

<b>Program Overview</b>	
Program:	Information Technology
Academic Year:	2014/2015
Review Period:	6 Year

### **A. Description and Goals**

1. Describe the program and/or service area under review and how the program supports the mission of Santa Monica College.

Program Overview / Mission:

Santa Monica College provides technology solutions and services that enable its students, faculty and staff to reach individual and institutional goals. The IT Department develops and implements effective technology solutions to support SMC’s overall institutional mission and goals.

Current organizational structure at SMC IT consists of four distinct departments and programs:

- The Academic Computing department is responsible for 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); for technology user training, .
- The Management Information Services (MIS) department is responsible for creating, maintaining, and expanding the College’s primary, centralized information system in support of the campus portal for faculty/staff, student self-serve system, Academic Affairs, Enrollment services, Business services, Human resources, and other administrative areas, as well we mission critical self-services internet access portal for faculty/staff, students.
- The Network Services department administers SMC’s computer network services including all College network components, network security, the campus email system, and campus server and storage infrastructure.
- The Telecommunications department is responsible for the installation, repair and maintenance of the campus telephone systems, administrative and faculty desktop computer systems including software and peripherals, physical security systems, public safety communications equipment, fiber and copper infrastructure cabling. In addition, the department also provides and operates district switchboard services.

2. Identify the overarching goal(s) or charge/responsibilities of the program or service area. If appropriate, include ensuring/monitoring compliance with state, federal or other mandates.

- Support the SMC goal to use technology effectively to facilitate student learning and College operations.

- Create universal access for users through a single interface and single sign-on, and to manage the complexity of new technology by utilizing industry open architecture and standards.
- Optimize the availability, accessibility and performance of the District’s technology resources.
- Promote the effective use of technology through a variety of systems, applications, and processes integrated to enhance business automation, electronic communication and collaboration.
- Promote the effective use of technology by providing thorough, relevant training and other user support resources designed to help users apply technical solutions appropriately and skillfully.
- Integrate IT asset management, project tracking, and support tracking to enhance equipment life cycle planning and meet user support needs.
- Implement cost effective solutions to support District needs, both current and future, for telecommunications, data networking, and both instructional and administrative technology.
- Formalize technology use policies, regulations, and standards to protect the District’s technology resources for all users and to achieve greater efficiency in IT operations. Each of the IT departments strives for success in realizing these goals.

3. If applicable, describe how the Institutional Learning Outcomes (ILOs), Supporting Goals, and/or Strategic Initiatives of the institution are integrated into the goals of the program or service area.

Institutional Learning Outcomes, supporting goals, and strategic initiatives are integrated into the goals of the program through the District Planning and Advisory Council (DPAC) and Academic Senate Committees. Subcommittees such as the Technology Planning, Student Instructional Support, Information Services, and Distance Education committees work to integrate Institutional Learning Outcomes and Strategic Initiatives into annual recommendations provided through DPAC. These recommendations along with other inputs shape the annual IT objectives and ensure ILOs, supporting goals and strategic initiatives are reflected in the technology roadmap moving forward.

4. If your program receives operating funding from any source other than District funds identify the funding source. If applicable, note the start and end dates of the funding (generally a grant), the percentage of the program budget supported by non-District funding, and list any staff positions funded wholly or in part by non-District funds. Do not include awards for non-

operational items such as equipment (ex. VTEA) or value added activities (ex Margin of Excellence).

SMC IT departments and projects are funded from a variety of sources. Departmental budget allocations from the District’s general funds support salaries and benefits for all permanent staff, student help wages, and allocations for emergency repairs, supplies, and maintenance contracts.

Other than support staff and costs for supplies, the primary funding source for all instructional technology operational items is the State’s annual categorical instructional block grant fund.

Most instructional departments rely on this grant to maintain and refresh essential instructional technology equipment and software, as well as instructional technology innovations when funds are available. Unfortunately, the technology portion of this funding source has been decreased gradually from \$400,000 in 2003 to \$0 in 2008. The elimination of this fund has drastically impacted the maintenance and support of campus-wide instructional technology updates, departmental instructional technologies, faculty computing needs, and classroom technology.

Due to recent overall budget limitation of the District general fund, there has been inadequate backfill fund in the past 6 years to support “must have” technology, such as Microsoft campus license, Antivirus software, and replacement of outdated student lab computers.

With the constant development of introduction of new software and other technologies, and with computer lifetimes ranging from 4-7 years, there is a constant need for replacement and upgrade of equipment and software systems. Innovations in instructional, administrative, and supporting technologies also provide opportunities for the College to engage in selected new initiatives to facilitate student learning and College operations. Funding for these new initiatives is typically provided by categorical sources including the District’s Instructional Equipment allocation, and the Federal CTE (previously known as VTEA) allocation for vocational programs. Depending on availability and statutory restrictions, funds allocated for student services programs such as BFAP and SSSP and other funds reserved for technology are available. In addition, selected bond funding can also supports major infrastructure improvements.

However, technology initiatives purchased through grants/bond funding have no guaranteed on-going operational funds from the District to support maintenance and updates. Long delays in the normal technology equipment refresh cycle are negative outcomes that result when these grant sources are no longer available. IT and Fiscal Services are working on establishing equipment maintenance funds to fully (or partially) support technology update planning.

**B. Populations Served**

**All Disciplines (answered once)**

1. Describe who your area serves (students, staff, etc.) both directly and indirectly. If pertinent, indicate variables such as ethnicity, race, gender, age of your client base.

The SMC IT department extends support to the entire college community, with a special focus on services that directly support student success, instructional, and business systems.

The populations directly served by IT include Santa Monica College prospective students, admitted students, faculty, administrators, staff, alumni, and other community affiliations such as

## C. Program Evaluation

the Broad Stage, Foundation, and, when applicable, consultants working for the College.

### Students

To add perspective, SMC's Fall 2013 unduplicated student headcount totaled 33,465. With more than 30,000 students enrolled in credit classes, the diversity of the campus is critical to its success. Based on Fall 2013 statistics the student gender breakdown is 52.3 percent female: and 47.7 percent male; Ethnicity/Race Asian/Pacific Islander: 13.8 percent, Black: 9.2 percent, Hispanic: 37.4 percent, Native American: 0.2 percent, White: 26.6 percent, Multi Ethnicities: 3.9 percent, and Unreported: 8.9 percent.

The student population is further diversified by a large number of out-of-state and international students. In Fall 2013, 82.6 percent of students were California residents while 17.4 percent came to SMC from outside the state or from one of 110 different countries. A significant factor that draws many students to SMC is the desire to transfer to a four year college or university. In Fall 2013, 74 percent of SMC students identified transfer as their primary educational goal.

### Faculty

Santa Monica College's faculty consists of 308 full-time and 1,071 part-time instructors who teach in one of SMC's 26 academic departments, offering over 80 fields of study.

### Administrators and Managers, Staff

IT provides direct support to over 500 administrators, managers, classified and confidential staff located on the main and five satellite campuses.

## 2. Discuss any significant change(s) in the population(s) served since the last full program review and the possible reasons for the change(s).

The populations served by IT remained relatively stable over the past 6 years. Both MIS and Network Services have extended limited services to other college affiliations such as alumni, the Foundation, the Broad Stage, consultants, contractors, and volunteers. As the emphasis on educational outcomes increases, it is critical that SMC maintain a relationship with alumni beyond graduation or transfer, as well as other community relationships, it is critical that SMC maintain its relationship with its alumni long beyond graduation or transfer.

**All Disciplines (answered once)**

1. List your administrative unit UOs.

*UO statements focus on service or operational outcomes such as:*

- *Volume of unit activity*
- *Efficiency (responsiveness, timeliness, number of requests processed, etc.)*
- *Effectiveness of service in accomplishing intended outcomes (accuracy, completeness, etc.)*
- *Compliance with external standards/regulations*
- *Client/customer satisfaction with services*

**IT Unit Outcomes (UOs):**

C.1.1 College community will be able to efficiently access authorized technology resources anywhere, anytime, with any devices to the greatest possible extent.

Drastic changes in technology have occurred since the last IT program review. Technology is no longer accessed only through desktop computers with standard enterprise software.

Consumer-centric technology innovations such as mobile tablets and phones have increased client expectations of convenient access to digital resources without any physical, operational, time or device limitations.

In response to this and other clear industry trends, a new SMC strategy was created to focus resources on rapidly evolving technology trends. The IT Department worked closely with many technology leaders from various community constituents and identified “Mobile and Cloud Computing” as a strategic direction for SMC. Mobile and cloud computing directly support the unit outcome which allows technology resources to be accessible anytime, anywhere and on any device. In addition, the rapid shift to mobile enabled platforms has driven the requirement to develop secure and flexible solutions that allow access to key enterprise services and confidential information, yet maintain institutional control of information security.

The IT team has established the following major criteria to assess the success of meeting the expectations:

**C.1.1.1 Service uptime and reliability**

IT achieves high availability and maximum uptime by tiered engineering of hardware redundancy, virtual server technology, and virtual storage technology to dynamically move services to available hardware and storage resources in the event of any hardware component failure: transparently and without service interruptions. Associated monitoring/alerting tools in all system layers are also implemented to alert IT Managers and responsible technical staff via email/cell phone so the team can proactively address potential issues.

In addition to our internal alert and monitoring measures, IT also subscribes to an advance alert system “Site24x7” to proactively monitor mission critical services, such as SMC’s website, Corsair Connect, and mProfessor, from worldwide locations to alert responsible IT managers

and technical staff whenever any of these services are unreachable. The notifications from this service provide near real-time detection of any service outages and enable technical teams to react and minimize the loss or impact to end users. The Site24x7 service site also provides overall performance summary and analysis to empower the IT team to evaluate and incrementally improve overall service reliability.

The high availability configurations IT implemented in conjunction with advanced monitoring tools, and the overall (1/1/2014 to current) service uptime of major services are listed in figure 1.0 and then displayed graphically in figure 2.0 below:

Service Monitor	Service Availability	Service Response Time	Service Downtime Duration
CC through ISISMC01	99.92%	377ms	4 Hrs 37 Mins
CC through Netscaler	99.98%	445ms	1 Hrs 11 Mins
CC through WWW	99.98%	566ms	1 Hrs 33 Mins
ISP Cenic-lo	99.99%	15ms	7 Mins 18 Secs
ISP Cenic-rt	99.99%	15ms	4 Mins 9 Secs
email.smc.edu	99.94%	399ms	4 Hrs 53 Mins
SMC Homepage	99.97%	147ms	1 Hrs 24 Mins
ISIS through ISISMC02	99.89%	49ms	6 Hrs 48 Mins
ISIS through WWW	99.88%	102ms	7 Hrs 27 Mins
Netscaler ISISCC Analyzer	99.99%	1780ms	44 Mins 47 Secs
library.smc.edu	99.98%	178ms	59 Mins 16 Secs
Marlin Google Login (SSO)	99.98%	310ms	1 Hrs 17 Mins
NS01	99.98%	29ms	1 Hrs 28 Mins
ns4 (Cenic)	100.00%	25ms	14 Mins 18 Secs
ns5 (Cenic)	100.00%	18ms	2 Mins 59 Secs

ns6 (Cenic)	100.00%	13ms	8 Mins 45 Secs
Sansspace (modlang)	98.97%	692ms	2 days 15 Hrs 1 Mins
Singlewire	99.97%	183ms	1 Hrs 57 Mins
smc email (barracuda)	99.99%	26ms	50 Mins 0 Secs
Web-Netscaler	99.98%	375ms	1 Hrs 13 Mins
www-analyze	99.98%	2831ms	56 Mins 15 Secs
www.smc.edu	99.90%	458ms	7 Hrs 25 Mins

Figure 1.0 - SMC Core Service Monitor Uptime and Outage Metrics (CC is Corsair Connect)

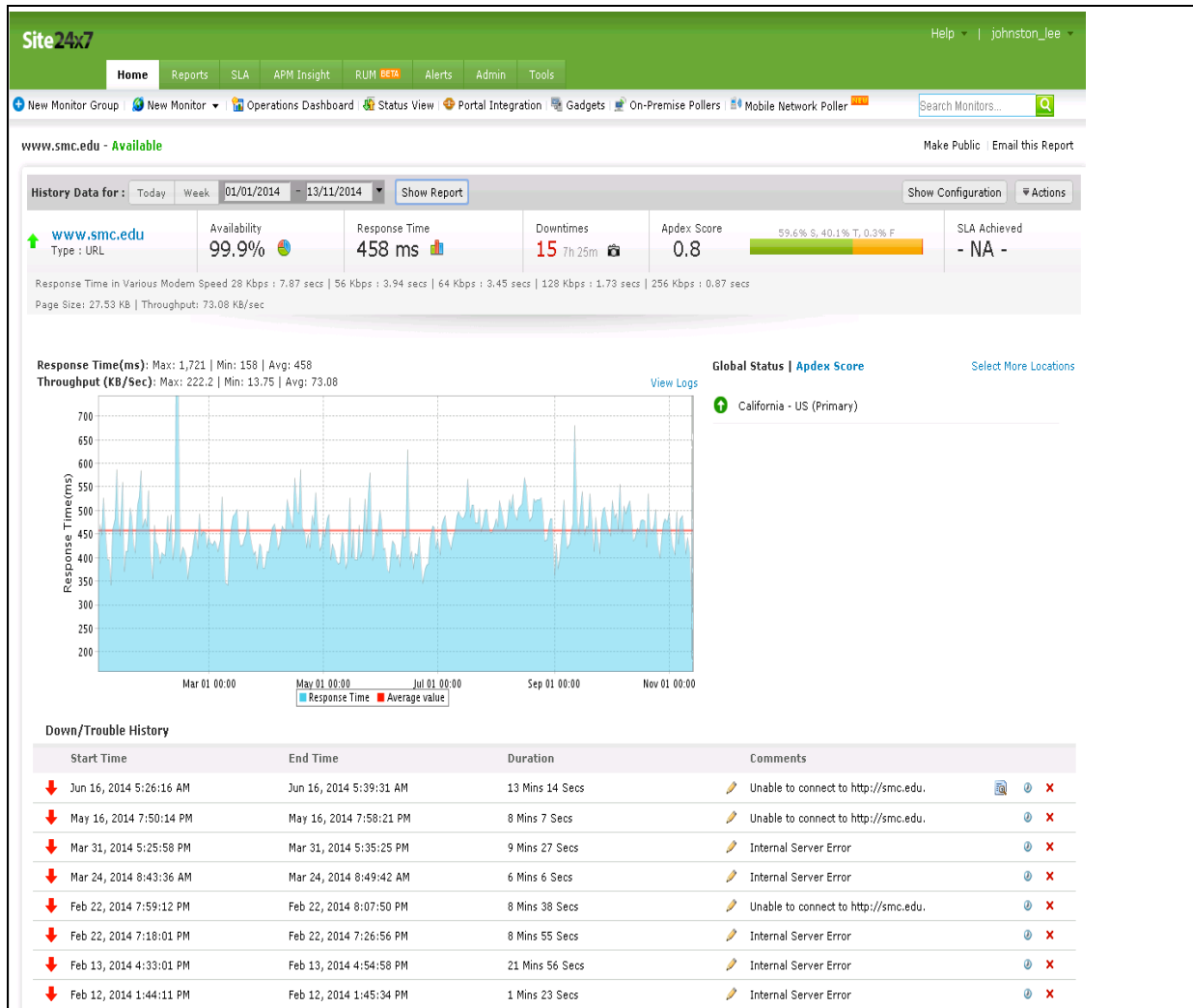


Figure 2.0 - Site24X7 Monitor Service View

IT continues to achieve the ultimate goal of 99.99 percent reliable access. A disaster recovery (DR) and business continuity (BC) project is a current priority to ensure SMC mission critical data is protected and business can be continued without service interruption if a major disaster impacted physical SMC facilities and rendered some or all inaccessible. The IT teams are evaluating various DR/BC solutions. The recent evolvement of virtual and cloud technology has finally made the objective possible and cost feasible. SMC IT’s talented technical staff are working diligently with leading technology vendors such as HP, VMware, and Veeam Technology to enable the advanced cloud architecture. This is a very exciting project and the college community looks forward to the result in the near future.

C.1.1.2 Service expansion and capacity growth

Google Apps Implementation:

To achieve the goal of offering resources “anywhere, anytime, with any device”, SMC has

strategically implemented cloud based services. In 2010 the student email system was transitioned from iMail to Google's GMail. This new service not only provided students with increased storage (from 5 megabytes to 1 terabyte), it also introduced integrated cloud based services such as Google Drive (file storage), Docs, Spreadsheets, Forms, etc.

With 35,000 students SMC is challenged to provide technology resources and services that meet students' needs. Since it's implementation, 245,000 Google accounts have processed over 40 million emails and supported the creation of over 200,000 files and documents. The list below provides an overview of the Google service use over the past five years.

- 245,838 Active Student Google Accounts
- 245 Petabytes or 245,000 terabytes of available cloud storage capacity--up 2 million percent from 2009.
- 31,000 Average Daily Emails Sent and Received (43,000,000 emails sent and received since 2010)
- 52,176 Google Documents Created
- 202,949 Files Stored in Google including: General File Uploads, Documents, Spreadsheets, Slides, Forms

#### SMC Central Storage Upgrade:

In 2013 IT implemented a new central storage solution for students, staff and faculty to meet demands for increases in both capacity and performance. The total storage capacity increased from 32 to 96 terabytes (TB) of logical storage, up 300 percent since 2009. This increased the size of faculty and staff Exchange mailboxes to 1.2 GB - up 200 percent from 2009. However, as pointed out in a later section of this document, this is just a short-term measure, as plans are finalized to transition the staff and faculty to Microsoft Office 365 cloud services.

The modern storage solution also provides fault-tolerance, high-availability, thin provisioning efficiency, deduplication, and tiered performance features that meet both modern application demands and cost effectiveness needs. The average performance Input/Output Operations Per Second (IOPS) increased from 4,500 to 30,200, up 470 percent since 2009.

#### SMC Network wired nodes and WiFi Coverage and Performance:

The total wired connection end points increased from 3,100 in 2009 to 5,900 in 2014, up 190 percent. After the implementation of the planned campus safety technology project, with several hundred electronic surveillance cameras and entry access devices, the anticipated total network wired nodes will increase to over 7,000.

Core network increased building-to-building connectivity and campus-to-campus bandwidth from 1 to 10 gigabit(GB) connection speeds, and set the stage for future expansion 40 GB as

required.

Another project is in progress to upgrade network equipment to increase hard wired devices (computer workstations or printers, for example) from 100 megabyte (MB) to 1 GB.

College wireless access controllers were upgraded to handle 1,000 total access point capacity, a 1,000% increase. The number of deployed WiFi access points increased from 40 to 220, up 550 percent from 2009. The number of supported endpoint connections rose from 600 to 4,400, up 750 percent since 2009

The coverage of WiFi at designated campus spots increased to 95 percent throughout all campuses.

WiFi endpoint maximum bandwidth went from 56 MB to 600 MB, up 1,700 percent since 2009. User WiFi bandwidth average was upgraded from 0.86 MB to 15-20 MB, up approximately 2,000 percent since 2009.

#### C.1.1.3 Mobile/Cloud Service Enablement

Under the guidance of the strategic plan for technology, IT closely monitored WiFi client usage, behavior and activities. A sample summary report of SMC WiFi usage and device type (approximately 51 percent Apple vs. 49 percent Android and others devices) is shown below in figure 3.0:

Vendor	Average Number of Sessions	Maximum Number of Clients	Average Number of Clients	Total Session Time (Hours)	Total Traffic (MB)	% of Sessions	% of Clients	% of Session Time	% of Traffic
Apple	14369	5229	2011	603010.57	24308.97	55.83	52.56	54.19	50.67
Unknown	7419	3182	1000	292528.23	13621.48	28.82	26.14	26.29	28.39
Samsung	1498	642	242	80515.97	2344.26	5.82	6.33	7.24	4.89
Murata	414	179	64	21866.0	672.32	1.61	1.67	1.96	1.4
LG	220	123	46	12186.62	294.82	0.85	1.2	1.1	0.61
Intel	213	195	71	17893.7	1871.63	0.83	1.86	1.61	3.9
Htc	208	104	39	11131.43	294.99	0.81	1.02	1.0	0.61
Hon Hai Precision	131	120	48	11531.73	1316.79	0.51	1.25	1.04	2.74
Microsoft	108	74	33	8092.95	668.98	0.42	0.86	0.73	1.39
Motorola	106	40	18	4848.6	116.55	0.41	0.47	0.44	0.24
Liteon	86	75	32	6076.38	541.54	0.33	0.84	0.55	1.13
Private	74	40	14	4587.32	238.61	0.29	0.37	0.41	0.5
Azurewave	69	46	20	4400.45	443.5	0.27	0.52	0.4	0.92
Sony	68	26	12	2831.92	63.71	0.26	0.31	0.25	0.13
HTC	64	18	7	2494.23	78.38	0.25	0.18	0.22	0.16
ASUSTek	59	27	11	2554.88	166.46	0.23	0.29	0.23	0.35
Zte	51	24	9	2235.68	130.11	0.2	0.24	0.2	0.27
Rim	37	14	7	1733.78	11.89	0.14	0.18	0.16	0.02
Nokia	32	22	8	1498.17	18.44	0.12	0.21	0.13	0.04
Asustek	31	14	6	1822.92	81.09	0.12	0.16	0.16	0.17
Others	482		128	18951.28	688.91	1.87	3.35	1.7	1.44

Figure 3.0 -

The chart demonstrates that the variety of devices a user could connect with on campus is potentially unlimited. Information technology development direction and adoption decision needs to be sensitive to user economic diversity as well as their device preferences. Therefore, to be able to ensure access for any device access, all IT in-house developed services (such as ISIS, Corsair Connect, mProfessor) and Cloud services adoption (such as Google Apps and Microsoft Office 365) are required to provide mobile capability, easily accessed via any computer, tablet, and/or smart phone.

The same strategic technology direction applies to instructional technology resources for teaching and classrooms. The diversity of software adoption for instructional software creates challenges to ensure the feasibility of mobile technology. Forward thinking SMC faculty are already utilizing a number of different online supplemental instructional web tools to integrate technology into their courseware and associated pedagogy. IT ensures cloud enabled instructional technology such as Google Apps, Microsoft, eCollege/eCompanion, Turnitin, Wimba, and other discipline specific software are integrated and supported with maximized

access.

However, depending on the age of the software, software license restriction, and/or the use case, remote or mobile access may not be feasible in some instances. In select cases, IT was able to assist on extending the service via Citrix virtual application technology. For example, IT worked with the Modern Language Department to enable Sansspace cloud service, which replicated the physical installation of a software language tool product to the web to allow students to access the same resources remotely across the Internet. This expanded the physical lab virtually, to double its capacity. IT also worked with the Earth Science Department to virtualize Geographic Information System (GIS) software, opening up the possibility of 100 percent online education and enabling students to run the complex GIS software on any device, anytime, anywhere.

#### C.1.1.4 Authorization Access/Security Management

IT takes information security seriously and aggressively works to protect personal data and information to ensure privacy and 100 percent compliance with state and federal regulations and laws. Each layer of technology infrastructure has its unique challenge of vulnerability which requires IT to deploy multi-tier/multi-layer security measures throughout the entire core technology infrastructure. Here are some security monitoring tools and protection software that have been implemented:

- Cisco Firewall for internet gateway access protection
- Citrix Netscaler for application layer defense
- Solarwinds for activity monitoring of internal wired/wireless local area network
- Proxy services for internet content filtering
- Barracuda as e-mail gateway for content and malware protection
- McAfee e-policy Orchestrator as Windows computers anti-virus protection
- Sophos for Apple computers anti-virus protection

Most of these security tools explicitly and implicitly enhance overall system performance. For example, Netscaler not only ensures that web traffic came through authorized web access paths, it also performs web caching and SSL offload which facilitate web transaction throughput drastically. Another example is the Barracuda email gateway that actively pre-blocks blacklisted malicious emails from getting into the SMC network, and reduced the overall system load required to actively filter email spam. Compared to the previous program review in 2009, the incoming messages that the SMC email gateway received decreased from 60 million annually to less than 3 million after the implementation of Barracuda pre-filtering, although the actual legitimate inbound email traffic increased from 180,000 to 717,000 annually. This is a typical example of the requirement for IT to consistently review technology solutions to meet the increasing user demands while ensuring the overall system performance and the security.

The College Student and HR Information Systems (a.k.a. WebISIS) contains confidential and highly sensitive personal information. The technology infrastructure is capable of cloud enablement. However, strong security and authentication measures need to be deployed to

ensure authorized access. IT has plans to further enhance the security by enabling cloud access to WebISIS only via Citrix virtual application technology which allows only keyboard interaction to the display. All activities are restricted on the server side, which minimize the possibility of client device virus intrusion or downloading of sensitive reports to client devices.

Other security practices to protect workstations, servers, and data include the routine application of Operating System patches and hotfixes, ensuring physical security, segregating network traffic (VLANs), requiring complex passwords, routing internal network traffic through access-control lists (ACLs), as well adjustment to application specific tools to manage access.

IT also adopted an internal developed information security guideline document as part of the departmental operational procedure, to ensure that IT internal security best practices are followed and exercised. Please see IT information security guidelines 1A (attached) for details.

C.1.2 College community will be able to effectively use updated technology to achieve their services and/or goals.

The IT team works closely with functional clients to assist the college community to implement business automation and technology to achieve business unit objectives. IT must build partner relationships and align common education and/or business goals. Performance indicators for technology innovations to enhance effective use of technology and to achieve the college community overall productivity and efficiency include:

C.1.2.1 Effectively use modern technology innovation and developments to enhance client business efficiency and educational goals

Section C.1.1 The above summarized the IT services put in place to enable maximized accessibility, performance and reliability of technology resources, which are identified primary and basic requirements to effectively support the user community's daily productivity and efficiency. Virtual and mobile technology services and capacity expansion further facilitate the scalability of user business requirements so departments can be less concerned with, for example, the physical limitations of a computer lab, support hours, and/or their program growth because technology resources can be accessed via student owned mobile devices without having to rely 100 percent on college-provided equipment.

Beyond the basic access requirements, technology enhances business efficiency and productivity. Numerous technology self-service functions that MIS deployed via Corsair Connect, mProfessor, and mOffice tremendously enhanced the manageability of students, faculty, and student services day-to-day business/instructional operations, and improved the communications and collaborations among all college business units.

C.1.2.2 Plans, evaluates, develops, and implements capacity planning and upgrade plans for core network infrastructure, central server/storage technology, and campus wide software to ensure users are experiencing the best possible performance and functionality.

As IT evaluates and acquires core technology solutions for data networking, servers, storage, and any major hardware/software, a comprehensive multi-year update/support/maintenance plan is always considered and included as part of the complete project.

It is a common practice that a two to three years maintenance agreement will be associated with the initial purchase to ensure the college receives the ongoing update and security patches so that the college community can leverage the latest features and functions in office technology products. As a best practice, IT re-evaluates current technology offerings and the pace of technology advancement when a multi-year maintenance agreement expires, to ensure that the college technology solution keeps pace with state-of-the-art industry standards and cost effectiveness.

IT also integrates the result of the efforts described in section 1.2 (Service expansion and capacity growth) to perform a capacity planning process and determine any technology equipment or software upgrade plans.

C.1.2.3 Plans, establishes and maintains technology refresh strategies to ensure end user technology hardware and software are refreshed and updated.

District owned devices such as student computer labs, computerized classrooms and faculty/staff computers are included in the technology refresh plan. Currently the College sets a standard workstation refresh cycle of four to seven years, depending on the performance/resource requirements of the programs/software installed on the computer. IT established a multi-year budget plan which outlines the asset inventory with associated life cycle and budget information. Attachment 2A demonstrates the seven-year refresh plan for student computing facility refresh plans. A similar replacement plan is also established for employee workstations.

Reductions in state categorical funding of technology over the past decade have severely impacted student and employee computer workstation refresh cycles. The recovery of a one-time grant for 2014-2015 funded the implementation of student and (many) faculty computer replacements. The project is currently a work in progress. One important note is that SMC student computers and a majority of the faculty/staff computers will be using the Windows 7 OS, or a later-level Microsoft-supported OS, by the end of 2014.

A proposed multi-year budget plan for overall instructional technology expenditure for Instructional Equipment Block Grant is also outlined below in Figure 11.0. Please note that classroom technology expenditure estimates are currently being assembled by the Media Services Department, which is not currently part of the Information Technology program. The estimated average replacement cost for 250 classrooms over seven years is used for budgetary planning purposes.

Instructional Block Grant 5-year plans (2015-2019)	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Student Workstations (computer labs or classrooms) Refresh	\$ 565,000.00	\$ 283,800.00	\$ 327,000.00	\$ 152,400.00	\$ 247,200.00
Faculty Curriculum Development Workstations Refresh	\$ 75,000.00	\$ 75,000.00	\$ 75,000.00	\$ 75,000.00	\$ 75,000.00
New Faculty Workstations	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00
Classroom Techology Refresh	\$ 288,000.00	\$ 288,000.00	\$ 288,000.00	\$ 288,000.00	\$ 288,000.00
Network/Server infrastructure for instruction	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00	\$ 20,000.00
Instructional Technology Innovation	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
<b>Total planned amount</b>	<b>\$ 1,018,000.00</b>	<b>\$ 736,800.00</b>	<b>\$ 780,000.00</b>	<b>\$ 605,400.00</b>	<b>\$ 700,200.00</b>

Figure 11.0 - Chancellor Office Replacement Cycle Matrix

IT continues to plan and implement technology update objectives with district backfill or other appropriate grants whenever possible, regardless of budget challenges. Equipment cascade plans have been also implemented as a temporary measure to extend equipment life cycle and meet the immediate business needs of users.

C.1.3 College community will be provided with proper technology support, guidance, and instructions on technology adoption process.

The IT Department provides proper technology support, guidance, and instructions on the technology adoption process through various means:

- an established technology planning process
- technician telephone/on site support
- computing lab facilities
- in-person general technology training/support
- online technology training
- a technology resource website
- specialized workshops.

C.1.3.1 Technology Planning Process - Ensure technology adoption meets user needs

- IT works closely with the Academic Senate joint Information Services Committee to address and plan for instructional technology support needs, to ensure implementation plans are in direct alignment with the college technology standards and the faculty’s instructional technology needs.
- IT works closely with the District Technology Planning Committee to provide forward thinking and guidance in the technology planning process, as well as to ensure that policy and technology adoption are feasible, sustainable, and scalable. Therefore, the outcome of technology initiatives effectively address the user community’s needs and the benefit of technology investment is maximized to serve a diverse technology user population.

- IT managers and staff actively participate in various institution flex day and other staff development workshops to provide updates of technology roadmaps and project initiatives to the college community.

C.1.3.2 Operational Support -

- MIS receives project requests submitted by functional clients for various purposes, such as to obtain reports, send eBlasts, update policies, resolve issues or obtain assistance for other enterprise business systems requirements. As depicted in Figure 12.0 the MIS team handles approximately 1,700 annual project requests. On-time delivery has been consistently above 99.8% for the duration.

	2009	2010	2011	2012	2013	2014
MIS Tickets Processes	1728	1613	1529	1762	1742	1778
On-Time Delivery	1719	1596	1511	1750	1736	1763



Figure 12.0 - MIS Project Requests and On-Time Delivery Metrics

- The IT team is in the process of implementing a fully integrated service management

system commercially known as Service-Now. This new service and support system will consolidate all service and project requests in a single repository and provide reports and alerts to assist in the enterprise wide management of work and ensure the efficient distribution of finite resources.

- Service-Now also interfaces with an integrated self-service, client-facing searchable knowledge base to enable efficient resolution of common (FAQ) issues. The knowledge base repository will serve as a repository for technical and developer teams to organize and store documentation related to enterprise systems and services.
- IT and MIS also provide face-to-face or custom training to functional clients as required. Functional clients contact MIS or other IT departments on a case-by-case basis. Support and additional training for more complex systems, such as Ellucian Banner ERP, are provided through vendor published functional guides and contract training services. Ellucian Banner conducts monthly remote training sessions with functional clients to support the team and immediate business goals.

#### C.1.3.3 Faculty/Staff Computer Lab -

- The lab facility provides equipment, software and direct support on technology related questions. It also provides how-to sessions on general online technology training tools, and small, in-person training workshops.
- The lab facility also works closely with the Teaching/Learning Center on disseminating any technology resource information to faculty, such as CCCConfer, 3CMedia, Turnitin, and @One training information.
- The lab personnel also support the semester setup for a variety of teaching/learning tools, such as Calibrated Peer Review, and Scantron Parscore

2. Describe when and how the program assesses these UOs and uses the results to inform program planning including:

- how outcomes are assessed and how often
- the assessment tool(s) used
- the sample (who gets assessed)
- how and when the program reviews the results and who is engaged in the process

#### C.2.1 How often are Unit Outcomes (UO) assessed?

The frequency of UO assessment is dependent on the method of data collection (survey, verbal feedback, service tickets, automated collection of endpoint data. etc.)

Most of the UO collected data needs to be assessed immediately and continuously to ensure system availability, accessibility, and performance. Overall UO internal assessment is

performed during IT weekly meetings to review overall UO performance and objectives accomplishment status. Overall UO and technology objectives implementation assessment is performed every other week in ISC meetings and monthly in TPC meetings.

Official assessment is performed via the annual and 6-year program review process. Major outcome evaluation is performed via the 6-year accreditation process.

Client reviews and feedback on services are assessed weekly, or more frequently.

#### C.2.2 The assessment tool(s) used

IT departments follow guidelines and best practices developed by the technology industry to design and build core technology architecture, including network, physical servers, physical storage area network, virtual servers and virtual storage configurations. Application development follows various proven methodologies of software system engineering concept and process. Specialized professional services are considered and/or utilized when complex and brand new technologies are adopted. The experiences and practices derived directly from vendors are often critical to project success. The technical team takes benchmark measurements whenever possible to set performance standards.

As discussed in the previous section, system management and monitoring utilities are the primary assessment tools to ensure system health and performance.

Summarized performance assessment tools used for SMC core technology are outlined in the following:

- Physical and virtual network layer – Cisco IOS Administrative Director, Cisco Adaptive Security Device Manager, Cisco Packet Analyzer, Cisco Prime Infrastructure, and Dell Solarwinds Network Management Tools
- Wireless network – Cisco Wireless Control System and Cisco Prime Infrastructure
- Physical server infrastructure – HP Onboard Administrator and ILO Administrator
- Virtual server infrastructure – VMware Operation Manager and Veeam One Monitor
- Physical and virtual storage area network – HP 3PAR Management Console
- Microsoft technology – Microsoft Systems Center
- Oracle technology – Oracle Enterprise Manager
- Cloud Synchronization Services - Transaction data collected
- ERP Metrics and Transactional Data

Other supported operating systems, software, and applications have associated proprietary system logs, performance statistics, and monitoring tools. IT team develops internal processes and procedures to periodically analyze and review, as appropriate, the health of each component and overall system level.

Other assessment tools used include IT user support system request logs. These support records are also reviewed and evaluated periodically to analyze response time of direct user support requests, potential improvement opportunities, as well as trends of user needs. Currently, IT has two separate user support systems: Remedy and MIS project logs. As mentioned earlier, there is a project in progress to consolidate and improve the user support experience with a newly adopted cloud based system - Service-Now. IT is currently implementing the database and support workflow. The system will be tested and refined within the IT internal support structure in winter, and the plan is to roll it out to functional clients in the spring semester.

3. What other evaluation measures does your administrative unit use to inform planning? (For example, completion of program goals, program activity, content review, opinions of clients, etc.) Note your target goals and whether your unit is meeting them.

As previously discussed, technology objectives are established with input from IT, representatives from all constituent groups, and administrative business units. The progress status and implementation results are reported and assessed frequently in committee meetings. Based on this feedback, IT adjusts priorities and project schedules. The final outcomes of the objectives are published and reported back to the committees in the “Annual Technology Objectives” document, and in the Master Plan of Education update (whenever technology objectives are relevant), and for the Board of Trustees report on technology objectives outcomes.

IT initiates formal surveys to targeted clients on major technology planning initiatives. For example, a student survey was conducted at the end of spring 2014 to evaluate students’ primary needs and expectations in regards to College instructional technology services. IT and the Technology Planning Committee (TPC) utilizes the survey findings and results to plan instructional technology objectives for 2014-2015 and moving forward. The major focus of student feedback includes enhancing Library network and WiFi performance, as well as replacing outdated student computer equipment. The Library technology update is one of the primary objectives for IT services currently, and the entire project scope is anticipated to be completed by the end of calendar year 2014.

## D1. Objectives

Multiyear Objective 1?Student computer labs and workstations replacement and cascade plans

Plan, evaluate, and recommend student workstation replacement to keep student computer equipment up-to-date. All student computerized classrooms and labs are updated to baseline level of Windows 7 performance level (or GX 745 or equivalent) with either upgraded computers or Virtual desktop solutions. Student workstations due for replacement include: 1 computerized classrooms at AET, 1 computerized classroom for Art, and 237 computers for the

<p>Library. Due to general funding reduction, grants opportunity is desired.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u>                  Details of each year Student workstation replacement is outlined in attached Information Technology Objectives annual plan document and the student workstation replacement plan document.</p>
<p>Multi-year objective 2 - Campus-wide software update and license compliance review</p> <p>District has committed funds for identified core requirement of campus-wide software such as Microsoft campus agreement, anti-virus/malware software, and other system management tools. The recent Adobe campus licensing model is a great opportunity to enable all District computers to freely utilize Adobe CS suite product. However, the pricing model presents challenge due budget constraints.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u>                  Details of each year software updates are outlined in attached Information Technology Objectives annual plan document.</p>
<p>Multiyear Objective 3 - Staff computers and faculty curriculum development workstations replacement plans</p> <p>Replace full-time faculty outdated workstations and shared-use computers in various adjunct faculty work areas that require upgrades and install new curriculum development workstations to support curriculum plans. Window 7 performance level (such as Dell GX 745 or equivalent) is the current baseline to replace. There are 15 new faculty</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u>                  See detailed annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Multiyear Objective 4?Coordinate and assist on funding allocation to install and replace smart classroom/ multimedia cart equipment</p> <p>The normal replacement of aging projectors, computers, and associated devices for classroom Audio/Visual equipment based on A/V technology replacement plan were addresses in the previous year. It has been identified that the College has 50 classrooms require technology enablement and there are ongoing needs for update/replacement. Priority of this year is identified to achieve 100% classrooms enabled with technology.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u>                  See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Multiyear Objective 5?Assist and support campus wide assistive technology implementation</p> <p>There is miscellaneous software/equipment to be purchased throughout the year to ensure the</p>

compliance of technology accessibility requirements for disabilities.
<u>Status:</u> Completed
<u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.
Multiyear Objective 6 - Identify, support, and implement instructional department technology needs  Departmental specific software/equipment, include miscellaneous software/equipment, and other technology accessories.
<u>Status:</u> Completed
<u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.
Multiyear Objective 7- Support the implementation of other grants or committees identified technology needs, such CTE, Basic Skills, Student Success, and STEM.  Technology projects funded as part of the occupational program CTE grant to departmental required software/hardware and innovative classroom effectiveness technology tools. The initiatives this year include Classroom equipment, computers, and storage system for Auto, Cosmetology, CSIS, DSPS, ECE, and AET. For detailed information, contact the CTE program coordinator.
<u>Status:</u> Completed
<u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.
Multiyear Objective 8 - Campus wide technology infrastructure (network, server, storage) renewal plans  Complete the implementation phase of College network core switch 10G upgrade in multi-locations, as well as the implementation of WiFi expansion plan to support mobile computing needs. College has identified the Library and 40 classrooms to enable WiFi with density coverage for instructional purpose. Technical team is continuing to build 10GB core capacity for multi-campus, as well as main campus buildings.
<u>Status:</u> Completed
<u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.
Multiyear Objective 9?Student and faculty self-service function expansion plans  The technology technical team evaluated the virtual application/desktop technology and selected Citrix as the pilot implementation solution. The pilot/first phase project include GIS virtual lab, Library virtual workstations, and classroom podium/multimedia carts virtual workstations. GIS lab is on production. CSIS, sign-in stations, and classroom podium/multimedia carts are in the plan to be enabled as soon as possible.
<u>Status:</u> Completed

Comments:

See annual Information Technology objectives documents for the past 6 years for details.

Multiyear Objective 10?The evaluation and implementation of other major new technology initiatives.

Analyze, design, and develop further functions for student and faculty portal to expand the functionality and technological capabilities, include single sign-on, integrated WebISIS and self-serve system, and performance enhancement during peak time.

Major projects are identified to complete student self-serve education planner and customer relationship management (CRM) to support Student Success Support Program.

Status: Completed

Comments:

See annual Information Technology objectives documents for the past 6 years for details.

Objective 11 -

Support Student First Year Experience to implement student/faculty mobile device management system and technical support

As mobile devices get widely adoption, faculty, staff, and students are either bring in their own devices or use College mobile devices for business productivity and personal use. The College established network/computer use policy requires frequent review and update. Mobile devices (both College owned and personal owned) and associate security policy needs to be developed to guide users on security awareness, technology best practices, and effective usage.

Status: Completed

Comments:

See annual Information Technology objectives documents for the past 6 years for details.

Multiyear objective 12 - IT data center and office move building project

The capacity of Drescher Hall 306 data center has reached its physical limits. Plans are developed to build a new data center facility with modernized, energy efficient site infrastructure and server infrastructure to maximize the space utilization. Also included in the plans are Information Technology, Media Services operational areas and staff offices, as well as Teaching/Learning Center.

Status: In Progress

Comments:

See annual Information Technology objectives documents for the past 6 years for details.

Multiyear objective 13 - Streamline IT support procedures and develop technology resource website and orientation information to facilitate the dissemination of IT policy, procedure, and updated information to users.

Enhance IT efficiency by developing effective knowledge base to disseminate information.

<p>Student self-serve knowledge base – AskPico is addressed via in-house development. Webhelpdesk and Service-now software were evaluated. Technical team decided to implement an online support system that streamlines IT support procedures and process, as well as a mobile-ready technology knowledge base to answer staff/faculty technical questions in an efficient self-service environment. Service-now cloud solution was selected and procured.</p>
<p><u>Status:</u> In Progress</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Technical implementation of campus-wide printing solution for employees and students</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Multiyear objective 14- Campus-wide wireless data network expansion</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See detailed annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Technical implementation of SMC website re-engineering project to migrate all content to Microsoft Sharepoint environment</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Migrate student email system from iMail to Google Apps.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Major server infrastructure upgrade for the MIS Student Information Systems.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Upgrade AS Computer Lab Printing Management Software to be consistent with campus-wide student central printing management System.</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Multiyear objective 15 - Established SMC mobile computing strategy and plans (BYOD, mobile application development, and virtual application implementation)</p>
<p><u>Status:</u> Completed</p>

<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>SMC employee e-Mail Microsoft Exchange system upgrade to Exchange 2010</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>Multiyear objective 16 - Campus safety technology systems - Emergency communications, Emergency notifications, surveillance cameras, and electronic entry access control</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>
<p>SMC central storage area network system upgrade</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details</p>
<p>Upgrade and Replace system management tools and email security gateway</p>
<p><u>Status:</u> Completed</p>
<p><u>Comments:</u> See annual Information Technology objectives documents for the past 6 years for details.</p>

<p><b>D1. Looking Back</b></p>
<p>1. Describe any accomplishments, achievements, activities, initiatives undertaken, and any other positives the program wishes to note and document.</p>
<p>Major objectives, accomplishments, and technology status update in the past six years are outlined as follows.</p>
<p>Information Technology Services</p>
<p>Annual technology planning process -</p>
<p>The IT department establishes the following standard ongoing annual operational objectives in providing users with updated technology (hardware/software) for both instructional and business needs. Due to constantly changing software and hardware capabilities, these are recurring efforts of re-examination and update on an ongoing annual basis. Please review attached (3A) IT annual objectives documents from 08-09 through 13-14 for the details of hardware equipment updates/purchases, software updates/purchases, and implementation scope for each year.</p>
<p>Multiyear Objective 1? Student computer labs and workstations replacement and cascade plans</p>
<p>Multiyear Objective 2? Campus-wide software update and license compliance review</p>
<p>Multiyear Objective 3? Staff computers and faculty curriculum development workstations</p>

replacement plans

Multiyear Objective 4?Coordinate and assist on funding allocation to install and replace smart classroom/ multimedia cart equipment

Multiyear Objective 5?Assist and support campus wide assistive technology implementation

Multiyear Objective 6?Identify, support, and implement instructional department technology needs

Multiyear Objective 7? Support the implementation of other grants or committees identified technology needs, such CTE, Basic Skills, Student Success, and STEM.

Multiyear Objective 8?Campus wide technology infrastructure (network, server, storage) renewal plans

Multiyear Objective 9?Student and faculty self-service function expansion plans

Multiyear Objective 10?The evaluation and implementation of other major new technology initiatives.

The instructional technology plans are identified and developed on an annual basis, based on ISC recommendations. The annual technology objective planning process for network infrastructure, campus wide network services, and business automation technology services are developed by a master planning process and through input received from all areas of the IT department.

Technology fiscal resource planning -

The annual technology budget is created and developed by the IT department as part of the Master Plan for Technology. The Department works closely with campus constituent groups to ensure fiscal resources are designated and allocated directly in alignment with college missions and end user needs. IT receives the College's technology needs and priorities from the four primary sources listed below, plans fiscal resources, and implements cost effective solutions to provide support based on the technology objectives identified.

- The Academic Senate Joint Information Services Committee (ISC) solicits requests for new or replacement instructional technology annually from individual departments and programs. The requests are prioritized by ISC members, and then forwarded to the District Technology Committee.
- Student Services departments follow a similar procedure for non-instructional technology needs by submitting requests to a committee assembled by Student Services for this purpose. Their prioritized requests are also forwarded to the District Technology Committee.

- Leaders of the various IT departments provide input regarding special projects, upgrades to existing systems, and other system and infrastructure maintenance needs that are not included in their regular departmental budgets.
- Other major technology initiatives that are impacting the overall effective use of technology resources on a college-wide level.

The IT department guides and coordinates the implementation of all identified objectives to ensure technology and services are delivered on time and within budget.

Below are primary IT objectives that were accomplished over the past 6 years:

#### Technology Policy / Governance -

- Technical guidelines and procedures were identified, developed, and/or updated as required or as updated technology evolved and became available, such as MDM (mobile device management) policy, Information Security Guidelines, and technology resource provisioning and termination procedures for employees and students.
- Provided technical support and implementation guidelines on regulatory compliance requirements, such as FERPA, HIPPA, PCI, Section 508,1098-T audit, and an internal control audit of the application/information process.
- Implemented project sign-off procedures to ensure that user-owned or IT-owned technology assets are managed with proper tracking, sign-off, and fiscal accountability.

#### Technology physical resource planning -

- Data center: The capacity of Drescher Hall 306 data center reached its physical limit. IT has been working with Facility Planning to develop a new facility with a modernized, energy efficient data center site infrastructure and Server/storage infrastructure to meet growing and evolving technology service needs.
- IT office: Coordinated with Facility Planning, Facility Operations, building contractors, and IT staff to ensure IT operations are smoothly transitioned and the staff work environment is pleasant and enhances productivity in the new office facility.
- Faculty/Staff technology resource center: Planned and coordinated the construction phase one move from the old Media center to the temporary Drescher location with a minimum of disruption of services to users. IT also worked closely with Facility Planning, the Center of Teaching Excellence, and the Media Center to plan the permanent new facility in the new IT Building.
- Telecom office and workroom: Reviewed and ensured that the Telecom relocation plan is implemented smoothly in the Phase Two IT building project.

#### Technology internal project coordination -

- Coordinated and facilitated major technology initiatives among various departments internally to ensure that the equity, connectivity, and integration between technology areas were properly secured. Examples include the central storage system replacement

project, server/client/application virtualization projects, Data Center migration project, systems backup/recovery project, and disaster recovery/business continuity project.

- Planned, evaluated, and coordinated all IT departments to support campus-wide hardware and Implemented TeamworkPM, a cloud-based, electronic project management service to enhance project management and tracking.
- Planned, coordinated, and worked with District Purchasing Department and vendors on core technology hardware and software support and maintenance contracts.

#### IT customer services -

- Streamlined IT support procedures and developed a technology resource website with orientation information to facilitate the dissemination of IT policy, procedure, and updated information to users. Currently, each IT department utilizes its own user request tracking process. IT is implementing a new tool to consolidate a segmented support system into a centralized IT support management system.
- IT disseminated external technology resources and end user training opportunities, such as Statewide @One online end user training workshops and the 3C Media repository service, and CCCconfer resources, to proper local support centers (e.g. Faculty/staff computing lab and Center for Teaching Excellence).
- Planned, coordinated, and allocated staffing resources to provide in-person technology support in designated student computing facilities and the faculty/staff technology resource lab, as well as telephone and email support.

#### Academic Computing:

##### Student technology support -

- Planned, evaluated, and implemented the student pay-for-print Papercut solution and provided the technical implementation support to integrate this solution with Ricoh and Xerox hardware to provide unified print services to students in all campuses, as well as to the Associated Students computer lab.
- Successfully installed and supported the majority of student computing facilities and computerized classrooms, covering a total of 1400 computer workstations, throughout 5 campuses with maximized coverage hours despite decreased staffing.
- Supported the procurement and implementation of departmental technology equipment and software, as well as the annual update plans to achieve curriculum and teaching/learning needs. In the past 6 years, a total of 289 instructional technology procurement requests have been fulfilled.
- Supported the procurement and implementation of student lab and computerized classroom computers and software, as well as associated annual update plans. There have been approximately 1,200 student workstations installed, updated in a full refresh cycle in the past 6 years. Major software updates are performed at least once per academic year on all workstations and numerous ad hoc patches and incremental updates throughout.

Faculty teaching and staff departmental support -

- Supported the configuration, requisitioning, and procurement logistics of faculty and staff workstations.
- Supported the planning, procurement, and implementation of CTE annual technology initiatives.
- Planned, evaluated, and implemented virtual desktop and application services to support administrative and instructional software with 24/7 on and off campus access for authorized administrators, staff, faculty, and students users. Services currently provided include remote ISIS access, remote desktop access, and aGIS virtual lab for online courses.

Management Information Services (MIS):

MIS was challenged to simultaneously manage current operations and advance and modernize the enterprise.

Student technology support -

- Educational Planner - MyEdPlan fully electronic educational planning process
- ID Card System - Implemented new ID Card System
- Student Portal - centralized SSO access to all student services
- Mobile Ready Student Portal - Mobile Corsair Connect
- Identity Management (IM) - self-service password management,
- Student Email (GMail) - Increased email storage; increased security / FERPA compliance
- AskPico - self-service, searchable online knowledgebase

Faculty and Staff technology support -

- Education Planner - Streamlined Counselor / Institutional version of MyEdPlan
- mProfessor - mobile ready Faculty Portal (replaces Oracle Portal)
- mOffice - mobile ready Staff Portal (replaces Oracle Portal)
- mChair - mobile ready Faculty Chair Portal (replaces Oracle Portal)
- Counseling Portal (Go-Page) - centralized, one click access to all counseling services
- Counselor MyEdPlan - first of kind degree planner with real-time degree audit
- Electronic FLEX Tracking - Online, Self-Service
- fsaATLAS - Automated and integrated SMC's SIS with SEIVIS
- Maxient - Crisis management application service
- ILO/SLO - Integrate Electronic System to Collect and Track ILOs/SLOs

Administrative / Infrastructure technology support -

- Implemented Regent Financial Aid System - Support for Financial Aid
- Implemented Banner Financial Aid - Integrated/Synchronized with Student Information System
- Implemented Heartland Payment Systems - Decreased transaction costs and PCI

compliance overhead

- Cloud Synchronization Services (CSS) - automated account provisioning service
- Single Sign-On - for all core student services (Student Portal, eCollege, Enrollment, Email/Gmail)
- ISIS Server Infrastructure Upgrade - Numerous incremental updates to the enterprise technology
- Disaster Recovery - Implemented Oracle Data Guard to mirror ISIS database

Network Services:

Network infrastructure renewal -

The implementation of a multi-phased campus network upgrade plan -

- Replaced/Upgraded de-supported network edge switches and internet routers.
- Upgraded AET network infrastructure to enhance performance of high-bandwidth applications.
- Evaluated and implemented secured solutions for campus wireless network connections. The end result shows the WiFi coverage increased from 6 access points to 100 in the past 6 years.
- Extended partnership with the Santa Monica City to join effort in expanding internet bandwidth to the College. The goal is to at the minimum, triple the current internet performance/capacity.
- Upgraded data communication bandwidth on main campus and satellite campuses from 1GB to 10GB.

Server/Storage technology renewal -

- Implemented a cost-effective solution to increase the productivity of IT support staff by utilizing centralized virtualization server technology. Migrated from individual physical server services to a consolidated infrastructure which takes advantage of virtual server technology to have multiple virtual servers run on one physical server. Currently, the College enterprise technology runs on less than 20 physical servers, hosting 150+ virtual servers that serve all 6 campuses with approximately 200 mission critical administrative and instructional services.
- Completed VoIP project which converted all analog telephones to network IP enabled phones. This project yielded a centrally managed digital phone system which is more cost effective, easier to manage, and capable of integration with other applications, such as email.
- Planned, developed, and implemented major campus-wide software update projects, such as Windows Servers 2008 and domain update, and the upgrade to Microsoft Exchange Server 2010

Advanced network services -

- Provided the technical implementation and support for the SMC website project to

migrate from an HTML site to Campus Solution, and then to the Microsoft Sharepoint platform.

- Assisted in the implementation of the Google student email migration project
- Provided technical implementation support for the campus-wide multi-functional printing/copying solution for staff and faculty.
- Implemented improved new eMail security gateway appliance to more efficiently block phishing/spamming eMails.
- Planned, evaluated, and implemented district wide emergency response system to effectively notify specified campus constituents with urgent messages. The system is capable of sending audio/visual notification messages to phones, computers, digital signages, talk-a-phones, other digital endpoint devices, and email/text/phone blast system (EdConnect).

Telecommunications:

- Implemented and migrated 2500 phones to new VoIP supported technologies to improve and enhance functionality and streamline call processing and accounting.
- Implemented and supported endpoint devices for the Emergency Mass Notification System by installing voice and data services in all college classrooms.
- Upgraded and expanded existing public safety technology and communication systems, such as SMCPD VoicePrint system.
- Provided voice and data infrastructure for multiple new and remodeled college facilities.
- Maintained and updated College automated Phone/Speech Attendant System.
- Installed college wireless network access points to support the expansion of coverage to all buildings and campuses.
- Provided enhanced infrastructure and ongoing support for student ID card swiping process to enable Big Blue Bus ridership for students.
- Upgraded radio communication systems for Facilities and Operations Departments.
- Supported on an average of xxx number of employees' equipment/software installation and/or upgrade projects per year.
- Supported major lab installation or building projects, such as Cayton computer lab and AET move.

2. Summarize how the program or service area addressed the recommendations for program strengthening from the executive summary of the previous six-year program review.

In the previous program review process, the committee recognized that staffing problems will impact the ability of IT to respond to recommendations. However, in the interest of continuous self improvement, the committee recommended IT consider the following:

1. Ensure that program SLOs are written and assessed for each departmental area.

IT has since identified major unit outcomes and developed performance key indicators as described in Section C.

1. Complete the third phase of programming to enable the scheduling of tutoring

appointments (the first phase was counseling appointments).

MIS has since developed and enabled an electronic tracking mechanism for all primary tutoring facilities, arranged hours, and supplemental instruction services. Major development and software implementation will focus on the further streamlining of student virtual drop-in queue (e.g., QLess) management services to further support SSSP initiatives.

1. Select and deploy software to enable tracking lab hours as well as any other arranged hours for which FTES is collected.

See response #2.

1. Provide adequate support in both the maintenance and management of MAC platform instruction.

As described in current technology program direction, IT has been focused on platform independent technology solutions. The Mac platform is part of IT's support plans. The primary reason for the College using Windows based workstations by default is cost effectiveness. The Apple OS (Mac) Operating System is fully supported and maintained whenever programs require specialized software on the Mac and their program outcome can be enhanced by adopting the Mac platform. IT is fortunate to have recently hired a new employee in Telecom, who happens to be a former Apple employee. We look forward to further enhancing IT's support capability for Mac platforms.

1. Select and deploy classroom management software that can be licensed and used in all computer classrooms.

IT developed and deployed a classroom management tool in-house. The technology is based on Open web services that can be integrated and deployed by all types of computer classrooms.

The tool directly integrates with ISIS class and student information to effectively enforce individual lab policy, authenticate students, and automatically track hours as students log in and out. This is the same tool that currently tracks counseling appointments, tutoring hours, and lab arranged hours.

1. Ensure that all technology is secured appropriately – i.e. classrooms, labs, carts, etc to reduce the opportunities for loss.

The physical security of computing facilities throughout multi-campus have been drastically improved and all equipment are secured and locked down. Equipment in classrooms, labs, carts that are under IT responsibility have only 1 minor theft issue in the past 6 years.

1. Create a single web-based technology help location for college staff use.

As described previously in Section C2.2, IT has selected and is currently implementing a modern cloud based technology support service tool, Service-now. The modern tool provides user friendly interface, mobile device readiness, as well as the flexibility of customization in the future if needed.

3. Describe any changes or activities your program or service area has made that are not addressed in the objectives, identify the factors (e.g., licensure requirements, state or federal requirements, CCCO mandates, regulations, etc.) that triggered the changes, and indicate the expected or anticipated outcomes.

Previous sections have reviewed above mentioned factors as part of the planned objectives. As discussed, State, Federal, PCI mandates and requirement changes do impact IT program services. These guidance changes often create direct or indirect technology updates and/or new implementation. However, these requirements usually provide better or clearer guidance on the College’s business practices and operational procedures. There are usually requirement time frames provided so impacted areas can plan and implement accordingly.

Other than planned maintenance activities and objectives, IT technology service requirements are directly and constantly impacted by the following factors:

- Security vulnerabilities newly identified either internally, by solution vendors, or by the technology industry in general
- Firmware and/or software patches and updates received on all level of technology stacks.
- Hardware failures
- Unexpected outages due to issues from internet providers, power, water leakages, constructions, and/or other environmental impacts
- Software license model/pricing variations by vendors
- End user ad hoc/unexpected urgent projects or major change requests that are outside planned technology objectives

Unplanned factors such as service outages, budget overrun and/or project delays potentially result in risk and negative impact on IT service outcomes. Thus, it is essential that IT objective statuses are frequently if not constantly reviewed and readjusted in meeting the dynamics of the technology industry and all internal/external change factors.

4. If your program received one time funding of any kind indicate the source, how the funds were spent and the impact on the program (benefits or challenges).

IT was fortunate to receive a one-time State categorical instructional equipment grant this year in order to fulfill some of the planned instructional technology objectives identified for 2014-2015.

The fund was planned for the following major projects:

1. AET Mac computerized classroom equipment upgrade
2. Library technology modernization -
  1. Core and distribution switches upgrade from 1GB to 10GB, and from 100 MB to 1 GB on endpoint workstations.

2. Upgrade and increase WiFi access point devices to enhance performance and improve user experience
3. Upgrade 237 student workstations
3. SMC 100% technology enabled classroom project - Outfits 45 classrooms with standard smart classroom technology equipment to enable technology assisted classroom learning environment.
4. Upgrade Business Building cabling infrastructure to ensure cables and physical connections are up to current standards in order to take advantage of the updated core networking capacity.
5. Upgrade all instructional Windows workstations to at least the Windows 7 hardware performance level.
6. Supplement identified classrooms with WiFi access points to improve the technology assisted interactive teaching/learning experience.
7. Address other instructional department equipment replacement needs such as classroom printers, scanners, and other related digital learning technology tools.

## **D2: Moving Forward**

Discuss and summarize conclusions drawn from data, assessments (SLO, UO) or other evaluation measures identified in Section C and indicate responses or programmatic changes planned for the coming year(s) including:

- how the assessment results are informing program goals and objectives, program planning, and decision-making
- specific changes planned or made to the program based on the assessment results

An extensive technology survey was conducted to collect information on current student college technology resources and service usage patterns. A total of 32,119 students were contacted and 704 students completed the survey. The response rate is 2.2 percent. It is a relatively high return rate consider the 2-3 weeks survey timeframe. The survey data was analyzed by Institutional Research. This analysis and findings will serve as the basis to plan to meet future student technology requirements.

Student Technology Survey Overview:

Respondent Profile:

56 percent of respondents were female; slightly overrepresented compared to college-wide population (52.3 percent). White students over represented and Hispanic and Black students are underrepresented. 2.3 percent of respondents were enrolled in NC courses only. And of credit students, 62.9percent were enrolled PT (

Survey Responses and Overall Program Implications:

**Student Ownership of WiFi Devices:**

Results: 97.6 percent of respondents currently own at least one smartphone, laptop, eReader or tablet.

Program Implications: the high percentage of adoption of personal technology such as smartphones and laptops indicates a proportional increase in demands on the enterprise infrastructure. To keep pace with the ever increasing demand, a bottom-up planning approach is required to ensure backbone services such as internet bandwidth, wireless connectivity and coverage, along with auxiliary services such as convenient access to power.

- 97.6% of respondents currently own at least one of these devices.

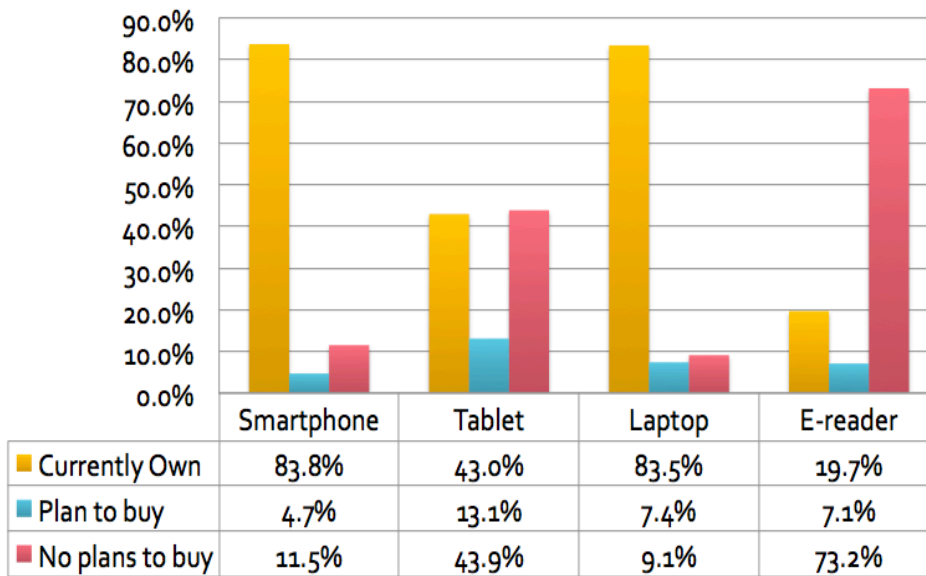


Figure 13.0 -

**Frequency of Device Usage on Campus:**

Results: Smartphones were clearly the most frequently used devices, followed by laptops and tablets. The survey indicated a very high use of smartphones relative to other technology options.

Program Implications: This data is in alignment with technology objectives to invest additional resources to extend wireless network capacity.

**Reasons for Not Using Devices at SMC:**

Results: student cited inconvenience as the primary reason, followed by device security, and other reasons. “Other” reasons for not using device(s) at SMC: students cited a wide spectrum of

reasons, and no single challenge stood out.

Program Implications: Smaller, compact form-factors such as smartphones demand unique, purpose built applications to tailor the user experience. This places additional demands on IT and MIS resources to develop and maintain two versions of the same application.

“When you use your device(s) on the SMC campus, about what percentage of the time do you use your personal data plan?”

Percentage of Time Personal Data Plan Used:

Results: 47.1 percent of students didn't use a personal data plan less than 50 percent of the time. This indicates that the majority of students used a personal data plan while on campus.

Program Implications: Access to wireless and other connectivity options are still important to a large population of the student body. As stated above, additional resources should be directed toward ensuring students and others have access to wireless resources.

“Please rate the extent to which you use your WiFi-enabled device(s) for instructional purposes both on and off-campus. For example, for studying, completing class assignments, taking exams, etc.”

Percentage of WiFi-enabled device(s) used for instructional purposes:

Results: Clearly eCollege/eCompanion was used extensively to deliver instruction. The next most popular device was the laptop computer.

Program Implications: The inference is that advanced technology, such as tablets, etc., is not extensively integrated into courseware. Over the course of the next 6 years this will likely begin to change, as technology becomes an integrated part of the education process (i.e., on par with the pencil).

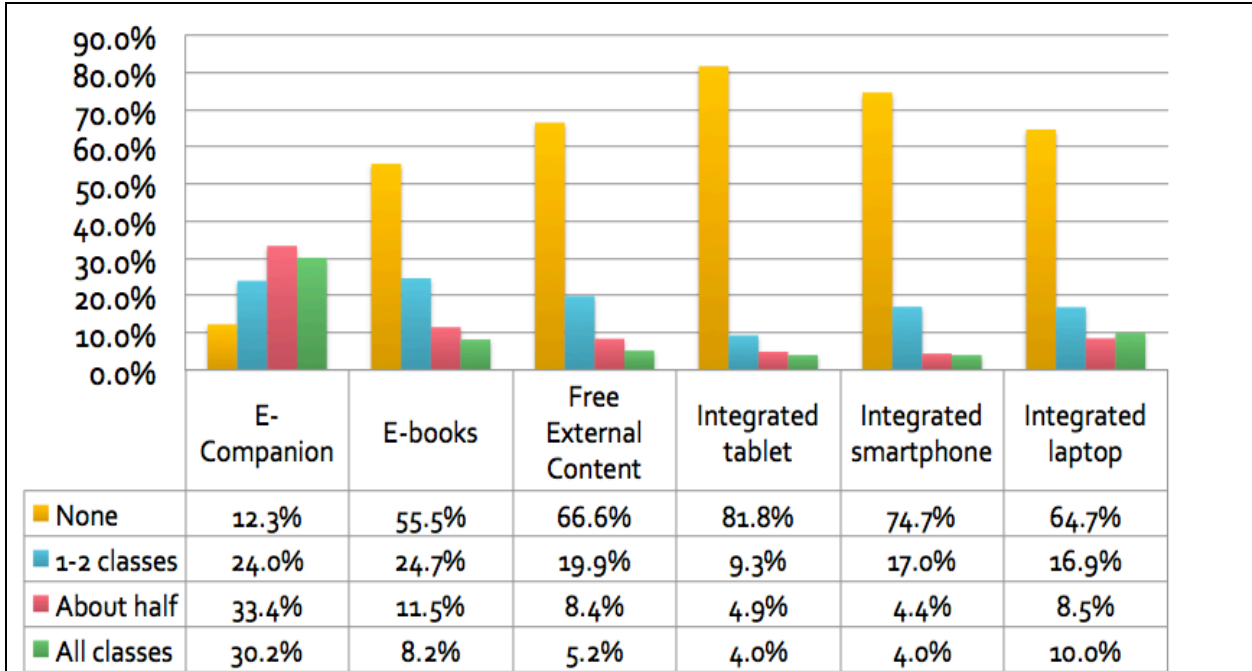


Figure 14.0

The assessment results are informing program goals and objectives, program planning, and decision-making, with specific changes planned or made to the program based on the assessment results

## D2: Objectives

Objective #1.

### Objective:

Objective 14 MIS Information System Software update

Plan, evaluate, and implement updated version of Oracle infrastructure application suites. This is a much delayed project that needs to be put on first priority to ensure the College Information System is at an up-to-date version which complies with security requirements, maintains compatibility with updated web browsers, and take advantages of increased functionalities.

**Area/ Discipline/ Function Responsible:** MIS

### Assessment Data and Other Observations:

UO Assessment Data

### External Factors:

SMC Master Plan for Education
<b>Timeline and activities to accomplish the objective:</b> Milestone 1 Develop Plan 12/20/2014, Milestone 2 Convert, Make Required Adjustment and Test 3/30/2015, Milestone 3 Promote to Production 4/15/2015
<b>Describe how objective will be assessed/measured:</b> Percent of Oracle Forms and Reports Converted 95 percent, Error Free Rate of Converted Objects (Forms, Reports, Processes, etc.) under 1 percent, Downtime Associated with Go-Live of less than 8 hours.
<b>Comments:</b> Project evaluation in progress
Objective #2.
<b>Objective:</b>  Objective 15 Implementation of staff/faculty Identity Management (IM) to streamline employee new hire/position changing/separation technology authorization process  Facilitate staff/faculty technology resource provisioning process with an automated Identity Management system. The result facilitate employees to efficiently gain authorized access to network/software/phone/doors and other technology resources.
<b>Area/ Discipline/ Function Responsible:</b> MIS
<b>Assessment Data and Other Observations:</b> UO Assessment Data
<b>External Factors:</b> SMC Master Plan for Education
<b>Timeline and activities to accomplish the objective:</b> Milestone 1 Develop Plan 1/31/2015, Milestone 2, Develop Solution 5/25/2015, Milestone 3 Test and Implement Solution 6/30/2015
<b>Describe how objective will be assessed/measured:</b> Transaction Error Free Rate of 99 percent
<b>Comments:</b> Project evaluation in progress
Objective #3.
<b>Objective:</b>  Objective 16 Digital learning material technology evaluation  Evaluate support models of eTextbook adoption plans, courseware integrations, mobile/handheld device, and accessibility to develop a feasible implementation plan to support the needs. Digital learning environment requires sound solution of video/audio instructional screencast/lecture capture tools, media repository, and on-demand streaming solutions.

<b>Area/ Discipline/ Function Responsible:</b> All
<b>Assessment Data and Other Observations:</b>
<b>External Factors:</b> Other Factors technology trends
<b>Timeline and activities to accomplish the objective:</b> Project scope pending
<b>Describe how objective will be assessed/measured:</b> Full report of solutions evaluated, to include an analysis of benefits and budget estimates.
<b>Comments:</b> Need faculty input to evaluate.
Objective #4.
<b>Objective:</b>  Objective 17 Support technical implementation of campus safety technology plan  Multiple campus safety measures that involve technology implementations, which require the selection of appropriate technology solutions, new procedural definitions, and process flows are being reviewed/updated/implemented. Emergency notification system was completed in 13-14. Updated surveillance camera and electronic door access systems are currently being evaluated and planned for 14-15 implementations.
<b>Area/ Discipline/ Function Responsible:</b> All
<b>Assessment Data and Other Observations:</b> UO Assessment Data
<b>External Factors:</b> SMC Master Plan for Education
<b>Timeline and activities to accomplish the objective:</b> Milestone 1 - Completion of design 10/30/2014 Specifications Identified, Milestone 2 Procurement and board approval by 3/1/2015, Milestone 3 - Complete Implementation of Phase 1 9/30/2015 Complete Implementation of Phase 2 6/30/2016
<b>Describe how objective will be assessed/measured:</b> All scoped areas have 100% coverage of video surveillance and electronic door entries, with centralized controls.
<b>Comments:</b> Public works bidding process required.

Objective #5.
<p><b>Objective:</b></p> <p>Objective 18 College technology resource disaster/recovery plan</p> <p>Evaluate, plan, and implement the Disaster Recovery (DR) process and procedure of SMC website, faculty/student ISIS portal access, and other identified needed technology resources during a disastrous event.</p>
<p><b>Area/ Discipline/ Function Responsible:</b> All</p>
<p><b>Assessment Data and Other Observations:</b></p> <p>UO Assessment Data</p>
<p><b>External Factors:</b></p> <p>SMC Master Plan for Education</p>
<p><b>Timeline and activities to accomplish the objective:</b> Milestone 1 - Project Plan Developed 3/25/2014 Milestone 2 Implementation of pilot SMC website DR solution 12/31/2014, Milestone 3 Full mission critical services scoped and solution selected, 3/1/2014, Milestone 3 Budget Approved and Resources Specifications Identified 6/30/2015 Milestone 4 - Complete Implementation of Phase 1 (Major Services) 11/30/2015 Complete Implementation of Phase 2 (All Key Services and Data) 1/31/2016</p>
<p><b>Describe how objective will be assessed/measured:</b> Measures include Critical Service Inventory (CC, mProfessor Email, SharePoint, Active Directory, etc.) Mean Time To Recovery (MTTR) for DR of 30 minutes, 4 hours MTTR for less time critical systems (ISIS Administrative Portal, etc.). Deliver 100% to the recovery objectives and recovery time specifications.</p>
<p><b>Comments:</b> Pilot scope work in progress. Full project solution is currently being evaluated.</p>
<p><b>E. Curriculum Review</b></p> <p>1. Discuss how the department reviews, revises, and creates new curriculum. Include the following information:</p> <ul style="list-style-type: none"> <li>• The process by which department members participate in the review and revision of curriculum.</li> <li>• How program goals and SLOS are integrated into course design and curriculum planning.</li> <li>• The relationship of program courses to other college programs (cross-listing, overlapping content)</li> <li>• The rationale for any changes to pre-requisites, co-requisites and advisories.</li> <li>• How the department ensures course syllabi are aligned with the course outline of record.</li> </ul>

2. Discuss the role of the advisory board and other industry bodies or input in updating curriculum to meet industry standards and the needs of students.

## F. Community Engagement

1. If applicable, describe how your department staff members engage in institutional efforts such as committees and presentations, and departmental activities.

Annual technology objectives are established through joint effort with all campus constituent groups and through work groups and committee engagement. Objectives are jointly developed by the IT department, Information Services Committee, and Technology Planning Committee.

Annual technology plans are summarized at the beginning of each academic year by reporting to ISC, TPC, and DPAC. Status reports are also presented at ISC bi-weekly meetings, TPC monthly meetings, and DPAC bi-weekly meetings. The final outcome report is submitted to DPAC at the end of each academic year, as well as submitted as part of the board report.

IT leaders also contribute in many parallel institutional efforts such as the Computer Science and Information Systems Advisory Board, Institutional Effectiveness Committee, Distance Learning Committee, faculty hiring committees, CSEA negotiation, labor management, and the Management Association. IT team members are also heavily involved in the accreditation review process and contribute tremendously both in chairing the technology standard IIIC category and providing resources to all other standards as technology is referenced in all college areas as being success factors.

The IT team also fully takes advantage of any appropriate workshops, institutional or departmental flex days, chairs meetings, committee meetings, and academic senate meetings to present specific technology topics or general technology service updates and roadmaps.

2. If applicable, discuss the engagement of program members with the local community, industry, professional groups, etc.)

It is critical for the IT team to remain engaged with the technology industry concerning the latest technology solutions. The technical team is constantly reviewing articles and vendor demonstrations of new products.

There are direct working relationships between SMC IT and major technology manufacturers/vendors such as Cisco, HP, Dell, Oracle, Microsoft, Google..., etc, as business partners required to maintain current knowledge to maximize the investment of SMC technical environment with vendor solutions. Regular vendor production roadmap briefing sessions are scheduled and special demos are requested on demand to ensure SMC IT closely follows technology industry trends. The IT technical team is also widely engaged with relevant technology user groups to exchange technical deployment experiences and practices.

SMC IT leaders represent the College in the Statewide Chief Information Systems Officer Association to advocate for technology resource needs and share/exchange technology project implementation experiences with peer colleges. Other engagements include the participation of Educause and League annual conferences to enhance and broaden the exposure and awareness of SMC personnel to current technology trends, best practices, and maintain proper alignment with

other two-year or four-year peer institutions.

SMC IT is also a close business partner of the City of Santa Monica. The City iNet project is a typical example of the engagement. SMC takes full advantage of the city’s fiber network loop to build highly redundant high speed network connections within the main campus, all satellite campuses, and other College owned/leased buildings. There are other technology engagements such as the evaluation of the co-location of the City data center and a remote disaster recovery partnership.

**3. Discuss the relationship among program staff and unit engagement with other units or areas of the college.**

All electronic data travels through wired or wireless network connections installed and supported by SMC IT. For this reason, all SMC business units are supported by the IT program. A solid, positive and supportive working relationship is required with all SMC business units to ensure all services are delivered reliably and securely. High performance systems and services are as close as the integration among our network, server, storage, application software, and end point devices. IT is fortunate to have an outstanding and talented team that works seamlessly together to deliver amazing products, services, and support in meeting ever growing technology needs.

As part of SDLC (System Development Life Cycle) IT staff members work closely with other college areas to fully understand their business requirements. All successful technology projects require lengthy, intensive interactions and communications among IT and end users to collect the required specifications necessary to design, develop, and implement products that exceed functional client expectations. The IT staff takes pride in the high-level of service and support they provide to all IT customers.

In turn IT staff are also important clients of services offered by other business units and support other SMC departments such as Fiscal Services, Human Resources, Personnel Commission and Facility. IT managers and staff members work closely with all other units and areas with great respect and professionalism. It is a collegial and rewarding experience to work directly with other areas to accomplish common business goals.

**G1: Current Planning and Recommendations**

**1. Identify any issues or needs impacting program effectiveness or efficiency for which institutional support or resources will be requested in the coming year. [This information will be reviewed and considered in institutional planning processes but does not supplant the need to request support or resources through established channels and processes].**

At the beginning of each fiscal year IT works with various college constituents to develop annual technology objectives. As a summary, major technology objectives established for the current year include the following items:

- New Data Center implementation project
- Technology for campus safety project
- WiFi network enhancement for BYOD

- Microsoft Office365 cloud and mobile services evaluation and adoption
- Library technology refresh project:
  - Virtualization of Library servers
  - Upgrade core, distribution, and end points connections to 10G/1G
  - Replace and enhance WiFi infrastructure
  - Replace all student workstations
- Supporting the initiative of replacing aged iMacs with new Mac pro for AET computerized classroom
- Migrating all student XP workstations to Win7 and continue the migration project for all staff/faculty workstations
- Technology implementation support for the 100 percent classroom technology enablement project
- Technology implementation support for the Student Success Support Program, include the implementation of self-service student education plan, mobile prep-2-test project, and student service queue management system
- IT Support Service Management System - implementation of Service-now
- ISIS ERP system upgrade
- Data Warehouse / Enterprise Reporting Systems
- Appointment System for Tutor and Lab Tracking
- Disaster Recovery (DR) and Business Continuity of Operations Plan (COOP)
- Workflow and Business Process Redesign for HR Leave System
- Systems and Application Security
- Voice communication systems upgrade(Call Manager, Unity, Singlewire, Nuance, and network upgrade

Various grants and bond sources provide fiscal support for the initial equipment and implementation of the above initiatives this year. However, there are three main factors that could potentially impact the program outcome.

There are challenges to hiring qualified and skilled technical staff. There are two vacant System Administrator positions, one Network Administrator position, and one Programmer Analyst position that were considered as resources to assist with the above projects. The lack of qualified candidates to fill IT skilled positions is a serious potential risk to program success.

Capital construction project outcomes are not entirely predictable. Both the new data center and the campus safety technology projects have strong dependency on IT building construction and public security projects. Inadequate communication and integration between contractors and college staff has placed the implementation of the new IT data center at high-risk of failure.

The lack of consistent internal procurement business processes and requirements have created a bottleneck and stalled several key IT projects. The current procurement process has become a roadblock and is no longer a productive process. If this pattern continues into 2015, three additional IT FTES must be approved to create the required Program Office to manage program-based procurement processes.

2. If applicable, list additional capital resources (facilities, technology, equipment) that are needed to support the program as it currently exists. [This information will be reviewed and considered in institutional planning processes but does not supplant the need to request resources through established channels and processes].

Both on an annual and short-term basis, IT updates budget requirements and develops plans for refreshing technology assets. In addition, in concert with key joint committees, IT develops long-term fiscal plans to ensure network infrastructure, server/storage technology, campus-wide software, departmental instructional software, computer workstations, printers, and end-point devices have lifecycle maintenance budget plans for the next three to five years.

The majority of the instructional technology funds are dependent on the state categorical grant, and the unpredictability of the annual grant has impeded instructional technology objective planning and implementation in the past. The college has been fortunate to receive a one-time fund of one million dollar for instructional technology equipment this year. IT is fully funded to implement all identified instructional technology objectives for the 2014-2015 academic year.

As of fall 2014, the Chancellor's Office required a five year report to justify annual instructional equipment requirements and expenditures. With assistance from the Senate Joint Information Services Committee, IT has finalized the instructional technology five year equipment expenditure plan. The primary categories of expenditures are proposed to support student and faculty technology equipment renewal, smart classroom technology maintenance, instructional technology infrastructure improvement, and instructional technology innovation projects.

The District allocates general funds to support core IT human resources and the maintenance of network infrastructure, server/storage, and campus software services, such as Microsoft campus license, Oracle, Cisco, and HP operating systems. IT is collaborating with Fiscal Services and senior staff to build a new funding model to ensure consistent hardware refresh cycle funding when the state categorical grant fund is not available.

The increased institutional reliance on technology for mission critical business services requires an increased emphasis on, and investment in, disaster recovery (DR) and robust continuity of operations plan (COOP) capabilities. The dependence of key college business units, Admissions, Counseling, Academic Affairs, etc., on technology require the college implement a robust continuity of operations plan--designed to ensure business operations continue even when the main campus IT operations fail.

3. If applicable, list additional human resources (staffing, professional development, staff training) needed to support the program as it currently exists. [This information will be reviewed and considered in institutional planning processes but does not supplant the need to request resources through established channels and processes].

A key measure of the ability to provide technology services and support is Total Cost of Ownership (TCO) developed for California community colleges and documented in the Chancellor's Office Technology Plan II, which has been updated several times by the System-wide Architecture Committee (SAC). Recommended staff levels were developed based on recommendations for higher education and the Gartner Group's extensive research, comments and suggestions from members of the Chief Information Systems Officer community, and the

collective experience of Community Colleges IT staff and management.

The SMC IT Department has been below standard staffing level rating in almost every category of IT support functions based on the State defined benchmark. In order to evaluate the validity of this standard, there is a survey performed by the State Chancellor’s Office’s Technology Center to collect information on the staffing level of all colleges in the system. The previously proposed staffing plan directly reflects the same level of IT staffing needs that the State TCO benchmark has indicated.

However, the IT restructuring plan was hindered by budget challenges in the past decade. Not only the improvement plan became unrealistic to implement, the existing staffing level continued to decrease. Figure 16.0 below demonstrates IT managers and technical staff FTE distribution from 2003 to current. There are 7 managerial FTE and 27 technical staff FTE at the beginning of 2014 in comparison to 7 managerial FTE and 41 technical FTE back in 2003. The capacity of today’s technology usages and demands further enlarge the gap between the support needs and IT staffing level.

IT has since developed a multi-phased staffing restoration and restructuring implementation plan to fulfill the needs gradually as the budget recovers or when funding is available. In a recent senior staffing review meeting, IT is fortunate to have the first phase of the staffing plans approved. The bars highlighted in red rectangular reflect an additional 7 FTEs when all approved positions are filled.

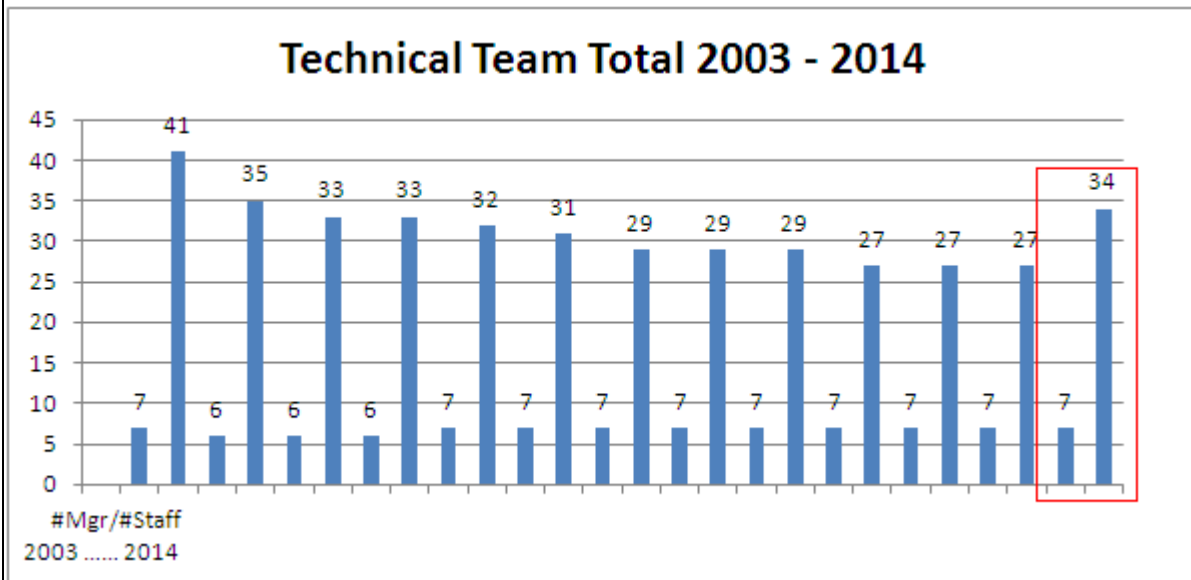


Figure - 16.0 IT technical staffing 2003 – 2014

There have been consistent efforts in fulfilling a few long anticipated IT vacant positions. However, not all recruiting effort for highly skilled technical staff have been fruitful. Four

positions remain vacant as of today due to lack of qualified candidates. IT managers are working closely with Personnel Commission staff to restructure and continue the recruiting effort. There would be a tremendous improvement for our service response time and project implementation timeline once these positions are filled and new employees are trained to work independently. In the meantime, we also recognize that the severe budget constraints currently faced by the District must also be considered and may significantly slow down the implementation of the IT staffing restructure plans.

## G2: Future Planning and Recommendations

1. Projecting toward the future, what trends could potentially impact the program? What changes does the program anticipate in 5 years; 10 years? Where does the program want to be? How is the program planning for these changes?

### Long-Range Plan:

An enterprise vision requires the identification of key technology change agents, internal gaps / opportunities (SWOT) and specific strategies designed to position Santa Monica College to provide services and business processes to achieve its mission to facilitate intellectual exploration and support student success and educational goals.

### Change Agents:

Change Agents include transformative trends such as cloud, mobile and social technologies that continue to shape, and in some cases reinvent higher education. Emergent technologies combined with the pace of change make the development of accurate long-range plans a challenge. Nonetheless, it is significant trends that truly shape the technology roadmap and infrastructure required to support next generation technologies. For this reason, we pause here and examine cloud, mobile and social along with their implications to the SMC enterprise.

Over the next five years cloud technologies will reshape how IT services are delivered and managed at SMC. This long-term trend was identified several years ago. SMC IT has begun the process of developing the governance framework required to manage the transition to cloud based services and systems. These policies, procedures, business processes, technical expertise / staffing, and connectivity set the internal framework required to deploy future cloud technologies. Beyond governance, cloud technologies will benefit and challenge each SMC IT business unit differently.

Mobile technologies have transformed client expectations and how and where information is accessed. The shift in expectations among the entire SMC community cannot be ignored. Secure access to information and common business processes will become the norm--and drive IT to deploy sophisticated technical solutions that require high-end talent to develop, implement and maintain and manage. The importance of mobile outside the classroom was highlighted in recent report by Educause Center for Analysis and Research (ECAR) titled, Study of Undergraduate Students and Information Technology, 2014. This study also noted, "Many students use smartphones or tablets for academic purposes, although in-class use is still uncommon. Students

are more likely to apply mobile devices to academics when instructors encourage their use in class.” The takeaway is even as the SMC Student Technology Survey confirmed the findings above taken from the ECAR survey, compelling and innovative mobile products will emerge over the next few years that will naturally erode resistance because as they enable the educational process to emerge--the use of technology will increase dramatically.

Social is the catalyst that has driven the adoption and accelerated the advance of mobile and cloud technologies. As new, innovative higher educational products emerge, many will include functions to enable social connectivity and drive local and state level discussions centered on privacy and along with their educational potential. A key challenge over the next five years is to not only manage the technology, but remain in step with privacy, security and other policy concerns.

#### Gaps:

SMC is an enterprise in transition, as it manages both on-site services in concert with cloud services. The ability to cope with the rapid emergence of cloud services such as storage, email, enterprise office products and hosted solutions has already increased the load and demand on the technical team. The sheer breadth and range of required skills, some invented within the past year, required to integrate and implement a shared cloud environment requires external vendor and partner support. SMC lacks adequate internal human capital, with the required talent to design and implement modern enterprise systems. For this reason, over the next few years--it is recommended to begin to develop plans to create and staff Project Office, along with skilled personnel in systems integration and security.

As SMC business systems increase in operational importance, Disaster Recovery (DR) and Business Continuity of Operations Plan (COOP) become a necessity. The college has one of the largest distance education programs in the state. In addition, over the past five years many of the core business processes have transitioned to the central ERP system, ISIS. This increases fiscal and operational cost of unplanned downtime. In the event of a longer-term outage associated with a disaster (major earthquake), the college would suffer severe fiscal impacts if it's core business systems remained off-line for an extended period.

The ability to generate reports that provide key decision and policy makers with accurate information is critical to institutional success. Until now, SMC has relied on its transactional systems, ISIS for the majority of internal college reporting. With the shift at the state level to focus greater attention on educational outcomes vs. the amount of state funds invested, the time has come to invest in a Data Warehouse and enterprise reporting systems. This new system will allow key decision and policy makers to make data driven decisions that move SMC efficiently forward.

#### Opportunities:

Clearly the number of opportunities are numerous, but the lists below attempt to focus on core themes that will persist throughout the next 5-10 years.

Technology Services:

- Security Management
- Standardize Budget and Funding Sources
- Implement Technology Governance Framework (ITIL)

Network Services:

- Security Management
- Faculty and Staff BYOD
- Service and Software Virtualization
- Wireless and Local Network Expansion
- Internal and External Internet Bandwidth Management

Management Information Systems (MIS):

- Security Management
- Legacy Systems Transformation
- Student Portal and Communications (TargetX)
- Efficient Integration of Local and Cloud Resources
- Workflow and Business Process Redesign
- Universal Appointment and Event Tracking

Academic Computing:

- Security Management
- Student centered BYOD strategy
- Digital content and eText book adoption
- Lecture and screen capture technology to provide on-demand teaching resources

2. If applicable, list additional capital resources (facilities, technology, equipment) that will be needed to support proposed changes. [This information will be reviewed and considered in institutional planning processes but does not supplant the need to request resources through established channels and processes].

The lack of a standardized budget model is a core challenge to all programs, and especially impactful to technology planning. Historically, technology capital projects were funded through one-time grants or bond funds. With the progressive adoption of cloud services at SMC and their associated annual subscription contract billing models, the use of one-time sources such as grant and bond funding becomes problematic. Further, the traditional process to pinpoint a single hardware resource within the enterprise for budget purposes is obsolete in the new virtual server “shared” technology environment. Because funding sources such as grants target fiscal support to a specific department or function, the old model will no longer function as the SMC technology infrastructure becomes increasingly a pool of virtual and cloud resources without clear boundaries--to formulate precise costs for each function or department. In addition, one-time targeted funding will not support the now more common annual subscription or pay-for-use

based models. Because of this, the current technology funding sources are not sustainable.

The rapid pace of technological change presents a significant challenge to the funding and delivery of IT services. It is mission critical for IT to provide a stable and reliable technology environment to support users daily operational needs, as well as to innovate and leverage the latest solutions and best practices. The ability to support streamlined client access to common technology resources is a key consideration, in concert with robust security measures that ensure only authorized access to sensitive college information. Beyond access, it's essential to maintain and update existing services, platform and software, as new solutions are explored to improve overall operational efficiency. Functional clients, who consume IT services have very discrete technology expectations and/or preferences. The forward challenge is to develop process and policies that enable IT to accelerate it's ability to rapidly respond and facilitate functional business or teaching/learning requirements.

3. If applicable, list additional human resources (staffing, professional development, staff training) that will be needed to support proposed changes. [This information will be reviewed and considered in institutional planning processes but does not supplant the need to request resources through established channels and processes].

It should be noted that, in the past, the committees involved in technology planning have focused on prioritizing projects and initiatives. Due to the budget crisis and the further reduction of technology human resources, we recommended that these committees and project managers also consider the impacts of proposed projects on IT's human resources, both for development and maintenance. The overall Total Cost of Ownership (TCO) is the total investment rather than initial purchase cost.

Our longer-range plan should reflect new demands for technical expertise in cloud and mobile domains. Public cloud infrastructure and cloud based technology services are evolving and becoming mature. We may not build it, but we need competent staff to enable implementation and long-term maintenance.

Some of the future IT human resource skill set needs key considerations include:

- Project Management Office (staffing) - to enable the management of increasingly complex projects.
- Systems Integration Specialist - specialized skills required to manage connectivity of local systems with mobile and remote cloud services.
- Security Specialist - to develop internet information security best practice and guidelines for IT project implementation and end user security awareness.

4. If applicable, note particular challenges the program faces including those relating to categorical funding, budget, and staffing.

The rapid pace of technological change presents a significant challenge to the management of IT service delivery. It is mission critical for IT to provide a stable and reliable technology environment to support client daily operational needs, as well as to innovate and leverage the

latest solutions and best practices. The ability to support convenient user access to common technology resources is a key consideration, in concert with robust security measures that ensure only authorized access to sensitive college information. Beyond access, it's essential to maintain and update existing services, platform and software, as new solutions are explored to improve overall operational efficiency. Functional clients, who consume IT services have very discrete technology expectations and/or preferences. The forward challenge is to develop process and policies that enable IT to accelerate it's ability to rapidly respond and facilitate functional business or teaching/learning requirements.

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The capital resource planning process is especially challenging during the transition while both, a in-house private cloud service and public cloud services grow dramatically in parallel. The latest guidelines from the Chancellors Office on Instructional equipment grant specified that the fund cannot be used for ongoing software license or subscription further restricted District's adoption on the trend of modern technology.

The recruitment and retention of highly skilled technology personnel is a major concern. As the recent IT recruitment result indicated, SMC's ability to attract quality applicants through advertising is no longer effective. The demand for skilled IT talent far exceeds the supply. This has driven candidates to leverage the services of employment firms to maximize their value in the market place. More aggressive IT human resource recruiting strategy, such as contracting specialized IT recruiting firm, need to be considered as alternative measure.

5. Summarize any conclusions and long term recommendations for the program resulting from the self evaluation process.

Budget Planning:

The lack of a standardized budget source and model is a core challenge to all programs, and especially impactful to technology planning. Historically, technology capital projects were funded through one-time grants or bond funds. With the progressive adoption of cloud services at SMC and their associated annual subscription contract billing models, the use of one-time sources such as grant and bond funding becomes problematic. Further, the traditional process to pinpoint a single hardware resource within the enterprise for budget purposes is obsolete in the

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#### Information Technology Governance:

How technology is managed and delivered has also transformed. The complexity of information technology requires a modern, systematic approach to project and service portfolio management to guide and control (governance) the implementation of highly complex technology projects.

As SMC increases its reliance on electronic systems, the ability to transparently manage and control risk and project outcomes is a baseline requirement. This new level of discipline and rigor is also essential to ensure compliance with state and federal regulations and adherence to the highest security standards. The current technology industry governance standard framework Information Technology Infrastructure Library (ITIL) is a set of practices for IT service management (ITSM). At the highest-level the ITIL framework elements include:

- Design coordination (Introduced in ITIL 2011 Edition)
- Service Catalogue management
- Service level management
- Availability management
- Capacity Management
- IT service continuity management
- Information security management system
- Supplier management

Over the next several years, IT will systematically secure budget and other resources required to implement the ITIL framework. The initial steps are foundational and require executive support to deploy. However, once implemented and institutionalized, this governance framework becomes a part of the programs fabric and will persist long-term.

#### Information Technology Solution Development / Procurement Process:

As part of its missions - Information Technology evaluates, recommends and implements cost effective technology solutions to support College strategic objectives and goals. The complexity of the IT procurement process, i.e., technical solution development, and other required due diligence including state regulations are important factors to consider and often have a direct impact on the project outcome and delivery timelines. There is a delicate balance between regulatory compliance and operational efficiency required to deliver both cost effective and high-impact solutions and services to end users. The high-stakes fiscal nature and complexity of modern IT projects require consistent internal process and procedural guidance to achieve the best overall value and outcome for the district.

**Information Technology Human Resources (Staffing):**

As the demand for professional IT talent has increased, SMC’s ability to attract quality applicants has diminished. This results in a lack of qualified candidates to fill key positions, and threatens the long-term health of the overall program.

6. Please use this field to share any information the program feels is not covered under any other questions.

N/A

**H. Evaluation of Process**

Please comment on the effectiveness of the Program Review process in focusing program planning.

The review process provides great opportunity to rethink and reorganize on planning steps on future improvement.

**I. Executive Summary**

Narrative

Program Evaluation

Commendations

Recommendations for Program Strengthening

Recommendations for Institutional Support