College of the Siskiyous

Technology Master Plan

2016-2020

Contents

Introduction

The Siskiyou Joint Community College District currently supports a dynamic Information Technology infrastructure that provides the computing and networking needs of a modern academic institution. This plan will look at the existing technological investment in hardware, software, and services, and integrate these into planning for the use of new technologies by the campus community to carry forward the work of the institution and bring new technologies to the students and the internal operations of the college.

This plan was developed by the Technology Council, along with the Technology Services area, which includes representation from many areas of the campus. It encompasses classroom technologies, technologies used to deliver distance classes and services, and technologies used to build and maintain a stable network infrastructure and campus database system.

Several trends in technology are strongly affecting the planning process, among them cloud storage, Bring Your Own Device (BYOD), and the Internet of Things (IoT). Rather than store data and applications on machines housed and maintained locally, all manner of services and products are available for access and use from off-site locations. Students are increasingly bringing their own devices to campus and have the expectation of accessing everything they need from those devices rather than needing to go into a computer lab and use a computer provided to them. In addition to the devices and software that have previously been seen in an IT environment, IoT introduces new devices to the network that have not been part of the network in the past, such as thermostats and door locks. These trends are completely changing the way in which technology is viewed and implemented and will require consistent close communication across all areas of the college.

Mission and Vision

District Mission Statement

"College of the Siskiyous promotes learning and provides academic excellence for the students of Siskiyou County, the State of California, the nation and the world. COS provides accessible, flexible, affordable, and innovative education leading to associate degrees, certificates, college transfer, career and technical education, workforce training, and basic skills preparation."

District Vision Statement

"College of the Siskiyous is a proud member of the California Community College system. Our vision is to be the first choice for higher education in the communities we serve and beyond. COS provides:

- Rigorous and comprehensive transfer programs
- General education programs
- Technological literacy
- Basic skills acquisition
- Workforce training and certification
- Career and technical education
- Cultural and community enrichment

all of which drive and support the economy of our region.

We are the support team who increases student access, encourages success, and improves retention, persistence, and completion."

Technology Services Mission Statement

"The mission of the Technology Services Department is to provide secure, reliable, efficient, and effective technology services to the faculty, staff, and students of the District. We are committed to excellence, striving to provide technology leadership and long-term vision, sustainability through innovation, high-quality service and support, and continuous improvement to assist in student learning and support of the college in its mission and vision."

Accreditation

College of the Siskiyous is accredited by the Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges (ACCJC), 10 Commercial Blvd., Suite 204, Novato, CA 94949, (415) 506-0234, an institutional accrediting body recognized by the Council for Higher Education Accreditation and the U.S. Department of Education.

College of the Siskiyous participated in a comprehensive review and visit from February 29 - March 3, 2016. Based on the College's Self Evaluation Report and accompanying evidence, the report prepared by the visiting team, and the written response submitted by the College, the commission reaffirmed the College's accreditation for 18 months with a follow-up report due at that time. Reaffirmation for 18 months indicates the College is in substantial compliance with the Accreditation Standards. The report will address the nine compliance recommendations made to the College.

As part of the External Evaluation Report, the College received a commendation in the area of Information Technology (IT) staff for diligently maintaining and upgrading the College's infrastructure to serve the educational technology needs of students and staff. However, Recommendation 2 from the ACCJC also identified that, as part of an integrated planning process, a Technology Plan should be completed based on appropriate data, assessment, and dialog.

IMP Connection

The Institutional Master Plan (IMP) serves to project the future of College of the Siskiyous, and make general recommendations that address current and foreseeable challenges. Above all, the plan clearly identifies strategic targets areas and action plans that the college will work toward to achieve its mission and vision in the context of its values. The Technology Master Plan is designed and structured to support the IMP goals and objectives as it relates to technology utilization at the District.

Facilities Master Plan

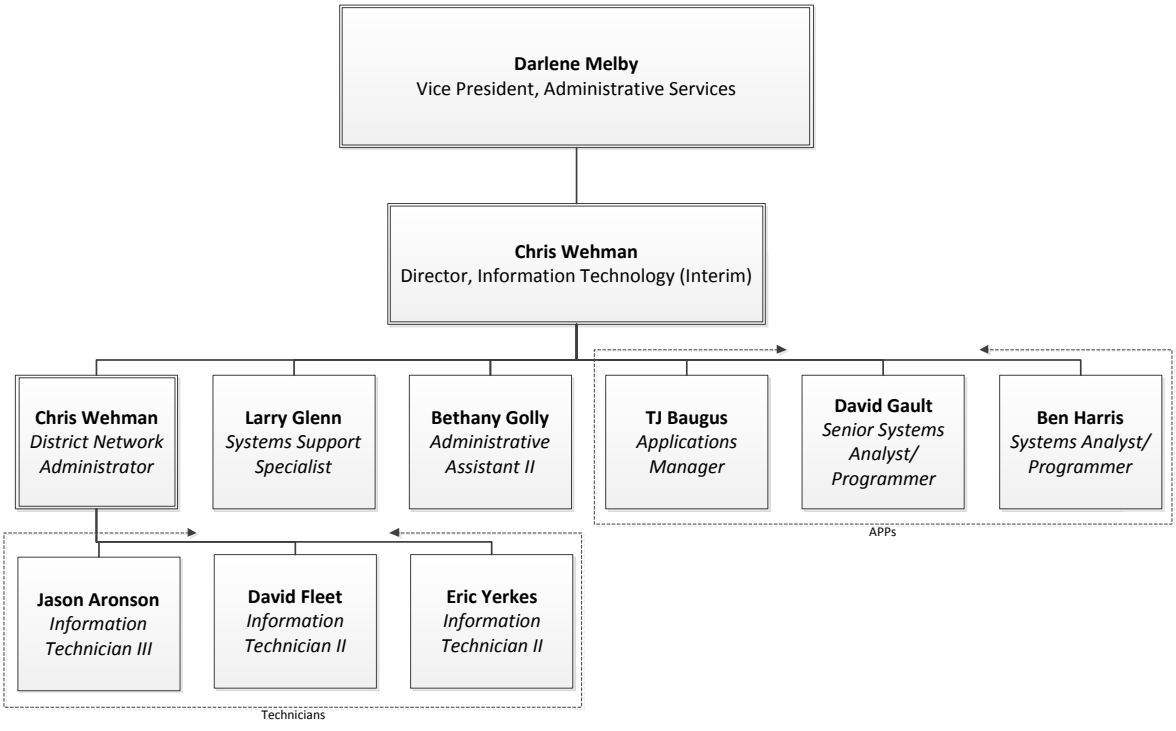
The Facilities Master Plan is integrated between District IT and facility needs to ensure technology infrastructure aligns with District and college technology standards. This includes ensuring any new technology meets the specific needs identified for the any related facilities project, including both staffing needs and multi-functional instructional spaces that can be used for many different learning environments (i.e., lecture, laboratory, distance learning, etc.), and meets the future diverse growth needs of the campus based on the IMP directions.

Technology Organization & Governance

Organization

The role that technology is playing in education is radically changing. An increasingly mobile, social, and collaborative academic community requires appropriate levels of infrastructure support. The technology landscape is constantly shifting, and a well-planned, proactively-designed technology infrastructure is essential to meeting the future demand of the academic community. To provide "anytime, anywhere" communications, a reliable and secure infrastructure is achieved through components such as servers, network equipment, wiring, software and security. The Technology Services department serves as the major unit in charge of developing and maintaining the hardware and software needed to ensure that the college can successfully implement technologies needed for enhanced student engagement and success. In addition to the Technology Services department, the Distance Learning staff support the daily operation of all online, videoconferenced, and web-enhanced instruction as well as maintain operation and content management of the District's public website (www.siskiyous.edu).

Current staffing in the Technology Services department includes: Director of Information Technology, District Network Administrator, Applications Manager, Senior Systems Analyst/Programmer, Systems Analyst/Programmer, Systems Support Specialist, Information Systems Technician III, Information Systems Technician II (x2), and an Administrative Assistant II. The Technology Services department also employs several student workers in support of student help desk support for email, LMS, and portal access.



Governance

The purpose of College of the Siskiyous' participatory governance structure is to provide stakeholders and constituent groups the opportunity to participate in the planning process and initiatives as well as to develop, review, and revise policies and procedures through their representatives. Functionally, this is accomplished by councils, committees, and task forces created to formalize collegiality, to facilitate collegial communication, and to resolve issues as close to the point of origin as possible. These structures provide an opportunity for all perspectives of constituent group interests to be considered. Committees germane to the oversight of Technology Planning are outlined below.

Technology Council

Technology Council discusses items related to technology that are brought to its attention by the campus community. It serves as the coordinating body for technology planning, implementation, and maintenance and makes recommendations on these items to College Council.

Banner Steering Committee

The Banner Steering Committee meets monthly to discuss, evaluate, and prioritize outstanding Banner tasks and projects, and to be sure any upcoming changes to the Banner environment are sufficiently addressed. Members represent all Banner modules in use at the College (Employee, Finance, Financial Aid, and Student), as well as technology support and tie-ins with 3rd-party products that are used with Banner. Any larger Banner issues or concerns that cannot be resolved within this committee are taken to Technology Council for recommendation and resolution.

Web Team

The College of the Siskiyous Web Team meets regularly to discuss issues of web-related content, organization, design, functionality, policies and procedures, and related items. As needed, recommendations are taken from this group to Technology Council for further action.

Technology Utilization

Enterprise Resource Planning System

College of the Siskiyous utilizes Banner Administrative Software as its primary Enterprise Resource Planning (ERP) system. Originally implemented locally in 2009-2010, the Banner system has a major impact on College operations and the delivery of student services. The integrated system serves as a "single system of record" for decision support, managing operations, and delivering services. This system provides a continuous opportunity for the College to improve its processes. Individuals have needed and will continue to need to adopt new ways of performing functions in conjunction with the changes of the Banner system. The full extent of this impact will need to be accounted for within the context of District planning and in conjunction with future strategic planning at an institutional level. As a result, the College must be prepared to anticipate and guide the necessary changes in organizational structure, responsibilities, reporting relationships, and communication channels.

In 2014-15, the District engaged Ellucian, the developers of the Banner software, to perform an "Action Plan" process to better achieve specific institutional goals and objectives by aligning primary technology such as Banner with the institution's strategic vision. The implementation of this process was a multi-phased technology strategic plan based on a qualitative assessment of how best to move an institution from reactive/tactical planning to strategic. Based on these recommendations and after campus-wide dialogue, the District entered into a contract consisting of specific targeted functional consulting services, additional software licenses, and application hosting services for the ERP system in the cloud. There are still a considerable number of objectives defined and yet to be achieved as part of the execution of this plan that will continue to take shape over the next several years. In addition, Banner 8 will no longer be supported by ORACLE due to the removal of support of ORACLE Forms technology required by the current version of Banner effective December 31, 2018 and the District will need to implement Banner 9 functionality by that point.

Requests for data are satisfied either through reports based on queries written in Argos and other similar report generators, or by products such as TutorTrac. These systems rely on regular updates from Banner to provide up-to-date student and staff data as needed.

Banner additionally provides connection to services in development by the California Community College Chancellor's Office. This enables the college to participate in the common application service for all California Community Colleges (CCCApply), and will eventually lead to the usage of automated transcript distribution (eTranscript), Common Assessment Initiative (CAI), Education Planning (EPI) and Online Education Initiatives (OEI).

Infrastructure

Networking

The physical network of the campus consists of servers, switches and routers, fiber infrastructure, etc. Many of the pieces of equipment are at or very near the end of their working lifespan and need to be replaced or reconfigured. To this end, the District has recently virtualized several of the servers and is systematically upgrading switches and wireless access points located at both campus locations. The fiber optic cable connections to edge switches are all made with multimode fiber capable of a frame rate transmission of 1Gbe. The District is also working to improve other aspects of the network. Network data packet analytics, automatic software pushing and installing, server and network monitoring and video conferencing upgrades are on the agenda for the years 2017-2018.

Wired Local Area Network (LAN)

The current environment consists of two campus locations, one in Yreka, CA and one in Weed, CA. Both sites have a core switch that routes data to edge switches located in specified closets with cabling that serve various rooms on both campuses. Most of the layer one wiring to end user devices is CAT5e copper twisted pair cabling. Most connections from edge switches to the core are multimode fiber with 1000 Mbps capability.

The technology to connect users on local campuses and to the Internet has been changing and there is a demand for faster and more secure data communication technology. The intention is to replace the 1000 Mbps capable multi-mode fiber to single-mode fiber capable of 10,000 Mbps (10 Gbps). This transition will be initially focused in buildings with dense usage like the Learning Resource Center and the Student Center.

Current plans include continuing to upgrade patch panels with CAT6A cabling within buildings, transitioning to virtualized servers with interconnects capable of 10 Gbps in the datacenter, and systematically replacing all 100 Mbps Cisco switches with 1 Gbps Cisco switches.

Wireless Local Area Network (WLAN) Desktops/Laptops

The District currently employs an aging wireless network infrastructure, but it will be replaced before the end of 2017. New Cisco Meraki access points will replace the outdated Cisco access points. The name (SSID) of the wireless network is the same on both campuses; however, it will soon be segregated from the wired network and require authentication.

Wide Area Network (WAN)

Internet connectivity at College of the Siskiyous is provided by a redundant CENIC (Corporation for Education Network Initiatives in California) circuit that terminates in the Weed campus. The Yreka campus has a 40 Mbps connection to the Weed campus and shares the CENIC internet connection. Weed and Yreka campuses have separate and distinct VOIP services through a public provider. Completion of a migration for the Ellucian Banner ERP system in the cloud, hosted by Amazon Web Services (AWS), was recently completed.

As many services move to the cloud from an on-site data center, there is a need to focusing on network improvements to accommodate that trend. The Yreka to Weed campus WAN connection will be increased from 40 Mbps to 100 Mbps and changed to the SIP protocol in 2017. The District's WAN security will be improved upon the implementation of Cisco Umbrella, an OpenDNS solution, which will minimize exposure to outside threats.

Storage Area Network (SAN), Disaster Recovery and Backups

The District currently utilizes Microsoft Hyper-V Virtual Machines for servers as well as physical servers. College of the Siskiyous operates 38 virtual servers and about 10 physical servers. Production storage for virtual servers are on a Dell/Nutanix converged server system. Short term backups are on a stand-alone server running Veeam software. Long-term backups are saved in the cloud using Microsoft Azure. Most District servers are located in the Weed campus data center while some are in the Yreka data center. Disaster recovery consists of backups from either onsite, short-term storage or Azure cloud storage and involves downloading VHDX files from Microsoft Azure and rebuilding them as Virtual Servers. If onsite servers are not able to be used, they could alternatively be run using Microsoft Azure. There are currently no agreed upon recovery times for all 38 virtual severs and 10 physical servers in the case of post-disaster restoration scenarios.

VOIP phone system

The District uses a VOIP phone system using Cisco Call Manager version 10 running as Virtual Servers on a Cisco UCS server that managers 300+ Cisco VOIP phones. The VOIP service provider connects VOIP to both campuses. No further major investments need to be made at this time and replacement of phone handsets are managed on an as needed basis.

Desktop/Laptops and other end-user stations

Desktops and most laptops are purchased and implemented on a 5-year life cycle. They have traditionally been kept to an informal year-to-year standard of mid-range HP desktops and HP laptops. The District employs Windows 7 x64 as a standard operation system and will soon change to a Windows 10 OS standard. Tablets and Chromebooks have been purchased on a limited basis.. Purchasing for refreshment of District laptops, desktops and specialized items is centralized in the Tech Services budget but is at times expanded by new purchasing from non-departmental funding (i.e. grants, bonds, etc.). The District employs N Computing servers and end points for a virtualized desktop solution within several lab areas or small student and staff areas. Currently about 100 N Computing end user seats or stations are operated.

The District would like to expand use of Chromebooks and/or similar tablet devices, implement a new Virtualized Desktop Infrastructure (VDI) to replace N Computing, and continue purchasing desktops and laptops on a five-year replacement life cycle.

Software standards

The current software environment supported by the District consists of basic operating systems (Windows or Linux based), and an array of software tools and applications. These applications range from basic word processing to advanced media design and editing software.

All supported software are maintained, catalogued, and inventoried by the Tech Services staff. The District has currently standardized on the following applications for campus computers: Microsoft Office, Microsoft Outlook, and Internet Explorer.

The software environment consists of applications that fall into single-user licenses, multi-user licenses, site licenses, and server-based licenses categories. Tech Services monitors and tracks campus licensed software. The District maintains a software budget that covers the purchase and subsequent maintenance of standard software used on District computers systems.

Individual departments may purchase and license additional software packages once the IT department has reviewed the application's specifications and ensured they comply with district standards and examined potential problems with their use, especially when integration with other systems is expected. The cost of upgrades and maintenance of individual department purchases is the responsibility of the department.

The District has consolidated the acquisition, installation, support, and cataloging of all standardized district software to the Tech Services department. The responsibility for inventorying and tracking additional software packages resides in that department. Funding for the purchase of District-wide software has been centralized to the Tech Services department to assure that all possible discounts are received, software purchased is supported, and that the funding is not reallocated for a different purpose.

The District currently participates in the Microsoft Campus Agreement program through the Foundation for California Community Colleges. The program provides the flexibility to install any version of MS Office and Microsoft's operating system on all District-owned computer systems to support instructional and administrative functions. Participation in this program has saved the Computer Support staff countless hours managing software licenses and has provided the ability to quickly respond (or delay if needed) to operating system or office application upgrades. It also provides the ability to ensure that all the computer systems in a lab or office area are running the same version of Windows and MS Office for consistency, and ease of support and collaboration.

Core software programs and applications critical to District operations are funded from a central software budget. Currently, these programs include Microsoft Office, Microsoft Windows, and Microsoft System Center suite. Application software installed in computer labs and required as part of approved course curriculum is also supported through the central software budget with upgrades, changes, and additions representing current educational and business trends in software applications as funding permits. Within the computer lab environments specialized software is utilized to support instructional needs such as Visual Studio, QuickBooks, Solidworks, etc.

Any software purchased for College of the Siskiyous must be approved by the Technology Services department. This process will ensure that the software will be compatible with existing hardware, software and network. The procedures to initiate new purchases follow:

1. Contact Tech Services for a current software quote or to discuss appropriate configurations for software requirements. Annual software support must be included and will be the responsibility of the ordering department.
2. The vendor must ensure that their product meets the 508 standards and/or has the capability to use assistive software and hardware. If possible, request and attach statement of compliance or Voluntary Product Accessibility Template (VPAT) with purchase requisition. The IT Director may request additional information from the vendor related to accessibility requirements for the software.
3. Attach the quote provided by Tech Services to a Purchase Request, and obtain required budget program numbers and signatures.
4. Forward the completed Purchase Request and quote to Tech Services for signature.
5. Technology Services will forward the signed, completed Purchase Request to the Business Office for ordering. The Business Office will forward to Tech Services any Purchase Requests for software that are not signed by Tech Services.
6. Approved Purchase Orders should be sent to Tech Services for order, with orders processed, logged, and inventoried upon confirmation of receipt.

Web Presence

Technology in education has dramatically changed over the last ten years. The tremendous growth of the Internet and the addition of social network tools, cloud environments, virtualization, wireless technology, instructional videos and other innovative technologies allow the college to choose from the many technologies that support student success and academic excellence. These technologies have the potential to increase equity in successful outcomes, improve the college's presence in the community while maximizing access to higher education, and ensure institutional effectiveness and accountability.

Enhancement of the COS website is essential to achieving the College's Mission and Strategic Goals. A strong web presence will allow the college to send a global message which states that COS is a conduit of educational excellence and that is committed to student success. Additionally, a strong web presence can eliminate redundancy and unnecessary work for staff and faculty members. Beneficial factors include the elimination of numerous and redundant phone calls to the college by displaying essential information and procedural instructions on department and unit websites, and reducing printing budgets by digitizing information, and by putting it up on the college websites.

Website

College of the Siskiyous provides cloud hosted web pages of district information and services to students and community members. Access to create web pages is managed centrally by the Distance Learning staff (also known as Weblinks) utilizing Adobe Dreamweaver and other proprietary web applications.

The District's website met the needs of the District when it was revised in late 2000's. With the recent developments in web technologies, responsive design must be the primary consideration. Responsive design is the ability of the website to change its appearance depending on the type of device used (computer, tablet, and smart phones). There is also an opportunity to decentralize the process of updating webpages to provide departments and divisions the ability to update their content timely and, at the same, the District applying consistency on design and format using a modern content management system.

Portal

Providing an online portal that is centralized with multiple application integrations or a "one stop shop" that is user-friendly, intuitive, and accessible from anywhere on the Internet can greatly enhance the way students conduct their academic work and obtain their student information. Information such as application status, transfer information, current enrollment, class information, educational plans, class materials, and current grade point average can be made accessible through one centralized system.

Siskiyous utilizes the Ellucian Luminis enterprise student portal system, which has the capability to integrate with the district system. This will organize and centralize the student and staff/faculty related information which can then be accessed anytime and anywhere.

Mobile

Wireless mobile devices are rapidly becoming ubiquitous on campus. Students across campuses today often have two to three wireless devices simultaneously connected to the wireless access points. College of the Siskiyous is seeing geometric growth in the use of its wireless access points. The rapid growth of mobile devices requires that updates to be made to the college's web presence, infrastructure, and instructional technology. Embracing mobility can be beneficial to the college as an approach to learning, communication, and information gathering. Plans for improving integration of mobile devices include developing greater mobile access to the college website, learning management system (LMS), and the student portal. Enhancement of the web presence will improve the delivery of instruction, services, information, and communications to current and future students and employees. Plans to implement the Ellucian Mobile solution which was licensed in 2016 are also in discussion.

Classroom Technology

Smart classrooms are technology-enhanced classrooms that foster opportunities for teaching and learning by integrating learning technology such as computers, specialized software, audience response technology, networking, and audio/visual capabilities. The District first implemented "smart classrooms" in lecture halls utilizing multimedia carts in the late 90s. These smart classrooms allowed the District to provide additional tools for classroom instruction to meet student-learning outcomes. As currently utilized, they have can have a variety of capabilities to contact other site locations, run the cameras and screen from the podium, or allow students to have assisted hearing due to the microphones placed

around the classroom. Checkout equipment is available to faculty members to be used in the classrooms that are not smart classrooms.

In addition to smart classrooms, there are two computer lab environments, one at the Weed campus and one at the Yreka campus. An instructional computer lab space was established in the ESTC building on the Weed campus in 2016 as a replacement for the outdated lab housed previously in the Temp building. It was designed with all new computers and desks and can support 3D printing via Solidworks software. There is also a second lab for short, intermittent instruction as a teaching lab which is located in the Academic Success Center (ASC) that utilizes both core and specialized software utilized for instruction purposes. Yreka has a new computer lab with computers running Solidworks as well.

Standard Classroom

Classroom Computer	Mini Tower 16GB of RAM, 1TB Hard Drive, i5 processor
Document Camera	Lumens DC193 – (LadyBug)
Projector-interactive board/display	5000 LUMENS Short throw or long (as instruction requires)
Sound	4-6 speakers depending on room size (ceiling mount)
Mic/Receiver/Amp	Extron Receiver/Amp: EXT60123853
Control Unit/Switcher	Control Unit/Switcher: EXT60154102
Podium/Table	Podium: Varies based on classroom - ~$5000 per podium. Spectrum brand usually.
Warranty	5 Years

Labs

Computer	Mini Tower, 16GB of RAM, 1TB Hard Drive, i7 processor
Document Camera	Lumens DC193 – (LadyBug)
Projector-interactive board/display	5000 LUMENS Short throw or long (as instruction requires)
Sound	4-6 speakers depending on room size (ceiling mount)
Mic/Receiver/Amp	Extron Receiver/Amp: EXT60123853
Control Unit/Switcher	Control Unit/Switcher: EXT60154102
Podium/Table	Podium: Varies based on classroom - ~$5000 per podium. Spectrum brand usually.
Warranty	5 Years

Specialized Equipment

The District supports a variety of specialized technology for instructional purposes including simulation, computer numerical control (CNC) and computer-aided design and computer-aided manufacturing (CAD-CAM) software and hardware. Support includes operational support by Sim-Tech instructional support staff, instructional support by advanced law enforcement training staff, instructional support by agriculture instructional staff, and maintenance supported by the Technology Services Department. The primary instructional programs utilizing specialized technology presently as well in the near future include the Nursing program for medical simulation training within the Rural Health Science Institute (RHSI), the Administration of Justice (ADJ) program for Law Enforcement and Emergency Responder Training, Advanced Manufacturing Technology program using advanced CAD, 3D-Design, and CNC Technology, and the Agriculture Science program using specific computer applications, robotics, sensors, and drones.

Nursing – Rural Health Science Institute (RHSI)

The RHSI uses simulation technology to train healthcare professionals of all levels. The technology is located in two primary locations, the Simulation Lab (Sim-Lab), and the Medical Skills Lab.

The Sim-Lab is designed as a hospital or clinic environment consisting of two enclosed hospital rooms and five individual ward type beds. Technology Services support the eight High Fidelity Patient Simulation (HPS) Laerdal Medical Manikins, and their control and audio systems which are all supported on the local area network (LAN). The manikins are computer controlled and simulate hundreds of medical conditions that an instructor can initiate ad-hoc, or run as a particular medical scenario. The audio system allows communication with the student in the room via an overhead speaker or through the manikin. Wall mounted computers display real-time patient condition. The control systems for each manikin run on Windows Laptops. The video system consists of twelve video cameras and three Windows Video Servers. The video and audio from these simulations can also be networked to any classroom using the Local Area Network. These simulations allow an audio, visual, and tactile interface with the simulated patient. The simulations can be run from an enclosed control room or at bedside using computer touch pad control boxes called Sim-Pads.

Medical Skills Lab classroom consists of thirteen hospital beds in a simulated hospital environment. There are two nurses' stations, one of which has two desktop computers running electronic healthcare records (EHR) systems that work in conjunction with nine laptops running EHR. This lab also uses ten Mid-Fidelity Manikins which require Sim-Tech setup and technology services maintenance. Additional trainers used in this space are blood pressure, airway, and auscultation units.

Administration of Justice (ADJ)

The Administration of Justice program has two primary simulation units. A Force Options Simulator (FOS) located in the Technology Building on Yreka Campus, and a Law Enforcement Driving Simulator (LEDS) located in a mobile 40' gooseneck trailer.

The Force Options Simulator is contained in a 20'w x 30'h room with an 18'w x 7'h projection screen which displays scenarios and records the location of shots fired by student. A MILO computer system runs the application which is transmitted to the projector and two cameras which record hits laser sited pneumatic firearms and other data for the display. A sound system is incorporated for situational audio. Also included is a pneumatic shoot-back gun which can be controlled by the instructor from the control station. Technology Services maintains this computer, projector, cameras, and laser connectivity.

The LEDS consists of two driving stations. Each station is configured as an emergency vehicle with five 30" displays, and a laptop mobile data terminal. The driving simulator is run using five windows servers, and one Linux server. In addition, there is an instructor computer control station. This simulator is housed in a climate controlled 40' trailer with an AC Generator, and housed at the Siskiyou County Maintenance Yard in Yreka.

Advanced Manufacturing

The advanced manufacturing program consists of four HAAS Computer Numerical Control (CNC) lathes, future 3D printers, and advanced computer-aided design and computer-aided manufacturing software (CAD_CAM). Additionally, there is a thirty station Solid Works lab and presentation (Audio-Video) classroom located in the technology building on Yreka Campus.

Assistive Technology

The Disabled Students Programs and Services (DSP&S) department and the DSP&S High Tech Center has been the central hub for assistive technology within the district and has been able to meet the accessibility needs of the District's disabled student population despite the economic downturn that has affected the entire district. However, meeting the needs of a continually growing disabled student population while the DSP&S categorical budget has been almost cut in half has been difficult to achieve.

The High Tech Center currently consists of six student access computers, two alternative text editing production computers, a CD printer/writing machine, a Tiger embossing machine for brail and raised graphics, a high speed scanner for capturing text book images, and a binder for assembling text books. Two part-time staff are assigned to assist students and provide alternative media.

Distance Education

Online Education

College of the Siskiyous offers a multitude of distance education courses to students each academic year, including courses held online, video conferenced, and hybrids thereof. These courses are steadily increasing in numbers due to the increase in less traditional student attendance. The college's rationale for offering these courses rests on a commitment to increasing educational access for students in the college's broad service area, including those who may have difficulty traveling to college sites during regularly scheduled on-ground classes, as well as those who may enjoy or benefit from a variety of teaching modalities. All of College of the Siskiyous' online courses are taught using the Canvas Learning Management System.

Learning Management System (LMS)

Canvas is open-source LMS and is a free service for College of the Siskiyous as supported by the State Chancellor's Office. Currently, Canvas is supported by a full time Distance Learning Coordinator (admin duties), a part-time Distance Learning Coordinator (faculty support), and a programmer from IT on an as needed basis. As the technical support for the Canvas LMS now resides with College of the Siskiyous, it will be of utmost importance to have sufficient IT support for the college to be able to give the same excellent service to instructors and students as was received from the Etudes staff.

Each instructor who is using Canvas is required to participate in a training provided either by COS or another training provider such as @One before teaching an online course. Canvas can also be used to provide course materials and set up quizzes and exams for classes taught on campus or via videoconferencing.

Videoconferencing

The College supports presentation technology in regular classrooms, lab classrooms, and conference rooms in multiple buildings on the Weed and Yreka campuses. Videoconferencing is available in classrooms and conference rooms between locations such as the main campus in Weed and Yreka, as well as to remote county locations such as Tulelake, Happy Camp, and Fort Jones. Desktop videoconferencing is available on numerous desktops and laptops throughout campus.

For the next one to five years, it is imperative that the District develop a plan and a budget for moving into the next generation of videoconferencing technology. There is not a way to include "non-traditional" (PC or mobile device) endpoints in a multipoint conference using current district technology. Some of the traditional endpoints (video codecs) that form the basis of the large teaching classrooms will be past their end of service dates by as early as March 2016. The District may be able to purchase a unit on the used market that could serve as a spare, but this is not a viable plan for anything but an emergency, short-term solution. In addition to those challenges, there is currently no replacement model for AV classroom technology, including projectors and source switching devices, as well as the

peripherals used in a classroom (computers, document cameras, annotation software, etc.). Projection screens are also starting to fail and will need to be replaced at some point in the next one to three years.

Classroom upgrades have been ongoing in the past two years by purchasing new equipment through USDA grant funding. The video bridge has been in service since 2008 and will be replaced during 2017 as part of the recent USDA Rural Development Distance Learning & Telemedicine Grant (aka DLT Grant).

Strategic Elements

Accessibility

In California, accessibility of ICT (Information and Communication Technologies) is governed by California Government Code 7405, which specifies that state entities are to meet the accessibility requirements of Section 508 of the 1998 amendment to the Federal Rehabilitation Act of 1973. Section 508 now requires web-based systems, electronic content, and software applications to meet the WCAG 2.0 Level A and Level AA accessibility standard. According to the CCC Tech Center in a letter on August 24, the WCAG (Web Content Accessibility Guide) 2.0 A and AA standard is the technical threshold California uses to measure and evaluate baseline levels of accessibility.

The CCC Tech Center recommends that CCCs take the following 5 steps to manage compliance with state standards:

1) Identifying a person to be in charge of IT accessibility
2) Drafting policy language
3) Having processes to address complaints and to verify accessibility during procurement
4) Conducting website accessibility scans
5) Providing education to faculty and staff related to web accessibility and accessible instructional content

COS has a committee to address accessibility concerns. Members include the VP of Student Services, and representatives from the COS Web Content and Technical Services teams.

Accessibility training has been provided over the years in various forms, most recently as a presentation by Gaeir Dietrich as part of the January 2015 Planning Day events. Since Planning Day is attended mainly by permanent staff, there is still a gap in training for the many part-time faculty who are also obligated to provide accessible course material for their students. This was presented very briefly during the one-evening orientation given yearly for part-time instructors. COS is working to provide more accessibility training to all faculty.

To ensure a technologically-accessible environment is provided, the procurement procedure will be evaluated and updated to be sure all new technology passes through the 508 compliance process.

Communication

This area includes any means the College uses to communicate out to its students, faculty, and staff, as well as communication used for marketing and public relations purposes. As such, it includes the website, social media, email, emergency alert and announcements system (COS Connect powered by Everbridge) and communication that can be done through the Luminis portal.

The website www.siskiyous.edu is hosted on a windows server in AWS, Amazon Web Services. The Web Team is currently working to build a new web site using dynamic server side programming languages rather than static HTML.

Reaching students remains a challenge, as different students rely on different technologies to receive information from the college, including text messages, emails, website announcements, social media postings (Face Book, Twitter, Instagram), messaging within the LMS, and more. Student email is the official means of communicating information about financial aid, class waitlists, and messaging from instructors.

Equipment Replacement

Purchase and replacement of computer related equipment across the District has been inconsistent over the years. Some departments have funded replacements through one-time dollars, some have used on-going resources and some have relied on department monies or grant dollars to update computer equipment on campus. Funding challenges have resulted in a significant number of PC's, printers and other equipment across the district which have become outdated and in need of replacement.

Basic Acquisition Process

When new technology is needed, there is a process to be followed. If the technology has never been utilized by the college before, the request should be presented to and approved by the Technology Council. Once that is completed, or if the technology is already implemented somewhere at the college, a formal request should be submitted to Tech Services through the technology help desk. The technicians can either conduct their own research or can utilize any research the requestor has provided to provide proposals to the requestor. If the requestor chooses to move forward with the proposal, a quote will be made, and the requestor creates a purchase request.

The purchase request will need to be signed by the appropriate budget manager(s) and by Tech Services before going to the Business Office, which will create a purchase order that goes to Tech Services. The technology will then be ordered by Tech Services, and after it has been received, checked, inventoried, and prepared, it can then be provided to the end user. An invoice will be mailed out, and should go to Tech Services who can give the signed-off invoice to the Business Office for payment.

After the technology has been utilized for a time, it should be evaluated by the end user to determine whether the technology fulfills the desired functions and could potentially be ordered again, or if it falls short of expectations and is not recommended for repeated purchases.

Desktops/Laptops

Desktop and Laptop computers are replaced according to a 5-year life cycle. The available funding for replacements vary each year so the number of desktops and laptop replacements vary per year.

Printers/Copiers

Printers are replaced on a break/fix schedule. If a printer is older than 5-8 years or has consistent problems, it will be replaced with funds from the general IT budget. Large copy machines are leased and can be serviced according to the lease agreement.

Infrastructure

Infrastructure items such as edge switches, routers, firewalls, access points, servers or video conferencing equipment are replaced at its end of life cycle, which varies depending on the device, or when funds are available for technology revitalization projects.

Projectors

Projector replacement occurs when a projector is at its end of life date and/or ceases to function.

Standardization of Equipment

Standards are continually being updated by the Technology Department at College of the Siskiyous. Each type of technology equipment is purchases according to a general standard unique to that technology type. For example, the District buys Cisco networking equipment as a standard if possible. It also buys HP desktops and laptops as a standard. The technology in video conference rooms also adhere to a consistent standard.

Maintenance Windows

The upgrade and maintenance schedule for servers and applications on and off site do not adhere to a consistent time or date. Maintenance windows are determined by the Tech Services staff for onsite maintenance updates and by both the Tech Services and Ellucian Cloud team for offsite server and application updates.

Marketing

The COS Public Relations Office is responsible for the District's image and brand management, strategic marketing, and official internal / external communications. It is the department's responsibility to promote public awareness of the many opportunities for success offered by the College of the Siskiyous and technology plays an integral part in this endeavor. In order to do so, the most current technology (including hardware and software) is utilized for the promotion the college.

Social Media

Social networking sites are utilized on a daily basis by a large majority of the student population. These sites are becoming the primary interface of many students to each other and other institutions they interact with. Social media engagement will help enhance the COS brand in order to continue to attract and retain more students, and should be used to help educate students more effectively and communicate more efficiently with students, staff and faculty.

Website

The COS website (siskiyous.edu) provides information for prospective students (both new and transfer), parents of students and prospective students, current students, alumni, employees, employers, community partners, and other stakeholders. As the website is the primary web presence of the institution in an increasingly digital world, it is often an individual's first encounter with COS when researching colleges.

Design (look and feel) of the website is under the purview of the Director of Public Relations (Marketing). Content management is coordinated by Weblinks in conjunction with the Director of Public Relations to ensure each page maintains the same general look and feel. Weblinks is also responsible for ensuring the institution is within 508 compliance at all times.

Backup Procedures & Disaster Recovery

Tech Services maintains and operates more than sixty servers, virtual and physical, that provide various services including network services, email, printer and file sharing, student registration, web sites, document imaging, software licensing, etc. Tech Services utilizes an automated backup system to archive the server data on a regular basis. This automated backup runs both incremental and full backups of the servers regularly, throughout the week. A disk-to-disk backup system is utilized to increase speed and efficiency of the backup.

Ellucian Banner Cloud services maintain the ERP software that is located on the Amazon AWS (Amazon Web Services) cloud. Backups, updates and maintenance of the servers and applications are performed by the Ellucian Cloud team and coordinated with the Tech Services staff.

Security

Each year the number of security threats to systems and data grows significantly. Small schools like College of the Siskiyous tend to utilize cloud services in order to relieve local staff from day to day administrative tasks and rely on cloud service vendors to provide data security. Local data is protected by a Cisco firewall, Cisco OpenDNS service, a password policy enforced across campus, Microsoft anti-virus, electronic and manual door locks for physical security, and an approval process for employees to acquire administrative rights on computer and file systems.

Banner Enterprise Resource Planning system (ERP is the system of record holding critical institutional data. Without this data, the college cannot comply with regulatory reporting, provide transcripts, accept incoming applications for enrollment by students, issue paychecks, pay taxes, or survive as a local institution. Small schools do not have the same budget for IT and ERP administration as universities but have the same responsibilities, which encourages the outsourcing of hosting the ERP to providers such as Ellucian's Banner in the Amazon cloud.

Proper management of Banner ERP requires practices that are beyond the capacity of small IT departments at small schools like COS. A stable ERP requires change control, release management, and adoption of software development life cycle practices that are too expensive and time consuming for COS, so the ERP is hosted by Ellucian's Amazon Web Service.

With Ellucian/Amazon hosting the ERP and providing ERP administration, COS's IT staff has more time to provide value to the Institution by servicing staff requests for reports based on Banner's large volume of data. Requests for data are satisfied first through reports based on queries written in Argos or other report generator products, and second by products like TutorTrac which rely on regular updates from Banner to provide services for COS departments with up-to-date student and faculty data.

In addition to reporting and standalone departmental systems like TutorTrac, Banner is COS's connection to services in development by the California Community College Chancellor's Office. COS participates in the common application service for all California Community Colleges (CCCApply) through the CCCO's Tech Center. In the future, COS can participate in automated transcript distribution (eTranscript), Common Assessment Initiative (CAI), Education Planning (EPI) and Online Education Initiatives (OEI).

College of the Siskiyous relies on the Information Security Center of the California Community College (CCC Security Center) for security policy and practices. The CCC Security Center published a policy in 2013 with an update in 2017.

The CCC Security Center recommends five controls that reduce the risks of cyberattacks by approximately 85%.

1. Inventory of authorized and unauthorized devices
2. Inventory of authorized and unauthorized software
3. Secure configurations for hardware and software on mobile devices, laptops workstations, servers and storage devices
4. Continuous vulnerability assessment and remediation
5. Controlled use of administrator privileges

COS will work with the CCC Security Center to assess vulnerabilities and make improvements when vulnerabilities are found. A security assessment of COS has been scheduled with the CCC Security Center.

Current Environment

At the border between the outside Internet and the college's internal network is a Cisco ASA firewall that was purchased in 2016. It provides basic firewall services as well and packet level inspection using Cisco Firepower. Microsoft Endpoint protection is used for anti-virus protection on client machines and servers. Microsoft Domain structure with an Active Directory functional level of 2003 manages network access authentication using usernames and passwords. Passwords must be changed every four months.

Future plan

The threats and vulnerabilities facing College of the Siskiyous is always increasing and becoming more complicated. Cisco OpenDNS will be implemented to help with packet inspection as well as adding further Malware defenses. The guest wireless network will be segregated to provide access to the outside internet only, without access to local network nodes. A second wireless network with domain level authentication will be created. Also, the new wireless network will have additional packet level inspection and filtering capabilities. COS will also move staff email to Office365 and utilize Microsoft's spam and malware filtering. Password complexity requirements will be increased as well as utilizing a certificate authority server to authorize domain level access. Finally, secure Single Sign On capability will be utilized in the mySiskiyous portal to Office365 email for both staff student email systems.

Strategy/Resources

- Implement OpenDNS, Cisco Umbrella. ~$2500 per year
- Increases spam filtering, no cost.
- Implement certificate based domain authentication.
- Single Sign on to Office365, ~$10,000

Staff training is the weak link in Information Security. Many small schools have developed a culture that encourages weak passwords and shared passwords, which destroy any chance of complying with preferred guidelines.

Another point to consider is securing supporting data that may be stored electronically or in paper, as evidence for services like Financial Aid or various services required by the disabled. The College needs to inventory supporting data and secure it. For instance, 30% of financial aid requests to FAFSA are selected for verification with financial records that are housed at the College. Those documents need to be managed securely.

Password Policy

The current password policy for the Windows domain at COS consists of mandatory password change after 90 days, at least 8 characters with a number or symbol, and no password re-use.

Single-Sign On

COS has implemented single-sign on between its web portal which can display information kept on the ERP system and Canvas (learning management software). Further single-sign on will be implemented with the portal and Office365 email for students and staff, library resource management software, and TutorTrac software with Microsoft Active Directory as the single source of truth.

Training & Professional Development

Technology training is a multi-faceted need and is currently only partially provided. Though a faculty survey conducted in March 2012 showed positive feedback on the level of training available, technology training is still an area where faculty, staff, and students do not always have the training they need.

Faculty continue to be interested in re-creating a Technology Learning Center/Faculty Resource Center where they can receive specialized training. When teaching in a classroom that makes use of technology, faculty receive training from the videoconferencing staff before using those rooms, and from Technology Services staff (only if requested) for presentation classrooms. Nursing instructors receive training to use the simulation lab, as well as ongoing assistance from an instructional support specialist. Before instructors teach online, they must successfully complete a short training on Canvas, the College's LMS.

New employee orientation does not include a comprehensive training package of the basic functions every employee needs to know. Determining and providing appropriate accesses (network areas, email groups, Banner access, etc.) needs to be clarified and streamlined. Staff have access to the Tech Services Help Desk software to request assistance, but this tends to be used more for troubleshooting and repairs more than for training requests. Tech Services staff often find themselves spending large amounts of time doing basic training for newly-hired staff and faculty. Staff using Banner find it difficult to find time to train or retrain in their areas and new employees do not always receive training.

Students have some training available to them through Student Success Seminars, but often have to rely on their classroom faculty or assistance in the Academic Success Center to receive the training or assistance they need. Students can also make use of the Student Help Desk in the ASC when they have questions or problems with mySiskiyous, Canvas, or student email.

Although a Faculty Resource Center may not be possible at this time, technology training options will be available every optional flex day and may be integrated into mandatory flex days as well. Additionally, to take advantage of limited class scheduling on Fridays, Friday afternoon training sessions will be implemented on topics of interest. Windows 10, Canvas, eLumen, and Banner training modules will all be made available, along with other requested topics.

Newly revamped student success seminars offered through the ASC will also occur on Fridays, allowing students a chance to learn everything from email and Google Drive attachments to brushing up their skills in PowerPoint and Word, to utilizing Prezi, online video editing, or other online tools.

Virtualization

Current Environment

College of the Siskiyous utilizes a Microsoft Hyper-V virtualization solution, and has a four node cluster that runs 38 virtual servers.

Green Computing

Energy

A great deal of energy savings is realized using virtual server and virtual desktop solutions. The college currently has 38 virtual servers and 100 virtual desktops, along with 10 physical servers and many hundreds of physical desktops in use.

In the future, it is planned to have 90% of the servers virtualized and only keep 5-7 physical servers for redundancy. This will reduce the college's energy footprint from roughly 25,000 maximum watts of power needed for servers to approximately 5000 watts. Upgrading the virtual desktop infrastructure will also reduce the needs for physical desktops as virtualization saves power and uses less hardware and thus less precious metals and plastics.

Printing

Currently, students are allowed to print free of charge and dual-sided printing is recommended. In order to lessen the use of paper, a 'pay to print' scenario for students may be introduced, and dual-sided printing may become a stricter requirement rather than a suggestion.

Support Models

Customer Service

Customer service includes service for students and staff. Student customer service is provided by staff located in the ASC by walk-in or phone support. Support for email, Canvas, the Luminis portal and local computer help is provided in the ASC for students. Staff and faculty customer support is provided by Tech Services on campus. Support is provided for walk-in and call-in help 8am – 5pm on most work days, Monday - Friday.

Maintenance

Maintenance of equipment is provided either by COS technical staff or by vendors. Vital network equipment is supported by Cisco SmartNet contracts. Computer and server support is provided by HP or Cisco contracts. Most end-user computers are covered with five year warranties and support while server and network equipment have 5-10 year support.

Technology Priorities & Recommendations

Endpoint devices

When many people think of technology, they think of the computer at their desk that they work on every day. In addition to these, endpoint devices include phones, printers and photocopiers, videoconferencing codecs, classroom audiovisual components, security cameras, wireless access points, and many others. The Internet of Things will only add to this list as more and more devices will be able to be controlled through a network connection. COS will be working to improve its network capacity to accommodate these devices.

The lack of a consistent yearly "computer replacement" budget along with a limited technical staff has made it difficult to stick to a consistent computer replacement policy. In fact, many computers are at or beyond "end of life," the consequences of which can range from annoying to catastrophic, depending on the device. The following projects have been implemented in order to improve endpoint device planning :

- Inventory updates to better identify computer ages for a number of different parameters
- Determining a viable path to update video classrooms on the campuses and at the high schools that is affordable and supportable
- Develop a campus printing strategy that will ensure all areas of campus have access to the printing they need
- Evaluate the need for replacing, upgrading, and adding wireless access points

Enterprise computing

The current ERP Modules (Student, Financial Aid, Finance, HR), and 3rd party softwares (DegreeWorks, Argos Report Writer, Banner Clean Address, Evisions) are constantly being updated. COS hopes to move to Banner 9.x in the near future as well.

Current projects –Ellucian Action Planning leading to training, preparation for XE, CCC Apply installation/integration, eTranscript

Disaster recovery procedures are being updated at COS as well. A new backup system will be purchased in 2017 that will include onsite and cloud disaster recovery solutions

Staffing

The Technology Services department is current staffed by:

- Three full-time computer and AV technicians
- One Systems Support Specialist (supporting the Yreka campus)
- One Senior Systems Analyst/Programmer

- One Systems Analyst/Programmer
- One Network Administrator
- One Administrative Assistant (providing program and administrative support)
- One Interim IT Director

Campus Technology Committees/interaction with rest of campus

Technology Council is the main body on campus that meets to consider and recommend technology solutions for the campus. With their more specialized missions, Banner Steering and Web Team meet separately from Technology Council and report back to the Council regularly as subcommittees of Technology Council. The 2014-2015 Self Evaluation for Technology Council, http://www.siskiyous.edu/committees/technologycouncil/documents/Technology_Council_2014-15_Self-Evaluation.pdf, has identified four goals to work on during this time period: coordinate student lab software upgrades with institutional updates; identify replacement cycles for a broader range of technology than computer workstations; write a Technology Plan; and evaluate the effectiveness of various communications methods currently used at the College.

Budget

Technology is funded through a variety of sources and processes that are not always well-coordinated with each other. These include District funding, grants, and Instructional Equipment, among others. Good coordination and communication are needed in order to make use of these funding sources in ways that are the most efficient and beneficial to the College.

Equipment refresh cycles that have been set in the past have not been adhered to. Insufficient funding has not allowed computer workstations, network infrastructure, Banner hardware, and classroom technology to be updated in a sustainable way.

The purchasing processes that requires all technology purchases to go through a sign-off by Technology Services is generally adhered to, but is now even more important than ever with the increased need to monitor for accessibility of technology purchases. All hardware, software, applications, and media that will be used on the campus need to be evaluated for compatibility with the existing network, supportability and sustainability, and accessibility.