CSUSM
IITS

Academic Year 2020/21

Annual Report

Instructional & Information Technology Services
Cal State San Marcos

Perspective

Over the past twelve months we have witnessed homes becoming virtual offices and spaces of instruction and learning, new collaboration technologies being adopted at an unprecedented pace, and new challenges and expectations arise. This time has also revealed higher education's increasing dependency upon technology and the inextricable link between technology and the success of both our learning and administrative functions. All evidence points to an even further reliance on technological solutions and to the clear need for strategic partnership with IITS as conversations and plans are made that will plot CSUSM's future course.

As we look to the future, much can be learned from our abrupt transition from a primarily physical campus to a virtual one. This rapid shift quickly revealed that some of our existing tools—built to primarily serve a physical campus—had inherent limitations, while those technologies that could serve a virtual or hybrid campus were underutilized. The transition was challenging yet successful and, in many ways, established new norms that none could have expected in March 2020. At a minimum, this unprecedented moment is an opportunity to chart a strategic direction where technology no longer binds the campus community to physical classrooms and offices but, rather, enables a mixed in-person and remote work environment with flexible movement of people and information between physical and virtual spaces. As higher education looks to purposefully adapt to the rapid and ongoing changes, IITS has aligned our plans to the goals of creating a flexible, adaptable, innovative campus that strives for digital equity.

IITS professionals have addressed unprecedented challenges of the past year and the following report highlights just some of IITS' actions, achievements, and challenges.
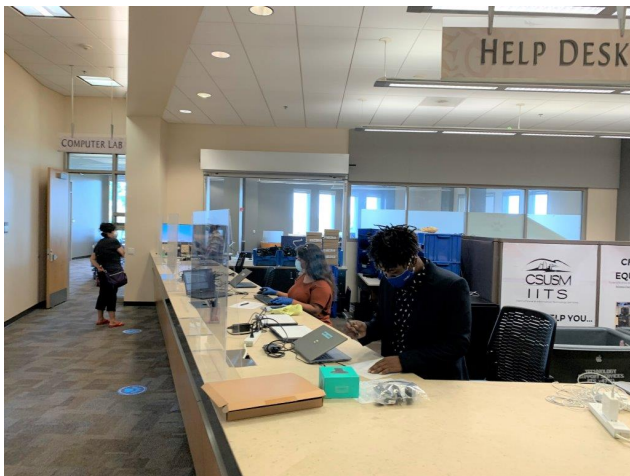
IITS maintained critical in-person technical support operations and year-round equipment loans that have been so vital to bridging the digital divide for those in need in our campus community.

Addressing the Digital Divide

Last spring's shift to virtual highlighted the vast inequalities in home technology and connectivity, with inadequate access to a good laptop and internet connectivity directly impacting teaching and learning for a sizable number of students and faculty.

IITS' most critical role was providing students with essential technology equipment that allowed for uninterrupted learning and helped address the digital divide. As part of this initiative, CSUSM provided lecturers with laptops and hotspots for the first time, a practice necessary for instructional equity but entirely new and not part of our support model.

To put the overall community need in perspective, as of the Spring '21 term IITS had loaned out 669 laptops, 191 hotspots, and 176 other pieces of technology to students alone. In total, IITS has loaned 960 computers, 235 monitors, and about 500 miscellaneous items (iPads, webcams, headsets), and has incurred $860,000 in direct technology related costs.

MS Teams Adoption

The past twelve months have seen platforms made for hybrid environments, such as Microsoft Teams, rapidly adopted and thrive. While Zoom became synonymous with meetings, Teams rose to fill the communication gaps stemming from the shift to virtual. While Teams is increasingly becoming popular within the CSU, CSUSM was the first campus adopter within the system, with adoption beginning even prior to COVID. Additionally, through the new telephony capabilities, Teams is now able to serve as the Unified Communications platform CSUSM was looking for back in 2018, providing the mobility and flexibility needed at a modern campus. CSUSM had migrated approximately 500 extensions to Teams phones, focused primarily on transitioning as many faculty as possible, by the end of the Spring '21 term.

Bedrock 10 Security Incident

On top of an already challenging year, CSUSM faced the most serious and impactful security event in the CSU's history. While stories of companies succumbing to ransomware have become commonplace, IITS security and systems personnel led the initial effort that was successful in overcoming a security breach involving very adept international threat actors. During the event CSUSM user directory data (campus-related information, not personal information) was accessed by an unauthorized user. CSUSM engaged Secureworks to assist and conduct a forensic investigation. After a thorough, weeks-long analysis, the team of security experts did not detect or identify any data exfiltration beyond the basic user information noted in the campus' original communication. We now know that encrypted passwords were taken for later offline decryption and use, but the campus' actions should preclude any further unauthorized access related to this incident. Key elements of the response included contracting with Secureworks for expert assistance, evicting the threat actors, implementing a tiered security model, and enrolling the entire campus community in DUO multi-factor authentication.

Delving into the Data for Enrollment & COVID-19

In consultation with Enrollment Management Services (EMS), IITS' Business Intelligence (BI) team developed a number of critical dashboards providing near real-time data and analysis of course enrollments (Live Headcount FTES Dashboard), new applicants and admissions yield (Enrollment Funnel Dashboard), and a high-level summary of daily activity designed for senior leadership (Static Headcount and Funnel). All these dashboards were deployed to provide insights into critical matriculation and enrollment target data.

With the rapid growth in the use of the CougarBot, the university's newly released chatbot, IITS also developed a dashboard that analyzed student interactions. This dashboard allowed for deep analysis of student engagement with the chatbot to identify which student populations were being served and underserved, as it was a new mode of outreach and communication, as well as providing insight into the types of questions and responses that students were receiving.

In conjunction with the efforts led by Finance & Administrative Services (FAS) around COVID compliance, IITS developed a dashboard (COVID Compliance Dashboard) designed to provide insight into campus safety efforts. This dashboard helped to ensure COVID testing and vaccination compliance by tracking weekly trends and breakdowns of the active student population and their compliance status. The data also included testing site metrics to allow FAS to determine the appropriate scheduling for COVID test administration sites and which sites could be closed altogether without significant impact to students.

Operationalizing CSUSM Digital ID

Prior to COVID, CSUSM was utilizing an older ID Card system (operated by the Library) that was scheduled for replacement in May 2020 by a new vendor system, Transact. This system was part of a larger campus plan to offer meal services to residential students. Right up until the week the campus went virtual, IITS was working with our vendors to deploy the system. After the Transact project was put on hold last summer, IITS proceeded to establish a virtual ID Card operation. While photos from the prior card system had long been displayed as digital IDs within the Campus App, the Transact hold meant CSUSM no longer had a functional ID system. Given the lack of a new system and the need for an immediate solution, IITS quickly developed a way for students to submit, review, and approve their ID photos online. By May 2020, IITS had established a new card operation at the Help Desk and has so far processed over 2,200 photos during this academic year (IITS continues to utilize the old card printing system to print physical cards for Nursing students and others as required). The digital ID project has been very useful and has supported COVID check-ins, USU computer lab access, and even CSUSM Commencement (noted later in this report).

Phase I of Constituent Relationship Management (CRM)/Salesforce

Over the past year, CSUSM has been utilizing Salesforce in several offices, supported both operationally and fiscally by IITS. Beginning last fall, the platform's adoption was expanded to include the new Office of Success Coaching (22 coaches, 1,576 students served and 5,494 total cases/meetings) as well as new communications strategies (sent/received 35,959 text messages via Salesforce). IITS also partnered with Enrollment Management Services to support the outreach initiative guided by RNL consultants. RNL has been very complimentary of IITS' technical support of both the project plan and Salesforce platform as this work has helped the campus achieve and exceed their operational goals for the engagement. Due to the success of the improved communications for applicants and admitted students via Pardot (Salesforce's email plugin), IITS agreed to increase the student population in Salesforce to include all applicants for Fall '21. As the fiscal year drew to a close, IITS also completed an RFP to deploy Advisor Link and a student community portal for Success Coaching and Academic Advising. This project is currently underway and will deploy by Fall.

Phasing Out PointSpan Telephone System

Prior to COVID, IITS was in the process of replacing the obsolete PointSpan phones with VoIP desk phones. In one of the more fortuitous consequences of virtual work, Microsoft Teams has become an almost universally adopted platform. Given the need for mobility, Teams is now able to serve as the Unified Communications platform CSUSM was looking for as part of our strategic planning effort back in 2018. In Spring '21, IITS deployed Teams to faculty and staff, after acquiring the necessary Microsoft A5 licensing. In addition to basic phone services, prior to the Fall '20 term, IITS also deployed full customer service call queue functionality to Cougar Central and the IITS Help Desk. This had been a long-time goal for Cougar Central since the new system has introduced virtual queuing that allows students to select the option of a call-back. The system also performs a screen pop using the student's ID when the call comes into the representative, thus improving staff workflows. While this project has been delayed by COVID, completion of the replacement phone services and shut down of the PointSpan system is a priority to complete by the end of the 2021 calendar year.

Ongoing Adoption of a Hybrid Computing Environment

IITS did not make significant progress in terms of cloud computing adoption this year, however elements of our identity infrastructure were moved to Microsoft's cloud platform in December, including password reset and account recovery functionality. In partnership with TPAC, IITS also evaluated the option of moving our on-premise Moodle installation to the Canvas LMS. While TPAC recommended that CSUSM continue utilizing Moodle, it is likely that Canvas will be the future for CSUSM.

Expanding Digitalization/Electronic Workflow

Without a doubt, COVID was a catalyst in advancing our electronic workflow efforts. After transitioning from DocuSign to Adobe Sign in 2019, CSUSM has seen tremendous utilization of this platform this past year as remote work forced campus departments to quickly transition from paper forms to digital signatures. From Fiscal Year 19/20 to 20/21, the total number of agreements sent via Adobe Sign grew by 240% (18,581 to 44,612) and the total number of unique senders increased from 436 to 1,180.

Enterprise-wide Multi-Factor Authentication (DUO) and Single Sign-On

One of last year's biggest ironies was that CSUSM was set to widely adopt DUO just as COVID hit. While CSUSM had approved the roll-out of DUO to all faculty, staff, and students in February 2020, at the time of the initial security event in October 2020, only 50 staff with elevated access to PeopleSoft and approximately 6,000 students who received financial aid were enrolled. While our lack of DUO deployment certainly played a role in the Bedrock 10 incident, the tremendous efforts to stop the hacking attempt and the unprecedented IITS-led DUO adoption helped CSUSM achieve its goal. This effort included daily Zoom sessions, where faculty would bring their virtual classes to specialized meetings and breakout rooms that assisted individuals in installing and enrolling in DUO. This team effort eventually reached over 18,500 members of the campus community, with the campus experiencing no major support issues associated with the activation of MFA or the new passphrase requirements.

Updating Classroom Learning Technologies

COVID greatly impacted our plans for classrooms, forcing us to defer all the work previously planned for Summer 2020. CSUSM was one of the earliest campuses to pull all classroom laptop carts out of service and loan out those laptops to students, faculty, and staff. Additionally, in the Spring '21 term IITS was tasked with developing a more flexible classroom instructional design that would incorporate online learners. Fortunately, IITS' instructor station design, developed in 2019 for the EL Building and ViaSat Engineering Pavilion, positioned us well to adapt to these new requirements. After the initial evaluation period ended, IITS was testing classroom designs that included tracking cameras, screens for digital whiteboarding, and ceiling tile microphone systems that would be incorporated with our custom designed lift-table lecterns. While not completed at the time of this report, IITS has ordered the equipment and is preparing to deploy it in 60 classrooms over the Summer 2021 time period.

Expanding and Integrating COVID Tools into the Campus App Mobile Platform

In response to new campus procedures related to COVID-19, IITS partnered with FAS/Safety & Risk team to enhance the Campus App with the ability for students to do self-reported COVID-19 screenings (11,929 views in Fall '20) and a new QR code scanning functionality (24,344 scans in Fall '20). QR codes were posted at classrooms, labs, and at the County testing site, and students utilized the app to scan and record their presence on campus. In the Spring term, the Campus App enabled students to easily utilize the on-site COVID-19 testing program. As part of the effort, features were added that looked for missed testing periods and automatically sent students reminders in addition to alerting staff for follow up as needed. This feature was also available for staff usage, but campus procedural issues kept the feature dormant. In the late Spring, the App's daily COVID screening form was also made available to faculty & staff.

Virtual Reality (VR) Lab Helps Nursing Students Complete Licensing Requirements

In Fall 2019, IITS updated our video production studios and added a VR lab and equipment as part of a plan to create new instructional capabilities. This decision turned out to be forward-thinking and of great value to the campus as CSUSM's Nursing program utilized the VR technology in Inspiration Studios to continue their program requirements during a time when their students were unable to visit local hospitals. IITS originally added Virtual Reality in response to CSTEM's emerging VR curriculum; little did we know when we remodeled the studios how important this technology would become to the educational requirements of programs like Nursing. Local Channel 10 news covered this initiative: https://www.10news.com/news/local-news/csu-san-marcos-nursing-students-using-virtual-reality-to-complete-studies

Enabling Virtual & Remote Services

One of the toughest challenges IITS had to meet this year was the need to make all campus-based services available remotely. Whether it was payroll technicians, Police personnel, or faculty, IITS responded throughout the year with numerous solutions made to meet very specific needs and security requirements. These new services included LogMeIn (deployed to over 200 users needing access to their office desktops) and HIPPA compliant Zoom, deployed for telehealth services with Student Health & Counseling Services and Speech Language Pathology.

USU Computer Lab

In addition to providing computers to individuals, IITS also helped create the new USU Computer Lab, a safe and accessible space for students to work on campus over this past year. In partnership with the USU staff, IITS repositioned equipment from Kellogg 2000 and provided student assistants to create an open lab environment where students could study, access all our on-campus applications and print for free. While the lab was not heavily used, it was yet another example of IITS stepping up to meet student needs.

Enhancing Student Communications

IITS staff have provided the bulk of the support for CSUSM's highly successful chatbot. While the chatbot was initially a pilot focused on incoming students, campus leadership decided to expand its usage to all current and admitted students in April 2020 in response to the shift to virtual. During the past year, students asked the chatbot over 26,673 questions, many of them outside work hours. The chatbot has clearly resonated with students, as the response rates are significantly higher than email, and the campus has regularly turned to the chatbot to query students for simple surveys and prompt them to action. In one of the more unique uses, during the Bedrock 10 event it was even used to send users individual links for our DUO enrollment process.

Supporting Events

COVID restrictions greatly impacted event operations throughout the year, and IITS' event support was critical, from last summer's online Orientations and Fall Convocation to this spring's Commencement ceremonies. While students did not get to walk across the stage in May 2020, they did get to participate in CSUSM's first ever graduates on parade, which IITS streamed to the community. Prior to COVID, IITS had coordinated with the Commencement team to license Marching Order, a system that announces student names and displays the name/degree on the big screen. This tool saw its first use with great success during May 2021 commencement events, with IITS providing funding and operational support, in addition to our usual role streaming commencement events.

Managing Budget Reductions and Facing the Challenges of Staff Retention

Like all CSUSM departments, IITS had to find ways to respond to the current fiscal year budget cuts in ways that limited the service impacts to the campus community. IITS saw budget cuts of just over $400,000, and given the support demands on technology and staff, there were no easy options available to us as they had already been used in prior reductions. In the end, the unit had to make the very tough choice of eliminating three recently vacated staff positions.

These budget cuts come at a time when units across campus continually push for new applications and services to meet the demands of students, faculty, and staff, which ensures IITS faces an ever-increasing workload. IITS' new challenges are added to the existing ones of retaining and recruiting, which, combined with a growing number of retirements, have forced the unit to increasingly depend upon a shrinking number of critical staff. To put this in perspective, IITS had 83 staff positions in FY 16/17 and had been operating with 79 funded positions prior to eliminating funding for three vacated positions in FY 20/21. Unsurprisingly, highly skilled employees often remark on their intense workloads. Reshuffling staff has been a frequently used short-term strategy; however, moving IITS staff internally has created a high number of vacancies in other areas. Managing these issues poses a significant challenge that requires weekly attention to avoid it impacting IITS' ability to provide services without staff burnout. Given the ongoing recruitment and retention challenges, IITS has been unable to make real progress on workload vulnerabilities, but the department continues to prioritize the backfill of staff needed to ensure the expertise necessary for core campus technology services.

Improving Communications to the Campus Community

One of IITS' recognized limitations is the room for improvement on websites dedicated to self-help, technical information, service & support instructions, and service status information. Given the remote learning and work environment, IITS made it a priority to address these deficiencies by creating the IITSforyou web pages, which continued to grow in usability and value throughout the year. Working with TPAC and at the request of the Chair of the Academic Senate, IITS added a faculty feedback form, with responses shared with the chair of TPAC. As part of the unit's efforts for improved campus awareness of technical issues, IITS also developed and operationalized a new service alert system. This system allows IITS to post and then archive information on any service-impacting event for campus awareness and historical reference.

Addressing Security Vulnerabilities

Systemwide, the CSU has been engaged in a Cyber Hygiene project (related to the Bedrock 10 incident) to evaluate campus security capabilities. This project increased IITS' compliance requirements such as securing remote access, system hardening, and improved system logging and monitoring, which have created additional operational requirements, new systems, and added staff responsibilities. While much has already been done to better secure CSUSM, IITS continued to work throughout the Spring '21 term to further strengthen our security and prevent any future security incidents. These efforts included building upon the licensing of our Microsoft suite, since IITS has purchased A5 level licensing for all faculty/staff to cover telephone services and additional security functionality. IITS committed an additional $81,000 a year to purchase the entire suite, which includes tools and monitoring capabilities that are considered a security requirement going forward. Additionally, IITS participated in a week of extensive vulnerability testing with the California National Guard. This engagement was a first of its kind for the CSU and a good additional check of our security, post Bedrock 10 incident.

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