

College of the Sequoias
Technology Plan 2022-2025

Sequoias Community College District
College of the Sequoias

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Overview, Mission, and Vision

Overview

The Technology Plan for the Sequoias Community College District is intended to provide an overall framework for appropriately implementing technology solutions within the District. The purpose of the plan is to align the application of technology with the District's Mission and Vision and Strategic Goals and Objectives. In addition, it provides a roadmap for technology initiatives undertaken by the District for the next three years. The plan is reviewed and evaluated annually, reported accomplishments, and tracked initiatives to assess progress. The timelines in the plan may be adjusted based on these periodic reviews.

This plan is divided into seven sections. The first section includes the strategic plan overview, mission, and vision for the District. The second section outlines key technology issues and trends in higher education. The third section provides a brief overview of the process used to develop the plan. The fourth section outlines the plan's strategic guiding principles. The fifth section lists the technology initiatives supporting the Technology Plan Initiatives and the District's Strategic Objectives. The sixth section provides a crosswalk between the Plan initiatives, District initiatives, District objectives, and Regulatory/Legal requirements. Finally, the seventh section provides a glossary of key technical terms that appear in the plan.

District Mission Statement

Sequoias Community College District provides excellent higher education in a spirit of equity for our diverse student population. We believe in students achieving their full educational potential and support student success in attaining a variety of degrees and certificates, from basic skills to transfer education and workforce development.

District Vision Statement

The entire College of the Sequoias community works in an environment of mutual respect to realize the following vision:

COS students will achieve their full educational potential regardless of race, ethnicity, age, gender, sexual orientation, immigration status, ability, culture, religion, and learning modality.

The COS environment will create a positive attitude among COS employees that carries over to the students and into the community.

COS will remain a community leader whose high standards positively impact the lives of the population it serves.

COS will align educational programs for higher education transfer, as well as to meet the constantly emerging economic and workforce development needs of the community through partnerships with business, government, industry and labor.

Key Technology Issues and Trends

These key technology issues and trends were based on an initial list from Educause and refined by the COS Technology Committee.

1. **Optimizing Educational Technology:** Collaborating with faculty and academic leadership to better understand educational and operational needs. This knowledge can be leveraged to provide appropriate technology tools and services, resulting in a better fit to optimize teaching, learning, and operational success.
2. **Student Success Technologies:** Improve student outcomes through an institutional approach that strategically leverages technology.
3. **E-Learning and Online Education:** Providing scalable eLearning services, facilities, and support staff to increase access and expand online education.
4. **Business Intelligence and Analytics:** Developing effective methodologies for business intelligence, reporting, and analytics, ensuring relevance towards institutional priorities, decision making, and accessibility by administrators, faculty, staff, and students.
5. **Enterprise Application Integrations:** Integrating enterprise applications and services to deliver systems, services, processes, and analytics that are scalable and constituent-centered.
6. **Institutional Data Management:** Improving the management of institutional data through data standards, integration, protection, and governance.
7. **Information Security:** Developing a holistic approach that integrates scalable, proactive processes in developing and implementing information security throughout the Districts technology infrastructure.
8. **Information Technology Funding Models:** Developing Information Technology funding models that sustain core services, support innovation, and facilitate growth.
9. **Information Technology Organizational Development:** Create a Technology Services organizational structure that supports staff roles. Provide a roadmap of staff training to encourage an environment where learning and sharing ideas fortify better technology service delivery.

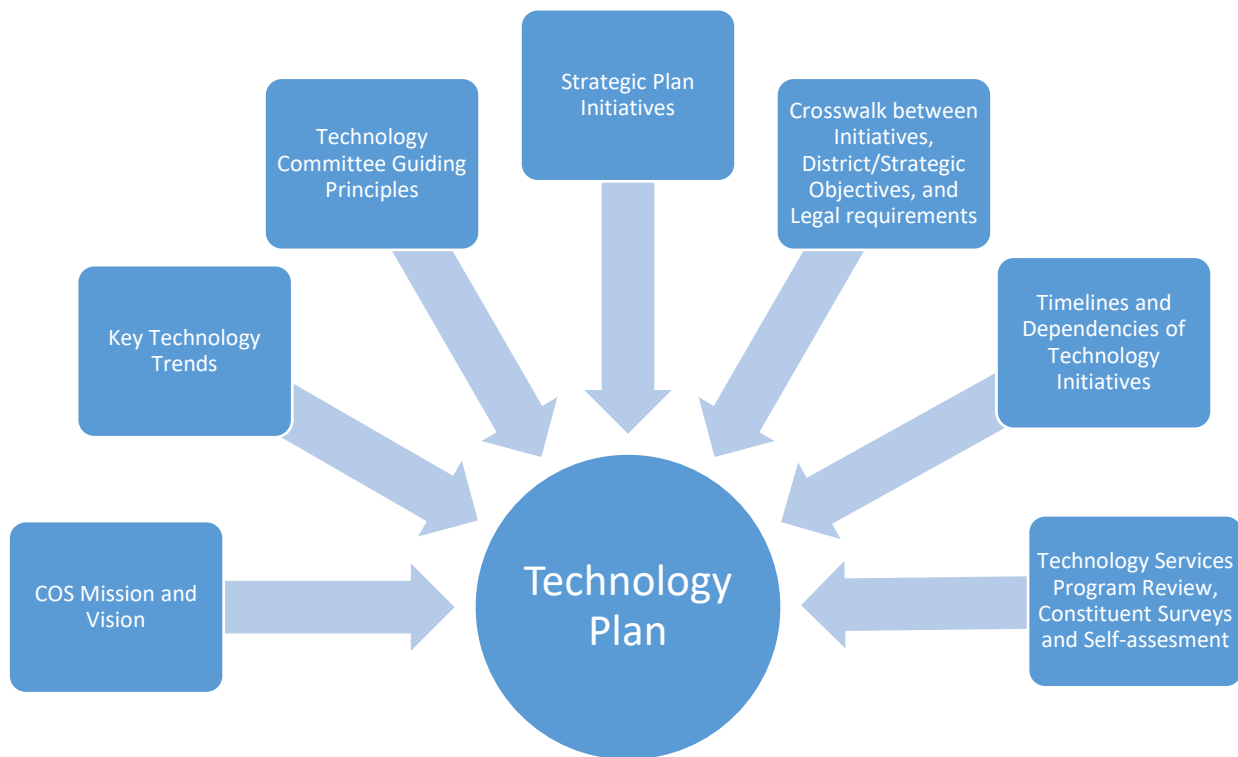
Planning Process

The three-year technology plan development process at College of the Sequoias (COS) involves alignment with the COS Mission and Vision, ACCJC Accreditation Standards, District goals as outlined in the Master Plan, District objectives as outlined in the Strategic Plan, the Technology Committee's charges, and technology needs as identified in periodic technology surveys of students, faculty, and staff, as well as those needs identified in the Participatory Governance District-wide program review process. The Technology committee collaborates with the Educational Technology Committee to enhance the outcomes of both Committees. The Technology Committee will assess the progress through semi-annual reviews and satisfaction levels indicated in the Giant Questionnaire and the annual MotherLode for students Surveys.

Developing the 2022-2025 District's Technology Plan involves structured documentation and planning. The Technology Committee, which reports to the District Governance Senate (DGS), is the District's participatory governance group responsible for District-wide technology planning and evaluation. The Technology Committee advises, informs, and makes specific recommendations to DGS regarding technology initiatives and projects throughout the District. In addition, the Technology Committee's recommendations go to senior management for budgetary implication proposals.

The Technology Committee has primary responsibility for developing and providing oversight for implementing a comprehensive, District-wide information technology strategic plan. Additionally, the Technology Committee provides direction for maintaining the ongoing implementation effort to achieve the goals of the plan. The Technology Committee is co-chaired by the Dean of Technology and one of the faculty members of the Technology Committee.

As a subcommittee of the District Governance Senate, the central district-wide participatory governance committee with broad representation from all constituent groups, the Technology Committee advanced the draft plan to the District Governance Senate for review, discussion and approval.



Strategic Guiding Principles for Technology Plan

The Technology Committee established these guiding principles to support and achieve the goals in the COS Technology Plan.

- Prioritize and maximize the utilization of technologies that advance teaching, learning, and student support district-wide. These technologies are user-focused and driven by the needs of and in consultation with students, faculty, and staff.
- Build a data governance framework that converts raw data, leverages data analytics, automates reporting into actionable information for strategic planning, and improves productivity.
- Maintain district-wide Information Technology infrastructure in line with current industry standards. Take advantage of cloud-based computing options to improve teaching, learning, productivity, and functionality.
- Standardize and improve technologies where feasible, desirable, scalable, and cost-effective.
- Implement and maintain structures and systems that provide a layered approach to protecting data and information technology assets.
- Establish and implement technology training for staff in existing and emerging technologies.

Technology Plan Initiatives

The initiatives outlined in this plan are supported by the COS. Technology Strategic Guiding Principles.

- Initiative 1 Analyze data gathered from employee and student satisfaction surveys.
- Initiative 2 Research and analyze the data governance solutions, such as the Data Cookbook from Idata that can serve as the structure for data governance data definitions for COS, and serve as a tool to help those needing access to data to understand and request the correct data for their needs. This tool also has built-in integration with Argos and could provide the necessary documentation for Argos reports.
- Initiative 3 Collaborate with the Office of Research, Planning & Institutional Effectiveness to establish a new data Lakehouse using modern cloud-based architecture in AWS. to provide the needed data dashboards for decision-making to the proper stakeholders in a user-friendly way.
- Initiative 4 Complete Infrastructure cloud migration to support District and Technology Services' growing needs to comply with Disaster Recovery initiatives.
- Initiative 5 Work to eliminate shadow systems/databases and use district-supported administrative software to ensure backup and disaster recovery procedures protect the District against cyber threats.
- Initiative 6 Complete WiFi upgrades, including a new WiFi log-in page.
- Initiative 7 Evaluate and enhance the software acquisition, tracking/inventory control, licensing, replacement, and utilization. Support the Technology Services infrastructure to ensure better productivity, efficiency, and total cost of ownership.
- Initiative 8 Create and publish a document that aggregates current Technology Services supported and externally supported software. Track licensing, upgrade needs, and the associated costs.
- Initiative 9 Complete the classroom technology upgrade.
- Initiative 10 Information Technology Training -
 - Initiative 10.1. Encourage the development of basic computer skills training classes.
 - Initiative 10.2. Develop a district-wide information technology orientation for new students and staff.
 - Initiative 10.3. Collaborate with the student helpdesk to ensure the staff is well-trained.
 - Initiative 10.4. Establish routine cybersecurity training for employees to encourage best practices and maintain security as a baseline standard.
- Initiative 11 Perform annual security audits in Banner and other administrative systems working with department heads to ensure their staff has the access they need to perform their job.
- Initiative 12 Develop a comprehensive plan to implement information assurance, security, and cybersecurity strategies.

- Initiative 13 Create and implement procedures to protect sensitive information outlined in the Family Educational Rights and Privacy Act (FERPA) or Personally Identifiable Information (PII) standards. Develop guidelines for handling security events, system audits, and user access privileges.
- Initiative 14 Multi-Factor Authentication (MFA.) for Students – Working toward Fall 2022 implementation
- Initiative 15 Study and analyze the need for Bring Your Own Device (BYOD)
- Initiative 15.1 More instructors bring laptops/iPads and need to print and screencast to the Apple TV's.
- Initiative 16 Research tools, like Pharos 360 (Pharos Resources | Student Success Solutions), are designed to create a 360-degree view of the student and provide a mechanism to gather information about a student and provide it to the right people to intervene when needed appropriately. A joint project with Student Services or Counseling office and integration work for Tech Services.
- Initiative 17 Flag low or no textbook costs displayed to students in the online course schedule, a requirement for all CCC and CSU Institutions per SB 1359 (2016). Banner Student Self-Service Registration Handbook 9.16 Describes the details for the configuration of this functionality.
- Initiative 18 Create and implement a real-time Canvas to Banner Integration.

Initiative Crosswalk

Crosswalk between Plan Initiatives, District Initiatives, District Objectives, and Regulatory/Legal Requirements

Initiative	Topic	Related District Objective	Target Completion Date	Measurement, Assessment, or Regulatory Requirement
1	Assess student and staff satisfaction surveys	4.2	Ongoing	Giant Questionnaire, as needed. Every other Spring semester, the Student Support Services Survey (aka Mother Lode Survey).
2	Data Governance Solutions	4.1.1	Ongoing	
3	Data Warehouse	4.2	December 2023	
4	Infrastructure Cloud Migration	4.2	June 2023	
5	Eliminate Shadow Systems/Databases	4.2	June 2024	
6	Complete WiFi upgrade	4.2	June 2022	
7	Enhance the Software Acquisition, tracking, and inventory control process.	4.2	December 2022	
8	Create and Publish an Information Technology Service Catalog	4.1, 4.1.2, 4.2	December 2022	
9	Complete Classroom Technology Upgrade	4.2	December 2022	
10	Training	3.2.2, 4.3	Ongoing	
10.1	Basic Computer Skills	3.2.2, 4.3	Ongoing	
10.2	Technology Orientation for New Students and Staff	3.2.2, 4.3	Ongoing	
10.3	Student Helpdesk Training	3.2.2, 4.3	Ongoing	
10.4	Routine Cybersecurity Training	3.2.2, 4.3	Ongoing	
11	Annual Security Audits	4.2,	Ongoing	
12	Comprehensive Security Plan	4.2	December 2022	
13	Create and Implement a Data Security Plan	4.2	December 2022	X
14	MFA. for Students	4.2	December 2022	X

15	Analyze the need for Bring-Your-on-Device (BYOD)	4.2	June 2023	
15.1	Determine the Print and Screencast Needs for Laptops/iPads	4.2	June 2023	
16	Student Research Tools	4.2	June 2023	
17	Flag Low or No Textbook Costs	2.1.4, 4.2	June 2023	
18	Canvas Adapter	4.2	June 2023	

* LR=Regulatory/Legal Requirement

Glossary of Terms

Cloud computing

Cloud computing, also known as on-demand computing, is a kind of internet-based computing where shared resources and information are provided to computers and other devices on demand. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources. Cloud computing and storage solutions provide users and enterprises with various capabilities to store and process their data in third-party data centers. It relies on sharing resources to achieve coherence and economies of scale, similar to a utility (like the electricity grid) over a network. At the foundation of cloud computing is the broader concept of converged infrastructure and shared services. Cloud computing services can be private, public, or hybrid. Private cloud services are delivered from a business's data center to internal users. This model offers versatility and convenience while preserving management, control, and security. Internal customers may or may not be billed for services through I.T. chargeback. A third-party provider delivers the cloud service over the Internet in the public cloud model. Public cloud services are sold on-demand, typically by the minute or the hour. Customers only pay for the CPU cycles, storage or bandwidth they consume. Leading public cloud providers include Amazon Web Services (A.W.S.), Microsoft Azure, I.B.M./SoftLayer, and Google Compute Engine.

Disaster recovery and business continuity

Disaster recovery (D.R.) involves a set of policies, procedures, systems, and infrastructure to enable the recovery or continuation of vital technology infrastructure and systems following a natural or human-induced disaster. Business continuity encompasses a defined set of planning, preparatory and related activities that are intended to ensure that an organization's critical business functions will either continue to operate despite serious incidents or disasters that might otherwise have interrupted them or will be recovered to an operational state within a reasonably short period. As such, business continuity includes three key elements, and they are 1. Resilience: critical business functions and the supporting infrastructure are designed and engineered so that they are materially unaffected by most disruptions, for example, through the use of redundancy and spare capacity; 2. Recovery: arrangements are made to recover or restore critical and less critical business functions that fail for some reason. 3. Contingency: the organization establishes a generalized capability and readiness to cope effectively with whatever major incidents and disasters occur, including those that were not, and perhaps could not have been, foreseen. Contingency preparations constitute a last-resort response.

Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a category of business-management software—typically a suite of integrated applications—that an organization can use to collect, store, manage and interpret data from many business activities. ERP provides an integrated view of core business processes, often in real-time, using common databases maintained by a database management system. ERP systems track business resources—persons, courses, classes, programs, positions, vendors, internal departments, budgets, etc. — and the status of business commitments: enrollments, orders, purchase orders, payroll, etc. The applications that make up the system share data across various departments (admissions and records, financial aid, instruction, accounting, etc.) that provide the data. ERP facilitates information flow between all business functions and manages connections to outside stakeholders. Enterprise system software is a multibillion-dollar industry that produces components supporting various business functions. I.T. investments have become the largest category of capital expenditure in United States-based businesses over the past decade. Though early ERP systems focused on large enterprises, smaller enterprises increasingly use ERP systems.

The ERP system integrates varied organizational systems and facilitates error-free transactions and production, enhancing the organization's efficiency. However, developing an ERP system differs from traditional system development. ERP systems run on various computer hardware and network configurations, typically using a database as an information repository. The ERP used by the College is the Ellucian Banner suite.

Single sign-on (SSO)

Single sign-on (SSO) is a session and user authentication service that permits users to use one set of login credentials (e.g., name and password) to access multiple applications. The service authenticates the end-user for all the applications to which the user has been given rights and eliminates further prompts when the user switches applications during the same session. On the back end, SSO helps log user activities and monitor user accounts.

The Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 C.F.R. Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.

FERPA gives parents certain rights with respect to their children's education records. These rights transfer to the student when he or she reaches the age of 18 or attends a school beyond the high school level. Students to whom the rights have transferred are "eligible students."

Parents or eligible students have the right to inspect and review the student's education records maintained by the school. Schools are not required to provide copies of records unless parents or eligible students can't review the records for reasons such as great distance. Schools may charge a fee for copies.

Parents or eligible students have the right to request that a school correct records which they believe to be inaccurate or misleading. If the school decides not to amend the record, the parent or eligible student then has the right to a formal hearing. After the hearing, if the school still decides not to amend the record, the parent or eligible student has the right to place a statement with the record setting forth his or her view about the contested information.

Generally, schools must have written permission from the parent or eligible student to release any information from a student's education record. However, FERPA allows schools to disclose those records, without consent, to the following parties or under the following conditions (34 C.F.R. § 99.31):

- School officials with legitimate educational interest;
- Other schools to which a student is transferring;
- Specified officials for audit or evaluation purposes;
- Appropriate parties in connection with financial aid to a student;
- Organizations conducting certain studies for or on behalf of the school;
- Accrediting organizations;
- To comply with a judicial order or lawfully issued subpoena;
- Appropriate officials in cases of health and safety emergencies; and
- State and local authorities, within a juvenile justice system, pursuant to specific State law.

Schools may disclose, without consent, "directory" information such as a student's name, address, telephone number, date and place of birth, honors and awards, and dates of attendance. However, schools must tell parents and eligible students about directory information and allow parents and eligible students a reasonable amount of time to request that the school not disclose directory information about them. Schools must notify parents and eligible students annually of their rights under FERPA. The actual means of notification (special letter, inclusion in a P.T.A. bulletin, student handbook, or newspaper article) is left to the discretion of each school.

Personally identifiable Information (PII)

Personally Identifiable Information (PII) is any data that could potentially identify a specific individual. Any information that can be used to distinguish one person from another and can be used for de-anonymizing anonymous data can be considered PII.

Total cost of ownership

Total cost of ownership (TCO) is an estimation of the expenses associated with purchasing, deploying, using and retiring a product or piece of equipment. TCO includes both direct and indirect, short-and long-term costs of a product or system over the life cycle of the product or system. The purchase price of hardware and software is typically less than 50% of the total direct costs.

Voice over Internet Protocol (VoIP)

Voice over Internet Protocol (VoIP) is a technology that allows making voice calls using a broadband Internet connection instead of a regular (or analog) phone line. Some VoIP services may only allow one to call other people using the same service, but others may allow one to call anyone who has a telephone number - including local, long distance, mobile, and international numbers. Also, while some VoIP services only work over a computer or a special VoIP phone, other services allow one to use a traditional phone connected to a VoIP adapter.

Wide Area Network (WAN)

A wide area network (WAN) is a telecommunications network or computer network that extends over a large geographical distance. Wide area networks are often established with leased telecommunication circuits. Business, education and government entities use wide area networks to relay data among staff, students, clients, buyers, and suppliers from various geographical locations. In essence, this mode of telecommunication allows a business to effectively carry out its daily function regardless of location. The

Internet may be considered a WAN. Related terms for other types of networks are personal area networks (P.A.N.s), local area networks (LANs), campus area networks (CANs), or metropolitan area networks (M.A.N.s) which are usually limited to a room, building, campus or specific metropolitan area respectively.