline of tasks, and a library of key documents were reviewed and approved as part of the [website.](#)

The planning process then included a series of interactive meetings that were held to review an analysis of existing conditions, prior documentation, along with a review of existing goals and projects. Once the relevant goals, topic areas, projects, and initiatives were identified a series of meetings were held to facilitate a discussion and organize the information into major themes. The major themes were also reviewed, validated, and missing ideas were discussed and added during subsequent meetings and discussions that resulted in the development of a draft of the goals and objectives. Those draft goals and objectives were then sent to the various college committees with the help of an online tool to solicit feedback that was then discussed and incorporated into a revised document. In addition, during this process a set of guiding principles organically developed from the process and the various discussions. The planning process then continued with a presentation that was held with the larger college community to provide an opportunity for input and broaden the plan's perspective. Following the presentation another round of feedback from the entire college community was then solicited.

The interactive planning process allowed for effective participation of numerous college stakeholders and led to the development of the guiding principles, goals, and objectives of the Technology Master Plan that will be supported by the entire college community.

Guiding Principles for Technology Planning and Implementation

- Los Medanos College will utilize a cycle of continuous planning, implementation, and evaluation to develop, communicate, and achieve technology goals.
- Use fiscal resources responsibly to meet the technology needs of the College.
- Continually identify, evaluate, and implement emerging technologies to support and achieve the goals of the College.
- Technology planning and implementation will be integrated in the Program Review (PR) and Resource Allocation Process (RAP).
- Continue to develop clear and consistent policies and procedures to communicate and achieve technology goals.

Goals and Objectives

Mapping Goals to EMP

The following goals and objectives were developed through interactive collaboration from various college constituencies. The goals organically grew from the various plans, goals, and projects with an emphasis on ensuring our college's technological environment can meet the needs of our students, now and in the future.

Technology Master Plan Goal 1

1. **Student Needs & Equity: Utilize technology to improve equitable access and support student success**
   1.1. Ensure equity and inclusivity are incorporated in the implementation of technology for students
   1.2. Provide seamless and integrated student services that support online learning
   1.3. Provide a dedicated student IT help desk, with in-person and virtual help options
   1.4. Use technology to improve student support tools such as orientation, self-check material, and resource access
   1.5. Utilize technology to improve student access and success by increasing flexibility, collaboration, and available resources in a streamlined solution
   1.6. Develop and implement a refined printing solution for students

Technology Master Plan Goal 2

2. **IT Infrastructure & Support: Implement ongoing improvements to IT infrastructure and support services in a sustainable method**
   2.1. Develop and implement a Total Cost of Ownership (TCO) process for all technology investments
   2.2. Implement a Technology refresh plan that identifies ongoing investments
   2.3. Develop and maintain a system for standards and records for technology-related hardware and software used across the college
   2.4. Implement a centralized and accessible knowledge base of college technology
   2.5. Develop and improve college information and technology infrastructure to provide secure, efficient, and recoverable computing systems
   2.6. Implement improvements to the IT Service Desk to support the growing needs of the college community
   2.7. Improve and expand Wi-Fi access to support the growing number of devices accessing the college network
   2.8. Improve support for specialized software and hardware across the college's instructional, student support, and operational departments

Technology Master Plan Goal 3

3. **Technology Support & Resources: Enhance technology to improve support and resources for instructional and student services**
   3.1. Develop and implement a centralized online academy to improve instructor training, resources, and student online GE completion
   3.2. Improve technology infrastructure to provide scalable, sustainable, and equitable access to technology
   3.3. Develop and implement integrated approach to streamline software, licensing, and support resources across the entire college
   3.4. Develop and implement a technology review process for new technologies

Technology Master Plan Goal 4

4. **Technology Training & Professional Development: Improve professional development for technology implementation**

4.1. Develop a centralized training portal for faculty, classified professionals, managers, and for IT professionals to improve the implementation of new technology

4.2. Improve training and support for technology tools of students, faculty, classified professionals, managers, and IT professionals

4.3. Continue to implement training for technology to enhance skills and data-informed decision-making that improves the LMC educational experience including instructional delivery, administrative processes, and communication strategies

4.4. Improve methods and frequency of technology training

Technology Master Plan Goal 5

5. **Digital Communications: Develop and improve the digital communication infrastructure**

    5.1. Improve and maintain college website as a communication tool and information resource

    5.2. Develop and implement unified communication infrastructure utilizing existing and emerging technologies

    5.3. Implement an improved communication infrastructure across media channels and emerging technologies to enhance time-sensitive communication

    5.4. Enhance Technology Infrastructure to support Institutional Safety and Emergency Management and Communications

Funding and Budget Process

Resource Allocation Process

The College's Resource Allocation Process (RAP) is central to LMC's planning process. RAP is overseen by the Shared Governance Council (SGC) and allows departments and units to submit funding proposals to the Budget Request Database (BRD). The College President and SGC use RAP to plan and allocate available funds.

The College's resource allocation process (RAP) is the culmination of the program review process and connects program review to budgetary decisions as programs and units request additional resources hires in support of their operational effectiveness. Program review requires programs and units to align their funding requests with the College's assessment mechanisms – program review and the Strategic Plan in particular. Such alignment prompts programs and units to tie their short-term and long-term needs with larger institutional planning mechanisms. Once budgetary needs have been identified, programs and units submit their RAP proposals to the Budget Request Database (BRD), which enables the College – and particularly the Shared Governance Council (SGC) – to aggregate resource requests, produce ad-hoc reports on budgetary needs, and explore ways to fund such needs based on program requirements and institutional objectives. Although RAP proposals are submitted throughout the year, SGC reviews them biannually and makes funding recommendations to the President. Recommendations are measured against other institutional needs, such as maintaining a minimum 1% site reserve and funding liabilities. Once such considerations are made, the President will either approve or deny the resource allocation request. This alignment of assessment, objectives, and apportionment has ensured the College's financial resources are supporting and enhancing its programs and services.

Below is a brief overview of the Resource Allocation Process (SGC) adopted by SGC:

- The College has established the Budget Request Database (BRD), which enables SGC to aggregate resource requests, produce ad-hoc management reports regarding our campus-wide budget needs, and receive new/updated requests at any time.
- The BRD is available online for members of the College community to review:
  - Resource requests submitted by Instructional Units, Student Services Units, and Administrative Units
- Resource requests from Program Review are migrated directly into the BRD, thus eliminating the duplication of work for separate processes. This includes additional funding and technology requests that are identified and submitted to the BRD as part of the program review process.
- The BRD also serves as a centralized repository of resource requests – enabling all categorical programs/ sources to explore ways to fund college needs that match their respective program requirements.
- Discretionary budgets have been established under the Vice President of Instruction and Vice President of Student Services. Together with the Deans, the Vice Presidents will prioritize allocations to address immediate needs in those areas; an accountability report of these allocations will be provided to SGC each fiscal year.
- In order to set realistic expectations about available resources an allocation pool of funds (depending on budget availability) is identified by Business Services at the front end of the RAP cycle – setting realistic expectations about available resources.
- Resource request forms have been simplified and are available online to facilitate the submission process.
- SGC reviews the BRD twice a year: once during the Fall semester, and once during the Spring.

The College's program review process requires departments and units, including Information Technology & Services (IT&S), to evaluate programs, assess local outcomes, implement strategies to remediate inefficiencies, and request resources through RAP. IT&S utilizes this process not only to evaluate their own internal process, but to ensure the technology infrastructure adequately supports the College's programs and services.

Total Cost of Ownership (TCO)

Total Cost of Ownership (TCO) provides a comprehensive approach to balancing both financial requirements and management of Los Medanos College assets. The purpose of TCO in technology (hardware, software, etc.) planning is to

provide a sustainable technology environment at Los Medanos College (LMC) by evaluating the comprehensive life-cycle impact of a specific asset on the College and its resources from inception. TCO is also applied as a tool anytime during technology project implementation – and especially during project design and engineering – as various systems, hardware, and software are being evaluated in order to determine the most appropriate outcome for the project.

With the goal of developing guidelines and estimates to support budgeting and decision-making District-wide, Contra Costa Community College District calculates total cost of ownership (TCO) of a college asset by adding:

> Initial cost of the asset (hardware, software, etc.)
> +
> Cost of operating the asset over its expected life (including power, labor, and licensing)
> +
> Cost of maintaining the asset
> +
> Cost of disposing of the asset at the end of its useful life cycle

LMC's Information Technology & Services (IT&S) department ensures implementation of TCO by including:

- Identification of initial costs
    - Identification of additional technology resources required by programs and departments through PR;
    - Assessment of the options and costs for the identified technology resources. Costs must include:
        - Cost for initial purchase of hardware and/or software;
        - Costs required to update LMC's infrastructure to support the technology (physical plant, network, servers, power, HVAC, etc.);
        - Costs for configuration and installation;
- Identification of operational and maintenance costs
    - Estimates of costs/time required to maintain, upgrade or repair the technology resource;
    - Projections of continued costs for licensing, equipment replacement, expansion of the use of the technology resource, etc.;
    - Energy costs from additional technology resources;
    - Assessment of impacts on s LMC's infrastructure (physical plant, network, servers, power, HVAC, etc.);
- Evaluation of technology
    - Effectiveness of specific technologies with respect to instruction and/or administrative functions;
    - Plan for the allocation of funds to support technology beyond the initial purchase if it is determined that the use of the specific technology should continue;
- Development of technology standards, where/when feasible
    - Using standardization for regular purchases such as computer workstations and printers;
    - Creating specifications for equipment used in Smart classrooms;
    - Standardizing computer software such as Microsoft's Office Suite and Adobe's Creative Suite.

These efforts allow more efficient purchase, deployment and maintenance of technology resources by maximizing familiarity with equipment and minimizing the training time required to support the equipment. In addition, these practices allow for spare parts or units that can be made available for the quick resolution of problems associated with the equipment.

Policies and Procedures

The Contra Costa Community College District (District) maintains policies and procedures that guide the appropriate use of technology. Los Medanos College adheres to these policies and procedures that guide the appropriate use of technology in the teaching and learning process. Below is a list of the available policies and procedures.

Acceptable Technology Use of District Technology Systems
Board Policy 5030 ("Acceptable Technology Use Policy") and Business Procedure 10.06 ("Acceptable Technology Use") outline the acceptable use of technology for all District employees, including those at Los Medanos College.

Access to Districtwide Technology
Business Procedure 10.54 ("Access to Technology Assets") and Business Procedure 10.56 ("Asset and Access Control Checklist") describe processes for granting access to and safeguarding the District's electronic assets, including student information. These procedures ensure the District and its colleges are in compliance with governmental and contractual regulations, such as FERPA, Health Insurance Portability and Accountability Act, and California Senate Bill 1386.

Back-up and Disaster Recovery
Provisions for disaster recovery of technology systems at Los Medanos College include ongoing scheduled server backups. Backups are monitored and utilize tiers of redundant resources with secured physical and logical isolation. College core server infrastructure is maintained in secured access data rooms with both uninterruptible power supply systems, and online automatically switched campus back-up generator power. The Contra Costa Community College District has a disaster recovery site that utilizes cloud services, which includes critical systems such as the Colleague enterprise resource planning (ERP) system, Document imaging, single sign-on, and InSite portal, with plans to move the entire ERP system to the Cloud in the event of a disaster. Services such as district email rely on data recovery services from these contracted cloud providers.

Distance and Correspondence Education
Board Policy 4014 ("Distance and Correspondence Education") details the policies and procedures for ensuring the integrity of the Distance and Correspondence Education offerings and that those offerings comply with federal regulations (34 CFR Section602.17g) and ACCJC policies.

Purchasing and Total Cost of Ownership (TCO) for Physical Resources
Business Procedure 5.10 ("Planning Construction, Renovation and Alteration Projects") and Business Procedure 11.00 ("Purchasing") collectively outline that the District is committed to a program of competitive bidding whenever possible to assure the best dollar value and full protection of public funds (Public Contract Code 20651). Purchases are to be of a quality consistent with the intended use of and not necessarily for the lowest price obtainable. Maintenance costs, replacement costs, and trade-in value shall be considered in determining the most economical purchase price. In addition, a projection of the total cost of ownership (TCO) is to be prepared for any new facilities or major remodels to existing facilities. Projection of the TCO will include design, construction, operation, maintenance, staffing and decommissioning costs.

Student Information
Board Policy 3013 ("Student Information") outlines maintaining privacy in accordance with the Family Educational Rights and Privacy Act of 1974 (FERPA), and therefore considers all student files kept on District technology resources as educational records. Collectively, these policies and procedures prohibit individuals utilizing District technology resources from disclosing or disseminating LMC student information.

Use of Teaching and Learning Software

Board Policy 4003 ("Copyright Policy for Printed and Media Materials and Computer Software"), Board Policy 4006 ("Software Use Policy"), and Curriculum and Instruction Procedure 4003 ("Copyright Procedures for Printed and Media Materials and Computer Software"). These policies stipulate the District's alignment with copyright law, particularly the fair use provisions (sections 106 and 107) in Title 17 of U.S. Code and outline the process by which new software programs are adopted.

Minimum Technology Standards

LMC IT&S in conjunction with services District IT maintains, provides leadership and expertise of technology infrastructure for the college with continuing advancements in the field. Standards for technology constantly evolve and proposed acquisitions are reviewed by IT for approval to meet minimum requirements, with an ongoing view for future technology lifecycle and systems management changes. Considerations for infrastructure include both physical and virtualized technology modalities.

Technology standards are reviewed and approved by LMC IT&S for:

- Smart Classroom AV production
- Faculty and administrative staff computing
- Student instructional lab computing and student mobile devices
- Conference Center and meeting room AV production
- Remote access technologies and distance education support deployments
- Wireless access and IP network services
- Voice Over Internet Protocol (VoIP) phone systems and teleconferencing
- Datacenter infrastructure, virtualization services, and data integrity and security
- Software application management and deployment
- Printing
- Other needs for technology deployment support

In conjunction with the Technology Advisory Group (TAG), strategic initiatives involving technology are reviewed with college constituent groups as new standards are proposed. IT&S operationally maintains minimum standards, interoperability requirements, and purchasing of approved technologies.

Technology Refresh Cycle

Technology infrastructure and deployed software platforms must be maintained on a regular basis in order to serve the essential instructional and administrative needs of Los Medanos College campuses in Pittsburg, Brentwood, and for remote learning accessibility. LMC IT manages updates to campus device technology and software, along with datacenter server compute services and infrastructure management platforms. Refreshing of IP network routing, switching, Wi-Fi, and VoIP telephony equipment is covered under the District IT refresh schedules and is not addressed in this plan.

Refreshing of district-wide software platforms maintained by vendors is coordinated through district and college agreements with contracted partnerships. Refresh cycles of program-specific software and technology-related equipment not covered under a schedule are provided using Program Review (PR) and the Resource Allocation Process (RAP).

Technology refreshing constitutes a significant expense to the college which encumbers funding not only as one-time purchases, but their ongoing annual support and service throughout the lifecycle of hardware and software inventory.

Replacing existing technology and advancing their capability should include considering changes in support staffing and training for updating knowledge. Categorical scheduling of refreshing is considered by the type of technology and use case, but also by industry drivers and new innovations which produce needs to advance from instructional or operational demands.

Los Medanos College technology refresh cycles address the categories as follows:

- **Instructional Computer Labs, Instructor Classroom Stations, and Student Remote Learning Devices**

  - High compute need devices run specific performance capacity hardware to meet requirements of their demanding applications. These include endpoint Apple and Windows PCs. These lab systems are considered on a 5-year refresh cycle.
  - Standard compute need devices run essential and basic applications which are not high performance required. These include endpoint Apple or Windows PCs and tablets, and Chromebooks. These lab systems are considered on a 5–7 year refresh cycle.

- **AudioVideo (AV) technology production**

  AV multimedia equipment and software platforms include projectors, screens, panel TVs, media and sound controllers, cameras, conferencing hardware, and other supporting AV hardware used on campus. These are mutually used in classrooms, meeting rooms, campus signage, offices, and conference centers. These systems average need for refresh cycling is on an 8–10 year cycle.

- **Faculty and Administrative staff Computers**

  Existing faculty and administrative staff computers in 2021-2022 have undergone extensive refreshing of new PC systems from campus construction projects, and due to mobile computing demands stemming from Covid19 pandemic changes. Refreshing of these systems will be scheduled under similar industry expectations of 5-7 years of service life. Off schedule replacement or additional needs are requested through Program Review (PR) and the Resource Allocation Process (RAP).

- **Datacenter compute, storage, and data integrity**

  Los Medano College largely utilizes datacenter platforms based on modern converged technologies in clustering hardware resources for compute and failover redundancy. This allows LMC IT&S to virtualize provisioning of storage, processor, memory, and graphical co-processing in the many TeraFlops of capacity. By virtualizing deployments, LMC can respond to changing server or virtual desktop compute needs. Physical servers hosting these virtualized environments have lifecycles of support from manufacturers that have refresh cycles in 6-8 years. Los Medanos College continues to review server infrastructure in cloud provisioned partner vendors. Any move to these cloud compute partners impacts datacenter refreshing schedules, calculating total cost of ownership (TCO), and the cost model of changing to operational expenses versus capital expenses in purchasing for refresh cycles.

- **Systems Management**
  Los Medanos College IT&S for 2022 is changing deployment software and systems management technologies. Continued effort to increase efficiencies will yield a more adaptable, secure, and updated technology environment for the goal of student success. Automating essential tasks and reducing redundant workloads will enable staff to perform higher levels of tasks by utilizing proven cloud management and modular application deployment tools. While these systems management tools are more cloud subscription based and vendor refreshed in-stream, the college should review systems management methods and technologies with industry changes in 5-7 year cycles.

Implementation Plan

Technology implementation plan will be developed (in collaboration with the LMC Information Technology & Services) in fall 2022 and align with the technology refresh cycles. The Implementation plan may include (a) annual activities, which are needed to implement each technology goal and objective; (b) the appropriate responsible parties (position

responsible for overseeing the completion of the activity); (c) outputs and outcome(s) for each objective and/or activity; and, (d) resources needed. The implementation progress report will be submitted in May 2023 to Shared Governance Council and college president via eLumen, aligned with the program review cycle. The report will be published and posted on the LMC website.