GEORGE MASON UNIVERSITY | Information Technology Services

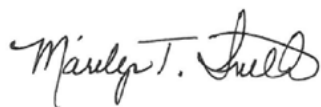# ANNUAL REPORT
FY2017

ANNUAL REPORT FY2017

It was a successful year for Information Technology Services (ITS), one in which we worked as "One ITS" to begin forging the path we outlined in our 2017–2020 Strategic Plan.

We worked evermore diligently to improve areas identified by the Mason community and continued to develop and nurture strong partnerships with our Mason associates including the Information Technology Governance Group (ITGG), Faculty Senate Technology Policy Committee (FSTPC), Technology Leadership Council (TLC), Systems Administrator Leadership Team (SALT), and senior administration, whose support and partnership made progress possible.

In FY2018, we will continue to align with Mason's strategic priorities and use our 2017–2018 goals to move towards our strategic objectives. We continue to focus on and build services for students, faculty, and staff, and continue to work collaboratively on a number of projects with Mason colleges, schools, institutes, and departments to advance the collective experience.

Please enjoy our annual report highlighting our progress in fiscal year 2017.

Sincerely,

Marilyn T. Smith
Vice President and CIO

Information Technology Services

WHO WE ARE
Information Technology Services (ITS) is Mason's central IT organization. We provide IT resources, systems, and services to the university community. Seven teams comprise ITS, employing over 400 full-time, part-time, and wage employees. Our Strategic Plan is driven by Mason's Strategic Plan.

OUR TEAMS
- Academic Strategies
- Enterprise Applications
- Enterprise Infrastructure
- IT Security
- Learning Support Services
- Network Engineering & Technology
- Strategic Business Operations

WHAT WE DO
GROUNDED BY OUR MISSION
ITS works transparently to drive excellence in teaching, research, and administrative operations

WHY WE DO IT
ENLIGHTENED BY OUR VISION
To provide superior technology and collaborative solutions that inspire life-changing learning and success for our students and the entire Mason community

HOW WE DO IT
GUIDED BY OUR VALUES
- Teamwork
- Respect
- Integrity
- Communication
- Innovation

ALIGNED WITH OUR PRINCIPLES
- Listen to our customers and engage with our partners to align resources
- Incorporate life cycle planning to develop sustainable services
- Value our people by encouraging their professional growth, promoting well-being, and recognizing excellence
- Ensure that information technology assets are protected and monitored, to reduce university risk
- Deliver solutions that catalyze student success

Providing services and support that help make Mason great

- Aquia Data Center
- Business Intelligence
- Computer & Software Resources
- Customer Support
- GMU-TV
- Email & Telecom
- Infrastructure & Network
- Patriot Tech
- Project Management
- Web Content Management

- Application Integration
- Blackboard & Collaborate
- Enterprise Applications
- IT Security
- ITS Support Center
- STAR Lab & CLUB
- Technology Enhanced Classrooms
- Videoconferencing & Telepresence
- Virtual Computing Lab

PROJECTS THAT IMPROVE THE ACADEMIC AND ADMINISTRATIVE EXPERIENCE

- Refreshed the technology of 46 University Registrar Classrooms and upgraded network equipment in academic buildings

- Developed the Online Virginia Network program interactive web portal for students interested in online degree completion

- Upgraded the Science and Technology Telepresence Room

- Conducted a study of the Banner systems and identified initiatives to improve return on investment

- Partnered with the Office of HR & Payroll to streamline the employee on-boarding process

- Implemented Blackboard Collaborate Ultra for simplified access to web-conferencing via a new browser-based interface

- Transitioned Mason to the Common Application to increase Mason's visibility and encourage a seamless process for applicants

- Incorporated document and approval functionality into the Travel and Expense System to improve process compliance, decrease processing time, and eliminate paper

- Designed a live streaming solution for GMU-TV events making the productions more accessible to larger audiences

- Replaced the Storage Area Network (SAN) for increases in storage bandwidth and process efficiency

PROJECT SPOTLIGHT

Banner Study

ITS partnered with Fiscal Services, Accounts Payable, Human Resources, Budget Office, Office of Sponsored Programs, Financial Aid, Admissions, Registrar, Student Accounts, Provost/Academic Units, and Ernst & Young (EY) to conduct a gap assessment to better inform the university of areas of improvement within Banner. EY was brought in to assist with the major undertaking of identifying a project roadmap that would allow Mason to fully utilize Banner and drive efficiency. Through more than 30 area specific workshops and interviews with Mason administrative offices and ITS staff, a report was compiled that detailed situations where Banner is used ineffectively or not at all. This included usage of home-grown or other vendor systems where Banner could be used, processes that are performed manually when functionality is available in Banner, business reporting needs not being met, extensibility features that are not in use, and other processes related to the use of the ERP system where Mason can improve. EY's report included recommendations for remediation along with required resources and timelines for processes to start in the next fiscal year. The Comprehensive Report was presented to Mason executive leadership on March 13. Five top priority projects were identified and are currently being planned and executed.

Wireless Improvements

ITS worked to improve the overall wireless experience and accommodate the increased volume at Mason— more people with more wireless devices. ITS made several hardware and software improvements to help address this demand and add redundancy to help limit the impact to users in the event of an outage.

- To improve coverage in residence hall rooms, ITS began the switch to a high-density coverage model, which moves Wireless Access Points (APs) from public areas (i.e., hallways) into rooms or suites, and increased the total number of APs.

- In academic buildings, ITS continued work to replace end-of-life network controllers for faster models and nearly quadrupled the number of APs.

- ITS resolved performance problems with the network authentication system (Cisco's Identity Services Engine). Improving how authentication is controlled increased network flexibility which means more stability because of better management of the flow of wireless traffic to devices, a greater diversity of devices that can connect without issues, and a decrease in both the number and the length of outages.

The Johnson Center on Mason's Fairfax Campus

Technology Sandbox

ITS, University Libraries, and the Center for Teaching and Faculty Excellence partnered to construct the Technology Sandbox at Fenwick Library. The Technology Sandbox offers faculty and staff an opportunity to learn and experiment with a variety of the innovative instructional technologies in use and under review at George Mason University. The goal of the Sandbox is to provide faculty with a space to "play" with new technologies and explore ways to incorporate them into the classroom to enhance instruction. The Sandbox also allows industry professionals to demo new and upcoming products and affords ITS the opportunity to see how well these technologies and products interface with Mason enterprise systems. Over 20 classroom sessions were held in the Sandbox during the spring 2017 semester.

The Technology Sandbox
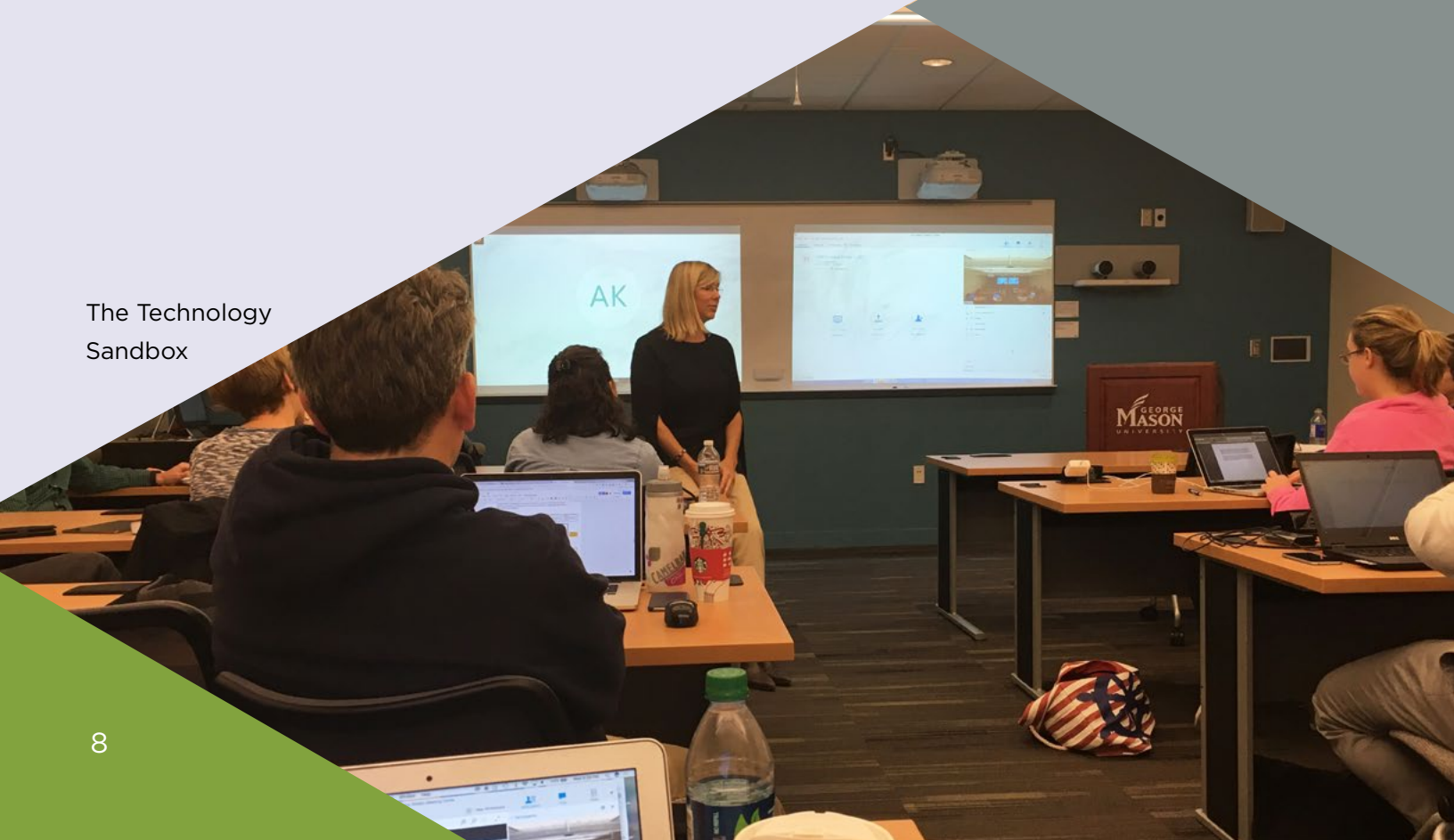
Storage Area Network (SAN) Upgrade

Mason's existing SAN, the storage system for critical workloads such as Banner, MESA directories, web services, virtual servers, email, and anti-spam services, was approaching the end of its useful life and limits for speed and storage capacity. Replacing the old SAN with something new and higher functioning to accommodate Mason's data demand and employment growth became a top ITS priority. ITS selected the replacement option, Dell Compellent, due to its expanded capabilities and double bandwidth for a more efficient user experience. This modernized SAN allows data to be pulled much faster, cuts down time for users to do their processes, and has more capacity. All of the information stored on the old SAN was moved to the new one with a focused effort on not causing any disruptions to the data and those who access it. The switch was carried out entirely behind the scenes and users did not see any actual change in how they conducted their everyday business and they did not experience any downtime.

Student Experience Redesign

The goal of the Student Experience Redesign (SER) is to modernize the student experience in order to better enable student success. Success will be defined as generating a long-lasting sense of belonging and pride among Mason students as well as improving core enrollment metrics such as retention and four/six-year graduation rates. This program is led by a cross-functional executive team including David Burge, Vice President for Enrollment Management, Michelle Marks, Vice President for Academic Innovation and New Ventures, Rose Pascarell, Vice President for University Life, and Marilyn T. Smith, Vice President and Chief Information Officer. In October 2016, consultants from Blackboard Student Services presented a formal report on recommended improvements in the Mason student experience. The Student Experience Symposium was held during February, 2017, where 240 faculty, staff, and students spent the day mapping out specific ways to operationalize the recommendations contained within the report. After this event, six workstream teams were formed and asked to identify specific action plans, determine quick wins, and recommend long-term strategies to improve the student experience. Those six teams were organized around the following topics:

- Self-Service, 24/7 Student Support
- Student Initiation Experiences
- Data-Driven Relationship Management
- First-Year Student Care Network
- Student Voice
- Culture of Service

ITS staff participated in the study, the event, and the teams.

> View video

PROJECTS THAT IMPROVE THE WAY MASON DOES BUSINESS

- Developed the 2017–2020 IT Strategic Plan, which provides a framework and goals for serving the Mason community

- Established the IT Project Portfolio Management framework and related processes in support of the IT Governance efforts

- Improved automation and service implementation through a new IT Service Management tool

- Refreshed audiovisual equipment in conference rooms in Merten Hall and Exploratory Hall and added two spaces in Mason Hall

- Improved the self-registered and sponsored guest network access processes

- Upgraded to MicroStrategy for reporting services, migrated all existing reports from Discoverer, and retired Discoverer

- Completed the migration of university databases to Oracle 12c

- Launched OneDrive for Business as a cloud storage and file sharing solution

- Advanced Business Intelligence efforts through the development of strategic reports for INTO Mason and the Division of Enrollment Management and selected the solution for predictive and prescriptive analytics

ITS Strategic Plan

Building off the first efforts in the strategic planning process in FY16, which resulted in the development of the new ITS Mission, Vision, Principles, and Values, focus shifted to the next step—an intensive data-gathering phase in which more than 100 stakeholders from across the university participated in a series of interviews. The data collected in this phase helped inform the development of the ITS 2017–2020 Strategic Plan which offers a framework for technology planning at Mason. This plan is designed to align with the Mason IDEA and strategic goals of the university, and articulates the role of technology within higher education and the Mason IT environment. The plan presents our strategic goals, how these goals will be achieved, and how these achievements will benefit the Mason community.

> View Strategic Plan
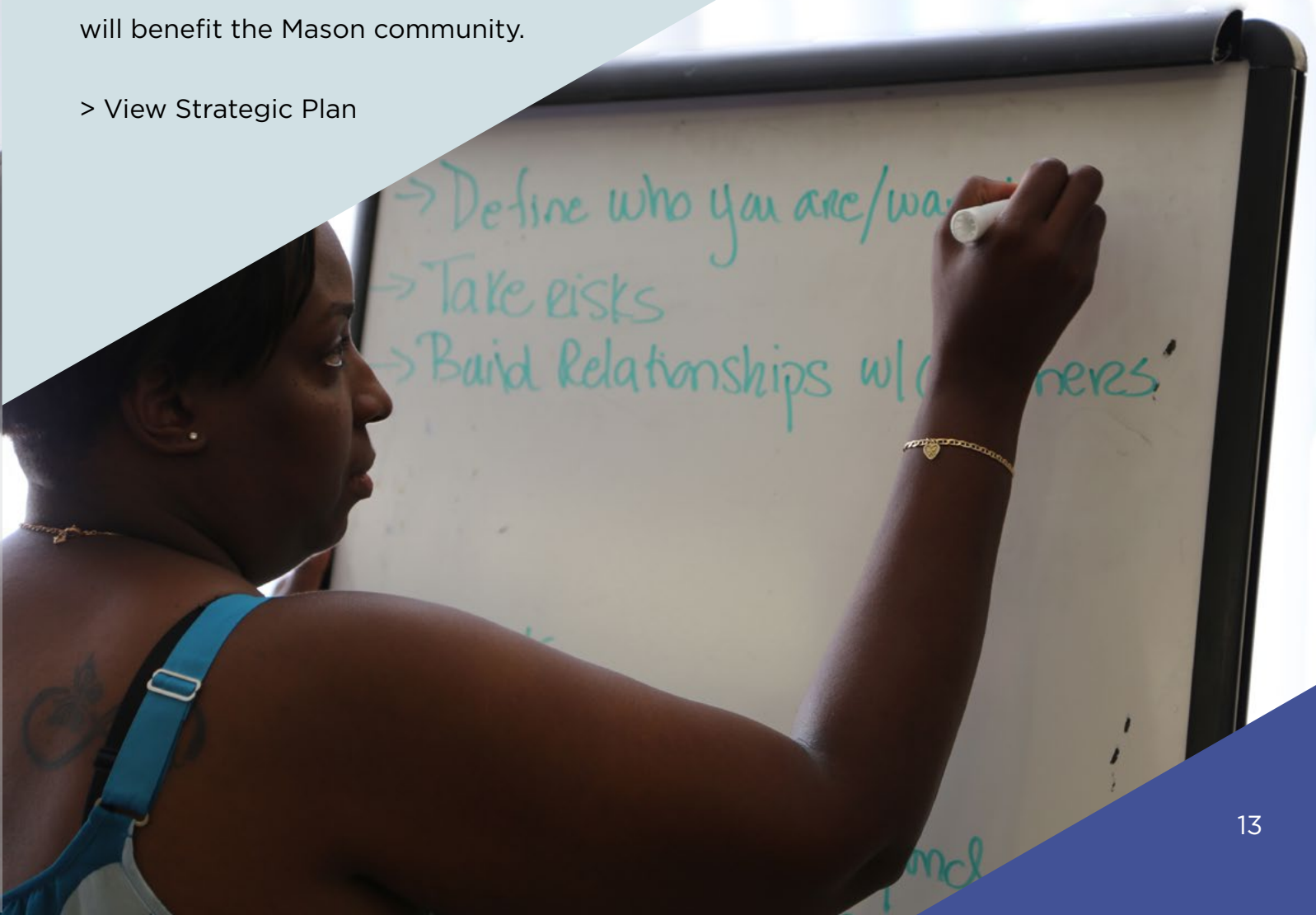
Business Intelligence for Enrollment Management

The Business Intelligence Group developed pre-enrollment summary dashboards to support the reporting needs of the Enrollment Management Office and supported users. These dashboards provide a new level of transparency for the admissions data associated with both the undergraduate and graduate enrollment processes. This data affords all Mason faculty and staff the opportunity to see a year-to-date application data comparison through accurate "point-in-time" trending analysis. Additionally, the Business Intelligence and Enrollment Management teams worked closely to integrate Admissions and Student data. This has allowed the Enrollment Management Office the ability to provide full lifecycle reporting from Applicant -> Student -> Graduate which provides greater insight to the kinds of "what if" analysis around student success.

> View Enrollment Management Video

Prospective students touring Mason

Photo by Alexis Glenn/Creative Services/George Mason University

Business Intelligence for the New Budget Model

Dashboards and reports were developed to support the new incentive-based budget model. This new model allows academic units to be responsible for managing their own budget, specifically down to the student enrollment level. The reports developed for the new model allow colleges to track both revenue and expenses in order to project both a budget for the upcoming year as well as manage their current year resources. The enrollment reports allow the academic units to drill into specific courses to better understand the tuition revenue generated by students who are in particular college, departments or programs. Additionally, the BI Group has developed snapshot reporting for the enrollment statistics, this has allowed units to view historical data over time for trending analysis.

> View New Budget Model Video

IT Service Management Tool

One of ITS's 2017 goals was to improve effectiveness and efficiencies of ITS by implementing the new IT Service Management (ITSM) tool to automate workflow and improve our service delivery metrics. In the first of four project phases to acquire and implement an ITSM tool, the Phase I project's goal was to replace Service Desk Express, the main ticketing application used by ITS, and implement the following Service Operation process capabilities: Incident Management, Request Fulfillment (to include a Self-Service portal), initial Knowledge Management and initial Service Catalog documentation. The primary goal was to make it easier for the Mason community to find and access the services they need. To help facilitate this, we strive to make ITS' internal processes run more smoothly and efficiently with the help of this tool. The application was formally launched in May along with the Service Portal at its.gmu.edu/services.

ITS on-site at the Student Wireless Assistance Team (SWAT) table

OneDrive for Business

After Mason employees conveyed the need for additional file storage and file sharing capability, ITS conducted research to determine the best solution to meet this need. OneDrive for Business was identified as the best solution for George Mason University and ITS selected this additional file storage and sharing option to complement local file storage and the MESA file system. ITS released OneDrive for Business (OneDrive) which provided 1TB of cloud storage at no cost to active George Mason University employees in October and students in November. As of June 30, more than 790,000 files were stored using 2.6 TB of data.

PROJECTS THAT IMPROVE INFORMATION SECURITY

- Implemented Two-Factor Authentication for Virtual Private Network (VPN) access for both domestic and international employees

- Assisted Fiscal Services to complete the first Payment Card Industry (PCI) compliance effort and established roles and procedures for this annual process

- Upgraded Mason's antivirus and intrusion prevention software and refreshed its management servers

- Implemented the new Account Management System (AMS) to better serve business needs of the university

- Assessed and documented the firewall security requirements

- Launched Security Enhancements for Banner database access

- Strengthened WordPress server security and plugin management

PROJECT SPOTLIGHT

ITS Security Roadmap

ITS' Chief Information Security Officer and security team completed the IT Security Roadmap to document the current IT environment and chart a course to a more secure IT enterprise. The roadmap was shared across the university including Mason Security Liaisons, the ITS Leadership Working Group, Mason Internal Audit, and the Board of Visitors. Key areas of the roadmap include improving network boundary defenses, tightening account control, expanding training, and upgrading user workstations. ITS made great progress on the roadmap including:

- Two Factor Authentication users increased by 50% since launch (now more than 3,000)

- Advanced features were enabled on Mason firewalls to identify more threats

- More than 80 system administrators and individuals with elevated privileges were trained on their cybersecurity responsibilities

The Roadmap provides a pathway to ensuring Mason faculty, staff, and students fulfill their goals in a safe and secure cyber environment.

Payment Card Industry Compliance

Mason's Payment Card Industry (PCI) compliance team worked to achieve university-wide PCI compliance for the first time in Mason history. They ensured the security of credit card information systems, which generate an important source of revenue for Mason and our merchants. The PCI team was a partnership between Fiscal Services, Auxiliary Services, and ITS. The PCI team partnered with Fiscal Services to achieve a difficult task of consolidating security reviews of different Mason departments and vendors into one comprehensive compliance document.

The PCI Compliance Team with President Cabrera and Senior Vice President J.J. Davis

Two-Factor Authentication

ITS determined that Mason's core resources and applications needed a greater level of security when accessing them from non-Mason LAN locations (e.g., off-campus or wireless). To address this concern, ITS implemented Duo Security's two-factor authentication (2FA) for all employees using Mason's Cisco AnyConnect Virtual Private Network (VPN). Duo's 2FA provides a second layer of protection to a user's identity, as well adding protection to data, systems, and services. The size and scope of this project meant high visibility and large impact across the university, so a project team representing groups across ITS worked together to develop the requirements, processes, tools, training, and communication needed to implement 2FA as an efficient, easy-to-use solution to protect the university and its information. As of October, 2FA was fully rolled out and required for all employees using the VPN.

ITS Projects

153
Projects

ITS SPONSORED (82)

NON-ITS SPONSORED (71)

PROVOST PROJECTS
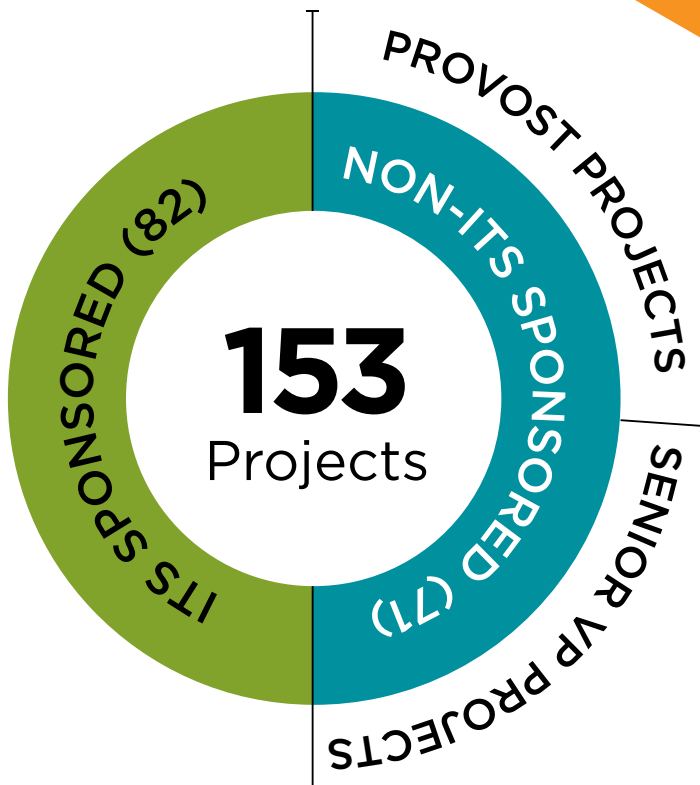
SENIOR VP PROJECTS

MANDATES/
MAINTENANCE
ITS SENIOR STAFF REVIEW

STRATEGIC/
CAPITAL
ITGG REVIEW

88% APPROVED

**76 NEW PROJECTS
SUBMITTED THROUGH
GOVERNANCE**

Lab Usage

66,841
Computer Lab
Logins

4,692
Virtual Computing
Lab (VCL) Users

14,431
STAR Lab Users

56,378
VCL Reservations

CLUB

6,412
Collaborative
Learning Hub Users

21

ITS Support

16,544
Collaborate Web Sessions

38,204
Support Center Calls Answered

66
ASRB Requests Finished

Bb **13,015**
Blackboard Courses (average monthly)

1,662
Videoconference & Telepresence Events

3,562
Videoconference & Telepresence Hours

308
Spaces Supported

93%
Technology Enhanced Spaces

5,501
Students in Video Enhanced Courses

64
Video Enhanced Courses Supported

ITS Service

4,189
Wireless Access Points

13,771
Lynda.com Courses Viewed

9,977
Lynda.com Users (*average monthly)

58,284
Banner Users

INB

$3,325,200
PatriotTech Annual Sales

556
Servers
NON-VIRTUAL (215)
VIRTUAL (341)
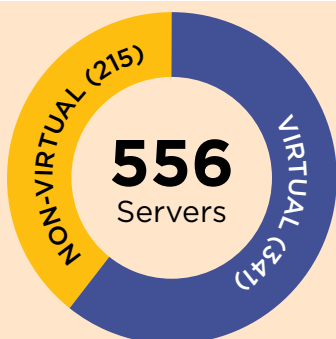
1,916
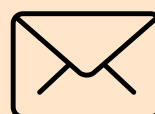MicroStrategy Users

431,930
BI Reports Delivered

46,656
Office 365 Accounts

1,030,000,000
Inbound Email Messages

myMASON

38,658
MyMason Users*

87% REJECTED
(Spam, Viruses, etc.)

Bb **33,602**
Bb Users*

17,970
Bb Mobile Users*

Themes

- Differentiate and improve student experience
- Strengthen research and innovation enterprise
- Make meaningful improvement in faculty and staff diversity and well-being
- Build campus for the future
- Pursue transformative partnerships for access
- Strengthen financial position

Goals

1. Improve awareness regarding Wi-Fi upgrades via a communications wrapper
2. Participate in the development of a Student Experience Roadmap (as a project sponsor)
3. Comply with the DoD deadline to implement NIST 800–171 with regards to Controlled Unclassified Information
4. Develop a product definition strategy
5. Design and implement a Direct Channel Engagement–relationship management model
6. Offer to ITS staff comprehensive information and access to leadership development and management training
7. Execute a Virtual Desktop Infrastructure (VDI) solution for FY 2018–19 to respond to computing/software solutions required in the classroom
8. Provide technical requirements and expertise to Facilities Capital Project; Improve Network Infrastructure, Phase 1
9. Complete Petersen Hall A/V installations
10. Support partnership with the NOVA ADVANCE program
11. Complete Admissions/Enrollment systems integration to support the Wiley partnership
12. Implement self-service for Business Intelligence reporting
13. Create a framework for data governance
14. Complete audit remediation tasks for ITS
15. Develop a Disaster Recovery plan for ITS
16. Implement prioritized Banner Study recommendations
17. Develop and implement a plan for the Banner upgrade to version 9
18. Develop a cloud strategy and implementation plan