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Best Achievement in Operational Excellence to deliver Digital Transformation
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Synopsis

In 2017, President Mary Papazian shared her vision of technology playing a critical role in the digital transformation of San Jose State University (SJSU) and for SJSU to become an institution others can follow. She created a VP-IT/CIO position who reports directly to her, invested in emerging technologies, and facilitated the development of strong connections between SJSU and Silicon Valley industry leaders.

We developed a long-term digital transformation strategy and built upon our successes year-over-year, ultimately empowering our campus to work anywhere, anyplace, and anytime.

- We were deliberate, strategic, and intentional as we developed our plan to support President Papazian's broader university vision.
- Our four-year digital transformation journey started with evaluating five megatrends that impact the entire technology industry:
    - **Cyber and Physical Security, Personalization**, **Social and Digital Media**, **Data and Analytics,** and using **Technology as a Competitive Advantage,** which was a concept new to Higher Education.
- We used the megatrends to inform seven key focus areas for our digital transformation, which helped us build a professional IT organization as well as shape our priorities each fiscal year. This strategy also allowed us to stack each year's priorities on top of each other, building and adapting in the most dynamic environments.

If the San Jose State University Information Technology (SJSU IT) division had not started developing its technology profile to enable work anywhere, anyplace, anytime three years earlier, continued conditioning it over time, and building on top of that technology, our ability to transition to a fully online modality within four days to comply with the California shutdown mandate would not have been possible.

Strategic Objectives and Scope

The strategic objectives of our digital transformation:

1. Create a modern, technology-enabled digital university where our campus community can work, teach, and learn anywhere, anyplace, anytime.
2. Drive campus toward fully paperless by 2024.
3. Elevate campus service experience.

The scope of our digital transformation included seven key focus areas:

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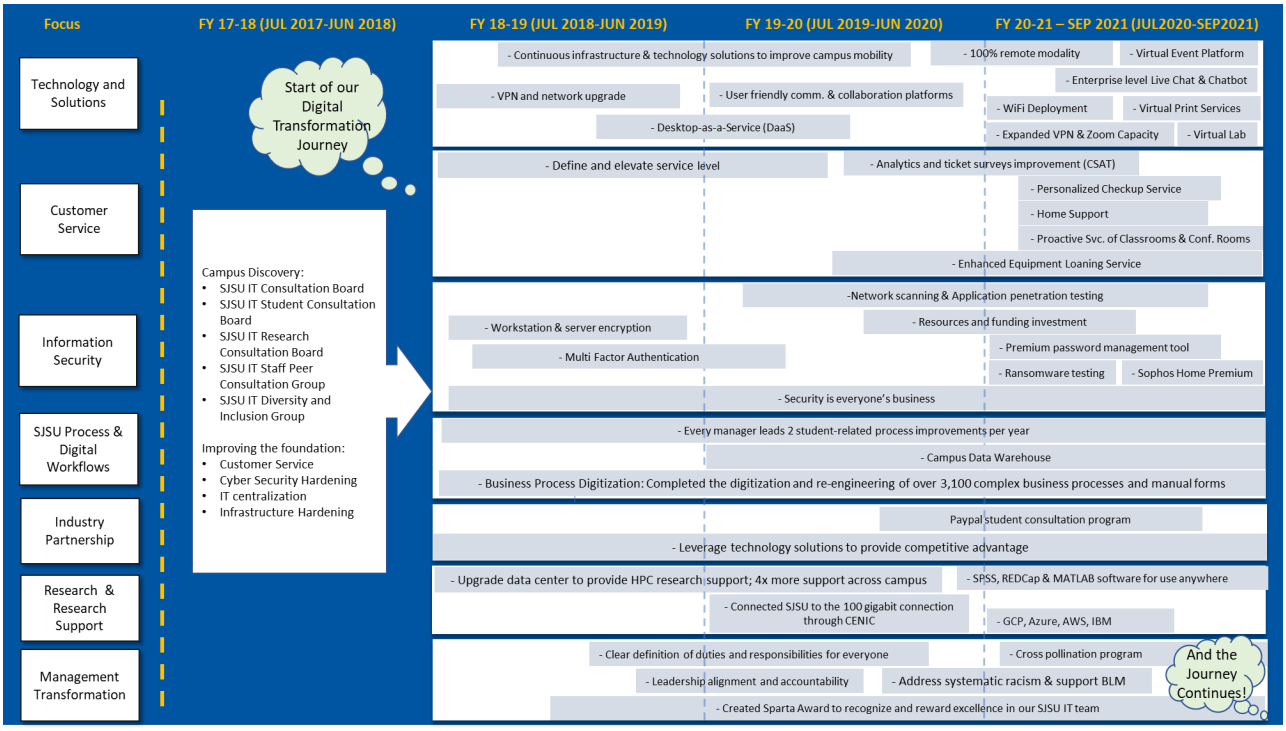
Focus	From	TO
1 Technology and Solutions	- Dated technologies and convoluted solution design and process	- A solid technology foundation that is scalable, agile, modern, and capable of supporting data-driven decision-making. - Modernize all hardware, software, applications, and systems to support online modalities, including shifts to the cloud
2 Customer Service	- Satisfaction metrics not provided - Not a department emphasis	- Elevate customer services from increasing support hours to extending support for home computers and networks. - Utilize data analytics capabilities to evaluate our service quality and improve the campus experience - Transition from the traditional reactive operation to proactive
3 Information Security	- No Information Security Office - Combined with Customer Service department	- Layering, awareness ("Security is everyone's business"), and partnership with industry leaders to provide the campus with tools and resources to protect our digital life
4 University Process & Digital Workflows	- Intensive manual processes - Unsuccessful coordinated efforts across campus	- Drive campus toward fully online and paperless while automating manual administrative processes - Every manager leads 2 student-related process improvements per year
5 Industry Partnership	- Licenses and Purchases	- Using our location in Silicon Valley as a competitive advantage, leverage our partnerships with private industry to elevate campus technology.
6 Research & Research Support	- No intentional research support and infrastructure	- Data center upgrade to provide HPC research support; 4x more support across our campus - Close collaboration with the Office of Innovation and Research, FBI and industry - Develop public clouds (GCP, Azure, AWS , IBM)
7 Management Transformation	- Immature management philosophy	- Leadership alignment and accountability - Created annual award to recognize and reward excellence in our SJSU IT teams - Cross pollination program - Diversity, equity and inclusion

Implementation and Timeline

We began laying the foundation for our digital transformation in 2017. SJSU IT was previously run more as a commodity rather than as a competitive advantage. The first step was to establish SJSU IT as a professional organization, a collaborative partner in transforming our campus. To execute on our long-term digital transformation strategy, we designed a three-year strategic roadmap for the seven key focus areas. We utilized phased releases for projects to allow us to stack each year's priorities on top of each other, building upon our successes year-over-year.

We adopted agile methodologies to increase project versatility and successfully deployed 37 projects from 2019 to 2021, spread across the seven key focus areas of our strategic roadmap for digital transformation.



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The Size of Deployment Challenge

SJSU is organized into nine divisions, each led by a cabinet member reporting directly to the President. There are a total of 503 departments within these nine divisions and the university has ten colleges educating more than 36,000 students a year.

As the oldest public university on the West Coast, founded in 1857, SJSU was an organization with many inherited manual processes. Prior to our digital transformation effort, the standard was to use paper forms and hand-carry them to other departments across campus or fax them to other organizations. Departments were largely siloed and worked on the principle, “this is how it has always been done.”

Our deployment scope was campus-wide. Success was dependent on (1) other units’ collaborative participation in fundamental business operations changes, (2) new technology adoption, and (3) a focus on process-heavy departments embracing process change and tools improvement.

In addition, we run concurrent, large-scale, and complex enterprise-level projects, even though universities typically tackle these one at a time. Emerging technologies are quickly widening skill gaps, and we directly compete for specialized technology talent in Silicon Valley.

SJSU IT led collaboration efforts with all divisions across campus. A strong focus was placed on change management and adoption. President Papazian and her cabinet were fully behind the digital transformation effort, investing in emerging technologies and dramatically increased technology funding. Additionally, with President Papazian’s support, SJSU IT developed unprecedented industry partnerships with technology giants in the Bay Area who played an integral role in SJSU’s transformation efforts.

Impact & Results of our Deployment

SJSU IT has delivered on all we intended in our three-year strategic roadmap for digital transformation. Below are highlights of our accomplishments against our strategic objectives:

1. Create a modern, technology-enabled, digital campus where our campus community can work, teach, and learn anywhere, anyplace, anytime.
    - Transitioned an institution of 40,000+ individuals from a traditional campus-centric university to a completely mobile campus in only four days due to mandate from California.
    - Upgraded and expanded our networks and VPN, creating a more mobile and secure campus with higher bandwidth where all can connect remotely rather than just a few.
    - Shifted all new computer equipment purchases from desktops to laptops as our standards, allowing for a shift to flexible work modality.
    - Being the first university in the western U.S. to deploy Cisco WiFi 6. Our deployment of outdoor WiFi 6 has (1) improved speed by 37%, (2) improved multiple device handling, and (3) increased WiFi coverage range. The jump in traffic on our Outdoor WiFi network was a 108% increase, from 1.2TB of data on August 21, 2019, to 2.5TB on August 19, 2021, allowing our students the ability to study and learn wherever they are on campus. This is an excellent example of how we’re implementing solutions to address today’s problems that also build for the future. As we move toward a more hybrid future, this level of internet bandwidth consumption will only continue to go up.
    - Shifted to more cutting-edge and user-friendly communication and collaboration platforms (Zoom, Google Chat, Enterprise Chat, and Marketo) rather than homegrown solutions.
    - Rolled out Desktop-as-a-Service (DaaS), which enabled us to set up virtual labs in a few hours instead of weeks. 100% of our technical labs are now virtually accessible, so our students have the option to come to campus for a traditional physical desktop environment or to work remotely.
    - Deployed a virtual event platform that will enable larger online gatherings.

- Partnered with industry leaders in the Silicon Valley to provide our campus with tools and resources to protect our digital life. Leveraged AI to proactively monitor our environment and reduced security audit exposures from 17 to 4 findings.
- Using our location in Silicon Valley as a competitive advantage, established partnerships with private industry (IBM, LinkedIn, PayPal, Sophos, and more) to elevate campus technology. These partnerships gave our students access to cutting-edge, enterprise-grade tools they normally couldn't access. This translates into students who are more marketable, as their highly desirable skill sets include blockchain solutions and quantum computing, as well as graduates with higher-paying jobs. In Spring 2020, San Jose State won the CIO100 award for our work with IBM. In the Fall of 2019, SJSU hosted over 100 university presidents to understand how we leveraged our partnership with LinkedIn on a data pilot program regarding student pre-distinctive job placement.
- Developed public clouds and upgraded our data center to provide 4x more powerful HPC research support across campus.
- Connected SJSU to the 100 gigabit connection through CENIC, the research-specific network that connects many of the top universities on the West Coast together.

2. Close to fully paperless by 2024
   - Since 2017, we have completed the digitization and re-engineering of over 3,100 complex business processes and manual forms. These activities that would previously take weeks to complete are now completed in minutes

3. Elevate campus services experience
   - Implemented integrated predictive analytics solution that uses machine learning algorithms to identify at-risk students for proactive support and guidance.
   - Customer Service Satisfaction ratings hover at 4.67 out of 5. Today, we continue to use data analytics capabilities to evaluate our service quality and improve the campus experience.
   - Expanded inventory for equipment loaning service and elevated service level, including a 30-minute guarantee of equipment in a requestor's hand.
   - Improved customer experience by extending password resets for everyone in the university community from every 6 months to every 24 months. At the same time, we implemented security features to better protect our campus communities.
   - Deployed a new, enterprise-grade live chat and a 24/7 Chatbot solution with AI capabilities. The solution allows departments to transfer the full chat history so our students, parents, or guests won't have to retell their stories when they get transferred between departments. This is a huge win for customer service and completely eliminates one of the most frustrating things associated with online help.
   - Extended our campus service to support personal home devices and networks, including a complete personalized home checkup service for students, faculty, and staff to help optimize their entire home computer setup for online.
   - Enabled the review of Educational Opportunity Program (EOP) applicants from a single worklist through process re-engineering. This consolidation of information and processes reduced the need to connect to multiple systems and decreased process time from 49 to 15 days.

Closing

Forging strong industry partnerships with technology leaders, leveraging our location in Silicon Valley, and creating a modern, technology-enabled campus are hallmarks of our transformational journey. The outcomes are significant with respect to social mobility. On our campus, low-income and first-generation college students now have access to state-of-the-art technology, first-hand knowledge of how to use it, networking opportunities like internships, and invaluable industry connections that they traditionally have not had.

As we travel down this pathway and follow President Papazian's lead, we continue to meet our ultimate objective, to make San Jose State University a fully digital campus and to remain an institution others can follow.