

Sierra College Technology Strategic Plan 2021-2024



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In collaboration with:

- Academic Senate
- Student Senate
- Classified Senate
- Management Senate
- DOTS (District Operational Technology Steering)
- Education Technology Advisory Group (Ed Tech)
- Banner Team Leads
- IIT Staff and managers
- Executive Team

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Executive Summary

Sierra College continues to focus extensive amounts of energy and resources towards making a true, positive difference in student education outcomes. From the time the Reengineering for Success (R4S) initiative began in 2016-17, to refining the vision of student success to center on equity and completion, and now building the guided pathways systems to support Interest Areas, nearly everything in technology is centered on these initiatives in one way or another. We have worked hard to reinvent the Information and Instructional Technology Services (IIT) division through a student-centric lens and our commitment to a customer-service approach in delivering information technology services for Sierra College.

The Technology Strategic Plan – 2021 identifies the top six technology initiatives for Sierra College over the next three years. As was the case in the 2018 version of the plan, each initiative has identified focus areas that will be a point of focus. IIT will evaluate each project request using the District's Project Request Process to assure resources are allocated in line with the District's top initiatives and goals as outlined in the Sierra College Strategic Plan, the Student Equity and Completion Guided Pathways Strategic Plan, the Education Master Plan, the Facilities Master Plan, and the Technology Strategic Plan. Projects are then reviewed within the Team Leads technology advisory group and other technology governance resources as determined necessary, and prioritized accordingly.

In the 2018 Technology Strategic Plan there were two initiatives that are not represented in this current version. This is not due to their diminished importance, but rather there was a significant investment of time and resources to make significant progress in each. They are; 1 – reengineering IIT for success to better align itself with the mission of Equity and Student Success in a dynamic and agile manner, and 2 – implementing key solutions to gather data and intelligence to improve the District's ability to make better data-driven decisions. The efforts to further the progress in these two prior initiatives are now more embedded into the people, process, and technology at Sierra College.

This plan is the result of a great deal of discussion and collaboration in many venues, including the IIT managers and IIT division meetings, the Banner Team Leads Advisory Group (Team Leads), the Education Technology Advisory Council (Ed Tech), the District Operational Technology Steering group (DOTS), and the Executive Team. By the time it is ratified by the Board in the Fall of 2021 it will have been vetted through the Student Senate, the Academic Senate, the Classified Senate, the Management Senate, and Strategic Council, assuring a broad and deep involvement of critical stakeholders throughout the District.

District Technology Initiatives

I. Provide technology resources to support the needs of student, faculty, and staff learning or working both on and off campuses.

- a. Implement a virtual contact center for students to get customer services by telephone, chat, text, video/screen share, or email without having to be on campus
- b. Implement a system to support on-line appointments for virtual meetings with counselors, faculty, tutors, and other instructional support services
- c. Identify and provide access to ongoing technology needs of students, with a focus on equity, in order for them to be successful attending on-line classes at Sierra College
- d. Digitize paper processes for students, faculty and staff
- e. Implement Text/SMS messaging for students
- f. Enhance the tools and support resources for Academic computing/instructional computing to include training and professional development opportunities, equipment, and live technical support

II. Prioritize technology resources to support the student journey through completion

- a. Assure priorities are determined with equity as a key factor.
- b. Support the technology needs in developing holistic support for Interest Areas and Programs
- c. Support the initiative to improve student communications for systemic, strategic, and consolidated communications across platforms and modalities.
- d. Create a student experience improvement plan for technology to include a continuous student feedback process
- e. Continue to support the integration of student's support services in to Sierra Connect
- f. Integrate the new Degree Planning service with the registration process in Sierra Connect
- g. Enhance the ability for technology to support data-driven decisions for Sierra College students and instruction.
- h. Further leverage mobile App technology to improve overall student outcomes

- i. Identify and prioritize resources to support the Equity and Student Completion Guided Pathways Strategic Plan

III. Assure data held by the District is secure

- a. Data privacy for students, faculty and staff has become a top concern for all educational leaders and will become a focus over the next three years
- b. Maintain District firewalls for network, Wi-Fi, and email to assure protection from the latest threats
- c. Maintain systems to monitor and alert for vulnerabilities and threat detection
- d. Prioritize resources for the District's Cyber Security Program to:
 - i. Continually assess the District's Security posture through monitoring, reporting, and auditing,
 - ii. Updating District Cybersecurity policy and procedures as needed,
 - iii. Continuously improve security awareness through communications and training for students, faculty, and staff
 - iv. Maintain and rehearse a security incident response plan

IV. Assure accessibility compliance for the District's technology systems and content

- a. Assure an Accessibility Complaint handling process is readily available and responsive to all needing access and accommodations
- b. Establish District BP and AP to establish responsibilities and support the Information and Communications Technology (ICT) Accessibility priorities for the District
- c. Create and maintain a software register to test and track accessibility compliance for the District
- d. Continuously improve the District's ICT accessibility posture to reduce the demand for accommodations and improving equity.
- e. Assure all instructional course content is accessible
- f. Assure all student onboarding systems and District communications are all compliant with Accessibility standards

- V. **Assure technology is kept current to benefit productivity and the instructional needs of students**
 - a. Maintain computerequipment inventory and refresh schedule
 - b. Identify how to prioritize District funds to support technology refresh needs
 - c. Strive for optimal reduction of total cost of ownership for desktops, smart classrooms, servers, anddatacenter resources
- VI. **Plan for cost-reduction strategies to meet current needs and prioritize high-value projects**
 - a. Identify, implement, and leverage a cost-effective Windows server infrastructure for both on premise and/or cloud virtualization strategies
 - b. Leverage cloud infrastructures to lower costs for hosting and supporting the Districts ERP
 - c. Consolidate application functionality and leverage existing investments in enterprise solutions, eliminating software license costs whenever feasible
 - d. Identify costs related to virtualizing technology services due to the Covid19 pandemic and seek reimbursements and funding through available grants
 - e. Implement a portfolio project management system and process to assure resources are working on the high-value projects and at the right time/priorities

In Summary

In 2019, Sierra College applied for and was awarded a \$200,000 grant through the CCC CO Partnership Resource Team (PRT) to create a virtual online presence for Student Services such that students taking online classes could have access to the same level of services provided to those students that were on campus. Plans were underway to implement key projects to accomplish this goal throughout 2020, but in March 2020 everything quickly turned our campuses upside down. Due to the Covid-19 pandemic and the urgency to move all classes to online learning, while also providing the capability for all faculty and staff to work from home, within weeks we had accomplished much of what the PRT grant had been targeting to accomplish. And with assistance from CARES Act funding, the District was able to fund much of it outside of the PRT grant funding. But there were several critical areas in the PRT project scope that had not yet been completed. Those remaining PRT objectives are contained within the above 2021 plan and are: 1 – student focus groups and design consulting services to optimize the student’s access to services online, 2 – provide for students and faculty to access campus instructional and lab software through an online application portal, and 3 – enhance the abilities of the Sierra College Mobile App to offer more services and more interactive support to improve student onboarding, retention, and completion. Much was learned in 2020, and by continuing to focus on areas within these stated initiatives we can further our top District Strategic Goals around student equity, retention, and completion through a holistic approach to supporting interest areas, in both on ground and online formats.

Appendices

Appendix 1 - Technology Accomplishments from the 2018 Technology Strategic Plan

The below accomplishments are by no means all attributable to the Information and Instructional Technology (IIT) department. Many are efforts championed by other departments and/or through collaborative efforts with IIT, but it is important to identify what Sierra College has accomplished with regard to Technology from our 2018 Technology Strategic Plan initiatives.

1. 2018 Initiative 1 - Data Analytics and Reporting
 - a. Implemented Ad Astra class scheduling and predictive analytics for better aligning of offering students the courses they need, when they need, and where they need it.
 - b. Implemented Starfish Analytics to help gather and report on metrics for key student success initiatives
 - c. Leveraging Evision's Argos reporting to helping visualize student behaviors.
2. 2018 Initiative 2 - Enhance the student experience and student success
 - a. Improved student email communication read rates to consistently be above the 80% mark.
 - b. Implemented the student Sierra College Mobile App "community" functionality for students, resulting in over 10,000 students downloading and using the App for key services, communications, and community networking.
 - c. Implemented the ellucian Recruit CRM (Customer Relationship Management) system to improve our outreach and recruitment efforts with high school students and event management
 - d. Upgraded our student ID card system to address ongoing problems in issuing ID cards. Upgrade our Pay-to-Print system to simplify submitting and tracking print jobs for students.
 - e. Upgraded our Banner and Luminis (mysierra) systems to provide continued support for new student-facing functionality.
 - f. Customizing Banner Extensibility Page Builder pages to enhanced the student experience.
3. 2018 Initiative 3 - Enhance Educational Technology Resources
 - a. Implement Blackboard Ally (Distance Learning)

- b. Obtain site license for Camtasia and Snag IT (Distance Learning)
 - c. Implement Canvas Suite (Distance Learning)
 - d. Deploy Zoom for all Instructors
 - e. Setup and train faculty for fully online instruction due to the pandemic (Distance Learning)
 - f. Refresh technology in smart classrooms over 10 years old.
 - g. Refresh Technology for computer lab systems prior to 2014.
 - h. Refresh Technology for faculty computers prior to 2014.
4. 2018 Initiative 4 - Information and Computer Technology Accessibility
- a. Implement Blackboard Ally and provide faculty training to assist with online course certification and compliance (Distance Learning)
 - b. Formalize the Accessibility Advisory Workgroup, Charter, and work plan to become more compliant
 - c. Establish an on-line “accessibility complaint” e-form and workflow process to quickly address and resolve any accessibility complaints.
 - d. Upgrading to Banner 9 Application Navigator and Self Service with Accessibility being a primarily reason for applying upgrades and move away from obsolete internet browsers
5. 2018 Initiative 5 - Information Security
- a. Achieved the designation for Sierra College as a National Center of Excellence (CAE) in Cyber Defense for our Cybersecurity program
 - b. Implemented SPLUNK, a security enterprise information management (SEIM) system to help aggregate computer system logs and provide alerting and reporting
 - c. Updated AP 3720 to better support security procedures and standards for the District
 - d. Implemented Microsoft Identity Service to help us with our account provisioning and access management including Multi-factor authentication for faculty and staff
 - e. Using Evision’s Argos to audit our security from our Banner ERP system and

improve off-boarding.

6. 2018 Initiative 6 - Reengineer IIT staff and processes to better align with Student Success and District initiatives.
 - a. Created a Student Applications Team with dedicated Information Systems Analysts (1) and Senior Analyst Programmers (4 plus a contractor) to focus on delivering service enhancements for students and Student Services.
 - b. Implement Team Dynamix (Sierra Solution Center) to provide:
 - i. WEB Knowledge Base articles for students, faculty and staff to provide a self-service approach for finding answers to commonly asked questions.
 - ii. New ticketing system that provides web form service requests with workflow, escalation automations, and quality surveys to measure effectiveness.
 - iii. Implemented a new Change Management Process using a Change Advisory Board (CAB) to track and review all proposed system and programming changes on a weekly basis.
7. 2018 Initiative 7 – Address Technology Refresh Needs
 - a. Work with the budget process, Executive Council, and the Board of Trustees to identify \$250,000 in ongoing funding and \$2.2 million in one-time funding to help with the District’s technology refresh obligation.
 - b. Upgraded or replaced lab computers, staff computers, smart classroom technology, WiFi network hot spots, phone system and network switches using \$2.2 million in one-time funds between 2018 and 2020 fiscal years (\$500k phones, \$1.2 million in smart classrooms and lab computers, \$170k on Wifi network upgrades, \$150k in staff computers, and \$180k in network switches and UPS systems).
 - c. Implemented centralized system management tools to help manage the District’s technology more cost-effectively from a more centralized “Network Operations Center” approach (Microsoft SCCM, Team Viewer, Apple JAMF, and VMWare desktop virtualization).

Appendix 2 - Technology Refresh Plan 2021-2023

Objectives/Deliverables:

Desktop Computer Refresh

The objective is to try to replace all desktop computers older than 2014 and to upgrade 2014 and newer systems that don't have SSDs to SSD drives. Competing priorities for funding will keep us from getting there with the currently allocated funding, but we will get closer. This will be done by:

1. Replacing 13 out of 92 old Macs with new ones (11 iMacs, 1 MacBook Air and 1 Mac Pro)
2. Replacing 26 HP Pro 6300 desktops out of 124 with new HP ProDesk G5 desktops
3. Replacing 98 HP Pro 6300 desktops with re-purposed upgraded (8GB RAM and SSD) ProDesk 600 G1 desktops or newer (These Primarily came from the replacement of the Lr-205, V-119 and V-121 labs.
4. Upgrading 246 HP ProBook 640 G2-G4 models with SSDs
5. Upgrading 81 2015 iMacs with SSDs

Qty	Description	Price	Extended	Tax	Total
1	MacBook	\$1,566.00	\$1,566.00	\$113.54	\$1,679.54
11	iMac	\$1,703.00	\$18,733.00	\$1,358.14	\$20,091.14
1	Mac Pro	\$5,818.00	\$5,818.00	\$421.81	\$6,239.81

Replacement of 2013 HP Pro 6300s

Qty	Description	Price	Extended	Tax	Total
26	ProDesk 600 G5	\$999.00	\$25,974.00	\$1,883.12	\$27,857.12

HP ProBook 640 upgrades

70	HP ProBook 640 G2	\$106.57	\$7,459.90	\$540.84	\$8,000.74
62	HP ProBook 640 G3	\$106.57	\$6,607.34	\$479.03	\$7,086.37
114	HP ProBook 640 G4	\$106.57	\$12,148.98	\$880.80	\$13,029.78

2015 iMac upgrades

81	2015 iMacs	\$80.38	\$6,510.78	\$472.03	\$6,982.81
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Total	\$90,967.31
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Replacing the remainder of the 2013 and older Macs is estimated to cost an additional \$112,300

Smart Classroom Refresh

Assumptions:

1. The New Instruction Building (NIB) will include new smart classrooms

2. Smart classrooms in the building whose functions are moving to the NIB and are slated for demolition (Buildings B, C, E, F, M, Mt, W) will not be upgraded.
3. The cost for a standard V5 to V6 smart classroom upgrade is estimated to be \$7,000.
4. The new Science building will be on-line 2026ish
5. Mechatronics and DES will get new Smart Classroom installs as part of the remodel of N building
6. The spaces in V building to be vacated by Mechatronics and DES will be occupied as instructional space.

There is currently a backlog of approximately a dozen pending smart classroom upgrades and installs.

Rocklin Campus:

After excluding Buildings B, C, E, F, M, Mt and W, the following V-5 smart classrooms remaining to be upgraded are:

GT2A
H4
L193
LR301
RN2200
S105
V101
V201
V207
V208
V227

Recommend upgrading 10 of these 11 rooms, excluding V-208 due to the nature of its use.

Nevada County Campus

NCC has a total of 24 V5 smart classrooms

NCC's priority list is:

Priority	Room
1	N7-107
2	N7-206
3	N7-101
4	N6-206
5	N6-101
6	N11-101
7	N15-100
8	N8-104

Recommend that we upgrade priority 1-6 .

Tahoe-Truckee Campus

All Tahoe-Truckee Campus smart classrooms have been upgraded to the V6 standard

Roseville Center

All Roseville Center smart classrooms have been upgraded to the V6 standard

Qty	Description	Price	Extended
16	V6 smart classroom upgrades	\$6,989.50	\$111,832.00

Network Upgrade

This plan calls for the replacement of 41 HP ProCurve 2610 network switches throughout the District. These switches went end-of-sale in 2011 and end-of-support in 2016. Updates are no longer being issued for these switches.

Qty	Model #	Description	Price	Ext
3	J9987A	HPE - expansion module	\$2,148.30	\$6,444.90
21	JL558A	Aruba 2930F 48G PoE+ 4SFP+ 740 W	\$4,218.33	\$88,584.93
20	JL255A	Aruba 2930F 24G PoE+ 4SFP+ 370 W	\$2,225.89	\$44,517.80
6	J9151D	Proline J9151D-Pro	\$519.57	\$3,117.42
50	J4858C	Proline J4858C-Pro	\$70.41	\$3,520.50
24	J4858D	Proline J4858D-Pro	\$55.97	\$1,343.28

Subtotal	\$147,528.83
Tax	\$10,695.84
Total	\$158,224.67

Conclusion

This plan would expend the majority of the remaining Technology Refresh Budget over the next 2 years (specifically for Smart Classroom upgrades)

Smart Classroom Upgrades	\$111,832.00
Computer Upgrades	\$90,967.31
Network Upgrades	\$158,224.67
Total	\$361,023.98

Additional planned Technology Refresh Projects:

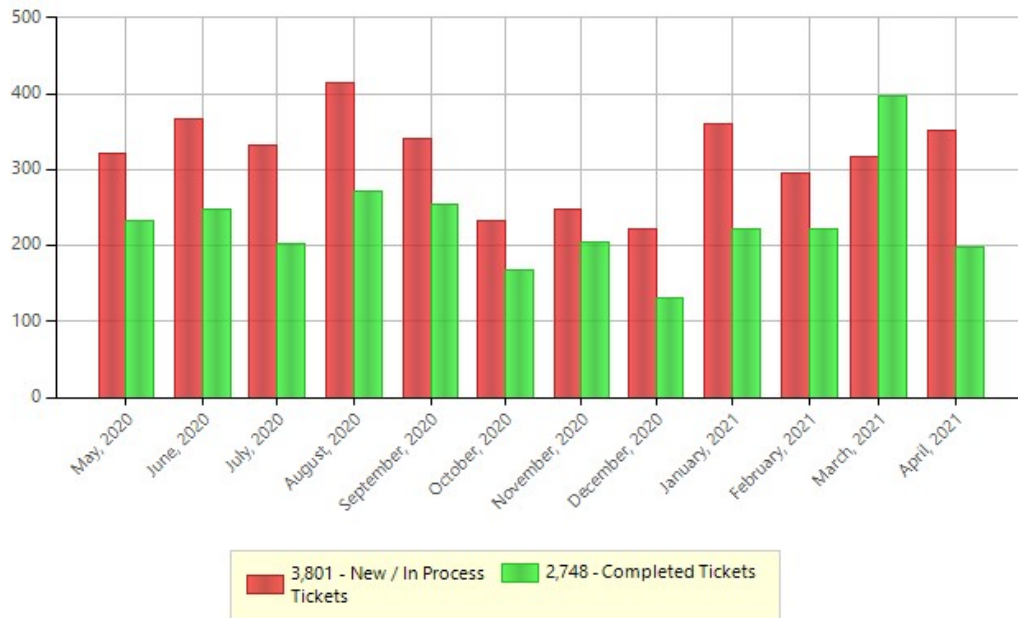
1. Network Switch upgrades at NCC Campus - \$70,000
2. Network Switch Upgrades at Rocklin Campus - \$75,000
3. District Virtual Server farm upgrades - \$450,000
4. District Telephone System Replacement - \$500,000

*It should be noted that in June, 2021, Microsoft announced that with the release of Windows 11 it will only support the latest computer processors which could leave nearly all District computers incapable of supporting Windows 11. **This is estimated to increase the PC Desktop tech refresh costs by another \$1,870,000!** There is speculation that Microsoft may back off this requirement due to it's impact on all it's customers, but at this time they have not.*

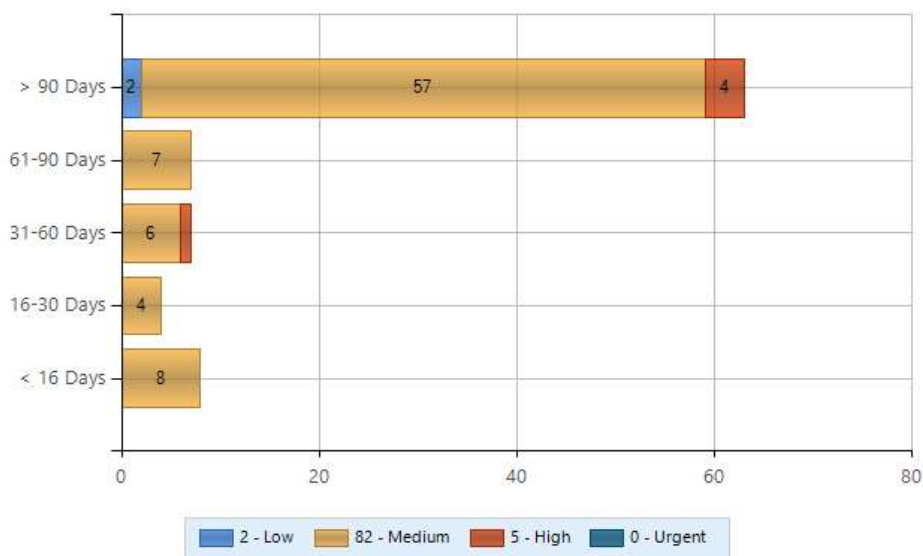
Appendix 3 - Quality Metrics/graphs/trends

Information And Instructional Technology human resources is not keeping up with the pace of growth in technology devices and applications required to support. As shown in the next two graphs you can see the increasing backlog trends. This contributes to staff rushing and making mistakes that can lead to IIT Service Critical Incidents, or unfinished work (technical debt), excess costs for overtime pay, and employee fatigue.

Total Work Request Trend – Backlog of 1,053 tickets over the last 12 month span.



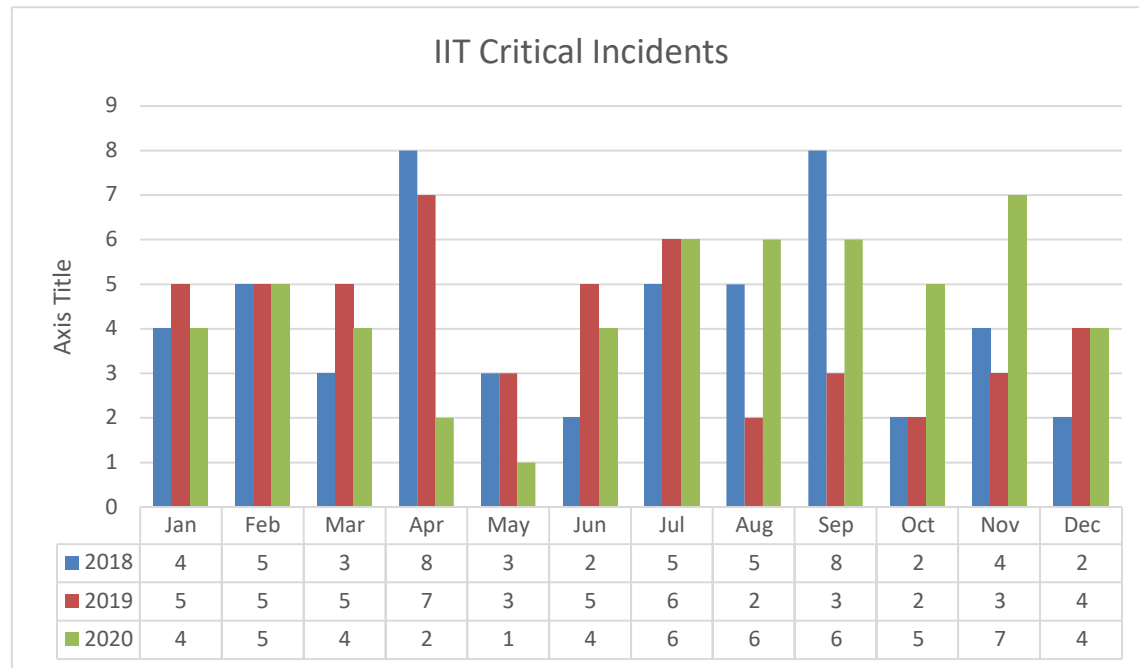
Ticket Aging Report (89)



IIT Critical

IIT Services Critical Incidents

Any production technology or services that is unavailable or in a degraded mode rendering it unusable and impacting business operations.



Quality Surveys – What do our customers think of our service?

Quality surveys rate each service request on a scale of 1 (worst) through 10 (best) as a way to measure how satisfied the customer is with a specific experience. Using a Net Promoter Score formula, scores of 9-10 are promoters of their experience, scores of 7-8 are neutral, and scores of 1-6 are detractors.

