Division of **Information Technology**
University of South Carolina

ANNUAL REPORT
FY 18-19

U*of* SC™ **Information Technology**

MESSAGE FROM THE
VICE PRESIDENT FOR INFORMATION TECHNOLOGY
AND CHIEF INFORMATION OFFICER

I am pleased to share this Annual Report from the Division of Information Technology (DoIT). The division works to help fulfill the academic mission of the university by providing IT services that maximize productivity, increase collaboration, and improve service. In 2018, we developed a set of Strategic Priorities that outline the goals of our division over the next few years. This report highlights work completed over the past year that directly correlates to these Strategic Priorities.

Our division has worked to improve our interaction and collaboration with the university system. This year, we expanded our governance and advisory groups, allowing us to receive more input from a variety of constituents across the system. We updated our website to a more modern, customer-facing design that allows individuals to find information they need in just a few clicks. We also improved our online Knowledge Base of IT materials, allowing students, faculty, and staff to search for information, instructions, and IT resources at any time. The Knowledge Base is available at https://sc.edu/ithelp.

We will continue to support both the immediate and long-term needs of our university, work to build stronger partnerships, and provide value to our system. We are always interested in your ideas and suggestions on how we can better serve you and the UofSC community. Please feel free to reach out to me at any time. Thank you for your support.

Doug Foster

ADVANCING THE ACADEMIC AND RESEARCH MISSIONS OF THE UNIVERSITY

The preeminent priority of the DoIT will be to make substantive contributions to the teaching and research missions of the university.

RESEARCH COMPUTING

The Research Computing (RC) department works with researchers on computational projects requiring high performance computing that is critical to the research mission of the university by helping maximize research productivity. RC helps enhance networking, sharing of data and collaboration with researchers across the globe.

A joint effort began this year between DoIT, Center for Digital Humanities, South Carolina Department of Natural Resources Archeology, and the College of Engineering and Computing that will develop a Science Gateway that utilizes artificial intelligence to make discoveries in identifying and classifying Native American artifacts. Science gateways allow researchers to provide external web-based interfaces to access data and perform computations using specific workflows and techniques for given codes and researcher-specific projects

One of the most significant aspects of this project is the collaboration. Experts across a variety of units are leveraged to provide a product or service that previously did not exist. This enables discovery and scientific breakthroughs. The collaboration also enhances relationships for future work and promotes grant funding opportunities.

IMPROVED NETWORK FOR RESEARCHERS

High performance research clusters were connected to Internet2, allowing broader international networking and scientific research collaboration. The connection allows university researchers to partner with others around the world utilizing 100 gigabit Ethernet technology. Deployment of a 100Gb/sec network improves research collaboration capabilities, allows for further cloud-based computing and improves overall network speed across the USC system.

HIGH PERFORMANCE COMPUTING:

The practice of aggregating computing power in a way that delivers a much higher performance than one could get from a typical desktop computer in order to solve large problems.

EXPANDED STORAGE OPTIONS FOR RESEARCHERS

Researchers now have more options for storing their data in the cloud. Storage solutions are provided by Microsoft Azure, Amazon AWS, and Google. Cloud storage gives researchers the opportunity to easily move, manipulate, scale, provide redundancy, and share research data. It also provides advanced security and compliancy capabilities for things like Protected Health Information.

EXPANDED HPC STORAGE

The Research Computing group implemented a high-performance storage platform to enable researchers to run large scale simulations and big data analysis at incredible speeds and at massive scales. This parallel file system can write data at a max speed of 14.4 gigabytes per second and has a 1.4 petabyte capacity. Although not for long-term data retention, this "scratch space" file system is highly redundant and easily expandable.

GOOGLE CLOUD COMPUTE

Executive Director of Research Computing Paul Sagona was invited to present at the International Google Cloud Next Conference to discuss how the Research Computing team assisted Public Health Associate Professor Sean Norman run a massive metagenomics analysis using Google high performance computing resources. The project paved the way for further cloud-based research computing projects.

CORE MIGRATION

The Board of Trustees charged the division with upgrading the core network backbone to improve speed and reliability. In 2018, the network backbone was increased to speeds 10 times faster than previous years. This year, the university's network backbone grew to 100 GB per second. This backbone provides network and internet connectivity to 250 buildings across the system, to include comprehensive and regional campuses. The upgrade increased the network throughput, firewall capabilities, and security. Internet connectivity has also improved.

March Madness

The DoIT network operations team and system architects worked with UofSC athletics to assist with the network requirements for the NCAA March Madness Tournament. Nearly 25,000 people attended the tournament this year. Athletics reached out to the DoIT because of the temporary need for much of the equipment. After some negotiation, Cisco loaned the university $244,728.00 worth of equipment including switches and licenses for the DoIT to use during the tournament. The teams worked to configure all of the equipment once it arrived on site. DoIT Support teams monitored all of the network equipment and bandwidth to ensure network performance throughout the weekend.

ENHANCING THE STUDENT DIGITAL EXPERIENCE

The DoIT will equip students with the technology necessary to achieve academic success.

IMPROVEMENTS TO BLACKBOARD ACCESSIBILITY

Students have a variety of needs in regard to how they gain knowledge and interact with teaching technologies. The university conducted work this year to ensure course work was accessible to all students regardless of special needs and varying learning styles. Blackboard Ally was adopted to ensure accessibility of course content for all students. This behind-the-scenes technology converts course content into multiple other types of content that is accessible for persons with disabilities. Blackboard Ally can convert course content into six different highly accessible content types. Users have their choice of which one to download and use. Blackboard Ally is not limited to students with disabilities; any student who would like to access the various content types are able to do so. This technology builds a more inclusive learning environment for all UofSC students.

IMPROVED CLASSROOM AV SUPPORT

The Columbia campus has extraordinarily high classroom utilization on a day-to-day basis. To combat classroom schedules and technology equipment that needs service, the DoIT implemented an evening shift unit. This unit troubleshoots and resolves urgent audio-visual issues in classrooms when rooms are not occupied with classes. The goal of this evening shift is to resolve issues before students and instructors return to class the next day.

UPGRADE OF STUDENT SYSTEMS SOFTWARE

In the summer of 2019, the student systems software, Banner, was upgraded to a new version. Banner 9 delivers a number of important enhancements, including a modern user interface, enhanced navigation and process management tools, and new functionality across the system. It also provides greater flexibility and allow users to run Banner on any modern browser.

IMPROVING ADMINISTRATIVE EFFICIENCIES

The DoIT will work to streamline administrative systems and processes to minimize overhead and duplicated work.

INTRODUCTION OF EMPLOYEE SELF-SERVICE PORTAL FOR HR & PAYROLL

The PeopleSoft Human Resources/Payroll project was completed, which replaced the university's 30-year-old legacy payroll system with a modern, integrated system that manages both human resources and payroll functions. The new system improves compliance, reduces risk, provides better data for decision making, and increases standardization and best practices across the institution. It also allows employees to self-service many functions such as specifying payroll and tax deductions, accessing previous paystubs, and much more.

EASIER ACCOUNT MANAGEMENT SYSTEM

A new account management system, myacccount.sc.edu, was introduced to give employees and students an easier way to manage passwords and emergency contact information. Previously, individuals had to login to maintain a number of passwords and usernames across several systems. Users are no longer required to visit multiple websites to manage their multifactor authentication login information, personal email address, or Carolina Alert notifications, thus improving overall efficiency.

EMPLOYEE EMAIL MOVED TO THE CLOUD

All employee email accounts and calendars were successfully moved from on-site servers to the Microsoft Cloud. This movement of more than 30,000 accounts across the university system allowed for the combination of all student, faculty, and staff email accounts into a single system. As a result, it is now easier for students and employees to locate each other's email addresses, busy search calendars, and collaborate across systems such as Microsoft OneDrive.

The movement to the cloud also provides a more secure environment. Email that was previously stored on physical servers in the university data center were susceptible to loss due to natural disasters such as floods or fire. Moving accounts to the cloud greatly reduced that risk and improved disaster recovery.

Employees also received a larger mailbox size following the move. In addition, the system allows for better collaboration with many of the services offered in Office 365, and provides more reliability and security.

ESTABLISHING A BEST-IN-CLASS SERVICE DELIVERY MODEL

The services offered by the DoIT should be easily accessible, competitively priced, and repeatable.

SELF-SERVICE PORTAL IMPROVEMENTS

The DoIT Self-Service Portal (sc.edu/ITHelp) is an easy way to request technology assistance or report an issue. The Self-Service Portal was introduced last fiscal year. Continual service improvement efforts to our Self-Service Portal have resulted in over 50 enhancements made along with simplifying the process to request services and report IT issues. The DoIT has also met with students, faculty, and staff to seek feedback and suggested improvements. To date, 75 constituents and thought leaders across campus have provided input to improve the customer experience and helped make several new service offerings available for customers. We value your feedback and hope you'll continue provide suggestions via our "Leave us Feedback" link at the bottom of our portal.

EXPANSION OF THE KNOWLEDGE BASE

The DoIT continues to grow its body of shared knowledge. Shared knowledge drives process improvement while decreasing time to resolve IT issues. Using the Knowledge Base, customers are empowered to self-serve their IT needs 24 hours a day, 365 days a year. DoIT just launched a public-facing Learning Portal powered by our Knowledge Base, to simplify access to DoIT training and learning materials. The Learning Portal also introduces improvements to knowledge articles, allowing customers to leave detailed feedback, which improves communication between the DoIT and our customer base.

The Carolina Tech Zone , located at 516 Main Street, is a walk-in technology support center for students. This fiscal year, 6,143 students were served.

BETTER SERVICE TO APPLE USERS

More than 50 percent of computers that connect to the student and employee networks at the Columbia campus are Mac or Apple devices. To better serve these users, employees from the Service Desk, Desktop Support, and the Carolina Tech Zone underwent extensive training on MacOS/Apple troubleshooting. This training allows the DoIT to provide faster, more consistent service to Apple users.

PROVIDING A RELIABLE AND FLEXIBLE TECHNOLOGY INFRASTRUCTURE

The DoIT will plan for future growth and innovation by providing a technology infrastructure that can be expanded, upgraded, and replaced to meet growing needs.

DATA GOVERNANCE

 The university has made great strides to protect and manage student, employee, financial, and other data stored by a variety of university departments and areas. The term data governance refers to the framework consisting of data availability, integrity, and security. It is a set of processes to ensure all important data is managed and protected.
 A system-wide Data Cookbook was implemented this year. The software provides an enterprise resource for definitions and classification of data. Data Cookbook helps the university determine many factors of data such as who owns it, where it comes from, and if it is consistent. It allows data to flow between a variety of university systems such as student registration and health services. This collaboration of data creates a streamlined database that allows employees to be more efficient and gather required data quickly.
 In conjunction with Data Cookbook, the university's first Data Standards Manager was hired. The Data Standards Manager works closely in functional areas of the university to make data more understandable and readily usable. The Data Standards Manager is also responsible for administrating Data Cookbook and working with unit managers to create standards for their data.

INCREASED INVOLVEMENT THROUGH GOVERNANCE

Input from a broad base of stakeholders is necessary to ensure IT services support the academic and research goals of the university. Several governance groups are in existence that help the division gather valuable input on IT investments and strategic visions. Engagement with these groups not only strengthens relationships, but also helps instill a shared vision for IT at the university. This year, two additional governance groups were started. A decision-making body works to develop the vision and assist researchers that are engaged with our Research Computing department. In addition, a group of IT professionals from across the university formed unITe, a collaborative group working to investigate the disparate IT service offerings across the system and ways to unify them for more efficiency.

INCREASED IT SECURITY

Protecting university resources and data is a top priority. Over the past year, a number of tools were deployed to better secure the technology infrastructure. An overhaul of the anti-malware software was completed, which better protected users from a variety of problems such as viruses and theft. More than 25,000 faculty and staff computers were overhauled, ensuring more computers on the university network have protection against potential malicious activity.

WI-FI UPDATES

In the past, the university guest wireless network was broad and largely open. The university was unable to determine who was using the guest network, or for what purpose. This year, a more secure guest wireless portal was implemented. Guests at the Columbia campus are now required to sign up with a registration portal in order to gain access to the wireless network for 12 hours. This requirement not only improves network security, but also helps with connectivity speed of the guest network.

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South Carolina

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