



INFORMATION TECHNOLOGY  
ASSESSMENT

Prepared for  
**SANTA MONICA COLLEGE**

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## 1.0 Executive Summary

This report presents the results of BerryDunn’s Information Technology (IT) Assessment, including findings, recommendations, and next steps for Santa Monica College (SMC; the College) to consider as it plans for future technology needs. The IT assessment is the first of two deliverables in the overall technology planning engagement. The IT assessment recommendations will inform the development of the IT master plan.

With significant changes on the horizon, such as a new Enterprise Resource Planning (ERP) system and many staff currently eligible for retirement in the IT Department, the overall objective of the IT Assessment is to understand how the IT Department should operate now and into the future.

### Background

In undertaking this work, BerryDunn issued surveys and conducted independent interviews with all members of the IT Department. We were pleased to experience a high level of participation with candid and sincere responses to our questions. We analyzed our findings and developed recommendations in an objective manner. This report presents our recommendations and identifies potential changes to address the challenges currently facing the SMC IT Department. It also outlines areas to consider as part of the IT master plan.

### Observations and Recommendations

This report contains 20 findings and recommendations that are organized into categories in section 4.0. The following highlight the most pressing themes for the College.

**Planning for ERP** – SMC has been considering replacing its legacy student information system (ISIS) for several years. The system was developed in-house and supports critical college functions, including, admissions, enrollment, catalog, scheduling, and curriculum. Although SMC appears to be headed toward a new ERP system, no official timelines have been established, funding is uncertain, and there is a lack of buy-in from faculty and staff. This uncertainty is impacting the morale within the IT Department. Several staff indicated concerns about the future and if their jobs will be needed.

**Reducing Risk** – SMC needs to address several risks that are facing the institution. There is no disaster recovery or business continuity plan. Core technology infrastructure needs to be replaced. There are single points of failure at critical IT positions with limited cross-training or documentation.

**Aligning IT Support With Institutional Needs** – Organizational changes and process adjustments are needed to align the IT Department with the needs of the institution. Projects and service offerings are not effectively communicated to campus. There are gaps in staff availability and skillsets needed to best serve the institution.

**Supporting Guided Pathways** – The College is embarking on an initiative to redesign the student experience. Using a Guided Pathways Framework, the College seeks to eliminate the equity gaps, reduce time to completion, and increase the rates of completion, while maintaining high standards and high quality. Guided Pathways aim to make the student experience more intentional, supported, and clear. Section 4.4 of this report outlines six opportunities for IT support improvements to the student experience.

### Next Steps

Upon concluding the IT assessment, the College and BerryDunn will continue collaboration on developing a five-year IT master plan. As a result of the forthcoming master planning work, the College will have concrete actionable steps to advance the IT environment.

The observations, findings, and recommendations in this IT assessment will help inform, and be addressed during, the master planning process.

This IT assessment should be read and understood in its entirety by College and IT leadership to gain an understanding of the College's IT needs. BerryDunn will use the observations and recommendations in the IT assessment to guide the strategic planning process, including, identifying initiatives, priorities, and action items.

## 2.0 Project Approach

### Overview

The College engaged BerryDunn to lead a campus-wide process to conduct an in-depth assessment of SMC's IT environment and develop a five-year IT master plan. The purpose of the assessment was to create a roadmap for technology usage, decision-making, and purchasing that supports the College's institutional goals.

### Approach and Methodology

BerryDunn's approach consisted of the following:

1. Conducting preliminary planning calls with College project contacts and sponsors to discuss the scope of the engagement and plan for on-site interviews
2. Distributing an inventory request to the College to gain an understanding of the current IT environment and reviewing background information provided by the College
3. Distributing a survey to faculty, staff, and students in order to gather input and perspective on the current IT resources and services at the College
4. Conducting on-site meetings with stakeholders
5. After completing on-site visits, following up with College project contacts and conducting additional meetings as warranted
6. Developing peer benchmarking analysis
  - a. BerryDunn began the benchmarking process by conducting preliminary research to select prospective institutions. Criteria used to identify peers included the number of constituents served and the geographic location of the institution. BerryDunn confirmed selected institutions with College project leadership.
  - b. Once confirmed, BerryDunn's team scheduled and conducted telephone interviews with each institution's designated IT leader. The team conducted follow-up to clarify answers and statements as needed.
  - c. BerryDunn compared SMC and peer benchmarking data to EDUCAUSE averages.

The report presents and explains our observations and recommendations. Where appropriate, we have included exhibits to explain and support our observations and recommendations.

### 3.0 Current Environment

*This section provides important background information about the College's IT Department and technology environment. Also included is a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, as well as spending and staffing comparisons with peer institutions and EDUCAUSE averages.*

#### Organization of IT

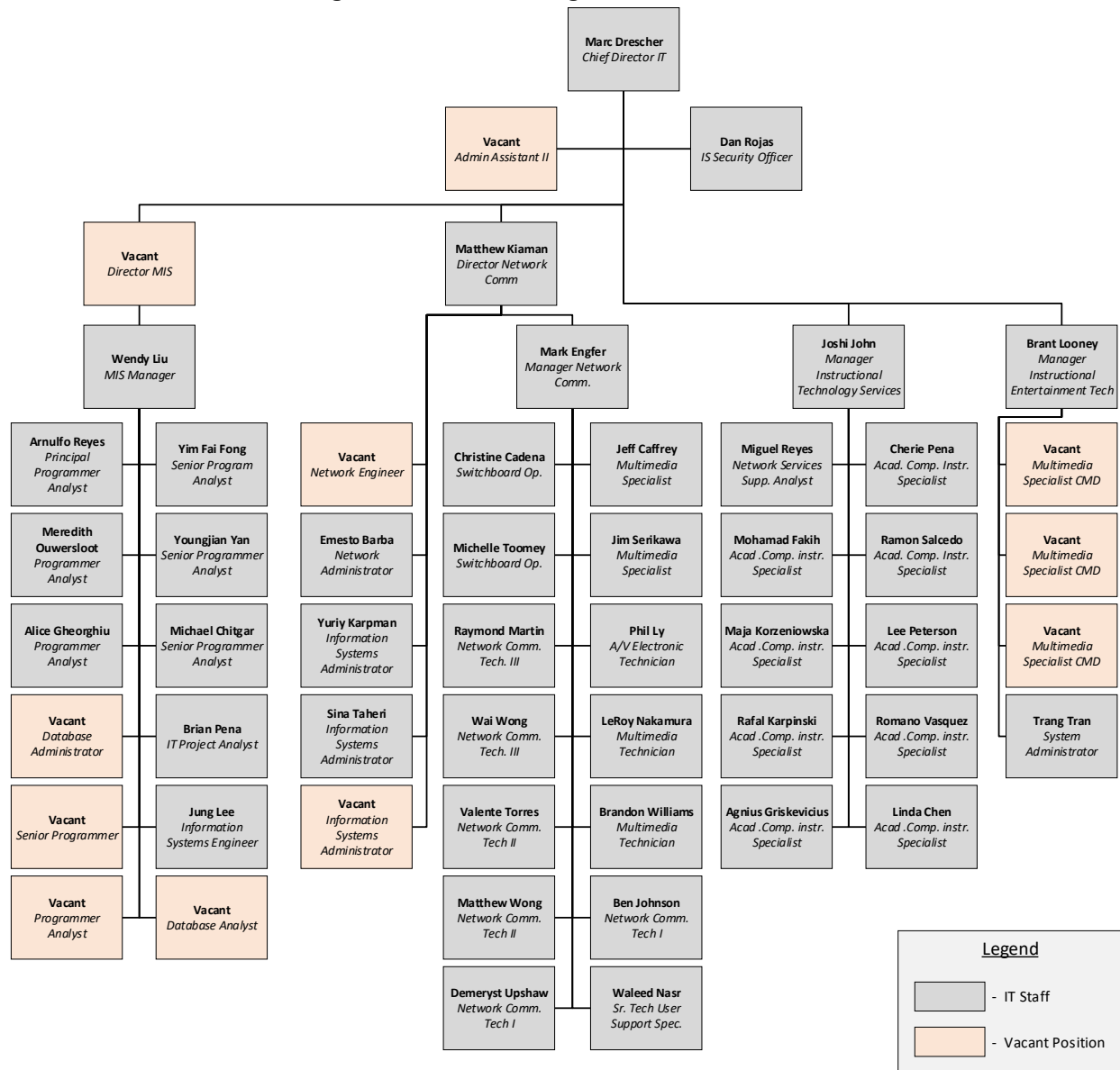
The IT Department is organized into five teams: Academic Computing, Center for Media and Design (CMD), Management Information Services (MIS), Network Services, and Technical Support Services (TSS). CMD and Media Services were added to the IT Department in 2018. Media Services was grouped with Network Communications, switchboard operators, and a senior tech user support specialist to form TSS.

An overview of the responsibilities of each group is provided below:

- **Academic Computing** – Oversees instructional technology planning, budgeting, and purchasing for: operation of the student computer labs and computer classrooms on the main campus and satellite campuses (Emeritus, Bundy, and Performing Art Center).
- **MIS** – Creates, maintains, and expands the College's primary, centralized information system in support of the campus portal for faculty/staff, the student self-serve system, Academic Affairs, Enrollment Services, Business Services, Human Resources (HR), and other administrative areas, as well as the mission critical self-services internet access portal for faculty/staff and students.
- **Network Services** – Manages and maintains the College's mission-critical computer and network infrastructure. This includes network security, public safety technologies, account provisioning, email and web systems management, and enterprise server and storage infrastructure administration.
- **TSS** – Oversees installation, repair, and maintenance of the campus telephone systems and administrative and faculty desktop computer systems. This includes software and peripherals, physical security systems, public safety communications equipment, and fiber and copper infrastructure cabling. In addition, the group also provides and operates district switchboard services and provides technology user training.
  - **Media Services** (*currently part of TSS*) – Oversees classroom technical support, the lending out and repair of campus audio/visual equipment, duplication of College-related video tapes, CDs, and DVDs, as well as Media Production Services.
- **CMD** – Oversees day-to-day Academic Computing IT operations at the CMD Campus. Support includes both lab and classroom and instructional support for specialized hardware and software used at the CMD campus.

The current organizational structure is depicted below in Figure 1:

**Figure 1: Current IT Organizational Structure<sup>1</sup>**



IT staff ranked their satisfaction with the current organizational structure as 2.4 out of 5. There are currently 11 vacant positions, which is approximately 20% of the department. In addition, the

<sup>1</sup> This figure does not include the Logistics Manager position, the Network Services Manager position, and a Systems Administrator position because the College indicated that these positions would not be filled.

responsibilities of directors are not balanced, and managers have large spans of control. These challenges, among others, are described in a separate Staffing Plan Report.

## Technology Environment

### Enterprise Systems

SMC has been considering replacing ISIS for several years. The system was developed in-house and supports critical College functions, including admissions, enrollment, catalog, scheduling, and curriculum. Although SMC appears to be headed toward implementing a new ERP system, no official timelines have been established, funding is uncertain, and there is a lack of buy-in from campus constituents.

SMC relies on Los Angeles County Office of Education (LACOE) for finance and HR systems.

### Classroom Technology

334 of the College's classrooms are outfitted with technology. 49 classrooms have both smart carts (consisting of computers, projectors, and document cameras) and student computers. 303 classrooms are outfitted with smart carts. There are 23 dedicated student computer labs.

The Classroom Hotline provides rapid support for issues related to classrooms

### Cloud Technology

Many of the College's systems are hosted in the cloud. The following systems are some of the hosted solutions the College uses:

- Azure Active Directory (AD) Connect – AD
- Canvas – Learning Management System (LMS)
- Gmail – Student Email
- Office 365 and Exchange – Faculty and Staff Email
- TargetX – Customer Relationship Management (CRM)

### Service Management

To support IT service management efforts at the College, IT has established a replacement cycle for the standard equipment found at the College. This includes computer workstations, document cameras, projectors, and network switches.

In addition to the technology refresh cycle, IT has also established a service-level agreement (SLA) with end users. As part of the SLA, IT will attempt to respond to normal requests within 24 hours with an estimated timeline for resolution. Critical-priority requests receive immediate response, and high-priority requests receive escalated response before normal requests.

The IT Department recently implemented Spiceworks to serve as the enterprise ticketing system.

### SWOT Analysis

Figure 2, on the following page, presents a SWOT analysis for the SMC IT Department. Each area is described below.

**Strengths** – Items in this area provide the SMC IT Department a competitive advantage among its peers. Strengths describe what IT excels at. Strengths are *internal* to SMC.

**Weaknesses** – Items in this area limit the SMC IT Department from performing at its optimum level. IT needs to improve these items in order to remain competitive among its peers. Weaknesses are *internal* to SMC.

**Opportunities** – Items in this area refer to favorable external factors that could give the SMC IT Department a competitive advantage. Opportunities are *external* to SMC.

**Threats** – Items in this area have the potential to harm the SMC IT Department. Threats are *external* to SMC.

**Figure 2: SWOT Analysis**

SWOT Analysis	
<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Highly qualified staff members with advanced certifications and extensive experience</li> <li>• Strong reputation from the users IT serves</li> <li>• Recently updated infrastructure, including: Data Center, Network Operations Center, single mode/multi-mode (SM/MM) fiber to all campus buildings, dark fiber connections to all satellite campuses, and 10 gigabit (GB) internet connection</li> <li>• Highly customizable homegrown system able to deal with California and SMC's many special requirements</li> <li>• Newly hired information security officer (ISO) role</li> <li>• Recent retirements provide opportunity to assess current and future needs, and to make changes to positions/the IT Department as needed</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Custom homegrown ERP/SIS lacks vendor support, is approaching end-of-life (EOL), is unable to use APIs to integrate with modern applications, and is not meeting the needs of several SMC departments</li> <li>• Lack of cross-training has created silos in mission critical areas and single points of failure</li> <li>• Lack of planning has led to expiration of equipment and maintenance agreements</li> <li>• IT staffing single points of failure and silos</li> <li>• 10 GB internet connection is restricted to 1 GB by the existing firewall</li> <li>• Inherent security risks in having a homegrown system</li> <li>• Lack of disaster recovery and business continuity plans</li> <li>• Several staff members with extensive knowledge of SMC systems are currently eligible for retirement</li> </ul>
<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Be one of the first California Community Colleges (CCCs) to implement a next generation of ERP solutions</li> <li>• Participate in statewide initiatives for standardization/cost savings and take advantage of the CCC Tech Center offerings</li> <li>• Leverage cloud services as costly on-premise legacy systems expire to provide more reliable, secure, and cost-effective services</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increasing cybersecurity threats against legacy systems</li> <li>• Many ERP vendors have not yet developed a viable student information system for the CCCs and may not propose a solution to SMC's request for proposal (RFP)</li> </ul>

## EDUCAUSE and Peer Data Comparison

Table 1, below, compares select spending and staffing figures between SMC, peers, and EDUCAUSE averages for Associates College’s (institutions at which the highest level degree awarded is an associate’s degree). The EDUCAUSE data comes from the 2017 Core Data Service survey. A total of 775 institutions participated in the survey.

The following institutions participated in BerryDunn’s benchmarking study for SMC:

- El Camino College
- Long Beach City College
- Mt. San Antonio College
- Pasadena City College

**Table 1 | EDUCAUSE and Peer Benchmarking Data Comparison**

EDUCAUSE and Peer Benchmarking Data Comparison						
Spending and Staffing Metrics	Santa Monica College	El Camino College	Long Beach City College	Mt. San Antonio College	Pasadena City College	EDUCAUSE Core Data Service 2017 Survey
<b>Students, Faculty, and Staff full-time equivalent (FTE)</b>						
Student FTE <sup>2</sup>	24,155	18,140	19,478	33,756	25,650	N/A
Faculty FTE <sup>3</sup>	718	558	582	803	779	N/A
Staff FTE <sup>4</sup>	614	527	604	562	286	N/A
<b>Central IT Spending</b>						
Total central IT spending per institutional full-time equivalent	\$338	N/A	\$484	\$241	\$305	\$663

<sup>2</sup> Figures based on CCC Chancellor’s Office report - Full-time faculty compliance Fall 2019

<sup>3</sup> Figures based on CCC Chancellor’s Office report – Fall 2019 Full-Time faculty Obligation

<sup>4</sup> Figures based on CCC Chancellor’s Office report - Staffing for Fall 2018

### EDUCAUSE and Peer Benchmarking Data Comparison

Spending and Staffing Metrics	Santa Monica College	El Camino College	Long Beach City College	Mt. San Antonio College	Pasadena City College	EDUCAUSE Core Data Service 2017 Survey
Total central IT spending per institutional employee FTE (faculty and staff)	\$6,463	N/A	\$8,431	\$6,200	\$7,667	\$5,999 <sup>5</sup>
Total central IT spending per student FTE	\$356	N/A	\$513	\$251	\$318	\$780 <sup>3</sup>
Central IT spending on professional development per central IT staff FTE	\$214	N/A	\$676	\$1,013	\$571	\$818
Total central IT spending as a percentage of institutional expenses	3.9%	N/A	6.2%	3.5%	4.4%	5.1%
<b>Central IT Staffing</b>						
Central IT FTE <sup>6</sup>	54	37.5	59.2	71.5	35	N/A
Central IT manager/director FTE	7	3	5	7	4	N/A
Number of central IT staff FTE per IT manager/director FTE <sup>7</sup>	6.6	11.2	10.6	9.1	7.5	N/A
Central IT FTEs per 1,000 institutional FTEs	2.1	2.0	2.9	2.0	1.3	5.2
IT Support Services FTEs per 1,000 institutional FTEs	0.3	0.7	0.7	0.4	0.4	1.8
Information Systems IT FTEs per 1,000 institutional FTEs	0.7	0.1	0.8	0.5	0.1	0.8
Educational Technology Services IT FTEs per 1,000 institutional FTEs	0.3	0.3	0.3	0.2	0.1	0.6

<sup>5</sup> This figure is not published in the 2017 survey. It is from the 2016 Survey.

<sup>6</sup> Includes vacancies, does not include student workers or distributed IT staff. For example, IT staff that report through other areas of the college (i.e. marketing, distance education, etc.) have not been included.

<sup>7</sup> Does not include IT leader.

### EDUCAUSE and Peer Benchmarking Data Comparison

Spending and Staffing Metrics	Santa Monica College	El Camino College	Long Beach City College	Mt. San Antonio College	Pasadena City College	EDUCAUSE Core Data Service 2017 Survey
Enterprise Infrastructure FTEs per 1,000 institutional FTEs	0.04	0.1	0.05	0.03	0.04	0.6
Communications Infrastructure FTEs per 1,000 institutional FTEs	0.5	0.6	0.8	0.6	0.5	0.3
Information Security FTEs per 1,000 institutional FTEs	0.1	0.1	0.05	0.1	0.04	0.2
Student Worker FTEs as a percentage of total central IT FTEs <sup>8</sup>	10%	0%	5%	4%	9%	8%

The IT functions used in Table 1 are used in the annual EDUCAUSE core data survey. EDUCAUSE's definitions of the IT functions are provided below:

- **IT Support Services** – Functions and resources associated with providing general support for the institution that is not specific to teaching and learning or administrative applications.
- **Information Systems** – All systems and applications not specific to other IT domain areas that are required for institution operations, including ERP and other administrative applications.
- **Educational Technology Services** – Functions and resources associated with and specific to supporting teaching and learning at the institution.
- **Enterprise Infrastructure** - Functions and resources associated with developing, managing, and operating the core IT infrastructure for the institution.
- **Communications Infrastructure** - Functions and resources associated with enabling faculty, staff, and students to communicate and collaborate with others on and off campus.
- **IT Security** - Functions and resources associated with providing information and systems security services and programs for the institution, including directory, identity management, and access provisioning/de-provisioning functions and roles, etc.

<sup>8</sup> Assuming one student worker equals 1/3 FTE

Additional detail including specific activities associated with each function can be found [here](#).

BerryDunn populated data for peer institutions using the org charts that they provided.

### Takeaways

Comparative benchmarking analysis provides the following takeaways for the College:

- The College spends close to EDUCAUSE averages and peers in most areas. The two exceptions are central IT spending per institutional employee FTE and central IT spending on professional development per central IT FTE. The College spends significantly less in these two areas.
- The College's central IT spending as a percentage of institutional expenses is lower than all peers and the EDUAUSE average.
- On average, SMC and its immediate peers have 51.4 central IT FTEs. SMC is closest to the average.
- On average, SMC has 6.6 direct reports per manager/director. However, the number of direct reports for managers at SMC ranges from 0 to 14. There is an opportunity to improve span of control.

## 4.0 Observations and Recommendations

This section outlines 20 observations and recommendations. Observations and recommendations have been organized into four sections.

**Table 2: Summary of Observations and Recommendations**

Summary of Observations and Recommendations		
#	Title	Summary
<b>Section 4.1   Enterprise Systems, Processes, and Infrastructure</b>		
4.1.1	Planning for the Future of ERP	<p>The College operates using ISIS. Several components of ISIS are nearing EOL and if not replaced, ISIS may fail before a new ERP can be implemented. ISIS is not a long-term solution for the College.</p> <p><b>Recommendations:</b> SMC needs to establish a clear roadmap for the future of ERP. This roadmap should include detailed timing, funding, and staffing considerations. SMC should also consider developing a formal change management plan to help ensure effective executive sponsorship, training, and communications.</p>
4.1.2	Business Process Improvement	<p>Many administrative functions are based around people and how they prefer to work rather than around defined processes. This, coupled with the failure to update several key programs and limitations of the legacy SIS, has resulted in a significant amount of manual effort and duplicate data entry.</p> <p><b>Recommendations:</b> The College should engage in an institution-wide effort to review existing business processes and identify those that need to be replaced, eliminated, or redesigned. Business processes should be prioritized and addressed systematically. The IT Department will play a key role in this process, but it is important that this not viewed as an IT effort. Functional area staff need to design future processes. IT staff can help define and communicate the capabilities of the future ERP system.</p>
4.1.3	Technology Infrastructure and Replacement	<p>SMC has not effectively planned for replacement of critical infrastructure. As a result, they have hardware in place that has reached EOL.</p> <p><b>Recommendations:</b> Develop a technology equipment replacement plan (TERP) for infrastructure. Future purchases should maximize the College's investment in 10GB internet. Special attention should be paid</p>

Summary of Observations and Recommendations		
#	Title	Summary
		<p>to firewalls, routers, and cabling.</p> <p><i>Purchasing:</i> The Chief Director of IT (Chief Director) should work with the Purchasing Department to adjust processes for technology procurement. Contracting with a value-added reseller (VAR) would enable the IT Department to purchase turnkey technology solutions and be more responsive to the needs of the College. A VAR would reduce the length of the procurement process and provide a partner that understands SMC's technology needs.</p>
4.1.4	Device Replacement	<p>The College has an effective TERP in place, but has been challenged to maintain the current device replacement schedule due to budget constraints.</p> <p><b>Recommendations:</b> SMC should revise the existing TERP to address devices that have been deferred from prior years. Replacing Macs with PCs and offering an affordable laptop option to faculty and staff could improve the sustainability of the TERP. Macs will still need to exist on campus, but should be justified by an instructional need.</p>
<b>Section 4.2   Governance, Security, and Risk</b>		
4.2.1	IT Governance	<p>There is a formal governance structure in place at SMC that includes a Technology Planning Committee (TPC) for collaborative communication, planning, and prioritization of technology initiatives.</p> <p><b>Recommendations:</b> There is an opportunity to review and increase awareness of IT governance to help ensure a tightly integrated and collaborative process across campus. Sharing roles and responsibilities of the committees, the planning process for submitting ideas for consideration, and requesting new technology to meet individual or department needs can increase awareness of IT governance and help ensure an integrated and collaborative process.</p>
4.2.2	IT Security	<p>SMC needs to complete critical security projects, and develop and implement an information security program.</p> <p><b>Recommendations:</b> Led by the ISO, IT should continue to complete critical security projects and develop its information security program. The information security program should include a risk management program, regular risk and security assessments, security awareness</p>

Summary of Observations and Recommendations		
#	Title	Summary
		training, and quarterly vulnerability scans.
4.2.3	Reporting and Analytics	<p>The legacy SIS inhibits SMC from having access to real-time data and modern analytics tools.</p> <p><b>Recommendations:</b> A modern ERP system and significant process changes are needed for SMC to realize marked improvement in reporting and analytics. Many institutions with modern ERP systems still have third-party reporting and analytics tools to gain the most value out of their data. SMC should explore third-party reporting and analytics tools as part of the ERP replacement.</p> <p>At many institutions, IR is responsible for reporting data to external organizations, such as IPEDS. SMC should reconsider the data and reporting responsibilities between IR and IT in a future ERP environment. In addition, IT should continue the development of the data access policy.</p>
4.2.4	Disaster Recovery and Business Continuity	<p>SMC lacks formal written plans, policies, or procedures for disaster recovery and business continuity.</p> <p><b>Recommendations:</b> The College should develop business continuity and disaster recovery plans, policies, and procedures that enable the institution to operate during outages and failures to critical systems. IT leadership should establish regularly scheduled testing of the disaster recovery plan.</p> <p>IT leadership should consider the CMD campus as secondary data duplication site, with cloud service as primary backup for campus-wide disasters.</p>
<b>Section 4.3   IT Service Delivery and Communications</b>		
4.3.1	Employee Schedules	<p>The work schedules of several staff are not aligned with the needs of the College.</p> <p><b>Recommendations:</b> The Chief Director needs to work collaboratively with the union to align staff on a schedule that best meets the needs of the College.</p>
4.3.2	Professional	IT staff are discouraged by the lack of opportunities for training and

Summary of Observations and Recommendations		
#	Title	Summary
	Development and Growth	<p>professional development. Lack of cross-training has created risks for the College.</p> <p><b>Recommendations:</b> Managers need to create individual training and development plans for their staff. Trainings should be focused on specific technologies to keep up with the rapidly changing environment. Not all trainings need to be external because there are opportunities for peer-to-peer cross-training and observation. Staff and management would benefit from ongoing development in several areas, including: soft skills, customer service, and time management.</p>
4.3.3	Communication	<p>There is a need for consistent communication around IT projects and initiatives—both internal to IT and from IT to the campus community.</p> <p><b>Recommendations:</b> <i>Internal to IT:</i> The leadership team needs to increase its focus on communicating priorities and initiatives to the entire department. Regular “all hands” meetings and emails regarding technology changes to the entire department can be effective tools. In addition, the Chief Director should be more active and visible to his staff, particularly those who work outside of the IT building.</p> <p><i>External to IT:</i> Leverage the College’s portal and website to engage the campus community in IT projects and important announcements. It often takes five to seven separate communications for a message to resonate with the audience. Other communications channels to consider: FAQs and how-to videos, lunch and learns, and digital signage.</p> <p>With large, formal projects, the project manager needs to identify stakeholder groups and develop a communications plan to keep each group abreast of the project’s progress.</p>
4.3.4	IT Help Desk for Students	<p>Students currently have nowhere to go and no one to contact for IT support.</p> <p><b>Recommendations:</b> Establish a physical help desk with dedicated full-time staff and student workers as needed.</p>
4.3.5	IT Service Catalog	<p>Faculty and staff are becoming familiar with the ticketing system, but are not aware of the services that IT offers.</p> <p><b>Recommendations:</b> Develop a service catalog and publish it on the IT Department website. Developing a service catalog is a significant</p>

Summary of Observations and Recommendations		
#	Title	Summary
		undertaking. SMC needs to define the services that it provides and document each service using consistent design elements. This will require broad engagement from the IT Department and the College, particularly around service-level expectations.
4.3.6	Project and Change Management Expertise	<p>Implement formal project and change management procedures to use resources effectively, keep projects on schedule and on budget, and help manage the impact of technology changes to the College.</p> <p><b>Recommendations:</b> SMC should focus on developing internal project and change management expertise. Technology projects and initiatives have the potential to noticeably impact staff availability and customer service. Effective project and change management will be important in helping the College plan for initiatives identified in this assessment.</p>
<b>Section 4.4   Teaching and Learning</b>		
4.4.1	Student Experience	<p>Students consistently reported frustration with access to Wi-Fi, technology training, and printing services.</p> <p><b>Recommendation:</b> SMC should conduct a heat map assessment of wireless availability. This will help identify areas where current access points need to be upgraded or new access points should be installed. All new access points should align with the TERP. In addition, the College needs to replace existing firewalls that are limiting the available bandwidth. (Reference Section 4.1.4.)</p> <p>Design and implement technology training for new student orientation to educate students about available resources. This technology training could also include information on common security threats, such as phishing.</p> <p>SMC needs to consider moving to a printing solution that does not rely on students purchasing physical cards.</p> <p>Continually engage students to understand how technology is working and how they could be better supported by the IT Department. The Chief Director should conduct a focus group with students to gain this information each semester.</p>
4.4.2	Classroom	Faculty and students reported that classroom experiences are not

Summary of Observations and Recommendations		
#	Title	Summary
	Technology	<p>consistent across campus. In addition, there is inequity in the condition and outfitting of campus facilities.</p> <p><b>Recommendation:</b> Equip the College’s instructional spaces with consistent technology to provide a seamless experience for faculty and students. The IT Department should consult with faculty on classroom technology to help determine priorities and ensure satisfaction. The replacement cycle and TERP will need to be thoughtfully designed in light of the budget. (Reference Section 4.1.4.)</p> <p>The IT Department posts an IT help number in each classroom to help guide faculty. It is important to make sure that these help numbers remain in the classrooms and are updated as necessary. SMC should also consider an IT training for new faculty.</p>
4.4.3	Academic Computing Labs	<p>Academic computing labs are not effectively utilized and could be repurposed to offer more value to SMC.</p> <p><b>Recommendation:</b> With space at a premium in Santa Monica, SMC leadership needs to analyze the data provided by LabStats, in combination with data from facilities planning, to make informed decisions about how to best use these spaces. There is an opportunity to adapt labs to support growth areas, such as online and adaptive learning. (Reference Section 4.4.6.)</p>
4.4.4	Coordinated Care Network for Student Success	<p>The College does not have a CRM tool to track and manage student interactions across the student life cycle.</p> <p><b>Recommendation:</b> Implement a College-wide CRM to help faculty and staff support students. This initiative directly aligns with the College’s Guided Pathways Framework. Consider CRM functionality during the upcoming ERP selection process. However, modern ERP systems may not have all functionality desired by the College, and the timeline for a new ERP is uncertain.</p>
4.4.5	Emerging Technologies	<p>The College has a reputation as an innovative institution. IT can help further advance this reputation by coordinating and facilitating the adoption of innovative technologies across campus.</p> <p><b>Recommendation:</b> Identify areas where emerging technologies can be applied at the College to maintain the institution’s reputation as an innovator. Emerging technologies have the potential to provide</p>

Summary of Observations and Recommendations		
#	Title	Summary
		<p>significant value to faculty, staff, and students.</p> <p>Adopting emerging technology helps the College accomplish the supporting goal of an innovative and responsive academic environment.</p>
4.4.6	Increased Support for Online and Adaptive Learning	<p>Online and adaptive learning courses are becoming increasingly popular at SMC and higher education in general.</p> <p><b>Recommendation:</b> The College must plan for the future of online learning and implementation of adaptive learning spaces. These approaches to learning are more technology dependent than traditional methods. IT needs to plan for its role in supporting curriculum delivery.</p> <p>Becoming a member of QM to enhance the presentation and effectiveness of online courses is an effective step.</p>

## 4.1 | Enterprise Systems, Processes, and Infrastructure

*This section contains four observations and recommendations relating to enterprise systems, infrastructure, and processes. SMC has been considering replacing ISIS for several years. Determining a plan for a new ERP system and executing on that plan needs to be a priority for SMC. Business processes in the academic and administrative units will need to be adjusted as a result. The IT Department needs to ensure that it has the appropriate technology infrastructure in place support the future ERP and the future needs of students, faculty, and staff.*

### 4.1.1 | Planning for the Future of ERP

#### **The College operates using ISIS. ISIS is nearing EOL and is not a long-term solution for the College.**

SMC has been considering replacing ISIS for several years. The system was developed in-house and supports critical College functions, including admissions, enrollment, catalog, scheduling, and curriculum. ISIS puts the College at significant risk due to its level of custom development. Paper processes and manual steps are needed to conduct daily business operations. Some of these processes are a result of the existing relationship with LACOE. For example, data entered into ISIS is subsequently printed on green bar paper and re-entered into the LACOE system.

Technologically, ISIS is becoming obsolete. The underlying Oracle technology will soon be on extended support, which presents a significant security risk and additional cost. It is a challenge to make changes in the system and integrate with new technology. There is a lack of integration between ISIS and the Human Resources System (HRS), contributing to difficult business operations. Ample documentation does not exist for ISIS processes. With the majority of the team supporting ISIS nearing retirement eligibility, there is no plan to backfill or train new employees on how to operate and maintain ISIS. The costs of not replacing ISIS have become too significant to ignore. Senior staff formed the student information system (SIS) steering committee to explore replacing ISIS.

In 2018, SMC engaged an outside vendor, CampusWorks, to conduct a fit-gap analysis of ISIS and existing Banner Financial Aid, Financial Management, and HR Management modules. In September 2019, SMC published a Request for Proposal (RFP) for a consultant to help SMC procure and transition to a commercial ERP system.

Although SMC appears to be headed toward a new ERP system, no official timelines have been established, funding is uncertain, and there is a lack of buy-in from faculty and staff. Lack of buy-in exists at all levels throughout the organization and is a result of the immense change required, failed ERP implementations in the past, and the added complexity of SMC's dependency on LACOE for finance and HR.

This uncertainty is impacting the morale within the IT Department. There are several vacant positions, particularly within the MIS group, that have not been filled because they would likely

not be needed to support a commercial ERP system. Not filling these positions increases the workload for IT staff and limits the ability of IT to take on new projects. Several staff indicated concerns about the future and if their jobs will be needed.

★ **Peer Benchmarking Takeaways:** Both Mt. San Antonio College and Pasadena City College operated with a homegrown ERP system before implementing Banner. At Mt. San Antonio, approximately 70% of programming staff in IT left during the Banner implementation.

**Recommendation:** SMC needs to establish a clear roadmap for the future of ERP, including a contingency plan for ISIS. This roadmap should include detailed timing, funding, and staffing considerations. SMC should also consider developing a formal change management plan to help ensure effective executive sponsorship, training, and communications.

❖ **IT Master Plan Consideration:** Future ERP Roadmap

#### 4.1.2 | Business Process Improvement

**Many administrative functions are based around people and how they prefer to work rather than around defined processes. This, coupled with the limitations of the legacy SIS, has resulted in a significant amount of manual effort and duplicate data entry.**

A strength of ISIS has been the ability to customize the system to cater to the needs and wants of staff. Over time, this has resulted in processes that are designed around specific individuals. Implementing a new ERP system presents an opportunity for SMC to redesign business processes to focus on best practices and the needs of the College. Eliminating excessive manual and paper processes will free up staff time to focus on more value-added and strategic activities.

##### Manual Processes

The College is at risk of making critical, high-impact mistakes due to the paper processes in key areas such as Admissions, Business Office, and HR. Most data entered into ISIS is then printed on green bar paper and reentered into the LACOE system. In many cases, SMC is performing manual processes when commonly used commercial systems exist. For example, a class scheduling tool (e.g., Ad Astra and Schedule25) could eliminate significant effort and duplicate data entry. Unnecessary manual processes drive unsustainable costs and result in poor student service.

Students are required to visit the Admissions and Records Office and the Counseling Office with paper documents to accomplish tasks that should be performed by a modern ERP system. Visits to the Admissions and Records Office and the Counseling Office total approximately 164,000 visits per year. At times, students are required to wait in line (using a software tool) for up to four hours. With the tool, students are still required to visit the office to secure a place in line. Student services should be as seamless as possible.

Transcript evaluation is also a challenge. A counselor is required to enter transfer credits into ISIS as pending. A transfer evaluator or articulation officer is then required to approve or reject the credits. The credits remain in pending status until the student initiates a final transcript evaluation (credits can be in pending status for months). Transfer equivalency tables are not built into ISIS, leading to inconsistent evaluation depending on who performs the evaluation. If credits are not recorded properly in ISIS, the student's financial aid can be packaged incorrectly.

In addition, manual processes impact administrative functions. Journal entries involve many manual and Microsoft Excel processes, totaling 10 steps in all. End users are required to key journal entry information into Excel, copy and paste the same information into PeopleSoft, then audit the PeopleSoft entry against paper documentation. A modern ERP could simplify the journal entry process into four steps, none of which require manual or Excel work.

### **Paperless**

College departments, including Enrollment Management and Business Services, have a goal of becoming paperless. Going paperless is about streamlining processes to reduce the creation of new paper files, handling existing paper files more efficiently, and changing operations to automate activities that do not add value. Paperless processes should be utilized as a means to improve how business is conducted.

The IT Department can support the College as it looks to become a paperless campus. Effectively using technology can alter the College's business processes, creating cost savings and efficiencies. A new ERP system will help the College harness the power of its data, much of which is stored in paper files.

★ **Peer Benchmarking Takeaways:** El Camino College, Mt. San Antonio College, and Long Beach City College underwent business process reviews in advance of ERP implementations. Mt. San Antonio College reported that the reviews helped prepare college stakeholders for change.

**Recommendation:** The College should engage in an institution-wide effort to review existing business processes and identify those that need to be replaced, eliminated, or redesigned. Business processes should be prioritized and addressed systematically. The IT Department will play a key role in this process, but it is important that this not viewed as an IT effort. Functional area staff need to design future processes. IT staff can help define and communicate the capabilities of the future ERP system.

#### **4.1.3 | Technology Infrastructure and Replacement**

**SMC has not effectively planned for replacement of critical infrastructure. As a result, they have hardware in place that has reached EOL.**

The Network Services team is working on multiple projects to upgrade or replace key components of SMC's technology infrastructure. The primary projects include:

- **2<sup>nd</sup> 10G Internet Connection** – SMC is installing the CCC-provided 10GB internet connection at the CMD campus, providing increased internet bandwidth to the College.
- **Upgrade Campus Firewalls** – The current internet connection provides 10GB of capacity, but the College’s current firewall is capable of handling only 1GB. This limits the bandwidth at the first connection. The Network Services team is planning to upgrade firewalls to newer versions that are capable of handling 10GB.
- **EOL Networking Equipment** – Core networking switches reached EOL in July 2019. These are in the process of being replaced.

These projects will reduce risk for the institution and improve the wireless bandwidth available to students, faculty, and staff. SMC has a TERP that outlines replacement schedules for the workstations, document cameras, projectors, and controllers/switches on campus. There is no TERP for technology infrastructure, such as firewalls and routers.

In addition to the projects above, some facilities pose challenges to the college’s technical infrastructure. Drescher Hall, the location of an old server room and where some IT equipment still resides, has a leaky roof. Water recently leaked onto an electrical panel. The Media Building also has a leaky roof directly above the data center -- a pool of water was discovered in the server room after a storm. There are issues with secondary cooling in the Media Building server room when the central plant is shut down.

### Technology Replacement

The College’s technology procurement processes are effective in some instances, including:

- Other departments look to IT for consultation on technology purchases.
- Most technology purchases are identified by the Purchasing Department and sent to IT for approval.
- IT reviews these purchases to help ensure compatibility with existing technology.

There are two primary challenges with the procurement process – 1) the length of time that it takes to get purchases approved; 2) lack of involvement from the technology experts. IT staff expressed that it can take months to purchase technology equipment due to the current processes in place. IT staff also reported instances where the technology that they needed was not purchased because the Purchasing Department did not understand the intricacies of requests.

**Recommendation:** Develop a TERP for infrastructure. Future purchases should maximize the College’s investment in 10GB internet. Special attention should be paid to firewalls, routers, and cabling.

*Purchasing:* The Chief Director should work with the Purchasing Department to adjust processes for technology procurement. Contracting with a value-added reseller (VAR) would

enable the IT Department to purchase turnkey technology solutions and be more responsive to the needs of the College. A VAR would reduce the length of the procurement process and provide a partner that understands SMC's technology needs.

#### **4.1.4 | Device Replacement**

**The College has an effective TERP in place, but has been challenged to maintain the current device replacement schedule due to budget constraints.**

SMC's TERP outlines replacement schedules for the workstations, document cameras, projectors, and controllers/switches on campus. The plan estimates the number of replacements needed each year and the total cost to the college through the 2025 – 2026 academic year. SMC has tried to follow the plan, but annual budgets have made it challenging. It appears that SMC is still working to replace devices scheduled for the 2018 – 2019 academic year, and some non-instructional workstations, instructional controllers, and projectors have been deferred from years prior to 2018.

Inconsistent funding has made it difficult to standardize the equipment in the learning spaces, which has created challenges for faculty and negatively impacted the student experience. (Reference Section 4.4.2.) SMC needs to revisit its TERP. When doing so, SMC should consider two points that were consistently raised during on-site interviews and surveys. 1) Many faculty and staff would prefer laptops over desktops; 2) are Macs needed?

#### **Laptops for Faculty and Staff**

Faculty and staff reported that desktops are inconvenient and do not meet their needs. Staff indicated that their departments have a limited amount of laptops to share. This has been challenging, particularly for departments that have travel obligations. Faculty reported that they often bring their own laptops to class and have little use for the desktop computers that are provided.

#### **Finding the Appropriate Mix of Macs and Personal Computers (PCs)**

The CMD campus has over 200 Macs used in the Film, Graphic Design, and Journalism departments. 140 iMacs are used in the Digital Photography, Art, and Computer Information Systems departments on the main campus, as well as in a satellite music lab.

Support for Macs is challenging. Apple requires at least two staff members be certified in order to access Apple parts and Apple's repair system. The staff at the CMD campus are not Apple-certified service providers. In addition, recent policy changes by Apple have made Macs increasingly difficult to deploy.

Some faculty members reported that they do not like using iMacs because the screen is too large, hindering their ability to see their students during class. The Film Department has requested to move away from iMacs to stay current with industry trends. These limitations

require SMC to buy Mac Pros. Mac Pros are expensive, at over \$6,000 each, and require the College to purchase third-party software to support imaging and antivirus protection.

Many faculty insist on Macs because they are commonly used in creative industries; however, the software used by the Digital Photography and Art departments is available on Windows. SMC should consider reducing the number of Macs where possible. This would save the College a significant amount of money and improve its ability to maintain the desired replacement schedule.

**Recommendation:** SMC should revise the existing TERP to address devices that have been deferred from prior years. Replacing Macs with PCs and offering an affordable laptop option to faculty and staff could improve the sustainability of the TERP. Macs will still need to exist on campus, but should be justified by an instructional need.

## 4.2 | Governance, Security, and Risk

*This section contains four observations and recommendations relating to IT governance, security, and risk. There is an opportunity to review and increase awareness of IT governance to help ensure a tightly integrated and collaborative process across campus. Security is an area that will require dedicated staff focused on developing a campus-wide security program, regular activities to reduce the risk of the College, and completion of critical security projects.*

### 4.2.1 | IT Governance

**There is a formal governance structure in place at SMC that includes a Technology Planning Committee (TPC) for collaborative communication, planning, and prioritization of technology initiatives.**

The Board of Trustees established DPAC. DPAC is primarily responsible for making recommendations to the President/Superintendent about strategic areas, including the budget, facilities, HR, instruction, student services, and technology planning. The TPC is a sub-committee that reports out to DPAC.

The TPC meets monthly and has cross-campus representation, including administrators, faculty, classified staff, and students. The current chair of the committee is the ISO.

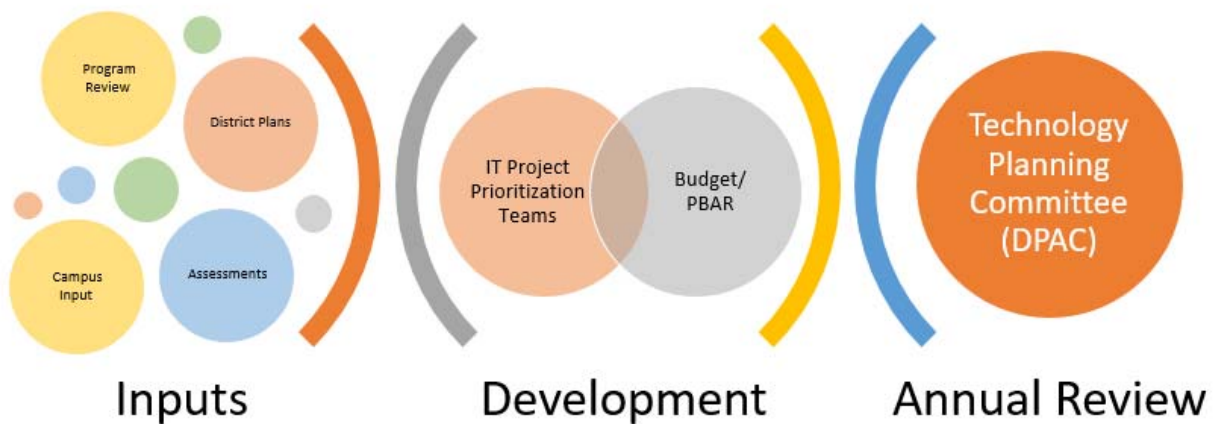
The TPC is charged with:

- Reviewing the annual Master Plan for Technology for submission to DPAC
- Reviewing technology planning issues respective to Budget, HR, Facilities, Student Services, and Instruction
- Focusing on technology integration and communication with other College planning areas
- Recommending campus-wide technology solutions and providing ongoing support for the maintenance of the Master Plan for Technology

In addition to the TPC, an Information Services Committee (ISC) exists as a subcommittee of the Academic Senate. ISC discusses faculty use of technology and collects yearly technology requests. This list gets prioritized by ISC and funded by money left over in the instructional equipment budget. Funding varies year to year, and many of the items that faculty request fall outside the defined IT standards for devices.

The annual technology process, and the role that these two committees play, is depicted on the following page.

Figure 3: SMC IT Governance Structure



IT governance provides a formal strategy to align the business needs and IT across an organization. A formal governance structure provides the framework to enable the guidance, collaboration, and leadership on IT initiatives and decisions to achieve the institutional goals. Effective IT governance will serve to:

- Provide an efficient mechanism for input and feedback regarding IT services and needs across SMC
- Approve technology that aligns with established goals of the technology master plan
- Assist in identifying and developing IT services required to meet SMC's strategic goals
- Provide a mechanism for assessing how IT equipment is acquired
- Make recommendations regarding IT services to senior leadership
- Serve primarily in an advisory capacity, working within the overall SMC organizational structure (e.g., provide input into the SMC IT budget process, but not establish budgets)

The IT governance structure that is in place meets these goals and establishes cross-campus representation for discussion and prioritization of technology initiatives. An area that could use clarification on campus is the process for requesting and prioritizing IT projects. Additional committees would pose a risk of over-complicating and introducing bureaucracy to an already streamlined and functional process that largely meets the IT governance needs of the College.

**Recommendation:** There is an opportunity to review and increase awareness of IT governance to help ensure a tightly integrated and collaborative process across campus. Sharing roles and responsibilities of the committees, the planning process for submitting ideas for consideration, and requesting new technology to meet individual or department needs can increase awareness of IT governance and help ensure an integrated and collaborative process.

#### 4.2.2 | Information Security

##### **SMC needs to complete critical security projects, and develop and implement an information security program.**

The CampusWorks ERP fit-gap analysis conducted in 2017 revealed several information security concerns for the College. Accounts and authentications are managed differently for each constituent group, and the student portal, faculty portal, and ISIS all use different authentication methods. Student account passwords, some security questions, and student social security numbers are stored unencrypted. Additionally, when personnel transfer departments or leave the College, MIS does not receive immediate notification, leaving old permissions active.

##### **Current Security Projects**

A sample of the critical security projects from the planned list are:

- Upgrading and replacing key network equipment.
- Moving all student accounts to Portal Guard single sign-on (SSO).
- Moving Portal Guard SSO to the cloud for adequate backup.
- Implementing multi-factor authentication (MFA) for all critical systems.
- Moving from McAfee to the Microsoft Office 365 product suite, including Advance Threat Protection (ATP) and Windows Defender.
- Moving ISIS accounts from internal authentication to the Portal Guard SSO federated model.
- Providing security awareness training campus-wide.
- Expanding Shibboleth deployment and implementing Portal Guard to enable integrated SSO for all capable SMC internal and external services. This will allow the College to support CCC initiatives such as CCC Open Education Initiative (OEI) CCCApply.
- Expanding single sign-on usage to Academic Works and additional services as required to simplify user computer login processes and add enhanced features, such as password recovery and MFA, to improve campus security.

The College recently hired an ISO. The ISO is temporarily supporting his previous role as Network Manager, which has put a number of security projects on hold. It is important that the ISO focus full time on security initiatives.

The ISO has been able to run a vulnerability scan (July 2019) to identify vulnerabilities in the environment. The College utilizes the Tenable Nessus scanning tool licensed by the State Technology Center. This tool provides vulnerability scanning for the network. The ISO runs the tool, reviews the report, and takes the appropriate action to remediate findings, starting first with high-risk items. The last scan was completed in July 2019. Scanning should commence on a regular quarterly schedule. The ISO is also in charge of developing an information security program.

### **Information Security Program**

A robust information security program, including the installation of regular risk and security assessments, helps ensure the College is more prepared to prevent and manage security breaches. ISIS does not provide the level of security that a modern ERP system provides. Integrating technology with ISIS can introduce risks into the College's information systems environment. For example, duplicate IDs exist across the College. These must be merged or purged as needed.

Threats and vulnerabilities to information systems may easily be overlooked without a well-documented risk management program and proper risk analysis of critical systems. Not having a risk management program puts the College at risk of unauthorized access to sensitive information and data breaches.

Risk evaluations—performed in advance of, or in the process of, planning new technology projects—significantly help to mitigate unintended security gaps. New systems or changes to existing systems could negatively impact other systems within the environment.

★ **Peer Benchmarking Takeaways:** Mt. San Antonio College is in the process of approving security policies. Additionally, IT has a dedicated security team with many offensive monitoring tools and defensive protocols that protect campus systems.

**Recommendations:** Led by the ISO, IT should continue to complete critical security projects and develop its information security program. The information security program should include a risk management program, regular risk and security assessments, security awareness training, and quarterly vulnerability scans.

### 4.2.3 | Reporting and Analytics

#### The legacy SIS inhibits SMC from having access to real-time data and modern analytics tools.

While the MIS data is consistent and accurate, it is not updated in real time. There is no standardization of data; not all data points have associated codes; and some of the codes are different. The College's data-driven decision process is limited by the capabilities of the legacy SIS. It is challenging for College stakeholders to access data necessary to make informed decisions.

Reporting ability is inconsistent across functional departments. For example, the Counseling Office tracks each contact in ISIS by type. The Admissions and Records Office tracks interactions on paper, using tick marks.

IT is the sole department responsible for data at the College. IR staff members receive all requests for data, but do not have access to the data themselves. IT provides IR access to MIS data that is submitted to the Chancellor's Office. In addition, IT is responsible for external reporting to the State of California.

The College needs to determine and communicate the roles of IT and Institutional Research in generating and supporting the College's reporting and analytics functions. Collective buy-in and ownership across campus is important in maturing the College's use of data. A modern ERP system would make data accessible throughout the College.

Data should be treated as an institutional asset by the College. Reliable, up-to-date data is the catalyst to make informed business decisions to advance the College's mission and better serve its students and community.

**Recommendation:** A modern ERP system and significant process changes are needed for SMC to realize marked improvement in reporting and analytics. Many institutions with modern ERP systems still have third-party reporting and analytics tools to gain the most value out of their data. SMC should explore third-party reporting and analytics tools as part of the ERP replacement.

At many institutions, IR is responsible for reporting data to external organizations, such as IPEDS. SMC should reconsider the data and reporting responsibilities between IR and IT in a future ERP environment.

#### 4.2.4 | Disaster Recovery and Business Continuity

##### **SMC lacks formal written plans, policies, or procedures for disaster recovery and business continuity.**

The College's primary data center is housed in the library building on the main campus. There is a data center at the CMD campus that has capacity to be designated as the backup data center. This CMD data center can act as a data replication site prior to moving data to the cloud for disaster recovery purposes. In the event data is required to be recovered, data can be pulled from the CMD campus without incurring data recovery fees from the cloud provider. For disasters that would impact both the main and CMD campuses, data can be recovered from the cloud provider to restore applications, data, and services.

The IT Department recently completed major network upgrades to the data center and the network operations center. SM/MM fiber is installed at all campus buildings, dark fiber connections run to all satellite campuses, and 10GB internet connection is now available to faculty, staff, and students. The infrastructure is in place to develop a robust disaster recovery plan for outages. One challenge will be ISIS. An automated failover would need to be developed because automated failover is not a built-in feature of the homegrown system.

It is important for the College to have formal written disaster recovery and business continuity plans, policies, and procedures in place. Without formal plans, the College is at risk of not having mission-critical applications and systems in place during a disaster. Formal policies and procedures should be communicated to appropriate College staff and third-party service providers, and tested periodically. This should be an institution-wide initiative, starting with identifying business continuity priorities and establishing disaster recovery plans.

**Recommendation:** The College should develop business continuity and disaster recovery plans, policies, and procedures that enable the institution to operate during outages and failures to critical systems. IT leadership should establish regularly scheduled testing of the disaster recovery plan.

IT leadership should consider the CMD campus as secondary data duplication site, with cloud service as primary backup for campus-wide disasters.

❖ **IT Master Plan Consideration:** IT leadership should solidify the College's data center and cloud strategies moving forward. Identify, confirm, and prioritize projects to move services to cloud; provide redundancy; and eliminate outdated processes.

Development of business continuity and disaster recovery plans includes the following:

A **business impact analysis** to identify business functions that are normally conducted in each department to determine the potential impact of uncontrolled, non-specific events on business processes and customers.

Identification of **Recovery Time Objective (RTO)** and **Recovery Point Objective (RPO)** for critical systems.

A **risk assessment** to identify potential disruptions based on the severity and likelihood of occurrence.

**Identification of specific resources**, including information systems and third parties that support business functions, together with recovery or replacement strategies for each resource. Consideration will be given to the possibility of disruptions that affect third-party service providers.

**Risk monitoring** that helps ensure the plans are exercised regularly, subjected to independent audit and review, and maintained.

**Development of specific business continuity planning documents**, including distribution of the documents to the appropriate individuals.

**Plan maintenance**, including annual testing of the plans, exercises and training for department managers and staff, and an independent review of plan documents and activities.

### 4.3 | IT Service Delivery and Communications

*This section contains six observations and recommendations relating to IT service delivery and communications. There are opportunities to better align employee schedules with the needs of the College. IT services and initiatives can be better communicated to the campus community. Increased professional development opportunities would help close existing gaps in service.*

#### 4.3.1 | Employee Schedules

**The work schedules of several staff are not aligned with the needs of the College.**

Colleges often stagger the hours of their front-line IT staff to help ensure support is available for all classes. SMC has taken this approach in Academic Computing, but it seems that some schedules in other teams—particularly in MIS—have been inconsistently changed to align with personal desires rather than customer needs. The variation in schedules has made it difficult to schedule meetings, manage projects, and balance workloads.

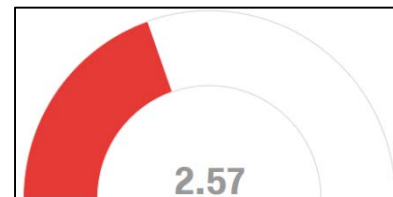
**Recommendation:** The Chief Director needs to work collaboratively with the union to align staff on a schedule that best meets the needs of the College. SMC should consider opportunities for employees to work remotely and variable hour schedules where appropriate.

#### 4.3.2 | Professional Development

**IT staff are discouraged by the lack of opportunities for training and professional development. Lack of cross-training has created risks for the College.**

IT staff ranked professional development opportunities a 2.57 out of 5. (Reference Figure 4.) Staff indicated that they would appreciate more training in current systems and emerging technologies. SMC offers online classes via Lynda, but these are mostly beginner classes, and no time is allotted for training during work hours. Staff indicated that even some free training opportunities are denied because they would result in time away from work.

**Figure 4: Satisfaction With Professional Development Opportunities**



A portion of IT management’s annual evaluation is based on the professional development that managers complete and the opportunities that they provide for their staff. In 2017, the Chief Director outlined a professional development plan for managers. It continues to be developed. IT staff would benefit from the completion of the professional development plan, including a roadmap of how to advance their careers at the College. IT staff attended the following training in the last three years:

- APEX Training With SkillBuilders
- Oracle Cloud Test-Drive
- Cisco CPAM and VSOM
- Web Design and Project Management

- Extron Technician Training
- Certified Information Systems Security Professional (CISSP) Certification
- Project Management Professional (PMP)

While the trainings listed above are valuable, they benefit a few select staff. Many employees did not complete any professional development over the past three years. Providing professional development opportunities is important to keeping employees motivated to accomplish goals and improve services to the College. A structured roadmap helps staff understand what is expected of them as they progress in their careers at the College.

### **Risk to the College**

Lack of professional development is particularly evident in MIS. A significant skill gap exists between employees, which has led to inequitable workloads, single points of failure, and challenges when employees are absent. Employees need to be cross-trained to reduce single points of failure and risk to the College.

★ **Peer Benchmarking Takeaways:** At Mt. San Antonio College, IT uses salary savings to allocate funds to training and development (about \$50,000 per year). Most networking and security staff have been developed from within the IT organization.

**Recommendation:** Managers need to create individual training and development plans for their staff. Trainings should be focused on specific technologies to keep up with the rapidly changing environment. Not all trainings need to be external because there are opportunities for peer-to-peer cross-training and observation. Staff and management would benefit from ongoing development in several areas, including: soft skills, customer service, and time management.

The department would benefit from increased communication around professional development opportunities, expectations, and available resources.

❖ **IT Master Plan Consideration:** Professional development for IT staff

### **4.3.3 | Communication**

**There is a need for consistent communication around IT projects and initiatives—both internal to IT and from IT to the campus community.**

#### **Internal to the IT Department**

Staff indicated that there is a lack of communication among the different areas in the department. They expressed that why they are asked to do specific tasks is rarely communicated, and there is often confusion about priorities.

Several staff cited changes that were made by other teams in the department which affected them, but were not communicated broadly. For example, staff in the labs were not notified about a change to the Wi-Fi, and as a result, they were not prepared for student questions. Lack of clear communication about the future direction and timeline for a new ERP system was also a frequently cited concern for staff.

Staff ranked communication within the department as 2.34 out of 5. (Reference Figure 5.) Frequent communication about ongoing projects and initiatives can improve morale within the department, particularly among staff who are distributed across campus and have a higher tendency to feel isolated.

Staff are much more satisfied with the communication among their immediate teams and coworkers. (Reference Figure 6.)

### From IT to the Campus Community

The IT Department typically notifies campus about IT changes through a College mailing list. Stakeholders reported a desire for more project-related communication—in other words, further visibility into the status of projects, and more information on how projects will impact end users from start to finish.

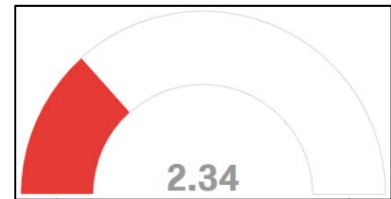
Examples of communications challenges include delayed or no notification regarding software upgrades and changes, delayed responses to submitted tickets (e.g., time to resolution), and delayed updates on technology projects.

Communication is essential for faculty, staff, and students to understand IT services, resources, and plans. It also provides visibility into opportunities to collaborate or leverage technology as part of departmental initiatives.

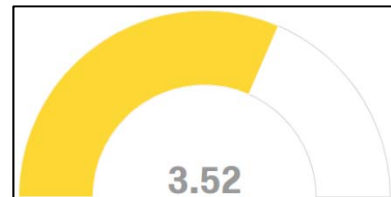
On average, stakeholders ranked their satisfaction with communication from IT at 3.3 out of 5. (See Figure 7 to the right.) As IT at the College evolves, communication to the campus community will be important in ensuring all stakeholders are aware of technology’s strategic role at the College and their role in supporting it.

★ **Peer Benchmarking Takeaways:** At Pasadena City College, IT will hold a town hall meeting every two months. Additionally, the director of technical services holds weekly 1:1 meetings with his staff. At Mt. San Antonio College, the IT managers meet every week.

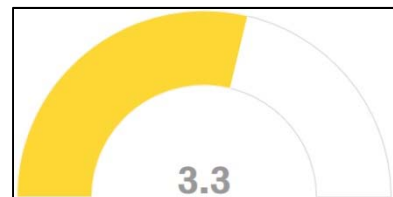
**Figure 5: IT Staff Satisfaction With Communication in the Department**



**Figure 6: Satisfaction With the Communication Among IT Staff Within Their Teams**



**Figure 7: Satisfaction With the Communication Between IT and the Campus Community**



**Recommendation:**

*Internal to IT:* The leadership team needs to increase its focus on communicating priorities and initiatives to the entire department. Regular “all hands” meetings and emails regarding technology changes to the entire department can be effective tools.

In addition, the Chief Director should be more active and visible to his staff, particularly those who work outside of the IT building.

*External to IT:* Leverage the College’s portal and website to engage the campus community in IT projects and important announcements. It often takes five to seven separate communications for a message to resonate with the audience. Other communications channels to consider: FAQs and how-to videos, lunch and learns, and digital signage.

With large, formal projects, the project manager needs to identify stakeholder groups and develop a communications plan to keep each group abreast of the project’s progress.

#### 4.3.4 | IT Help Desk for Students

**Students currently have nowhere to go and no one to contact for IT support.**

Students are provided limited direction about the technology resources available to them (reference Section 4.4.1), and there is no physical help desk for them to come with questions.

There is currently a dedicated phone line to call with IT issues. A staff in TSS is responsible for answering this phone line with other members of the team providing backup as needed. SMC would be better served by a physical help desk to serve as the face of the IT Department. Dedicated help desk staff would provide significant value to students, faculty, and staff, and would address tasks that are not being provided today. Their role would include:

- Fielding walk-up questions, answering phones calls, and logging tickets during all hours of operation
- Resolving questions on first contact
- Escalating tickets to the necessary parties within the department
- Developing formal documentation and a knowledgebase to help resolve future issues
- Training new staff
- Monitoring tickets for trends to identify problems

SMC could staff the help desk with a combination of full-time staff student workers. This is a great opportunity for students and could potentially serve as a pipeline for entry-level IT staff. The help desk would also serve as a stepping stone to more technical positions within the department, likely in TSS as they become available through attrition. Internal promotion opportunities would help continuity within the department, encourage professional development, and boost morale.

**Recommendations:**

Establish a physical help desk with dedicated full-time staff and student workers as needed.

#### 4.3.5 | IT Service Catalog

**Faculty and staff are becoming familiar with the ticketing system, but are not aware of the services that IT offers.**

IT does not have an IT service catalog to publish the services that it provides to students, faculty, and staff. The intent of a service catalog is to publish the IT services that are available to student, faculty, and staff, and to provide key information about each service, including: how to request it, the service owner, and other associated services that may be helpful. The IT Department's website currently has a link to submit a help request ([ithelp@smc.edu](mailto:ithelp@smc.edu)), but there is no information about the services that the IT Department offers. The College would be better served with a more proactive approach to providing support information and policies.

Once established, a service catalog must be maintained to be effective. If the institution no longer needs a service it should be removed from the service catalog. If maintained appropriately a service catalog is an effective tool to ensure that IT services are meeting the needs of the institution and the appropriate resources are in place to provide those services. Reference Table 2 for a service catalog template and description.

**Table 3: Sample Service Catalog Design Elements**

Service Design Elements	Description
<b>Service Name</b>	The name by which the catalog users know the service.
<b>Service Description</b>	A full description of the service, including its purpose, benefits, features, and options. The description should be written for the end user to understand.
<b>Audience</b>	The constituents for which the service is available (e.g., students, faculty, staff).
<b>Service-Level Expectations</b>	The service level that customers can expect to receive. These expectations might be documented and could include response time, resolution time, a dedicated support person, etc.
<b>Requirements</b>	Any prerequisites for using the service (e.g., approvals, training, compliance requirements, other services).
<b>Service Charges (If Applicable)</b>	The cost to the end user or department to use the service. This can be expressed on a per-user basis, by department, volume of consumption, or however charges are assessed.
<b>Requesting the Service</b>	Instructions for requesting the service (e.g., a link to a request form or contact information).
<b>Support Contact</b>	Instructions for requesting support (e.g., help with using the service or reporting a service issue).

Service Design Elements	Description
Feedback Mechanism	Instructions or mechanism for reporting feedback on a service.
Service Owner	An individual who is accountable for managing the service and ensuring that service delivery meets customer expectations.

**Recommendations:** Develop a service catalog and publish it on the IT Department website. Developing a service catalog is a significant undertaking. SMC needs to define the services that it provides and document each service using consistent design elements. This will require broad engagement from the IT Department and the College, particularly around service-level expectations.

#### 4.3.6 | Project and Change Management Expertise

**Implement formal project and change management procedures to use resources effectively, keep projects on schedule and on budget, and help manage the impact of technology changes to the College.**

SMC has recently established a project intake and prioritization process, which is primarily used for programming and MIS projects. Users submit requests to ITHelp. The IT managers identify if the request will take greater than 20 hours of effort or if the request is a major change to a system. If so, the IT manager requests the user to complete the project form.

Projects are prioritized by the Vice President of Instruction, the Vice President of Enrollment, and the Chief Director based on following criteria:

- Priority 1: Legally Mandated or State Requirement
- Priority 2: Leads to Sustainability of ISIS
- Priority 3: Aligns With Guided Pathways
- Priority 4: Aligns With DPAC Objectives
- Priority 5: Operational

Once projects are prioritized, the department uses Monday.com to manage the projects. However; SMC does not have any project managers. There is a project analyst in the MIS group, whose job description includes project management responsibilities related to programming projects; however, it was reported that this position is underutilized and the job description does not align with the duties being performed.

Lack of formal project management has led to inconsistent practices when implementing new technology initiatives. IT would benefit from a dedicated project manager to manage IT projects and develop a culture of project management within the IT Department. A project manager will

alleviate some of the responsibilities of existing IT personnel and enable them to focus on other tasks, such as supporting the College's core infrastructure and systems.

In addition to project management, change management expertise will be particularly important to have during the transition to a modern ERP system. SMC does not need a full-time change manager, but would benefit from change management expertise within the organization. SMC should prioritize change management and build expertise through enrolling key employees in a change management course.

**Recommendations:** SMC should focus on developing internal project and change management expertise. Technology projects and initiatives have the potential to noticeably impact staff availability and customer service. Effective project and change management will be important in helping the College plan for initiatives identified in this assessment.

## 4.4 | Teaching and Learning

The College is embarking on an initiative to redesign the student experience. Using a Guided Pathways Framework, the College seeks to eliminate the equity gaps, reduce time to completion, and increase the rates of completion, while maintaining high standards and high quality. Guided Pathways aim to make the student experience more intentional, supported, and clear. The College is constructing processes and interventions to help guide and support each student to reach their self-defined completion effectively and efficiently. This section contains six observations and recommendations to the student experience at SMC through better use of technology.

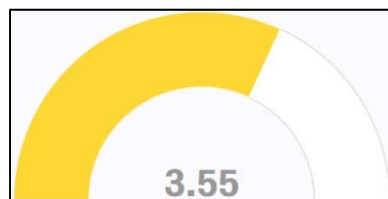
### 4.4.1 | Student Experience

**Students consistently reported frustration with access to Wi-Fi, technology training, and printing services.**

#### Access to Wi-Fi

Several students expressed dissatisfaction with the availability of the wireless network. During the student focus group, one student indicated that they had not been able to connect to the wireless network for the entire semester. Other students noted poor availability in the cafeteria and science building labs. Overall, students rated wireless availability 3.55 out of 5. (Reference Figure 8.)

**Figure 8: Student Satisfaction With Wi-Fi Availability**

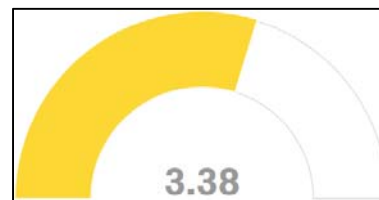


The College installed Meraki wireless access points in the new student services building. These access points provide increased visibility in to the demand for bandwidth. As new buildings are built and other access points reach EOL, Meraki access points will be installed.

#### Technology Training

Students expressed that they do not know where to go or who to ask for technology help. In addition, students do not receive technology training during new student orientation to educate them on the resources that are available. Overall, students rated their satisfaction with technology training 3.38 out of 5. (Reference Figure 9.) The IT Department would benefit from increasing its presence during campus events. For example, there should be a technology booth on VIP day for new students. In addition, regularly offered trainings on basic IT needs (e.g. how to connect to Wi-Fi, how to add a printer, etc.) could serve to improve the student experience.

**Figure 9: Student Satisfaction With Technology Training**



## Printing Services

Students use a “pay-for-print” service provided by Showcase Technologies. The process to add credits to the Showcase system is antiquated. Students need to buy a physical card to print, which costs them 50 cents. There are five card machines at SMC. Some machines can add value to a student’s print card while others cannot.

Locations and machines are listed below:

Library:

- 2 print card dispenser machines (students insert cash to receive print cards)
- 1 add cash to print account machine (students swipe their cards and add cash to accounts)

Bundy:

- 1 print card dispenser machine (students insert cash to receive print cards)

CMD:

- 1 print card dispenser/add cash to print account machine (dual function)

The various functionality of the machines results in confusion for students.

In addition, printing is inaccessible at times. Printing is primarily accessed through computer labs, which have varied hours of operation. For example, at the Bundy Campus, no labs are open before 8 a.m.

**Recommendations:** SMC should conduct a heat map assessment of wireless availability. This will help identify areas where current access points need to be upgraded or new access points should be installed. All new access points should align with the TERP. In addition, the College needs to replace existing firewalls that are limiting the available bandwidth. (Reference Section 4.1.4.)

Design and implement technology trainings to educate students about available resources and how to best make use of them. These trainings could also include information on common security threats, such as phishing.

SMC needs to consider moving to a printing solution that does not rely on students purchasing physical cards.

Continually engage students to understand how technology is working and how they could be better supported by the IT Department. The Chief Director should conduct a focus group with students to gain this information each semester.

❖ **IT Master Plan Consideration:** Improve the student technology experience.

#### 4.4.2 | Classroom Technology

**Faculty and students reported that classroom experiences are not consistent across campus. In addition, there is inequity in the condition and outfitting of campus facilities.**

There are 343 total classrooms at SMC, and all but 9 are equipped with technology. The majority of classrooms have a computer, projector, and document camera. However, not all classrooms are outfitted with the same models and brands of technology, and some classrooms have significantly older technology than others. Students and faculty both expressed that challenges with technology have led to delays in the start of class and even class cancellations. These instances are most often the result of faculty not knowing how to use the technology.

Standardizing and upgrading technology in the College's instructional spaces will make technology use easier for faculty and allow for easier transitions between classrooms. It will also make supporting the spaces easier for IT staff.

In addition to inconsistencies in classroom technology, faculty expressed frustration about not always knowing who to contact to get technology help during class and lack of Wi-Fi in some buildings. Lack of Wi-Fi limits faculty's ability to use laptops in class. This also affects students who bring their own devices.

**Recommendation:** Equip the College's instructional spaces with consistent technology to provide a seamless experience for faculty and students. The IT Department should consult with faculty on classroom technology to help determine priorities and ensure satisfaction. The replacement cycle and TERP will need to be thoughtfully designed in light of the budget. (Reference Section 4.1.4.)

The IT Department posts an IT help number in each classroom to help guide faculty. It is important to make sure that these help numbers remain in the classrooms and are updated as necessary. SMC should also consider an IT training for new faculty.

#### 4.4.3 | Academic Computer Labs

**Academic computing labs are not effectively utilized and could be repurposed to offer more value to SMC.**

Lab utilization data is collected by the IT department using LabStats, a computer lab monitoring tool for higher education. Lab utilization refers to the amount of time that computers in a lab are used relative to the amount of time that they are available for use. SMC implemented LabStats at the beginning of 2019. The IT department is in the process of optimizing the software and validating the data.

SMC does not yet use LabStats data to support the number of computers needed in labs and classrooms. The IT Department equips labs and classrooms with as many computers that will fit.

**Recommendation:** With space at a premium in Santa Monica, SMC leadership needs to analyze the data provided by LabStats, in combination with data from facilities planning, to make informed decisions about how to best use these spaces. There is an opportunity to adapt labs to support growth areas, such as online and adaptive learning. (Reference Section 4.4.6.)

In addition, there are opportunities to use technology to more effectively support the labs. SMC has a license for Microsoft System Center Configuration Manager (SCCM) that can be leveraged to automate device imaging to reduce manual work, save time, and increase efficiency. SCCM can image devices after-hours and image multiple devices at a time. SMC should look to increase the use of this tool to manage lab computers more efficiently.

SMC should also consider Desktop-as-a-service (DaaS) to deploy lab computers.

#### 4.4.4 | Coordinated Care Network for Students

**The College does not have a CRM tool to track and manage student interactions across the student life cycle.**

Admissions uses TargetX to manage interactions with prospective students. Each tutoring center uses different tools to track student visits. There is no universal CRM at the College in which faculty and staff can view a student's complete history.

In addition to teaching, faculty serve as student advisors, and are often the first point of contact for students. It would be beneficial for faculty and Student Affairs staff to have a 360° view of the student's experience at the College. This perspective improves student services, and will support student retention and student success.

EDUCAUSE has an initiative centered on the use of student success planning systems and the transformation of student advising that those systems support. Integrated Planning and Advising for Student Success (iPASS) encompasses services that help students develop and advance toward educational goals, including advising, counseling, progress tracking, and academic early alerts.

The iPASS initiative can help the College advance its Guided Pathways Framework. A potentially powerful tool, implementing a College-wide CRM supports the following Guided Pathways goals:

- Areas of Interest – improved coordination between the student and counselor(s)
- Student Support – enhanced service from the “student care team”
- Communication and Outreach – targeted student communications throughout the student life cycle

**Recommendation:** Implement a College-wide CRM to help faculty and staff support students. This initiative directly aligns with the College's Guided Pathways Framework. Consider CRM

functionality during the upcoming ERP selection process. However, modern ERP systems may not have all functionality desired by the College, and the timeline for a new ERP is uncertain.

**Further Reading:** EDUCAUSE has resources on its [website](#) to help with the implementation of CRM-type solutions.

#### 4.4.5 | Emerging Technologies

**The College has a reputation as an innovative institution. IT can help further advance this reputation by coordinating and facilitating the adoption of innovative technologies across campus.**

Students often attend SMC because of its track record to provide an innovative educational experience. Located in one of the nation's most densely populated areas for higher education, and with competition for students increasing across the country, it is important for the College to maintain its competitive advantages.

Innovative technologies help faculty train students to enter the workforce prepared for success. The College must keep pace with other higher education institutions and serve as a technological stepping stone for students coming from high school. Classroom technology and instructional spaces play integral parts in the student experience and perception of the education provided at the College.

Implementing innovative technologies across campus will help maintain the College's reputation and push the boundaries of educational technology. Technologies such as mixed reality (MR) and artificial intelligence (AI) can help the College achieve its mission of reimagining and comprehensively redesigning the student experience through the Guided Pathways Framework.

IT can coordinate and facilitate discussions around the application of new technologies. The following list provides an overview of five emerging technologies and their applications in higher education:

**Mobile Learning** – According to the EDUCAUSE Center for Analysis and Research, 95% of undergraduate students own a smartphone. For many, mobile devices are the primary way to interact with learning materials. As mobile learning continues to emerge in higher education, more emphasis is placed on creating responsive content and creating microlearning experiences that can sync across different platforms. IT can support mobile learning through developing applications and maintaining a robust wireless network.

**MR** – MR is an umbrella term for technologies that blend the physical world with the digital. Virtual reality (VR) requires the user to wear a headset, completely immersing them in a computer-generated environment. VR can allow students to visit places they might otherwise not be able to access, like Mars or Mesopotamia. Augmented reality (AR) overlays digital images or other content onto the physical world. AR can provide added context and information to exhibits in a museum or city tours. Learning goals that can be effectively met using MR are

ones that benefit from repetition, such as clinical skills. MR already exists in pockets across the College. IT can serve as an aggregator of knowledge and provide technical support.

**AI** – AI uses computer systems to accomplish tasks and activities that have relied on human cognition. AI’s applications in higher education have largely revolved around increasing student engagement in learning and student success. AI works with institutional data to aid institutions in understanding retention rates, intervention needs, and program performance. While a potentially powerful tool, AI is accompanied by ethical questions surrounding data use, surveillance, and inclusivity. IT needs to be at the forefront of developing policies to support the use of AI at the College.

**Blockchain** – Blockchain functions as a decentralized digital ledger. It uses a distributed data structure in which copies of the ledger are replicated in multiple locations and verified by all participants in the chain. Blockchain thinking in higher education revolves around transcripts and records of achievement. In theory, Blockchain can allow students to have a verified history of educational attainment, and to allow certifications to follow students from institution to institution or from job to job.

**Virtual Assistants** – Virtual assistants work by understanding voice commands to perform simple tasks. Examples include Apple’s Siri and Amazon’s Alexa. Higher education adoption of virtual assistants is in its infant stage. Some institutions have instituted virtual assistants to answer common student questions (e.g., financial aid questions) in order to enhance student success. Other possible applications of virtual assistants include research, tutoring, writing, and editing. IT should be at the table with administrative and academic leaders to determine how virtual assistants can integrate with existing systems at SMC.

**Recommendation:** Identify areas where emerging technologies can be applied at the College to maintain the institution’s reputation as an innovator. Emerging technologies have the potential to provide significant value to faculty, staff, and students.

Adopting emerging technology helps the College accomplish the supporting goal of an innovative and responsive academic environment.

❖ **IT Master Plan Consideration:** Outlining a strategy to adopt emerging technologies across the College will be part of the technology master planning process.

#### 4.4.6 | Increased Support for Online and Adaptive Learning

**Online and adaptive learning courses are becoming increasingly popular at SMC and higher education in general.**

##### Online Learning

Today, online learning is a small portion of the College’s academic portfolio. However, the enrollment velocity of online courses indicates that there is growing demand. SMC does not

offer a complete online degree because math and lab science classes are not yet offered online. In addition, the College does not employ instructional technologists or instructional designers.

The College needs standard class templates in order to mature its online courses. Using templates helps to ensure consistency and quality in online course delivery. Quality Matters (QM), a non-profit, quality assurance organization, provides a system to help colleges deliver high-quality online courses. QM provides research, rubrics, standards, quality assurance, peer review, and professional development for educational institutions.

IT will be more heavily involved in support of adaptive learning as the Distance Education Department currently oversees online learning, and SMC receives support for the LMS from the Canvas.

### **Adaptive Learning**

The College is considering on adaptive learning initiative. According to EDUCAUSE, “adaptive learning systems use a data-driven—and, in some cases, nonlinear—approach to instruction and remediation.” Adaptive learning has the potential to provide tailored support and individualized learning to students in high-enrollment courses.

More classes are taught using computers. As a result, the College needs more computer classrooms. There is a desire for flexible classroom design, balancing immediate needs with the needs and plans for the future. Converting to computer classrooms requires larger desks. The College must strike a balance between upgrading learning spaces and maintaining appropriate capacity to meet financial goals. There is an opportunity to repurpose existing computer labs to create adaptive learning spaces. (Reference Section 4.4.3.)

**Recommendation:** The College must plan for the future of online learning and implementation of adaptive learning spaces. These approaches to learning are more technology dependent than traditional methods. IT needs to plan for its role in supporting curriculum delivery.

Becoming a member of QM to enhance the presentation and effectiveness of online courses is an effective step.

## Appendix A | Peer Benchmarking

*Benchmarking analysis includes a description of BerryDunn’s approach, contact information for each participating institution’s IT leader, comparative data about IT and general institutional profile details for each institution, EDUCAUSE comparisons, and 12 narrative-style questions with responses from each institution.*

### Benchmarking Approach

BerryDunn created a benchmarking questionnaire based on discussion with the College and BerryDunn’s industry experience. The questionnaire was designed to gain insight into the organization of IT; communication; enterprise systems and business processes; and data and information security at similar institutions. Criteria used to identify peers included total enrollment and campus location. The following institutions agreed to participate:

- El Camino College
- Long Beach City College
- Mt. San Antonio College
- Pasadena City College

BerryDunn began the benchmarking process by conducting preliminary research to gain familiarity with the prospective institutions. Telephone interviews were then scheduled and conducted with the institution’s designated IT leader or point of contact. Follow-up was conducted to clarify answers and statements as needed.

The following table provides contact information for each leader that BerryDunn interviewed.

**Table 4: Peer Benchmarking Participants and Contact Information**

Institution	IT Contact	Position Title	Email
El Camino College	Thurman Brown	Technical Services Supervisor	tbrown@elcamino.edu
Long Beach City College	Sylvia Lynch	Chief Information Systems Officer	slynch@lbcc.edu
Mt. San Antonio College	Dale Vickers	Chief Technology Officer	dvickers@mtsac.edu
Pasadena City College	Matthew Kiaman	Director, Technical Services	mxkiaman@pasadena.edu

## Comparative Data From Peer Institutions

The following tables provide comparative data about staffing and enrollment, financial figures, IT organization, IT leadership, service desk operations, and key enterprise systems at each institution.

**Table 5: Staffing, Enrollment, and Financial Data**

Staffing, Enrollment, and Financial Data					
Profile	Santa Monica College	El Camino College	Long Beach City College	Mt. San Antonio College	Pasadena City College
Student FTE	24,155	18,140	19,478	33,756	25,650
Faculty FTE	718	558	582	803	779
Staff FTE	614	527	604	562	286
Total Institutional Employees FTE (Faculty and Staff)	1,332	1,086	1,185	1,365	1,064
Total Institutional FTE (Students, Faculty, and Staff)	25,487	19,226	20,663	35,121	26,714
Total Institution Operating Expenditures	\$221,173,781	\$158,563,185	\$161,709,543	\$243,604,261	\$184,623,408
Total Central IT Expenditures	\$8,608,039	N/A <sup>9</sup>	\$9,993,698	\$8,461,261	\$8,159,108
IT Training Expenditures	\$11,547	N/A	\$40,000	\$72,395	\$20,000

<sup>9</sup> El Camino College did not provide financial data for IT expenditures

**Table 6: IT Reporting Structure, Service Desk, and Enterprise System Information**

IT Reporting Structure, Service Desk, and Enterprise System Information					
Description	Santa Monica College	El Camino College	Long Beach City College	Mt. San Antonio College	Pasadena City College
IT Leader Title	Chief Director, IT	Chief Technology Officer	Chief Information Systems Officer	Chief Technology Officer	Associate Vice President
IT Leader Reports to:	President	VP, Administrative Services	VP, Business Services (CBO)	VP, Administrative Services	Vice President, Business and Administrative Services
Is the IT Leader on the President's Cabinet?	Yes	Yes	No	No	Yes
ERP	Ellucian Banner, LACOE HRS, LACOE PeopleSoft	Colleague	PeopleSoft	Banner	Ellucian Banner, LACOE HRS, LACOE PeopleSoft
SIS	Homegrown	Colleague	PeopleSoft	Banner	Ellucian Banner
LMS	Canvas	Canvas	Canvas	Canvas	Canvas
Service Desk (Ticketing System)	Spiceworks (evaluating Freshservice.com)	BMC Footprints – moving to SCSM within the next year	Homegrown	Microsoft SCSM	In-house (researching new SaaS options)
Email and Calendar	Office 365 – faculty/staff Gmail – students	O365 – all students and IT All other staff are on Exchange	Exchange	Office 365 – faculty/staff Gmail – students	Outlook/Office 365 for employees and Google Suite for students
Data Warehouse		MS SQL Server 2008	Cognos	N/A	Ellucian Operational Data Store
Third-Party Service Desk Support (Y/N); If Yes, Describe		No	No	No	No

## Narrative Questions

Please note that feedback is provided as heard from the interviewee with minimal editing.

Answers represent the respective IT leader's perspective. Questions have been organized into four categories: Organization of IT; Communication; Enterprise Systems and Business Processes; and Data and Information Security.

### Tables 7 – 10 | Organization of IT

Table 7

How is IT organized to meet academic needs? Administrative Needs? Are there areas or situations where IT is not able to meet academic and/or administrative needs?	
<b>El Camino College</b>	<p>40 positons in IT – 3 groups:</p> <p>Network Services – telephony and backend</p> <p>Application Development – five programmers support on-premises Colleague; three user support technicians, a business analyst, and a technical specialist are also in the application development group.</p> <p>Three help desk staff and eight technicians in Technical Services support 75 academic department computer labs with about 3,500 computers total. Combined with the administrative functions of the College, there are approximately 6,500 devices on campus.</p> <p>IT uses SCCM and Jamf to manage endpoints.</p>
<b>Long Beach City College</b>	<p>For our administrative (ERP/Student Software), we have BSAs that serve the various departments. They are responsible for determining need, exploring solutions, writing up project requests. Monthly meeting is established and priorities are reviewed.</p> <p>Under our Online Education and Education Technologies, we have faculty training programs for Canvas and for PeopleSoft.</p>
<b>Mt. San Antonio College</b>	<p>Three legs of IT:</p> <p>User Support/Networking</p> <p>Enterprise Applications</p> <p>Academic Technology</p> <p>Academic technology is divided into six groups per division. Their responsibilities include lab management, academic server management, and desktop support. There is a computer facilities coordinator position and a computer facilities assistant position. Coordinators oversee the assistants.</p> <p>Desktop support staff under the manager of technical support are similar to computer facilities coordinators, but they support the entire campus.</p> <p>The College's president is progressive and likes to be on the bleeding edge of technology. This creates projects for IT.</p>
<b>Pasadena City College</b>	<p>There is a new president in place. The president came from an institution that had a significant data breach and another one that had a significant IT department.</p> <p>The president is a strong advocate for IT and often communicates the need to collaborate with IT.</p>

**How is IT organized to meet academic needs? Administrative Needs? Are there areas or situations where IT is not able to meet academic and/or administrative needs?**

	<p>The College is looking to move LACOE functionality in-house. There is a small group of institutions which have reached a critical mass that can move this functionality in-house.</p> <p>The College operates with one of the leanest IT shops around relative to the number of students served. The director of technical services does not recommend it to other institutions.</p> <p>The College is usually an early adopter of cloud technologies, such as Meraki network equipment and Amazon Web Services.</p> <p>Consultants and student workers are used to augment the IT team.</p> <p>Computer support technicians are comparable to Level 1 support staff. They help with issues in the field and maintain equipment.</p> <p>Computer support specialists build configurations in addition to supporting field issues; each are assigned academic departments for which they need to support their labs (3-4 divisions per Computer Support Specialist).</p> <p>Hardware specialists lend a hand to the computer support technicians and specialists and support putting out new equipment.</p> <p>Full-time supervision for labs is provided by academic and student services staff.</p> <p>Business analysts act as subject matter experts for the tools used in certain departments like counseling, admissions, etc. They guide discussions when their departments outgrow their tools. Business analysts used to sit in the departments they worked closely with.</p> <p>Classroom support is provided by the A/V Production Specialists.</p> <p>Almost everyone in the IT department will staff the help desk. Everyone is trained on how to support basic classroom issues. There is a primary and backup person at the help desk at all times and 1-2 people to address field issues.</p> <p>If IT had more staff, they would minimize the amount of computer labs assigned to computer support specialists.</p>
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**Table 8**

**How does your institution provide professional development and professional growth opportunities to IT staff?**

<b>El Camino College</b>	<p>The Technical Support Specialist position does not have designated tiers (e.g., I, II, III). IT is working with HR to develop this. Some job descriptions are approximately 16 years old.</p> <p>Help Desk does not have position tiers.</p> <p>There is both a Programmer and Senior Programmer position.</p> <p>Network Technician and Senior Network Technician positions are available.</p> <p>IT leadership surveys IT staff to understand their professional development desires and builds them into the budget.</p>
<b>Long Beach City College</b>	<p>ITS has a 40,000 budget for conferences and training. Each year, the directors put requests and the CISO approves.</p>
<b>Mt. San Antonio</b>	<p>The president understands the need for professional development for IT staff. IT may</p>

**How does your institution provide professional development and professional growth opportunities to IT staff?**

<b>College</b>	<p>be the only department on campus that has a line item for training and development. IT uses salary savings to allocate funds to training and development. About \$50,000 per year for the department.</p> <p>Most networking and security staff have been developed from within the IT organization.</p>
<b>Pasadena City College</b>	<p>IT staff have access to Lynda.com through the Chancellor's Office and can access materials through Microsoft and AWS. Use funds from IT and outside of IT to support professional development goals.</p>

**Table 9**
**Do you have project management and change management expertise within the IT organization?**

<b>El Camino College</b>	<p>There is no project manager in IT. The director of technical services would like to see one added to the organization.</p>
<b>Long Beach City College</b>	<p>We just hired a project manager to work with our Bond projects. This was an internal candidate and is getting their PPM. However, this is new to the college.</p> <p>No change management expertise</p>
<b>Mt. San Antonio College</b>	<p>The project management team works closely with the enterprise applications team. IT uses a product called Airtable where requests are funneled to the project management team. VPs and Managers are drawn in to prioritize project requests.</p> <p>Administrative Systems Advisory Group – ASAG, provides input into the prioritization of technology projects. Projects are prioritized by category: instruction and administration.</p>
<b>Pasadena City College</b>	<p>As the IT department continues to mature, a PMO may be added. Pasadena is in its infancy with both of these areas.</p>

**Table 10**
**How does your organization plan for and procure new technology?**

<b>El Camino College</b>	<p>There is a refresh cycle for technology hardware, but funding constraints have hindered its implementation.</p> <p>IT tries to refresh a fifth of its inventory each year. Larger purchases, like firewalls, switches, and cabling are planned to be refreshed every 8 years.</p>
<b>Long Beach City College</b>	<p>This is not centralized. Since each VP receives categorical or one-time funds, they request technology. It is prioritized at the VP level.</p>
<b>Mt. San Antonio College</b>	<p>IT is now part of the approval process of the purchasing cycle. When individuals want to buy technology, they consult with IT to determine the best solution or to become aware of existing technology/functionality available.</p> <p>Computers are on a five-year replacement cycle. Some departments have shorter</p>

How does your organization plan for and procure new technology?	
	<p>replacement cycles based on the need.</p> <p>IT published a recommended refresh cycle for other pieces of equipment, such as A/V technology. A budget does not accompany these recommended refresh cycles.</p> <p>Banner's asset tracking functionality is not detailed enough for the IT department's needs. They are developing a product in-house.</p>
<b>Pasadena City College</b>	<p>Refresh cycles are built into the department's technology plan. The refresh cycle handles approximately 80% of the College's technology purchases per year. To fast track these purchases, IT partners with the purchasing office and vendors to find other contracts to piggy back on.</p> <p>Purchases that will be installed into buildings (i.e. projectors) are public works projects.</p> <p>The director of enterprise software meets regularly with key customers like finance and student services to understand their needs.</p>

### Tables 11 – 13 | Communication

**Table 11**

How do you communicate with the campus community?	
<b>El Camino College</b>	<p>IT will send emails to the campus staff regarding global changes.</p> <p>Marketing will send emails to students regarding global IT changes.</p> <p>Marketing leverages digital signage across campus to spread awareness of IT projects.</p>
<b>Long Beach City College</b>	<p>We generally communicate via email. This seems to be the best. We do get invited to various committees for information, e.g. Management Association or Academic Senate</p>
<b>Mt. San Antonio College</b>	<p>IT uses email to communicate with the campus. IT staff sit on almost every committee at the College.</p>
<b>Pasadena City College</b>	<p>During professional development days, IT will hold sessions on security and classroom technology, among others.</p> <p>Will use email to communicate during projects.</p>

**Table 12**

How do you gain input and listen to the perspective of the community?	
<b>El Camino College</b>	<p>IT does not have formal mechanisms to gather campus feedback.</p> <p>Will unofficially gather feedback through tickets and calls received from campus.</p> <p>The IT leader will attend campus-wide committees to gather feedback from faculty, staff, and students.</p>

<b>How do you gain input and listen to the perspective of the community?</b>	
<b>Long Beach City College</b>	We have an Information Technology Advisory Meeting and the monthly software meetings.
<b>Mt. San Antonio College</b>	The ITAC – IT Advisory Committee – is a shared governance committee where IT gains the input from the College. Effort has gone into building relationships at the department level.
<b>Pasadena City College</b>	Depending on the project, IT will reach out to the appropriate leaders to gather their feedback. The District Technology Committee serves as a feedback mechanism for projects and initiatives.

**Table 13**

<b>How do you communicate within the IT organization?</b>	
<b>El Camino College</b>	IT staff will often find out about technology initiatives at the same time the rest of the campus does. There is opportunity for improvement with internal communication and there is an internal process in development to improve communication.
<b>Long Beach City College</b>	Email and staff meetings
<b>Mt. San Antonio College</b>	About half of the business analysts are distributed across campus and the academic technology staff are also distributed across campus. They communicate what goes on around the College. The IT managers meet once a week. IT continues to develop its internal communications practices, such as between information security/networking and desktop staff.
<b>Pasadena City College</b>	The director of technical services holds 1:1 meetings weekly/biweekly. Every 2 months, the IT department will have a town hall meeting. Being close in proximity to colleagues helps with knowing what is going on in the IT department.

**Tables 14 – 15 | Enterprise Systems and Business Processes**

**Table 14**

<b>Has your institution gone through or considered an ERP implementation? If so, please describe what went well and what you would do differently.</b>	
<b>El Camino College</b>	<p>The College is looking to implement a new ERP. There is an ERP discussion group that will convene in January 2020.</p> <p>IT has been working to remove customizations from its Colleague environment in order to make a future transition easier to manage.</p> <p>Just resigned a 5-year renewal with Ellucian.</p>
<b>Long Beach City College</b>	<p>Not recently. It is time we purchase an ERP, however no vendor has a fully cloud solution yet. Also, the Chancellor's Office is looking to purchase a system for the entire system. We are in a wait-and-see mode.</p>
<b>Mt. San Antonio College</b>	<p>Originally had a homegrown system and then implemented Banner.</p> <p>Change was a challenge for the College. Older staff members retired and moved on during the Banner implementation. Approximately 70% of programming staff left the College during the implementation.</p> <p>Vendor demonstrations lasted a week. Involved stakeholders from across the College.</p> <p>Transitioned to Banner in 2008. Part of the Banner implementation was becoming fiscally accountable from LACOE.</p>
<b>Pasadena City College</b>	<p>Pasadena was running a homegrown system before implementing Banner.</p> <p>Moving from a homegrown system to a modern ERP system is a big change because a lot of processes are changed significantly.</p> <p>Pasadena had the goal of doing it in half the normal time. Business analysis is important to success.</p>

**Table 15**

<b>Has your institution gone through a business process redesign effort? If so, please describe what went well and what you would do differently. What processes did you focus on and why?</b>	
<b>El Camino College</b>	<p>Working on understanding and streamlining business processes across campus to understand the needs of the College.</p> <p>Hired Strata Information Group to help define a strategy for the College's ERP.</p> <p>A supplemental retirement plan caused many employees who used custom-built processes to leave the College.</p>
<b>Long Beach City College</b>	<p>In 2015, one-time funds were set aside for Business Process Reviews. Some were successful, but most could have had higher results. End users really have to want to redesign efforts. Since the users did not really buy into the process, they missed meetings, didn't do homework, so many were not as successful.</p> <p>There are many details in a Business Process Redesign effort. It is very important</p>

Has your institution gone through a business process redesign effort? If so, please describe what went well and what you would do differently. What processes did you focus on and why?	
	the end users are freed up from regular duties, and that doesn't seem to be possible at our organization.
<b>Mt. San Antonio College</b>	<p>Brought in business process engineering consultants for payroll, purchasing, admissions, and financial aid among others before implementing Banner. These consultants identified the processes that would need to be changed.</p> <p>This work helped notify individuals that change is coming and put it in their minds.</p> <p>The College would still implement a new ERP if they did not become fiscally accountable from LACOE.</p>
<b>Pasadena City College</b>	<p>Because Pasadena expedited the process, single points of failure were designed into the system.</p> <p>The director of technical services recommends taking a big picture view and taking it to the atomic level in order to not miss anything and to be conscientious during the process.</p> <p>A College does not want to find itself with a system that is too old, forcing the adoption of a new ERP and needing to do it too quickly.</p>

### Tables 16 – 18 | Data and Information Security

**Table 16**

Please describe your institution's IT security program (i.e., framework, assessments, awareness training, reporting).	
<b>El Camino College</b>	<p>Use KnowBe4 for security awareness.</p> <p>The Information Security Officer sends out monthly emails with security stats, such as emails blocked by the firewall.</p>
<b>Long Beach City College</b>	<p>The security program is new and reports to the CISO. There is a deputy director in charge that works closely with Director of Networking. They are following the CIS 20 framework.</p> <p>Standards from their efforts are reviewed and approved by the Information Technology Advisory Committee.</p> <p>We are launching employee training next year.</p> <p>Funding is particularly difficult. For purchases, we are using one-time funds and then have to request additional funds each year to maintain software/services.</p>
<b>Mt. San Antonio College</b>	<p>The College has actively been involved with developing information and data security programs since the early 2000's. Due to changes in threats, our program is continually evolving. The College has draft security board policy (BP 3721) and administrative procedure (AP 3721) that have moved several steps through the approval process. Additionally, IT has a dedicated security team with many offensive monitoring tools and defensive protocols that protect campus systems. They take patch management seriously to prevent known vulnerabilities. The Director of</p>

**Please describe your institution's IT security program (i.e., framework, assessments, awareness training, reporting).**

	Infrastructure and Data Security provides quarterly updates to senior campus leadership. The Director also communicates regularly with the campus regarding things the end user can and should do to protect data and the network. Like other teams within IT, the security team participates in two-way dialogue with campus users to balance the technology tools end users would like to use with the requirement to provide a secure environment.
<b>Pasadena City College</b>	<p>Pasadena is maturing in its security practices.</p> <p>The security position reports directly to the CTO.</p> <p>The College underwent a security assessment through the Chancellor's Office and runs regular vulnerability scans.</p> <p>The IT department is beginning a phishing campaign.</p>

**Table 17**

**Does your institution have a data stewardship framework in place?**

<b>El Camino College</b>	No response provided.
<b>Long Beach City College</b>	Not yet.
<b>Mt. San Antonio College</b>	<p>IT takes the posture that data is owned by the department that uses the data. Data access forms need to be approved by the department that owns the data.</p> <p>IR handles most of the data analytics function. If they encounter data challenges, they speak with the departments.</p> <p>IT owns the systems, departments own the data.</p>
<b>Pasadena City College</b>	The College is maturing its data stewardship practices and is developing an administrative procedure through the shared governance process.

**Table 18**

**How does your IT organization enable the institution to make data-driven decisions?**

<b>El Camino College</b>	No response provided.
<b>Long Beach City College</b>	<p>Our college has a great Institutional Research department and we work very closely with them to provide data, particularly in the Academic Departments.</p> <p>Other departments work with BSAs to develop reports/data to drive their decisions.</p>
<b>Mt. San Antonio College</b>	<p>IT does run reports. They get requests from many departments, including IR. The student-centered funding formula relies heavily on data driven decisions.</p> <p>Use Argos and Power BI for data visualization. IPEDS reporting is done by IR, MIS</p>

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**How does your IT organization enable the institution to make data-driven decisions?**

	reporting to the state is done by IT.
<b>Pasadena City College</b>	Institutional Effectiveness pulls data from across the College to support data driven decisions. If a reporting tool is not available to use, programmers will gather information to create a report.